

Scandinavian Airlines System

PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
CHAPTER 26 TAB			26-10-00			26-11-00		CONT.
FIRE PROTECTION			101	FEB 10/95	01	515	AUG 22/05	06
EFFECTIVE PAGES SEE LAST PAGE OF LIST FOR NUMBER OF PAGES			102	FEB 10/95	02	516	AUG 22/05	06
26-CONTENTS			26-10-00			26-11-01		
1	AUG 22/07	SAS	601	AUG 22/05	01	401	DEC 22/08	02
2	AUG 22/07	SAS	602	AUG 22/99	02	402	DEC 22/08	01
3	AUG 22/07	SAS	603	AUG 22/05	01	26-11-02		
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R 5	AUG 22/09	SAS.1	605	AUG 22/04	01	202	AUG 22/99	01
R 6	AUG 22/09	SAS.1	606	NOV 10/95	01	203	AUG 22/99	01
R 7	AUG 22/09	SAS.1	607	AUG 22/99	02	204	BLANK	
8	APR 22/08	SAS	608	NOV 10/95	01	26-11-02		
9	DEC 22/07	SAS	26-10-01			401	APR 22/05	01
10	AUG 22/07	SAS	401	DEC 22/08	01	402	MAY 10/95	01
11	AUG 22/07	SAS	402	NOV 10/96	01	403	AUG 22/08	02
12	APR 22/02	SAS	403	AUG 22/99	02	404	DEC 22/07	04
13	APR 22/02	SAS	404	DEC 22/08	02	405	DEC 22/00	02
14	AUG 22/07	SAS	405	DEC 22/08	02	406	APR 22/03	03
R 15	AUG 22/09	SAS.1	406	APR 22/07	02	407	APR 22/05	04
16	BLANK		407	AUG 22/00	01	408	APR 22/05	07
26-00-00			408	AUG 22/99	01	26-11-02		
901	APR 22/02	02	26-11-00			701	DEC 22/05	02
902	APR 22/02	02	1	AUG 10/89	02	702	DEC 22/05	02
903	APR 22/02	02	2	APR 22/03	01	26-13-00 CONFIG 1		
904	APR 22/05	02	3	APR 22/03	01	1	DEC 22/00	01C
905	APR 22/02	02	4	APR 22/03	05	2	MAY 10/90	01C
906	AUG 22/08	03	5	APR 22/03	03	3	AUG 22/99	01C
907	APR 22/02	02	6	APR 22/03	03	4	DEC 22/00	01C
908	APR 22/02	02	7	APR 22/03	03	26-13-00 CONFIG 2		
909	APR 22/02	02	8	APR 22/03	04	1	MAY 10/94	03
910	APR 22/02	02	9	APR 22/03	06	2	FEB 10/95	03
911	APR 22/02	02	10	APR 22/03	03	3	FEB 10/95	02
912	APR 22/02	02	26-11-00			4	FEB 10/95	03
913	APR 22/02	02	101	AUG 10/93	04	26-13-00 CONFIG 1		
914	APR 22/02	02	102	FEB 10/95	01	101	FEB 10/91	01
915	APR 22/02	02	103	MAY 10/94	01	102	FEB 10/93	01
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918	APR 22/02	02	106	BLANK		26-13-00 CONFIG 2		
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921	APR 22/02	01	502	DEC 22/00	01	26-13-00 CONFIG 1		
922	APR 22/02	01	503	APR 22/04	01	501	FEB 10/93	01C
923	APR 22/02	01	504	MAY 10/90	01	502	AUG 10/98	01C
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			510	AUG 22/05	06	501	FEB 10/93	01C
			511	AUG 22/05	06	502	AUG 10/98	01C
			512	AUG 22/05	06	503	DEC 10/98	01C
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			514	AUG 22/05	07			

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**BOEING**  
767  
MAINTENANCE MANUAL

Scandinavian Airlines System

PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
26-13-00	CONFIG 2		26-15-00			26-16-00		CONT.
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503	AUG 10/98	01C	3	APR 22/03	01	7	DEC 22/99	11
504	BLANK		4	APR 22/03	05	8	DEC 22/99	01
26-13-01			5	DEC 22/01	04	9	APR 22/06	01
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202	NOV 10/90	01C	7	MAY 10/94	02			
203	NOV 10/90	01C	8	APR 22/01	05	26-16-00		
204	DEC 22/00	01C				101	AUG 10/88	02
205	FEB 10/90	01C	26-15-00			102	NOV 10/97	03
206	NOV 10/92	01C	101	FEB 10/95	01	103	MAY 10/91	02
207	DEC 10/98	01C	102	AUG 22/01	02	104	BLANK	
208	DEC 22/00	01C	103	NOV 10/97	02			
209	NOV 10/95	01C	104	NOV 10/97	02	26-16-00		
210	BLANK					501	AUG 22/99	02
26-13-01			26-15-00			502	NOV 10/97	05
401	NOV 10/90	10	501	AUG 10/95	01	503	NOV 10/97	03
402	NOV 10/95	11	502	APR 22/01	03	504	APR 22/08	01
403	DEC 22/00	13	503	DEC 22/99	05	505	APR 22/08	02
404	DEC 22/00	13	504	DEC 22/00	04	506	APR 22/08	02
26-13-01			505	DEC 22/00	08	507	APR 22/08	04
701	MAY 10/93	11	506	DEC 22/00	06	508	APR 22/08	03
702	DEC 22/00	13	507	APR 22/99	11	509	APR 22/08	03
703	DEC 22/00	13	508	APR 22/99	05	510	APR 22/08	04
704	BLANK		509	APR 22/99	03	511	APR 22/08	02
26-14-20			510	AUG 22/05	03	512	APR 22/08	02
1	DEC 22/00	01	511	AUG 22/01	07	513	APR 22/08	02
2	NOV 10/94	01	512	APR 22/08	05	514	APR 22/08	02
3	NOV 10/94	01	513	DEC 22/99	05	515	APR 22/08	01
4	DEC 22/00	01	514	BLANK		516	APR 22/08	01
26-14-20			26-15-01			517	APR 22/08	12
101	NOV 10/94	01	401	DEC 22/05	03	518	APR 22/08	14
102	NOV 10/94	01	402	NOV 10/97	03	519	APR 22/08	12
103	NOV 10/94	01	403	DEC 22/08	03	520	APR 22/08	08
104	BLANK		404	NOV 10/97	04	521	APR 22/08	04
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501	NOV 10/94	01	406	DEC 22/08	02	26-16-00		
502	NOV 10/94	01	407	DEC 10/98	04	701	DEC 22/05	02
503	NOV 10/94	01	408	DEC 10/98	04	702	APR 10/98	05
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202	NOV 10/94	01	412	AUG 22/08	01	706	DEC 22/99	01
203	NOV 10/94	01	26-15-02			707	DEC 22/08	01
204	NOV 10/94	01	401	MAY 10/90	03	708	BLANK	
205	NOV 10/94	01	402	MAY 10/90	03	26-16-01		
206	NOV 10/94	01	403	DEC 22/00	02	201	APR 22/99	01
207	NOV 10/94	01	404	DEC 22/00	02	202	MAY 10/94	13
208	APR 22/99	01	405	DEC 22/99	01	203	FEB 10/96	01
209	APR 22/99	01	406	BLANK		204	FEB 10/96	01
210	NOV 10/95	01	26-16-00			205	MAY 10/96	03
			1	AUG 10/96	01	206	AUG 22/01	04
			2	AUG 10/94	05	207	DEC 22/05	03
			3	NOV 10/97	03	208	BLANK	
			4	AUG 22/01	01			

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PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
26-16-02			26-18-00			26-21-00		CONT.
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402	NOV 10/93	02	102	FEB 01/87	12	510	MAY 10/96	05
403	AUG 22/99	04	103	FEB 10/88	11	511	DEC 10/98	05
404	DEC 22/06	11	104	BLANK		512	MAY 10/96	03
26-16-03			26-18-00			513	DEC 22/08	03
401	DEC 22/01	01	501	FEB 10/96	09	514	AUG 22/08	02
402	MAY 10/91	02	502	DEC 22/03	26	515	AUG 22/05	01
403	DEC 22/01	01	503	DEC 22/99	04	516	DEC 22/03	01
404	DEC 22/06	01	504	BLANK		517	DEC 10/98	01
26-16-05			26-18-01			518	DEC 22/08	12
201	DEC 22/01	01	401	DEC 22/99	01	519	DEC 22/08	01
202	NOV 10/93	02	402	AUG 10/90	01	520	MAY 10/96	01
203	DEC 22/07	02	403	AUG 10/90	06	521	NOV 10/97	06
204	APR 22/08	03	404	AUG 10/90	02	522	BLANK	
205	DEC 22/07	01	405	AUG 10/90	01	26-21-01		
206	DEC 22/07	01	406	AUG 10/90	01	601	DEC 22/08	01
207	DEC 22/07	02	407	AUG 10/90	01	602	MAY 10/95	02
208	DEC 22/07	02	408	AUG 10/90	01	603	MAY 10/91	01
26-17-00			409	AUG 10/90	01	604	DEC 22/08	01
1	AUG 10/96	02	410	DEC 22/99	01	605	DEC 22/08	03
2	NOV 10/93	01	411	DEC 22/99	01	606	MAY 10/96	01
3	AUG 22/99	04	412	DEC 10/98	01	607	APR 22/00	01
4	FEB 01/86	01	413	DEC 22/05	01	608	APR 22/06	01
5	AUG 22/99	01	414	APR 22/09	01	609	APR 22/06	02
6	BLANK		415	DEC 22/05	01	610	APR 22/06	02
26-17-00			416	DEC 22/05	01	611	DEC 22/08	03
101	FEB 10/95	01	417	AUG 22/00	01	612	AUG 22/08	03
102	FEB 10/95	01	418	AUG 22/00	01	613	AUG 22/05	01
103	FEB 10/95	01	26-20-00			614	DEC 22/02	01
104	BLANK		1	APR 22/00	17	615	APR 22/99	02
26-17-00			2	BLANK		616	DEC 22/99	02
501	AUG 22/99	01	26-21-00			617	APR 22/03	01
502	BLANK		1	MAY 10/96	01	618	APR 22/03	01
26-17-01			2	MAY 10/95	02	619	APR 22/03	01
401	DEC 22/05	02	3	FEB 10/93	04	620	APR 22/03	01
402	MAY 10/90	01	4	APR 22/00	01	621	AUG 22/07	05
403	AUG 22/06	02	5	DEC 22/01	01	622	APR 22/03	17
404	AUG 22/06	01	6	DEC 22/01	01	R 623	AUG 22/09	02.1
405	AUG 22/99	01	26-21-00			R 624	AUG 22/09	02.101
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3	MAY 01/85	07	26-21-00			202	MAY 10/95	01
4	APR 22/00	13	501	AUG 22/02	01	203	AUG 22/01	01
5	DEC 22/01	14	502	MAY 10/95	02	204	AUG 22/01	01
6	DEC 22/01	12	503	AUG 22/02	01	205	AUG 22/01	01
7	APR 22/01	10	504	DEC 22/08	01	206	DEC 22/00	01
8	BLANK		505	DEC 22/08	01	207	AUG 22/99	01
			506	DEC 22/05	01	208	AUG 22/01	03
			507	DEC 10/98	15	209	AUG 22/01	03
			508	MAY 10/96	05	210	AUG 22/01	03
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PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
26-21-03			26-22-00	CONFIG 1		26-22-01	CONFIG 2	CONT.
401	DEC 22/08	01	501	AUG 22/99	01	613	AUG 22/06	02
402	DEC 22/08	01	502	APR 22/06	02	614	AUG 22/06	02
403	AUG 10/96	03	503	AUG 22/99	01	615	DEC 22/99	02
404	MAY 10/95	01	504	APR 22/03	01	616	AUG 22/06	02
405	APR 22/09	03	505	DEC 22/08	01	617	DEC 22/08	02
406	APR 22/09	02	506	AUG 22/06	01	618	AUG 22/06	01
407	APR 22/09	02	507	AUG 22/06	01			
408	APR 22/09	02	508	AUG 22/06	01	26-22-02	CONFIG 1	
409	DEC 22/08	02	509	AUG 22/06	01	R 401	AUG 22/09	01.1
410	AUG 22/08	06	510	DEC 22/08	02	402	AUG 22/99	02
411	DEC 22/08	05	511	AUG 22/06	02	403	APR 22/08	01
412	AUG 22/06	02	512	BLANK		404	DEC 22/08	01
413	DEC 22/07	06				405	APR 22/08	01
414	AUG 22/08	02	26-22-00	CONFIG 2		406	DEC 22/08	01
415	DEC 22/08	03	501	AUG 22/99	01	407	APR 22/08	01
416	APR 22/08	03	502	APR 22/06	01	408	DEC 22/08	01
417	AUG 22/05	03	503	AUG 22/99	01	409	DEC 22/05	01
418	AUG 22/02	07	504	AUG 22/99	01	410	DEC 22/08	02
419	APR 22/08	05	505	AUG 22/99	01	411	DEC 22/01	02
420	BLANK		506	DEC 22/08	01	412	DEC 22/01	02
			507	DEC 22/05	01	413	AUG 22/99	01
26-21-04			508	DEC 22/01	01	414	BLANK	
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			511	DEC 22/08	01	401	DEC 22/08	01
26-21-04			512	DEC 22/05	01	402	AUG 22/99	02
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603	APR 22/99	03				405	DEC 22/08	01
604	BLANK		26-22-01	CONFIG 1		406	DEC 22/08	01
			601	DEC 22/08	01	407	APR 22/08	01
26-22-00	CONFIG 1		602	AUG 22/99	03	408	DEC 22/08	01
1	AUG 22/99	02	603	DEC 22/08	01	409	DEC 22/08	01
2	AUG 22/99	01	604	AUG 22/06	02	410	AUG 22/06	01
3	APR 22/06	02	605	AUG 22/06	02	411	DEC 22/01	01
4	AUG 22/99	02	606	AUG 22/06	02	412	DEC 22/00	01
5	AUG 22/99	02	607	AUG 22/06	02			
6	AUG 22/99	02	608	AUG 22/06	01	26-22-03	CONFIG 1	
			609	AUG 22/06	01	201	AUG 22/99	01
26-22-00	CONFIG 2		610	AUG 22/06	01	202	AUG 22/99	02
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2	AUG 22/99	02	612	AUG 22/06	01	204	AUG 22/99	01
3	AUG 22/99	02	613	DEC 22/08	01	205	AUG 22/99	01
4	AUG 22/99	01	614	BLANK		206	AUG 22/99	01
5	AUG 22/99	02				207	AUG 22/99	01
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			601	DEC 22/08	01	209	AUG 22/99	01
26-22-00	CONFIG 1		602	AUG 22/99	03	210	AUG 22/99	01
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104	BLANK		606	AUG 22/06	03	26-22-03	CONFIG 2	
			607	AUG 22/06	03	201	AUG 22/00	02
26-22-00	CONFIG 2		608	AUG 22/06	03	202	AUG 22/99	03
101	AUG 22/99	02	609	AUG 22/06	03	203	AUG 22/99	02
102	AUG 22/99	03	610	DEC 22/01	03	204	AUG 22/00	02
103	AUG 22/99	02	611	AUG 22/06	02	205	AUG 22/06	02
104	BLANK		612	AUG 22/06	02	206	AUG 22/99	02

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PAGE	DATE	CODE	PAGE	DATE	CODE	PAGE	DATE	CODE
26-22-03	CONFIG 2	CONT.	26-23-00		CONT.	26-23-02		CONT.
207	AUG 22/00	02	527	AUG 22/07	16	409	AUG 22/08	23
208	AUG 22/99	02	528	AUG 22/08	12	410	DEC 22/08	22
209	AUG 22/00	02	R 529	AUG 22/09	06.1	411	DEC 22/05	12
210	AUG 22/00	02	530	AUG 22/07	17	412	DEC 22/05	14
211	APR 22/01	02	531	AUG 22/07	09	413	DEC 22/03	22
212	APR 22/01	02	532	AUG 22/07	14	414	DEC 22/08	20
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26-23-00			534	DEC 22/08	09	416	DEC 22/08	22
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2	FEB 10/96	08	536	AUG 22/07	05	418	DEC 22/07	09
3	AUG 10/93	32				419	DEC 22/07	08
4	FEB 10/90	19	26-23-01			420	AUG 22/05	06
5	DEC 22/01	16	601	DEC 22/08	01	421	AUG 22/05	02
6	DEC 22/01	22	602	MAY 10/95	07	422	BLANK	
7	DEC 22/01	22	603	MAY 10/95	27			
8	DEC 22/01	25	604	MAY 10/95	01	26-23-02		
9	MAY 10/97	24	605	DEC 22/05	11	601	DEC 22/08	02
10	DEC 22/08	18	606	DEC 22/01	03	602	BLANK	
11	APR 22/00	16	607	APR 22/01	02			
12	APR 22/00	14	608	AUG 22/04	04	26-23-03		
13	DEC 22/01	10	609	AUG 22/04	03	401	AUG 22/99	07
14	BLANK		610	APR 22/05	03	402	MAY 10/91	01
26-23-00			611	APR 22/05	07	403	AUG 22/99	07
101	FEB 10/95	04X	612	DEC 22/01	04	404	AUG 22/99	07
102	FEB 10/95	02X	R 613	AUG 22/09	04.1			
103	FEB 10/96	04X	R 614	AUG 22/09	04.101	26-23-03		
104	FEB 10/95	24X	R 615	AUG 22/09	04.1	601	DEC 22/08	16
105	AUG 10/95	01X	R 616	AUG 22/09	04.101	602	AUG 10/95	18
106	BLANK		R 617	AUG 22/09	16.101	603	NOV 10/89	21
			618	DEC 22/01	14	604	DEC 22/08	13
26-23-00			R 619	AUG 22/09	19.1	605	DEC 22/08	18
501	AUG 22/01	04	R 620	AUG 22/09	19.101	606	AUG 22/07	17
502	MAY 10/95	07	R 621	AUG 22/09	13.1	607	AUG 22/07	18
503	MAY 10/95	27	R 622	AUG 22/09	10.101	608	AUG 22/07	20
504	MAY 10/95	01	623	AUG 22/08	19	609	AUG 22/07	18
505	AUG 22/01	10	624	AUG 22/05	16	610	AUG 22/07	19
506	DEC 22/07	14	625	APR 22/01	19	611	AUG 22/07	15
507	DEC 22/07	16	626	APR 22/01	22	612	AUG 22/07	12
508	DEC 22/08	12	627	DEC 22/01	24	613	AUG 22/07	07
509	DEC 22/07	22	628	APR 22/05	32	614	AUG 22/07	04
510	DEC 22/07	20	R 629	AUG 22/09	21.1			
511	APR 22/04	10	R 630	AUG 22/09	22.1	26-23-04		
512	DEC 22/06	14	R 631	AUG 22/09	23.101	401	APR 22/01	07
513	DEC 22/02	02	R 632	DEC 22/08	27.101	402	MAY 10/91	01
514	DEC 22/08	02	R 633	AUG 22/09	29.101	403	AUG 22/99	07
515	AUG 22/08	24	R 634	AUG 22/09	28.101	404	BLANK	
516	DEC 22/05	02	R 635	AUG 22/09	10.101			
517	DEC 22/05	02	R 636	AUG 22/09	10.101	26-23-05		
518	AUG 22/07	02				401	AUG 22/01	01
519	AUG 22/07	14	26-23-02			402	APR 22/01	01
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FIRE PROTECTION – DDG MAINTENANCE PROCEDURES

1. General

- A. This procedure contains the required maintenance tasks which are necessary to prepare the airplane for flight (dispatch) when certain fire protection systems/components 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 fire protection systems:
  - (1) DDG 26-14-1 Preparation – CARGO DET AIR Indicating System
  - (2) DDG 26-14-1 Restoration – CARGO DET AIR Indicating System
  - (3) DDG 26-15-1 Preparation – APU Fire Detection System Inoperative
  - (4) DDG 26-15-1 Restoration – APU Fire Detection System Inoperative
  - (5) DDG 26-16-1 Preparation – Lower Cargo Compartment Fire Detection Systems (Forward and AFT) Inoperative
  - (6) DDG 26-16-1 Restoration – Lower Cargo Compartment Fire Detection Systems (Forward and AFT) Inoperative
  - (7) DDG 26-17-1 Preparation – Wheel Well Fire Detection System Inoperative
  - (8) DDG 26-17-1 Restoration – Wheel Well Fire Detection System Inoperative
  - (9) DDG 26-18-1 Preparation – Duct Leak Detection System Flight Deck Test Function Inoperative
  - (10) DDG 26-18-1 Restoration – Duct Leak Detection System Flight Deck Test Function Inoperative
  - (11) DDG 26-20-1 Preparation – Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Inoperative
  - (12) DDG 26-20-1 Restoration – Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Inoperative
  - (13) DDG 26-20-2 Preparation – Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Inoperative
  - (14) DDG 26-20-2 Restoration – Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Inoperative
  - (15) DDG 26-26-2 Preparation – Lavatory Fire Extinguishing System Inoperative

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- (16) DDG 26-26-2 Restoration - Lavatory Fire Extinguishing System Inoperative
- (17) DDG 26-26-3 Preparation - Lavatory Smoke Detection System Inoperative
- (18) DDG 26-26-3 Restoration - Lavatory Smoke Detection System Inoperative

TASK 26-00-00-709-076

2. DDG 26-14-1 Preparation - CARGO DET AIR Indicating System

A. General

- (1) This procedure is applicable when CARGO DET AIR indication on EICAS is displayed and an alternate procedure is necessary to verify the smoke sampling system.

B. Standard Tools and Equipment

- (1) Hot Wire Anemometer (Air Velocity METER - Model 1650, 8350, or 8352  
TSI Incorporated  
500 Cardigan Road  
Shoreview, Minnesota 55216  
Mailing Address: P.O. Box 64394  
St. Paul, Minnesota 55164  
Telephone Number: (800) 876-9874  
Fax Number: (612) 490-2874

C. References

- (1) AMM 24-22-00/201, Electrical Power-Control
- (2) AMM 26-16-00/501, Lower Cargo Compartment Smoke Detection
- (3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 33-16-00/501, Master Dim and Test
- (6) AMM 36-00-00/201, Pneumatic System
- (7) WDM 26-16-11, 26-16-21

D. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 153/154 Aft Cargo Compartment
  - 211/212 Flight Compartment
  - 810 Lower Half of Fuselage (Left)
  - 820 Lower Half of Fuselage (Right)

E. Procedure

- S 419-056
  - (1) Put a placard on the airplane flight log as appropriate.
- S 869-057
  - (2) Put a person in the flight deck.
- S 869-058
  - (3) Make sure these circuit breakers on the over head panel, P11, are closed:
    - (a) 11B26, FIRE DETECTION CARGO 1

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- (b) 11B27, FIRE DETECTION CARGO 2
- (c) 11U35, FIRE DET CARGO DC
- (d) 11U36, FIRE DET CARGO FAN AC

S 869-059

- (4) Make sure these circuit breakers on the forward cargo compartment handling access panel, P35, are closed:
  - (a) 35A1, BLOWER-SMOKE DETECTOR FWD 1
  - (b) 35A2, BLOWER-SMOKE DETECTOR FWD 2
  - (c) 35A3, BLOWER-SMOKE DETECTOR AFT 1
  - (d) 35A4, BLOWER-SMOKE DETECTOR AFT 2

S 869-060

- (5) Provide pneumatic pressure in the center crossover duct (AMM 36-00-00/201).

S 869-061

- (6) Push the ECS MSG switch on the EICAS MAINT panel on the right side panel, P61.

S 869-062

- (7) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel, M10445, on the aft pilots control stand, P8.

S 869-063

- (8) Push the ECS MSG switch as necessary to move forward the EICAS pages until all messages show.

S 759-064

- (9) Make sure these EICAS maintenance messages show on the bottom display:
  - (a) FWD CARGO DET 1
  - (b) FWD CARGO DET 2
  - (c) AFT CARGO DET 1
  - (d) AFT CARGO DET 2

S 759-065

- (10) After 2-4 seconds, make sure these indications occur:
  - (a) The red FWD and AFT CARGO FIRE switchlights, on the APU/CARGO fire control panel (on P8), come on.
  - (b) The red FIRE light, on the captains instrument panel, P1-3, comes on.
  - (c) The EICAS warning messages, FWD CARGO FIRE and AFT CARGO FIRE, show on the top display.
  - (d) The red master warning lights, on the glareshield panel, P7, come on.
  - (e) The fire bell is heard.

S 869-066

- (11) Release the ENG/APU/CARGO switch.

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S 759-067

- (12) Make sure the indications stop.

S 759-068

- (13) Make sure these EICAS maintenance messages do not show on the bottom display:
- (a) FWD CARGO DET 1 and FWD CARGO DET 2
  - (b) AFT CARGO DET 1 and AFT CARGO DET 2

S 759-069

- (14) Make sure the EICAS caution message, FIRE/OVHT SYS, does not show on the top display.

S 759-070

- (15) Make sure the yellow FAIL P-RESET switch-light goes off.

S 489-071

- (16) Use a hot wire anemometer and adapter to measure the air velocity at the most forward and most aft smoke sampling ports in the affected cargo compartment zone (AMM 26-16-00/501).

S 979-072

- (17) Make sure the recorded air velocity reading is above 24.384 meters (80 feet) per minute at each orifice.

S 759-073

- (18) Make sure the EICAS status message, CARGO DET AIR does not show.

S 869-074

- (19) If the air flow is more than 24.384 meters (80 feet) per minute and the EICAS status message CARGO DET AIR appears, get correction in the 26-EICAS MESSAGE.

TASK 26-00-00-269-087

3. DDG 26-14-1 Restoration - CARGO DET AIR Indicating System

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the CARGO DET AIR Indicating System.

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B. CARGO DET AIR Indicating System Activation

S 819-088

- (1) Correct the fault.
  - (a) Find the fault code or description of the fault that occurred.
  - (b) Go to the applicable index or list in the FIM and find the FIM task number.
  - (c) Go to the task in the FIM and do the steps in the task.

TASK 26-00-00-709-034

4. DDG 26-15-1 Preparation - APU Fire Detection System Inoperative

A. General

- (1) This procedure is applicable when both loops of the APU fire detection system does not operate.

B. References

- (1) AMM 26-15-00/501, APU Fire Detection System
- (2) WDM 26-15-11, 26-15-12

C. Access

- (1) Location Zones  
211/212 Flight Compartment
- (2) Access Panel  
315/316 APU Compartment

D. Procedure

S 419-016

- (1) Put a 'ONE DETECTOR LOOP INOP' or 'APU FIRE DETECTOR INOP' placard on the APU fire warning light and the fire detector test switch as applicable.

S 719-002

- (2) For APU ground operation, do these steps to make sure that the APU external control system operates correctly:
  - (a) Move the fire guard near the tail of the airplane to monitor the APU.
  - (b) Start the APU.
  - (c) Push the BAT switch to the ON position.
  - (d) On the APU shutdown panel, P40, on the nose landing gear, push the APU SHUTDOWN switch and make sure that the APU stops.
  - (e) Push the BAT switch to the OFF position.

TASK 26-00-00-269-089

5. DDG 26-15-1 Restoration - APU Fire Detection System Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the APU Fire Detection System Inoperative.

EFFECTIVITY

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B. APU Fire Detection System Activation

S 819-090

- (1) Correct the fault.
  - (a) Find the fault code or description of the fault that occurred.
  - (b) Go to the applicable index or list in the FIM and find the FIM task number.
  - (c) Go to the task in the FIM and do the steps in the task.

S 039-091

- (2) Remove the INOP placards from the APU fire warning light and the fire detector test switch.

TASK 26-00-00-709-040

6. DDG 26-16-1 Preparation - Lower Cargo Compartment Fire Detection Systems (Fwd and Aft) Inoperative

A. General

- (1) This procedure is applicable when one detector in each lower cargo compartment (forward and aft) does not operate.

B. References

- (1) 24-22-00/201, Electrical Power - Control
- (2) 26-10-01/401, Fire Detection Card File - Printed Circuit Card
- (3) 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (4) 31-51-00/501, Warning System
- (5) 33-16-00/501, Master Dim and Test

C. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

D. Procedure

S 869-041

- (1) Supply electrical power (AMM 24-22-00/201).

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S 759-042

- (2) Make sure these systems operate:
- (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 759-043

- (3) Make sure these circuit breakers on the overhead panel, P11, are closed:
- (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11U35, FIRE DET CARGO DC
  - (d) 11U36, FIRE DET CARGO FAN AC

S 869-044

- (4) Push the ECS MSG switch on the EICAS MAINT panel on the right side panel, P61.

S 869-045

- (5) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel, M10445, on the aft pilots control stand, P8.

S 869-047

- (6) Push the ECS MSG switch as necessary to move forward the EICAS pages until all messages show.

S 759-048

- (7) Make sure these EICAS maintenance messages show on the bottom display:
- (a) FWD CARGO DET 1
  - (b) FWD CARGO DET 2
  - (c) AFT CARGO DET 1
  - (d) AFT CARGO DET 2

S 759-049

- (8) After 2-4 seconds, make sure these indications occur:
- (a) The red FWD and AFT CARGO FIRE switchlights, on the APU/CARGO fire control panel (on P8), come on.

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- (b) The red FIRE light, on the captains instrument panel, P1-3, comes on.
- (c) The EICAS warning messages, FWD CARGO FIRE and AFT CARGO FIRE, show on the top display.
- (d) The red master warning lights, on the glareshield panel, P7, come on.
- (e) The fire bell is heard.

S 869-050

- (9) Release the ENG/APU/CARGO switch.

S 759-051

- (10) Make sure the indications stop.

S 759-052

- (11) Check for these EICAS maintenance messages to stay on for those systems which are failed.
  - (a) FWD CARGO DET 1
  - (b) FWD CARGO DET 2
  - (c) AFT CARGO DET 1
  - (d) AFT CARGO DET 2

S 759-054

- (12) Make sure one detector in each compartment operates. Dispatch is not allowed if there is a dual-detector fault.

S 759-053

- (13) Make sure the FAIL P-RESET switchlight does not stay on and EICAS advisory message, FIRE/OVHT SYS does not show on the top display.

**NOTE:** The FAIL P-RESET switch light and EICAS advisory message, FIRE/OVHT SYS indicate a dual-detector fault. Dispatch is not allowed for dual-detector faults.

TASK 26-00-00-269-092

7. DDG 26-16-1 Restoration - Lower Cargo Compartment Fire Detection Systems (Fwd and Aft) Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Lower Cargo Compartment Fire Detection Systems (Fwd and Aft) Inoperative.

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B. Lower Cargo Compartment Fire Detection Systems (Fwd and Aft) Activation

S 819-093

- (1) Correct the fault.
  - (a) Find the fault code or description of the fault that occurred.
  - (b) Go to the applicable index or list in the FIM and find the FIM task number.
  - (c) Go to the task in the FIM and do the steps in the task.

TASK 26-00-00-709-035

8. DDG 26-17-1 Preparation - Wheel Well Fire Detection System Inoperative

A. General

- (1) This procedure is applicable when the wheel well fire detection system does not operate and an alternate procedure is necessary to test the system.

B. References

- (1) AMM 26-17-00/501, Wheel Well Fire Detection System
- (2) WDM 26-17-11

C. Procedure

S 419-017

- (1) Put an 'INOP' placard adjacent to the WHL WELL FIRE light.

S 219-004

- (2) Make sure the brakes are cool (when your hand can be held on the brake housings) immediately before you start the engine.

S 869-015

- (3) Tell the dispatch persons, it is possible the flight plan will be affected.

TASK 26-00-00-269-094

9. DDG 26-17-1 Restoration - Wheel Well Fire Detection System Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Wheel Well Fire Detection System Inoperative.

B. Wheel Well Fire Detection System Activation

S 819-095

- (1) Correct the fault.
  - (a) Find the fault code or description of the fault that occurred.
  - (b) Go to the applicable index or list in the FIM and find the FIM task number.
  - (c) Go to the task in the FIM and do the steps in the task.

S 039-096

- (2) Remove the INOP placard from the WHL WELL FIRE light.

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TASK 26-00-00-709-036

10. DDG 26-18-1 Preparation - Duct Leak Detection System Flight Deck Test Function Inoperative

A. General

- (1) This procedure is applicable when the flight deck test function of the duct leak overheat detection system does not operate and an alternate procedure is necessary to test the system.

B. References

- (1) AMM 26-18-00/501, Duct Leak Detection System
- (2) AMM 26-18-01/401, Duct Leak Detector
- (3) WDM 26-18-11, 16-18-12, 26-18-22, 26-18-31

C. Procedure

NOTE: The 767 airplanes have either a single loop or dual loop duct leak detection system. Both systems have a test function.

On the single loop system, MMEL relief exists for one of the following: right loop, left loop, or body loop. MMEL relief also exists for the test function on the single loop system.

On the dual loop system, MMEL relief exists for (a) one loop in each (L, R) system, (b) three out of four (L, R) loops, (c) one out of two body loops, and/or (d) both body loops. MMEL relief also exists for the test function on the dual loop system.

S 419-018

- (1) For a loop that does not operate, put a 'DET LOOP INOP' placard near the related DUCT LEAK light.

S 419-019

- (2) For a test function that does not operate, put an 'INOP' placard on the test switch.

S 709-007

- (3) Make sure that the detection loop(s) operate(s) satisfactorily with the method that follows:
  - (a) Get access to the left wing and body loops through the left ECS bay, or to the right wing and body through the right ECS bay.

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- (b) Use a heat source of approximately 260°F (127°C) to increase the temperature of a section of the detector element.

**NOTE:** The necessary alternative test heat device must not supply a heat more than 450°F (232°C). This temperature limit must be obeyed because fuel vapors can exist in this area.

TASK 26-00-00-269-097

11. DDG 26-18-1 Restoration - Duct Leak Detection System Flight Deck Test Function Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Duct Leak Detection System Flight Deck Test Function Inoperative.

B. Duct Leak Detection System Flight Deck Test Function Activation

S 819-098

- (1) Correct the fault.
  - (a) Find the fault code or description of the fault that occurred.
  - (b) Go to the applicable index or list in the FIM and find the FIM task number.
  - (c) Go to the task in the FIM and do the steps in the task.

S 039-099

- (2) Remove the INOP placards from the DUCT LEAK light, and the test switch.

TASK 26-00-00-709-037

12. DDG 26-20-1 Preparation - Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Inoperative

A. General

- (1) This procedure is applicable when the fire BTL DISCH lights for engine, APU, and lower cargo do not operate.

B. References

- (1) AMM 26-21-00/501, Engine Fire Extinguishing System
- (2) AMM 26-21-03/401, Engine Fire Extinguisher Bottle
- (3) AMM 26-22-00/501, APU Fire Extinguishing System
- (4) AMM 26-22-02/401, APU Fire Extinguisher Bottle
- (5) AMM 26-23-00/501, Lower Cargo Compartment Fire Extinguisher System
- (6) AMM 26-23-02/401, Lower Cargo Compartment Fire Extinguisher Bottle

C. Procedure

S 869-009

- (1) Do the steps that follow if the circuit for the ENGINE and the APU BTL DISCH light does not operate (Fig. 901 and 902):
  - (a) At the bottle with the circuit that does not operate, do these steps:
    - 1) Disconnect the electrical connector from the pressure switch.

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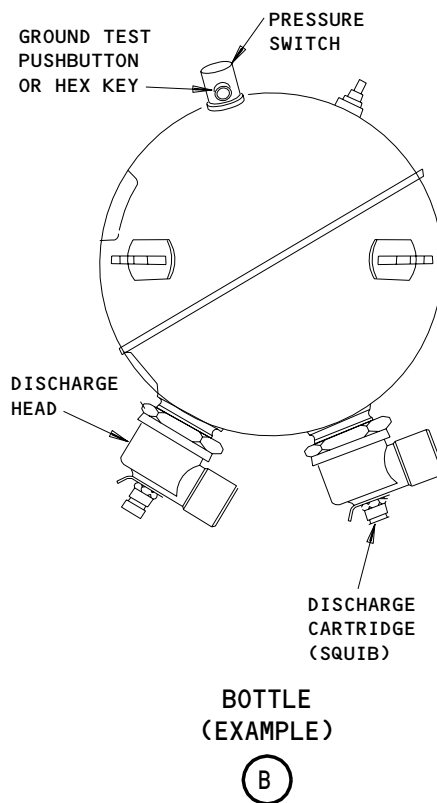
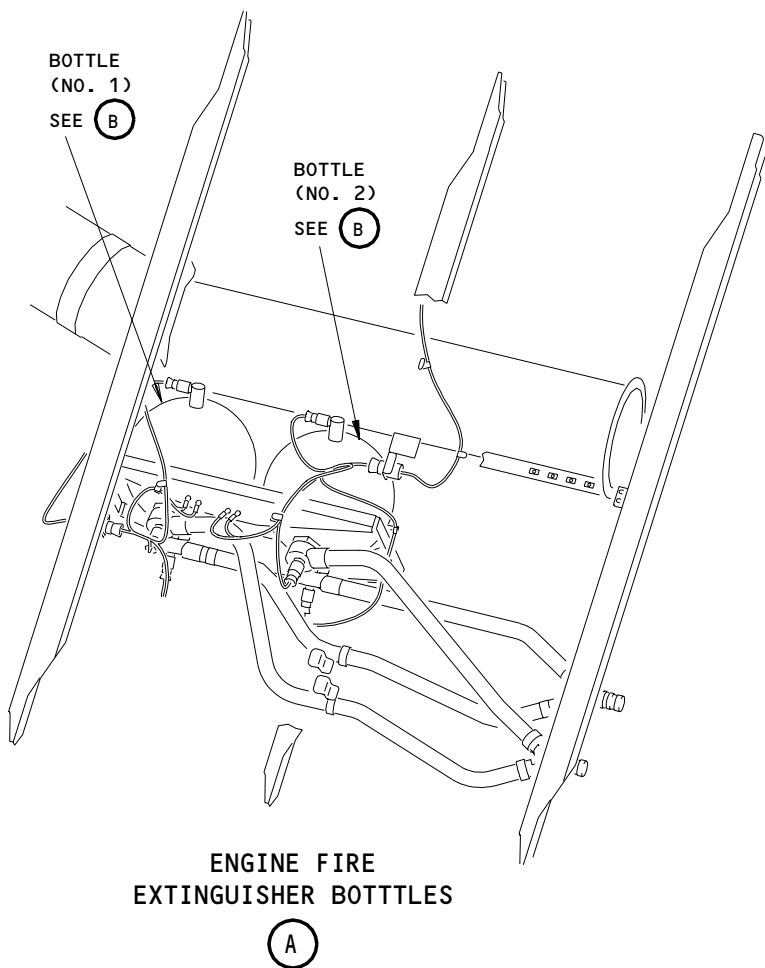
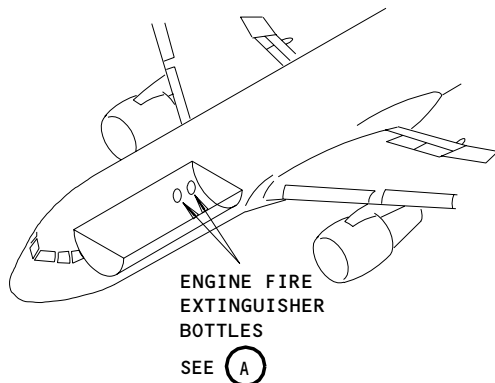
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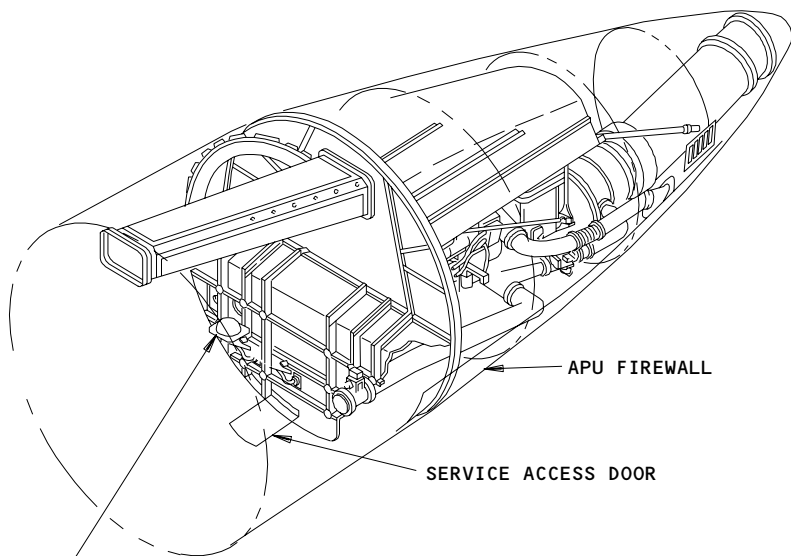




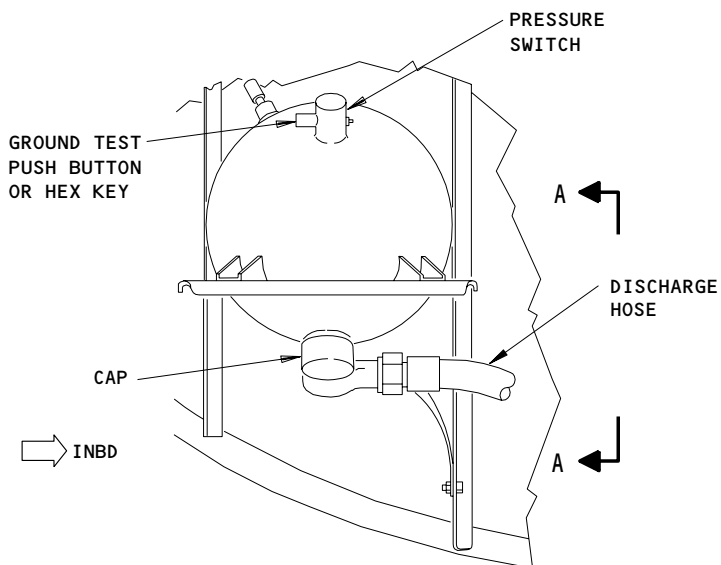
Engine Fire Extinguisher Bottle/Discharge Cartridge  
Figure 901

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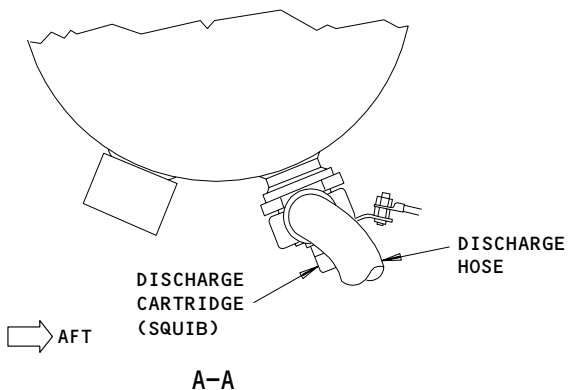


APU FIRE EXTINGUISHER BOTTLE  
SEE (A)



APU FIRE EXTINGUISHER BOTTLE

(A)



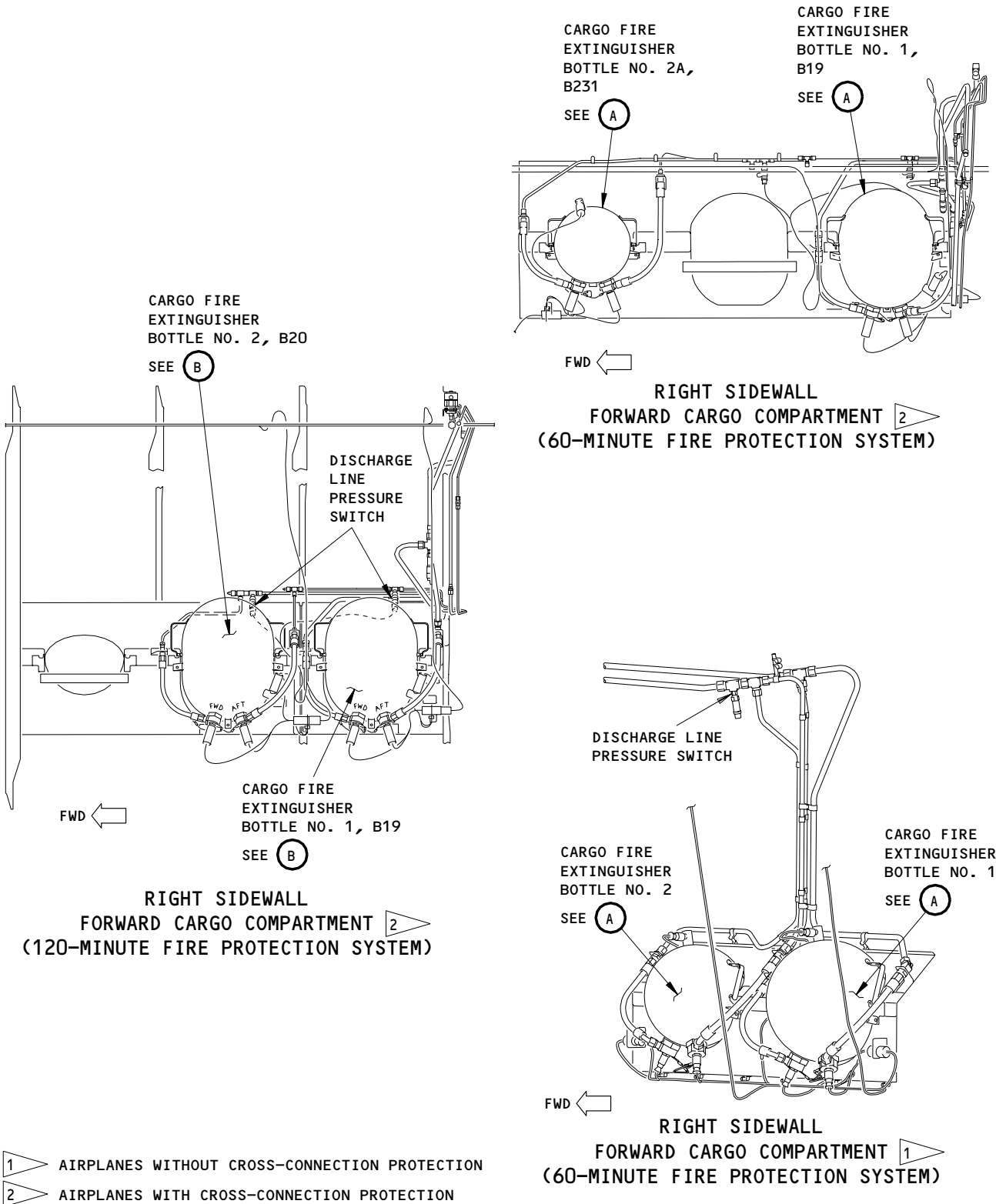
APU Fire Extinguisher Bottle/Discharge Cartridge  
Figure 902

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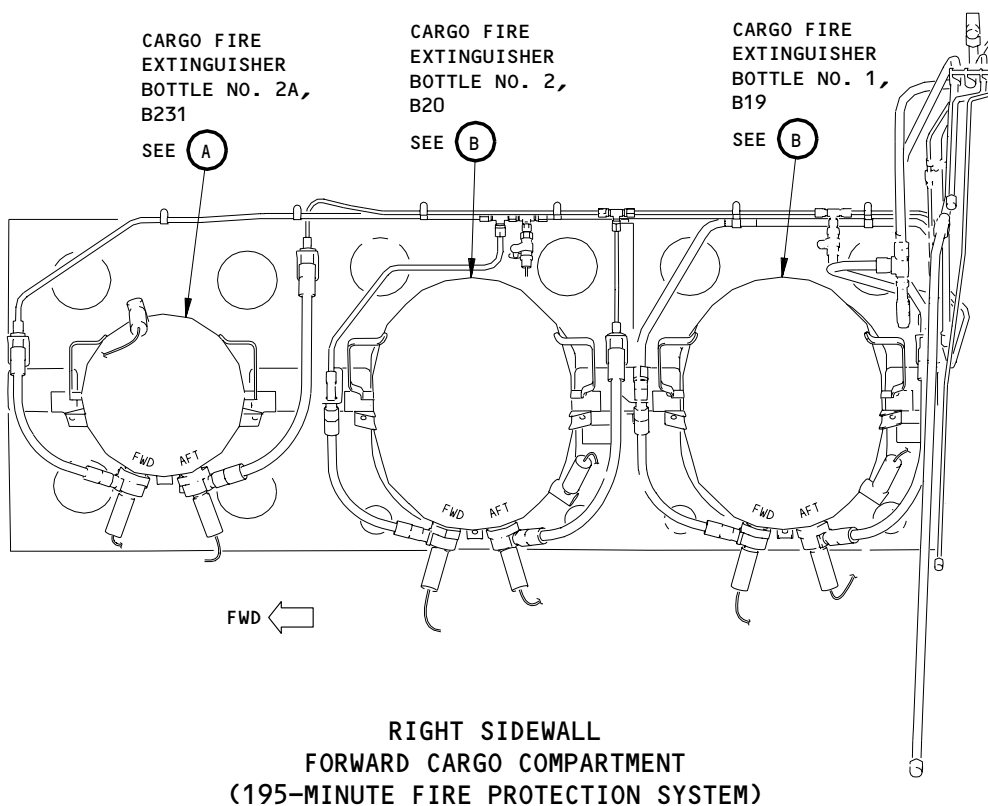
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Cargo Fire Extinguishing Armed Switches  
Figure 903 (Sheet 1)

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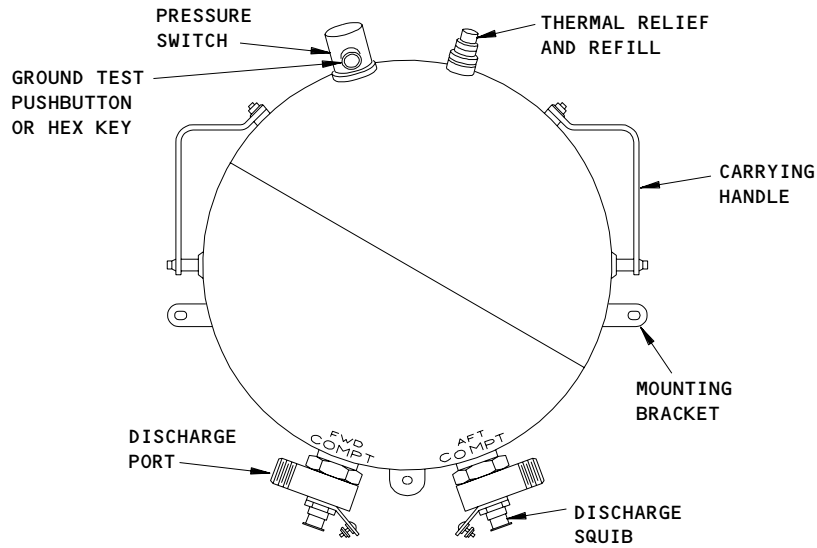
Cargo Fire Extinguishing Armed Switches  
Figure 903 (Sheet 2)

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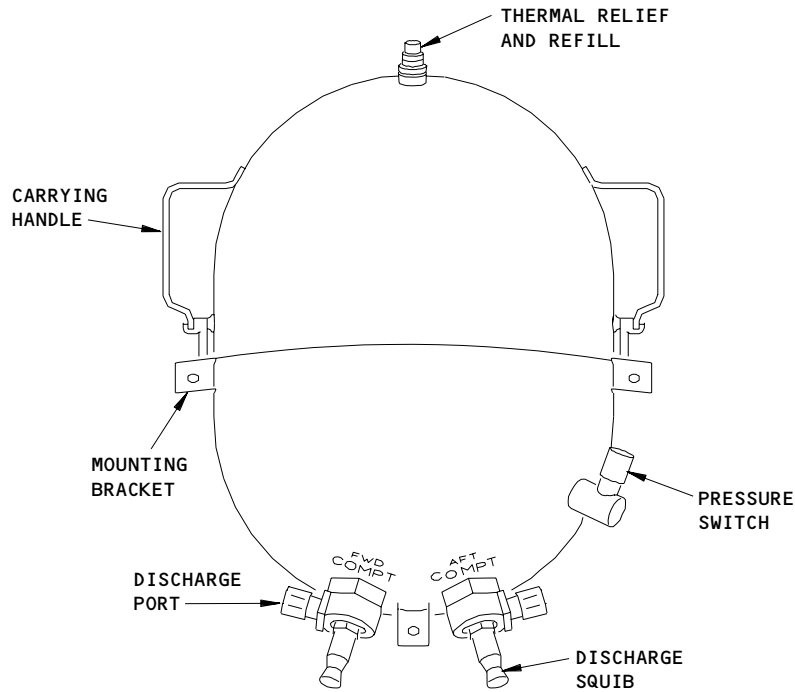
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CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(A)



CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(B)

Cargo Fire Extinguishing Armed Switches  
Figure 903 (Sheet 3)

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- 2) Put an ohmmeter between pins 1 and 3 of the bottle receptacle.
  - a) Make sure there is an open circuit.

NOTE: An open circuit shows the bottle is pressurized.

- b) Push and hold the ground test push button or turn and hold the hex key clockwise on the bottle's pressure casing switch.

NOTE: Use a 3/32 inch hex wrench.

- c) Make sure there is a closed circuit.
    - d) Release the ground test push button or hex key.
    - e) Make sure there is an open circuit.
- 3) Connect the electrical connector to the bottle receptacle.
- 4) Put a placard on the bottle to show the discharge light does not operate (P8).

S 869-010

- (2) Do the steps that follow if the circuit for the BTL DISCH light for the lower cargo compartment does not operate (Fig. 903):

- (a) At the bottle with the circuit that does not operate, do these steps:

- 1) Disconnect the electrical connector from the pressure switch.
    - 2) Put an ohmmeter between pins 2 and 3 of the bottle receptacle.
      - a) Make sure there is an open circuit.

NOTE: An open circuit shows the bottle is pressurized.

- b) Push and hold the ground test push button, or turn and hold the hex key clockwise on the bottle's pressure switch's casing to make sure a closed circuit is shown.

NOTE: Use a 3/32 inch hex wrench.

- c) Release the ground test push button or hex key and make sure there is an open circuit.
- 3) Connect the electrical connector to the bottle receptacle.

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- 4) Put a placard on the bottle to show the discharge light does not operate (P8).

TASK 26-00-00-269-100

13. DDG 26-20-1 Restoration - Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Inoperative.

B. Fire Bottle Discharge Lights (Engine, APU, Lower Cargo) Activation

S 439-103

- (1) Replace the applicable discharge light.

S 039-101

- (2) Remove the placard from the bottle.

TASK 26-00-00-709-038

14. DDG 26-20-2 Preparation - Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Inoperative

A. General

- (1) This procedure is applicable when the fire extinguisher SQUIB TEST system for the engine, APU, and lower cargo compartment does not operate and an alternative procedure is necessary to test the system.

B. References

- (1) AMM 26-21-00/501, Engine Fire Extinguishing System
- (2) AMM 26-21-03/401, Engine Fire Extinguisher Bottle
- (3) AMM 26-22-00/501, APU Fire Extinguishing System
- (4) AMM 26-22-02/401, APU Fire Extinguisher Bottle
- (5) AMM 26-23-00/501 Lower Cargo Compartment Fire Extinguisher System
- (6) AMM 26-23-02/401, Lower Cargo Compartment Fire Extinguisher Bottle

C. Procedure

S 419-020

- (1) Put an 'INOP' placard on the test switch on the P61 panel.

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S 849-012

- (2) For the APU, Engine, or Lower Cargo Compartment, assemble a squib test lamp with pigtail leads that complete in sockets.
- (a) Use lamp P/N 116-565-1042-001 (28 volt, 40 milliamp) in an applicable holder.

S 709-013

**CAUTION:** KEEP PERSONS AWAY FROM THE FIRE BOTTLE AREA DURING THE TEST.  
KEEP THE SQUIB CURRENT TO 50 MILLIAMPERES MAXIMUM.

- (3) Make sure that the squib circuit operates with the steps that follow:
- (a) For a APU single fire bottle configuration:
- 1) Remove the M32 squib test control panel on the right side panel, P61.
  - 2) Connect the test lamp between plug D1928 pin 7 (+28-volt source) and pin 12 (ground path through squib).
  - 3) Make sure the lamp comes on.
  - 4) Remove the test lamp and install the M32 squib test control panel.
- (b) For APU dual fire bottle configuration:
- 1) Remove M32 squib test control panel (P61 right side panel).
  - 2) For bottle 1, connect test lamp between plug D1928 pin 7 (+28 volt source) and pin 12 (ground path through squib).
  - 3) For bottle 2, connect test lamp between plug D1928 pin 13 (28 volt source) and pin 14 (ground path through squib).
  - 4) Make sure lamp comes on.
  - 5) Remove test lamp and install M32 squib test control panel.
- (c) For the engines:
- 1) Remove the M32 squib test control panel on the right side panel, P61.
  - 2) For bottle 1, connect the test lamp to D1930 pins identified in the table that follows:
  - 3) For bottle 2, connect the test lamp to D1928 pins identified in the table that follows:

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Pin 4 (+28-volt source)
Pin 9 (Ground path through right squib)
Pin 3 (+28-volt source)
Pin 8 (Ground path through left squib)

- 4) Make sure the lamp comes on.
  - 5) Remove the test lamp and install the M32 squib test control panel.
- (d) For the lower cargo compartment:
- 1) Remove the M32 squib test control panel on the right side panel, P61.
  - 2) Connect the test lamp to the connector pins identified by the table that follows:

BOTTLE NO. 1 (PLUG D1930)  
OR  
BOTTLE NO. 2 (PLUG D1928)

BOTTLE NO. 2A (PLUG D1928)  
(If installed)

Pin 6 (+28-volt source)
Pin 10 (Ground path through FWD squib)
Pin 6 (+28-volt source)
Pin 11 (Ground path through AFT squib)

Pin 6 (+28-volt source)
Pin 1 (Ground path through FWD squib)
Pin 6 (+28-volt source)
Pin 2 (Ground path through AFT squib)

- 3) Make sure the lamp comes on.
- 4) Remove the test lamp and install the M32 squib test control panel.

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TASK 26-00-00-269-083

15. DDG 26-20-2 Restoration - Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Inoperative.

B. Fire Extinguisher Squib Test System (Engine, APU, Lower Cargo) Activation

S 819-085

- (1) Correct the fault.  
(a) Find the fault code or description of the fault that occurred.  
(b) Go to the applicable index or list in the FIM and find the FIM task number.  
(c) Go to the task in the FIM and do the steps in the task.

S 719-084

- (2) Push the test 1 switch on the M32 squib test control panel.  
(a) Make sure the light on the switch is illuminated.

S 719-104

- (3) Push the test 2 switch on the M32 squib test control panel.  
(a) Make sure the light on the switch is illuminated.

S 039-086

- (4) Remove the INOP placards from the smoke detector, and lavatory door.

TASK 26-00-00-709-033

16. DDG 26-26-2 Preparation - Lavatory Fire Extinguishing System Inoperative

A. General

- (1) This procedure is applicable when the lavatory fire extinguishing does not operate.

B. References

- (1) AMM 26-13-00/501, Lavatory Smoke Detection System

C. Procedure

S 419-028

- (1) Put a 'INOP' placard on the extinguisher.

S 419-029

- (2) Put a 'INOPERATIVE - DO NOT ENTER' placard on the lavatory door (if necessary).

S 619-030

- (3) Remove the unwanted material from the waste receptacle(s).

S 499-031

- (4) Lock the lavatory door with the external lock.

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S 499-032

- (5) Make sure the flight attendants know the location of the nearest portable fire extinguisher.

TASK 26-00-00-269-080

17. DDG 26-26-2 Restoration - Lavatory Fire Extinguishing System Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Lavatory Fire Extinguishing System Inoperative.

B. Lavatory Fire Extinguishing System Activation

S 429-081

- (1) Replace the fire extinguisher bottle.

S 039-082

- (2) Remove the INOP placards from the fire extinguisher, and the lavatory door.

TASK 26-00-00-709-039

18. DDG 26-26-3 Preparation - Lavatory Smoke Detection System Inoperative

A. General

- (1) This procedure is applicable when the lavatory fire detection system does not operate.

B. References

- (1) AMM 26-13-00/501, Lavatory Smoke Detection System

C. Procedure

S 419-023

- (1) Put a 'INOP' placard on the smoke detector.

S 419-024

- (2) Put an 'INOPERATIVE - DO NOT ENTER' placard on the lavatory door (if it is necessary).

S 619-025

- (3) Remove the unwanted material from the waste receptacles (if it is necessary).

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- S 499-026  
(4) Lock the lavatory door with an external lock (if it is necessary).

- S 869-027  
(5) AIRPLANES WITH LAVATORY SMOKE DETECTOR REMOTE INDICATION PANELS;  
Do these steps:  
(a) Put a LAV X DETECTOR INOP placard on the remote indicator panel for the appropriate location indicator light.  
(b) Push the RESET button on the remote indication panel.

NOTE: The system must be RESET after a failure has been detected during self-test, to ensure proper operation of indication panel for remaining operative detectors.

- S 499-014  
(6) Make sure the flight attendants know the location of the nearest portable fire extinguisher.

TASK 26-00-00-269-077

19. DDG 26-26-3 Restoration - Lavatory Smoke Detection System Inoperative

A. General

- (1) This procedure puts the airplane back to its usual condition after operation with the Lavatory Smoke Detection System Inoperative.

B. Lavatory Smoke Detection System Activation

- S 819-078  
(1) Correct the fault.  
(a) Find the fault code or description of the fault that occurred.  
(b) Go to the applicable index or list in the FIM and find the FIM task number.  
(c) Go to the task in the FIM and do the steps in the task.

- S 039-079  
(2) Remove the INOP placards from the smoke detector, and lavatory door.

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DETECTION - DESCRIPTION AND OPERATION

1. General

- A. Fire, overheat, and smoke detection systems are installed in the airplane. The systems provide aural and visual alerts when an alarm condition is detected.
- B. Engine fire detection (AMM 26-11-00)
  - (1) Dual-loop fire and overheat detection systems are installed on each engine. Both loops of a system must sense a fire/overheat condition in order for an alarm to be given. If one loop is inoperative, then the system operates on the remaining loop.
- C. Lavatory smoke detection (AMM 26-13-00).
  - (1) A smoke detector is installed in each lavatory to alert cabin attendants and flight crew members in the event of a lavatory fire.
- D. APU fire detection (AMM 26-15-00)
  - (1) A dual-loop fire detection system is installed in the APU compartment. Both loops must sense a fire condition in order for an alarm to be given. If one loop is inoperative, then the system operates on the remaining loop. When a fire is detected, the APU is automatically shutdown by the detection system.
- E. Lower cargo compartment smoke detection (AMM 26-16-00)
  - (1) Dual smoke detection systems are installed in the forward and aft cargo compartments. Both detectors in either cargo compartment must sense smoke in order for a fire alarm to be given. If one detector is inoperative, then the system operates on the remaining detector.
- F. Wheel well fire detection (AMM 26-17-00)
  - (1) A single-loop fire detection system is installed, and is continuous through both main landing gear wheel wells.
- G. Duct leak detection (AMM 26-18-00)
  - (1) Three single-loop duct leak detection systems are installed near the pneumatic ducting. A loop is installed in the leading edge of the left and right wings and in the body along the APU duct.

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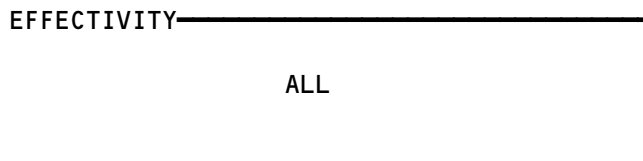
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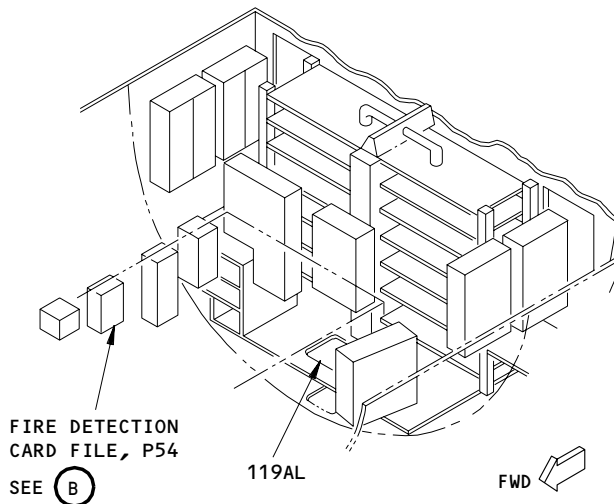
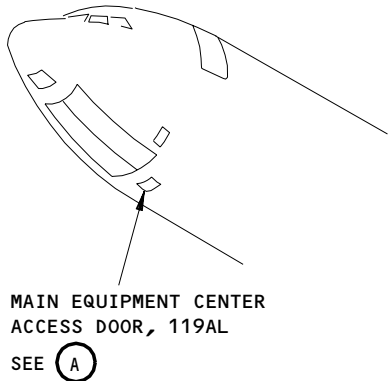
DETECTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CARD - AUTO FIRE/OVHT LOGIC/TEST SYS, M10224	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - AUTO FIRE/OVHT LOGIC/TEST SYS, M10274	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - AUTO FIRE/OVHT LOGIC/TEST SYS, M10400	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - AUTO FIRE/OVHT LOGIC/TEST SYS, M10427	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - DUCT LEAK AND WHEEL WELL OVHT, M691	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 FIRE DET APU, M685	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 FIRE DET LEFT, M681	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 FIRE DET RIGHT, M683	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 OVHT DET LEFT, M687	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 OVHT DET RIGHT, M689	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 FIRE DET APU, M686	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 FIRE DET LEFT, M682	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 FIRE DET RIGHT, M684	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 OVHT DET LEFT, M688	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 OVHT DET RIGHT, M690	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01

Detection - Component Index  
Figure 101

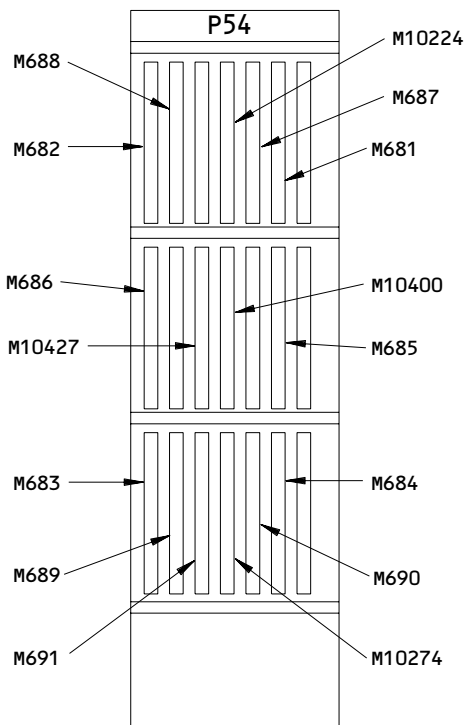


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MAIN EQUIPMENT CENTER

(A)



FIRE DETECTION CARD FILE, P54

(B)

Detection - Component Location  
Figure 102

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AFOLTS AND FAIL LIGHT - INSPECTION/CHECK

1. General

- A. This procedure makes sure that the AFOLTS (Automatic Fire/Overheat Logic/Test System) system and the fire detection system fail light operate correctly.

TASK 26-10-00-716-019

2. AFOLTS System Check

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (3) AMM 31-51-00/501, Warning System

B. AFOLTS System

S 866-001

- (1) Supply electrical power (AMM 24-22-00/201).

S 866-002

- (2) Close these circuit breakers on the overhead circuit breaker panel, P11:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (d) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (e) 11B24, FIRE DETECTION APU 1
  - (f) 11B25, FIRE DETECTION APU 2
  - (g) 11B26, FIRE DETECTION CARGO 1
  - (h) 11B27, FIRE DETECTION CARGO 2
  - (i) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (j) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (k) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
  - (l) 11B32, OVERHEAT DETECT RIGHT ENGINE 2

S 866-003

- (3) Close the six EICAS circuit breakers on the P11 panel (AMM 31-41-00/501).

S 756-005

- (4) Push and hold the ENG/APU/CARGO switch, on the aft pilots control stand, P8. Make sure these indications occur:
  - (a) The fire bell is heard.

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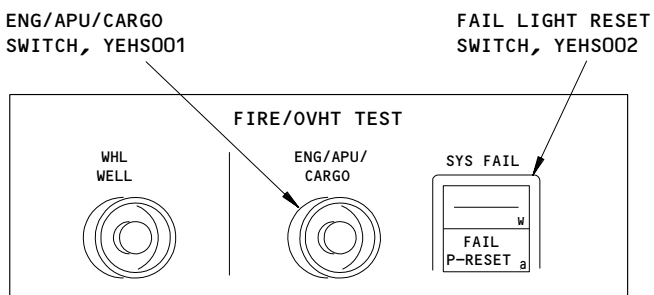
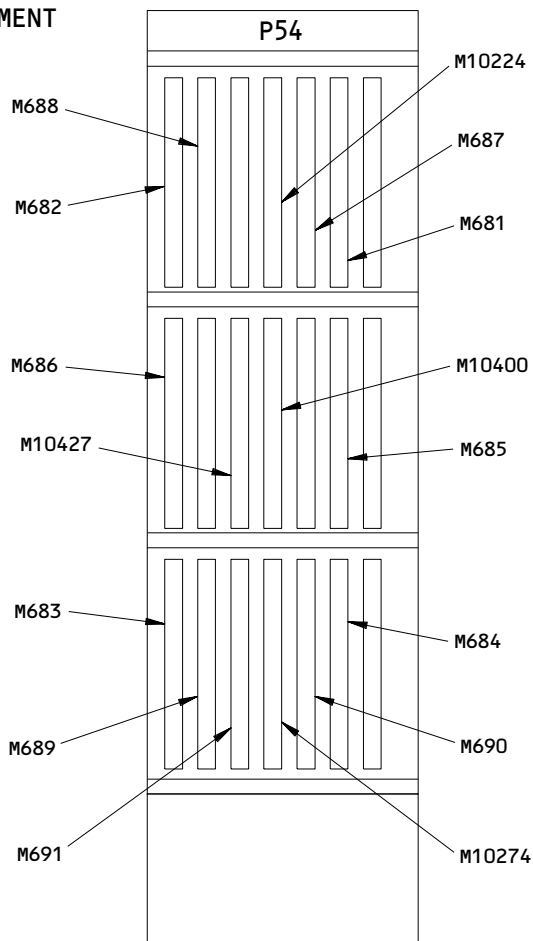
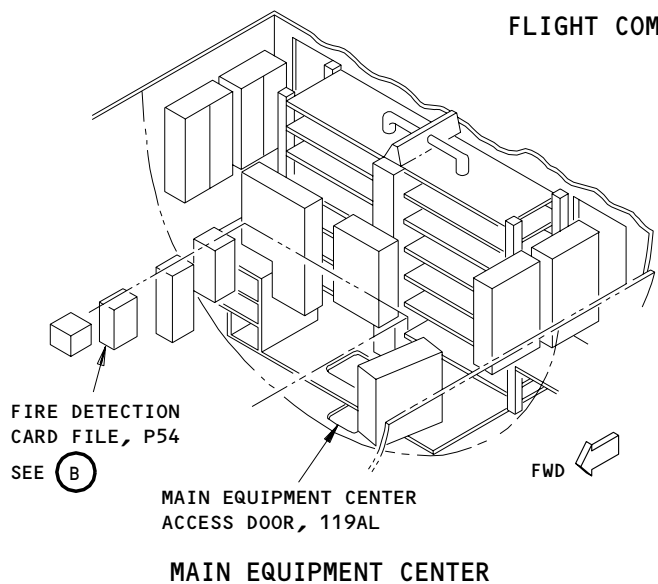
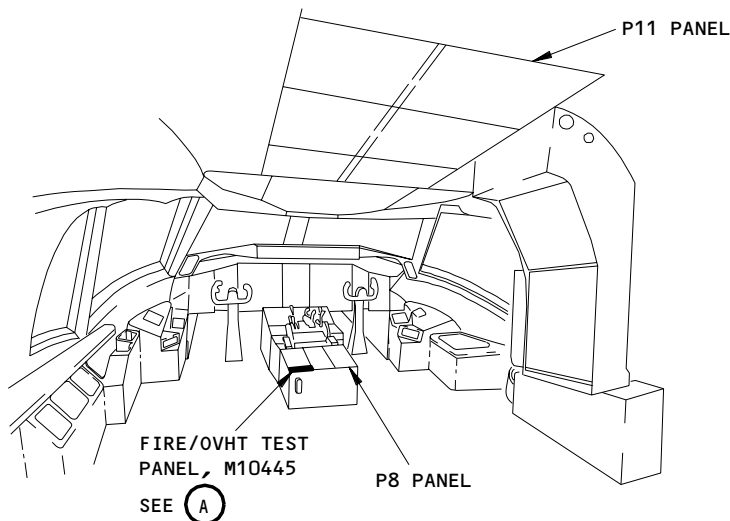
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FIRE/OVHT TEST PANEL, M10445

(A)

FIRE DETECTION CARD FILE, P54

(B)

AFOLTS Fail Light Inspection  
Figure 601

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- (b) The red master WARNING lights on the glareshield panel, P7, come on.
- (c) The discrete FIRE warning light, on the captains instrument panel, P1-3, comes on.
- (d) The LEFT, RIGHT, and APU fire switch handle lights (P8) come on.
- (e) The FWD and AFT CARGO FIRE switchlights (P8) come on.
- (f) The L and R fuel control switchlights, on the quadrant stand, P10, come on.
- (g) The yellow L and R ENG OVHT lights (P8) come on.
- (h) These EICAS messages show on the top display:
  - 1) L and R ENGINE FIRE
  - 2) L and R ENG OVHT
  - 3) APU FIRE
  - 4) FWD and AFT CARGO FIRE

S 756-006

- (5) Release the test switch and make sure the above indications stop.

S 866-007

- (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-10-00-716-020

3. Fire Detection System Fail Light Check (Fig. 601)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (3) AMM 31-51-00/501, Warning System

- B. Do this procedure for the left engine fire detection system. Use printed circuit cards M681 and M682.

S 866-009

- (1) Supply electrical power (AMM 24-22-00/201).

S 866-010

- (2) Open the circuit breakers, on the overhead circuit breaker panel, P11, listed in the table below for the left engine fire detection system check. Attach DO-NOT-CLOSE tags:

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TABLE 1		
SYSTEM	CARDS	CIRCUIT BREAKERS
L ENG FIRE	M681 M682	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B20, FIRE DETECTION LEFT ENGINE 1 11B21, FIRE DETECTION LEFT ENGINE 2 11J34, WARN ELEX A 11K30, ALTN PWR FIRE DETECTION ENGINE L 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, RIGHT IND LTS 2
R ENG FIRE	M683 M684	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B22, FIRE DETECTION RIGHT ENGINE 1 11B23, FIRE DETECTION RIGHT ENGINE 2 11J34, WARN ELEX A 11K31, ALTN PWR FIRE DETECTION ENGINE R 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, RIGHT IND LTS 2
L ENG OVHT	M687 M688	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B29, OVERHEAT DETECT LEFT ENGINE 1 11B30, OVERHEAT DETECT LEFT ENGINE 2 11J34, WARN ELEX A 11K34, ALTN PWR OVHT DETECTION ENGINE L 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, RIGHT IND LTS 2

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TABLE 1		
SYSTEM	CARDS	CIRCUIT BREAKERS
R ENG OVHT	M689 M690	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B31, OVERHEAT DETECT RIGHT ENGINE 1 11B32, OVERHEAT DETECT RIGHT ENGINE 2 11J34, WARN ELEX A 11K35, ALTN PWR OVHT DETECTION ENGINE R 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, RIGHT IND LTS 2
APU FIRE	M685 M686	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B24, FIRE DETECTION APU 1 11B25, FIRE DETECTION APU 2 11B34, APU REMOTE FIRE IND 11J34, WARN ELEX A 11K32, ALTN PWR FIRE DETECTION APU 11R29, RIGHT IND LTS 2

- S 036-011
- (3) Remove printed circuit cards M681 and M682 from the fire detection card file P54. P54 is in the E/E bay, adjacent to the right side of the nose gear wheel well.
- S 866-012
- (4) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in Table 1.
- S 756-013
- (5) Make sure the yellow FAIL P-RESET light (P8) is on.

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- S 756-014
- (6) Make sure the EICAS message FIRE/OVHT SYS shows on the top display.
- S 866-015
- (7) Push the FAIL P-RESET switchlight.
- S 756-016
- (8) Make sure the switchlight goes off.
- S 756-021
- (9) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.
- S 866-017
- (10) Open the circuit breakers which were closed in Table 1 and attach DO-NOT-CLOSE tags.
- S 436-018
- (11) Install printed circuit cards M681 and M682.
- S 866-019
- (12) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in Table 1.
- S 866-054
- (13) Do the procedure again for the right engine fire detection system. Use printed circuit cards M683 and M684.
- S 866-055
- (14) Do the procedure again for the left engine overheat detection system. Use printed circuit cards M687 and M688.
- S 866-056
- (15) Do the procedure again for the right engine overheat detection system. Use printed circuit cards M689 and M690.
- S 866-059
- (16) Do the procedure again for the APU fire detection system. Use printed circuit cards M685 and M686.
- S 866-060
- (17) Do this procedure for the Lower forward cargo compartment smoke detection system:
- (a) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- 1) 11B26, FIRE DETECTION CARGO 1

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- 2) 11B27, FIRE DETECTION CARGO 2
  - 3) 11K33, ALTN PWR FIRE DETECTION CARGO
  - (b) Disconnect the electrical connectors from both of the forward cargo smoke detectors, M324 and M325. The forward cargo smoke detectors are aft of the left generator power panel, P31, in the E/E bay. Get access to the detectors from the E/E compartment, or through the forward bulkhead panel in the forward cargo compartment.
  - (c) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the overhead circuit breaker panel, P11:
    - 1) 11B26, FIRE DETECTION CARGO 1
    - 2) 11B27, FIRE DETECTION CARGO 2
    - 3) 11K33, ALTN PWR FIRE DETECTION CARGO
  - (d) Make sure the yellow FAIL P-RESET light (P8) is on.
  - (e) Make sure the EICAS message FIRE/OVHT SYS shows on the top display.
  - (f) Push the FAIL P-RESET switchlight.
  - (g) Make sure the switchlight goes off.
  - (h) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.
  - (i) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
    - 1) 11B26, FIRE DETECTION CARGO 1
    - 2) 11B27, FIRE DETECTION CARGO 2
    - 3) 11K33, ALTN PWR FIRE DETECTION CARGO
  - (j) Connect the electrical connectors to forward cargo smoke detectors, M324 and M325.
- S 866-061
- (18) Do the procedure again for the aft cargo smoke detectors, M326 and M327. The aft cargo smoke detectors are forward of the bulk cargo compartment door. Get access to the detectors through an access panel in the compartment wall.
- C. Put the airplane back to its usual condition.

S 866-027

- (1) Remove the DO-NOT-CLOSE tags and close all circuit breakers.

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S 866-028

- (2) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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FIRE DETECTION CARD FILE - PRINTED CIRCUIT CARD - REMOVAL/INSTALLATION

1. General

- A. The fire detection card file, P54, contains printed circuit cards which have logic functions for the engine, APU, cargo, wheel well, and duct leak fire/overheat detection systems. The card file is in the electrical/electronic equipment compartment adjacent to the right side of the nose gear wheel well. The removal/installation procedure is the same for all cards.

TASK 26-10-01-024-024

2. Remove the Printed Circuit Card (Fig. 401)

A. References

- (1) AMM 20-10-33/401, Power Device Cartridge  
(2) AMM 24-22-00/201, Electrical Power - Control

B. Remove the Printed Circuit Card

S 864-001

- (1) Open the circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags. See Table 401 for the printed circuit card to be removed and the applicable circuit breakers to be opened.

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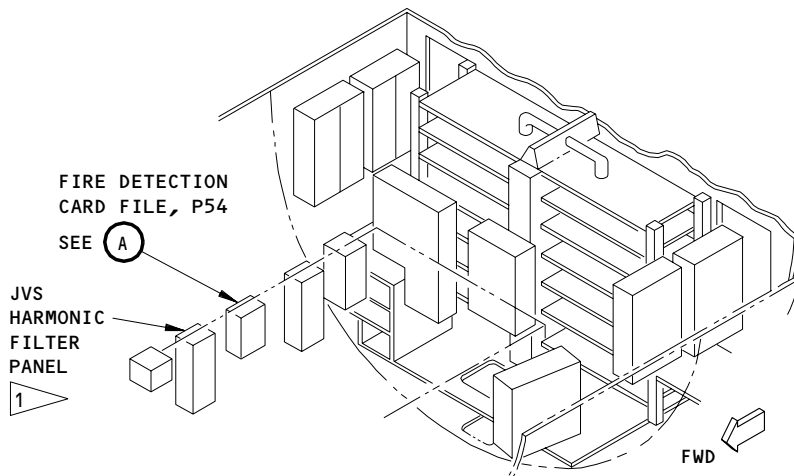
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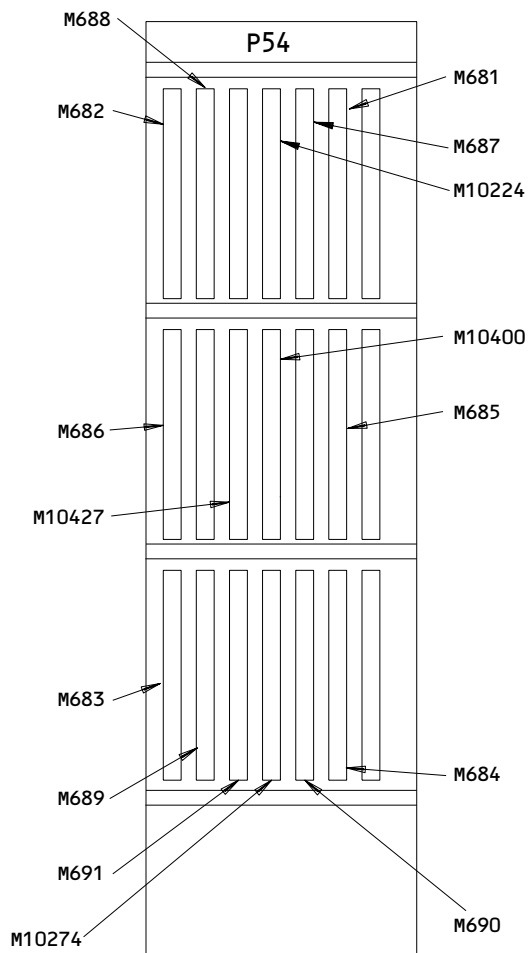
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**MAIN E/E EQUIPMENT CENTER**



1 NOT APPLICABLE TO ALL AIRPLANES

A

**Fire Detection Card File - Printed Circuit Card Installation  
Figure 401**

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TABLE 401		
SYSTEM	CARD *[1]	CIRCUIT BREAKERS
L ENG FIRE, L ENG OVHT	M681 M682 M687 M10224  M688	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B20, FIRE DETECTION L ENGINE 1 11B21, FIRE DETECTION L ENGINE 2 11B29, OVERHEAT DETECT L ENGINE 1 11B30, OVERHEAT DETECT L ENGINE 2 11J34, WARN ELEX A 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L 11K34, ALTERNATE POWER OVHT DETECT ENGINE L 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, RIGHT IND LTS 2
R ENG FIRE, R ENG OVHT	M683 M684 M689 M10274  M690	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B22, FIRE DETECTION R ENGINE 1 11B23, FIRE DETECTION R ENGINE 2 11B31, OVERHEAT DETECT R ENGINE 1 11B32, OVERHEAT DETECT R ENGINE 2 11J34, WARN ELEX A 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R 11K35, ALTERNATE POWER OVHT DETECT ENGINE R 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, LIGHTING RIGHT IND LTS 2
APU FIRE	M685 M686 M10400	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B24, FIRE DETECTION APU 1 11B25, FIRE DETECTION APU 2 11B34, APU REMOTE FIRE IND 11J34, WARN ELEX A 11K32, ALTERNATE POWER FIRE DETECTION APU 11R29, RIGHT IND LTS 2

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TABLE 401		
SYSTEM	CARD *[1]	CIRCUIT BREAKERS
CARGO FIRE	M10427	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B26, FIRE DETECTION CARGO 1 11B27, FIRE DETECTION CARGO 2 11J34, WARN ELEX A 11K33, ALTERNATE POWER FIRE DETECTION CARGO 11R29, RIGHT IND LTS 2
WHEEL WELL FIRE, DUCT LEAK	M691	11B10, WW FIRE/DUCT LEAK 11B18, WARN ELEX B 11B33, WW FIRE IND 11J34, WARN ELEX A 11R1, LEFT IND LTS 1 11R2, LEFT IND LTS 2 11R28, RIGHT IND LTS 1

\*[1] ESDS device. The printed circuit card has a STATIC SENSITIVE placard on the extractors.

S 864-038

**CAUTION:** DO NOT TOUCH THE PRINTED CIRCUIT CARD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRINTED CIRCUIT CARD.

- (2) Do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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S 014-055

- (3) If it is necessary, open the IVS Harmonic Filter Panel.

S 014-002

- (4) Open the P54 card file door.

S 024-003

- (5) To remove the printed circuit card, hold the detection card ejectors and pull.

**NOTE:** The card location diagram is on the inner side of the panel door.

TASK 26-10-01-424-025

3. Install the Printed Circuit Card (Fig. 401)

A. References

- (1) AMM 20-10-33/401, Power Device Cartridge  
(2) AMM 24-22-00/201, Electrical Power - Control  
(3) AMM 26-16-00/501, Lower Cargo Fire Detection System - A/T

B. Install the Printed Circuit Card.

S 414-087

**CAUTION:** DO NOT TOUCH THE PRINTED CIRCUIT CARD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRINTED CIRCUIT CARD.

- (1) Do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 424-004

- (2) Install the printed circuit card into the card tracks.

S 414-005

- (3) Push the card in until tightly engaged with the connector.

S 754-006

- (4) Move the card to make sure of correct connector to card contact.

S 214-007

- (5) Make sure the top surface of the card is level with the other cards in the card file.

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- S 414-008  
 (6) Close the hold-down latches.

**NOTE:** If the latches are not easy to close, then the printed circuit card is possibly not positioned correctly.

- S 754-009  
 (7) Pull the printed circuit card to make sure it is locked into position (the card does not move).

- S 414-010  
 (8) Close the P54 card file door.

- S 414-056  
 (9) If it is necessary, close the IVS Harmonic Filter Panel.

- S 864-011  
 (10) Remove the DO-NOT-CLOSE tags and close the circuit breakers in Table 401 for the applicable card to be installed.

C. Do a Test of the Printed Circuit Card Installation.

- S 864-012  
 (1) Supply electrical power (AMM 24-22-00/201).

- S 864-031  
 (2) Close the EICAS circuit breakers on the P11 panel.

D. Do a Test of the Engine, APU, Cargo Fire Detection AFOLTS Cards Installation.

- S 714-073  
 (1) Push and hold the ENG/APU/CARGO test switch on the FIRE/OVHT TEST panel.

- S 714-058  
 (2) Make sure the EICAS warning message, applicable to the card replaced, shows on the top display.

AFOLTS CARD	EICAS MESSAGES
Card 1 M10224	L ENGINE FIRE
Card 2 M10274	R ENGINE FIRE
Card 3 M10400	APU FIRE
Card 6 M10427	FWD CARGO FIRE

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- S 714-059  
(3) Release the ENG/APU/CARGO test switch.
- S 714-077  
(4) Do a smoke test for the cargo compartment (AMM 26-16-00/501).
- E. Do a Test of the Duct Leak and Wheel Well Fire Card (M691) installation.
- S 714-063  
(1) Push and hold the WHEEL WELL test switch on FIRE/OVHT TEST panel.
- S 714-064  
(2) Make sure the EICAS warning message WHEEL WELL FIRE shows on the top display.
- S 714-075  
(3) Release the WHEEL WELL test switch.
- F. Do a Test of the Engine and APU Fire/Ovht Detection Loop Cards Installation.
- S 714-068  
(1) Push and release the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel.
- S 714-066  
(2) Push and release the ECS MSG switch on the EICAS MAINT panel on the right side panel, P61. Do this step again as necessary to see the subsequent EICAS page.
- S 714-067  
(3) Make sure the EICAS message, applicable to the card replaced, does not show on the bottom display.

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 MAINTENANCE MANUAL

FIRE OVHT DETECTION LOOP CARD	EICAS MESSAGES
M681	L ENG FIRE LP 1
M682	L ENG FIRE LP 2
M683	R ENG FIRE LP 1
M684	R ENG FIRE LP 2
M685	APU FIRE LP 1
M686	APU FIRE LP 2
M687	L ENG OH LP 1
M688	L ENG OH LP 2
M689	R ENG OH LP 1
M690	R ENG OH LP 2

S 864-023

- (4) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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ENGINE FIRE DETECTION - DESCRIPTION AND OPERATION

1. General

- A. Dual-loop fire and overheat detection systems are installed on each engine. These systems monitor engine temperatures, and provide alerts for both fire and overheat conditions.
- B. The four systems (left and right engine fire and overheat detection) use power from the 28-volt dc battery bus. The circuit breakers for each system are on overhead circuit breaker panel P11. The system contains no on/off switches.
- C. Each fire detection system is composed of two loops. Each loop has three detector elements electrically connected in series, so that one element can trigger an alarm or fault signal for that loop.
- D. Each overheat detection system is composed of two loops, with one detector in each loop.
- E. Each detection loop has a control card, and each engine has a fire/overheat logic/test card. All four systems have one fire/overheat test panel.
- F. All four systems operate in AND logic. Thus, both loops of a system must sense a fire/overheat condition in order for an alarm to be given.

2. Component Details (Fig. 1)

A. Engine Fire and Overheat Detectors

- (1) A detector consists of two sensing elements which are attached to a support tube by quick-release mounting clamps. Each element is a temperature-dependent resistor (thermistor), whose resistance decreases as temperature increases. The detector is of coaxial construction, with the resistive material located between the inner and outer conductors.
- (2) The fire detectors are installed on the lower forward and aft sections of the engine, and below the upper aft engine firewall. An overheat detector is installed on the upper forward section of the engine near the bleed air duct.

B. Fire and Overheat Detection Cards

- (1) Each detection loop has a corresponding detection control card. These cards constantly monitor and process signals produced by each loop. The cards output alarm or fault signals to the fire/overheat logic/test card for the appropriate system.

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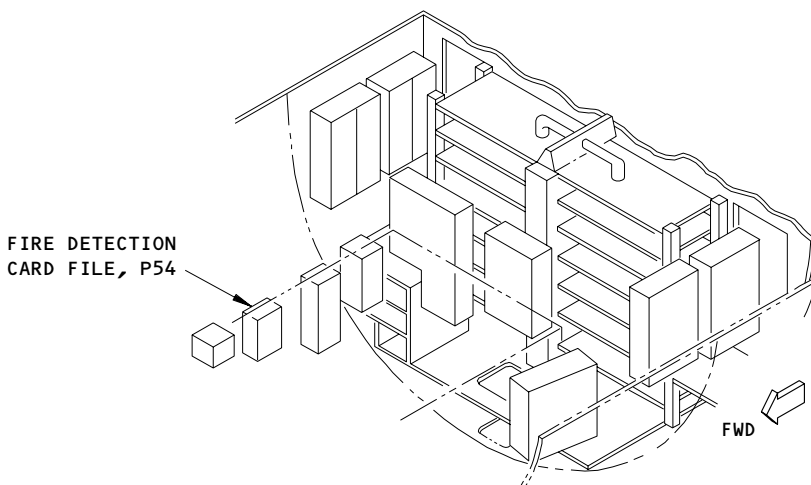
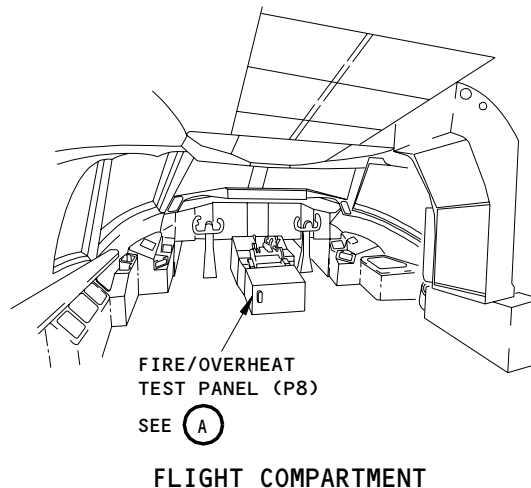
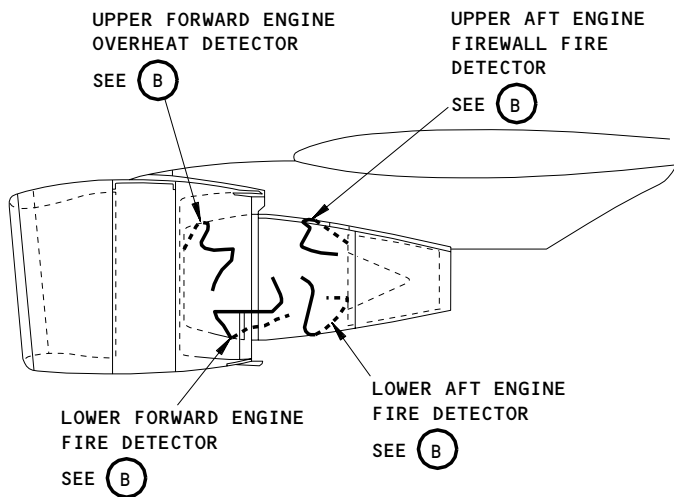
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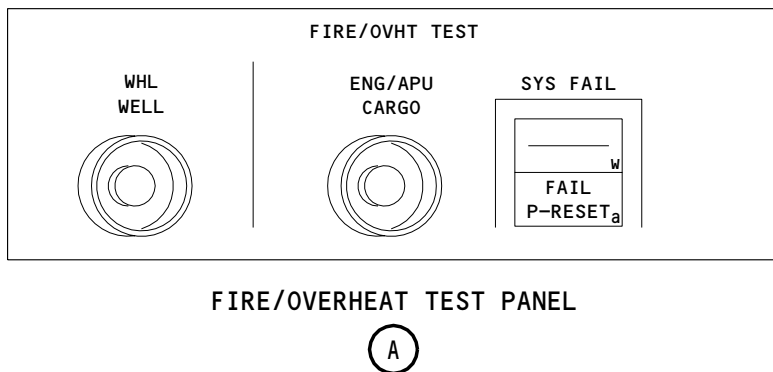


MAIN EQUIPMENT CENTER

Engine Fire and Overheat Detection - Component Location  
Figure 1 (Sheet 1)

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Engine Fire and Overheat Detection - Component Location  
Figure 1 (Sheet 2)

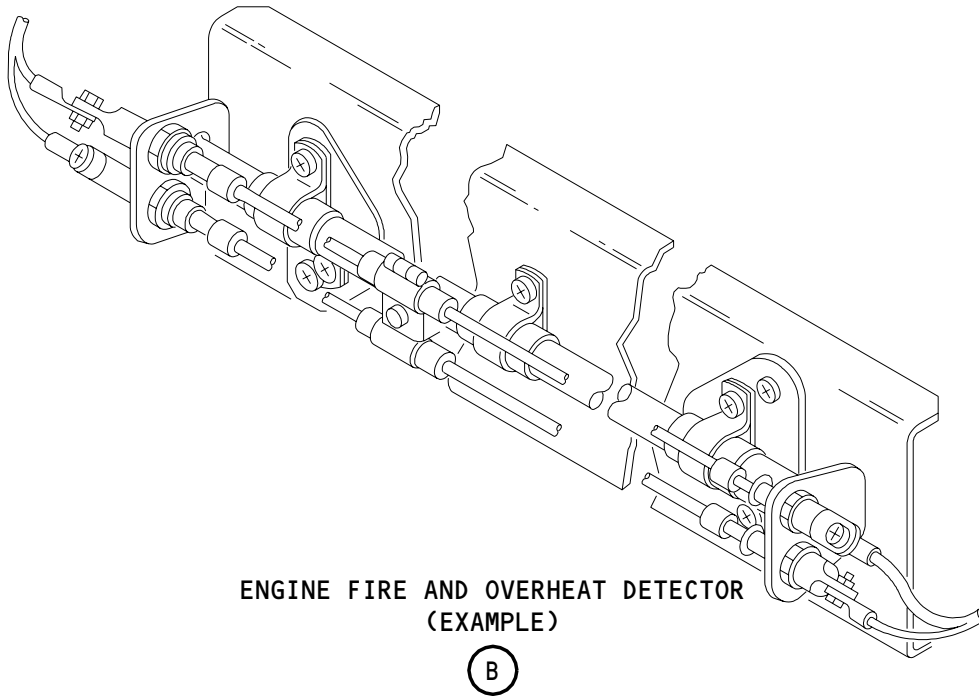
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Engine Fire and Overheat Detection - Component Location  
Figure 1 (Sheet 3)

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- (2) The detection control cards are in the P54 fire detection card file. The card file is in the electrical/electronic equipment compartment, along the right side of the nose gear wheel well.

C. Fire/Overheat Logic/Test Cards

- (1) Two AFOLTS (Automatic Fire/Overheat Logic/Test System) cards interpret detection control card signals, provide system functional tests, and output fire/overheat warning and fault indication signals. Each card handles the fire and overheat detection systems for one engine.
- (2) The AFOLTS cards are located in the P54 card file.

D. Fire/Overheat Test Panel

- (1) The fire/overheat test panel contains a momentary pushbutton switch - ENG/APU/CARGO. This switch initiates a test of the fire, overheat, and smoke detection systems for the engines, APU, and cargo compartments. The test results in applicable fire and overheat indications in the cockpit.
- (2) The test panel contains a momentary pushbutton switch - WHL WELL. This switch initiates a test of the wheel well fire detection system. The test results in a wheel well fire indication.
- (3) The test panel also has an amber SYS FAIL - FAIL P-RESET switchlight. This switchlight indicates a fire, overheat, or smoke detection system failure. The switchlight is pressed to reset.
- (4) The fire/overheat test panel is on aft pilots' control stand P8.

3. Operation (Fig. 2)

A. Functional Description

- (1) With 28-volt dc power applied to the systems, current is sent from each control card to the detectors in the corresponding loop. Each detector element has a resistance value, and is in series with the other elements within the loop. Thus, each loop has an equivalent resistance value, and the control card senses a loop voltage potential.
- (2) As temperature increases, the detector resistance decreases. When detector element resistance drops to 450 ohms, a timer on the control card starts. If the resistance drops to 250 ohms or below before the timer has run out, a fault indication is passed on to the AFOLTS card. If the timer has already expired before the resistance drops to 250 ohms, a fire indication will be given when the detector drops below 250 ohms.
- (3) The AFOLTS card configures the signals from each system in AND logic, and determines the appropriate output to the flight crew. See Table 1.

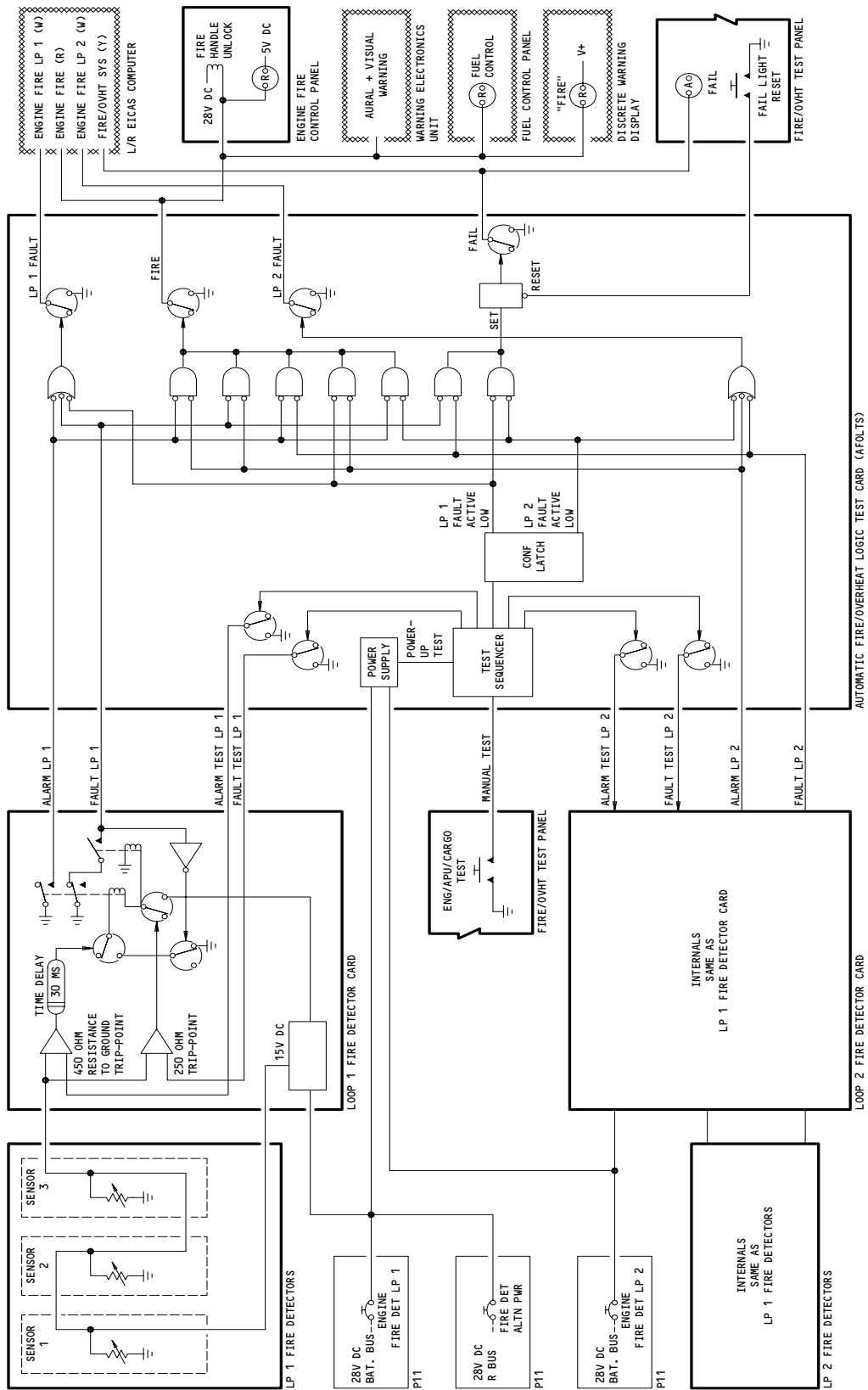
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Engine Fire Detection Schematic (Typical)  
Figure 2

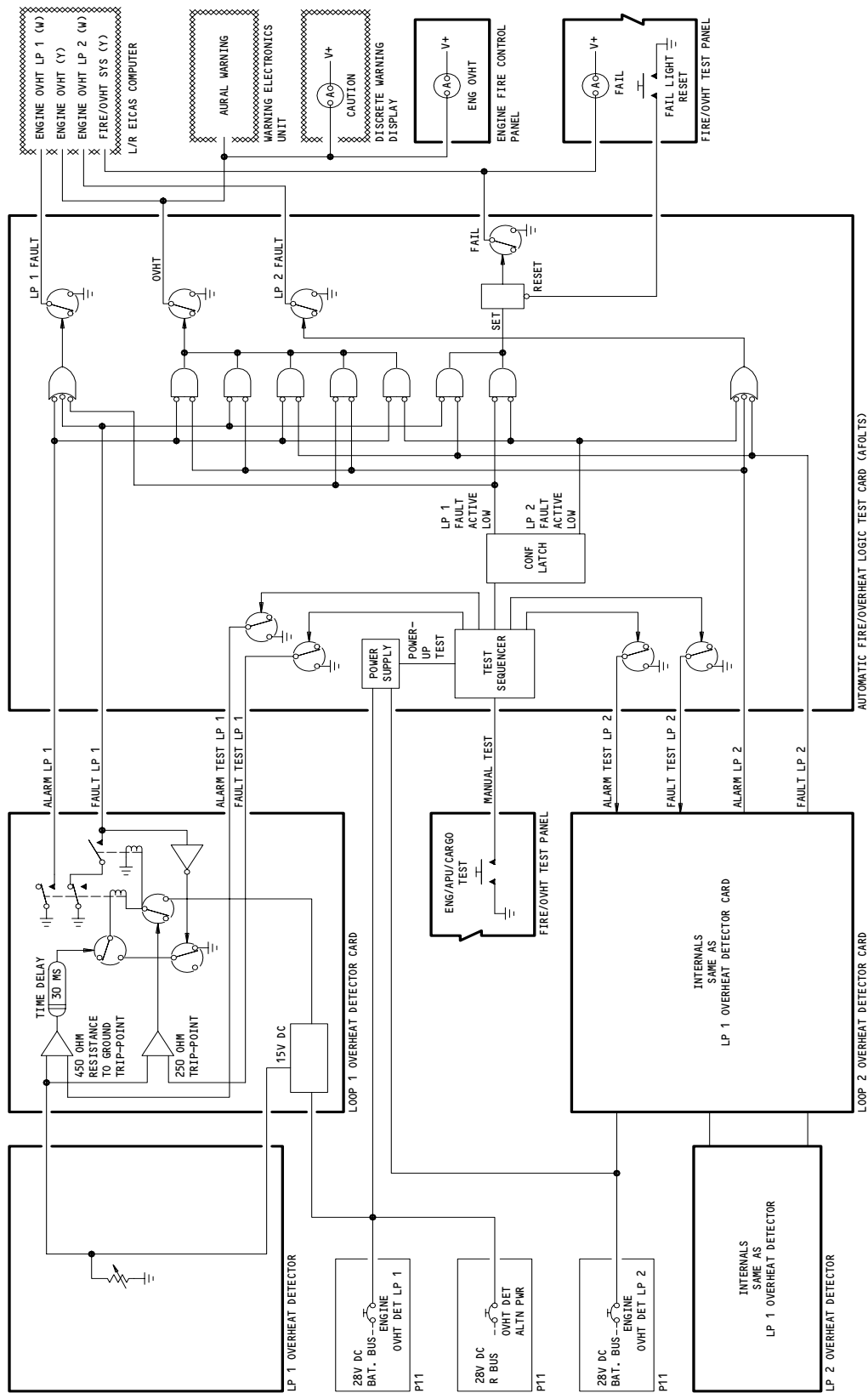
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Engine Overheat Detection Schematic (Typical)  
Figure 3

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INPUTS TO AFOLTS		AFOLTS OUTPUTS	
LOOP 1	LOOP 2	FIRE DETECTION SYSTEMS	OVERHEAT DETECTION SYSTEMS
ALARM	ALARM	FIRE	OVHT
ALARM	-----	EICAS LOOP 1	EICAS LOOP 1
ALARM	FAULT	FIRE	OVHT
-----	ALARM	EICAS LOOP 2	EICAS LOOP 2
FAULT	ALARM	FIRE	OVHT
FAULT	-----	EICAS LOOP 1	EICAS LOOP 1
FAULT	FAULT	FAIL	FAIL
-----	FAULT	EICAS LOOP 2	EICAS LOOP 2

TABLE 1  
Logic System Operation  
Engine Fire/Ovht Detection Loops  
AND Configuration

- (4) An engine fire indication is given by the following:
- (a) The appropriate red (LEFT or RIGHT) fire switch handle, on the P8 control stand, lights up and unlocks.
  - (b) The appropriate red (L or R) fuel control switch, on quadrant stand P10, lights up.
  - (c) The red FIRE light, on captain's instrument panel P1-3, comes on.
  - (d) The appropriate fire warning message - L or R ENGINE FIRE, is displayed on EICAS (Engine Indication and Crew Alerting System - P2 panel).
  - (e) The red master warning lights, on glareshield panels P7, come on.
  - (f) The fire bell sounds, on the flight deck aural warning speakers.
- (5) An engine overheat indication is given by the following:
- (a) The appropriate amber engine overheat light - L or R ENG OVHT, on the P8 control stand, comes on.
  - (b) The appropriate overheat caution message - L or R ENG OVHT, is displayed on EICAS (P2).
  - (c) The amber master caution lights, on glareshield panels P7, come on.
  - (d) The caution annunciation tone sounds, on the flight deck aural warning speakers.

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- (6) A dual-loop fault indication is given by the following:
  - (a) The amber FAIL P-RESET switchlight, on the P8 control stand, comes on.
  - (b) The advisory message - FIRE/OVHT SYS, is displayed on EICAS (P2).
  - (c) The appropriate system maintenance messages are displayed on EICAS:
    - 1) L ENG OH LP 1 and 2.
    - 2) R ENG OH LP 1 and 2.
    - 3) L ENG FIRE LP 1 and 2.
    - 4) R ENG FIRE LP 1 and 2.
- (7) The FAIL P-RESET switchlight is pressed to reset the fault monitoring circuitry of the failed system. This also turns off the FAIL P-RESET switchlight, and clears the EICAS advisory message - FIRE/OVHT SYS.
- (8) A single-loop fault or alarm signal indication is given by the following:
  - (a) The appropriate maintenance message is displayed on EICAS (P2):
    - 1) L ENG OH LP 1 or 2.
    - 2) R ENG OH LP 1 or 2.
    - 3) L ENG FIRE LP 1 or 2.
    - 4) R ENG FIRE LP 1 or 2.
  - (b) The amber master caution lights, on P7, come on.
- (9) Detector, card, or associated wiring failures may not provide a valid fault output at the moment of failure. These inoperative loops can only be detected during a system test.

B. Test

- (1) When a test occurs, the AFOLTS cards send out signals to each loop of the detection systems. Returned signals indicate operating loops. If any loop is found faulty, AFOLTS reconfigures that system to operate on the remaining loop. If the remaining loop sustains an alarm or fault condition, then a fire/overheat warning or fail indication results.
- (2) Power-up mode:
  - (a) Whenever power is first applied to the battery bus, or a power interruption of two msec or more occurs, an automatic system self-test occurs. All single-loop maintenance messages are momentarily displayed on EICAS (P2). If any loop is found faulty, then the appropriate loop message remains on EICAS display, and the system is reconfigured to the other loop. If both loops of a system are found faulty, then the FAIL P-RESET switchlight (on P8) comes on, and EICAS displays the advisory message - FIRE/OVHT SYS. Cockpit fire/overheat warnings will not be initiated by a power-up test.

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- (3) Manual system test:
- (a) When the ENG/APU/CARGO switch on the fire/overheat test panel (on P8) is pressed and held – the engine, APU, and cargo detection systems go through a self-test. All loop messages are displayed on EICAS. The ECS/MSG switch is used to advance to the next EICAS page in order to display all EICAS messages. After a two-second delay, a successful test terminates with all fire and overheat indications. The engine indications are:
    - 1) The red L and R fire switch handles light up, and unlock (on P8).
    - 2) The red L and R fuel control switches light up (on P10).
    - 3) The red FIRE light comes on (on P1-3).
    - 4) The amber LEFT and RIGHT ENG OVHT lights come on (on P8).
    - 5) EICAS displays L and R ENGINE FIRE (warnings), and L and R ENG OVHT (cautions).
    - 6) The red master warning lights, and amber master caution lights come on (on P7). The amber master caution lights will not light if both fuel control switches are in cutoff.
    - 7) The fire bell sounds on the aural warning speakers.
  - (b) When the ENG/APU/CARGO switch is released, all messages and indications should clear, except for any faulty-loop messages which will remain on EICAS. The FAIL P-RESET switchlight, and EICAS advisory message – FIRE/OVHT SYS, will also remain on if there is a dual-loop fault.
- (4) The manual system test and power-up/power-interrupt mode will not invalidate an alarm in progress.

C. Control

- (1) Turn-on procedure:
- (a) Provide electrical power (AMM 24-22-00/201).
  - (b) Check that the following overhead panel P11 circuit breakers are closed:
    - 1) 11B19, FIRE SWITCH UNLOCK
    - 2) 11B20, FIRE DETECTION LEFT ENGINE 1
    - 3) 11B21, FIRE DETECTION LEFT ENGINE 2
    - 4) 11B22, FIRE DETECTION RIGHT ENGINE 1
    - 5) 11B23, FIRE DETECTION RIGHT ENGINE 2
    - 6) 11B29, OVERHEAT DETECT LEFT ENGINE 1
    - 7) 11B30, OVERHEAT DETECT LEFT ENGINE 2
    - 8) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
    - 9) 11B32, OVERHEAT DETECT RIGHT ENGINE 2

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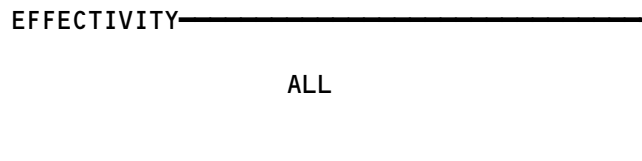
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FAULT ISOLATION/MAINT MANUAL

ENGINE FIRE DETECTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CARD FILE P54 - (26-10-00/101)				
CIRCUIT BREAKERS -	2		FLIGHT COMPARTMENT, P11	
L ALTERNATE POWER FIRE DETECTION ENGINE C763		1	11K30	*
R ALTERNATE POWER FIRE DETECTION ENGINE C764		1	11K31	*
L ALTERNATE POWER OVHT DETECT ENGINE C767		1	11K34	*
R ALTERNATE POWER OVHT DETECT ENGINE C768		1	11K35	*
FIRE DETECTION LEFT ENGINE 1, C774		1	11B20	*
FIRE DETECTION LEFT ENGINE 2, C783		1	11B21	*
FIRE DETECTION RIGHT ENGINE 1, C775		1	11B22	*
FIRE DETECTION RIGHT ENGINE 2, C784		1	11B23	*
FIRE SWITCH UNLOCK, C793		1	11B19	*
OVERHEAT DETECT L ENGINE 1, C789		1	11B29	*
OVERHEAT DETECT L ENGINE 2, C790		1	11B30	*
OVERHEAT DETECT R ENGINE 1, C791		1	11B31	*
OVERHEAT DETECT R ENGINE 2, C792		1	11B32	*
ELEMENT - ENGINE FIRE DETECTOR	1	3	EACH ENGINE, COWL PANELS	26-11-02
ELEMENT - ENGINE OVERHEAT DETECTOR	1	1	EACH ENGINE, COWL PANELS	26-11-02
PANEL - FIRE/OVHT TEST, M10445	2	1	FLIGHT COMPARTMENT, P8	26-11-01

\* SEE THE WDM EQUIPMENT LIST

Engine Fire Detection System - Component Index  
Figure 101



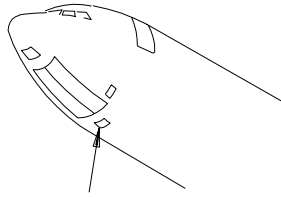
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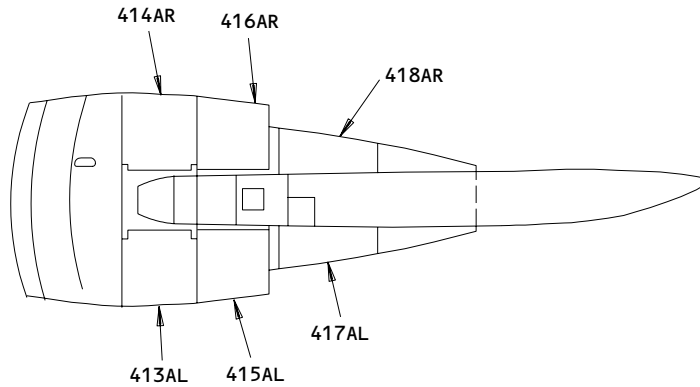
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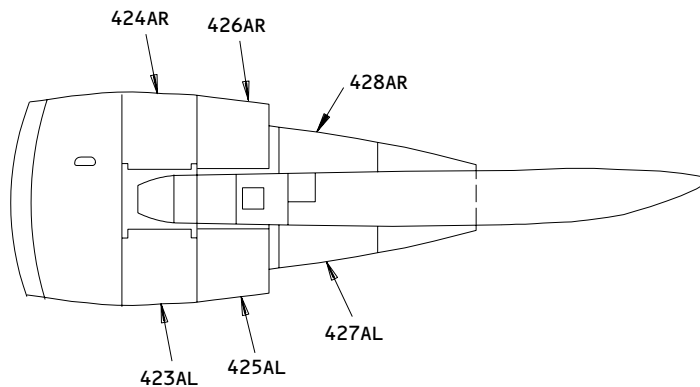
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 FAULT ISOLATION/MAINT MANUAL



MAIN EQUIPMENT  
 CENTER ACCESS DOOR, 119AL



NO. 1 ENGINE  
 (TOP VIEW)



NO. 2 ENGINE  
 (TOP VIEW)

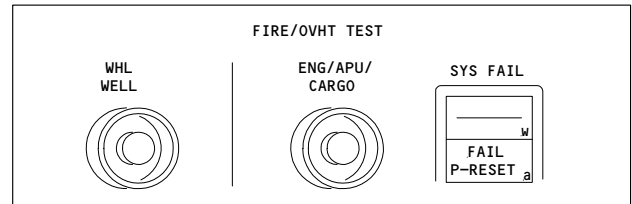
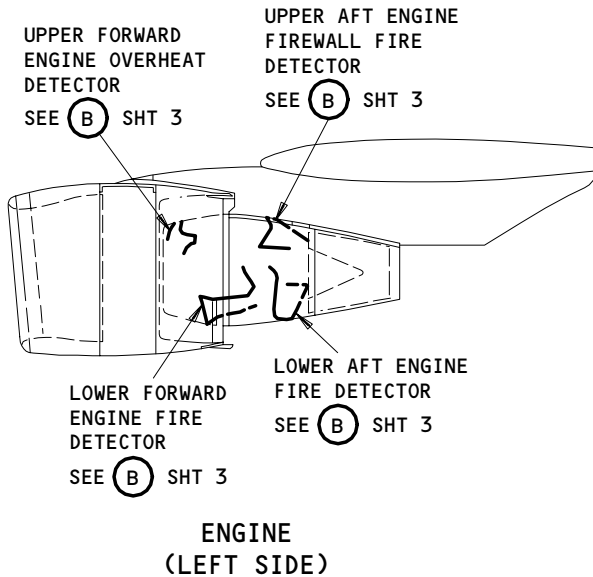
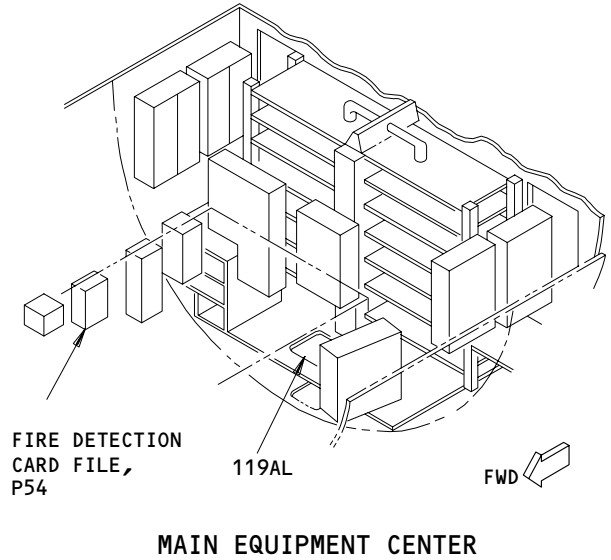
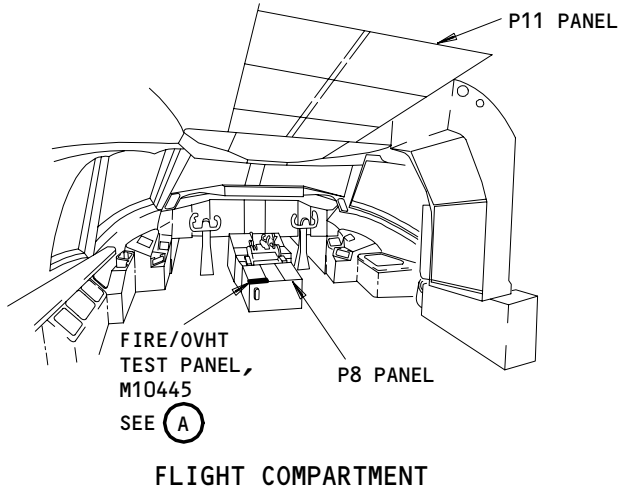
Engine Fire Detection System - Component Location  
 Figure 102 (Sheet 1)

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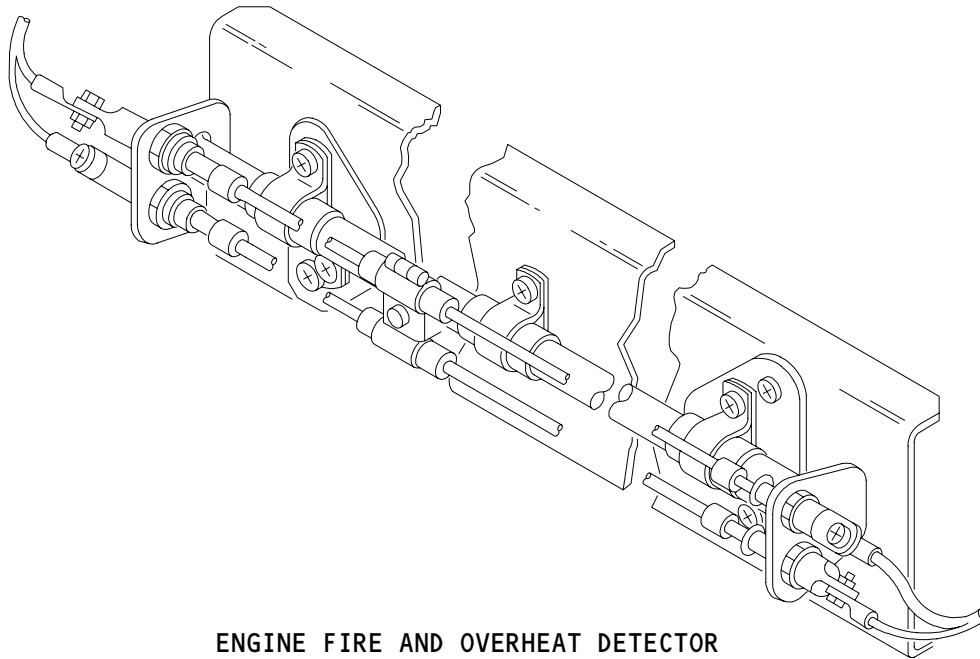


FIRE/OVHT TEST PANEL, M10445  
(A)

Engine Fire Detection System - Component Location  
Figure 102 (Sheet 2)

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ENGINE FIRE AND OVERHEAT DETECTOR  
(EXAMPLE)

(B)

Engine Fire and Overheat Detection - Component Location  
Figure 102 (Sheet 3)

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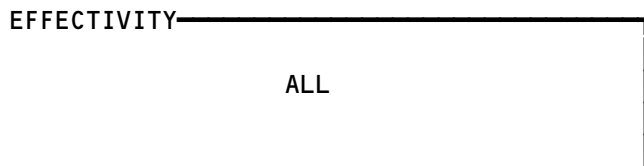
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Figure 103



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159781

ENGINE FIRE DETECTION SYSTEM – ADJUSTMENT/TEST

1. General

- A. This section contains procedures to do an operational test and a system test of the engine fire detection system.
- (1) The operational test will make sure the system operates correctly in a minimum of time. Only equipment installed in the plane will be used.
  - (2) The system test increases the function of the operational test. The system test will make sure that all of the performance requirements of the system occur correctly.

TASK 26-11-00-715-001

2. Operational Test – Engine Fire Detection System

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 31-41-00/201, Engine Indication and Crew Alerting System (EICAS)
- (3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 33-16-00/501, Master Dim and Test System
- (6) AMM 78-31-00/201, Thrust Reverser System, Fan Duct Cowl and Thrust Reverser Opening and Closing

B. Access

- (1) Location Zones

119/120	Main Equipment Center
200	Upper Half of Fuselage
211/212	Flight Compartment

C. Prepare for Test

S 865-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-003

- (2) Make sure these systems operate:
  - (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 755-004

- (3) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
  - (a) 11B19, FIRE SWITCH UNLOCK
  - (b) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (c) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (d) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (e) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (f) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (g) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (h) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
  - (i) 11B32, OVERHEAT DETECT RIGHT ENGINE 2

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- (j) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (k) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (l) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L
- (m) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

S 865-005

- (4) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 865-006

- (5) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
  - (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11B26, FIRE DETECTION CARGO 1
  - (d) 11B27, FIRE DETECTION CARGO 2
  - (e) 11K32, ALTERNATE POWER FIRE DETECTION APU
  - (f) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

D. Do a Test of the Engine Fire Detection Loops

S 865-007

- (1) Make sure the LEFT and RIGHT engine fire switch handles, on the pilots aft control stand, P8, are locked in position.

S 865-008

- (2) Push the ECS MSG switch on the EICAS maintenance panel (on P61).

S 865-009

- (3) Push and hold the ENG/APU/CARGO switch, on the FIRE/OVHT TEST panel (on P8).

S 755-010

- (4) Make sure these EICAS messages show on the bottom display. Use the ECS MSG switch, if necessary, to look at the subsequent EICAS pages:
  - (a) 5 L ENG OH LP 1 and L ENG OH LP 2.
  - (b) R ENG OH LP 1 and R ENG OH LP 2.
  - (c) L ENG FIRE LP 1 and L ENG FIRE LP 2.
  - (d) R ENG FIRE LP 1 and R ENG FIRE LP 2.

S 755-011

- (5) After 2-4 seconds, make sure these indications occur:
  - (a) The red LEFT and RIGHT engine fire switch handle lights, on P8, come on.
  - (b) The red L and R fuel control switches, on the quadrant control stand, P10, come on.
  - (c) The red FIRE light, on the captains instrument panel, P1-3, comes on.

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- (d) The yellow L and R ENG OVHT lights, on P8, come on.
- (e) The EICAS messages L ENGINE FIRE and R ENGINE FIRE show on the top display.
- (f) The EICAS messages L ENG OVHT and R ENG OVHT show on the top display.
- (g) The red master warning lights, on the glareshield panel, P7, come on.
- (h) The fire bell is heard.

S 865-012

- (6) Pull the LEFT and RIGHT engine fire switch handles out (P8). Do not turn the handles.

S 755-013

- (7) Make sure these indications occur:
  - (a) The red LEFT and RIGHT engine fire switch handles stay on.
  - (b) DELETED

S 865-014

- (8) Push the fire switch handles back in.

S 865-282

- (9) Release the ENG/APU/CARGO switch.

S 715-148

- (10) Make sure all of the indications stop.

E. Do a Test of the Fire Detection System Fail Light

S 865-015

- (1) Open the circuit breakers on the P11 panel which are listed in Table 1 for the left engine fire detection system. Attach DO-NOT-CLOSE tags.

TABLE 1		
SYSTEM	CARDS	CIRCUIT BREAKERS
L ENG FIRE	M681 M682	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B20, FIRE DETECTION LEFT ENGINE 1 11B21, FIRE DETECTION LEFT ENGINE 2 11J34, WARN ELEX A 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, R IND LTS 2

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R ENG FIRE	M683 M684	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B19, FIRE SWITCH UNLOCK 11B22, FIRE DETECTION RIGHT ENGINE 1 11B23, FIRE DETECTION RIGHT ENGINE 2 11J34, WARN ELEX A 11K31, ALERNATE POWER FIRE DETECTION ENGINE R 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, R IND LTS 2
L ENG OVHT	M687 M688	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B29, OVERHEAT DETECT LEFT ENGINE 1 11B30, OVERHEAT DETECT LEFT ENGINE 2 11J34, WARN ELEX A 11K34, ALTERNATE POWER OVHT DETECT ENGINE L 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, R IND LTS 2
R ENG OVHT	M689 M690	11A33, IND LIGHTS 1 11A34, IND LIGHTS 2 11A35, IND LIGHTS 3 11B18, WARN ELEX B 11B31, OVERHEAT DETECT RIGHT ENGINE 1 11B32, OVERHEAT DETECT RIGHT ENGINE 2 11J34, WARN ELEX A 11K35, ALTERNATE POWER OVHT DETECT ENGINE R 11P1, LIGHTING INSTRUMENT & PANEL AISLE STAND 11R29, R IND LTS 2

S 035-016

- (2) Remove the printed circuit cards, M681 and M682, from the fire detection card file, P54. P54 is in the main equipment center, along the right side of the nose gear wheel well.

S 865-017

- (3) Remove the DO-NOT-CLOSE tags and close the circuit breakers on the P11 panel which were opened, in Table 1.

S 755-018

- (4) Make sure the yellow FAIL P-RESET light (P8) is on.

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- S 755-019
- (5) Make sure the EICAS message FIRE/OVHT SYS shows on the top display.
- S 865-020
- (6) Push the FAIL P-RESET switchlight.
- S 215-149
- (7) Make sure the yellow FAIL P-RESET light (P8) goes off.
- S 755-021
- (8) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.
- S 865-022
- (9) Open the circuit breakers on the P11 panel, which were closed in Table 1, and attach DO-NOT-CLOSE tags.
- S 435-023
- (10) Install the printed circuit cards, M681 and M682.
- S 865-024
- (11) Remove the DO-NOT-CLOSE tags and the circuit breakers on the P11 panel, which were opened in Table 1.
- S 865-150
- (12) Do the test again for the right engine fire detection system. Use the printed circuit cards, M683 and M684.
- S 865-151
- (13) Do the test again for the left engine overheat detection system. Use the printed circuit cards, M687 and M688.
- S 865-163
- (14) Do the test again for the right engine overheat detection system. Use the printed circuit cards, M689 and M690.
- S 865-283
- (15) Put the airplane back to its usual condition if the System Test is not to be performed.

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F. Do a Test of the Fire Detection System Fail Light (Alternate Method)(Kidde)

S 865-300

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 435-301

- (2) Connect a jumper wire between terminal lug connectors A and B, on the lower forward fire detector, TS683, and ground.

S 865-302

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 755-303

- (4) Make sure these indications occur:
  - (a) The EICAS message FIRE/OVHT SYS message shows on the top display.
  - (b) The yellow FAIL P-RESET switchlight on the aft pilots control stand, P8, comes on.

S 865-318

- (5) Push the FAIL P-RESET switchlight (on P8).

S 755-304

- (6) Make sure the yellow FAIL P-RESET switchlight goes off.

S 755-305

- (7) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.

S 865-306

- (8) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11b21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (d) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (f) 11K34, ALTERNATE POWER OVHT DETECTION ENGINE L

S 035-307

- (9) Disconnect the jumpers from the terminal lug connectors A and B on TS683.

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S 435-308

- (10) Connect a jumper wire between terminal lugs A and B, on the upper forward detector, TS684, and ground.

S 865-309

- (11) Remove the Do-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (d) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (f) 11K34, ALTERNATE POWER OVHT DETECTION ENGINE L

S 755-310

- (12) Make sure these indications occur:
- (a) The yellow FAIL P-RESET switchlight (on P8) comes on.
  - (b) The EICAS message FIRE/OVHT SYS shows on the top display.

S 865-311

- (13) Push the FAIL P-RESET switchlight (on P8).

S 755-312

- (14) Make sure the yellow FAIL P-RESET switchlight goes off.

S 755-313

- (15) Make sure the EICAS message FIRE/OVHT does not show on the top display.

S 865-314

- (16) Open these circuit breakers on the P11 panel and attach the DO-NOT-CLOSE tags:
- (a) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (b) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (c) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

S 035-315

- (17) Disconnect the jumpers from the terminal lug connectors A and B on TS684.

S 755-316

- (18) Do a Test of the Engine Fire Detection Loops (AMM 26-11-00/501).

S 865-317

- (19) Put the airplane back to its usual condition if the System Test is not to be performed.

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TASK 26-11-00-735-284

3. System Test - Engine Fire Detection System

A. Equipment

- (1) Decade Resistance Box that can measure 200-600 Ohms  $\pm 2$  percent, Commercially Available

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control  
(2) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)  
(3) AMM 31-51-00/501, Warning System  
(4) AMM 33-16-00/501, Master Dim and Test System  
(5) AMM 78-31-00/201, Thrust Reverser System, Fan Duct Cowl and Thrust Reverser Opening and Closing

C. Access

(1) Location Zones

119/120	Main Equipment Center
200	Upper Half of Fuselage
212/212	Flight Compartment
410	No. 1 Power Plant (L)
420	No. 2 Power Plant (R)

(2) Access Panels

413/423	L, R Fan Cowl Panel (Left)
414/424	L, R Fan Cowl Panel (Right)
415/425	L, R Fan Reverser (Left)
416/426	L, R Fan Reverser (Right)
417/427	L, R Core Cowl (Right)
418/428	L, R Core Cowl (Right)

D. Prepare to Test

S 715-026

- (1) Do the Operational Test.

S 015-027

**WARNING:** OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (2) Open both halves of the left engine fan duct cowl and thrust reversers (AMM 78-31-00).

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E. Do the System Fail Test.

S 865-028

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 435-031

- (2) Do this step:
  - (a) Connect a jumper wire between terminal lug connectors A and B, on the lower forward fire detector, TS683, and ground.

S 865-055

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 755-056

- (4) Make sure these indications occur:
  - (a) The yellow FAIL P-RESET switchlight on the aft pilots control stand, P8, comes on.
  - (b) The EICAS message FIRE/OVHT SYS shows on the top display.

S 865-285

- (5) Push the ECS/MSG switch on the EICAS maintenance panel.

S 755-286

- (6) Make sure these indications occur:
  - (a) The EICAS maintenance messages L ENG FIRE LP 1 and L ENG FIRE LP 2 show on the bottom display.

S 865-057

- (7) Push the FAIL P-RESET switchlight (on P8).

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- S 755-058
- (8) Make sure the yellow FAIL P-RESET switchlight goes off.
- S 755-059
- (9) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.
- S 865-060
- (10) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (d) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (f) 11K34, ALTERNATE POWER OVHT DETECTION ENGINE L
- S 035-065
- (11) Do this step:
- (a) Disconnect the jumpers from the terminal lug connectors A and B on TS683.
- S 435-295
- (12) Do this step:
- (a) Connect a jumper wire between terminal lug connectors A and B, on the upper forward fire detector, TS684, and ground.
- S 865-101
- (13) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (d) 11B30, OVERHEAT DETECT LEFT ENGINE 2

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- (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (f) 11K34, ALTERNATE POWER OVHT DETECTION ENGINE L

S 755-102

- (14) Make sure these indications occur:
  - (a) The yellow FAIL P-RESET switchlight (on P8) comes on.
  - (b) The EICAS message FIRE/OVHT SYS shows on the top display.

S 865-287

- (15) Push the ECS/MSG switch on the EICAS maintenance panel.

S 755-288

- (16) Make sure these indications occur:
  - (a) The EICAS maintenance messages L ENG OH LP 1 and L ENG OH LP 2 show on the bottom display.
  - (b) The EICAS maintenance messages L ENG FIRE LP 1 and L ENG FIRE LP 2 do not show on the bottom display.

S 865-103

- (17) Push the FAIL P-RESET switchlight (on P8).

S 755-104

- (18) Make sure the yellow FAIL P-RESET switchlight goes off.

S 755-105

- (19) Make sure the EICAS message FIRE/OVHT SYS does not show on the top display.

S 865-106

- (20) Open these circuit breakers on the P11 panel and attach the DO-NOT-CLOSE tags:
  - (a) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (b) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (c) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

S 035-109

- (21) Do this step:
  - (a) Disconnect the jumpers from the terminal lug connectors A and B on TS684.

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S 865-132

- (22) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (b) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (c) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

S 865-289

- (23) Push the ECS/MSG switch on the EICAS maintenance panel.

S 755-290

- (24) Make sure these indications occur:
- (a) The EICAS maintenance messages L ENG OH LP 1 and L ENG OH LP 2 do not show on the bottom display.

F. Do the Detector Element Fire/Overheat Test

S 865-114

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 435-135

- (2) Do this step:
- (a) Connect the decade resistance box, set at 600 ohms, between terminal lug connector A, on the lower forward fire detector, TS683, and ground. Connect a jumper between terminal lug connector B and ground.

S 865-144

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1

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- (b) 11B21, FIRE DETECTION LEFT ENGINE 2
- (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 865-145

- (4) Set the decade box to 360 ohms and wait 2 to 5 seconds.

S 865-146

- (5) Set the decade box to 200 ohms.

S 755-147

- (6) Make sure these left engine fire indications occur:
  - (a) The red L fire switch handle (on P8) comes on.
  - (b) The red L fuel control switch (on P10) comes on.
  - (c) The red FIRE light (on P1-3) comes on.
  - (d) The EICAS message L ENGINE FIRE shows on the bottom display.
  - (e) The red master warning lights (on P7) come on.
  - (f) The fire bell is heard.

S 865-148

- (7) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
- (b) 11B21, FIRE DETECTION LEFT ENGINE 2
- (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 035-139

- (8) Do this step:
  - (a) Disconnect the decade resistance box from the terminal lug connector A, on TS683, and the jumper wire from terminal lug connector B.
  - (b) Connect the decade resistance box, set at 600 ohms, between terminal lug connector B and ground. Connect a jumper wire between terminal lug connector A and ground.

S 865-164

- (9) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
- (b) 11B21, FIRE DETECTION LEFT ENGINE 2
- (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 755-153

- (10) Make sure the left engine fire indications do not occur.

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S 865-154

- (11) Set the decade box to 360 ohms and wait 2 to 5 seconds.

S 865-155

- (12) Set the decade box to 200 ohms.

S 755-156

- (13) Make sure these left engine fire indications occur:
- (a) The red L fire switch handle (on P8) comes on.
  - (b) The red L fuel control switch (on P10) comes on.
  - (c) The red FIRE light (on P1-3) comes on.
  - (d) The EICAS message L ENGINE FIRE shows on the bottom display.
  - (e) The red master warning lights (on P7) come on.
  - (f) The fire bell is heard.

S 865-157

- (14) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 035-143

- (15) Do this step:
- (a) Disconnect the decade resistance box from terminal lug connector B and the jumper wire from terminal lug connector A.

S 865-160

- (16) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L

S 755-145

- (17) Make sure the left engine fire indications do not occur.

S 735-146

- (18) Repeat the Detector Element Fire/Overheat Test for the upper forward overheat detector.
- (a) Check this sensor:
    - 1) On detector TS684, use terminal lug connectors A and B.
  - (b) Use these circuit breakers on the P11 panel:
    - 1) 11B29, OVERHEAT DETECT LEFT ENGINE 1
    - 2) 11B30, OVERHEAT DETECT LEFT ENGINE 2
    - 3) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

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S 755-161

- (19) Make sure these left engine overheat indications occur:
- (a) The yellow L ENG OVHT light (on P8) comes on.
  - (b) The EICAS message L ENG OVHT shows on the top display.

S 415-277

**WARNING:** OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (20) Close the fan duct cowls and thrust reversers both halves (AMM 78-31-00).

S 735-278

- (21) Do the system test again for the right engine. Use the right engine circuit breakers, on the P11 panel, and make sure the right engine indications occur:
- (a) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (b) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (c) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
  - (d) 11B32, OVERHEAT DETECT RIGHT ENGINE 2
  - (e) 11K31, ALTERNATE POWER FIRE DETECTION R
  - (f) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R
- G. Put the Airplane back to Its Usual Condition.

S 865-279

- (1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11B26, FIRE DETECTION CARGO 1
  - (d) 11B27, FIRE DETECTION CARGO 2
  - (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (f) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (g) 11K32, ALTERNATE POWER FIRE DETECTION APU

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- (h) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (i) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L
- (j) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

S 865-280

- (2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel.
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 865-281

- (3) Remove electrical power if it is necessary (AMM 24-22-00/201).

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FIRE/OVERHEAT TEST PANEL – REMOVAL/INSTALLATION

1. General

- A. The FIRE/OVHT TEST panel, M10445, is located on the aft pilot's control stand, P8.

TASK 26-11-01-004-001

2. Remove the Panel

- A. Remove the Panel

S 864-002

- (1) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:  
(a) 11A34, IND LIGHTS 2  
(b) 11P03, INST/PNL OVHD

S 014-003

- (2) Remove the FIRE/OVHT TEST panel.

TASK 26-11-01-414-004

3. Install the Panel

- A. References

- (1) AMM 24-22-00/201, Electrical Power – Control  
(2) AMM 31-51-00/501, Warning System

- B. Install the FIRE/OVHT TEST panel.

S 414-005

- (1) Install the FIRE/OVHT TEST panel.

S 864-006

- (2) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the overhead circuit breaker, P11 panel:  
(a) 11A34, IND LIGHTS 2  
11P03, INST/PNL OVHD

- C. Do a Test of the Panel Installation.

S 864-007

- (1) Supply electrical power (AMM 24-22-00/201).

S 754-008

- (2) Make sure the Warning System operates (AMM 31-51-00/501).

S 754-009

- (3) Make sure these circuit breakers on the overhead circuit breaker panel, P11, panel are are closed:  
(a) 11A34, IND LIGHTS 2

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- (b) 11P03, INST/PNL OVHD
- (c) 11B10, WW FIRE/DUCT LEAK
- (d) 11B20, FIRE DETECTION LEFT ENGINE 1
- (e) 11B21, FIRE DETECTION LEFT ENGINE 2
- (f) 11B22, FIRE DETECTION RIGHT ENGINE 1
- (g) 11B23, FIRE DETECTION RIGHT ENGINE 2
- (h) 11B33, WW FIRE IND
- (i) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (j) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R

S 754-010

- (4) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel.

S 714-015

- (5) Make sure these indications occur:
  - (a) The red lights in LEFT and RIGHT engine fire switch handles, on the P8 panel, show.
  - (b) The red light in the APU fire switch handle (on P8) comes on.

NOTE: When the test switch is pushed an alternative Level A occurs.

- (c) The red FWD CARGO FIRE and AFT CARGO FIRE switchlights (on P8) come on.

S 864-011

- (6) Release the ENG/APU/CARGO switch and make sure the warning indications do not occur.

S 864-012

- (7) Push and hold the WHEEL WELL test switch on the FIRE/OVHT TEST panel.

S 754-013

- (8) Make sure the wheel well fire light, on the F/0s main instrument panel, P3-1, comes on.

S 754-014

- (9) Release the WHEEL WELL test switch and make sure the wheel well fire light goes off.

D. Put the airplane back to its initial condition

S 864-014

- (1) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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ENGINE FIRE/OVERHEAT DETECTOR ELEMENT – MAINTENANCE PRACTICES

1. General

- A. An engine with either Kidde or Systron Donner fire/overheat detector elements can be used for the engine fire detection system. With minimum changes to the engine fire and overheat detection system, a combination of engines with different fire/overheat detector elements can be used.
- B. When a combination of different fire/overheat detector elements is used the applicable engine fire and overheat detection cards in the P54 card file must be used. TABLE 1 contains left and right engine fire detection and overheat detection cards. It gives the applicable equipment number and the Boeing part number for the Kidde and Systron Donner cards.
- C. If Kidde fire/overheat detector elements are installed on an engine, Kidde fire and overheat detection cards must be installed in the P54 card file. If Systron Donner fire/overheat detector elements are installed on an engine, Systron Donner fire and overheat cards must be installed in P54.

TABLE 1			
		KIDDE CARD *[2]	SYSTRON DONNER CARD *[1]
M681 – M684 M687 – M690	Fire or Overheat Detector Cards	S332T301-75 or S332T301-90	S332T301-181

\*[1] S332T301-81 cards in stock can be used.

\*[2] S332T301-90 (replaces S332T301-75) should be used, if available.

NOTE: ONLY DETECTION CARDS S332T301-75 OR S3325301-90 MAY BE USED WITH A KIDDE ENGINE DETECTION SYSTEM ON PW4000 SERIES POWERED AIRPLANES.

TASK 26-11-02-012-001

2. Replace the Engine Fire and Overheat Detection Cards

A. References

- (1) AMM 24-22-00/201, Electrical Power Control

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(2) AMM 26-10-01/401, Fire Detection Card File - Printed Circuit Cards  
 B. Replace the Engine Fire and Overheat Detection Cards

S 022-002

- (1) Remove the four detection cards from P54 that would be used by the engine with different fire detection elements (AMM 26-10-01/401). See Table 1 for a listing of detection cards.

S 422-004

- (2) Install the four detection cards in P54 corresponding to the supplier of engine fire/overheat detector elements on the engine (AMM 26-10-01/401). See Table 1 the applicable detection for a listing of card part numbers.

C. Test the printed circuit card installation.

S 862-005

- (1) Supply electrical power (AMM 24-22-00/201).

S 752-006

- (2) Make sure the EICAS circuit breakers on the P11 panel are closed.

S 862-022

- (3) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel on the pilots aft control stand, P8.

S 752-009

- (4) Make sure these EICAS warning/caution messages show on the top display:

<u>CARD</u>	<u>EICAS MESSAGE</u>
M681	L ENGINE FIRE
M682	L ENGINE FIRE
M687	L ENG OVHT
M688	L ENG OVHT
M683	R ENGINE FIRE
M684	R ENGINE FIRE
M689	R ENG OVHT
M690	R ENG OVHT

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- S 752-010
- (5) Release the ENG/APU/CARGO switch.
- S 712-014
- (6) Make sure the EICAS messages do not show for the applicable replaced cards.
- S 862-012
- (7) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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ENGINE FIRE AND OVERHEAT DETECTOR ELEMENT – REMOVAL/INSTALLATION

1. General

- A. Four dual-element fire and overheat detectors are installed in each engine. These are: upper forward engine overheat, engine lower forward fire, engine lower aft fire, and engine firewall (upper aft) fire detectors. The removal/installation procedure is applicable to each detector element.

TASK 26-11-02-024-001

2. Remove the Detector Element (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 71-11-06/201, Core Cowl Panels
- (3) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

211/212	Flight Compartment
410	No. 1 Power Plant (L)
420	No. 2 Power Plant (R)

(2) Access Panels

413, 423	L, R Fan Cowl Panel (Left)
414, 424	L, R Fan Cowl Panel (Right)
415, 425	L, R Fan Reverser (Left)
416, 426	L, R Fan Reverser (Right)
417, 427	Core Cowl (LH)
418, 428	Core Cowl (RH)

C. Remove the Detector Element

S 864-002

- (1) To remove the detector elements on the left engine, open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B20, FIRE DETECTION LEFT ENGINE 1

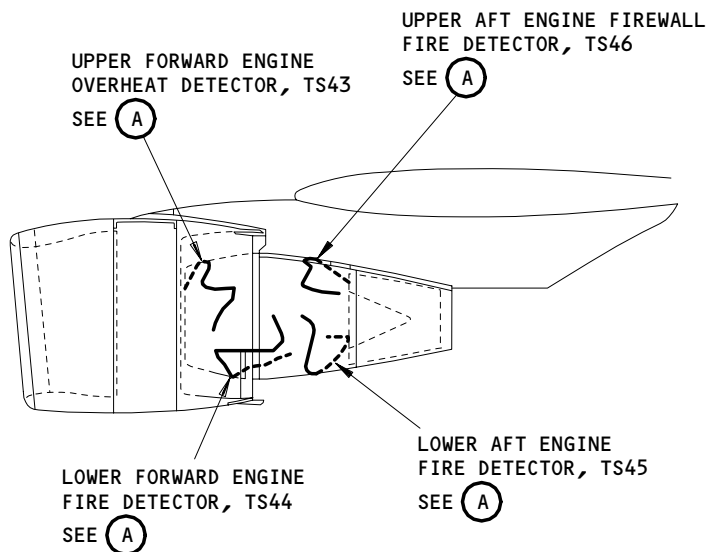
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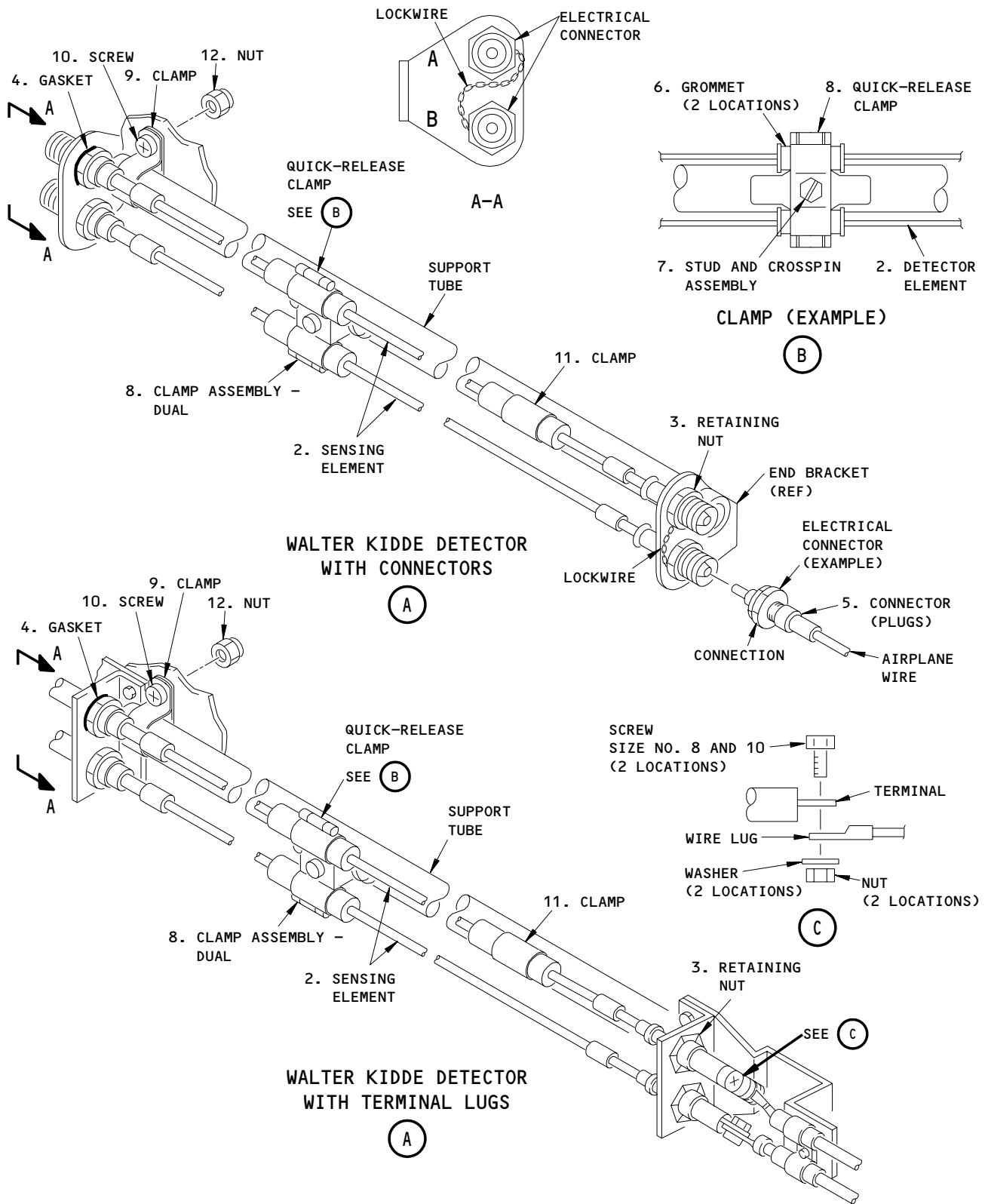


PRATT AND WHITNEY ENGINE

Engine Fire and Overheat Detector Element Installation  
Figure 401 (Sheet 1)

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Engine Fire and Overheat Detector Element Installation  
Figure 401 (Sheet 2)

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- (b) 11B21, FIRE DETECTION LEFT ENGINE 2
- (c) 11B29, OVERHEAT DETECT LEFT ENGINE 1
- (d) 11B30, OVERHEAT DETECT LEFT ENGINE 2
- (e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (f) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

S 864-003

- (2) To remove the detector elements on the right engine, open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (b) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (c) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
  - (d) 11B32, OVERHEAT DETECT RIGHT ENGINE 2
  - (e) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (f) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

S 014-004

**WARNING:** OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (3) To remove the detectors open these panels:
  - (a) For the upper forward overheat detector, open the fan duct cowl and the left half of the thrust reverser (AMM 78-31-00/201).
  - (b) For the lower forward and upper aft (firewall) fire detectors, open the fan duct cowl and each half of the thrust reverser (AMM 78-31-00/201).
  - (c) For the lower aft fire detector, open the fan duct cowl and each half of the thrust reverser (AMM 78-31-00/201).

S 034-083

- (4) Remove the detector.
  - (a) Disconnect the terminal lug nut (12), washer (11), and screw (10) at both ends of the detector.
  - (b) Remove the retaining nut (3), gasket (4) which hold the sensing element (2) connector to the end bracket of the support tube, at both ends of the detector.

S 024-088

- (5) Open the quick-release clamps and remove the detector assembly.

TASK 26-11-02-424-033

3. Install the Detector Element (Fig. 401)

A. Equipment

- (1) Torque Wrench - commercially available. Torque ranges: 0 to 70 pound-inches.

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B. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/501, Engine Indicating and Crew Alerting System (EICAS)
- (3) AMM 71-11-06/201, Core Cowl Panels
- (4) AMM 78-31-00/201, Thrust Reverser System

C. Access

(1) Location Zones

- 211/212
- 410 No. 1 Power Plant (L)
- 420 No. 2 Power Plant (R)

(2) Access Panels

- 413, 423 L, R Fan Cowl Panel (Left)
- 414, 424 L, R Fan Cowl Panel (Right)
- 415, 425 L, R Fan Reverser (Left)
- 416, 426 L, R Fan Reverser (Right)
- 417, 427 Core Cowl (LH)
- 418, 428 Core Cowl (RH)

D. Install the Detector Element

S 434-089

- (1) Install the first terminal lug connector.
  - (a) Install the gasket (4) on the terminal lug connector secure the connector through the hole in the end bracket of the support tube with the retaining nut (3).

S 424-095

- (2) Set the sensing element adjacent to the support tube and keep the correct tension between any two clamps.

S 424-122

- (3) Install the gromet (6) on the sensing element at the location of the mounting clamps.

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S 424-097

- (4) Set the element with the grommets in the clamps and tighten.

S 424-099

- (5) Adjust the element so that it will hang at a maximum of one inch over the opposite end of the responder (Fig. 401).

S 434-102

- (6) Install the remaining terminal lug connector.  
(a) Install the gasket (4) on the detector element (2) connector secure the connector through the hole in the end bracket of the support tube with the retaining nut (3).

NOTE: When you install the detector elements make sure there is a minimum clearance of 0.5 inches from their adjacent equipment/structure.

S 434-106

- (7) Install the airplane wiring.

CAUTION: DO NOT GIVE A LOAD OR BEND THE WIRE LUG WHEN YOU INSTALL THE DETECTOR ELEMENT. IF NOT ALIGNED CORRECTLY, THE WIRE LUG CAN BE DAMAGED AND A DETECTOR LOOP FAILURE CAN OCCUR.

- (a) Align the center line of the wire lug to the center line of the terminal.  
(b) Install the vendor supplied screw, washer and nut.  
(c) Hold the wire lug and screw together while you tighten the nut. Do not let the terminal lug turn.

NOTE: The position of the #8 and #10 screws changes. Tighten the nut as follows:  
# 8 Nut: 20 to 25 inches-pounds  
#10 Nut: 30 to 35 inch-pounds

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S 414-050

**WARNING:** OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

(8) Close the applicable fan duct cowl and thrust reversers (AMM 78-31-00/201).

E. Do a test of the detector element installation:

S 864-051

(1) Supply electrical power (AMM 24-22-00/201).

S 864-052

(2) On the forward pilots control stand, P9, do these steps:  
(a) Set the EICAS COMPUTER select switch to the AUTO position.  
(b) Set the display to STATUS.

S 754-053

(3) Make sure the EICAS circuit breakers on the pilots overhead panel, P11, are closed.

S 864-054

(4) For the left engine detectors, remove the DO-NOT-CLOSE tags, and close these P11 panel circuit breakers:  
(a) 11B20, FIRE DETECTION LEFT ENGINE 1  
(b) 11B21, FIRE DETECTION LEFT ENGINE 2  
(c) 11B29, OVERHEAT DETECT LEFT ENGINE 1  
(d) 11B30, OVERHEAT DETECT LEFT ENGINE 2  
(e) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L  
(f) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L

S 864-055

(5) For the right engine detectors, remove the DO-NOT-CLOSE tags, and close these P11 panel circuit breakers:  
(a) 11B22, FIRE DETECTION RIGHT ENGINE 1

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- (b) 11B23, FIRE DETECTION RIGHT ENGINE 2
- (c) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
- (d) 11B32, OVERHEAT DETECT RIGHT ENGINE 2
- (e) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (f) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

S 754-056

- (6) Make sure these applicable EICAS status messages do not show on the bottom display:
  - (a) L ENG FIRE LP 1
  - (b) R ENG FIRE LP 1
  - (c) L ENG FIRE LP 2
  - (d) R ENG FIRE LP 2
  - (e) L ENG OH LP 1
  - (f) R ENG OH LP 1
  - (g) L ENG OH LP 2
  - (h) R ENG OH LP 2

S 864-109

- (7) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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ENGINE FIRE AND OVERHEAT DETECTOR ELEMENT – CLEANING/PAINTING

TASK 26-11-02-107-003

1. Clean the Engine Fire Detector Connectors

A. Consumable Materials

- (1) Acetone
- (2) Compressed air or nitrogen

- (3) Methyl alcohol or Acetone

B. References

- (1) AMM 26-11-02/401, Engine Fire and Overheat Detector Element

C. Access

(1) Location Zones

- 410 No. 1 Power Plant (L)
- 420 No. 2 Power Plant (R)

(2) Access Panels

- 413, 423 L, R Fan Cowl Panel (Left)
- 414, 424 L, R Fan Cowl Panel (Right)
- 415, 425 L, R Fan Reverser (Left)
- 416, 426 L, R Fan Reverser (Right)
- 417, 427 L, R Core Cowl (Left)
- 418, 428 L, R Core Cowl (Right)

D. Procedure

S 027-015

- (1) Disconnect the electrical connector from the detector element (AMM 26-11-02/401).

S 437-004

- (2) If a covered contact was installed, use a needle nosed plier to remove and discard the contact.

**NOTE:** Do one connector at a time to prevent cross connection of the loops. With the covered contact removed, both connectors at the end of a detector are the same.

S 127-005

- (3) Remove all remaining contamination.

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S 117-017

**WARNING:** DO NOT GET CLEANING SOLUTIONS IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU CLEAN. KEEP CLEANING SOLUTIONS AWAY FROM SPARKS, FLAMES, AND HEAT. CLEANING SOLUTIONS ARE POISONOUS AND FLAMMABLE, AND CAN CAUSE INJURY TO PERSONS.

(4) Clean the connector with methyl alcohol or acetone only.

S 867-011

**CAUTION:** CLEAN THE CONNECTORS WITH METHYL ALCOHOL OR ACETONE ONLY. CONTACT CLEANERS WHICH ARE COMMERCIALY AVAILABLE, CAN CONTAIN CHLORIDES WHICH CAUSE CORROSION IN SEALED AREAS AND MUST BE PREVENTED.

(5) Use dry compressed air or nitrogen to dry the connectors fully before assembly.

S 437-008

(6) If the covered contact was removed, install a new covered contact.

S 427-009

(7) Connect the electrical connector to the detector element (AMM 26-11-02/401).

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LAVATORY SMOKE DETECTION – DESCRIPTION AND OPERATION

1. General

- A. A smoke detector is installed in each lavatory to alert cabin attendants and flight crew members in the event of a lavatory fire.

NOTE: THE LAVATORY SMOKE DETECTORS MAY NOT BE TRIGGERED BY CIGARETTE SMOKE.

- B. The lavatory smoke detection system consists of a smoke detector sensor installed in each lavatory, and an Alarm Panel capable of controlling up to six sensor inputs (one from each lavatory).
- C. Each smoke detection system has the following features:
- (1) Smoke Detector Sensor located in each lavatory.
  - (2) SAS 155, 164-199;  
Lavatory crew smoke warning lights located outside of each lavatory.
  - (3) Two Alarm Control Panels. One is located in the fwd galley and one is located in the aft galley. Each panel consists of these:
    - (a) Alarm indicator lamp (red) – illuminates when smoke is detected.
    - (b) Location indicator – provides location of smoke detector with warning indication.
    - (c) Power indicator – (green) indicates power condition.
    - (d) Alarm horn – produces a continuous or intermittent (depending on preset conditions) tone when smoke is detected.
    - (e) Horn shut-off – interrupts horn for system under warning condition.
    - (f) Self-test switch – checks function of alarm panel and sensitivity of smoke detectors.
    - (g) Fault indicator – illuminates when sensor or alarm panel is at fault.
    - (h) Select switches – indicates the number of smoke sensors in service. Located on the back of the alarm control panel.
      - Use the SELECT position when the associated lavatory detector is installed.
      - Use the DESELECT position when the associated lavatory detector is not installed.

2. Operation

A. Functional Description

- (1) Lavatory smoke detectors use a dual chamber ionization sensor with a centralized control system to sense smoke.
- (2) When sufficient smoke particles are present to trigger the preset threshold, the signal is sent to the Alarm Panel and the alarm indications occur. When smoke has cleared below the threshold level the alarm indications stop.
- (3) When smoke is detected, the following alarm indications occur:
  - (a) Alarm indicator (red) is illuminated on Alarm Panel.
  - (b) Alarm horn sounds.
  - (c) Location indicator (red) is illuminated on Alarm Panel.

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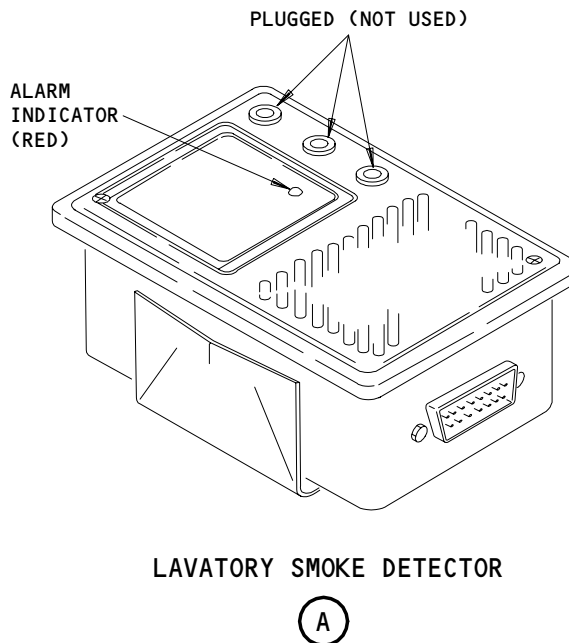
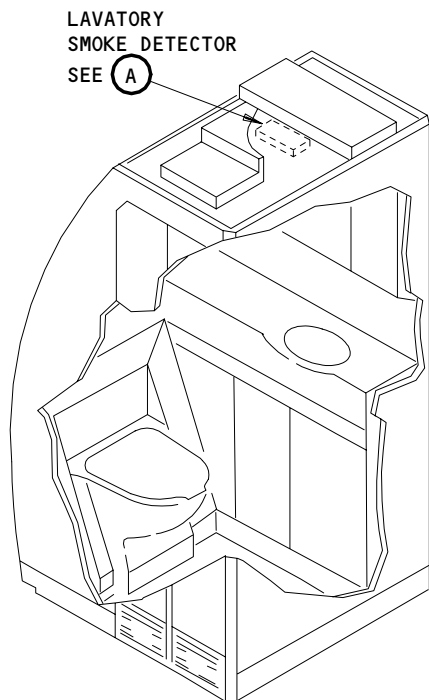
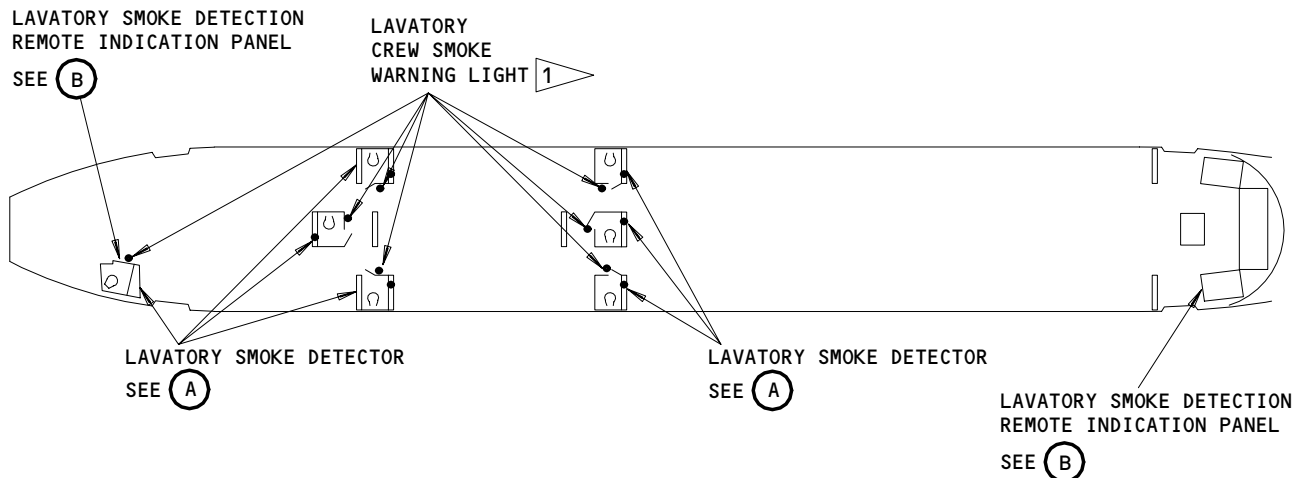
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1 SAS 164-199

Lavatory Smoke Detection  
Figure 1 (Sheet 1)

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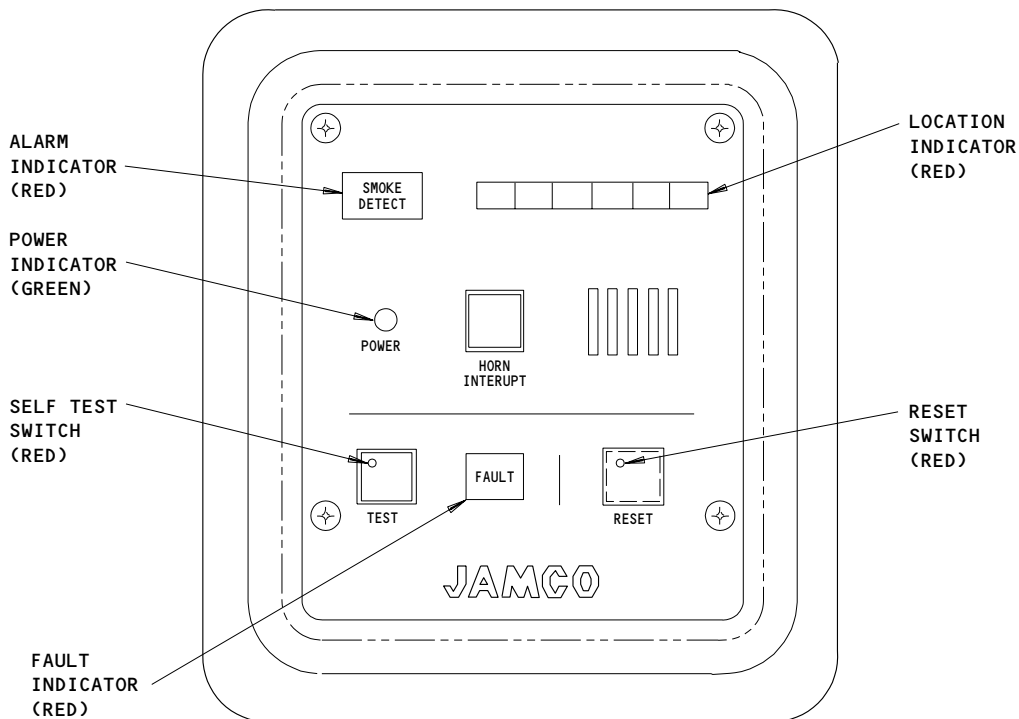
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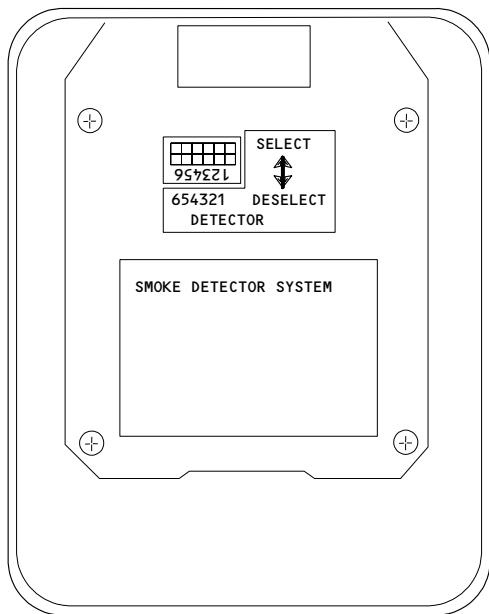
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LAVATORY SMOKE DETECTION REMOTE INDICATION PANEL

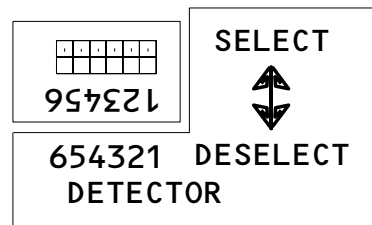
(B)



LAVATORY SMOKE DETECTION REMOTE INDICATION REAR PANEL

(B)

Lavatory Smoke Detection  
Figure 1 (Sheet 2)



**NOTE:** "SELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS INSTALLED.  
"DESELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS NOT INSTALLED.

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- (4) When smoke is detected, make sure these alarm indications occur:
  - (a) The alarm indicator (red), on the Alarm Panel, comes on.
  - (b) The alarm horn is heard.
  - (c) SAS 155, 164-199;  
The lavatory crew smoke warning light comes on.
- (5) Pressing the RESET switch turns alarm off for approximately one minute. After the one minute period, if smoke level is still above the threshold, an alarm signal will be sent. If not, the system returns to normal sampling.

NOTE: The RESET button must be pushed on the alarm panel where the location indicator light comes on.

- (6) The self-test switch validates operation of the Alarm Panel and smoke detector sensors. All alarm indications will occur when switch is pressed.

B. Control

- (1) Lavatory smoke detectors are powered from the 28v dc R bus through the following overhead panel P11 circuit breaker:
  - (a) 11K36, SMOKE DETECTORS

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LAVATORY SMOKE DETECTION – DESCRIPTION AND OPERATION

1. General (Fig. 1)

- A. A smoke detector is installed in each lavatory to alert cabin attendants and flight crew members in the event of a lavatory fire.
- B. Each smoke detector has the following features:
  - (1) Alarm horn that produces a continuous tone when smoke is detected.
  - (2) Alarm indicator lamp (red) that illuminates when smoke is detected.
  - (3) Outputs that cause the attendant chime to sound, and the lavatory call light to illuminate when smoke is detected.
  - (4) Power indicator lamp (green) that illuminates when power is present.
  - (5) Alarm interrupt switch used to cancel outputs to the attendant chime and lavatory call lights.
  - (6) Self test switch that verifies alarm indications are operational.

2. Operation (Fig. 2)

A. Functional Description

- (1) Lavatory smoke detectors use an ionization sensor to detect smoke. A very small amount of radioactive material ionizes the air between two electrodes allowing current to flow through the air between the electrodes. Any smoke particles present interfere with this current flow. The change in current flow is sensed by a current amplifier.

NOTE: THE LAVATORY SMOKE DETECTORS MAY NOT BE TRIGGERED BY CIGARETTE SMOKE.

- (2) When sufficient smoke particles are present to cause the current to reach a preset threshold, alarm indications are activated. When smoke has cleared below the threshold level the alarm indications stop.
- (3) The presence of smoke is indicated by the following:
  - (a) Alarm lamp (red) on smoke detector face panel illuminates.
  - (b) Smoke detector alarm horn sounds.
  - (c) The smoke detector outputs 28v dc to deenergize the attendants lavatory call relay. This resets the normal attendant call circuit.
  - (d) The smoke detector outputs a pulsating 28 volts to the attendant chime, the lavatory call light above the lavatory door, and the attendant call lights. A frequency generator within the chime module converts the voltage to an audio signal which is output from the chime speaker.
- (4) An alarm interrupt switch and self test switch are recessed in the smoke detector face plate. These switches can be activated with a small screwdriver or other suitable tool.
  - (a) Momentarily pressing the alarm interrupt switch cancels the smoke detector alarm outputs to the lavatory call light and attendant chime.
  - (b) Pressing the self test switch activates alarm indications, verifying operation of smoke alarm and interface circuits.

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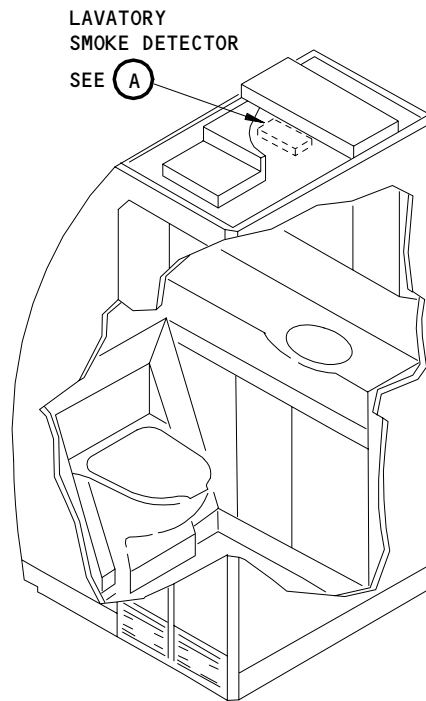
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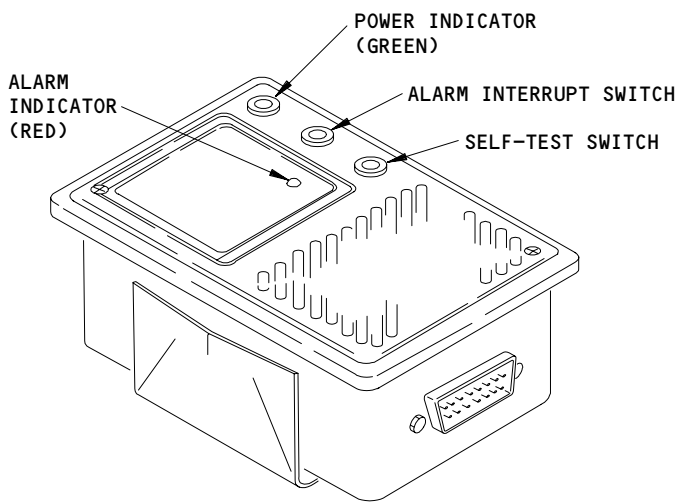
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AFT LAVATORY



LAVATORY SMOKE DETECTOR

(A)

Lavatory Smoke Detector  
Figure 1

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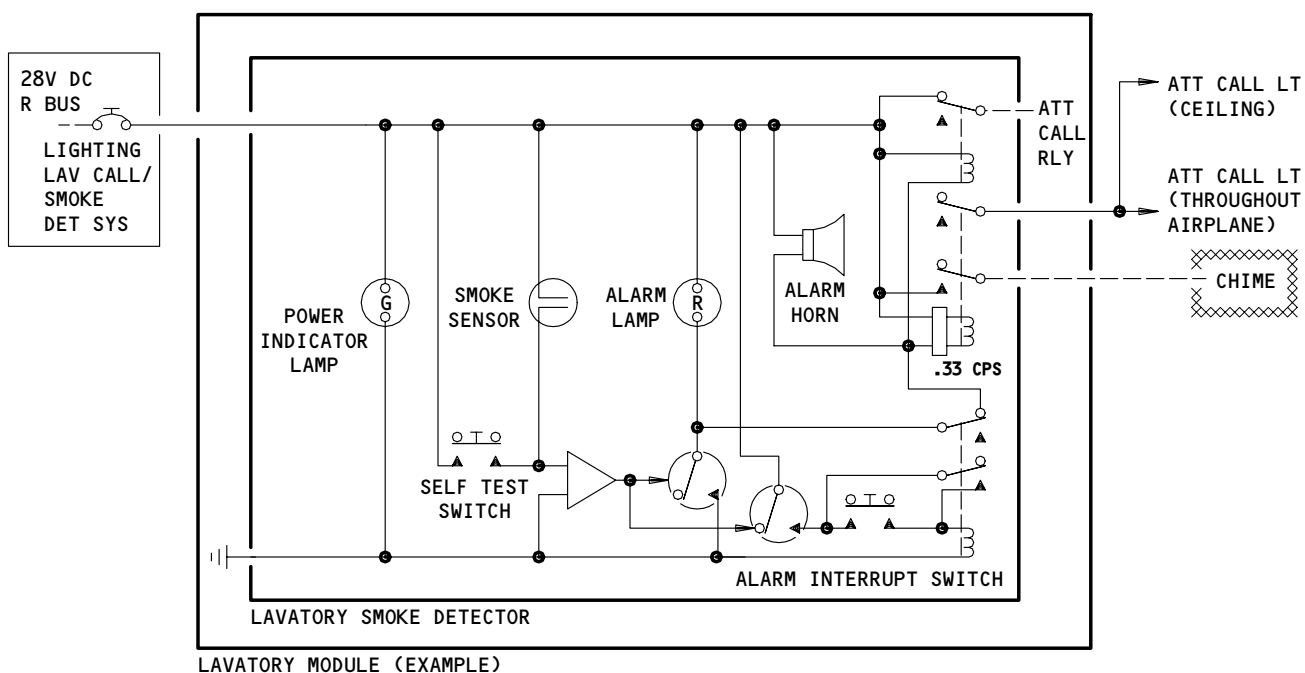
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Lavatory Smoke Detection Schematic (Example)  
Figure 2

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B. Control

- (1) Lavatory smoke detectors are powered from the 28v dc R bus through the following overhead panel P11 circuit breaker.
  - (a) 11P34, LIGHTING LAV CALL/SMOKE DET SYS

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LAVATORY SMOKE DETECTION

COMPONENT	FIG. 102 SHT.	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS			FLT COMPT, P11	
LAVATORY SMOKE DETECTORS, C770		1	11K36	*
LAVATORY SMOKE DETECTOR, M11	2	1	EACH LAVATORY	*
LAVATORY CREW SMOKE WARNING LIGHT 	2	7	EACH LAVATORY	*
PANEL - REMOTE SMOKE INDICATION - FWD, M1640	2	1	FWD LAVATORY	*
PANEL - REMOTE SMOKE INDICATION - AFT, M1641	2	1	AFT GALLEY	*

\* SEE THE WDM EQUIPMENT LIST

 SAS 155,164-199

Lavatory Smoke Detection - Component Index  
Figure 101

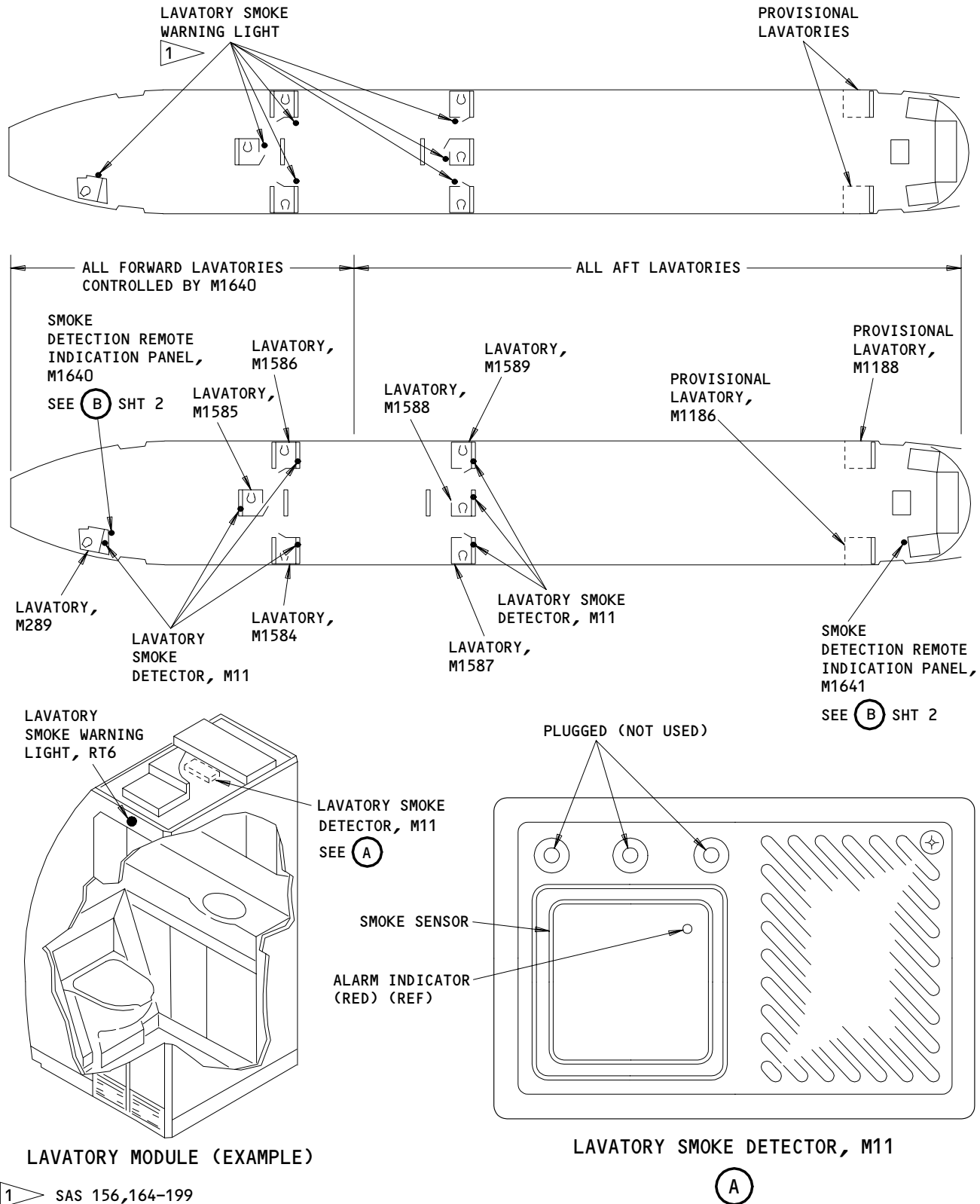
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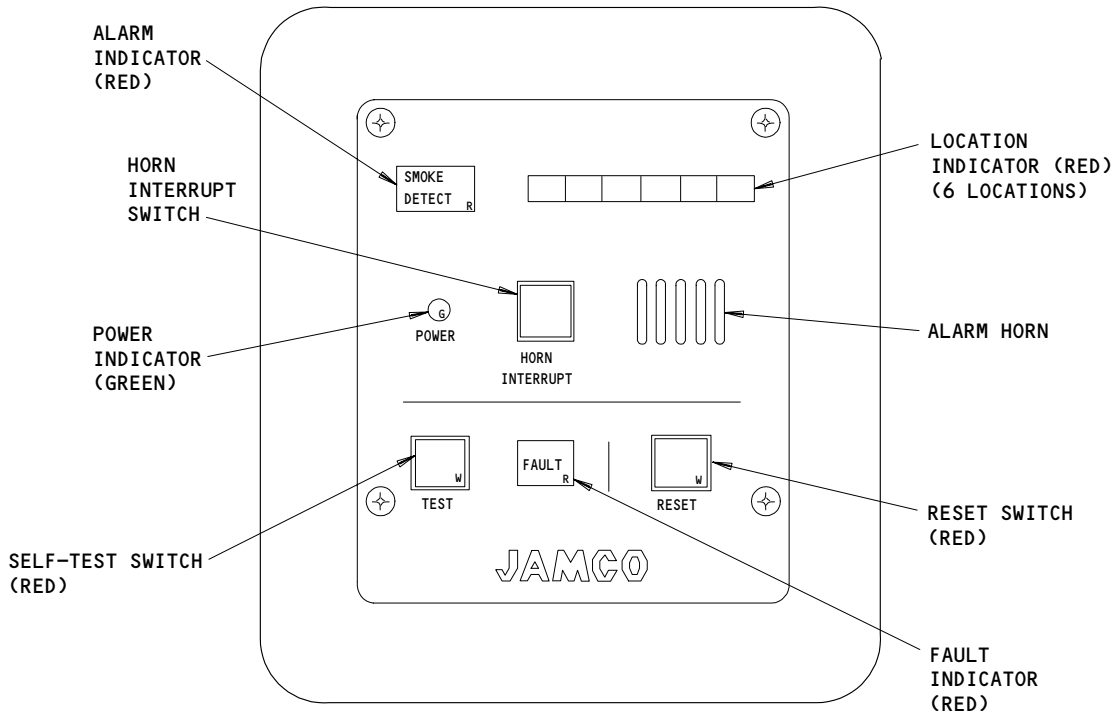
Lavatory Smoke Detection - Component Location  
Figure 102 (Sheet 1)

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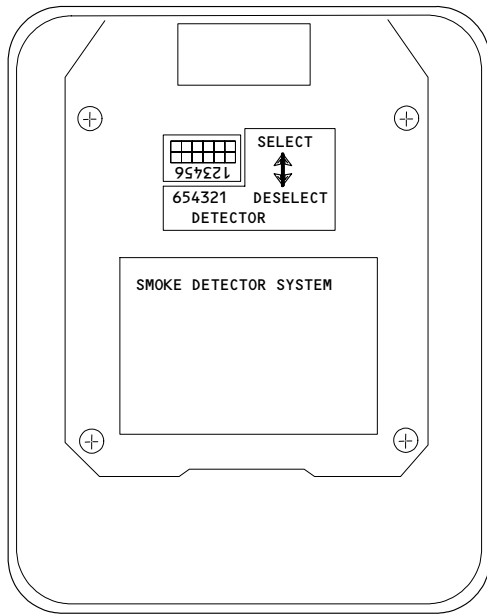
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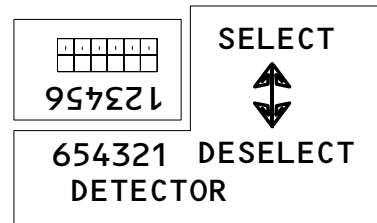
**LAVATORY SMOKE DETECTOR REMOTE INDICATION PANEL, M1640 OR M1641 (EXAMPLE)**

ⓑ



**LAVATORY SMOKE DETECTOR REMOTE INDICATION REAR PANEL**

ⓑ



**NOTE:** "SELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS INSTALLED.  
"DESELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS NOT INSTALLED.

Lavatory Smoke Detection - Component Location (Detail from Sht 1)  
Figure 102 (Sheet 2)

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LAVATORY SMOKE DETECTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER - LIGHTING LAV CALL/SMOKE DET SYS, C1194 LAVATORY SMOKE DETECTOR, M11	--	1	FLT COMPT, P11 11P34	*
	--	1	EACH LAVATORY	*

\* SEE THE WDM EQUIPMENT LIST

Lavatory Smoke Detection - Component Index  
Figure 101

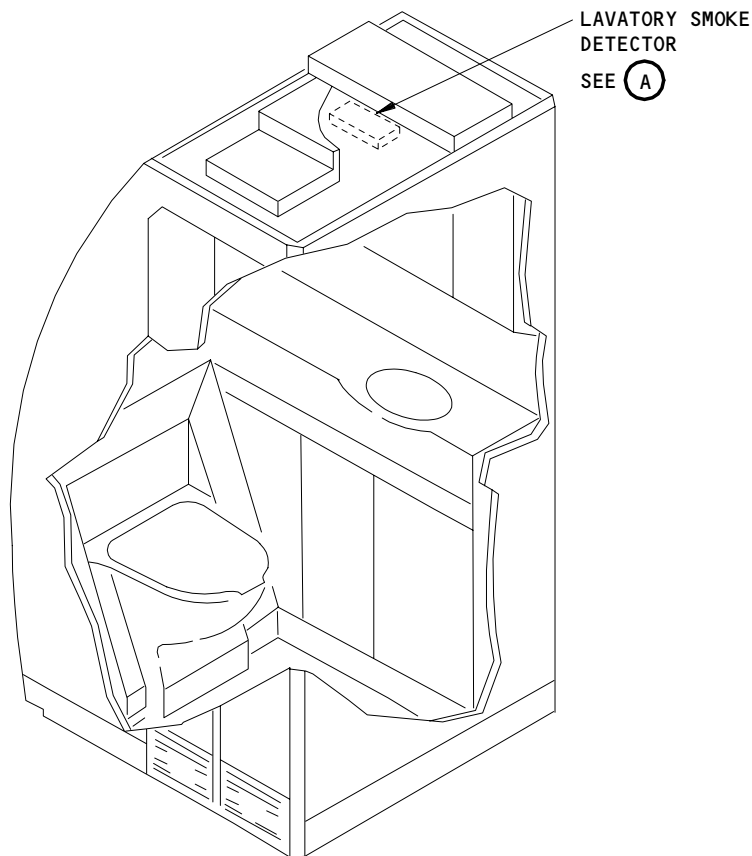
EFFECTIVITY  
ALL MTH AIRPLANES

**26-13-00**

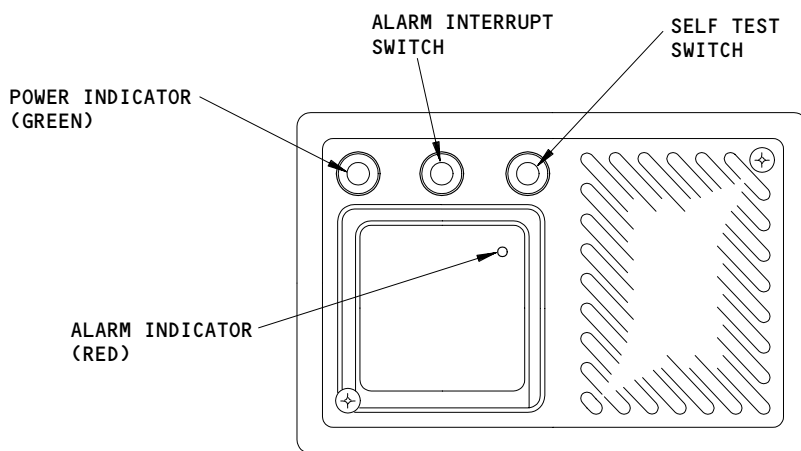
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**BOEING**  
767  
FAULT ISOLATION/MAINT MANUAL



LAVATORY MODULE  
(EXAMPLE)



LAVATORY SMOKE DETECTOR

(A)

Lavatory Smoke Detection - Component Location  
Figure 102

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670849

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LAVATORY SMOKE DETECTION

1. General

- A. This section contains procedures to do an operational test and a system test of the smoke detection system. The test makes sure the smoke detection sensing, annunciation and interrupt functions operate correctly.
- B. The system test increases the function of the operational test to supply all performance requirements of the system.

TASK 26-13-00-715-001-001

2. Operational Test - Lavatory Smoke Detectors

A. References

- (1) 24-22-00/201, Electrical Power - Control

B. Access

- (1) Location Zones
  - 200 Upper Half of Fuselage
  - 211/212 Flight Compartment
  - 119/120 Main Equipment Center

C. Prepare for Test

S 865-002-001

- (1) Supply electrical power (Ref 24-22-00).

S 755-003-001

- (2) Close this circuit breaker on the overhead circuit breaker panel, P11:
  - (a) 11K36, SMOKE DETECTORS

D. Do a Test of the Forward Lavatory Smoke Detection System

S 755-004-001

- (1) Make sure the green power indicator light on the FWD smoke detector alarm panel comes on.

S 865-005-001

- (2) Push the SELF TEST switch on the FWD alarm panel.

S 755-006-001

- (3) Make sure these indications come on and then go off twice in less than 10 seconds after the SELF TEST switch has been pushed:
  - (a) SMOKE DETECT light (RED)
  - (b) location indicators (RED)
  - (c) alarm horn (is heard)

S 865-007-001

- (4) Remove electrical power if it is not necessary (Ref 24-22-00).

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S 715-024-001

- (5) Do the Operational Test Again for the AFT Lavatory Smoke Detection System.

TASK 26-13-00-735-008-001

3. System Test - Lavatory Smoke Detectors

A. Equipment

- (1) Rosco Fog/Smoke Machine - Model 1600 or equivalent (Recommended)

Rosco Laboratories Inc.  
52 Harbor View Avenue  
Stanford, CT 06902  
Phone: 800-767-2669 or 203-709-8900  
FAX: 203-709-8919

- (2) Ventilation Smoke Tube P/N 458481 or equivalent (Alternative)

Mine Safety Appliance Co.  
P.O. Box 426  
Pittsburgh, PA 15230  
Phone: 412-967-3000  
FAX: 412-967-3161

B. References

- (1) 24-22-00/201, Electrical Power Control

C. Access

- (1) Location Zones

200	Upper Half of Fuselage
211/212	Flight Compartment
119/120	Main Equipment Center

D. Prepare for test

S 865-009-001

- (1) Supply electrical power (Ref 24-22-00).

S 755-010-001

- (2) Make sure the circuit breaker on the overhead circuit breaker panel, P11, is closed:
  - (a) 11K36, SMOKE DETECTORS

S 865-011-001

- (3) Use an approved source to make smoke adjacent to each lavatory smoke detector.

S 755-012-001

- (4) Make sure these indications occur on the FWD (AFT) alarm panel:
  - (a) The SMOKE DETECTOR light comes on
  - (b) The location indicator light of the detector that is tested comes on.
  - (c) The alarm horn is heard.

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- S 755-021-001
- (5) SAS 164-199;  
Make sure this indication occurs:  
(a) The smoke warning light (red) outside of each lavatory, come on.

- S 865-013-001
- (6) Push the RESET switch at the FWD (AFT) alarm panel.

NOTE: The alarm indications will return if there is still sufficient smoke in lavatory.

- S 755-018-001
- (7) Make sure these indications occur:  
(a) The alarm horn is not heard.  
(b) The SMOKE DETECTOR light goes off for approximately 1 minute.  
(c) The location indicator light goes off for approximately 1 minute.

- S 755-022-001
- (8) Make sure these indications occur on the AFT (FWD) alarm panel:  
(a) The smoke detector light goes off.  
(b) The alarm horn is not heard.

- S 755-019-001
- (9) SAS 164-199;  
Make sure the lavatory smoke warning light (red) outside of the lavatory stays on and will go off in less than 1 minute.

- S 865-023-001
- (10) Push the HORN/INTERRUPT switch if it is necessary to stop the alarm horn. The location indicator light will go off if the smoke condition is clear.

- S 865-015-001
- (11) Remove or blow the smoke away from the lavatory.

- S 755-016-001
- (12) Make sure all the alarm indications stop.

- S 865-017-001
- (13) Remove electrical power if it is not necessary (Ref 24-22-00).

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LAVATORY SMOKE DETECTION – ADJUSTMENT/TEST

1. General

- A. This section contains procedures to do a system test and an operational test of the lavatory smoke detection system.
- (1) The operational test (par. 2) will make sure the system operates correctly with use of only equipment installed on the airplane.
  - (2) The system test (par. 3) increases the function of the operational test to supply all performance requirements of the system.

TASK 26-13-00-715-001-002

2. Operational Test – Lavatory Smoke Detectors

A. References

- (1) 24-22-00/201, Electrical Power – Control

B. Prepare for Test.

S 865-002-002

- (1) Supply electrical power (Ref 24-22-00).

S 755-003-002

- (2) Make sure these circuit breakers on the overhead circuit breaker panel, P11, is closed:
  - (a) 11C22, PASS ADRS
  - (b) 11P34, LIGHTING LAV CALL/SMOKE DET SYS

C. Do a Test of the Lavatory Smoke Detection System

S 755-004-002

- (1) Make sure the green power indicator light, on the smoke detector face comes on.

S 865-005-002

- (2) Push and hold the self test switch on the smoke detector face with a small screwdriver or other applicable tool.

S 755-006-002

- (3) Make sure these alarm indications occur:
  - (a) The red alarm light, on the smoke detector face, comes on.
  - (b) The smoke detector alarm horn is heard.
  - (c) The attendant chime, adjacent to the lavatory, is heard.
  - (d) The lavatory call light (amber), in the ceiling adjacent to lavatory, comes on.

S 865-007-002

- (4) Release the self test switch.

S 755-008-002

- (5) Make sure all of the alarm indications stop.

S 865-009-002

- (6) Remove electrical power if it is not necessary (Ref 24-22-01).

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TASK 26-13-00-735-010-002

3. System Test - Lavatory Smoke Detectors

A. Equipment

- (1) Rosco Fog/Smoke Machine - Model 1600 or equivalent (Recommended)

Rosco Laboratories Inc.  
52 Harbor View Avenue  
Stanford, CT 06902  
Phone: 800-767-2669 or 203-709-8900  
FAX: 203-709-8919

- (2) Ventilation Smoke Tube P/N 458481 or equivalent (Alternative)

Mine Safety Appliance Co.  
P.O. Box 426  
Pittsburgh, PA 15230  
Phone: 412-967-3000  
FAX: 412-967-3161

B. References

- (1) 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones

200	Upper Half of Fuselage
211/212	Flight Compartment
119/120	Main Equipment Center

D. Prepare for Test

S 865-011-002

- (1) Supply electrical power (Ref 24-22-00).

S 755-012-002

- (2) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:  
(a) 11C22, PASS ADRS  
(b) 11P34, LIGHTING LAV CALL SMOKE DET SYS

E. Do a test of the Lavatory Smoke Detection System

S 755-013-002

- (1) Make sure the green power indicator lamp, on the smoke detector face, comes on.

S 865-014-002

**WARNING:** USE AN APPLICABLE CONTAINER TO BURN MATERIAL. USE OF AN INCORRECT CONTAINER CAN PERMIT SPARKS OR FLAMES TO OCCUR. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Use an approved source to make smoke adjacent to each lavatory smoke detector.

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- S 865-015-002  
(3) Make sure the red alarm indicator lamp, on the smoke detector face, comes on.
- S 755-016-002  
(4) Make sure the smoke detector alarm horn is heard.
- S 755-017-002  
(5) Make sure the lavatory call light (yellow), installed in the ceiling adjacent to the lavatory, comes on and goes off.
- S 755-018-002  
(6) Make sure the attendant chime, adjacent to the lavatory, is heard.
- S 755-019-002  
(7) Make sure the master attendant call lights in the passenger compartment come on and go off.
- S 865-020-002  
(8) Push the alarm interrupt switch on the smoke detector face with a small screwdriver or other applicable tool.
- S 755-021-002  
(9) Make sure the attendant chime and smoke detector alarm horn is not heard.
- S 755-022-002  
(10) Make sure the red alarm indicator lamp, on the smoke detector face, goes off when there is no smoke.
- S 865-023-002  
(11) Push the attendants lavatory call button in the lavatory module.
- S 755-024-002  
(12) Make sure the lavatory call light (yellow) comes on and the attendant call chime is heard.
- S 865-025-002  
(13) Push the attendants call reset switch which is external to the lavatory.
- S 755-026-002  
(14) Make sure all the attendant call functions stop.
- S 865-027-002  
(15) Remove electrical power if it is not necessary (Ref 24-22-00).

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LAVATORY SMOKE DETECTION – MAINTENANCE PRACTICES

1. General

- A. A smoke detector is installed in the ceiling of each lavatory. An Alarm Panel is installed in the forward and aft galley to monitor each of the lavatory smoke detector sensor inputs.

TASK 26-13-01-022-001

2. Remove the Lavatory Smoke Detector

A. Equipment

- (1) Standard screwdriver

B. Access

- (1) Location Zones

200	Upper Half of Fuselage
211/212	Flight Compartment
119/120	Main Equipment Center

C. Remove the Lavatory Smoke Detector

S 862-002

- (1) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:  
(a) 11K36, SMOKE DETECTOR

S 022-003

- (2) Do these steps to remove the lavatory smoke detector:  
(a) Loosen the two screws on the smoke detector faceplate.  
(b) Remove the faceplate from the smoke detector case.  
(c) Remove the two screws which attach the smoke detector to the ceiling bracket.  
(d) Disconnect the electrical connector.  
(e) Remove the smoke detector and the ceiling bracket from the ceiling.  
(f) Disconnect the lanyard from the smoke detector.  
(g) Clean the Lavatory Smoke Detector if necessary.

TASK 26-13-01-422-004

3. Install the Lavatory Smoke Detector

A. Equipment

- (1) Standard Screwdriver

B. Access

- (1) Location Zones

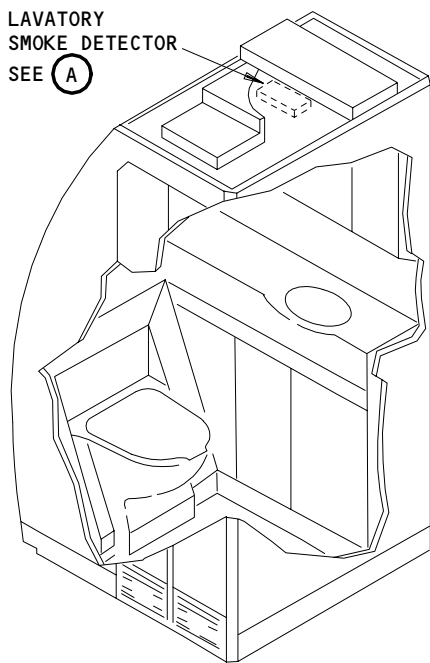
200	Upper Half of Fuselage
211/212	Flight Compartment
119/120	Main Equipment Center

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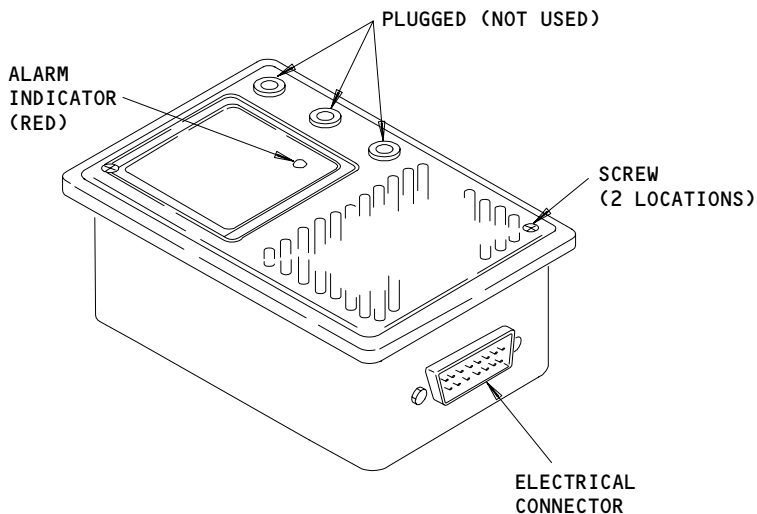
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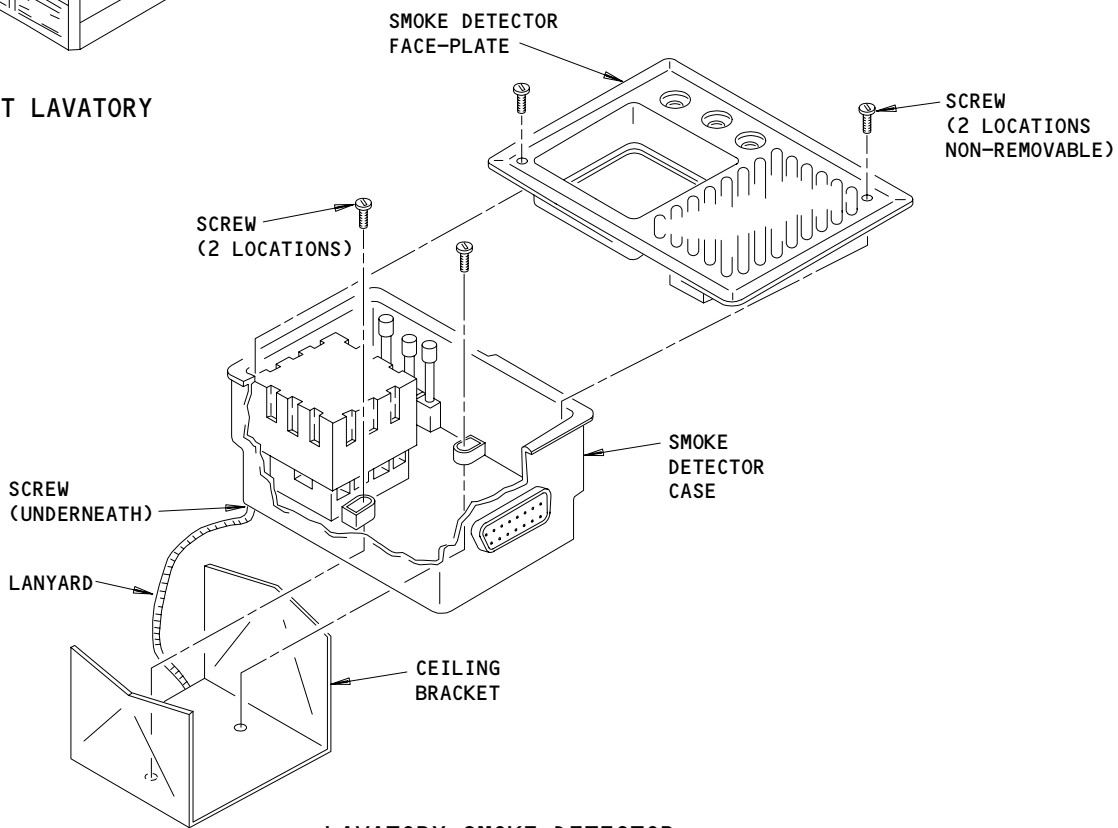


AFT LAVATORY



LAVATORY SMOKE DETECTOR

(A)



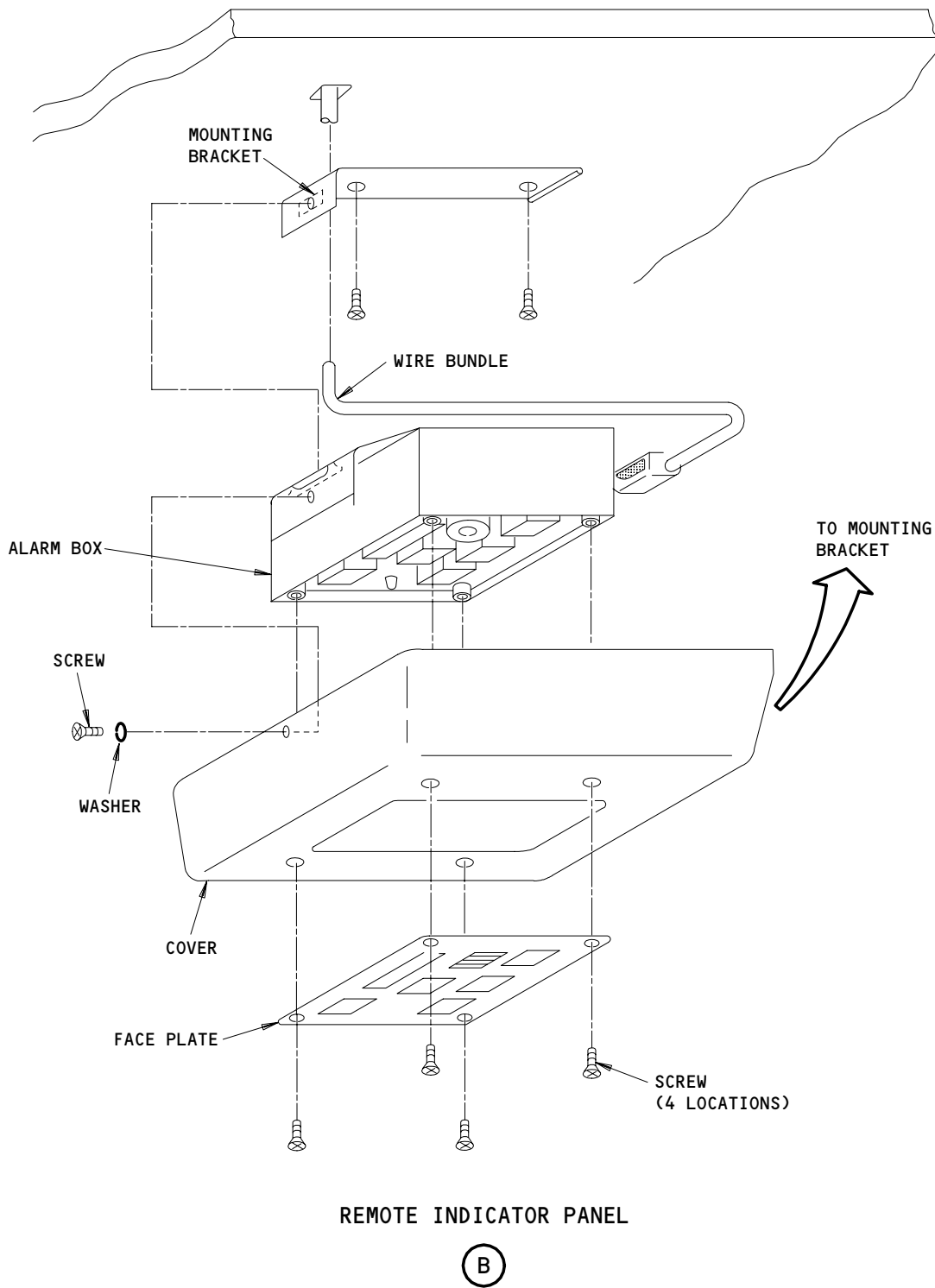
LAVATORY SMOKE DETECTOR  
(EXPLODED VIEW)

(A)

Lavatory Smoke Detector Installation  
Figure 201 (Sheet 1)

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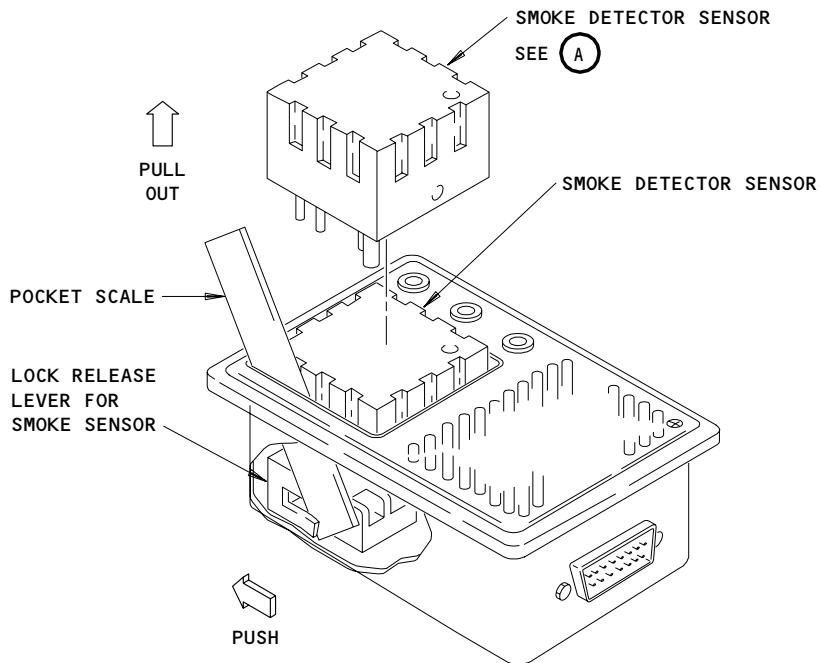
Lavatory Smoke Detector Remote Indicator Panel Installation  
Figure 201 (Sheet 2)

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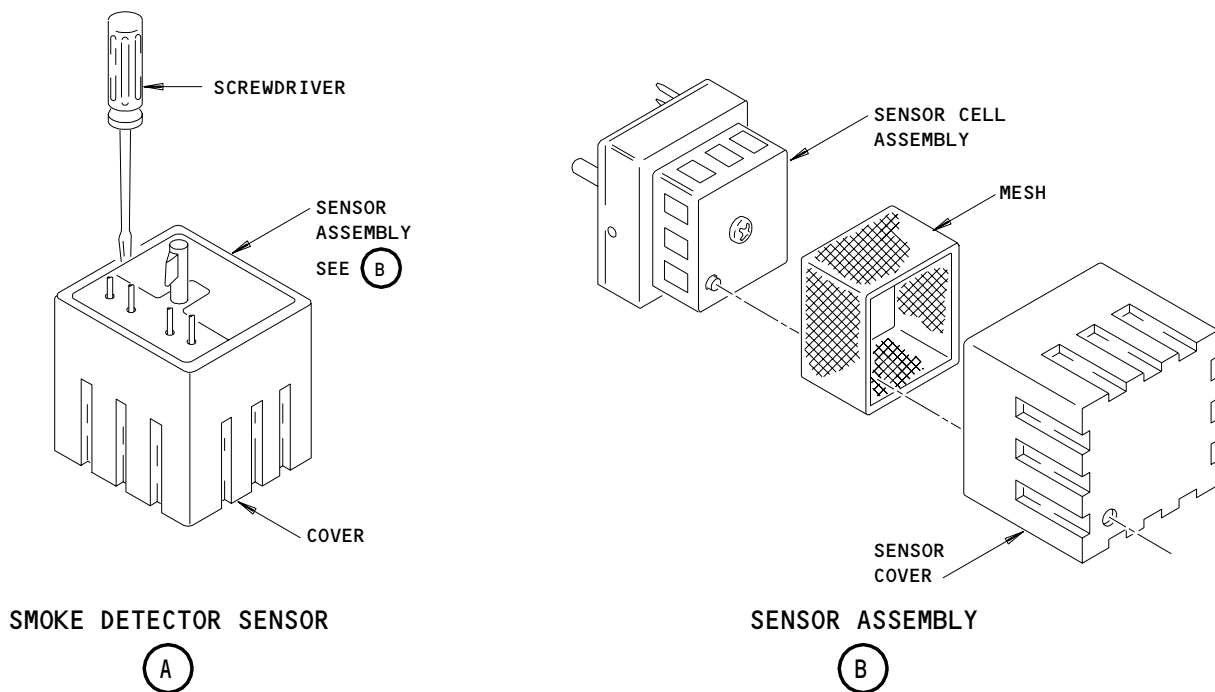
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LAVATORY SMOKE DETECTOR



Lavatory Smoke Detector Cleaning  
Figure 202

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C. Install the Lavatory Smoke Detector.

S 422-005

- (1) Do these steps to install the lavatory smoke detector.

S 422-022

- (2) Attach the ceiling bracket loosely to the smoke detector with the two screws.
- (a) Attach the lanyard from the ceiling bracket to the smoke detector case.
  - (b) Attach the airplane wiring connector to the electrical connector of the smoke detector.
  - (c) Put the smoke detector into the ceiling and push on the screws until the ceiling bracket locks snaps into place.
  - (d) Tighten the screws which hold the ceiling bracket into position.
  - (e) Attach the faceplate to the smoke detector with the two screws.

S 862-006

- (3) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11K36, SMOKE DETECTORS

TASK 26-13-01-022-007

4. Remove the Alarm Panel

A. Equipment

- (1) Standard Screwdriver

B. Access

- (1) Location Zones
  - 200 Upper Half of Fuselage
  - 211/212 Flight Compartment
  - 119/120 Main Equipment Center

C. Remove the Alarm Panel

S 862-008

- (1) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11K36, SMOKE DETECTOR

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S 022-009

- (2) Do these steps to remove the alarm panel:
  - (a) Remove screws (4) from faceplate.
  - (b) Remove the screw from the top of the cover.
  - (c) Disconnect the electrical connector.
  - (d) Remove the alarm panel from the mounting bracket and the cover.

TASK 26-13-01-422-019

5. Install the Alarm Panel

A. Equipment

- (1) Standard Screwdriver

B. Access

- (1) Location Zones

200	Upper Half of Fuselage
211/212	Flight Compartment
119/120	Main Equipment Center

C. Install the Alarm Panel

S 712-026

- (1) Make sure that the switches on the back of the alarm panel are in the same positions as the alarm panel that was removed.

**NOTE:** The switch must be in the SELECT position if the associated lavatory detector is installed. If the detector is not installed, the switch must be in the DESELECT position.

S 412-010

- (2) Do these steps to install the alarm panels.
  - (a) Attach the alarm panel to mounting bracket.
  - (b) Put the cover on the alarm panel and tighten the screw through cover, alarm panel, and mounting bracket.
  - (c) Attach the faceplate to the panel and install the screws (4).

S 862-011

- (3) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
  - (a) 11K36, SMOKE DETECTOR

TASK 26-13-01-712-012

6. Do a Test of the Lavatory Smoke Detection System Installation

A. Equipment

- (1) Standard Screwdriver

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B. Reference

- (1) 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones
  - 200 Upper Half of Fuselage
  - 211/212 Flight Compartment
  - 119/120 Main Equipment Center

D. Do a test of the Lavatory Smoke Detector System Installation

S 862-013

- (1) Supply electrical power (Ref 24-22-00).

S 752-014

- (2) Make sure the green power indicator comes on.

S 862-015

- (3) Push the self-test switch.

S 752-016

- (4) Make sure these alarm indications occur:
  - (a) The alarm horn sounds two times
  - (b) The alarm indicator lamp (red) comes on and goes off two times.

S 752-025

- (5) SAS 164-199;  
Make sure the lavatory crew smoke warning light outside each lavatory comes on.

S 862-017

- (6) Remove electrical power if it is not necessary (Ref 24-22-00)

TASK 26-13-01-262-023

7. Clean the Lavatory Smoke Detector (Fig. 202)

A. Equipment

- (1) Standard Screwdriver
- (2) Pocket scale/ruler
- (3) Dry Compress Air
- (4) Rubber gloves

B. Consumable Materials

- (1) Ethyl alcohol spec 0-E-760 or 0-A-396 alcohol, SDEC TR-I-735 (Ref 20-30-02)
- (2) Synthetic detergent
- (3) Warm water

C. Reference

- (1) 26-13-00/501, Lavatory Smoke Detection

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D. Remove the Sensor-Smoke Detector Assembly

S 012-018

- (1) Remove the sensor-smoke detector assembly as follows:
  - (a) Insert the pocket scale between the sensor-smoke detector and faceplate.
  - (b) Push the lock release lever with the pocket scale and then pull out the sensor-smoke detector.

E. Clean the Sensor-Smoke Detector Assembly

S 112-020

- (1) Clean the sensor-smoke detector assembly as follows:

**WARNING:** CLEAN THE SMOKE DETECTOR IN AN AREA WHICH IS SATISFACTORILY OPEN TO THE AIR AND FREE OF ANY HOT SURFACES, FLAMES OR SPARKS. TO CLEAN THE DETECTOR, USE RUBBER GLOVES TO PREVENT INJURY TO PERSONS.

- (a) Remove unwanted material from the external surfaces of the smoke detector. Use a clean, lint-free cloth soaked with ethyl or isopropyl alcohol.
- (b) Slide a standard screwdriver between the sensor-smoke detector and sensor-smoke detector cover and twist to release the lock of the cover.
- (c) Remove the cover from the sensor-smoke detector assembly.

**WARNING:** DO NOT DISASSEMBLE THE SENSOR CELL ASSEMBLY DUE TO THE RADIOACTIVE MATERIAL CONTAINED WITHIN.

**CAUTION:** DO NOT TOUCH THE ELECTRODE INSIDE OF THE SENSOR-SMOKE DETECTOR ASSEMBLY. DAMAGE TO THE SENSOR CAN OCCUR.

- (d) Pull out the mesh from the sensor assembly.
- (e) Inspect the mesh for any unwanted material.
- (f) If the mesh is dirty, wash the mesh with a synthetic detergent and warm water.
- (g) If the mesh is excessively dirty, replace with a new mesh.
- (h) Dry the mesh with dry compressed air.

**CAUTION:** DO NOT BLOW, WITH MUCH FORCE, INTO THE SENSOR ASSEMBLY. STATIC CHARGE ON THE ELECTRODES CAN OCCUR, WHICH CAN CAUSE DAMAGE TO THE SENSOR.

- (i) Blow out any unwanted material in the sensor assembly.

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MAINTENANCE MANUAL

- (j) Install the mesh on the sensor assembly.
- (k) Position the cover with the corresponding hole in the sensor assembly and install the cover.

S 982-028

- (2) Assemble the Smoke Detector.

S 712-029

- (3) Do the Lavatory Smoke Detector Operational Test (Ref 26-13-00).

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LAVATORY SMOKE DETECTOR – REMOVAL/INSTALLATION

1. General

- A. A smoke detector is installed in the ceiling of each lavatory. The removal/installation procedure is the same for each smoke detector.

TASK 26-13-01-024-010

2. Remove the Lavatory Smoke Detector (Fig. 401)

A. Equipment

- (1) Standard screwdriver

B. Access

- (1) Location Zones
- |         |                        |
|---------|------------------------|
| 200     | Upper Half of Fuselage |
| 211/212 | Flight Compartment     |
| 119/120 | Main Equipment Center  |

C. Remove the Lavatory Smoke Detector

S 864-002

- (1) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:  
(a) 11P34, LAV CALL/SMOKE DET SYS

S 024-003

- (2) Do these steps to remove the lavatory smoke detector:  
(a) Loosen the two screws (3) at the smoke detector face-plate.  
(b) Remove the face-plate (2) from the smoke detector case.  
(c) Remove the two screws (1) which attach the smoke detector to the ceiling bracket.  
(d) Disconnect the electrical connector.  
(e) Remove the smoke detector and ceiling bracket (5) from the ceiling.  
(f) Remove the lanyard (6) from the smoke detector.

TASK 26-13-01-424-004

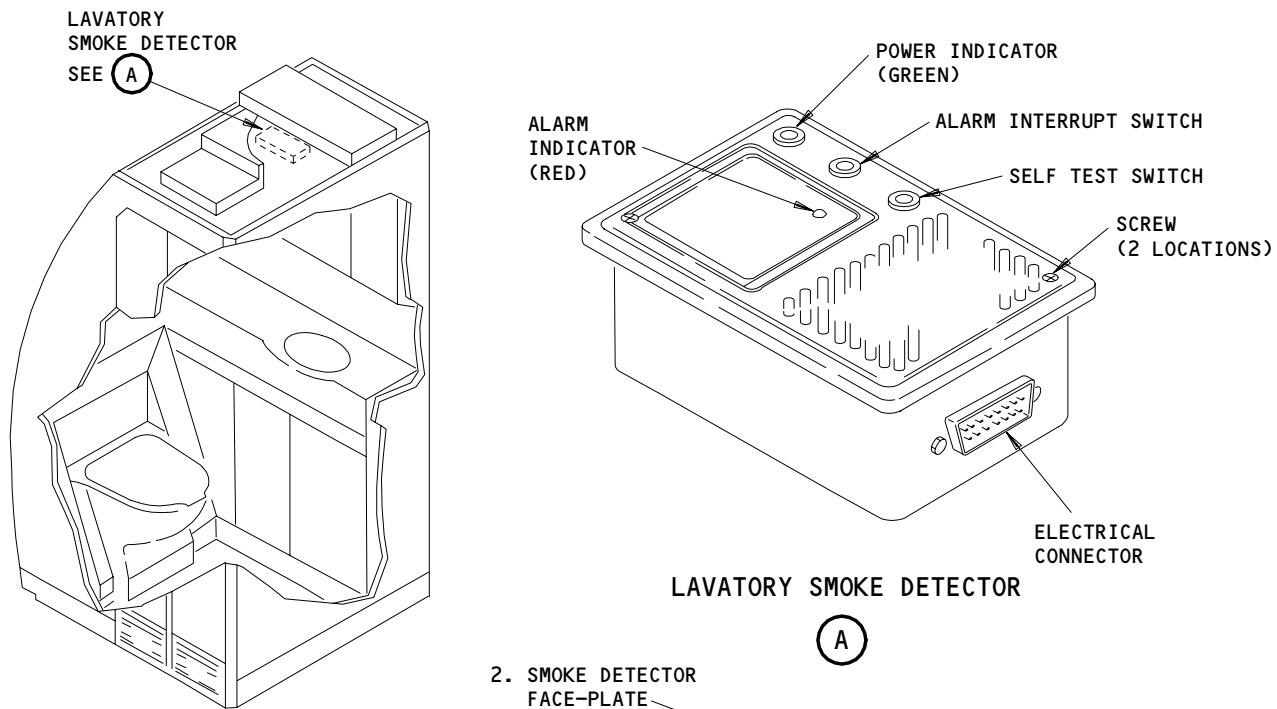
3. Install the Lavatory Smoke Detector (Fig. 401)

A. Equipment

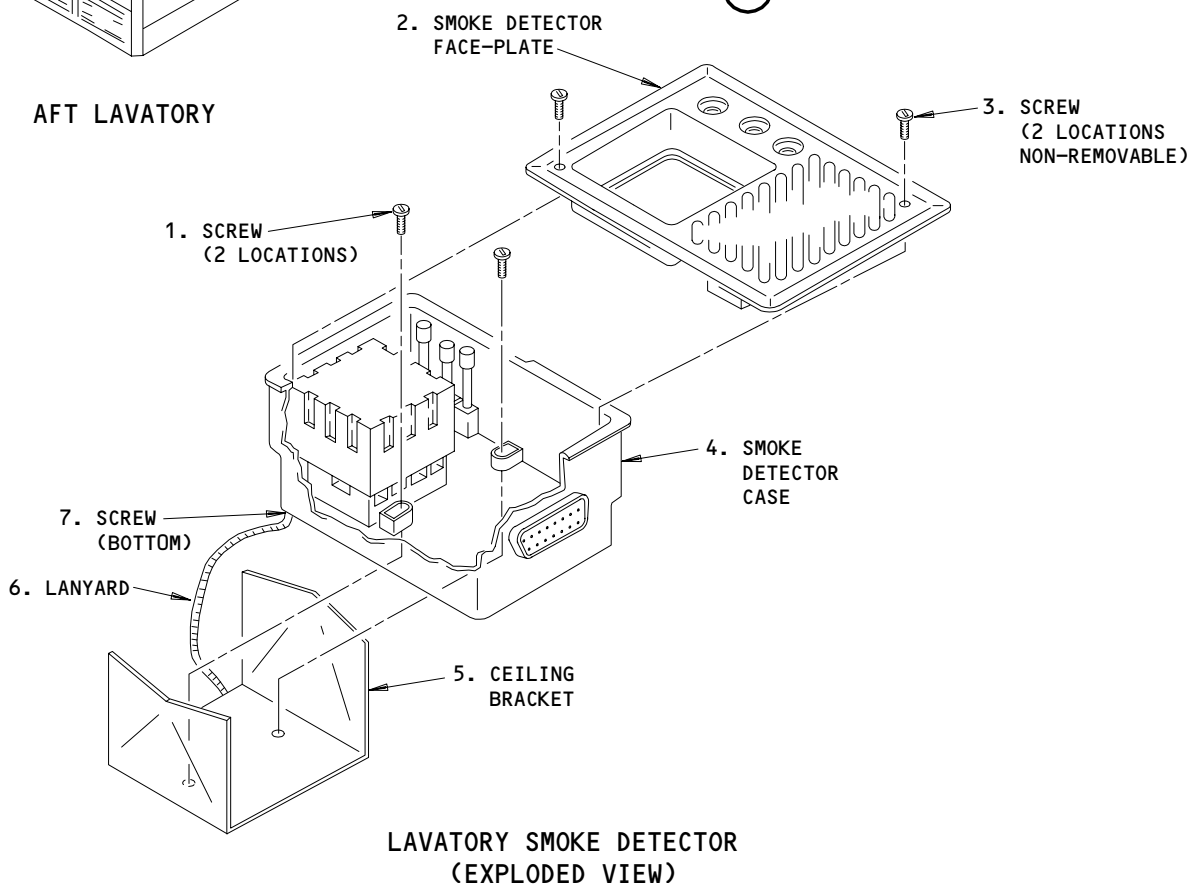
- (1) Standard screwdriver

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AFT LAVATORY



Lavatory Smoke Detector Installation  
Figure 401

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B. Access

- (1) Location Zones
- |         |                        |
|---------|------------------------|
| 200     | Upper Half of Fuselage |
| 211/212 | Flight Compartment     |
| 119/120 | Main Equipment Center  |

C. Install the Lavatory Smoke Detector

S 424-005

- (1) Do these steps to install the lavatory smoke detector:
- (a) Attach the ceiling bracket (5) loosely to the smoke detector and use the two screws.
  - (b) Attach the lanyard (6) from the ceiling bracket (5) to the smoke (4) detector case. Use the screw (7) and tighten.
  - (c) Connect the airplane wiring connector to the electrical connector of the smoke detector.
  - (d) Insert the smoke detector into the ceiling and push on the screws (1) until the ceiling bracket locks into position.
  - (e) Tighten the screws (1) which hold the ceiling bracket into position.
  - (f) Attach the face-plate (2) to the smoke detector and use the two screws (3).

S 864-006

- (2) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11P34, LAV CALL/SMOKE DET SYS

TASK 26-13-01-264-011

4. Do a Test of the Lavatory Smoke Detector Installation

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control

B. Access

- (1) Location Zones
- |         |                        |
|---------|------------------------|
| 200     | Upper Half of Fuselage |
| 211/212 | Flight Compartment     |
| 119/120 | Main Equipment Center  |

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C. Procedure

- S 864-007
- (1) Supply electrical power (AMM 24-22-00/201).
- S 754-008
- (2) Make sure the green power indicator light on the smoke detector comes on.
- S 864-009
- (3) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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LAVATORY SMOKE DETECTOR – CLEANING/PAINTING

1. General

- A. This section has a procedure to clean the smoke detectors.
- B. A smoke detector is installed in the ceiling of each lavatory. The procedure is applicable to all of the lavatory smoke detectors.

TASK 26-13-01-107-001

2. Clean the Lavatory Smoke Detector (Fig. 701)

A. Standard Tools and Equipment

- (1) Compressed air source
- (2) Nylon Brush
- (3) Lint-Free cloth
- (4) Luke-warm water
- (5) Standard Screwdriver

B. Consumable Materials

- (1) B00158 Detergent

C. References

- (1) AMM 26-13-00/501, Lavatory Smoke Detection System
- (2) AMM 26-13-01/401, Lavatory Smoke Detector
- (3) WDM 26-13-11 through 26-13-14
- (4) SSM 26-13-01 through 26-13-04

D. Access

- (1) Location Zones
  - 119/120 Main Equipment Center
  - 200 Upper Half of Fuselage
  - 211/212 Flight Compartment

E. Clean the Lavatory Smoke Detector

S 167-043

- (1) Remove the dust from the external surfaces of the unit. Use a nylon bristle brush. Finish with a dry, lint-free cloth.

S 037-003

- (2) Remove the detector assembly (AMM 26-13-01/401).

S 037-014

- (3) Remove the two faceplate screws which hold the faceplate to the smoke detector assembly.

S 017-015

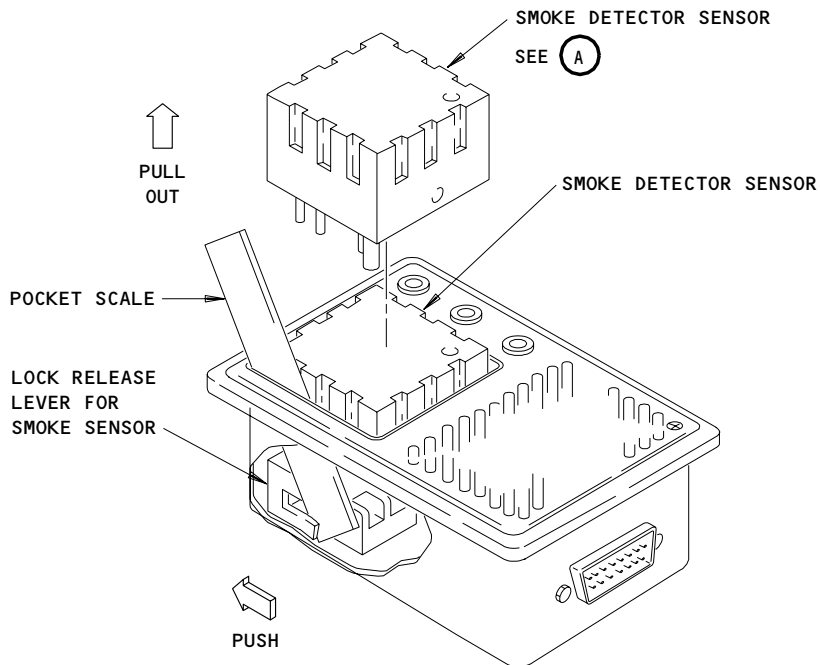
- (4) Remove the faceplate from the smoke detector assembly.

S 867-016

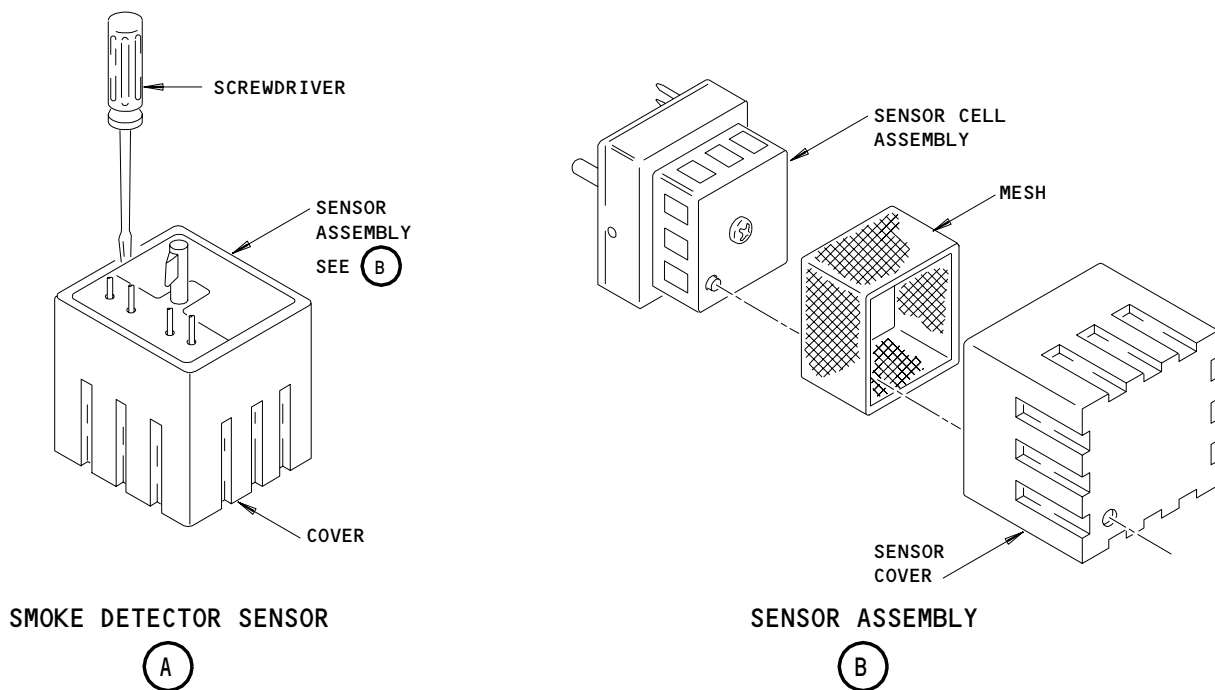
- (5) Push the lock release mechanism in the smoke detector assembly.

EFFECTIVITY  
ALL MTH AIRPLANES

26-13-01



LAVATORY SMOKE DETECTOR



Lavatory Smoke Detector Cleaning  
Figure 701

EFFECTIVITY  
ALL MTH AIRPLANES

26-13-01

S 027-017

- (6) Remove the smoke sensor from the smoke detector assembly.

S 867-018

- (7) Move the blade of the standard screwdriver between the smoke sensor and cover.

S 017-019

- (8) Remove the cover from the smoke sensor.

S 027-046

**WARNING:** DO NOT DISASSEMBLE THE SENSOR CELL ASSEMBLY DUE TO THE RADIOACTIVE MATERIAL CONTAINED WITHIN.

**CAUTION:** DO NOT TOUCH THE ELECTRODE INSIDE OF THE SENSOR. DAMAGE TO THE SENSOR COULD OCCUR

- (9) Pull out the mesh from the smoke sensor.

S 967-021

- (10) If the mesh is very dirty, replace it with a new mesh.

S 177-022

- (11) If the mesh is dirty, wash the mesh with a synthetic detergent and luke-warm water.

S 167-023

- (12) After you wash the mesh, dry it with compressed air.

S 167-024

**CAUTION:** DO NOT BLOW VIOLENTLY INTO THE SMOKE DETECTOR CHAMBER. THIS CAN CAUSE STATIC ELECTRICITY ON THE ELECTRODES.

- (13) Carefully blow out the dust in the chamber.

S 417-025

- (14) Install the mesh, smoke sensor, and cover.

**NOTE:** Align the cover with the applicable hole in the sensor top.

S 437-026

- (15) Install the detector assembly (AMM 26-13-01/401).

S 737-044

- (16) Do the Lavatory Smoke Detection System Test (AMM 26-13-00/501).

EFFECTIVITY  
ALL MTH AIRPLANES

26-13-01



CABIN CREW REST AREA SMOKE DETECTION SYSTEM – DESCRIPTION AND OPERATION

1. General

- A. A smoke detector is installed on the ceiling of each cabin crew rest area. The smoke detector will tell the cabin attendants and flight crew members that there is smoke in the cabin crew rest area.
- B. When the concentration of smoke at the sensor is at a set limit, the detector operates and causes a voltage output to the alarm that is part of the smoke detector. When the alarm is heard by the flight crew/attendants the source of smoke can be found.
- C. Each smoke detection system has these alarm indicators:
  - (1) A smoke detector sensor installed on the ceiling of each cabin crew rest area.
  - (2) SAS 164-199;  
A cabin crew rest area smoke warning light installed outside of each cabin crew rest area.
  - (3) An alarm control panel which can control inputs from each cabin crew rest area.

2. Smoke Detector Alarm Panel (Fig. 1)

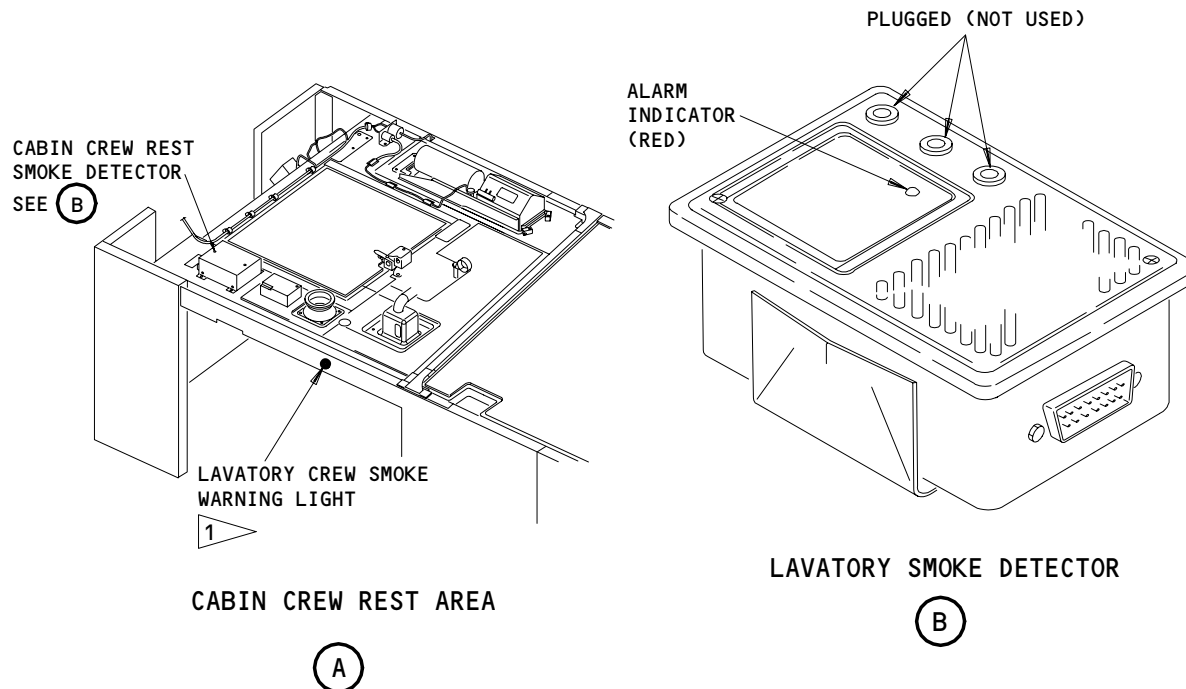
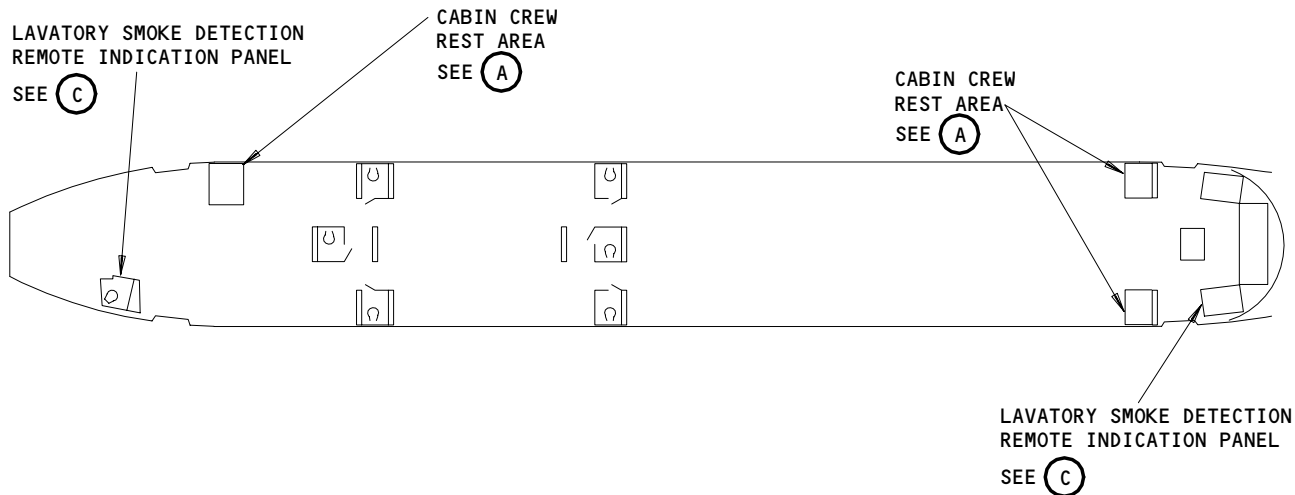
- A. There are two alarm control panels. One is installed in the forward galley and one is installed in the aft galley. The control panel consists of these:
  - (1) Alarm indicator lamp (red): comes on when smoke is detected.
  - (2) Location indicator: shows the location of the smoke detector with the warning indication.
  - (3) Power indicator (green): shows when there is power supplied to the panel.
  - (4) Alarm horn: gives a continuous or intermittent (dependent on preset conditions) tone when smoke is detected.
  - (5) Horn shut-off: interrupts horn for system under warning condition.
  - (6) Self-test switch: checks function of alarm panel and sensitivity of smoke detectors.
  - (7) Fault indicator: comes on when sensor or alarm panel is in a fault condition.
  - (8) Select switches: indicates the number of smoke sensors in service. They are located on the rear of the alarm control panel.
    - Use the SELECT position when the associated lavatory detector is installed.
    - Use the DESELECT position when the associated lavatory detector is not installed.

3. Cabin Crew Rest Area Smoke Detector (Fig. 1)

- A. The smoke detector unit contains a smoke sensor and an alarm indicator light.

EFFECTIVITY  
SAS 162-199

26-14-20



1 SAS 164-199

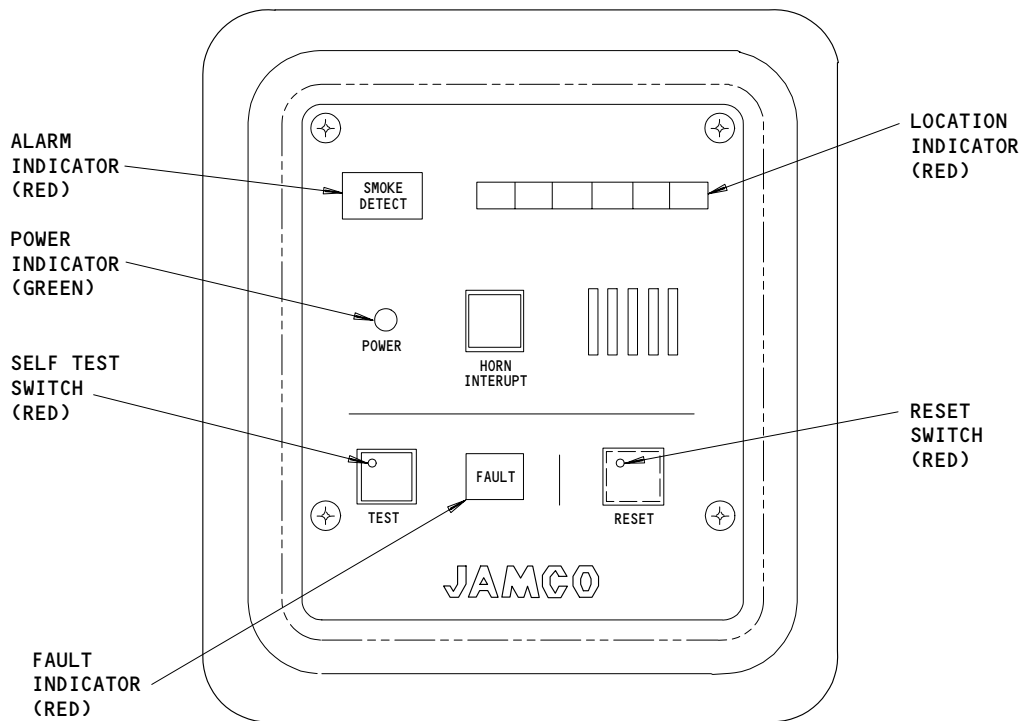
Cabin Crew Rest Area Smoke Detection  
Figure 1 (Sheet 1)

EFFECTIVITY  
SAS 162-199

26-14-20

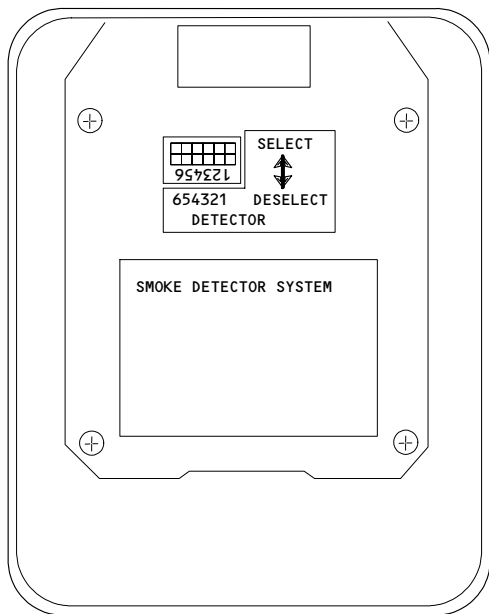
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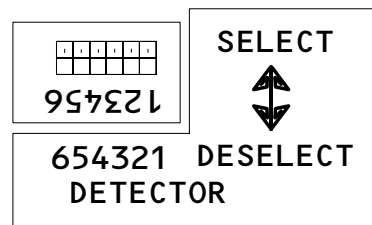
LAVATORY SMOKE DETECTION REMOTE INDICATION PANEL

(C)



LAVATORY SMOKE DETECTION REMOTE INDICATION REAR PANEL

(C)



**NOTE:** "SELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS INSTALLED.  
"DESELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS NOT INSTALLED.

Cabin Crew Rest Area Smoke Detection  
Figure 1 (Sheet 2)

EFFECTIVITY  
SAS 162-199

26-14-20

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4. Operation

- A. The smoke detector unit receives power from the airplane's 28-volt DC bus 4. The detector units are located on the crew rest area ceiling.
- B. The smoke detector uses a dual chamber ionization sensor for smoke detection. A small quantity of radioactive material will ionize the air between the two electrodes and permit current through the air between the electrodes. Any smoke particles present will cause interference with the current. The change in current will cause the current amplifier to make an output signal to turn on the alarm horn and alarm indicator light.
- C. When smoke is detected, these alarm indications occur:
  - (1) The alarm horn is heard.
  - (2) The alarm indicator light (red) comes on.
  - (3) The location indicator light (red) comes on at the control panel.
- D. If you push the RESET switch, the alarm will turn off for approximately one minute. After the one minute period, if the smoke level is still above the threshold, an alarm signal will be sent. If not, the system returns to normal operation.
- E. The self-test switch will make sure the smoke detection system operates correctly.



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 FAULT ISOLATION/MAINT MANUAL

CABIN CREW REST AREA SMOKE DETECTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER -			FLT COMPT, P11	
CABIN CREW REST AREA SMOKE DETECTORS, C770		1	11K36	*
CABIN CREW REST AREA, M1761	1	1	FWD RIGHT	*
CABIN CREW REST AREA, M1761	1	1	AFT RIGHT	*
CABIN CREW REST AREA, M1761	1	1	AFT LEFT	*
CABIN CREW REST AREA SMOKE DETECTOR, M1834, M1848,M1889	2	1	CABIN CREW REST AREA	*
PANEL - REMOTE SMOKE INDICATION - AFT, M1641	2	1	AFT GALLEY	*
PANEL - REMOTE SMOKE INDICATION - FWD, M1640	2	1	FWD LAVATORY	*

\* SEE THE WDM EQUIPMENT LIST

Cabin Crew Rest Area Smoke Detection - Component Index  
 Figure 101

EFFECTIVITY  
 SAS 162-999

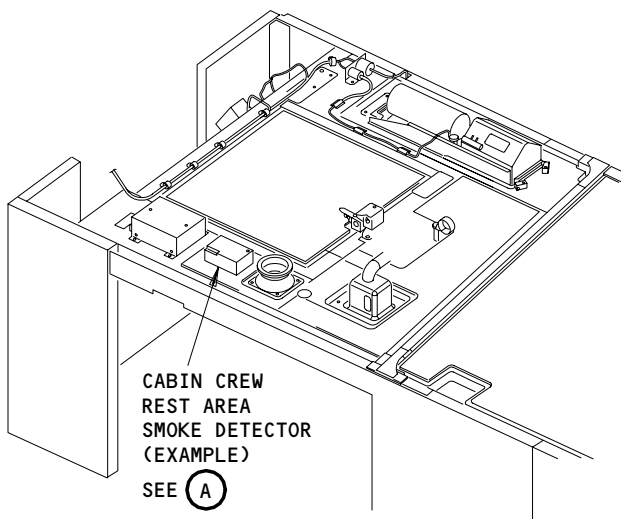
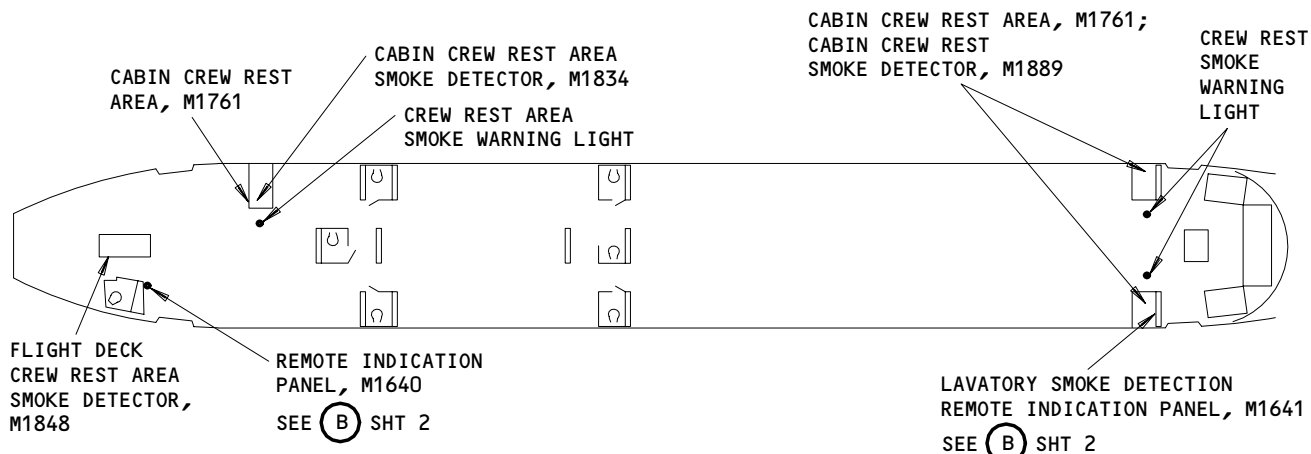
26-14-20

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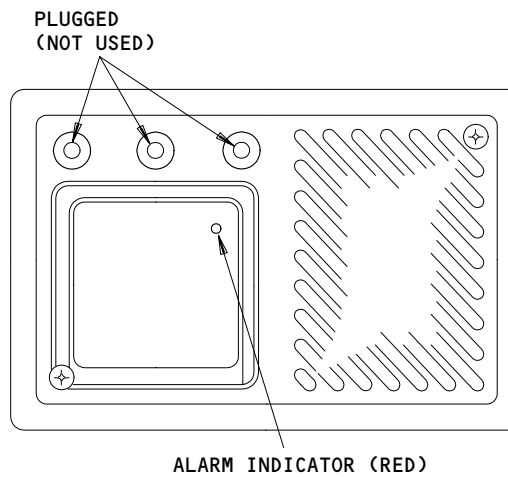
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020246

**BOEING**  
767  
FAULT ISOLATION/MAINT MANUAL



CABIN CREW REST AREA MODULE



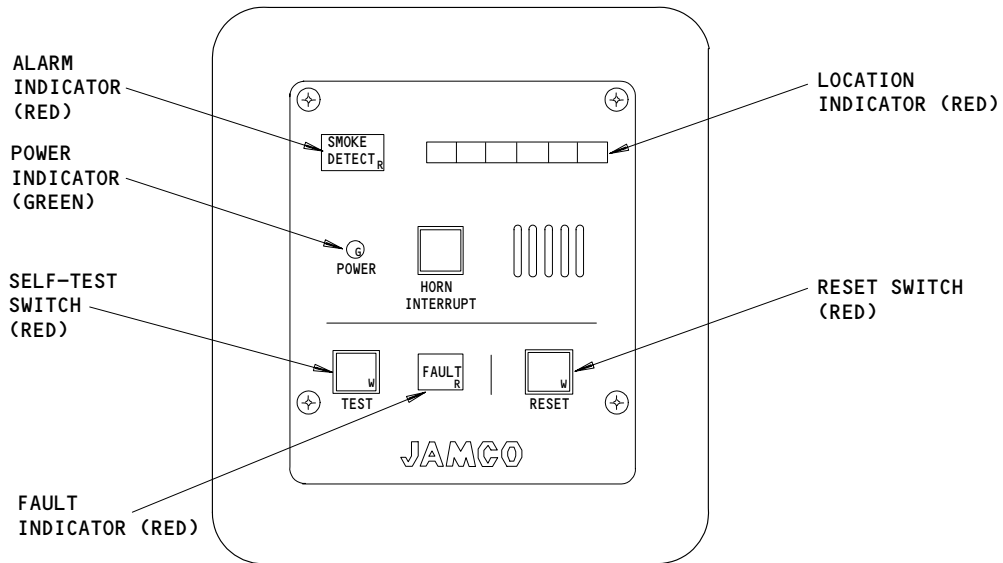
CABIN CREW REST AREA SMOKE DETECTOR, M1834, M1848, M1889

(A)

Cabin Crew Rest Area Smoke Detection - Component Location  
Figure 102 (Sheet 1)

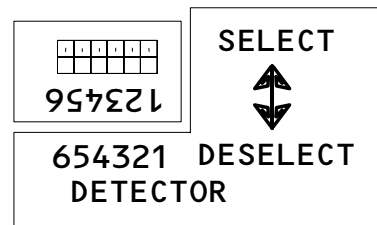
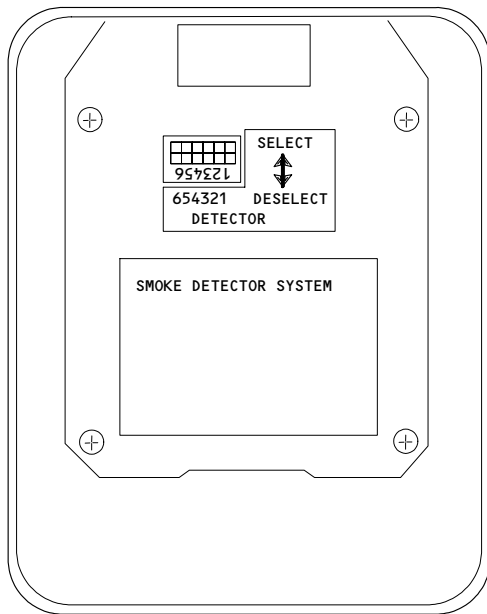
EFFECTIVITY  
SAS 162-999

**26-14-20**



LAVATORY SMOKE DETECTOR REMOTE INDICATION PANEL, M1640 OR M1641

(B)



**NOTE:** "SELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS INSTALLED.  
"DESELECT" POSITION WHEN THE ASSOCIATED LAVATORY DETECTOR IS NOT INSTALLED.

LAVATORY SMOKE DETECTOR REMOTE INDICATION REAR PANEL

(B)

Cabin Crew Rest Area Smoke Detection - Component Location (Detail from Sht 1)  
Figure 102 (Sheet 2)

EFFECTIVITY  
SAS 162-999

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CABIN CREW REST AREA SMOKE DETECTION

1. General

- A. This section contains procedures to do an operational test and a system test of the cabin crew rest area smoke detection system. The test makes sure the smoke detection sensing, annunciation and interrupt functions operate correctly.
- B. The system test increases the scope of the operational test to make sure all performance requirements of the system occur.

TASK 26-14-20-715-001

2. Operational Test - Cabin Crew Rest Area Smoke Detectors

A. References

- (1) 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

119/120	Main Equipment Center
200	Upper Half of Fuselage
211/212	Flight Compartment
222	Passenger Cabin - Section 41 (RH Side)
251/252	Passenger Cabin - Section 46 (LH/RH Side)

C. Prepare for Test

S 865-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-003

- (2) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
  - (a) 11K36, SMOKE DETECTORS

D. Do a Test of the Cabin Crew Rest Area Smoke Detection System

S 755-004

- (1) Make sure the green power indicator light on the smoke detector alarm panel comes on.

S 865-005

- (2) Push the SELF TEST switch on the alarm panel.

S 755-006

- (3) Make sure these indications come on and then go off two times in less than 10 seconds after the SELF TEST switch has been pushed:
  - (a) the six location indicators
  - (b) the alarm horn

EFFECTIVITY  
ON SAS 162-999

26-14-20



S 865-007

- (4) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-14-20-735-008

3. System Test – Cabin Crew Rest Area Smoke Detectors

A. Equipment

- (1) Smoke Detector Tester (Aerosol Container)  
HOME SAFEGUARD IND.  
SECURITIES PRODUCTS DIVISION  
P.O. Box 4073  
Malibu, CA 90265

B. References

- (1) 24-22-00/201, Electrical Power Control

C. Access

(1) Location Zones

119/120	Main Equipment Center
200	Upper Half of Fuselage
211/212	Flight Compartment
222	Passenger Cabin – Section 41 (RH Side)
251/252	Passenger Cabin – Section 46 (LH/RH Side)

D. Prepare for test

S 865-009

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-010

- (2) Make sure the circuit breaker on the overhead circuit breaker panel, P11, is closed:
  - (a) 11K36, SMOKE DETECTORS

S 865-011

- (3) Use an approved source to make smoke adjacent to each cabin crew rest area.

S 755-012

- (4) Make sure these indications occur on the alarm panel:
  - (a) The SMOKE DETECTOR light comes on
  - (b) The location indicator light of the detector that is tested comes on.
  - (c) The alarm horn is heard.
  - (d) ON SAS 164-999;  
the cabin crew rest smoke warning light comes on.

EFFECTIVITY  
ON SAS 162-999

26-14-20

S 865-013

- (5) Push the RESET switch.

NOTE: Alarm indications will come on if there is sufficient smoke in each cabin crew rest area.

S 755-014

- (6) Make sure these indications occur:
- (a) The alarm horn is not heard.
  - (b) The SMOKE DETECTOR light goes off for approximately 1 minute.
  - (c) The location indicator light goes off for approximately 1 minute.
  - (d) ON SAS 164-999;  
the cabin crew rest smoke warning light goes off for approximately 1 minute.

S 865-015

- (7) Push the HORN/INTERRUPT test switch. The horn will stay off until the smoke detector is clear of smoke, the alarm panel is set again, or more smoke is detected.

S 865-016

- (8) Remove the smoke from the cabin crew rest area.

S 755-017

- (9) Make sure all the alarm indications stop.

S 865-018

- (10) Remove electrical power if it is not necessary (AMM 24-22-00/201).

EFFECTIVITY  
ON SAS 162-999

26-14-20

CABIN CREW REST AREA SMOKE DETECTION – MAINTENANCE PRACTICES

1. General

- A. A smoke detector is installed on the ceiling of each cabin crew rest area. An alarm panel is installed in the forward and aft galley. It is used to monitor each of the cabin crew rest area smoke detector sensor inputs.

TASK 26-14-21-022-001

2. Remove the Cabin Crew Rest Area Smoke Detector

A. Equipment

- (1) Approved screwdriver

B. Access

- (1) Location Zones

119/120	Main Equipment Center
211/212	Flight Compartment
222	Passenger Cabin – Section 41 (RH side)
251/252	Passenger Cabin – Section 46 (LH/RH side)

C. Remove the Cabin Crew Rest Area Smoke Detector

S 862-002

- (1) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:  
(a) 11K36, SMOKE DETECTORS

S 022-003

- (2) Do these steps to remove the cabin crew rest area smoke detector:  
(a) Loosen the two screws on the smoke detector faceplate.  
(b) Remove the faceplate from the smoke detector.  
(c) Remove the two screws which attach the smoke detector to the ceiling bracket.  
(d) Disconnect the electrical connector.  
(e) Disconnect the sliding lock assembly from the connector if it is installed.  
(f) Remove the smoke detector and the ceiling bracket from the ceiling.  
(g) Disconnect the lanyard from the smoke detector.  
(h) Clean the smoke detector in the cabin crew rest area if it is necessary.

TASK 26-14-21-422-004

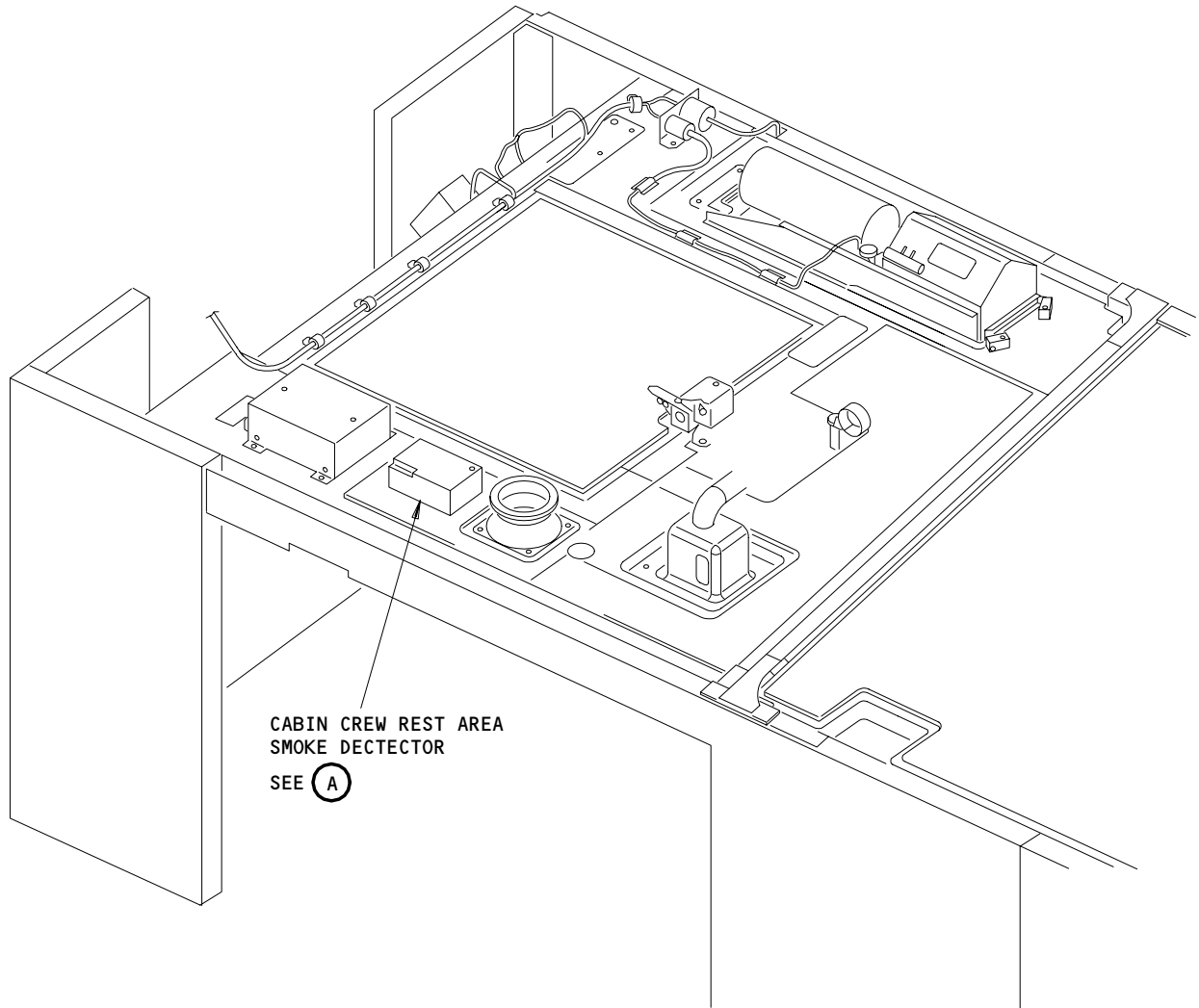
3. Install the Cabin Crew Rest Area Smoke Detector

A. Equipment

- (1) Approved Screwdriver

EFFECTIVITY  
ON SAS 162-999

26-14-21



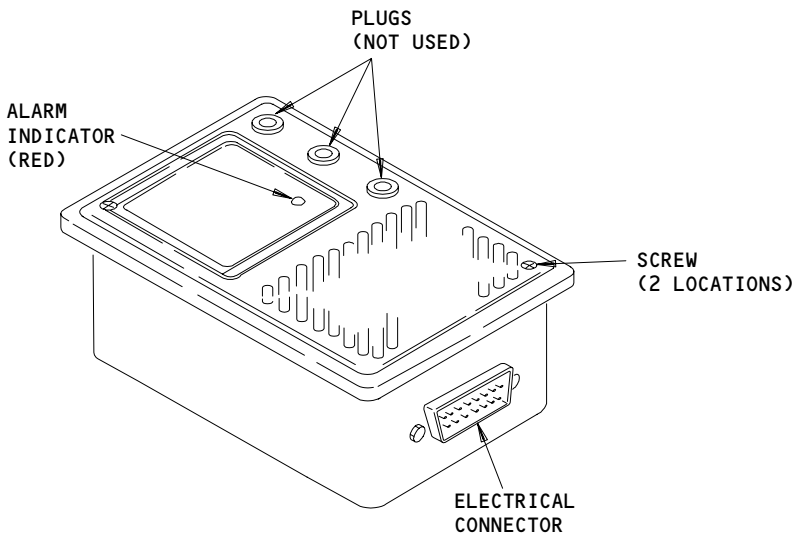
CABIN CREW REST AREA  
SMOKE DECTECTOR  
SEE (A)

CABIN CREW REST AREA

Cabin Crew Rest Area Smoke Detection  
Figure 201 (Sheet 1)

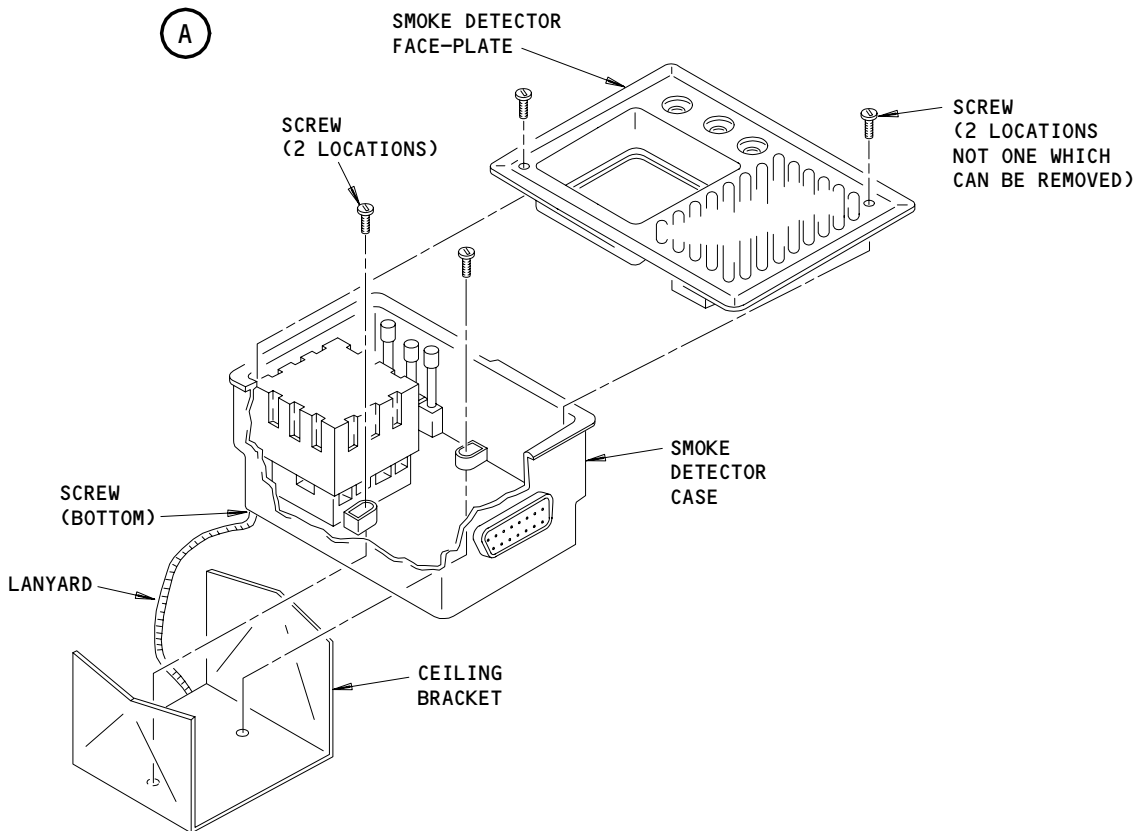
EFFECTIVITY  
ON SAS 162-999

26-14-21



**CABIN CREW REST AREA  
SMOKE DETECTOR**

(A)



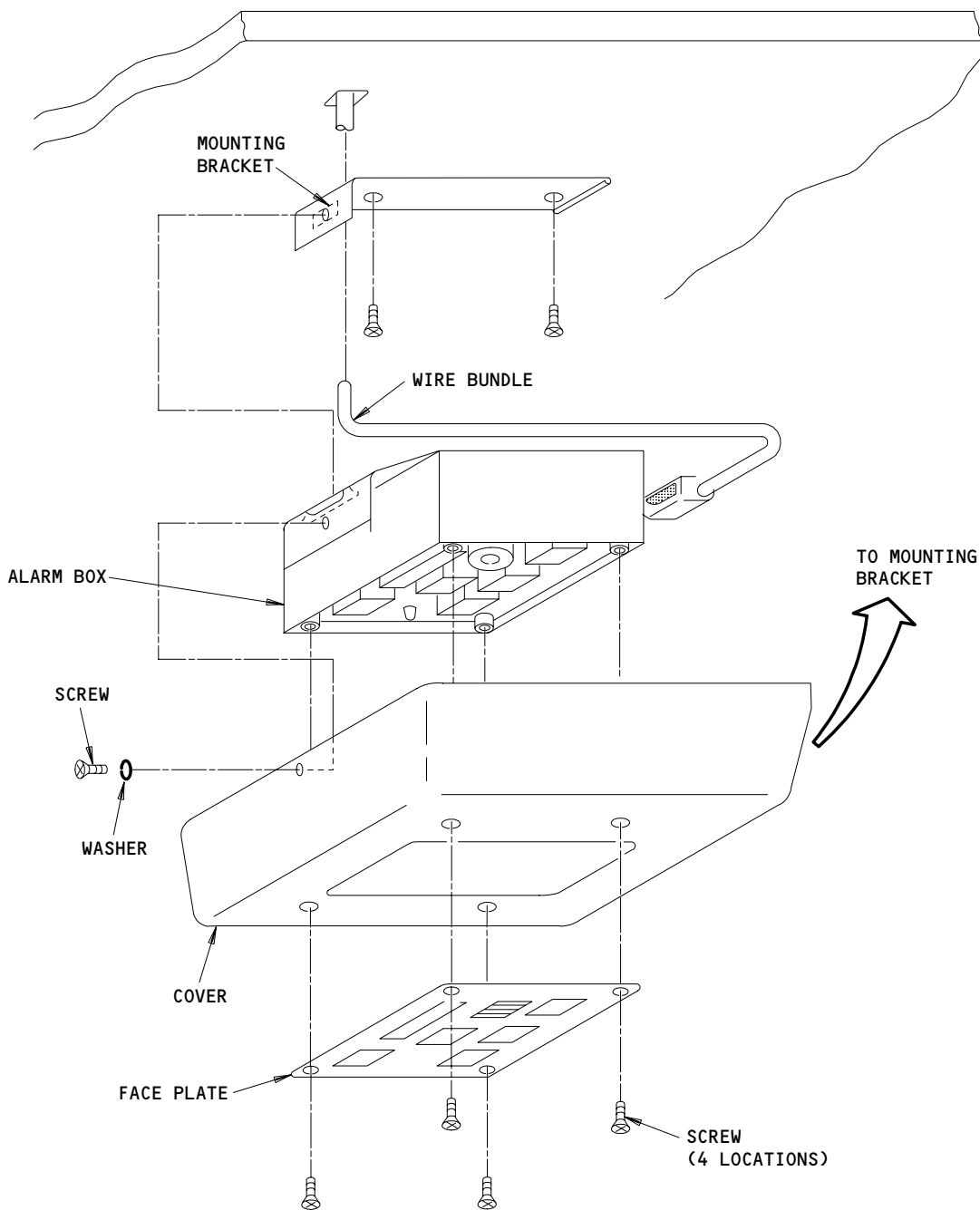
**CABIN CREW REST AREA SMOKE DETECTOR  
(EXPANDED VIEW)**

(A)

**Cabin Crew Rest Area Smoke Detector Installation  
Figure 201 (Sheet 2)**

EFFECTIVITY  
ON SAS 162-999

**26-14-21**



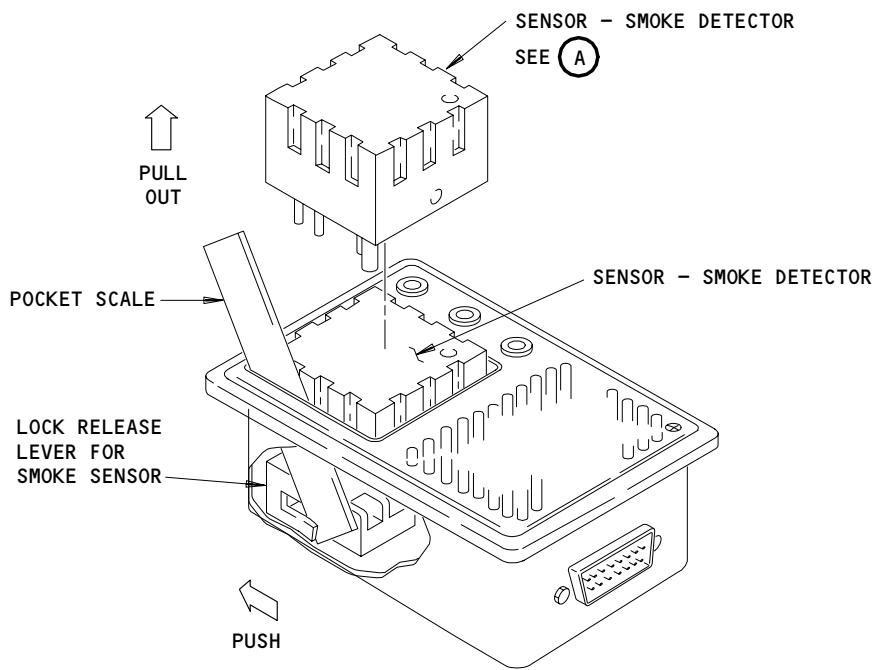
REMOTE INDICATOR PANEL

(B)

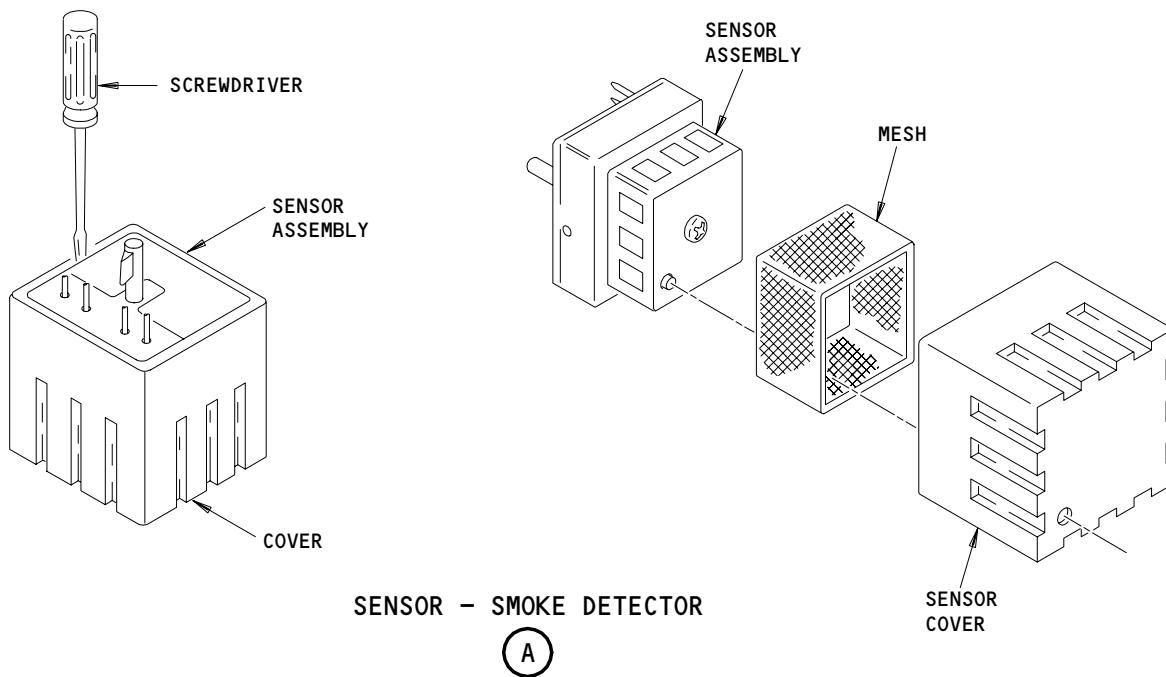
Cabin Crew Rest Area Smoke Detector Remote Indicator Panel Installation  
Figure 201 (Sheet 3)

EFFECTIVITY  
ON SAS 162-999

26-14-21



CABIN CREW REST AREA SMOKE DETECTOR



Cabin Crew Rest Area Smoke Detector Cleaning  
Figure 202

EFFECTIVITY  
ON SAS 162-999

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B. Access

(1) Location Zones

119/120	Main Equipment Center
211/212	Flight Compartment
222	Passenger Cabin - Section 41 (RH side)
251/252	Passenger Cabin - Section 46 (LH/RH side)

C. Install the Smoke Detector into the Cabin Crew Rest Area.

S 422-005

- (1) Do these steps to install the smoke detector into the cabin crew rest area.

S 422-006

- (2) Attach the ceiling bracket loosely to the smoke detector with the two screws.
- (a) Attach the lanyard from the ceiling bracket to the smoke detector.
  - (b) Attach the airplane wire connector to the electrical connector of the smoke detector.
  - (c) Attach the sliding lock assembly to the electrical connector if it is installed.
  - (d) Put the smoke detector into the ceiling and push on the screws until the ceiling bracket locks into the correct position.
  - (e) Tighten the screws which hold the ceiling bracket into its position.
  - (f) Attach the faceplate to the smoke detector with the two screws.

S 862-007

- (3) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11K36, SMOKE DETECTORS

TASK 26-14-21-022-008

4. Remove the Alarm Panel

A. Equipment

- (1) Approved Screwdriver

B. Access

(1) Location Zones

211/212	Flight Compartment
221	Passenger Cabin - Section 41 (LH side)
251	Passenger Cabin - Section 46 (LH side)

EFFECTIVITY  
ON SAS 162-999

26-14-21



C. Remove the Alarm Panel

S 862-009

- (1) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
  - (a) 11K36, SMOKE DETECTORS

S 022-010

- (2) Do these steps to remove the alarm panel:
  - (a) Remove the screws (4) from the faceplate.
  - (b) Remove the screw from the top of the cover.
  - (c) Disconnect the electrical connector.
  - (d) Remove the alarm panel from the mounting bracket and the cover.

TASK 26-14-21-422-011

5. Install the Alarm Panel

A. Equipment

- (1) Approved Screwdriver

B. Access

- (1) Location Zones

211/212	Flight Compartment
221	Passenger Cabin - Section 41 (LH side)
251	Passenger Cabin - Section 46 (LH side)

C. Install the Alarm Panel

S 752-012

- (1) Make sure that the switches on the back of the alarm panel are in the same positions as the alarm panel that was removed.

NOTE: The switch must be in the SELECT position if the associated lavatory detector is installed. If the detector is not installed, the switch must be in the DESELECT position.

S 412-013

- (2) Do these steps to install the alarm panels.
  - (a) Attach the alarm panel to the mounting bracket.
  - (b) Put the cover on the alarm panel and tighten the screw through the cover, alarm panel, and mounting bracket.
  - (c) Attach the faceplate to the panel and install the screws (4).

S 862-014

- (3) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
  - (a) 11K36, SMOKE DETECTORS

EFFECTIVITY  
ON SAS 162-999

26-14-21

TASK 26-14-21-712-015

6. Do a Test of the Cabin Crew Rest Area Smoke Detection System Installation

A. Equipment

- (1) Approved Screwdriver

B. Reference

- (1) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones

221	Passenger Cabin - Section 41 (LH side)
251	Passenger Cabin - Section 46 (LH side)

D. Do a test of the Cabin Crew Rest Area Smoke Detector System Installation

S 862-016

- (1) Supply electrical power (AMM 24-22-00/201).

S 752-017

- (2) Make sure the green power indicator comes on.

S 862-018

- (3) Push the self-test switch.

S 752-019

- (4) Make sure these alarm indications occur two times:
  - (a) The alarm is heard.
  - (b) The alarm indicator lamp (red) comes on.  
the cabin crew rest smoke warning lights come on.

S 862-020

- (5) Remove electrical power if it is not necessary (AMM 24-22-00/201)

TASK 26-14-21-162-029

7. Clean the Cabin Crew Rest Area Smoke Detector (Fig. 202)

A. Equipment

- (1) Approved Screwdriver
- (2) Pocket scale/ruler
- (3) Dry Compress Air
- (4) Rubber gloves

B. Consumable Materials

- (1) Ethyl alcohol spec 0-E-760 or 0-A-396 alcohol, SDEC TR-I-735  
(AMM 20-30-02/201)
- (2) Synthetic detergent
- (3) Warm water

EFFECTIVITY  
ON SAS 162-999

26-14-21

- C. Reference
  - (1) AMM 26-14-20/501, Cabin Crew Rest Area Smoke Detection
- D. Do the Procedure

S 022-031

**WARNING:** CLEAN THE SMOKE DETECTOR IN AN AREA WHICH IS SATISFACTORILY OPEN TO THE AIR AND FREE OF ALL HOT SURFACES, FLAMES OR SPARKS. TO CLEAN THE DETECTOR, USE RUBBER GLOVES TO PREVENT INJURY TO PERSONS.

- (1) Remove unwanted material from the external surfaces of the smoke detector. Use a clean cloth that is free of lint and soaked with ethyl or isopropyl alcohol.
- E. Remove the Sensor Assembly from the Smoke Detector.

S 012-022

- (1) Remove the sensor assembly from the smoke detector as follows:
  - (a) Put the pocket scale between the sensor assembly and the smoke detector faceplate.
  - (b) Push the lock release lever with the pocket scale and then pull out the sensor assembly.
- F. Clean the Sensor Assembly of the Smoke Detector.

S 112-023

- (1) Clean the sensor assembly of the smoke detector as follows:
  - (a) Move the approved screwdriver between the sensor assembly and the cover of the sensor assembly.
  - (b) Twist the screwdriver to release the latch of the cover.
  - (c) Remove the cover from the sensor assembly.

**CAUTION:** DO NOT TOUCH THE ELECTRODE INSIDE THE SENSOR ASSEMBLY OF THE SMOKE DETECTOR. THIS CAN CAUSE DAMAGE TO THE SENSOR.

- (d) Pull out the mesh from the sensor assembly.
- (e) Examine the mesh for all unwanted material.
- (f) If the mesh is dirty, clean the mesh with a synthetic detergent and warm water.
- (g) If the mesh is very dirty, replace it with a new mesh.
- (h) Dry the mesh with dry compressed air.

**CAUTION:** DO NOT BLOW WITH MUCH FORCE INTO THE SENSOR ASSEMBLY. ELECTROSTATIC CHARGE ON THE ELECTRODES CAN OCCUR WHICH CAN CAUSE DAMAGE TO THE SENSOR.

- (i) Blow out all unwanted material in the sensor assembly.
- (j) Install the mesh on the sensor assembly.

EFFECTIVITY  
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(k) Put the cover with the applicable hole on the sensor assembly and install the cover.

S 862-032

(2) Assemble the Smoke Detector.

S 712-033

(3) Do the Operational Test for the Smoke Detector in the Cabin Crew Rest Area (AMM 26-14-20/501).

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APU FIRE DETECTION - DESCRIPTION AND OPERATION

1. General

- A. A dual-loop fire detection system is installed in the APU compartment. This system monitors temperatures in the compartment. This system also supplies signals for a fire condition.
- B. The fire detection system for the APU uses power from the 28-volt dc battery bus. The system circuit breakers are on the overhead circuit breaker panel, P11 (Fig. 2). The system does not contain any on/off switches.
- C. The system has two loops. Each loop has two parallel detector elements. One of the two elements can start an alarm or fault signal for that loop.
- D. Each detection loop has a control card. The system has one fire/overheat logic/test card, and a fire/overheat test panel.
- E. When the airplane is on the ground (with engines running or not) and a fire is detected in the APU compartment, the APU will shutdown. The APU fire light (red) and the APU fire warning horn will come on and remain on until one of the two APU fire switches (P8, or P40) is activated.
- F. When the airplane is in-flight and a fire is detected in the APU compartment, the APU will shutdown. The APU fire light (red) will come on and remain on until the APU fire switch (P8) is activated.
- G. The detection system operates in AND logic. The two loops of the system must get input from a fire condition for an alarm to be given.

2. Component Details (Fig. 1)

A. APU Fire Detectors

- (1) A detector has two sensing elements which are attached to a support tube by quick-release mounting clamps. Each element is a temperature-dependent resistor (thermistor). The resistance in the element decreases while the temperature increases. The detector is coaxial, with the resistive material found between the inner and outer conductors.
- (2) The fire detectors are installed above the APU and below the APU. One of the detectors makes an 180 degree arc around the air inlet above the APU. The other detector is below the APU, on an access door.

B. Fire and Overheat Detection Cards

- (1) Each detection loop has an applicable detection control card. These cards constantly monitor and make an analysis of the signals given by each loop. The cards output alarm or fault signals to the fire/overheat logic/test card.
- (2) The detection control cards are in the card file, P54. The card file is in the electrical/electronic equipment compartment, along the right side of the nose gear wheel well.

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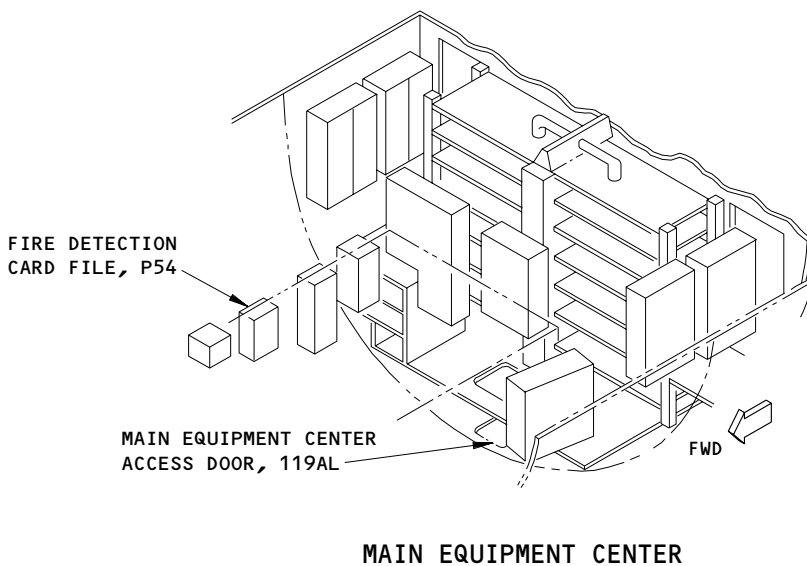
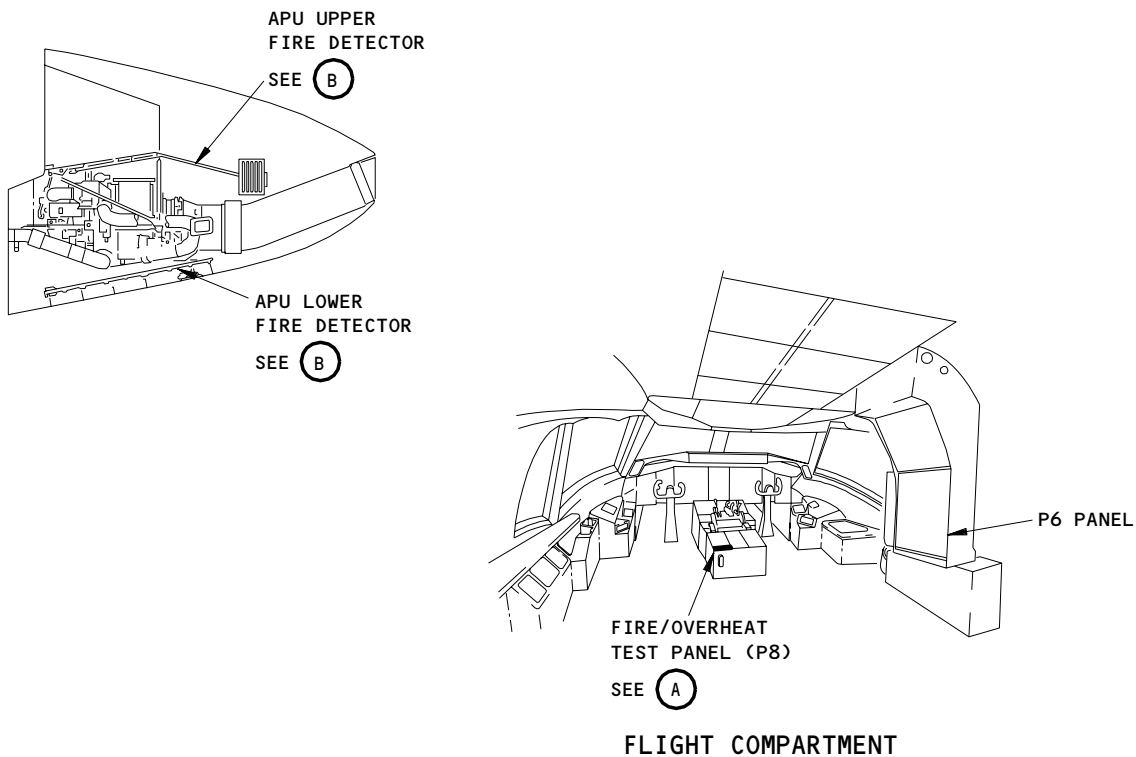
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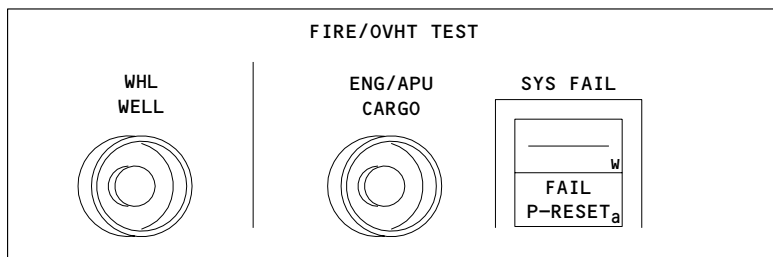
APU Fire Detection - Component Location  
Figure 1 (Sheet 1)

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FIRE/OVERHEAT TEST PANEL

(A)

APU Fire Detection - Component Location  
Figure 1 (Sheet 2)

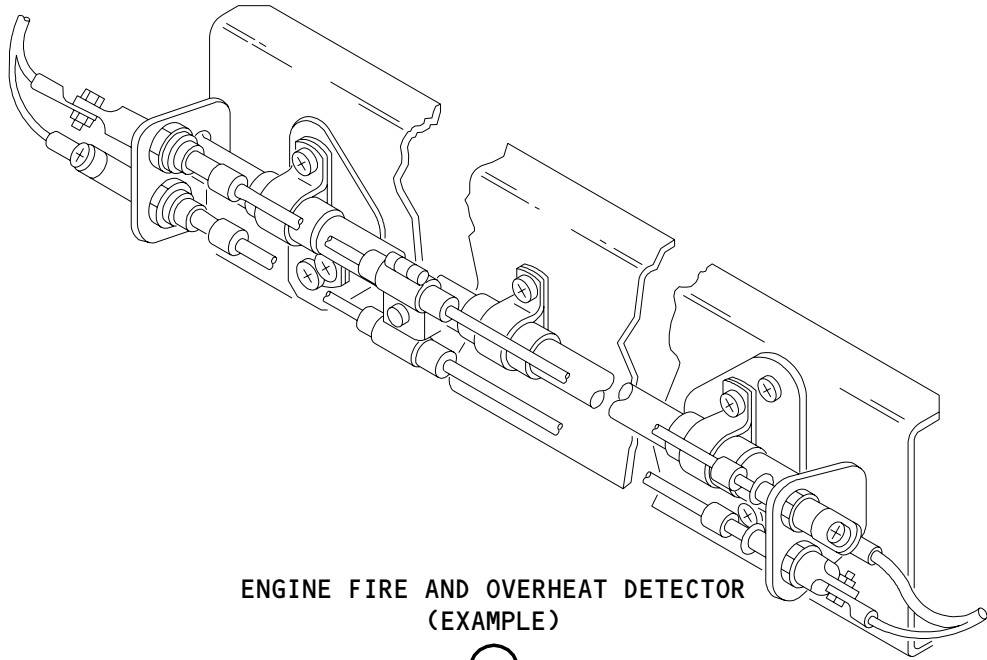
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ENGINE FIRE AND OVERHEAT DETECTOR  
(EXAMPLE)

(B)

APU Fire Detection - Component Location  
Figure 1 (Sheet 3)

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MO2514



C. Fire/Overheat Logic/Test Card

- (1) The AFOLTS (Automatic Fire/Overheat Logic/Test System) card makes an analysis of the signals from the detection control card. The AFOLTS card also supplies a system functional test, and outputs the fire warning and the fault indication signals.
- (2) The AFOLTS card is found in the P54 card file.

D. Fire/Overheat Test Panel

- (1) The fire/overheat test panel contains a momentary pushbutton switch - ENG/APU/CARGO. This switch starts a test of the fire, overheat, and smoke detection systems for the engines, APU, and cargo compartments. The test causes cockpit fire and overheat indications.
- (2) The test panel also has an amber SYS FAIL - FAIL P-RESET switchlight. This switchlight shows a fire, overheat, or smoke detection system failure. The switchlight is pushed to reset.
- (3) The FIRE/OVHT TEST panel is on the aft pilots control stand, P8.

E. APU Shutdown Panel

- (1) The APU Shutdown panel, P40, contains the APU FIRE light, and the APU fire warning horn. In addition, the panel contains switches that allow the APU to be shutdown (when a fire indication occurs), and the APU fire extinguisher to be discharged from the nose landing gear area.
- (2) P40 is found on the aft side of the nose landing gear.

3. Operation (Fig. 2)

A. Functional Description

- (1) With 28v dc power applied to the system, current is sent from each control card. The current is sent to the detectors in the applicable loop. Each detector element has a resistance value, and is in parallel with the other elements in its' loop. Thus, each loop has an equivalent resistance value, and the control card sees a loop voltage potential.
- (2) Because the temperature increases, the detector resistance decreases. When detector element resistance decreases to 450 ohms, a timer on the control card starts. If the resistance decreases to 250 ohms or below before the timer has run out, a fault indication is sent. This indication is sent to the AFOLTS card. If the timer has already expired before the resistance drops to 250 ohms, a fire indication will be given when the detector drops below 250 ohms.
- (3) The AFOLTS card adjusts the control card signals to AND logic, and finds the applicable output to flight and ground crews. See Table 1.

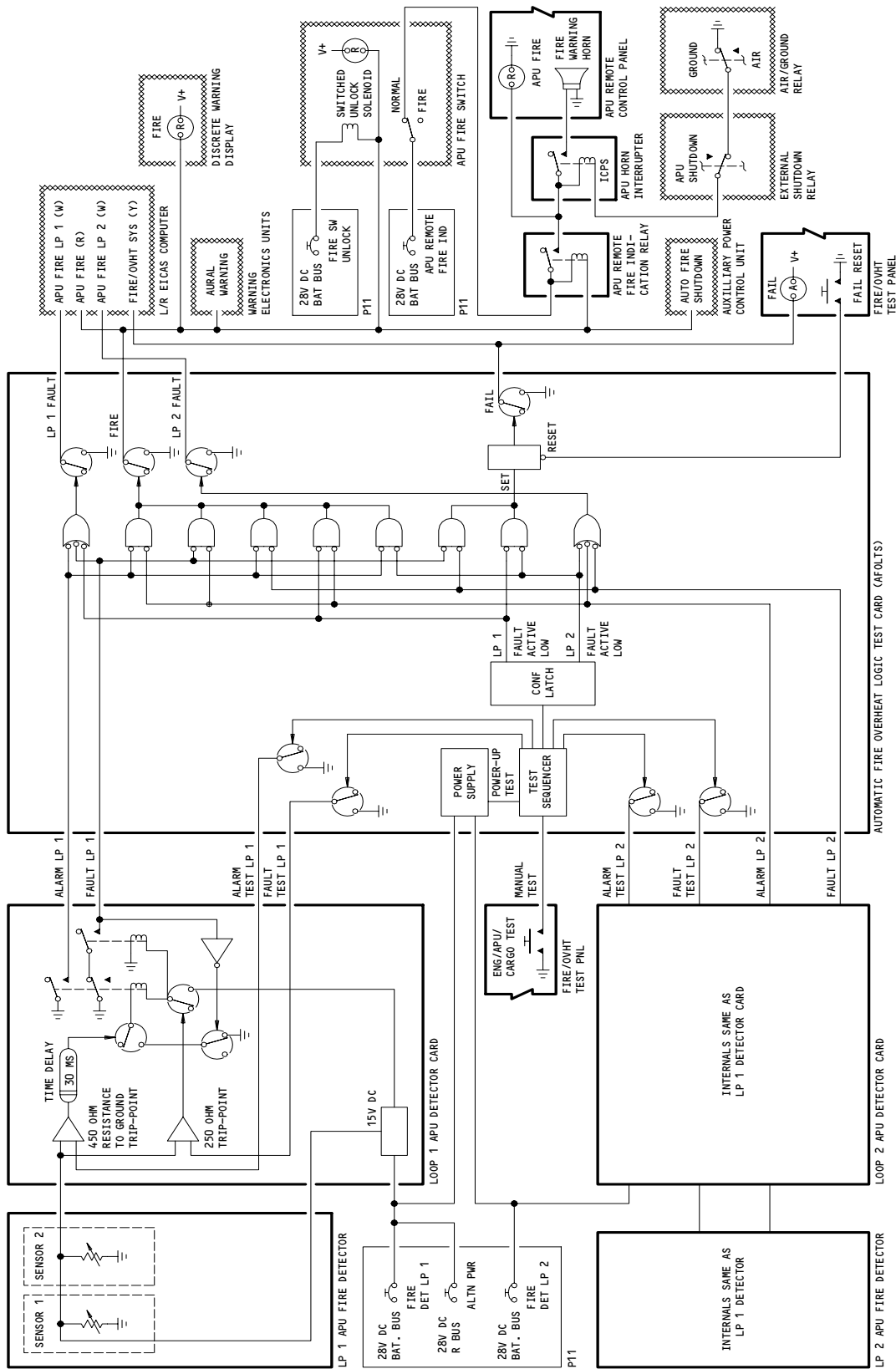
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APU Fire Detection Schematic  
Figure 2

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INPUTS TO LOOP 1	AFOLTS LOOP 2	AFOLTS OUTPUTS
ALARM	ALARM	FIRE
ALARM	-----	EICAS LOOP 1
ALARM	FAULT	FIRE
-----	ALARM	EICAS LOOP 2
FAULT	ALARM	FIRE
FAULT	-----	EICAS LOOP 1
FAULT	FAULT	FAIL
-----	FAULT	EICAS LOOP 2

TABLE I  
Logic System Operation  
APU Fire Detection Loops  
AND Configuration

- (4) A cockpit APU fire indication is given by the following:
- (a) The red APU fire switch handle, on the P8 control stand, comes on and is released.
  - (b) The red FIRE light, on the captain's instrument panel P1-3, comes on.
  - (c) The fire warning message - APU FIRE, is displayed on EICAS (Engine Indication and Crew Alerting System - P2 panel).
  - (d) The red master warning lights, on glare shield panels P7, come on.
  - (e) The fire bell makes a noise on the warning speakers on the flight deck.
- (5) An APU remote fire indication is given on P40 by these indications:
- (a) The red APU FIRE light comes on.
  - (b) When the airplane is on the ground with the engines on or off, the fire warning horn for the APU makes a noise.
  - (c) When the airplane is in-flight, the fire warning horn for the APU does not make a noise.
- (6) When there is a fire, the fire alarm signal is supplied to the APU, which tells the APU to stop.
- (7) A dual-loop fault indication has these indications:
- (a) The amber FAIL P-RESET switchlight, on the P8 control stand, comes on.
  - (b) The advisory message, FIRE/OVHT SYS, is shown on EICAS (P2).
  - (c) The status/messages, APU FIRE LP 1 and 2, are shown on EICAS.
- (8) The FAIL P-RESET switchlight is pushed to reset the fault monitoring circuitry. This also turns off the FAIL P-RESET switchlight, and clears the EICAS advisory message - FIRE/OVHT SYS.
- (9) A single-loop fault or alarm signal indication has these indications:
- (a) The status/maintenance message, APU FIRE LP 1 or 2, is shown on EICAS.
  - (b) The amber master caution lights, on P7, come on.

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(10) Detector, card, or related wiring failures will not always supply a defect output at the time of failure. These defective loops can only be found during a system test.

B. Do the test.

- (1) When a test occurs, the AFOLTS card sends out signals to the two loops of the system. Returned signals show functional loops. If a loop is defective, AFOLTS tells the system to operate on the remaining loop. If the remaining loop finds an alarm or a fault condition, then a fire warning or fail indication occurs.
- (2) Power-up mode:
  - (a) The engine detection system, APU detection system, and detection systems for the cargo compartment can go through an automatic self-test. This will occur whenever power is first applied to the battery bus, or a power interruption of two msec or more occurs. The two single-loop APU status/maintenance messages are momentarily shown on EICAS (P2). If one of the two loops is defective, the applicable loop message stays on EICAS display. The system is adjusted to the other loop. If one of the two loops are defective, then the FAIL P-RESET switchlight (on P8) comes on. EICAS shows the advisory message, FIRE/OVHT SYS. A power-up test will not start a fire warning.
- (3) Manual system test:
  - (a) The engine, APU, and cargo detection systems go through a self-test when the ENG/ APU/CARGO switch is pushed and held. The ENG/APU/CARGO switch is found on the fire/overheat test panel, P8. To see all of the EICAS messages, push the ECS/MSG switch. The two APU loop messages show on EICAS. After two seconds, the test stops with all APU fire indications.
  - (b) When the ENG/APU/CARGO switch is released, most messages and indications will be clear. All the loop failure messages will stay on EICAS. The FAIL P-RESET switchlight, and the EICAS advisory message, FIRE/OVHT SYS, will stay on if there is a dual-loop fault.
- (4) The manual system test and the power-up/power-interrupt mode will not invalidate an alarm in progress. Neither test will cause the APU to shutdown.

C. Control

- (1) Turn-on procedure:
  - (a) Supply electrical power (Ref 24-22-00).
  - (b) Make sure that these circuit breakers on the overhead circuit breaker panel, P11-4, are closed:
    - 1) FIRE SWITCH UNLOCK.
    - 2) FIRE DETECTION APU 1 and 2.
    - 3) APU REMOTE FIRE IND.

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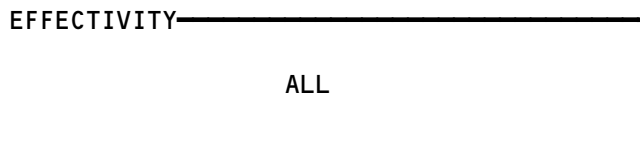
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FAULT ISOLATION/MAINT MANUAL

APU FIRE DETECTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER -	--		FLT COMPT, P11	
APU REMOTE FIRE IND, C796		1	11B34	*
FIRE DETECTION APU 1, C776		1	11B24	*
FIRE DETECTION APU 2, C785		1	11B25	*
FIRE SWITCH UNLOCK, C793		1	11B19	*
CARD 3 - FIRE/OVHT LOGIC/TEST, M10400	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 1 APU FIRE DET, M685	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CARD - LOOP 2 APU FIRE DET, M686	--	1	119AL, MAIN EQUIP CTR, P54	26-10-01
DETECTOR - APU FIRE, TS51,TS52	--	2	315AL/316AR APU COMPT	26-15-02
PANEL - APU SHUTDOWN	2	1	NOSE LANDING GEAR, P40	26-15-01
PANEL - APU/CARGO FIRE CONTROL PANEL, M10444	--	1	FLT COMPT, P8	26-15-01
RELAY - (FIM 31-01-37/101)				
APU REMOTE FIRE INDICATION, K631				
EXTERNAL SHUTDOWN, K421				
RELAY - APU HORN INTERRUPTER, K420	1	1	119AL, ON BRACKET NEXT TO P50, MAIN EQUIP CTR	*

\* SEE THE WDM EQUIPMENT LIST

APU Fire Detection System - Component Index  
Figure 101

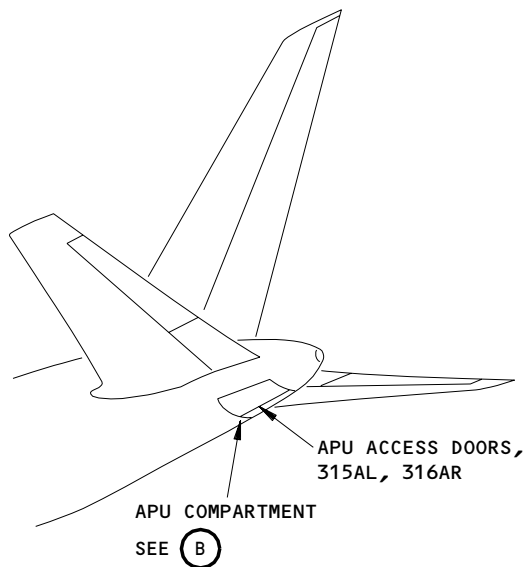
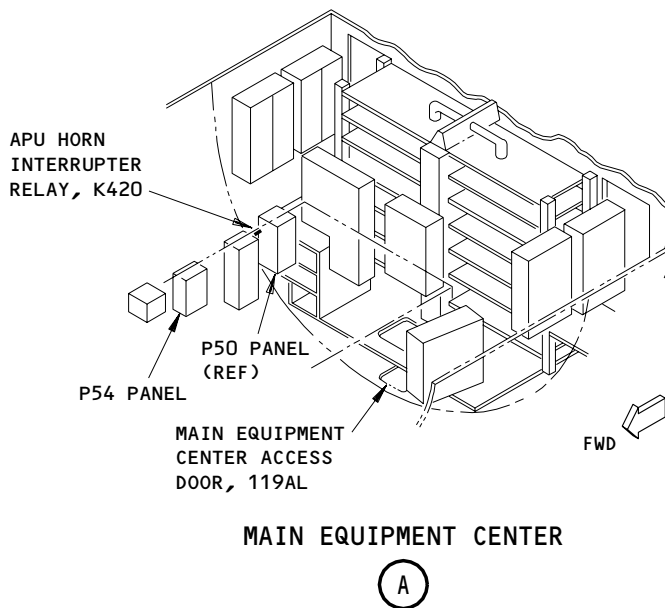
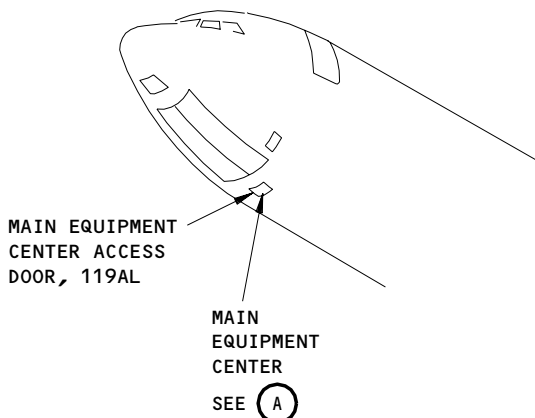


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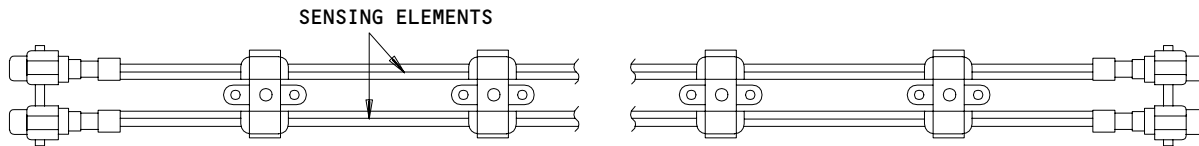


APU Fire Detection System - Component Location  
Figure 102 (Sheet 1)

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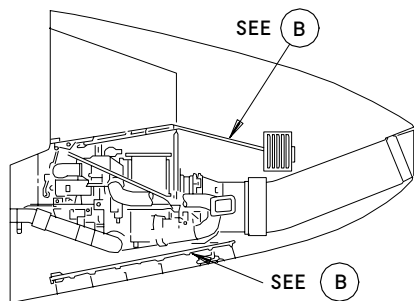
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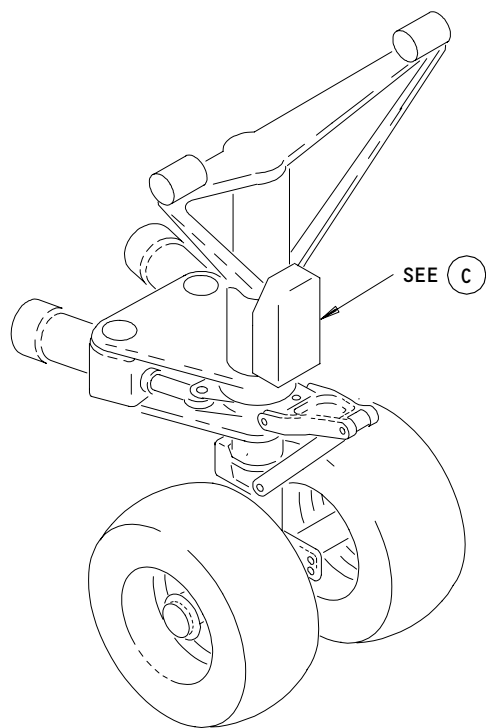


FIRE DETECTOR

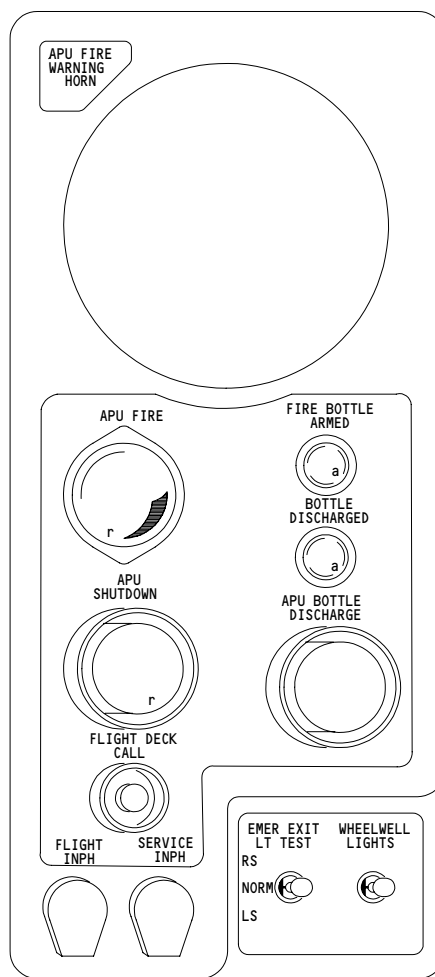
B



APU COMPARTMENT



NOSE LANDING GEAR



APU SHUTDOWN PANEL P40

C

Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY  
AIRPLANES WITH SINGLE APU  
FIRE EXTINGUISHING SYSTEMS

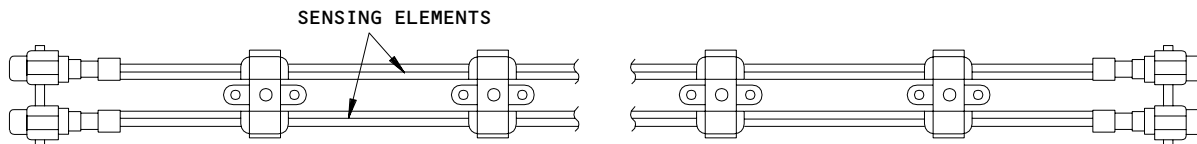
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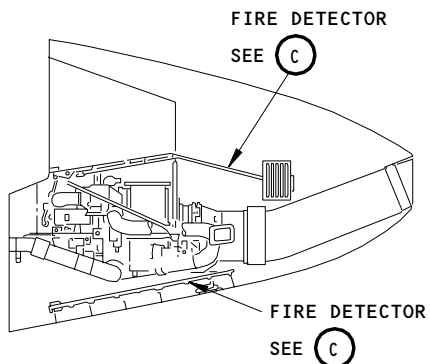
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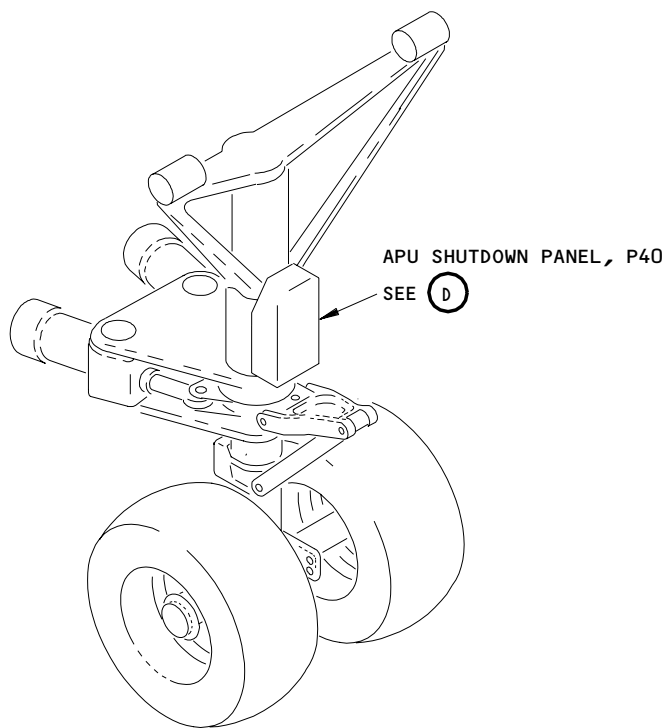


FIRE DETECTOR

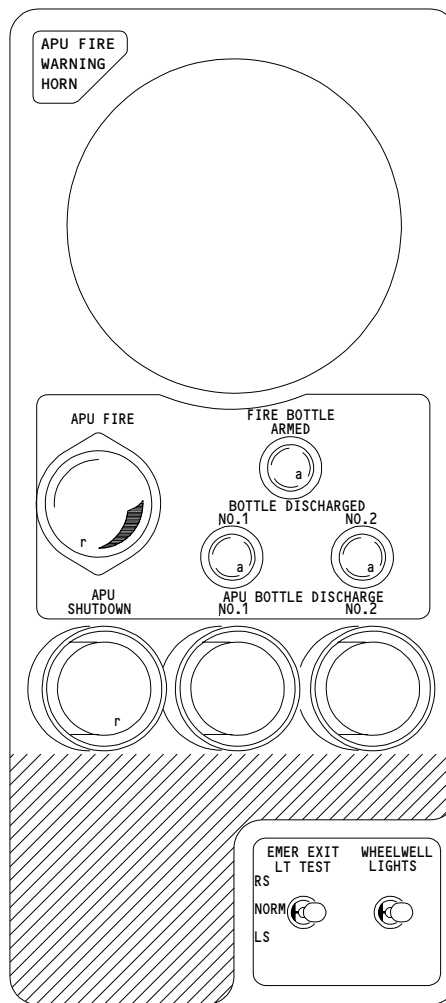
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APU COMPARTMENT



NOSE LANDING GEAR



APU SHUTDOWN PANEL, P40

D

APU Fire Detection - Component Location  
Figure 102 (Sheet 3)

EFFECTIVITY  
AIRPLANES WITH DUAL APU  
FIRE EXTINGUISHING SYSTEMS

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APU FIRE DETECTION SYSTEM – ADJUSTMENT/TEST

1. General

- A. This section contains procedures to perform an operational test and a system test of the APU fire detection system.
- (1) The operational test will make sure the system operates correctly, in minimum of time. Only equipment installed in the plane will be used.
  - (2) The system test increases the function of the operational test. The system test will make sure that all of the performance requirements of the system operate correctly.

TASK 26-15-00-715-001

2. Operational Test – APU Fire Detection System

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (3) AMM 31-51-00/501, Warning System
- (4) AMM 33-16-00/501, Master Dim and Test

B. Access

- (1) Location Zones

211/212	Flight Compartment
310	Fuselage
  
- (2) Access Panels

311/312	Area Aft of Pressure Bulkhead to BS 1725 (L, R)
313/314	Stabilizer Torsion Box Compartment (L, R)
315/316	APU Compartment

C. Prepare for Test

S 865-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-003

- (2) Make sure these systems operate:
  - (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 755-004

- (3) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
  - (a) 11B19, FIRE SWITCH UNLOCK
  - (b) 11B24, FIRE DETECTION APU 1
  - (c) 11B25, FIRE DETECTION APU 2
  - (d) 11B34, APU REMOTE FIRE IND

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S 865-006

- (4) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2

S 865-008

- (5) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (b) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (c) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (d) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (e) 11B26, FIRE DETECTION CARGO 1
  - (f) 11B27, FIRE DETECTION CARGO 2
  - (g) 11B29, OVERHEAT DETECT LEFT ENGINE 1
  - (h) 11B30, OVERHEAT DETECT LEFT ENGINE 2
  - (i) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
  - (j) 11B32, OVERHEAT DETECT RIGHT ENGINE 2
  - (k) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (l) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (m) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
  - (n) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L
  - (o) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

D. Do a Test of the APU Fire Detection Loops

S 865-009

- (1) Try to pull the APU fire switch handle out, on the pilots aft control stand, P8. Make sure it is locked in position.

S 865-010

- (2) Push the ECS MSG switch on the EICAS MAINT panel, on the right side panel, P61.

S 865-011

- (3) Push and hold the ENG/APU/CARGO switch, on the FIRE/OVHT TEST panel (on P8). Use the ECS MSG switch as necessary to move forward the EICAS pages until all messages show on the displays.

S 755-012

- (4) Make sure the EICAS messages APU FIRE LP 1 and 2 show on the bottom display.

S 755-013

- (5) After a 2-4 seconds, make sure these indications occur:
- (a) The red APU fire switch handle comes on (on P8).
  - (b) The red FIRE light, on the captains instrument panel, P1-3, comes on.
  - (c) The EICAS message APU FIRE shows on the top display.

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- (d) The red master WARNING lights, on the glareshield panel, P7, come on.
- (e) The fire bell is heard.
- (f) The red APU FIRE light, on the APU shutdown panel, P40, comes on. P40 is located on the aft side of the nose landing gear.
- (g) With the plane on the ground and as the APU operates, the APU fire warning horn is heard.

S 865-014

- (6) Pull the APU fire switch handle out (on P8). Do not turn the handle.

S 755-015

- (7) Make sure these indications occur:
  - (a) The red APU fire switch stays on.
  - (b) The fire bell stops.
  - (c) The red APU FIRE light (on P40) goes off.
  - (d) The APU fire warning horn stops.

S 865-016

- (8) Push the APU fire switch back in.

S 865-017

- (9) Release the ENG/APU/CARGO switch.

S 865-126

- (10) Make sure all indications in steps 2.D (4) and (5) go off.
- E. Do a test of the Fire Detection System Fail Light

S 865-019

- (1) Open the circuit breakers, on the P11 panel, in Table I for the APU fire detection system and attach DO-NOT-CLOSE tags.

SYSTEM	TABLE I CIRCUIT BREAKERS	LOCATION
APU FIRE	IND LIGHTS 1	11A33
	IND LIGHTS 2	11A34
	IND LIGHTS 3	11A35
	WARN ELEX B	11B18
	FIRE SWITCH UNLOCK	11B19
	FIRE DETECTION APU 1	11B24
	FIRE DETECTION APU 2	11B25
	APU REMOTE FIRE IND	11B34
	WARN ELEX A	11J34
	ALTERNATE POWER FIRE DETECTION APU	11K32
	R IND LTS 2	11R29

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- S 035-020
- (2) Remove the printed circuit cards, M685 and M686, from the fire detection card file, P54. P54 is in the E/E bay, along the right side of the nose gear wheel well.
- S 865-021
- (3) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in Table I.
- S 755-022
- (4) Make sure the yellow FAIL P-RESET light (P8) is on.
- S 755-023
- (5) Make sure the EICAS message FIRE/OVHT SYS shows on the top display.
- S 865-117
- (6) Push the FAIL P-RESET switchlight and make sure the switchlight goes off.
- S 865-024
- (7) Make sure the EICAS message FIRE/OVHT SYS goes off.
- S 865-025
- (8) Open the circuit breakers in Table I above and attach DO-NOT-CLOSE identifiers.
- S 435-026
- (9) Install the printed circuit cards, M685 and M686.
- S 865-027
- (10) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in Table I.
- F. Put the airplane back to the usual condition.
- S 865-028
- (1) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXT APU 1

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(b) 6G2, FIRE EXT APU 2

S 865-029

(2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

- (a) 11B20, FIRE DETECTION LEFT ENGINE 1
- (b) 11B21, FIRE DETECTION LEFT ENGINE 2
- (c) 11B22, FIRE DETECTION RIGHT ENGINE 1
- (d) 11B23, FIRE DETECTION RIGHT ENGINE 2
- (e) 11B26, FIRE DETECTION CARGO 1
- (f) 11B27, FIRE DETECTION CARGO 2
- (g) 11B29, OVERHEAT DETECT LEFT ENGINE 1
- (h) 11B30, OVERHEAT DETECT LEFT ENGINE 2
- (i) 11B31, OVERHEAT DETECT RIGHT ENGINE 1
- (j) 11B32, OVERHEAT DETECT RIGHT ENGINE 2
- (k) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (l) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (m) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (n) 11K34, ALTERNATE POWER OVHT DETECT ENGINE L
- (o) 11K35, ALTERNATE POWER OVHT DETECT ENGINE R

S 865-030

(3) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-15-00-735-031

3. System Test - APU Fire Detection System

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 26-22-00/501, APU Fire Extinguishing
- (3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 32-09-02/201, Air/Ground Relays
- (6) AMM 33-16-00/501, Master Dim and Test

B. Equipment

- (1) Decade Resistance Box which can measure values between 200-600 ohms, with precision of  $\pm 2$  percent, and is commercially available.

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C. Access

(1) Location Zones

211/212 Flight Compartment  
310 Fuselage

(2) Access Panels

311/312 Area Aft of Pressure Bulkhead to BS 1725 (L, R)  
313/314 Stabilizer Torsion Box Compartment (L, R)  
315/316 APU Compartment (L, R)

D. Prepare for Test

S 715-033

- (1) Do the operational test.

S 865-034

- (2) Supply electrical power (AMM 24-22-00/201).

S 755-035

- (3) Make sure these systems operate:
- (a) APU fire extinguishing system (AMM 26-22-00/501).
  - (b) EICAS (AMM 31-41-00/501).
  - (c) Warning System (AMM 31-51-00/501).
  - (d) System No. 2 air/ground relay (AMM 32-09-02/201).
  - (e) Master Dim and Test (AMM 33-16-00/501).

S 755-036

- (4) Make sure these circuit breakers on the overhead circuit breaker panel are closed:
- (a) 11B19, FIRE SWITCH UNLOCK
  - (b) 11B24, FIRE DETECTION APU 1
  - (c) 11B25, FIRE DETECTION APU 2
  - (d) 11B34, APU REMOTE FIRE IND

S 865-037

- (5) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11K32, ALTERNATE POWER FIRE DETECTION APU

S 865-038

- (6) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2

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S 015-039

- (7) Open the APU access doors and install rods to support the doors.  
E. Do a system fail test.

S 865-147

- (1) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:  
(a) 11B24, FIRE DETECTION APU 1  
(b) 11B25, FIRE DETECTION APU 2

S 035-042

- (2) Disconnect the electrical connector, D510, from the lower APU fire detector, TS52.

S 435-041

- (3) Connect a jumper wire between the center conductor of the connector and ground.

S 035-043

- (4) Disconnect the electrical connector, D508, from TS52.

S 435-044

- (5) Connect a jumper wire between the center conductor of the connector and ground.

S 865-045

- (6) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in step 3.E.(1).

S 755-046

- (7) Make sure these indications occur:  
(a) The yellow FAIL P-RESET switchlight, on the pilots aft control stand, P8, comes on.  
(b) The EICAS message FIRE/OVHT SYS shows on the top display.  
(c) The EICAS messages APU FIRE LP 1 and APU FIRE LP 2 show on the bottom display.

S 865-047

- (8) Open the circuit breakers which were closed in step 3.E.(1) and attach DO-NOT-CLOSE tags.

S 435-048

- (9) Disconnect the jumpers and reconnect D510 and D508 to TS52.

S 865-049

- (10) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in step 3.E.(1).

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- S 755-050
- (11) Make sure the EICAS messages APU FIRE LP 1 and APU FIRE LP 2 do not show on the bottom display.
- S 865-051
- (12) Push the FAIL P-RESET switchlight, on the P8 panel.
- S 755-052
- (13) Make sure the yellow FAIL P-RESET switchlight goes off.
- S 755-053
- (14) Make sure the EICAS message FIRE/OVHT SYS does not show.
- F. Do a test of the Fire Detector element
- S 865-118
- (1) Open the circuit breakers in step 3.E.(1) and attach DO-NOT-CLOSE tags.
- S 035-054
- (2) Disconnect the electrical connector, D510, from TS52.
- S 485-055
- (3) Connect a decade resistance box, set at 550 ohms, between the center conductor of the connector and ground.
- S 035-056
- (4) Disconnect the electrical connector, D508, from TS52.
- S 485-057
- (5) Connect a jumper wire between the center conductor of the connector and ground.
- S 865-058
- (6) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in step 3.E.(1).
- S 865-059
- (7) Set the decade box to 350 ohms and wait two to five seconds.
- S 755-060
- (8) Set the decade box to 150 ohms and make sure these APU fire indication occurs:
- (a) The red APU fire switch handle (on P8) comes on.

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- (b) The red FIRE light (on P1-3) comes on.
- (c) The EICAS message APU FIRE shows on the top display.
- (d) The red master warning lights (on P7) come on.
- (e) The fire bell is heard.
- (f) The red APU FIRE light (on P40) comes on.

S 865-061

- (9) Open the circuit breakers in step 3.E.(1) and attach DO-NOT-CLOSE tags.

S 085-062

- (10) Disconnect the decade box from D510 and the jumper wire from D508.

S 485-063

- (11) Connect the decade box, set at 550 ohms, to D508, between the center conductor of the connector and ground.

S 485-064

- (12) Connect a jumper wire to D510, between the center conductor of the connector and ground.

S 865-065

- (13) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in step 3.E.(1).

S 755-124

- (14) Do steps 3.F.(7), (8), and (9) again.

S 085-066

- (15) Disconnect the decade box from D508 and the jumper wire from D510.

S 485-067

- (16) Connect D510 and D508 to TS52. Torque connectors to 50-70 inch-pounds.

S 865-068

- (17) Remove the DO-NOT-CLOSE tags and close the circuit breakers which were opened in step 3.E.(1).

S 415-069

- (18) Close the APU access doors.

G. Do a test of the APU shutdown with fire indication:

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S 865-071

**WARNING:** DO NOT ENTER THE APU COMPARTMENT WHEN THE APU OPERATES. INJURY TO PERSONS CAN OCCUR IF THE COOLING FAN FAILS.

- (1) Close these circuit breakers on the P11 panel.
  - (a) 11B19, FIRE SWITCH UNLOCK
  - (b) 11B24, FIRE DETECTION APU 1
  - (c) 11B25, FIRE DETECTION APU 2
  - (d) 11B34, APU REMOTE FIRE IND
  - (e) 11K32, ALTERNATE POWER FIRE DETECTION APU

S 865-072

- (2) Close these circuit breakers on the P6 panel:
  - (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2

S 015-074

- (3) Open the APU access doors.

S 035-078

- (4) Disconnect the connector, D510, from TS52 (lower APU fire detector).

S 035-079

- (5) Connect a jumper wire from the center pin of D510 to the connector shell of the disconnected fire detector.

S 035-080

- (6) Disconnect the connector, D508, from TS52 (lower APU fire detector).

S 485-081

- (7) Connect the decade resistance box, set at 550 ohms, between the single connector pin and ground.

S 755-146

- (8) Make sure the EICAS messages APU FIRE LP 1 and APU FIRE LP 2 show on the bottom display.

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- S 445-084
- (9) Start the APU (AMM 49-11-00/201). Do not put an electrical or a pneumatic load on APU.
- S 865-089
- (10) Turn the decade resistance box from 550 ohms to 350 ohms. Wait five seconds and then turn to 150 ohms. Check that APU shuts down.
- S 755-090
- (11) Make sure the APU does not operate.
- S 085-094
- (12) Remove the decade resistance box.
- S 035-121
- (13) Remove the jumper wire.
- S 435-093
- (14) Connect the connectors D508 and D510 to TS52.
- S 865-098
- (15) Put the APU start switch to the OFF position.
- S 415-102
- (16) Close the APU access doors.
- H. Do an interrupt test of the remote APU fire horn:
- S 865-104
- (1) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2
- S 865-105
- (2) Push and hold the ENG/APU/CARGO switch (on P8).

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- S 755-106
- (3) Make sure the red APU FIRE light comes on and the APU fire horn is heard.
- S 755-107
- (4) Push the APU SHUTDOWN switch, on the P40 panel, and make sure these indications occur:
- (a) The APU fire horn is not heard.
  - (b) The yellow FIRE BOTTLE ARMED light comes on.
  - (c) The red APU FIRE light stays on.
- S 865-109
- (5) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2
- S 755-110
- (6) Make sure the APU fire horn is heard.
- S 755-111
- (7) Make sure the FIRE BOTTLE ARMED light goes off.
- S 865-112
- (8) Release the ENG/APU/CARGO switch and make sure the APU FIRE light and the APU fire horn goes off.
- I. Put the airplane back to the usual condition
- S 865-113
- (1) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11K32, ALTERNATE POWER FIRE DETECTION APU
- S 865-114
- (2) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6G1, FIRE EXT APU 1
- S 865-115
- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2

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- S 865-116  
(4) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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APU SHUTDOWN PANEL – REMOVAL/INSTALLATION

1. General

A. The APU shutdown panel, P40, is on the aft side of the nose landing gear.

TASK 26-15-01-034-034

2. Remove the APU Shutdown Panel (Fig. 401)

A. Access

(1) Location Zones

211/212	Flight Compartment
310	Fuselage
711	Nose Landing Gear

(2) Access Panels

311/312	Area Aft of Pressure Bulkhead to BS 1725 (L,R)
313/314	Stabilizer Torsion Box Compartment (L,R)

B. Remove the APU Shutdown Panel.

S 864-002

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11B34, APU REMOTE FIRE IND
  - (b) 11H32, GND CALL

S 864-141

- (2) Open this circuit breaker on the main power distribution panel, P6, and attach DO-NOT-CLOSE tag:
- (a) 6G1, FIRE EXT APU 1

S 864-140

- (3) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Open this circuit breaker on the main power distribution panel, P6, and attach DO-NOT-CLOSE tag:
- (a) 6G2, FIRE EXT APU 2

S 864-004

- (4) Open this circuit breaker on the forward miscellaneous electrical equipment panel, P33, and attach a DO-NOT-CLOSE tag:
- (a) 33J4, NLG/WW SVCE LIGHTS

S 034-005

- (5) Remove the 8 screws on the sides and ends of the housing.

S 864-006

- (6) Pull the panel out of the housing and remove the electrical connectors.

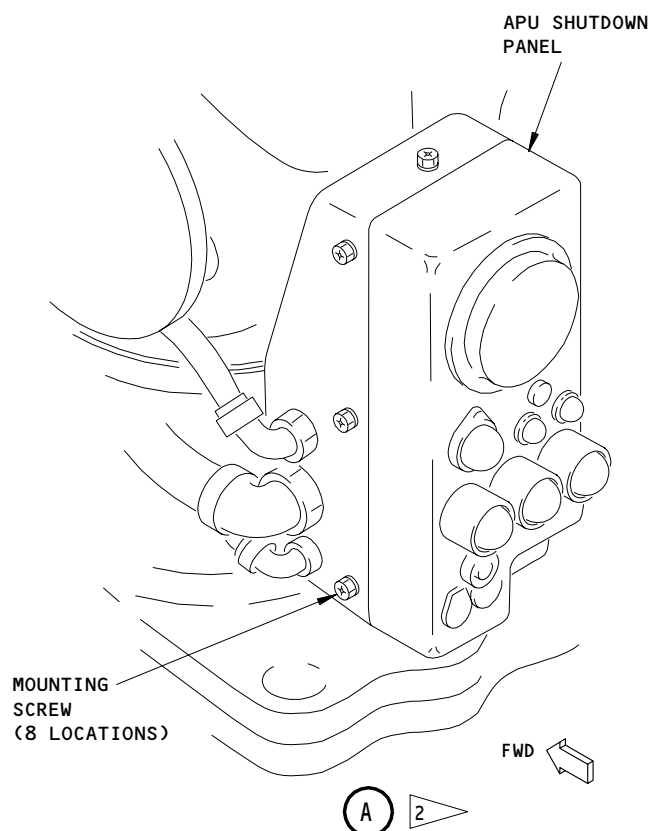
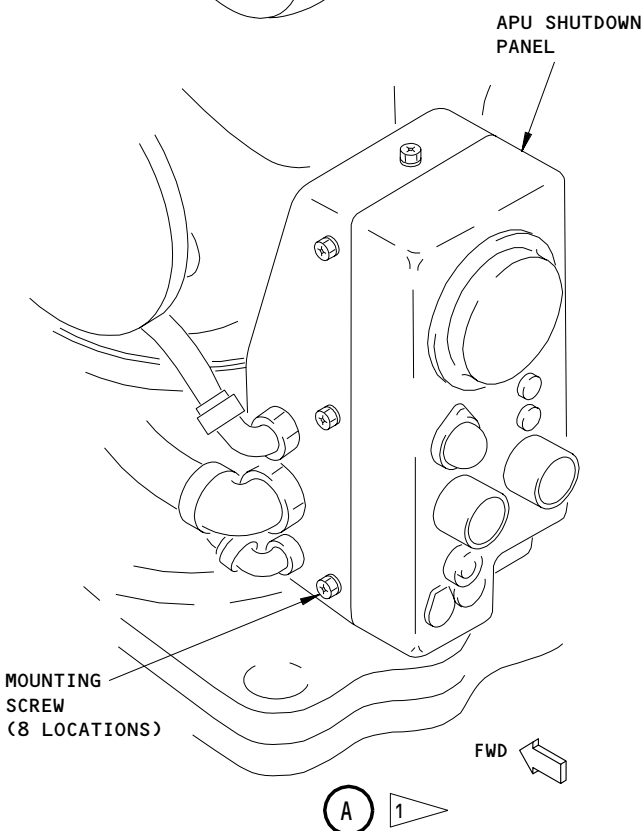
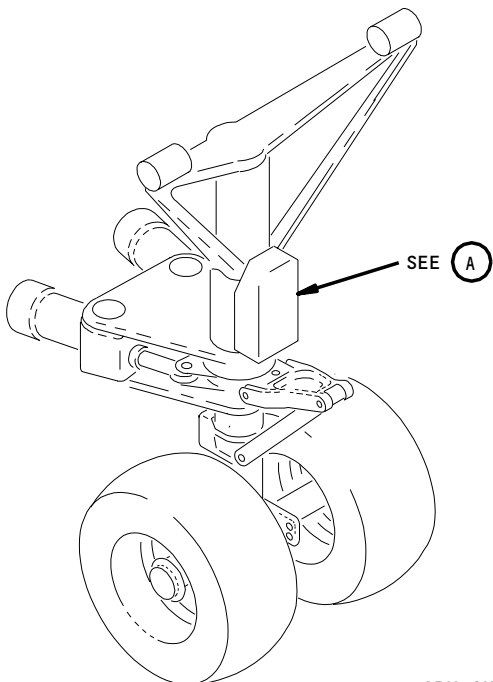
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- 1 AIRPLANES WITH SINGLE APU FIRE EXTINGUISHER BOTTLES
- 2 AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES

APU Shutdown Panel Installation  
Figure 401

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TASK 26-15-01-434-007

3. Install the APU Shutdown Panel (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 20-10-33/401, Power Device Cartridge
- (3) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (4) WDM 26-15-11
- (5) WDM 26-15-12
- (6) WDM 26-22-21
- (7) WDM 49-61-11
- (8) SSM 26-15-01
- (9) SSM 26-22-01

B. Equipment

- (1) Multimeter - Fluke 8060A

Multimeter - capable of measuring 0-60 VDC/0-300 VAC at the lowest possible range - Commercially Available (Alternative)

- (2) Service Platform - A51001-19
- (3) Squib Protective Covers  
M83723/60-112-AN or AC  
M83723/60-110-AN or AC

C. Access

- (1) Location Zones  
211/212 Flight Compartment  
310 Fuselage  
711 Nose Landing Gear
- (2) Access Panels  
311/312 Area Aft of Pressure Bulkhead to BS 1725 (L,R)  
313/314 Stabilizer Torsion Box Compartment (L,R)  
313AL Control Bay Access Door

D. Install the APU Shutdown Panel

S 434-008

- (1) Install the electrical connectors.

S 864-009

- (2) Install the panel on the housing and install the 8 mounting screws.

S 864-010

- (3) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P33 panel:
  - (a) 33J4, NLG/WW SVCE LIGHTS

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- S 864-142
- (4) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6G1, FIRE EXT APU 1
- S 864-139
- (5) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6G2, FIRE EXT APU 2
- S 864-015
- (6) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B34, APU REMOTE FIRE IND  
(b) 11H32, GND CALL
- E. Do a test of the APU shutdown panel installation:
- S 864-033
- (1) Supply electrical power (AMM 24-22-00/201).
- S 754-017
- (2) Push and hold the FIRE BOTTLE ARMED light on the APU shutdown panel, P40, and make sure the yellow FIRE BOTTLE ARMED light comes on.
- S 754-018
- (3) Release the FIRE BOTTLE ARMED light and make sure the yellow light goes off.
- S 864-019
- (4) Set the WHEELWELL LIGHTS switch, on the P40 panel, to the position opposite to its' current position.
- S 754-020
- (5) Make sure the wheelwell lights come on.
- S 864-021
- (6) Set the WHEELWELL LIGHTS switch to the position opposite to its' current position.
- S 864-025
- (7) Push and hold the EMER EXIT LT TEST switch, on the P40 panel, in the RS position.
- S 754-026
- (8) Make sure the right side emergency lights come on.
- S 754-027
- (9) Release the EMER EXIT LT TEST switch.

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- S 754-028  
(10) Make sure the right side emergency lights go off.
- S 864-029  
(11) Push and hold the EMER EXIT LT TEST switch, on the P40 panel, in the LS position.
- S 754-030  
(12) Make sure the left side emergency lights come on.
- S 754-031  
(13) Release the EMER EXIT LT TEST switch.
- S 754-032  
(14) Make sure the left side emergency lights go off.
- S 864-036  
(15) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:  
(a) 6G1, FIRE EXT APU 1
- S 864-137  
(16) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Open this circuit breaker on the main power distribution panel, P6, and attach DO-NOT-CLOSE tag:  
(a) 6G2, FIRE EXT APU 2
- S 864-037  
(17) Make sure the following circuit breaker on the P11 panel is closed:  
(a) 11B34, APU REMOTE FIRE IND
- S 864-038  
(18) Push and hold the ENG/APU/CARGO switch, on the FIRE/OVHT TEST panel (on P8).
- S 864-039  
(19) Make sure these indications occur:  
(a) The red APU fire light, on the APU shutdown panel, P40, comes on. P40 is located on the aft side of the nose landing gear.  
(b) The APU fire warning horn is heard.
- S 864-040  
(20) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:  
(a) 11B34, APU REMOTE FIRE IND
- S 864-041  
(21) Make sure the following indications occur:  
(a) The red APU FIRE light, on the APU shutdown panel, P40, goes off.

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(b) The APU fire warning horn stops.

S 864-042

(22) Remove the DO-NOT-CLOSE tag and close the following circuit breaker on the P11 panel:

(a) 11B34, APU REMOTE FIRE IND

S 864-043

(23) Make sure the following indications occur:

(a) The red APU FIRE light (on P40) comes on.

(b) The APU fire warning horn is heard.

S 864-044

(24) Release the ENG/APU/CARGO switch, on the FIRE/OVHT test panel.

S 014-045

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(25) Open the access door, 313AL (AMM 06-42-00/201).

S 414-046

(26) Install the service platform above the access door, 313AL.

S 864-047

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(27) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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S 024-048

- (28) Disconnect the APU fire extinguisher connector, D1436 from the APU extinguisher fire bottle squib.

S 024-144

- (29) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Disconnect the APU fire extinguisher connector, D2064, from the APU extinguisher fire bottle squib.

S 424-049

**WARNING:** PUT PROTECTIVE COVERS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT PROTECTIVE COVERS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (30) Put protective covers on all the fire bottle squibs.

S 864-050

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTOR TO THE SQUIB DURING THE CHECK. ACCIDENTAL DISCHARGE OF THE SQUIB CARTRIDGE CAN CAUSE INJURY TO PERSONNEL.

- (31) Push and hold the FIRE BOTTLE ARMED light on the APU shutdown panel, P40, and make sure the yellow FIRE BOTTLE ARMED light comes on.

S 864-051

- (32) Push the No. 1 BOTTLE DISCHARGE light on the APU shutdown panel, P40, and make sure the light comes on.

S 864-145

- (33) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Push the No. 2 BOTTLE DISCHARGE light on the APU shutdown panel, P40, and make sure the light comes on.

S 864-110

- (34) Remove the DO-NOT-CLOSE tag(s) and close the following circuit breaker(s) on the P6 panel:  
(a) 6G1, FIRE EXT APU 1  
(b) AIRPLANES WITH DUAL FIRE EXTINGUISHER BOTTLES;  
6G2, FIRE EXT APU 2

S 864-052

- (35) Push and release the APU FIRE SHUTDOWN switch on the P40 panel.

**NOTE:** IF the APU was running, make sure the APU shuts down.

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S 864-077

**CAUTION:** IF THE APU WAS RUNNING, WAIT FOR THE APU TO SHUT DOWN BEFORE MEASURING THE VOLTAGE ACROSS PINS 1 AND 2 OF THE D1436 CONNECTOR. FAILURE TO WAIT FOR THE APU TO SHUT DOWN CAN CAUSE DAMAGE TO THE EQUIPMENT.

(36) Make sure there is no voltage (VDC) between pins 1 and 2 of D1436.

S 864-054

(37) Make sure the yellow FIRE BOTTLE ARMED light is on.

S 864-112

(38) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Push the APU BOTTLE DISCHARGE switch on the P40 panel.

S 864-113

(39) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Push the APU BOTTLE NO. 1 DISCHARGE switch on the P40 panel.

S 864-056

(40) Make sure the following indications occur:  
(a) There are 24 to 32 VDC present between pins 1 and 2 at D1436.  
(b) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
The BOTTLE DISCHARGE light on the P40 panel is off.  
(c) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
The NO. 1 BOTTLE DISCHARGE light on the P40 panel is off.  
(d) The FIRE BOTTLE ARMED light is on.

S 864-057

(41) Open this circuit breaker on the main power distribution panel, P6,  
and attach a DO-NOT-CLOSE tag:  
(a) 6G1, FIRE EXT APU 1

S 864-058

(42) Make sure there is no voltage (VDC) between pins 1 and 2 of the D1436 connector.

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S 864-115

- (43) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Release the APU BOTTLE DISCHARGE switch on the P40 panel.

S 864-116

- (44) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Release the APU BOTTLE NO. 1 DISCHARGE switch on the P40 panel.

S 864-060

- (45) Make sure the FIRE BOTTLE ARMED light goes off.

S 864-061

- (46) Remove the DO-NOT-CLOSE tag and close the following circuit breaker on the P6 panel:  
(a) 6G1, FIRE EXT APU 1

S 864-117

- (47) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Push and release the APU FIRE SHUTDOWN switch on the P40 panel.

NOTE: IF the APU was running, make sure the APU shuts down.

CAUTION: IF THE APU WAS RUNNING, WAIT FOR THE APU TO SHUT DOWN BEFORE MEASURING THE VOLTAGE ACROSS PINS 1 AND 2 OF THE D2064 CONNECTOR. FAILURE TO WAIT FOR THE APU TO SHUT DOWN CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (a) Make sure there is no voltage (VDC) between pins 1 and 2 of D2064.  
(b) Make sure the yellow FIRE BOTTLE ARMED light is on.

S 864-161

- (48) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Do the following steps:  
(a) Push the APU BOTTLE NO. 2 DISCHARGE switch on the P40 panel.  
(b) Make sure the following indications occur:  
1) There are 24 to 32 VDC present between pins 1 and 2 at D2064.  
2) The NO. 2 BOTTLE DISCHARGE light on the P40 panel is off.  
3) The FIRE BOTTLE ARMED light is on.  
(c) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:  
1) 6G1, FIRE EXT APU 1  
2) 6G2, FIRE EXT APU 2  
(d) Make sure there is no voltage (VDC) between pins 1 and 2 of the D2064 connector.  
(e) Release the APU BOTTLE NO. 2 DISCHARGE switch on the P40 panel.  
(f) Make sure the FIRE BOTTLE ARMED light goes off.

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- S 864-176
- (49) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Remove the DO-NOT-CLOSE tags and close the following circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXT APU 1
  - (b) 6G2, FIRE EXT APU 2
- S 864-118
- (50) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Push and hold the pushbutton or turn the hex key to on the APU fire extinguisher bottle.
- S 864-119
- (51) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Push and hold the pushbutton or turn the hex key to on the APU fire extinguisher bottle B25.
- S 864-120
- (52) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Make sure the BOTTLE DISCHARGED light on the P40 panel comes on.
- S 864-121
- (53) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Make sure the NO. 1 BOTTLE DISCHARGED light on the P40 panel comes on.
- S 864-122
- (54) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Release the ground test pushbutton or hex key.
- S 864-123
- (55) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Release the ground test pushbutton or hex key on APU bottle B25.
- S 864-124
- (56) AIRPLANES WITH SINGLE APU FIRE BOTTLE;  
Make sure the BOTTLE DISCHARGED light on the P40 panel goes off.
- S 864-125
- (57) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Make sure the NO. 1 BOTTLE DISCHARGED light on the P40 panel goes off.
- S 864-126
- (58) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Push and hold the pushbutton or turn the hex key to on the APU fire extinguisher bottle B138.
- (a) Make sure the NO. 2 BOTTLE DISCHARGED light on the P40 panel comes on.

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- (b) Release the ground test pushbutton or hex key on APU bottle B138.

S 864-127

- (59) Open this (these) circuit breaker(s) on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:
  - (a) 6G1, FIRE EXT APU 1
  - (b) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
6G2, FIRE EXT APU 2

S 024-067

- (60) Remove the protective cover from the fire bottle squib.

S 864-068

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (61) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

S 754-185

- (62) If there is voltage between pins 1 and 2, do these steps:
  - (a) Connect the multimeter across pins 1 and 2.
  - (b) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - (c) Disconnect the multimeter.

S 864-069

- (63) Make sure the squib electrical pins are not bent or damaged.

S 864-070

- (64) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 424-154

- (65) Connect the electrical connector, D1436, to the fire bottle squib.

S 424-128

- (66) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Connect the electrical connector, D2064, to the fire bottle squib.

S 864-129

- (67) Remove the DO-NOT-CLOSE tag(s) and close this (these) circuit breaker(s) on the P6 panel:
  - (a) 6G1, FIRE EXT APU 1

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(b) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
6G2, FIRE EXT APU 2

S 864-073

(68) Push the squib TEST 1 switch on the P61 panel.

S 864-074

(69) Make sure the SQUIB TEST APU light comes on.

S 864-075

(70) Release the squib TEST 1 switch.

S 864-130

(71) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Push the squib TEST 2 switch on the P61 panel.

(a) Make sure the SQUIB TEST APU light comes on.

S 864-171

(72) AIRPLANES WITH DUAL APU FIRE BOTTLES;  
Release the Squib Test 2 switch.

S 864-076

(73) Remove the electrical power if not necessary (AMM 24-22-00/201).

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APU FIRE DETECTOR ELEMENT - REMOVAL/INSTALLATION

1. General

- A. Two dual-element APU fire detectors are located in the APU compartment, above and below the APU. The removal/installation procedure is the same for each detector element.

TASK 26-15-02-024-001

2. Remove The APU Fire Detector Element (Fig. 401)

A. Access

(1) Location Zones

211/212	Flight Compartment
310	Fuselage

(2) Access Panels

311/312	Area Aft of Pressure Bulkhead to BS 1725 (L, R)
313/314	Stabilizer Torsion Box Compartment (L, R)
315/316	APU Compartment (L, R)

B. Remove the APU Fire Detector Element.

S 864-002

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11K32, ALTERNATE POWER FIRE DETECTION APU

S 014-003

- (2) Open the APU access doors and install the rods to the support doors.

S 034-014

- (3) Disconnect the electrical connectors at both ends of the sensing element (3) to be removed, and fit protective caps.

S 034-015

- (4) Remove the retaining nut (2) which holds the sensing element connector to the end bracket of the support tube, at both ends of detector.

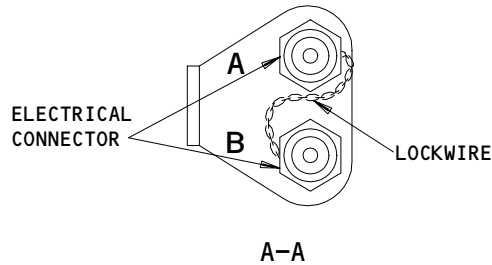
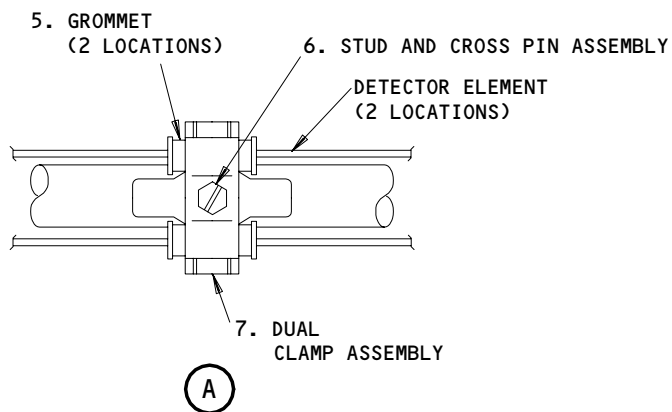
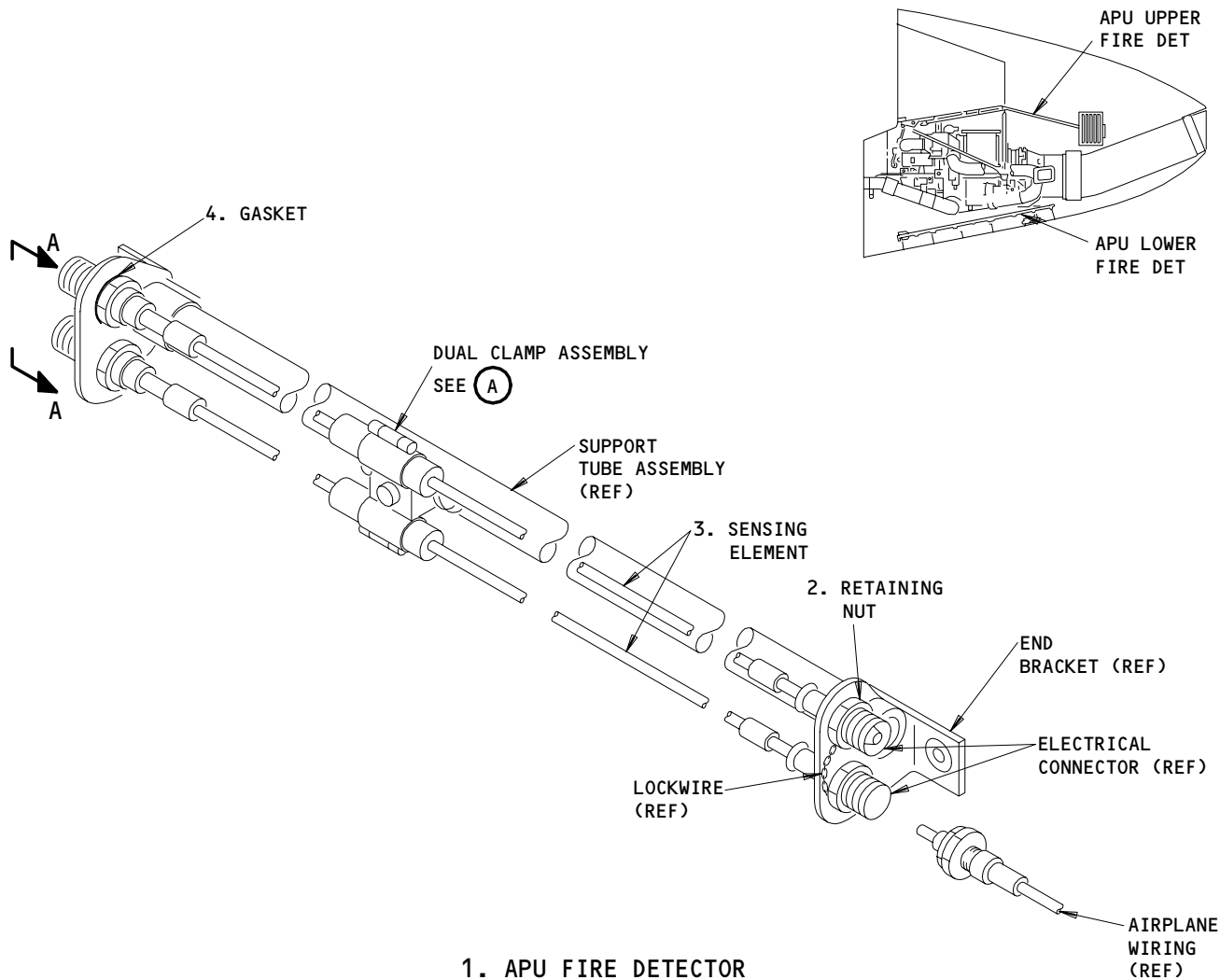
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APU Fire Detector Element Installation  
Figure 401

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S 034-050

- (5) Remove connectors and gasket (4) from end brackets.

S 844-051

- (6) Open dual clamp assembly (7) to remove sensing element (3).

TASK 26-15-02-424-049

3. Install APU Fire Detector Element (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control  
(2) AMM 31-41-00/501, Engine Indicating and Crew Alerting System (EICAS)

B. Equipment

- (1) Bonding Meter - AVTRON, T477W  
(2) Torque Wrench - commercially available. Torque ranges: 0 to 70 pound-inches.

C. Access

(1) Location Zones

211/212	Flight Compartment
310	Fuselage

(2) Access Panels

311/312	Area Aft of Pressure Bulkhead to BS 1725 (L, R)
313/314	Stabilizer Torsion Box Compartment (L, R)
315/316	APU Compartment (L,R)

D. Install the APU Fire Detection Element

S 434-052

**CAUTION:** DO NOT TWIST OR CAUSE A SHARP BEND TO THE DETECTOR ELEMENT WHEN IT IS INSTALLED. DAMAGE TO THE ELEMENT CAN OCCUR.

- (1) Install the sensing element (3) along the support tube. Make sure there is not much tension between any two clamps.

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- S 434-034
- (2) Install the grommets (5) on the detector element at the location of the mounting clamps.
- S 434-035
- (3) Install the element with the grommets (5) in the clamps and lock in position.
- S 434-036
- (4) Install the gasket (4) on the electrical connector of the sensing element and install it through the hole in the end bracket of the support tube. Tighten with the retaining nut (2).
- S 434-037
- (5) Install the gasket on the last electrical connector and install it through the hole in the end bracket of the support tube. Tighten with the retaining nut.
- S 754-038
- (6) Make sure the resistance between the detector connector shell and the primary structure of the airplane is not more than than 0.010 ohm.
- S 434-039
- (7) Use lockwire to lock the retaining nuts.
- S 434-040
- (8) Remove the protective caps from the airplane wiring connectors and connect the detector element connectors. Tighten the connectors to 50-70 pound-inches.
- S 434-041
- (9) Use lockwire to lock the connectors.
- S 414-042
- (10) Close the APU access doors.
- E. Do a test of the detector element installation
- S 864-043
- (1) Supply electrical power (AMM 24-22-00/201).

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- S 754-045
- (2) Make sure EICAS does operate (AMM 31-41-00/501).
- S 864-044
- (3) Set the EICAS COMPUTER select switch to the AUTO position on the forward pilots control stand, P9, and set the display to STATUS.
- S 864-046
- (4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11K32, ALTERNATE POWER FIRE DETECTION APU
- S 754-047
- (5) Make sure the EICAS status messages APU FIRE LP 1 or 2, do not show on the bottom display.
- S 864-048
- (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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LOWER CARGO COMPARTMENT SMOKE DETECTION -  
DESCRIPTION AND OPERATION

1. General

- A. The dual smoke detection systems are installed in the forward and the aft cargo compartments. These two systems monitor the air in the cargo compartments, and warn of smoke conditions.
- B. The two systems (forward and aft) use dc power from the 28 volt dc, battery bus. Secondary power is supplied from the right, main dc bus. AC power is supplied from the 115 volt ac, ground service bus. The system circuit breakers are on the overhead circuit breaker, P11 panel (Fig. 2). The system does not have ON/OFF switches.
- C. The main components of each the smoke detection system are: a pair of smoke detectors, a pair of air-flow blowers, and a plenum pressure switch. The two systems have a FIRE/OVERHEAT logic/test card, and a FIRE/OVERHEAT test panel.
- D. The operation of the forward and the aft systems is the same. The systems operate with AND logic. Thus, the two detectors of a system must get smoke indications in order for a fire alarm to be given. During power up or manual test the AFOLTS card in the system will set the smoke detectors to a single unit operation if a detector does not operate correctly.

2. Component Details (Fig. 1)

- A. The smoke detector assembly of the forward cargo compartment (detectors, blowers, and plenum pressure switch) is located behind of left generator, power panel P31, in the electrical/electronic equipment compartment. The smoke detector assembly of the aft cargo compartment is located in front of the door at the bulk cargo compartment.
- B. Cargo Smoke Detectors
  - (1) The smoke detectors use optics to operate. The detector is a photocell and a Light Emitting Diode (or a pilot lamp) in a light-proof chamber. It also has an amplifier, an output, and test circuits on a printed-circuit-board. The detector has entry and exit tubes to provide access to air and smoke.
  - (2) As the smoke enters the light-proof chamber, it causes the light from the Light Emitting Diode (or pilot lamp) to reflect onto off a photocell. The photocell sends a signal to an amplifier where the signal is processed and routed to a solid-state circuit. The circuit sends an alarm output signal to the FIRE/OVERHEAT logic/test card.
- C. Smoke Detector Blowers
  - (1) One smoke detector blower pulls air into tubes that sample the air (these tubes are distributed throughout the cargo compartment), and then through the two detectors. A second blower serves as a back-up in case the first blower fails to operate.

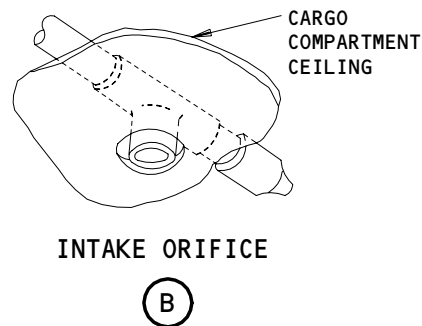
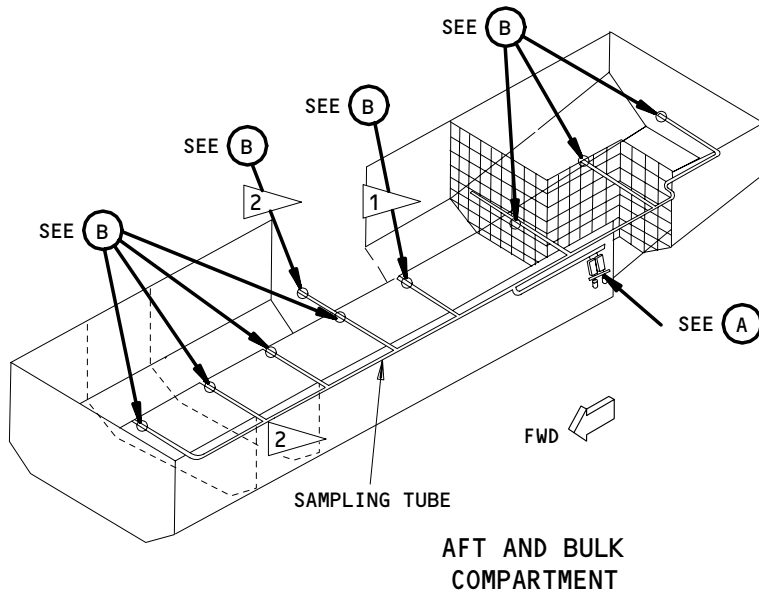
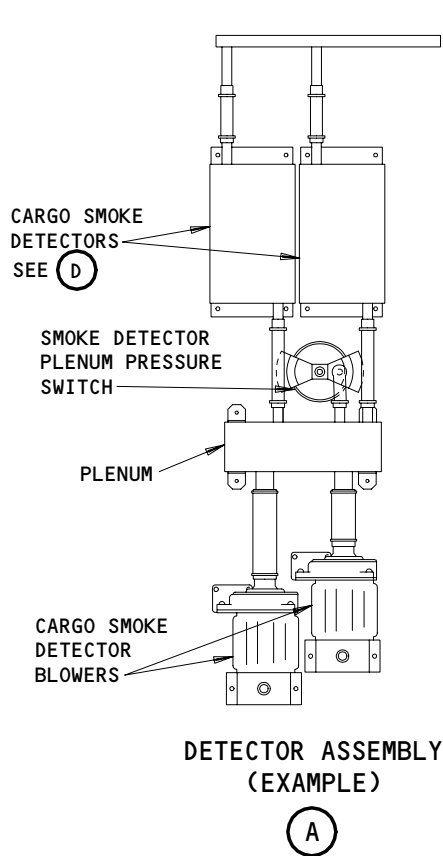
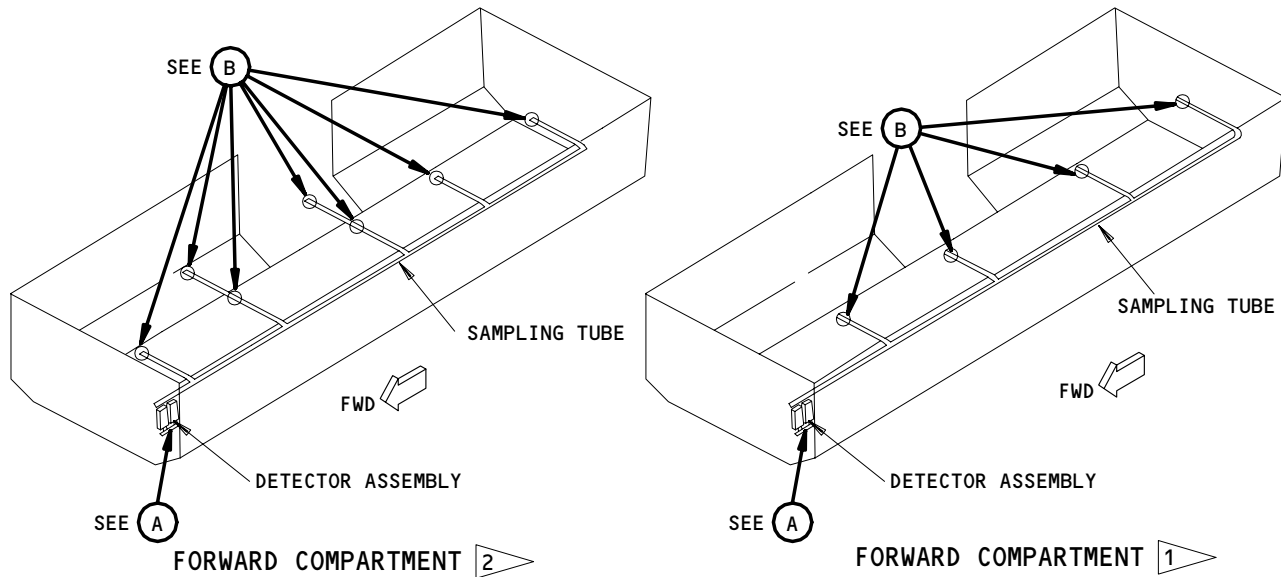
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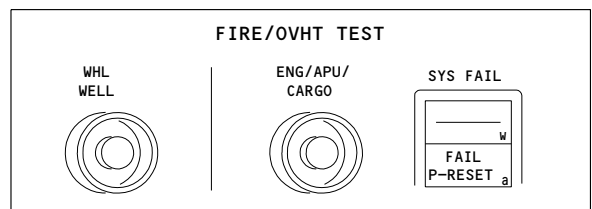
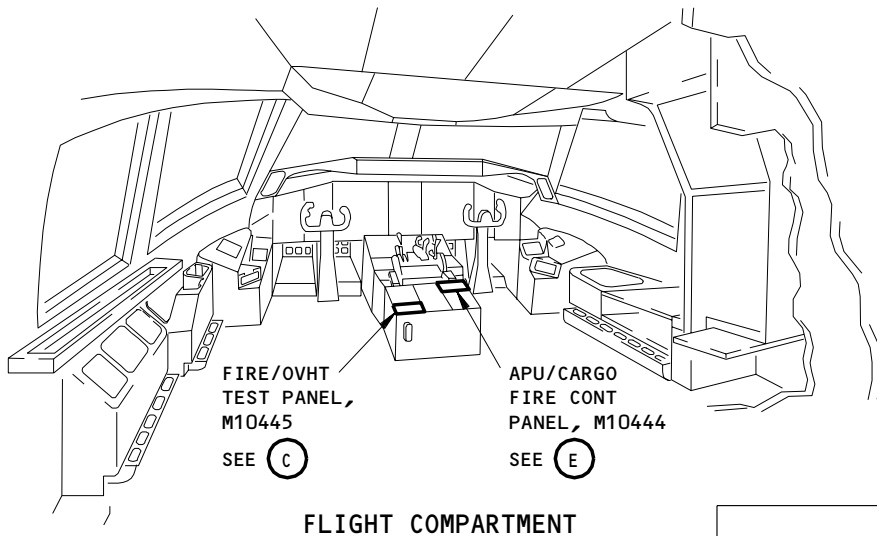
- 1 767-200 AIRPLANES
- 2 767-300 AIRPLANES

Cargo Compartment Smoke Detection System - Component Location  
Figure 1 (Sheet 1)

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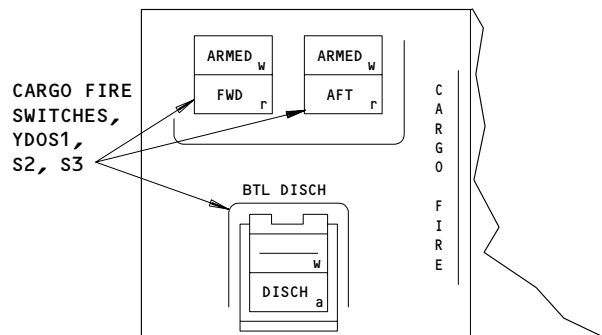
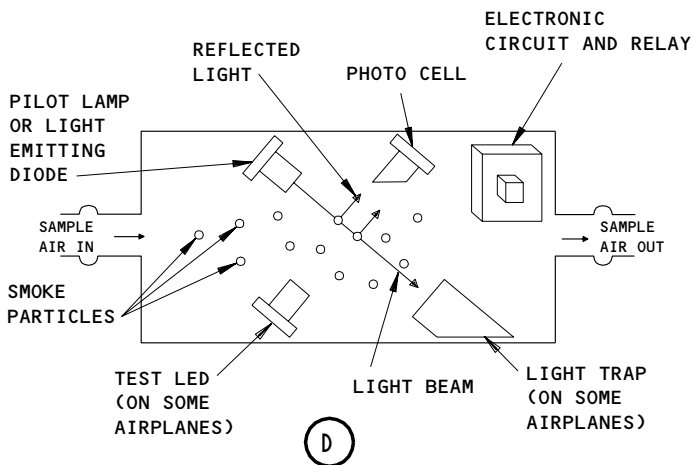
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**FIRE/OVHT TEST PANEL, M10445**

(C)



**APU/CARGO FIRE CONTROL PANEL, M10444**

(E)

**Cargo Compartment Smoke Detection System - Component Location**  
Figure 1 (Sheet 2)

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D. Smoke Detector Plenum, Pressure Switch

- (1) An air-flow pressure switch is connected to the blower plenum of each cargo compartment, smoke detection system. If a blower does not operate correctly, the switch gets a lower plenum pressure, and turns on the standby blower. If both blowers do not operate correctly, the switch turns on the "CARGO DET AIR" indication on the EICAS display.

E. FIRE/OVERHEAT Logic/Test Card

- (1) The AFOLTS (Automatic Fire/Overheat Logic/Test System) card gets smoke detector signals. It supplies system functional tests, and outputs smoke/fire or failure indication signals for the two systems.
- (2) The AFOLTS card has a function to reconfigure the alarm logic from the normally "AND" (dual loop operation) logic to the "OR" (single loop operation) logic when a detector fails during a power-up or manual test.
- (3) AIRPLANES WITH AFOLTS CARDS -136 THRU -999 (POST-SB 26-111 OR PRR B13071);  
The AFOLTS card has a function to reconfigure alarm logic when a detector fails a routine test. It initiates a test when one detector in a zone is in alarm and the other is not for more than 5 seconds. It also periodically tests the second detector once every hour during flights dispatched with one detector inoperative.
- (4) The AFOLTS card is in the P54 FIRE DETECTION CARD FILE. The card file is in the electrical/electronic equipment compartment, along the right side wheel well of the nose gear.

F. FIRE/OVERHEAT Test Panel

- (1) The fire/overheat test panel contains a momentarily push button switch - the ENG/APU/CARGO. This switch starts a test of the FIRE, OVERHEAT, and smoke detection systems for the engines, APU, and cargo compartments. The test causes FIRE and OVERHEAT indications on the cockpit display.
- (2) The test panel also has an amber SYS FAIL - FAIL P-RESET switchlight. This switchlight shows a FIRE, OVERHEAT, or smoke detection system failure. The switchlight is pushed to remove the failure indication.
- (3) The FIRE/OVERHEAT test panel is on aft pilots' control stand P8.

3. Operation

A. Functional Description

- (1) Smoke detector blowers (Fig. 2):
  - (a) When the equipment gets electrical power, blower 1 pulls air to flow through the system. The time-delay relay of blower 1 blocks electrical power from going to blower 2 for the length of the time-delay. Before the time for the relay has expired, blower 1 causes a vacuum in the plenum, this causes the air-flow pressure switch to operate. The pressure switch then stops the time-delay from blower 1, blower 2 then becomes the back-up blower.

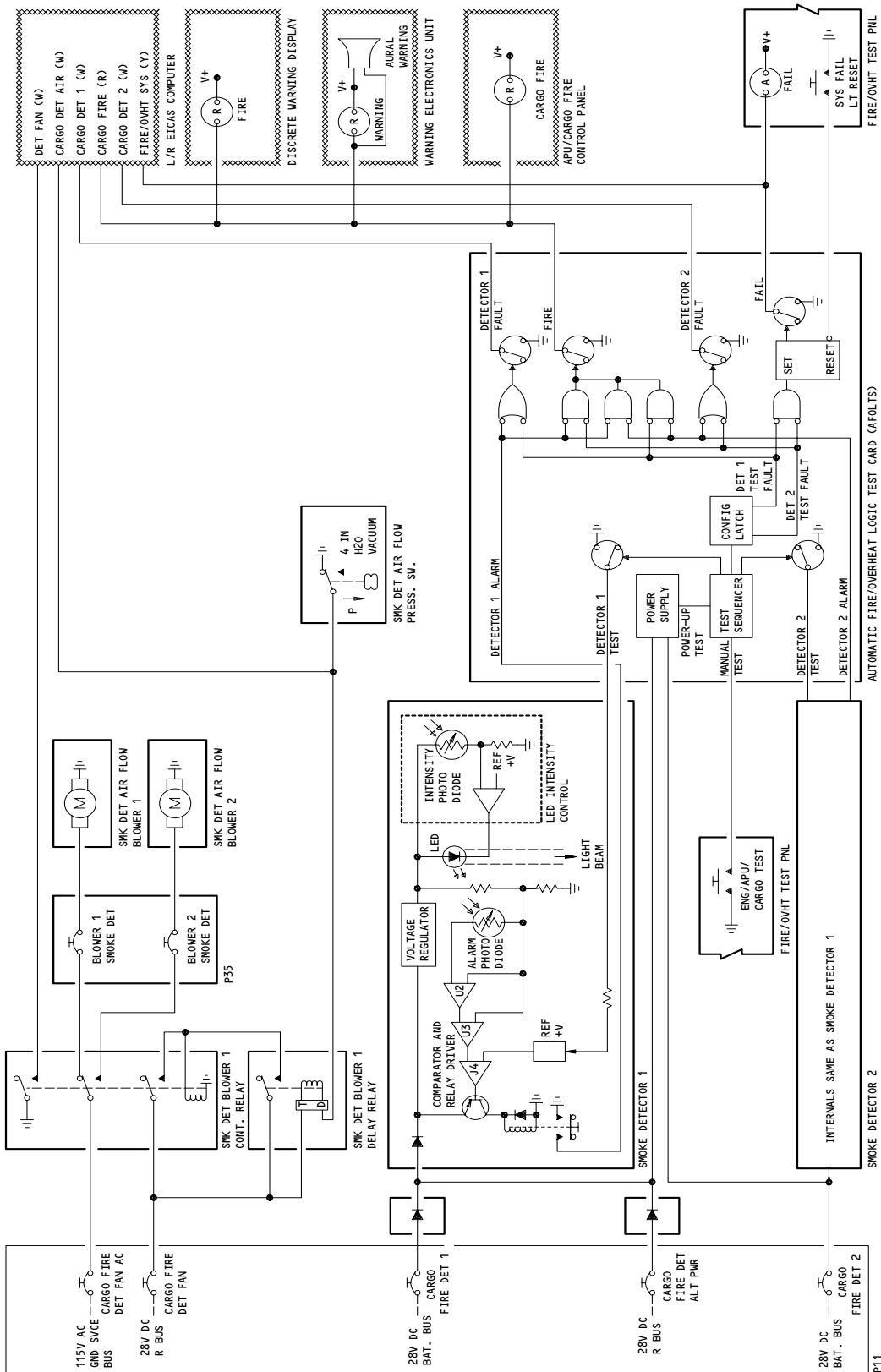
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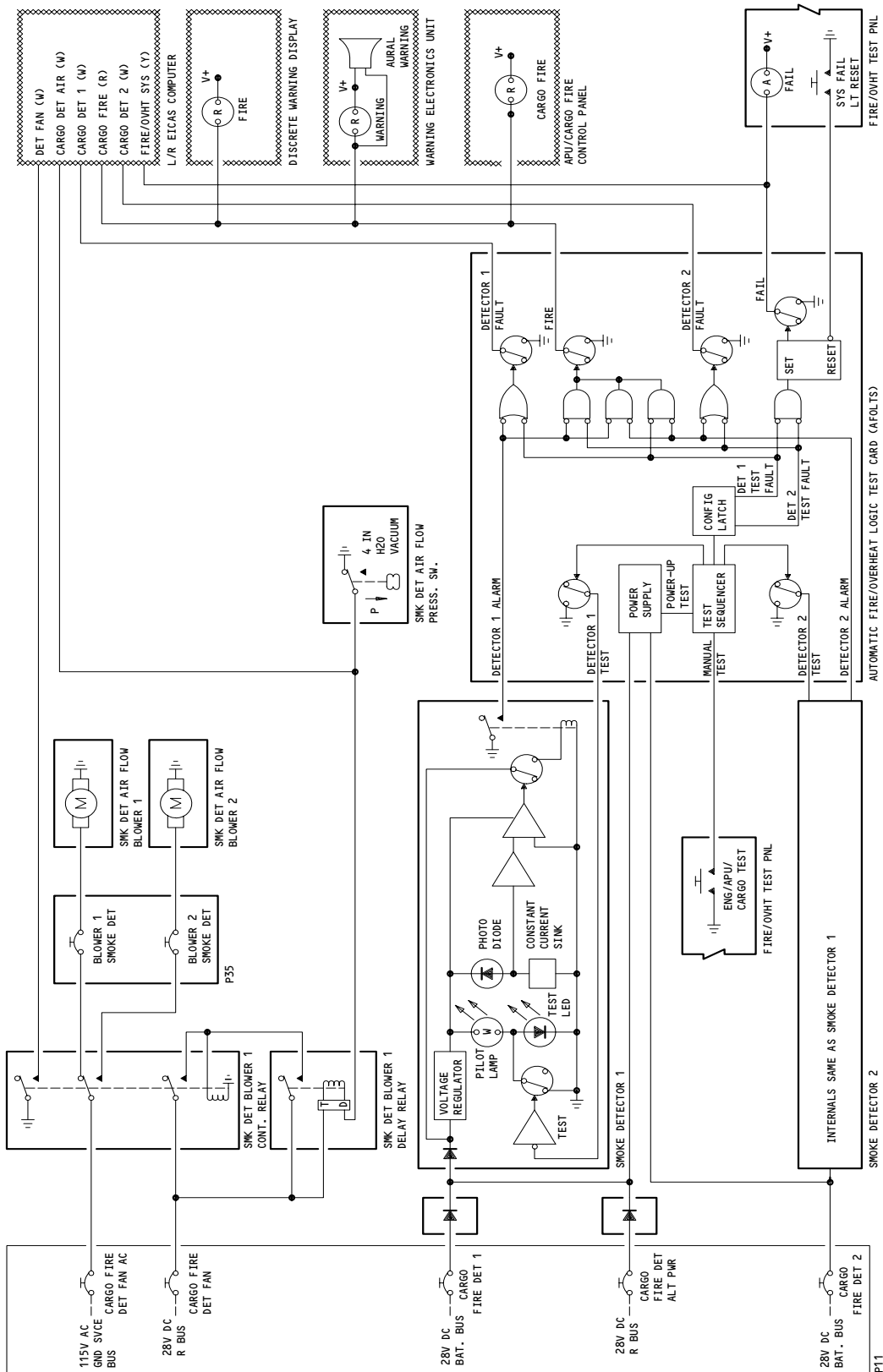
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Lower Cargo Compartment Smoke Detection Schematic (Example)  
Figure 2

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SMOKE DETECTORS WITHOUT  
LAMP PLACARDS

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Lower Cargo Compartment Smoke Detection Schematic (Example)  
Figure 2A

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SMOKE DETECTOR WITH  
LAMP PLACARDS

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- (b) If blower 1 now does not operate correctly, the air-flow pressure switch closes. The time-delay relay of blower 1 will energize after a time delay, and cause the blower 1 relay to energize. During this time delay the EICAS maintenance message CARGO DET AIR may momentarily show. The energized control relay sets electrical power to blower 2. This causes the EICAS display to show the applicable maintenance message, FWD or AFT DET FAN, after a 10 second delay.
  - (c) Blower 2 now pushes air through the system. This causes the air-flow pressure switch in the plenum to close, which in turn stops the time-delay relay. If blower 2 now fails, the EICAS display - CARGO DET AIR, will display and remain.
  - (d) The time-delay relay for blower 1 is a 60 second relay.
- (2) Smoke detection:
- (a) With all system power on, the blowers pushes air through the detectors. When one of the two detectors gets a smoke indication, a signal is sent to the AFOLTS card. Also during power up or manual test, when one of the two detectors does not operate it sends a FAULT signal to the AFOLTS card.
  - (b) The AFOLTS card ANDs the signals from the two detectors, and gives the applicable output to the flight crew. See Table 1.

INPUTS TO AFOLTS		AFOLTS
DETECTOR 1	DETECTOR 2	OUTPUTS
ALARM	ALARM	FIRE
ALARM	-----	EICAS DET 1
ALARM	FAULT	FIRE
-----	ALARM	EICAS DET 2
FAULT	ALARM	FIRE
FAULT	-----	EICAS DET 1
FAULT	FAULT	FAIL
-----	FAULT	EICAS DET 2

TABLE 1  
Logic for the System Operation of  
the Cargo Compartment, Smoke Detection  
(AND Configuration)

- (c) A fire indication on the cargo compartment is indicated by:
  - 1) The applicable red FWD or AFT CARGO FIRE switchlight, on the APU/CARGO FIRE control panel (located on the P8 control stand), comes on.

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- 2) The red FIRE light, on the captain's instrument panel P1-3, comes on.
  - 3) The applicable message, FWD or AFT CARGO FIRE, shows on the EICAS display (P2 panel).
  - 4) The red master warning lights, on glare shield panels P7, come on.
  - 5) The fire bell sounds, on the flight deck AURAL WARNING speakers.
- (d) A dual-detector failure is indicated by:
- 1) The amber FAIL P-RESET switchlight, on the P8 control stand, comes on.
  - 2) The advisory message, FIRE/OVHT SYS, shows on the top EICAS display
  - 3) The applicable status/maintenance messages show on the bottom EICAS display:
    - a) FWD CARGO DET 1 and 2.
    - b) AFT CARGO DET 1 and 2.
- (e) The FAIL P-RESET switchlight is pushed to reset the failure monitoring circuitry. This also turns off the FAIL P-RESET switchlight, and removes the EICAS message, FIRE/OVHT SYS.
- (f) A single detector failure or alarm signal indication is given by:
- 1) The applicable status/maintenance message shows on the bottom EICAS display:
    - a) FWD CARGO DET 1 or 2.
    - b) AFT CARGO DET 1 or 2.

B. Test

- (1) When a test occurs, the AFOLTS card sends a signal to the two detectors of each system. The signal turns on a test Light Emitting Diode (LED) in each detector. The test lamp shines directly on the detector photocell, which starts an alarm. The pilot lamp and the test LED are wired in series, thus a test without failures makes sure that the pilot lamp is operational.
- (2) If one of the two detectors in a system does not give an alarm, AFOLTS sets that system to operate on the remaining detector. If an alarm occurs on the remaining detector, then a fire warning indication will occur.
- (3) Power-up mode:
  - (a) Whenever power is first applied to the battery bus (or there is a power interruption of two msec or more), the engine, APU, and detection systems initiate a self-test. All single-detector maintenance indications are momentarily displayed on the EICAS (P2) display. If any detector fails, then the applicable detector indication remains on the EICAS display. The system is reconfigured to the other detector. If both detectors of a system are found faulty, then the FAIL P-RESET switchlight (on P8) comes on, and EICAS displays the advisory message - FIRE/OVHT SYS. A fire warning will not be initiated by a power-up test.

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- (4) Manual system test:
  - (a) When the ENG/APU/CARGO switch on the fire/overheat test panel (on P8) is pushed and held, the engine, APU, and cargo detection systems will do a self-test. All the detector EICAS maintenance messages will show and, after a two-second delay, the test will stop and all the fire indications will show.
  - (b) The fire indications are:
    - 1) The red FWD and AFT CARGO FIRE switchlights (on P8) come on.
    - 2) The red FIRE light (on P1-3) comes on.
    - 3) The messages, FWD and AFT CARGO FIRE, will show on the EICAS display.
    - 4) The red master warning lights (on P7) come on.
    - 5) The fire bell sounds on the flight deck aural warning speakers.
  - (c) When the ENG/APU/CARGO switch is released, all the messages and indications will go away if there are no failures. If there is a failure, the applicable EICAS message(s) will show. The FAIL P-RESET switchlight and EICAS advisory message, FIRE/OVHT SYS, will remain on if there is a dual-detector fault.
- (5) The manual system test and the power-up/power-interrupt mode will not invalidate a fire alarm in progress.

C. Control

- (1) Turn-on procedure:
  - (a) Provide electrical power (Ref 24-22-00).
  - (b) Check that the following circuit breakers on overhead circuit breaker panel P11 are closed:
    - 1) 11B26, FIRE DETECTION CARGO 1.
    - 2) 11B27, FIRE DETECTION CARGO 2.
    - 3) 11U35, FIRE DETECTION CARGO FAN DC.
    - 4) 11U36, FIRE DET CARGO FAN AC.
    - 5) 11K33, ALTERNATE POWER FIRE DETECTION CARGO.
  - (c) Check that the circuit breakers on cargo accessory panel P35 are closed.
    - 1) 35A1, BLOWER SMOKE DETECTOR FWD 1
    - 2) 35A2, BLOWER SMOKE DETECTOR FWD 2
    - 3) 35A3, BLOWER SMOKE DETECTOR AFT 1
    - 4) 35A4, BLOWER SMOKE DETECTOR AFT 2

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LOWER CARGO COMPARTMENT SMOKE DETECTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BLOWER 1 - FWD SMOKE DETECTOR, M716	2	1	821, FORWARD CARGO COMPT	26-16-02
BLOWER 2 - FWD SMOKE DETECTOR, M717	2	1	821, FORWARD CARGO COMPT	26-16-02
BLOWER 1 - AFT SMOKE DETECTOR, M718	2	1	811, AFT CARGO COMPT	26-16-02
BLOWER 2 - AFT SMOKE DETECTOR, M719	2	1	811, AFT CARGO COMPT	26-16-02
CARD 6 - FIRE/OVHT TEST/LOGIC, M10427	2	1	119AL, MAIN EQUIP CTR, P54	26-10-01
CIRCUIT BREAKERS	1		FLT COMPT, P11	
FIRE DETECTION CARGO 1, C772		1	11B26	*
FIRE DETECTION CARGO 2, C788		1	11B27	*
FIRE DETECTION CARGO FAN AC, C794		1	11U36	*
FIRE DETECTION CARGO FAN DC, C795		1	11U35	*
ALTERNATE POWER FIRE DETECTION CARGO, C766		1	11K33	*
CIRCUIT BREAKERS	2		FWD CARGO COMPT DOOR, P35	
SMOKE DET BLOWER AFT 1, C62		1	35A3	
SMOKE DET BLOWER AFT 2, C63		1	35A4	*
SMOKE DET BLOWER FWD 1, C60		1	35A1	*
SMOKE DET BLOWER FWD 2, C61		1	35A2	*
COMPUTER - (REF 31-41-00, FIG. 101)				*
EICAS L, M10181				
EICAS R, M10182				
DETECTOR - FWD CARGO SMOKE 1, M324	2	1	821, FWD CARGO COMPT	26-16-01
DETECTOR - FWD CARGO SMOKE 2, M325	2	1	821, FWD CARGO COMPT	26-16-01
DETECTOR - AFT CARGO SMOKE 1, M326	2	1	811, AFT CARGO COMPT	26-16-01
DETECTOR - AFT CARGO SMOKE 2, M327	2	1	811, AFT CARGO COMPT	26-16-01
DIODE - BUS ISOLATION, R203,R204	1	2	FLT COMPT, BEHIND P11	
PANEL - (REF 26-11-00, FIG. 101)				
FIRE TEST				
PANEL - (REF 26-22-00, FIG. 101)				
APU/CARGO FIRE CONT, M10444				
PANEL - (REF 26-11-00, FIG. 101)				
DISCRETE WARNING DISPLAY, M779				
RELAY - (REF 31-01-35, FIG. 101)				
SMK DET BLO 1 CONT AFT CAR, K332				
SMK DET BLO 1 CONT FWD CAR, K331				
SMK DET BLO 1 DLY, AFT CAR TDC, K334				
SMK DET BLO 1 DLY, FWD CAR TDC, K333				
SWITCH - ENG/APU/CARGO, YEHS001	1	1	FLT COMPT,P8,FIRE/OVHT TEST PNL, M10445	*
SWITCH - FAIL LIGHT RESET, YEHS002	1		FLT COMPT,P8,FIRE/OVHT TEST PNL, M10445	*
SWITCH - FWD SMK DET AIR FLO PRESS, S454	2	1	821, FWD CARGO COMPT	26-16-03
SWITCH - AFT SMK DET AIR FLO PRESS, S455	2	1	811, AFT CARGO COMPT	26-16-03

\* SEE WM EQUIPMENT LIST

Component Index  
Figure 101

EFFECTIVITY

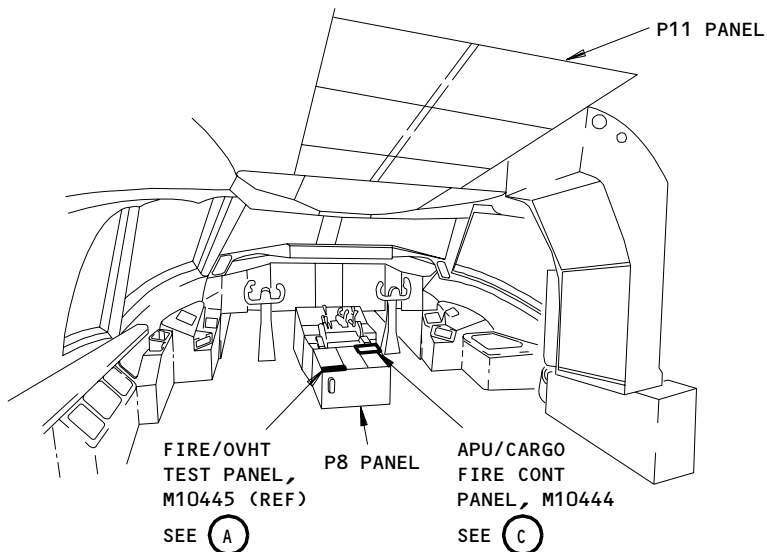
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26-16-00

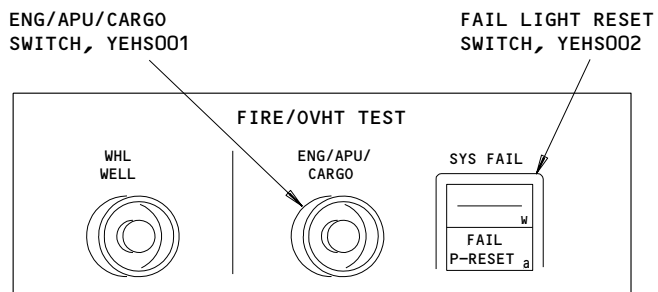
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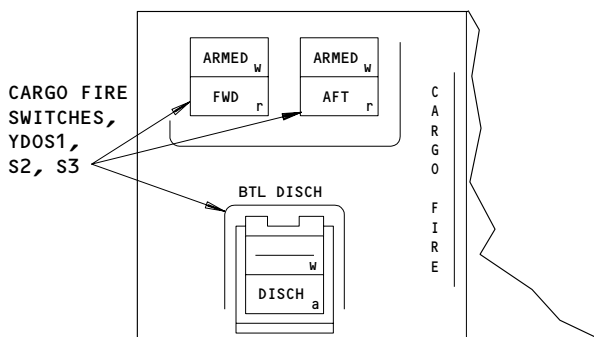


**FLIGHT COMPARTMENT**



**FIRE/OVHT TEST PANEL, M10445**

(A)



**APU/CARGO FIRE CONTROL PANEL, M10444**

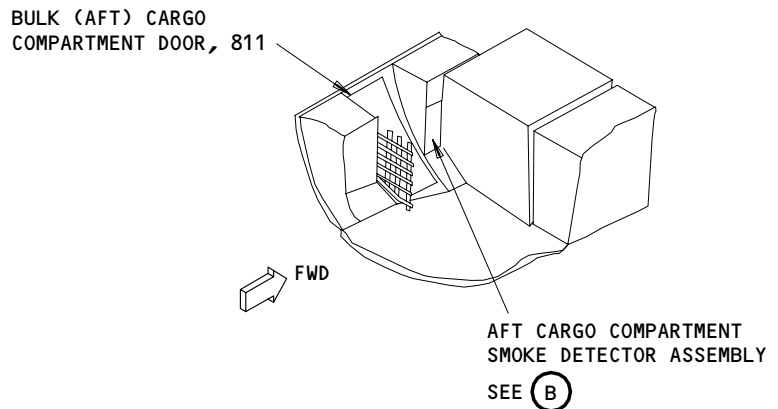
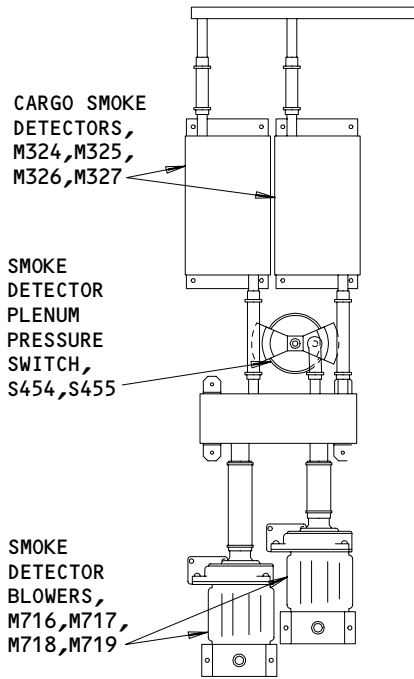
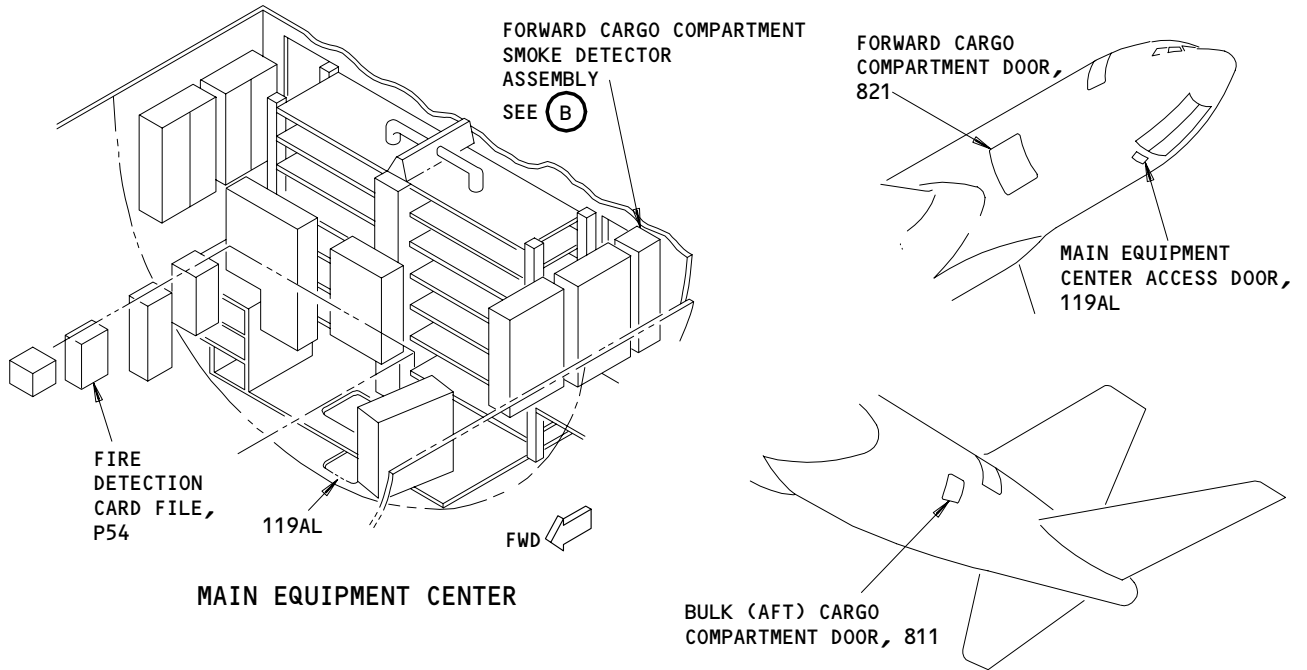
(C)

**Lower Cargo Compartment Smoke Detection System - Component Location  
Figure 102 (Sheet 1)**

EFFECTIVITY	ALL
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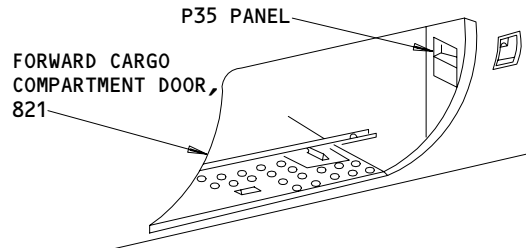
**26-16-00**

**BOEING**  
767  
FAULT ISOLATION/MAINT MANUAL



FORWARD OR AFT SMOKE DETECTOR ASSEMBLY (EXAMPLE)

(B)



Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY	ALL
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26-16-00

LOWER CARGO COMPARTMENT SMOKE DETECTION SYSTEM – ADJUSTMENT/TEST

1. General

- A. This section contains procedures to perform an operational test and a system test of the lower cargo compartment smoke detection system.
- (1) The operational test will make sure correct operation of the system will occur in a minimum of time. Use only equipment installed in the plane.
  - (2) The system test makes sure all parts of the system operate correctly and meet performance requirements. The system test uses external equipment and include these tests:
    - Test of the Fwd Blowers, Control Relay and Plenum Pressure Switch
    - Test of the Aft Blowers, Control Relay and Plenum Pressure Switch
    - Smoke Test

TASK 26-16-00-715-001

2. Operational Test – Lower Cargo Compartment Smoke Detection System

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 26-10-01/401, Fire Detection Card File – Printed Circuit Card
- (3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 33-16-00/501, Master Dim and Test

B. Access

- (1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

C. Prepare for Test

- S 865-223
- (1) Supply electrical power (AMM 24-22-00/201).

S 755-224

  - (2) Make sure these systems operate:
    - (a) EICAS (AMM 31-41-00/501).
    - (b) Warning System (AMM 31-51-00/501).
    - (c) Master Dim and Test System (AMM 33-16-00/501).
- S 755-225
- (3) Make sure these circuit breakers on the overhead panel, P11, are closed:
    - (a) 11B26, FIRE DETECTION CARGO 1
    - (b) 11B27, FIRE DETECTION CARGO 2

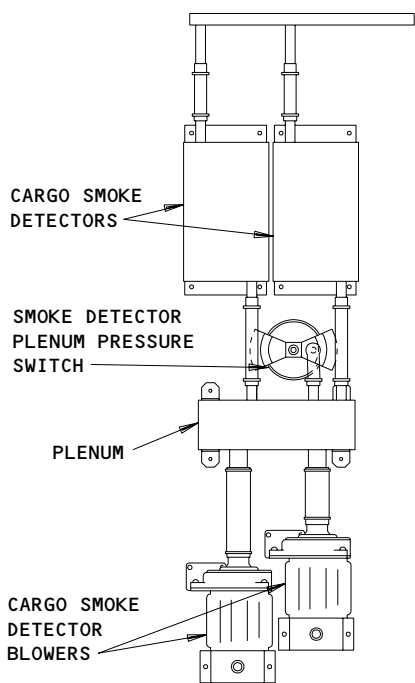
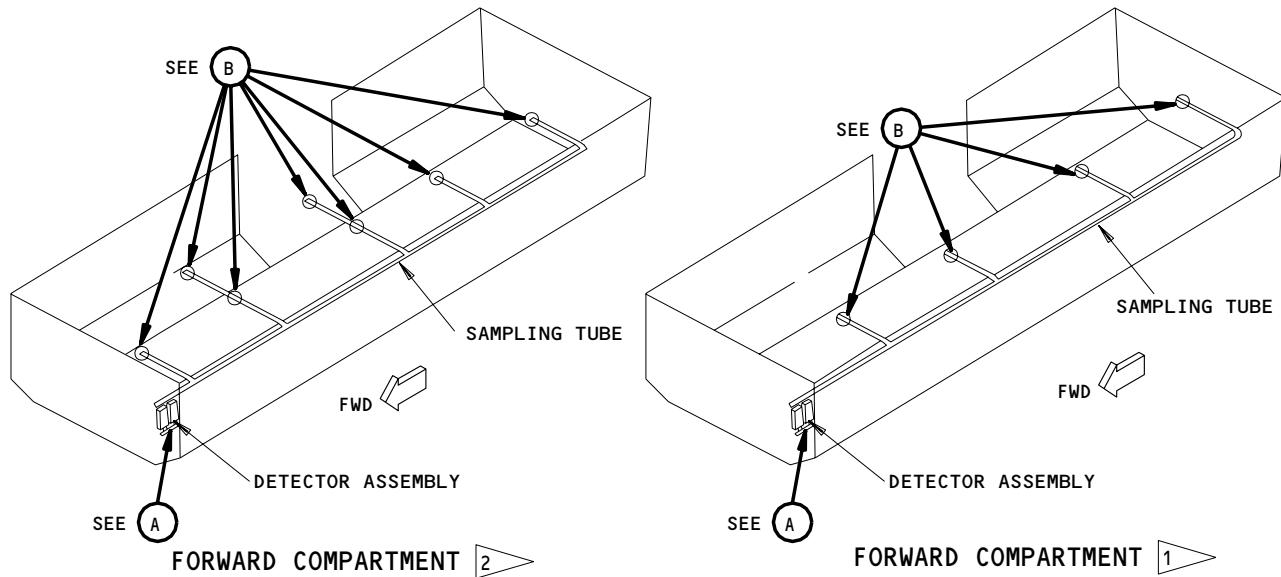
EFFECTIVITY

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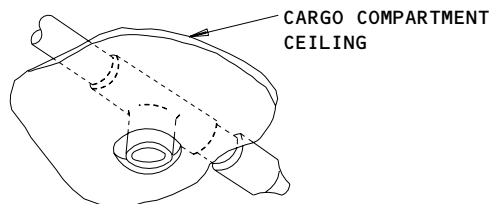
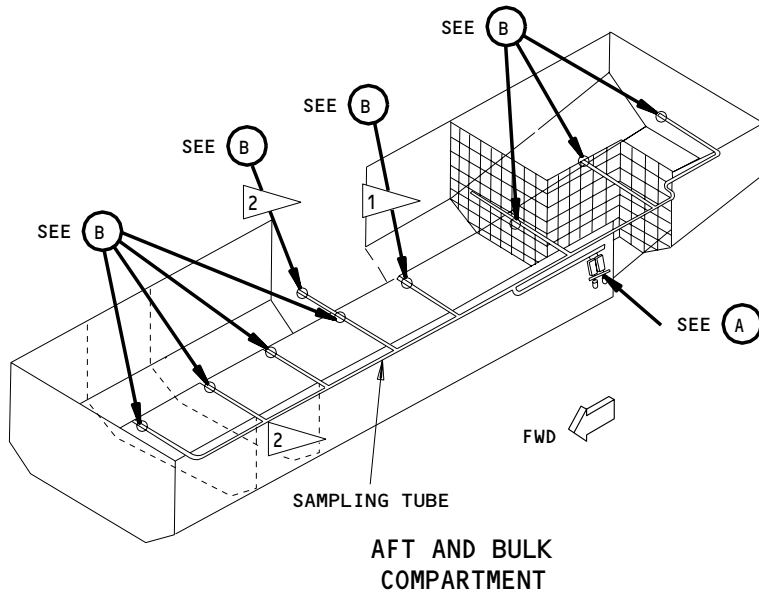
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DETECTOR ASSEMBLY  
(EXAMPLE)

(A)

- 1 767-200 AIRPLANES
- 2 767-300 AIRPLANES



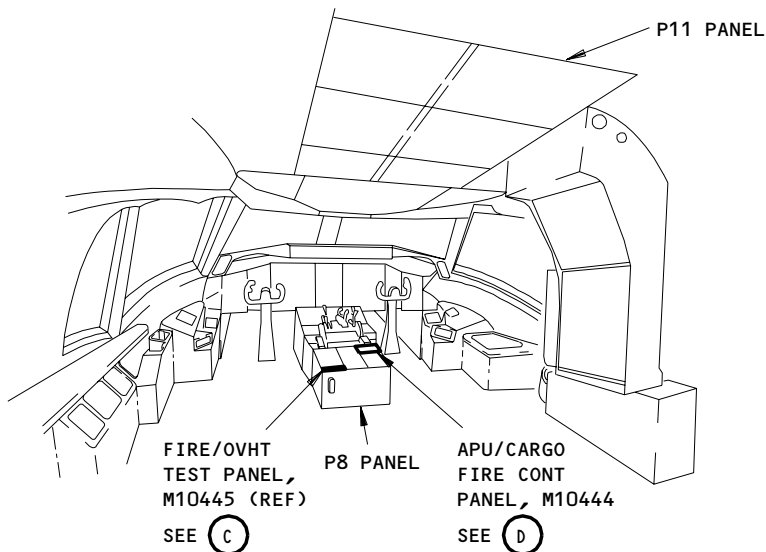
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(B)

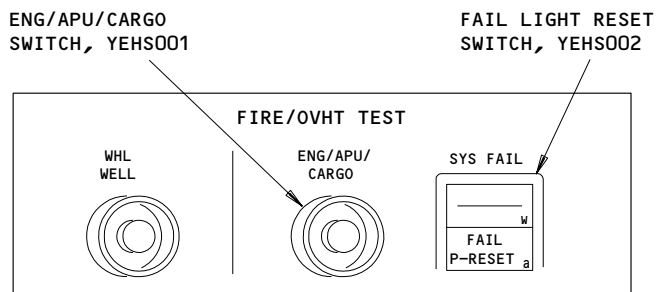
Cargo Compartment Smoke Detection System Adjustment/Test  
Figure 501 (Sheet 1)

EFFECTIVITY	ALL
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26-16-00

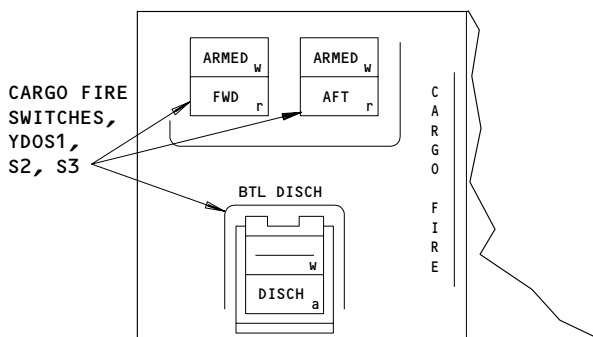


FLIGHT COMPARTMENT



FIRE/OVHT TEST PANEL, M10445

(C)



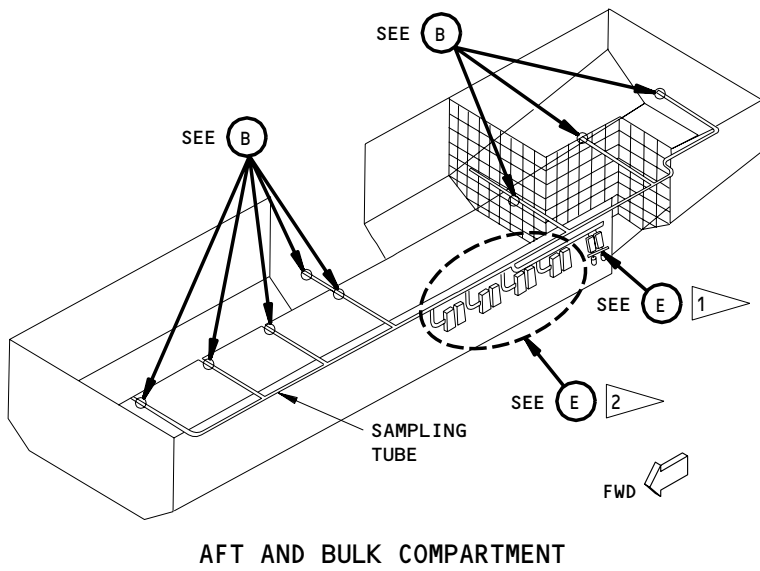
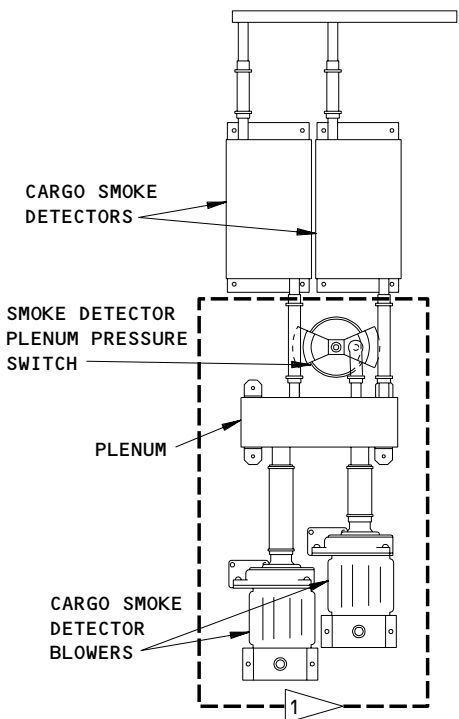
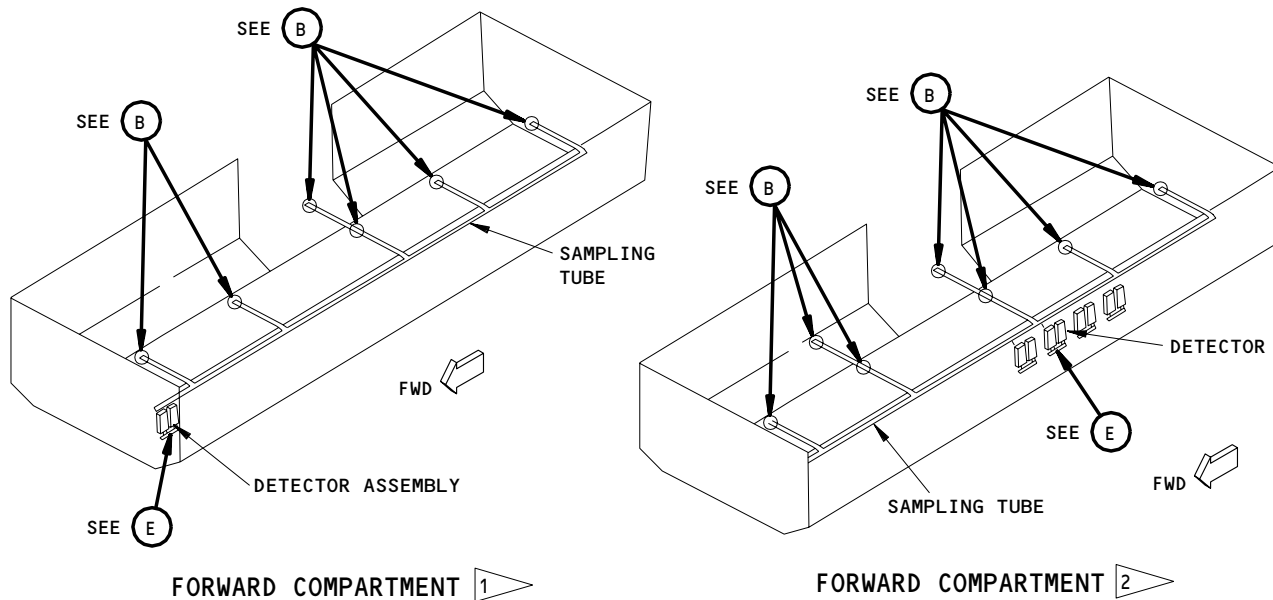
APU/CARGO FIRE CONTROL PANEL, M10444

(D)

Cargo Compartment Smoke Detection System Adjustment/Test  
Figure 501 (Sheet 2)

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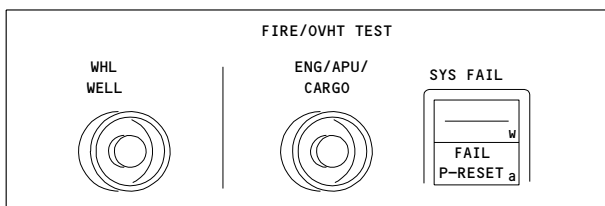
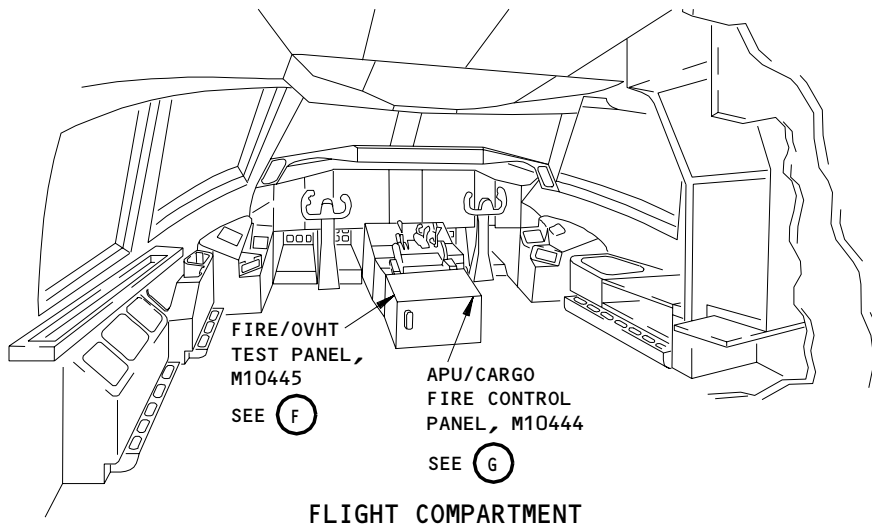
- 1 PASSENGER AIRPLANES
- 2 FREIGHTERS

Cargo Compartment Smoke Detection System Adjustment/Test  
Figure 501 (Sheet 3)

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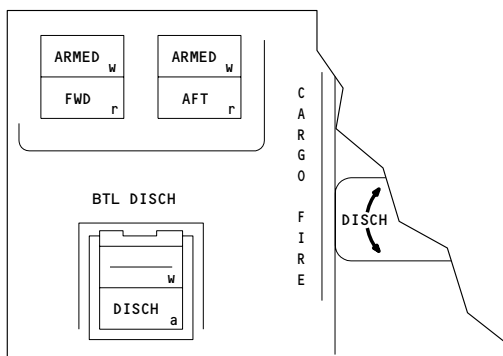
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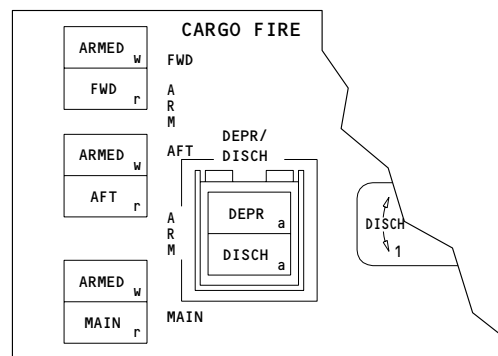
**FIRE/OVHT TEST PANEL, M10445**

(F)



**APU/CARGO FIRE CONTROL PANEL**

(G) 1



**APU/CARGO FIRE CONTROL PANEL**

(G) 2

- 1 PASSENGER AIRPLANES
- 2 FREIGHTERS

**Cargo Compartment Smoke Detection System Adjustment/Test**  
Figure 501 (Sheet 4)

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**26-16-00**

- (c) 11U35, FIRE DET CARGO DC
- (d) 11U36, FIRE DET CARGO FAN AC

D. Do a test of the Cargo Smoke Detection Loops

S 865-005

- (1) Push the ECS MSG switch on the EICAS MAINT panel on the right side panel, P61.

S 865-212

- (2) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel, M10445, on the aft pilots control stand, P8.

S 865-006

- (3) Push the ECS MSG switch as necessary to move forward the EICAS pages until all messages show.

S 755-007

- (4) Make sure these EICAS maintenance messages show on the bottom display:
  - (a) FWD CARGO DET 1
  - (b) FWD CARGO DET 2
  - (c) AFT CARGO DET 1
  - (d) AFT CARGO DET 2

S 755-008

- (5) After 2-4 seconds, make sure these indications occur:
  - (a) The red FWD and AFT CARGO FIRE switchlights, on the APU/CARGO fire control panel (on P8), come on.
  - (b) The red FIRE light, on the captains instrument panel, P1-3, comes on.
  - (c) The EICAS warning messages, FWD CARGO FIRE and AFT CARGO FIRE, show on the top display.
  - (d) The red master warning lights, on the glareshield panel, P7, come on.
  - (e) The fire bell is heard.

S 865-009

- (6) Release the ENG/APU/CARGO switch.

S 755-010

- (7) Make sure the indications stop.

S 755-011

- (8) Make sure the EICAS status message, CARGO DET AIR, does not show on the bottom display:

S 755-094

- (9) Make sure the EICAS maintenance messages, FWD DET FAN or AFT DET FAN, do not show on the bottom display:

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E. Do a test of the Fire Detection System Fail Light

S 865-113

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

S 035-209

- (2) Disconnect the electrical connectors, D1456 and D1462, from the forward cargo smoke detectors, M324 and M325. The forward cargo compartment smoke detector assembly (detectors, blowers, and plenum pressure switch) is aft of the left generator power panel P31, in the electrical/electronic equipment compartment.

S 865-013

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2

S 755-014

- (4) Make sure these indications occur:
  - (a) The yellow FAIL P-RESET switchlight, on the aft pilots control stand, P8, comes on.
  - (b) The EICAS caution message, FIRE/OVHT SYS, shows on the top display.

S 755-110

- (5) Make sure these indications occur:
  - (a) The EICAS maintenance message, FWD CARGO DET 1 and FWD CARGO DET 2, show on the bottom display.
  - (b) The EICAS maintenance messages, AFT CARGO DET 1 and AFT CARGO DET 2, do not show on the bottom display.

NOTE: The EICAS maintenance messages may come on momentarily before they go off.

S 865-015

- (6) Push the FAIL P-RESET switch-light.

S 755-016

- (7) Make sure the yellow FAIL P-RESET switch-light goes off.

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- S 755-017
- (8) Make sure the EICAS caution message, FIRE/OVHT SYS, does not show on the top display.
- S 865-018
- (9) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
- S 435-019
- (10) Connect the electrical connector, D1456, to the detector, M324.
- S 435-020
- (11) Connect the electrical connector, D1462, to the detector, M325.
- S 035-210
- (12) Disconnect the electrical connectors, D1458 and D1464, from the aft cargo smoke detectors, M326 and M327. The aft cargo smoke detector assembly is forward of the bulk cargo compartment door.
- S 865-022
- (13) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
- S 755-023
- (14) Make sure these indication occur:
- (a) The yellow FAIL P-RESET switch-light, on P8, comes on.
  - (b) The EICAS caution message, FIRE/OVHT SYS, shows on the top display.
- S 755-108
- (15) Make sure these indication occur:
- (a) The EICAS maintenance messages, AFT CARGO DET 1 and AFT CARGO DET 2, show on the bottom display.
  - (b) The EICAS maintenance messages, FWD CARGO DET 1 and FWD CARGO DET 2, do not show on the bottom display.
- NOTE: The EICAS maintenance messages may come on momentarily before they go off.
- S 865-024
- (16) Push the FAIL P-RESET switch-light.

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S 755-025

- (17) Make sure the yellow FAIL P-RESET switch-light goes off.

S 755-026

- (18) Make sure the EICAS caution message, FIRE/OVHT SYS, does not show on the top display.

S 865-027

- (19) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

- (a) 11B26, FIRE DETECTION CARGO 1
- (b) 11B27, FIRE DETECTION CARGO 2

S 435-028

- (20) Connect the electrical connector, D1458, to the detector, M326.

S 435-029

- (21) Connect the electrical connector, D1464, to the detector, M327.

S 865-030

- (22) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

- (a) 11B26, FIRE DETECTION CARGO 1
- (b) 11B27, FIRE DETECTION CARGO 2
- (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

S 755-031

- (23) Make sure these EICAS maintenance messages do not show on the bottom display:

**NOTE:** The EICAS maintenance messages may come on momentarily before they go off.

- (a) FWD CARGO DET 1
- (b) FWD CARGO DET 2
- (c) AFT CARGO DET 1
- (d) AFT CARGO DET 2

S 865-357

- (24) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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TASK 26-16-00-735-358

3. System Test – Smoke Detection System Air Flow Test

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)

B. Access

(1) Location Zones

- 121/122 Forward Cargo Compartment
- 153/154 Aft Cargo Compartment
- 211/212 Flight Compartment
- 810 Lower Half of Fuselage (Left)
- 820 Lower Half of Fuselage (Right)

C. Smoke Detection System Air Flow Test

S 755-284

- (1) Make sure the EICAS maintenance messages FWD DET FAN and AFT DET FAN do not appear on the lower display.

S 755-285

- (2) Make sure the EICAS lower display the status message CARGO DET AIR does not appear.

S 215-286

- (3) Make sure, by feel or sound, BLOWER 1 M716 on the Smoke Detector panel, in the E/E bay is operating.

S 215-287

- (4) Make sure, by feel or sound, BLOWER 2 M717 on the Smoke Detector panel in the E/E bay is not operating.

S 215-288

- (5) Make sure the correct electrical connector is connected to the appropriate smoke detector.

Connector	Smoke Detector
D1456	SMK DET 1 M324
D1462	SMK DET 2 M325

S 865-289

- (6) Open the following circuit breaker on the P35 Cargo handling accessory panel and attach DO-NOT-CLOSE tags:

35A1 or 35B1, SMOKE DET FWD CARGO BLOWER 1

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S 865-360

- (7) AIRPLANES BEFORE LINE POSITION 244 AND PRE-SL 26-10A;  
Make sure the following indications occur:
- (a) Make sure the EICAS maintenance message FWD DET FAN appears after approximately 10 to 20 seconds.
  - (b) Make sure the EICAS maintenance message AFT DET FAN does not appear.

S 865-361

- (8) AIRPLANES POST-SL 26-10A, OR AIRPLANES AFTER LINE POSITION 244;  
Make sure these indications occur:
- (a) Make sure the EICAS CARGO DET AIR status message appears.

NOTE: There is a 20 to 30 second time delay, after opening the 35A01 circuit breaker for the CARGO DET AIR message to appear.

- (b) Make sure the EICAS FWD DET FAN maintenance message appears.

NOTE: There is a 40 to 60 second time delay, after the CARGO DET AIR message appears for the FWD DET FAN message to appear.

- (c) Make sure the EICAS maintenance AFT DET FAN message does not appear.
- (d) Make sure the EICAS status CARGO DET AIR message disappears.

NOTE: There is a 10 to 20 second time delay, after the FWD DET FAN maintenance message appears for the CARGO DET AIR message to disappear.

S 215-294

- (9) Make sure, by feel or sound, BLOWER 1 M716 on the Smoke Detector panel in the E/E bay is not operating.

S 215-295

- (10) Make sure, by feel or sound, BLOWER 2 M717 on the Smoke Detector panel in the E/E bay is operating.

S 865-296

- (11) Remove the DO-NOT CLOSE tags and close the following circuit breaker on the P35 Cargo handling accessory panel:

35A1 or 35B1, SMOKE DET FWD CARGO BLOWER 1

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S 865-297

- (12) Open the following circuit breaker on the P11 panel:

11U35, CARGO FIRE DETECTION FAN DC

NOTE: CARGO DET AIR EICAS message may appear momentarily during this step.

S 755-298

- (13) Wait 5 seconds.

S 865-299

- (14) Close the circuit breaker on the P11 panel:

11U35, CARGO FIRE DETECTION FAN DC

S 215-300

- (15) Make sure, by feel or sound, BLOWER 1 M716 on the Smoke Detector panel in the E/E bay is operating.

S 215-301

- (16) Make sure, by feel or sound, BLOWER 2 M717 on the Smoke Detector panel in the E/E bay is not operating.

S 865-302

- (17) Make sure EICAS status CARGO DET AIR message does not appear on the EICAS lower display.

S 865-303

- (18) Make sure the EICAS FWD DET FAN and AFT DET FAN do not appear on the EICAS lower display.

S 215-304

- (19) Make sure, by feel or sound, BLOWER 1 M718 on the Smoke Detector panel in the AFT cargo compartment is operating.

S 215-305

- (20) Make sure, by feel or sound, BLOWER 2 M719 on the Smoke Detector panel in the AFT cargo compartment is not operating.

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S 865-306

- (21) Make sure the correct electrical connector is connected to the appropriate smoke detector.

Connector	Smoke Detector
D1458	SMK DET 1 M326
D1464	SMK DET 2 M327

S 865-307

- (22) Open the following circuit breaker on the P35 Cargo handling accessory panel:

35A3 or 35B3, SMOKE DET AFT CARGO BLOWER 1

S 865-362

- (23) AIRPLANES BEFORE LINE POSITION 244 AND PRE-SL 26-10A;  
 Make sure the following indications occur:
- (a) Make sure the EICAS maintenance message AFT DET FAN appears after approximately 10 to 20 seconds.
  - (b) Make sure the EICAS maintenance message FWD DET FAN does not appear.

S 865-363

- (24) AIRPLANES POST-SL 26-10A, OR AIRPLANES AFTER LINE POSITION 244;  
 Make sure these indications occur:
- (a) Make sure the EICAS CARGO DET AIR status message appears.

NOTE: There is a 20 to 30 second time delay, after opening the 35A01 circuit breaker for the CARGO DET AIR message to appear.

- (b) Make sure the EICAS maintenance AFT DET FAN message appears.

NOTE: There is a 40 to 60 second time delay, after the CARGO DET AIR status message appears for the AFT DET FAN message to appear.

- (c) Make sure the FWD DET FAN EICAS maintenance message does not appear.

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(d) Make sure the EICAS status CARGO DET AIR message disappears.

NOTE: There is a 10 to 20 second time delay, after the AFT DET FAN maintenance message appears for the CARGO DET AIR message to disappear.

S 215-312

(25) Make sure, by feel or sound, BLOWER 1 M718 on the Smoke Detector panel in the AFT cargo compartment is not operating.

S 215-313

(26) Make sure, by feel or sound, BLOWER 2 M719 on the Smoke Detector panel in the AFT cargo compartment is operating.

S 865-314

(27) Close the following circuit breaker on the P35 Cargo handling accessory panel:

35A3 or 35B3 SMOKE DET AFT CARGO BLOWER 1

S 865-315

(28) Open the following circuit breaker on the P11 panel:

11U35 CARGO FIRE DETECTION FAN DC

S 755-316

(29) Wait 5 seconds.

S 865-317

(30) Close the circuit breaker on the P11 panel:

11U35 CARGO FIRE DETECTION FAN DC

S 215-318

(31) Make sure, by feel or sound, BLOWER 1 M718 on the Smoke Detector panel in the AFT cargo compartment is operating.

S 215-319

(32) Make sure, by feel or sound, BLOWER 2 M719 on the Smoke Detector panel in the AFT cargo compartment is not operating.

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S 755-320

(33) Make sure the EICAS status display CARGO DET AIR does not appear.

S 755-321

(34) Make sure the FWD DET FAN and AFT DET FAN maintenance messages do not appear on the EICAS lower display.

TASK 26-16-00-735-114

4. System Test - Lower Cargo Compartment Smoke Detection

A. Equipment

(1) Smoke Source

- (a) Corona Colt 8.5 (This is the preferred smoke source) or Colt 4 Basic or Colt 4 Turbo  
Corona Integrated Technologies, Inc.  
6215 Oerstone Drive  
West Vancouver, B.C., Canada  
V7W 1X7  
Phone: 1-888-878-9433  
FAX: 604-738-9918  
E-mail: info@smokemachines.com

NOTE: These Corona smoke generators require the supply kit and smoke fluid identified below. These items must be ordered separately from Corona.

- 1) Refill Kit - COLT SUPPLY KIT - Corona Integrated Technologies, Inc.  
2) Smoke fluid - CFC100AUSP - Corona Integrated Technologies, Inc.
- (b) Rosco Fog/Smoke Machine - Model 1500 or 1600  
Rosco Laboratories Inc.  
36 Bush Ave.  
Port Chester, NY 10573  
Phone number: (914) 937-1300  
FAX number: (914) 937-5984
- (c) Ventilation Smoke Tube Kit (Part #458481)  
Ventilation Smoke Tube Refills (Part #458480)  
Mine Safety Appliance Co.  
P.O. Box 426  
Pittsburgh, PA 15230  
Phone number: (412) 967-3000  
FAX number: (412) 967-3161

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- (2) Anemometer, Hot Wire (Air Velocity Meter)  
Model 1650, 8345, 8346, 8350, 8352, 8355, 8357, or Equivalent

TSI Incorporated  
500 Cardigan Road  
Shoreview, MN 55216

Mailing Address:  
P.O. Box 64394  
St Paul, MN 55164  
Telephone: 800-876-9874  
FAX: 612-490-2874

- (3) G26005 - Adapter - Hot wire Anemometer

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control  
(2) AMM 26-10-01/401, Fire Detection Card File - Printed Circuit Card  
(3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)  
(4) AMM 31-51-00/501, Warning System  
(5) AMM 33-16-00/501, Master Dim and Test

C. Access

- (1) Location Zones
- |         |                                |
|---------|--------------------------------|
| 121/122 | Forward Cargo Compartment      |
| 153/154 | Aft Cargo Compartment          |
| 211/212 | Flight Compartment             |
| 810     | Lower Half of Fuselage (Left)  |
| 820     | Lower Half of Fuselage (Right) |

D. Prepare for Test

S 865-226

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-227

- (2) Make sure these systems operate:
- (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 755-228

- (3) Make sure these circuit breakers on the overhead panel, P11, are closed:
- (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11U35, FIRE DET CARGO DC
  - (d) 11U36, FIRE DET CARGO FAN AC

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E. Do a test of the Forward Blowers, Control Relay, and Plenum Pressure Switch

S 755-032

- (1) Make sure the EICAS maintenance message, FWD DET FAN, does not show on the bottom display.

S 865-033

- (2) Open this circuit breaker, on the forward cargo compartment handling access panel, P35, to stop the operation of blower 1, M716.  
(a) 35A1 or 35B1, BLOWER - SMOKE DETECTOR FWD 1

S 755-044

- (3) After 60 to 90 seconds, make sure these indications occur:  
(a) The EICAS maintenance message, FWD DET FAN, shows. This makes sure the plenum pressure switch and control relay have operated.

NOTE: The EICAS maintenance message, CARGO DET AIR, may appear momentarily.

- (b) The EICAS status message, CARGO DET AIR, does not show. This is an indication that the forward blower 2, M717, operates.

S 865-045

- (4) Open this circuit breaker, on the P35 panel, to stop the operation of blower 2:  
(a) 35A2 or 35B2, BLOWER - SMOKE DETECTOR FWD 2

S 755-046

- (5) After approximately 20 seconds, make sure the EICAS status message, CARGO DET AIR, shows on the bottom display.

S 865-047

- (6) Close these circuit breakers on the P35 panel:  
(a) 35A1 or 35B1, BLOWER - SMOKE DETECTOR FWD 1  
(b) 35A2 or 35B2, BLOWER - SMOKE DETECTOR FWD 2

S 865-048

- (7) Open and then close this circuit breaker on the P11 panel to set system:  
(a) 11U35, FIRE DET CARGO FAN DC

S 755-049

- (8) Make sure the EICAS maintenance message, FWD DET FAN, or status message, CARGO DET AIR, does not show. This is an indication that the forward blower 1, M716, operates.

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S 975-327

- (9) Use the hot wire anemometer and the adapter to measure the air velocity at each smoke sampling orifice in the forward cargo compartment.

(a) 767-200;  
As follows:

- (STA 412, LBL 13) feet per minute
- (STA 500, LBL 13) feet per minute
- (STA 610, LBL 14) feet per minute
- (STA 698, LBL 13) feet per minute

(b) 767-300;  
As follows:

- (STA 412, LBL 13) feet per minute
- (STA 500, LBL 13) feet per minute
- (STA 500, RBL 61) feet per minute
- (STA 610, LBL 14) feet per minute
- (STA 610, RBL 61) feet per minute
- (STA 654+44, LBL 13) feet per minute
- (STA 698, LBL 13) feet per minute

S 975-356

- (10) Use the hot wire anemometer and the adapter to measure the air velocity at each smoke sampling orifice in the aft cargo compartment.

(a) 767-200;  
As follows:

- (STA 1131, LBL 13) feet per minute
- (STA 1197, LBL 13) feet per minute
- (STA 1263, LBL 13) feet per minute
- (STA 1373, LBL 13) feet per minute
- (STA 1439, LBL 13) feet per minute
- (STA 1502, LBL 13) feet per minute

(b) 767-300;  
As follows:

- (STA 1131, LBL 13) feet per minute
- (STA 1197+44, LBL 13) feet per minute
- (STA 1197+132, LBL 13) feet per minute
- (STA 1263, LBL 13) feet per minute
- (STA 1263, RBL 61) feet per minute
- (STA 1373, LBL 13) feet per minute
- (STA 1439, LBL 13) feet per minute
- (STA 1502, LBL 13) feet per minute

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- S 735-328
- (11) Make sure the recorded air velocity readings are above 24.384 meters (80 feet) per minute at each orifice.
- S 735-329
- (12) 767-300;  
As follows:  
Make sure the maximum recorded air velocity is not more than 24.384 meters (80 feet) per minute greater than the minimum recorded velocity.
- S 735-369
- (13) 767-200;  
For the forward cargo area:  
Make sure the maximum recorded air velocity is not more than 54.864 meters (180 feet) per minute greater than the minimum recorded velocity.
- S 735-371
- (14) 767-200;  
For the aft cargo area:  
Make sure the maximum recorded air velocity is not more than 48.768 meters (160 feet) per minute greater than the minimum recorded velocity.
- F. Do a test of the Aft Blowers, Control Relay, and Plenum Pressure Switch
- S 755-050
- (1) Make sure the EICAS maintenance message, AFT DET FAN, does not show on the bottom display.
- S 865-051
- (2) Open this circuit breaker, on the P35 panel, to stop operation of blower 1:  
(a) 35A3, BLOWER - SMOKE DETECTOR AFT 1
- S 755-062
- (3) After 60 to 90 seconds, make sure these indications occur:  
(a) The EICAS maintenance message, AFT DET FAN, shows on the bottom display. This is an indication that the plenum pressure switch and control relay have operated.
- NOTE: The EICAS maintenance message, CARGO DET AIR, may appear momentarily.
- (b) The EICAS status message, CARGO DET AIR, does not show on the bottom display. This is an indication that the aft blower 2 (M719) operates.

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S 865-211

- (4) Open this circuit breaker, on the P35 panel, to stop the operation of blower 2:
- (a) 35A4 or 35A1, BLOWER - SMOKE DETECTOR AFT 2

S 755-063

- (5) After approximately 20 seconds, make sure the EICAS status message, CARGO DET AIR, shows on the bottom display.

S 865-064

- (6) Close these circuit breakers on the P35 panel:
- (a) 35A3 or 35B3, BLOWER - SMOKE DETECTOR AFT 1
  - (b) 35A4 or 35A1, BLOWER - SMOKE DETECTOR AFT 2

S 865-065

- (7) Open and close this circuit breaker on the P11 panel:
- (a) 11U35, FIRE DET CARGO DC

S 755-066

- (8) Make sure the EICAS maintenance message, AFT DET FAN, or status message, CARGO DET AIR, do not show on the bottom display. This is an indication that the aft blower 1 operates.

G. Smoke Test

S 755-087

**WARNING:** DO NOT BREATHE THE SMOKE. USE EYE PROTECTION. IF YOU USE THE VENTILATION SMOKE TUBE, DO NOT LET THE SMOKE TOUCH YOUR SKIN. TOO MUCH SMOKE FROM THE SMOKE TUBE CAN CAUSE CORROSION TO THE MATERIALS IN THE SMOKE DETECTION SYSTEM. IF THERE IS NOT SUFFICIENT AIR MOVEMENT IN THE AREA OR YOU GET RESPIRATORY PROBLEMS, USE AN APPLICABLE RESPIRATOR. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do the Smoke Test as follows:
- (a) Make smoke adjacent to each orifice in the forward cargo compartment.
  - (b) For each orifice, make sure a fire indication occurs:
    - 1) The red FWD CARGO FIRE switchlight, on the APU/cargo fire control panel (on P8), comes on.
    - 2) The red FIRE light, on the captains instrument panel, P1-3, comes on.
    - 3) The EICAS warning message, FWD CARGO FIRE, shows on the top display.
    - 4) The red master warning lights, on the glareshield panel, P7, come on.
    - 5) The fire bell is heard.
  - (c) Remove the smoke source.
  - (d) Make sure the fire indications stop when there is no smoke.

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(e) Do the smoke test again for the aft cargo compartment. The AFT CARGO FIRE switchlight will come on and the EICAS warning message, AFT CARGO FIRE, shows on the top display.

S 865-208

(2) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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LOWER CARGO COMPARTMENT SMOKE DETECTION SYSTEM - CLEANING/PAINTING

1. General

A. This section contains these procedures to clean the smoke detection system in the lower cargo compartment:

- (1) Cargo Smoke Detector
- (2) Smoke Detector Tubing in the Cargo Compartment

TASK 26-16-00-107-001

2. Clean the Cargo Smoke Detector (Fig. 701)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 26-16-01/201, Cargo Smoke Detectors - Maintenance Practices

B. Equipment

- (1) Pneumatic air source capable of supplying dry, filtered compressed air (Maximum pressure 30 PSI).

C. Consumable Materials

- (1) Cleaning solution - Isopropyl Alcohol

D. Access

(1) Location Zones

- |         |                                |
|---------|--------------------------------|
| 121/122 | Forward Cargo Compartment      |
| 153/154 | Aft Cargo Compartment          |
| 211/212 | Flight Compartment             |
| 810     | Lower Half of Fuselage (Left)  |
| 820     | Lower Half of Fuselage (Right) |

(2) Access

- |     |                                |
|-----|--------------------------------|
| 811 | Bulk Cargo Compartment Door    |
| 821 | Forward Cargo Compartment Door |
| 822 | Aft Cargo Compartment Door     |

E. Clean the Cargo Smoke Detector

S 027-002

- (1) Remove the applicable smoke detector (AMM 26-16-01/201).

S 127-003

- (2) Blow out all dust or residue in the detector chamber. Use dry compressed air not to exceed 15 psi.

S 127-077

**WARNING:** ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL VENTILATED AREA.

- (3) Remove all of the contamination and remaining materials which bond to the walls of the detector chamber. Use a soft bristle brush and isopropyl alcohol.

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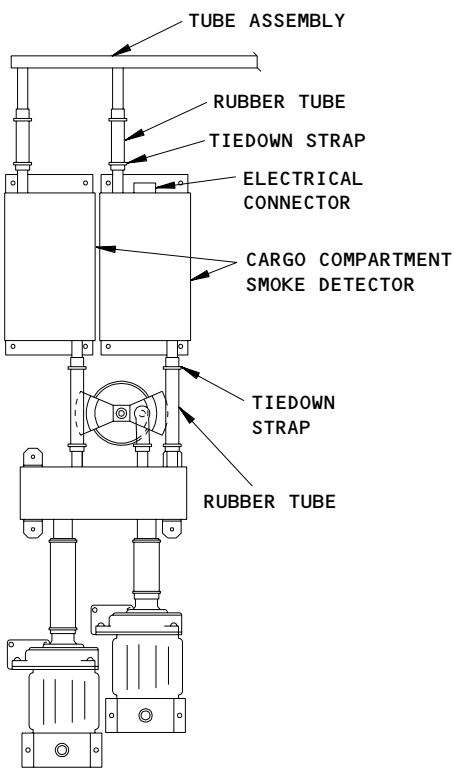
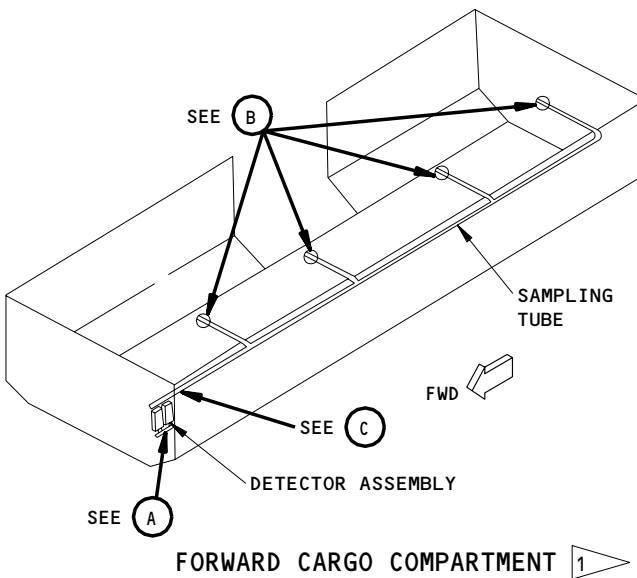
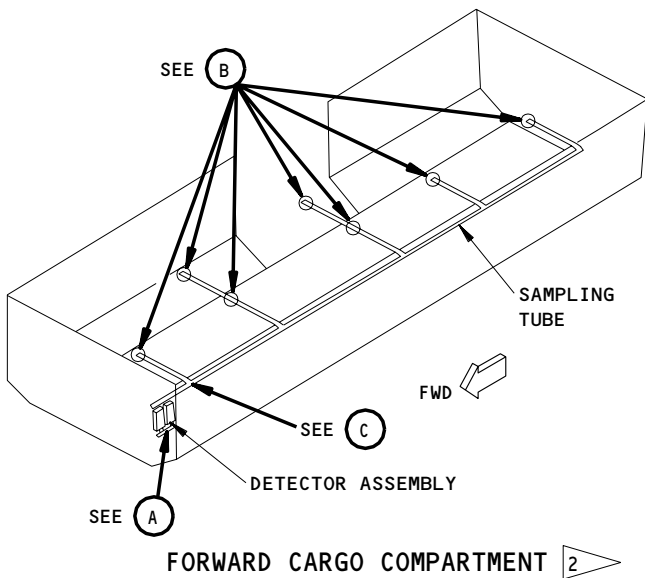
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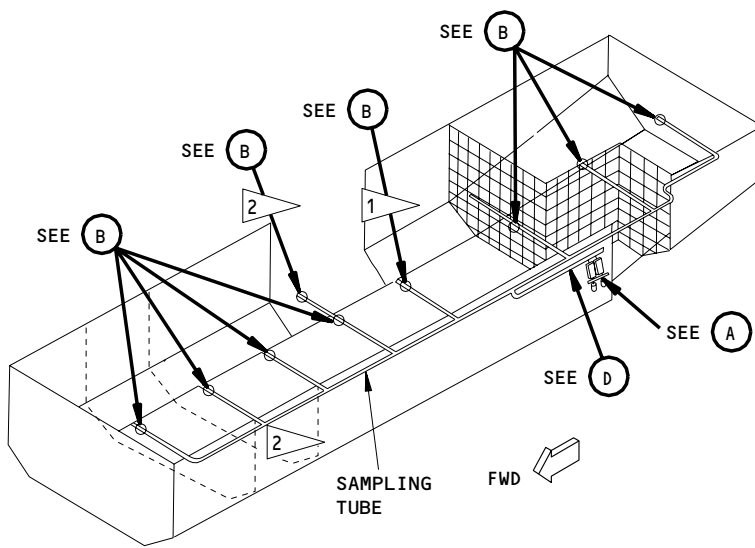
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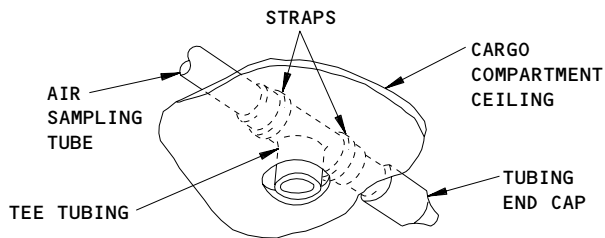


DETECTOR ASSEMBLY  
(EXAMPLE)

(A)



AFT AND BULK CARGO COMPARTMENT



INTAKE ORIFICE  
(EXAMPLE)

(B)

- 1 767-200 AIRPLANES
- 2 767-300 AIRPLANES

Lower Cargo Compartment Smoke Detection System - Cleaning/Painting  
Figure 701 (Sheet 1)

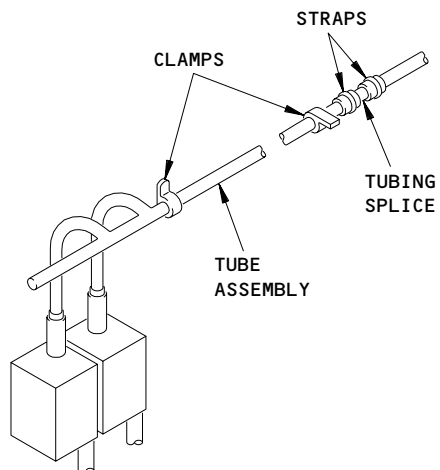
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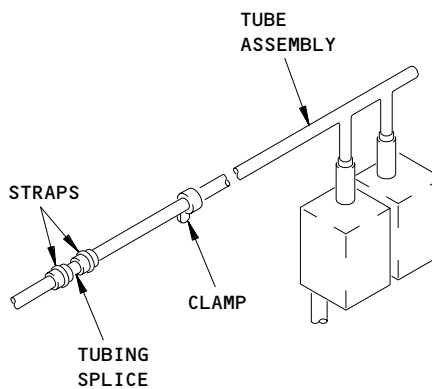
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TUBE ASSEMBLY  
(EXAMPLE)

(C)



TUBE ASSEMBLY

(D)

Lower Cargo Compartment Smoke Detection System - Cleaning/Painting  
Figure 701 (Sheet 2)

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- S 757-005
- (4) Make sure there are no scratches or shiny areas on the inside walls of the chamber. Clean and paint all scratches or shiny areas with paint that does not cause a reflection.
- S 757-006
- (5) Make sure there are no signs of worn areas, damage, burns, loose components, corrosion, or other remaining material.
- S 757-007
- (6) Make sure there is no remaining material and blockage in the pick-up tubes and orifice caps that come out of the ceiling of the cargo compartment. Clean the tubes and caps if it is necessary.
- S 427-008
- (7) Assemble the smoke detector.
- S 427-009
- (8) Install the smoke detector if you do not do the procedure to clean the tubing (AMM 26-16-01/201).

TASK 26-16-00-107-011

3. Clean the Smoke Detector Tubing in the Cargo Compartment (Fig. 701)

A. General

- (1) This section contains two procedures, Methods 1 and 2, which can be used to clean the air sampling tubing for the smoke detectors.

**NOTE:** Method 1 is a more satisfactory procedure to clean the tubing than is Method 2. Method 1 is recommended for the smoke detection systems which have a larger quantity of contamination.

B. References

- (1) AMM 26-16-00/501, Lower Cargo Compartment Smoke Detection System  
(2) AMM 26-16-01/201, Cargo Smoke Detectors - Maintenance Practices  
(3) AMM 36-00-00/201, Pneumatic System

C. Equipment

- (1) Wet vacuum - can supply a maximum vacuum of 15 inches of water.  
(2) Pneumatic air source - capable of supplying dry, filtered compressed air (Maximum pressure 30 PSI).  
(3) Dry Air Filtered Source  
(4) Soft bristle brush  
(5) Tube brush

D. Consumable Materials

- (1) Soap and water

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E. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

F. Do the Procedure to Clean the Smoke Detector Tubing - Method 1

S 027-060

- (1) Remove the pneumatic power (AMM 36-00-00/201).

S 027-047

- (2) Remove all the smoke detectors (AMM 26-16-01/201).

S 017-063

- (3) Remove the applicable cargo lining panels to get access to the tube assembly at the smoke detectors, air sampling tube end caps, and orifices.

NOTE: Not all air sampling tubes have end caps.

S 147-064

- (4) For the tube assembly at the smoke detectors, do the steps that follows:
- (a) Remove the clamps and straps, and disconnect the tube assembly from the tubing system.
  - (b) Use a tube brush, soap and water to remove all of the contamination and debris from the tube assembly.
  - (c) Rinse fully and air dry the tube assembly. Use a wet vacuum to catch any excess water.
  - (d) Make sure the rubber tubes, straps and clamps are not damage. Replace them if necessary.

S 037-016

- (5) Remove all of the end caps from the air sampling tubes.

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S 167-065

**CAUTION:** AIR SAMPLING ORIFICE DIAMETERS HAVE CRITICAL DIMENSIONS. DO NOT INSERT ANY CLEANING DEVICES WHICH MAY ALTER THE DIMENSIONS OF THE ORIFICE.

- (6) Remove all contamination and debris from the ends of the air sampling tubes and the adjacent orifices.

S 147-018

- (7) For tubes with end caps, remove all remaining material from the inner wall of the sampling tube directly across from the orifice. Use a mechanical probe if necessary.

S 757-031

**CAUTION:** REMOVE ALL OF THE SMOKE DETECTOR ASSEMBLIES AND THE END CAPS BEFORE YOU BLOW THE SYSTEM. IF NOT, THIS CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (8) To clean the tubing system, do the steps that follow:
- (a) Use filtered compressed air to clean the tubing system. Use a maximum pressure of 30 psi.
  - (b) Start purging air from the open end tube assembly near the smoke detectors location.

**NOTE:** It is also acceptable to blow air from either or both open ends of the tubing system, the end caps, or tee tubing connections.

S 757-022

- (9) Do the procedure again if it is necessary to make sure the tubing is clean.

S 757-021

- (10) Make sure the air sampling tubes, tee tubing splices, orifices, end caps, straps, and clamps are not damaged. Replace them if it is necessary.

S 437-035

- (11) Assemble the smoke detector tubing.

G. Do the Procedure to Clean the Smoke Detector Tubing - Method 2

S 017-025

- (1) Remove the rubber tubes which attach the tube assemblies to the smoke detectors.

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S 757-026

- (2) Examine the air sampling orifices and rubber sleeves at orifices for contamination and debris.

S 107-066

**CAUTION:** AIR SAMPLING ORIFICE DIAMETERS HAVE CRITICAL DIMENSIONS. DO NOT INSERT ANY CLEANING DEVICES WHICH MAY ALTER THE DIMENSIONS OF THE ORIFICE.

- (3) Remove the contamination and debris from the rubber sleeves and orifices if it is necessary.

S 177-027

**CAUTION:** DO NOT EXCEED A MAXIMUM OF VACUUM 15 INCHES OF WATER. DAMAGE TO THE EQUIPMENT CAN OCCUR.

- (4) Apply a maximum vacuum of 15 inches of water to the end of the tubes which were connected to the detector assemblies to clean the tubing system.
- H. Put the airplane back to its usual condition.

S 437-045

- (1) Install the smoke detector assembly (AMM 26-16-01/201).

S 867-074

- (2) Make sure that the minimum protrusion length of the smoke detection air sampling ports are 0.20 inch (5.08 mm) from the compartment ceiling liner.
  - (a) If the protrusion length is less than 0.20 inch (5.08 mm) then do the procedure: Containerized Cargo Compartment Ceiling Lining - Removal/Installation (AMM 25-52-02/401).

S 717-029

- (3) Do a test of the smoke detector installation (AMM 26-16-01/201).

S 717-057

- (4) Do the Operational Test - Lower Cargo Compartment Smoke Detection System (AMM 26-16-00/501).

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CARGO SMOKE DETECTORS – MAINTENANCE PRACTICES

1. General

- A. This section contains a procedure to replace the detector lamp (on airplanes with lamp placards on the smoke detectors) and a procedure for removal/installation of the cargo smoke detector.
- B. The forward cargo compartment smoke detectors, M324 and M325, are installed aft of the left generator power panel, P31, in the electrical/electronic (E/E) equipment compartment. Get access to the detectors through the E/E compartment, or through the forward bulkhead panel in the forward cargo compartment. The aft cargo compartment smoke detectors, M326 and M327, are installed forward of the bulk cargo compartment door. Get access to the detectors through an access panel in the compartment wall. The removal/installation procedure is the same for all detectors.

TASK 26-16-01-422-038

2. SMOKE DETECTORS WITH A LAMP PLACARD;  
Replace the Detector Lamp (Fig. 201)

A. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
821	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

B. Remove the Detector Lamp

S 862-002

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

S 032-003

- (2) Remove the six screws from the detector cover and then remove the detector cover.

S 032-004

- (3) Remove the lamp and the lens holder from the electronics assembly.

S 032-005

- (4) Remove the detector lamp from the lamp and lens holder.

C. Replace the Detector Lamp

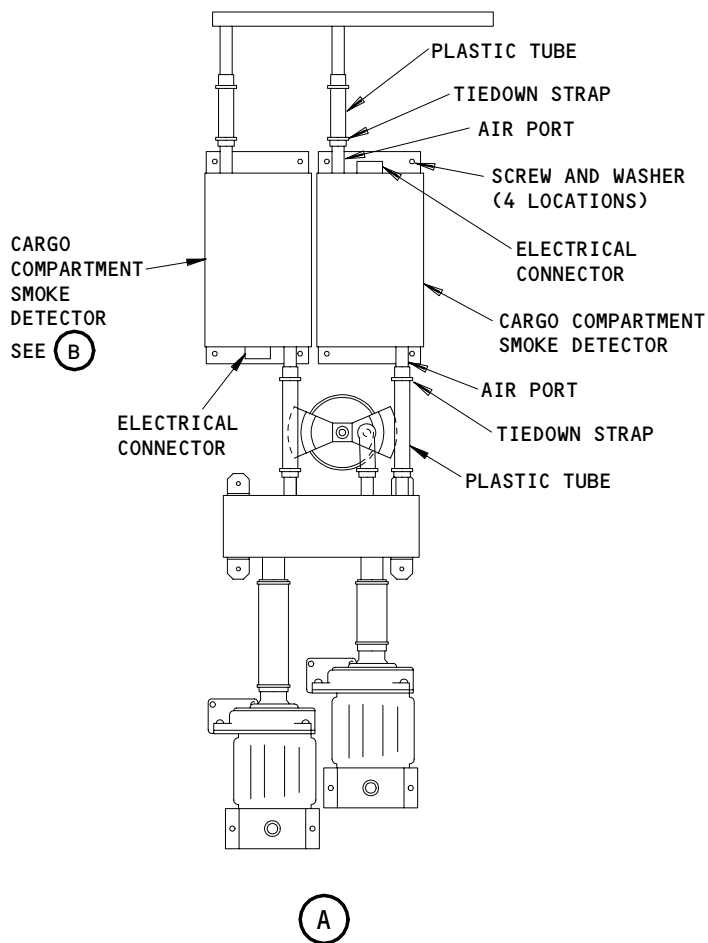
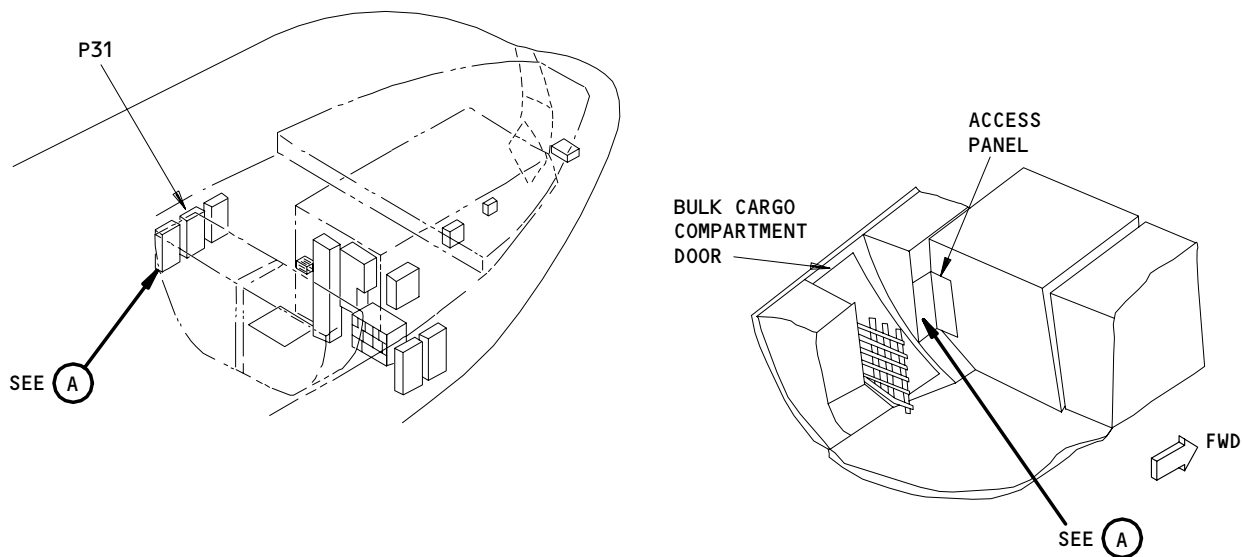
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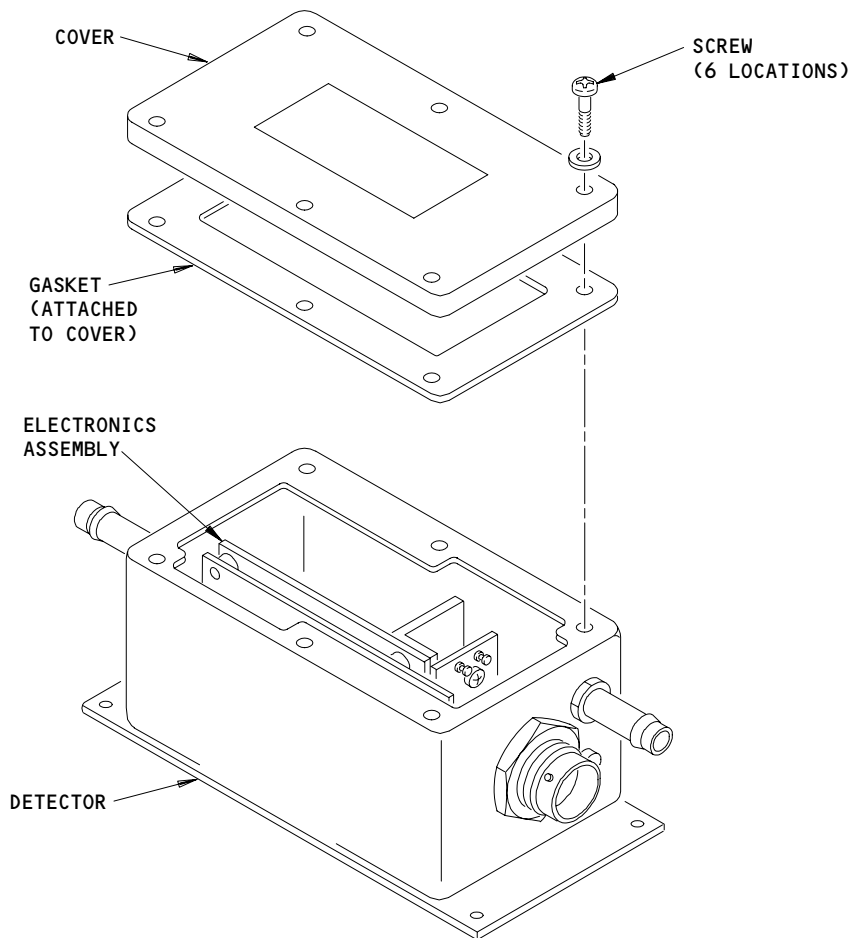


Cargo Smoke Detector Installation  
Figure 201 (Sheet 1)

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CARGO COMPARTMENT SMOKE DETECTOR

(B)

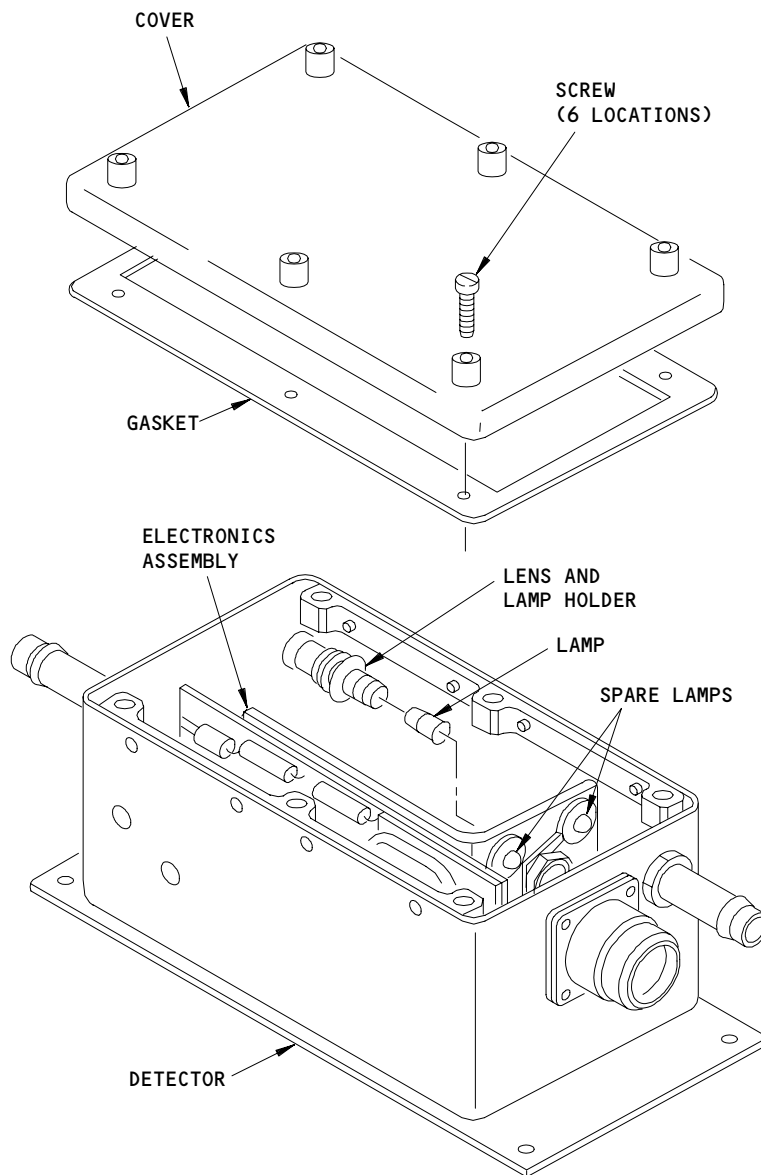
Cargo Compartment Smoke Detector Installation  
Figure 201 (Sheet 2)

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DETECTORS WITHOUT  
A LAMP PLACARD

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CARGO COMPARTMENT SMOKE DETECTOR

(B)

Cargo Smoke Detector Installation  
Figure 201 (Sheet 3)

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DETECTORS WITH A  
LAMP PLACARD

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S 432-033

**CAUTION:** FOR THE TWO AFT DETECTORS USE ONLY THESE 14V LAMPS FOR REPLACEMENT: CM 382AS10, CM 382AS15, GI 382AS10, or GI 382AS15. FOR THE TWO FORWARD DETECTORS USE ONLY THESE 28V LAMPS FOR REPLACEMENT: CM 376AS10, CM 376AS15, GI 376AS10, or GI 376AS15. FAILURE OF THE SMOKE DETECTORS TO DETECT CARGO COMPARTMENT FIRES WILL OCCUR IF AN INCORRECT LAMP IS USED.

- (1) Put the detector lamp into the lamp and lens holder and install it into the lamp assembly.

S 432-007

- (2) Put the gasket and cover on the detector.

S 432-008

- (3) Install and tighten the screws to seal the detector.

**NOTE:** The detector cover should be air tight.

S 862-009

- (4) Close these circuit breakers on the P11 panel and remove the DO-NOT-CLOSE tags:
  - (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

TASK 26-16-01-422-010

3. Remove the Cargo Smoke Detector (Fig. 201)

A. References

- (1) 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access

811	Bulk Compartment Door
821	No. 1 Cargo Compartment Door
822	No. 2 Cargo Compartment Door

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C. Remove the Cargo Smoke Detector

S 862-011

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B26, FIRE DETECTION CARGO 1
  - (b) 11B27, FIRE DETECTION CARGO 2
  - (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

S 012-012

- (2) Get access to the smoke detector.

S 032-037

- (3) Remove electrical connector.

S 032-014

- (4) Remove the two tiedown straps which hold the plastic tubes to the detector air ports.

S 032-015

- (5) Remove the two silicone tubes from the air ports.

S 032-016

- (6) Remove the four screws and washers.

S 022-017

- (7) Remove the detector.

TASK 26-16-01-422-018

4. Install the Cargo Smoke Detector (Fig. 201)

A. References

- (1) 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
821	No. 1 Cargo Compartment Door
822	No. 2 Cargo Compartment Door

C. Install the Cargo Smoke Detector

S 432-019

- (1) Install the detector with the four screws and washers.

S 432-020

- (2) Attach the silicone tubes to the detector air ports.

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- S 432-021
  - (3) Tighten the two silicone tubes to the air ports. Use the tiedown straps.
  
  - S 422-022
  - (4) Install the electrical connector.
  
  - S 412-023
  - (5) Close the access panel.
- D. Do a Test of the Cargo Smoke Detector Installation
- S 862-024
  - (1) Supply electrical power (AMM 24-22-00/201).
  
  - S 862-025
  - (2) On the forward pilots control stand, P9, set the EICAS COMPUTER select switch to the L and R position.
  
  - S 862-026
  - (3) Set the EICAS display to show STATUS.
  
  - S 862-029
  - (4) Close these circuit breakers on the P11 panel and remove the DO-NOT-CLOSE tags:
    - (a) 11B26, FIRE DETECTION CARGO 1
    - (b) 11B27, FIRE DETECTION CARGO 2
    - (c) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
  
  - S 752-030
  - (5) Make sure the applicable EICAS message FWD or AFT CARGO DET 1 or 2 does not show on the bottom display after momentary power-up display.
  
  - S 862-031
  - (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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SMOKE DETECTOR BLOWERS – REMOVAL/INSTALLATION

1. General

- A. The forward cargo smoke detector contains airflow blowers, M716 and M717. These blowers are installed aft of the left generator power panel, P31, in the electrical/electronic (E/E) equipment compartment. Get access to the blowers from the E/E compartment, or through the forward bulkhead panel in the forward cargo compartment.

The aft cargo smoke detector contains airflow blowers, M718 and M719. These blowers are installed forward of the door for the bulk cargo compartment. Get access to the blowers through an access panel in the compartment wall.

The removal/installation procedure is applicable to all of the blowers.

TASK 26-16-02-024-001

2. Remove the Smoke Detector Blower (Fig. 401)

A. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

B. Remove the Smoke Detector Blower

S 864-031

- (1) Open these circuit breakers, on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:  
(a) 11U35, FIRE DET CARGO DC  
(b) 11U36, FIRE DET FAN AC

S 014-002

- (2) Get access to the blower through the access panel.

S 034-003

- (3) Remove the electrical connector.

S 034-005

- (4) Remove the strap which holds the plastic tube to the blower air port.

S 034-004

- (5) Remove the plastic tube from the air port.

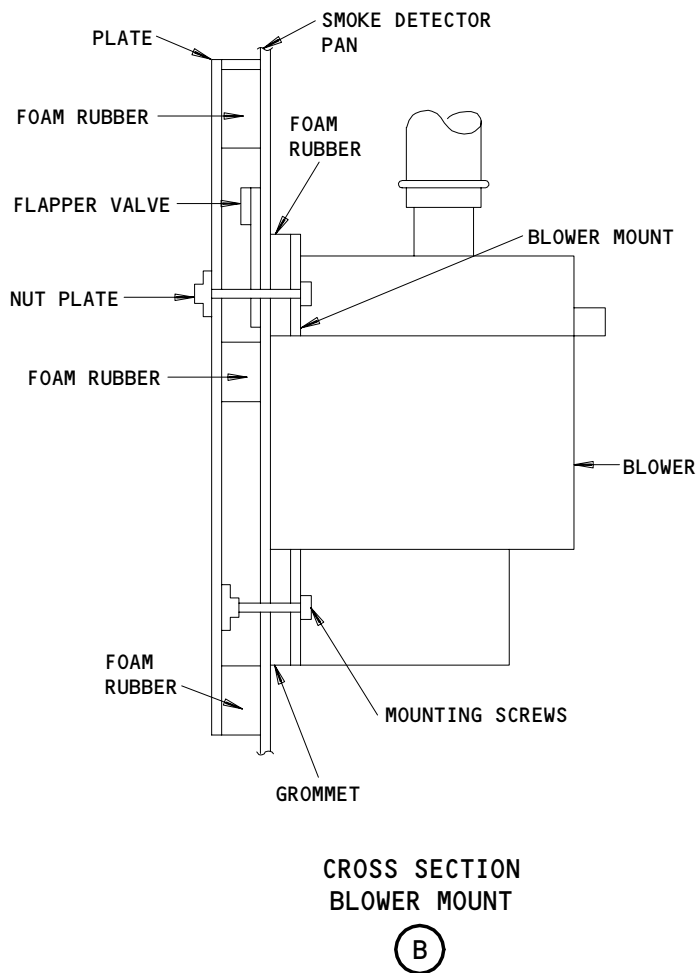
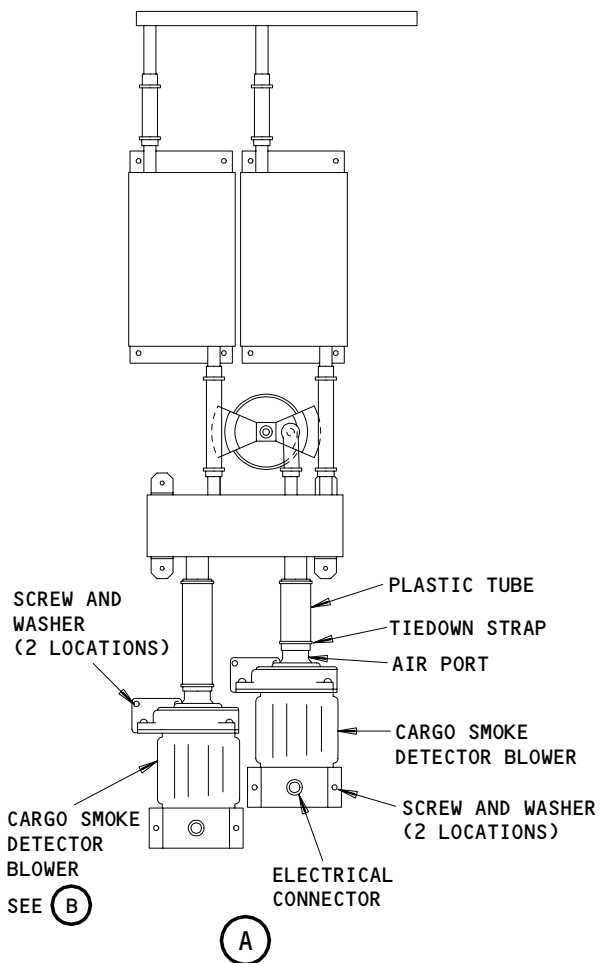
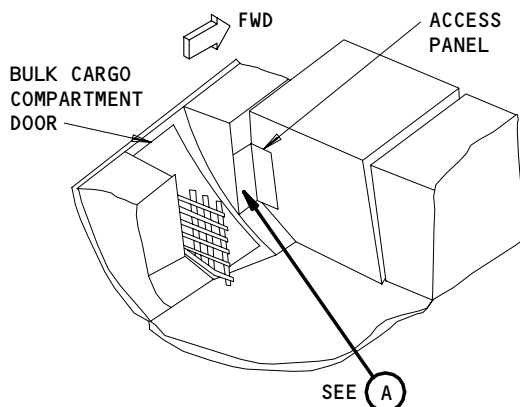
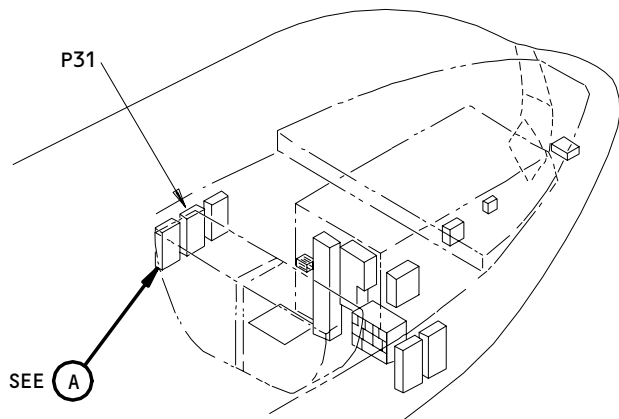
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Smoke Detector Blower Installation  
Figure 401

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- S 024-006  
(6) Remove the four screws and washers to remove the blower.

- S 024-007  
(7) Remove the blower and spacers below the blower mounting pads.

TASK 26-16-02-424-008

3. Install the Smoke Detector Blower (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Install the Smoke Detector Blower

- S 434-042  
(1) Put the spacers below the blower mounting pads.

- S 424-009  
(2) Install the blower with the four screws and washers.

- S 434-010  
(3) Attach the plastic tube to the blower air port.

- S 434-011  
(4) Attach the plastic tube to the air port. Use the strap.

- S 434-012  
(5) Install the electrical connector.

- S 414-013  
(6) Close the access panel.

- S 864-014  
(7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:  
(a) 11U35, FIRE DET CARGO DC  
(b) 11U36, FIRE DET FAN AC

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D. Do a Test of the Smoke Detector Blower Installation

S 864-015

- (1) Supply electrical power (AMM 24-22-00/201).

S 754-016

- (2) Make sure one blower does operate.

S 864-039

- (3) If the blower that operates was immediately installed, remove electrical power if it is not necessary (AMM 24-22-00/201).

S 864-017

- (4) If the blower does not operate, do the following steps:
- (a) Open the circuit breaker on the cargo handling access panel, P35, applicable to the compartment (FWD or AFT) where the blower was replaced.
    - 1) 35A1 or 35B1, BLOWER SMOKE DETECTOR FWD 1
    - 2) 35A3 or 35B3, BLOWER SMOKE DETECTOR AFT 1
  - (b) After 60 seconds, make sure the other blower (backup) operates.
  - (c) Close the circuit breaker on the P35 panel, which was opened.
  - (d) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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SMOKE DETECTOR PLENUM PRESSURE SWITCH – REMOVAL/INSTALLATION

1. General

- A. The air flow pressure switch, S454, for the forward compartment smoke detector, is installed aft of the left generator power panel, P35, in the electrical/electronic (E/E) equipment compartment. Get access to the switch from the E/E compartment or through the forward bulkhead panel in the forward cargo compartment. The air flow pressure switch, S455, for the aft cargo smoke detector, is installed aft of the bulk cargo compartment door. Get access to the switch through an access panel in the compartment wall. The removal/installation procedure is the same for all of the switches.

TASK 26-16-03-024-001

2. Remove the Pressure Switch (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access

821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Remove the Pressure Switch.

S 864-002

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11U35, FIRE DET CARGO DC
  - (b) 11U36, FIRE DET FAN AC

S 014-003

- (2) Get access to the pressure switch.

S 034-004

- (3) Remove the electrical connector.

S 034-005

- (4) Remove the tiedown strap which holds the plastic tube to the pressure switch air port.

S 034-006

- (5) Remove the plastic tube from the air port. Keep the tube support coil.

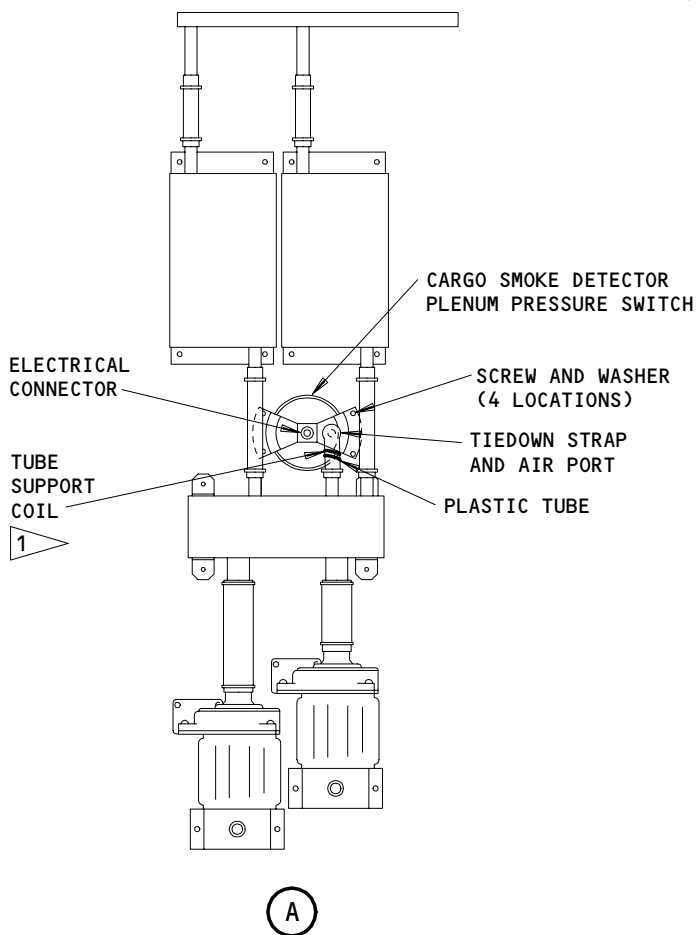
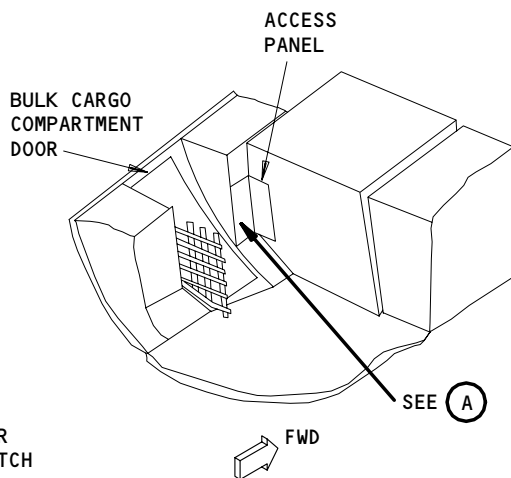
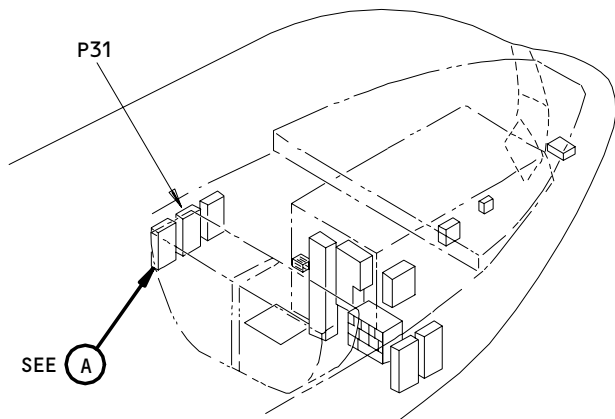
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1 COIL INSERTED IN TUBE TO PREVENT TUBE FROM FLATTENING

Smoke Detector Plenum Pressure Switch Installation  
Figure 401

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S 034-007

- (6) Remove the four screws and washers to remove the pressure switch.

TASK 26-16-03-424-008

3. Install the Pressure Switch (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access

821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Install the Pressure Switch.

S 424-009

- (1) Install the pressure switch with the four screws and washers.

S 434-010

- (2) Attach the plastic tube to the pressure switch air port.

S 434-011

- (3) Put the support coil in the plastic tube.

S 434-012

- (4) Tighten the plastic tube to the pressure switch air port. Use the tiedown strap.

S 434-013

- (5) Install the electrical connector.

S 414-014

- (6) Close the access panel.

S 864-015

- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

(a) 11U35, FIRE DET CARGO DC

(b) 11U36, FIRE DET FAN AC

D. Do a test of the pressure switch installation.

S 864-016

- (1) Supply electrical power (AMM 24-22-00/201).

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- S 754-017
- (2) Make sure smoke detector blower 1 operates.
- S 864-018
- (3) Open the forward compartment circuit breaker on the cargo handling access panel, P35, which is applicable to the compartment (FWD or AFT) where the switch was replaced:
- (a) 35A1 or 35B1, BLOWER SMOKE DETECTOR FWD 1
  - (b) 35A3 or 35B2, BLOWER SMOKE DETECTOR AFT 1
- S 754-029
- (4) After 60 seconds, make sure the system operates for (backup) blower 2.
- S 864-030
- (5) Close the circuit breakers on the P35 panel which were opened before.
- S 864-031
- (6) Open and then close this circuit breaker on the P11 panel to set the smoke detector blower system.
- (a) 11U35, FIRE DET CARGO DC
- S 864-032
- (7) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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SMOKE DETECTOR FAN ISOLATION FLAPPER VALVE – MAINTENANCE PRACTICES

1. General

- A. This procedure is used for these maintenance practices:
  - (1) Flapper Valve Integrity Check with use of a vacuum gage.
  - (2) Comprehensive Flapper Valve Inspection/Check
  - (3) Flapper Valve Replacement
- B. This procedure is an operational check. It includes operation serviceable instructions for the cargo smoke detector fan isolation flapper valve.

TASK 26-16-05-702-001

2. Flapper Valve Integrity Check

A. Equipment

- (1) Vacuum Gage – Hand-held, 0-10 inches of water, Model 104-10 (or equivalent), DWYER INSTRUMENT INC., Michigan City, Indiana

B. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 26-16-02/401, Smoke Detector Blowers

C. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

D. Do the Procedure

S 862-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 862-003

- (2) Open these circuit breakers on the overhead circuit breakers panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11U35, FIRE DET CARGO DC
  - (b) 11U36, FIRE DET FAN AC

S 032-004

- (3) Disconnect the hose from the plenum pressure switch on the forward smoke detector.

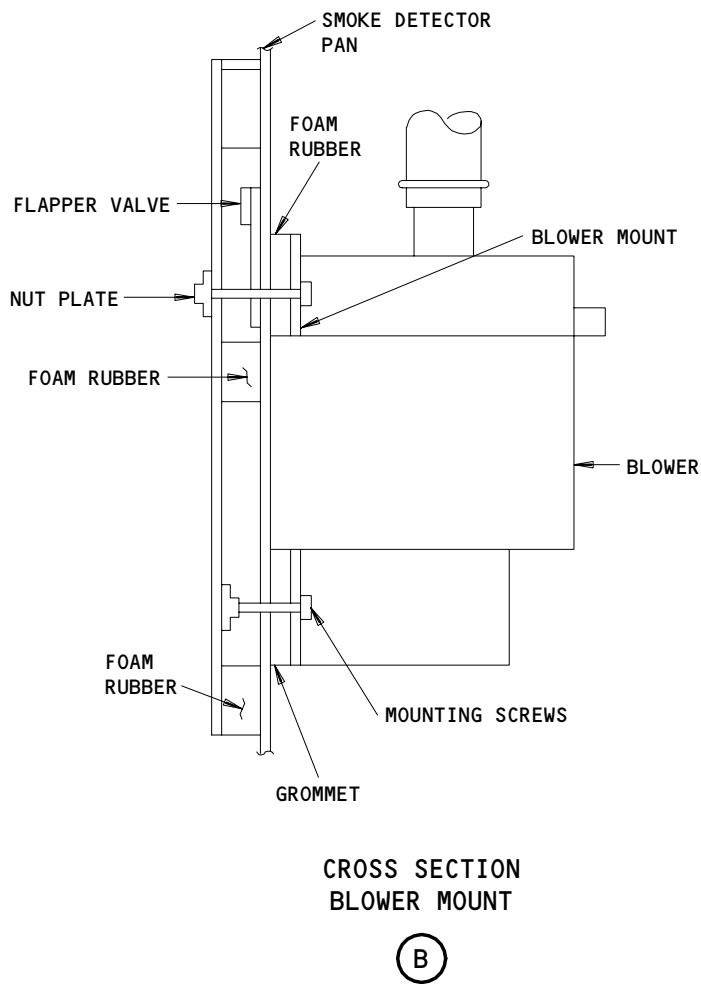
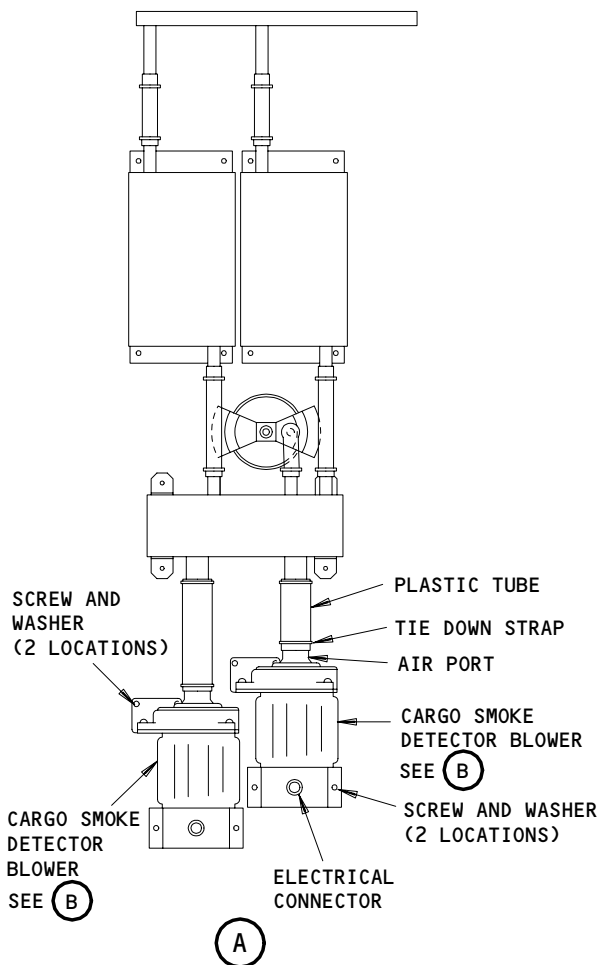
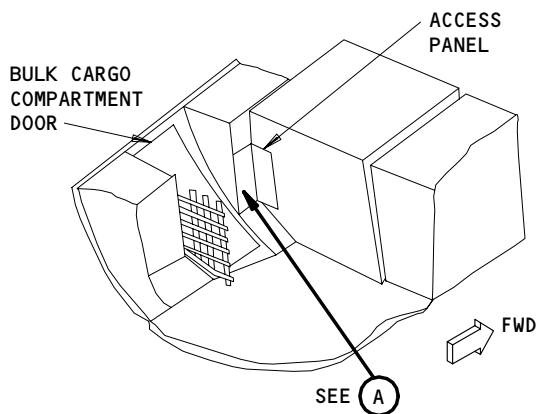
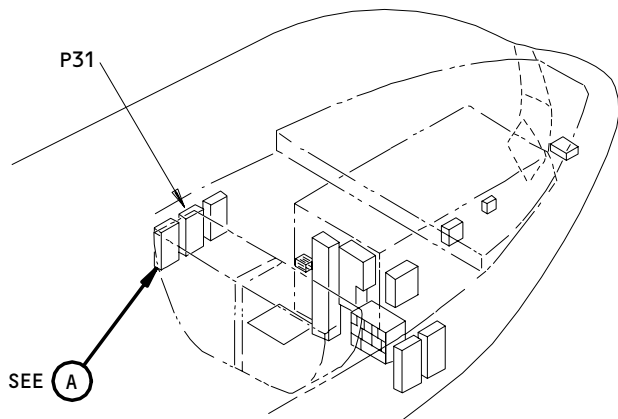
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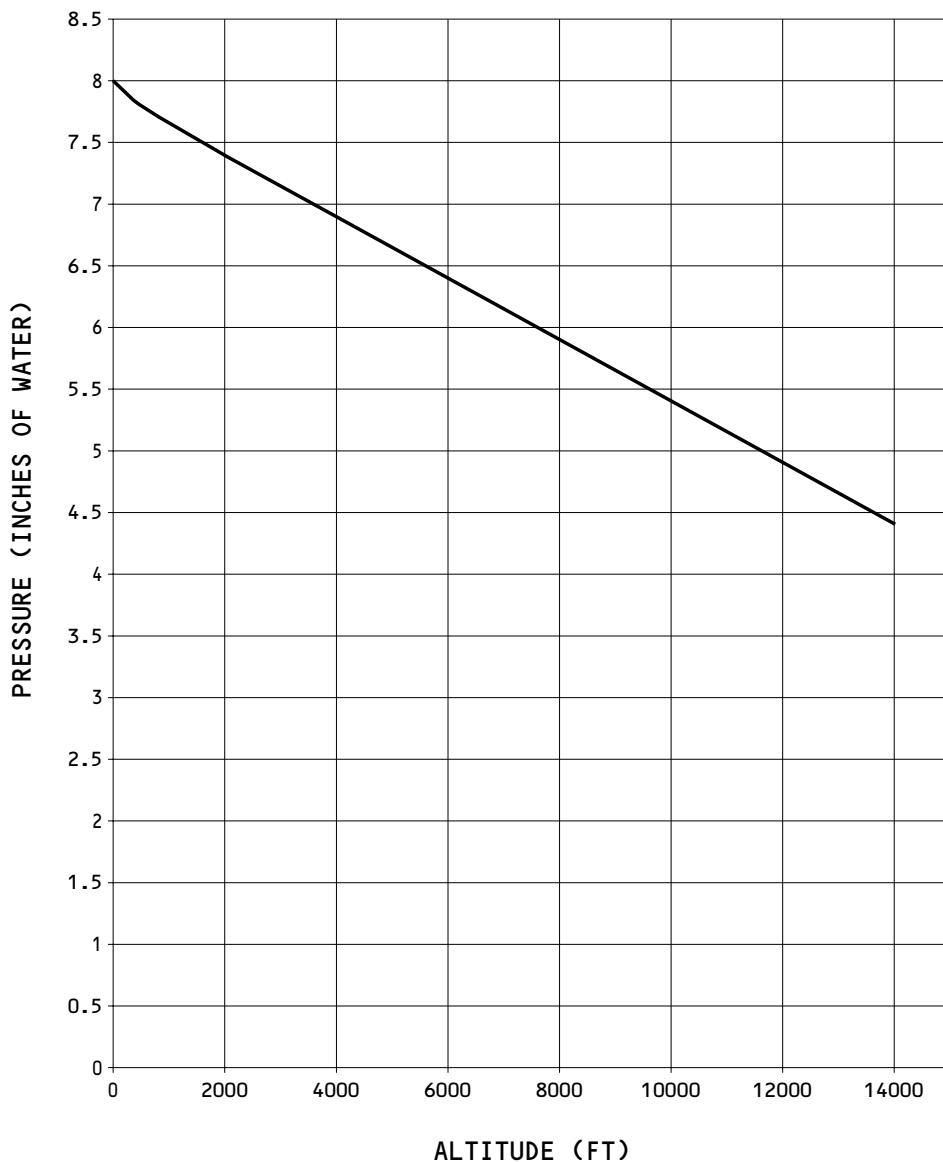


Smoke Detector Blower Fan Isolation Flapper Valve Inspection/Check  
Figure 201

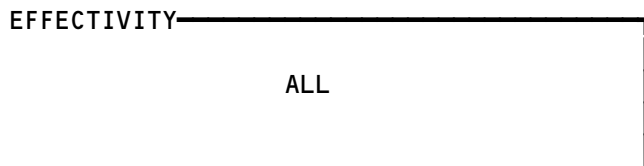
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ALTITUDE VS. MINIMUM VACUUM PRESSURE



Minimum Vacuum Gage Required at Respective Altitude  
Figure 202



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- S 722-019
- (4) Connect the hose to a vacuum gage which is calibrated in inches of water.

- S 862-005
- (5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11U36, FIRE DET FAN AC

NOTE: The 11U36 circuit breaker supplies AC power to the blowers. Blower 1 will be operating but Blower 2 will not. This is the normal operating condition.

- S 862-007
- (6) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11U35, FIRE DET CARGO DC

NOTE: The 11U35 circuit breaker supplies DC power needed to activate the time delay relay. As the hose to the plenum pressure switch was removed, the plenum pressure switch will sense low pressure. The plenum pressure switch will then activate the time delay which will shut down Blower 1 and turn Blower 2 on.

- S 752-010
- (7) After 60 seconds, make sure the operation of SMOKE DET BLOWER 1 stops and SMOKE DET BLOWER 2 starts.

- S 752-119
- (8) Make sure the vacuum gage shows the minimum value in Figure 202 for the altitude where the airplane is parked.

- S 782-012
- (9) If the vacuum gage does not show the amount of water indicated in figure 202 at the parked altitude of the airplane, do the Flapper Valve Inspection Check.

- S 032-013
- (10) Disconnect the vacuum gage from the hose.

- S 722-020
- (11) Connect the plenum pressure switch to the hose on the forward smoke detector.

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S 862-014

- (12) Open and then close this circuit breaker to the reset smoke detector blower system:  
(a) 11U35, FIRE DET CARGO DC

S 702-015

- (13) Do the check again for the aft cargo smoke detection system. Use blowers 1 and 2.

S 862-016

- (14) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-16-05-702-017

3. Flapper Valve Inspection/Check (Fig. 201)

A. References

- (1) AMM 26-16-02/401, Smoke Detector Blowers

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment
211/212	Flight Compartment
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Do the Procedure

S 862-018

- (1) Supply electrical power (AMM 24-22-00/201).

S 032-019

- (2) In the forward cargo compartment, make sure the smoke detector blower 1, M716 operates. Remove the fasteners on the smoke detector blower 2, M717.

S 032-020

- (3) Remove blower 2 to get access to the flapper valve. Do not disconnect or bend the hoses.

S 752-021

- (4) Make sure the open end around the flapper valve is free of dirt which would prevent a correct position of the valve.

S 752-013

- (5) Make sure there is no deterioration of the valve.

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- S 862-022
- (6) Move the valve from side to side to the direction of the open end. Make sure the valve is in the correct position and does not stick because of remaining material.
- S 432-023
- (7) Install smoke detector blower 2 and use the fasteners.
- S 862-052
- (8) Open this circuit breaker on the forward compartment panel, P35, to stop the operation of blower one:
- (a) 35A1, BLOWER SMOKE DETECTOR FWD 1
- S 032-026
- (9) In the forward cargo compartment, after approximately 60 seconds, make sure smoke detector 2, M717, operates. Remove the fasteners on smoke detector blower 1, M716.
- S 032-027
- (10) Remove blower 1 to get access to the flapper valve. Do not disconnect or bend the hoses.
- S 752-096
- (11) Make sure the open end around the flapper valve is free of dirt which could prevent the valve from a correct position. Make sure there is no deterioration of the valve.
- S 862-029
- (12) Slowly move valve from side to side in the direction of the open end. Make sure the valve is in the correct position and does not stick because of remaining material.
- S 432-030
- (13) Install blower 1 and use the fasteners.
- S 862-060
- (14) Close this circuit breaker on this P35 panel:
- (a) 35A1, BLOWER SMOKE DETECTOR FWD 1
- S 862-031
- (15) Open and then close this circuit breaker to the smoke detector blower system:
- (a) 11U35, FIRE DET CARGO DC
- S 712-032
- (16) In the aft cargo compartment, repeat the Flapper Valve Inspection/Check for the smoke detector blower 1, M718, and 2, M719. Use this circuit breaker on the P35 panel to disable blower number one:
- (a) 35A3, BLOWER SMOKE DETECTOR AFT 1

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S 862-033

(17) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-16-05-962-034

4. Replace the Flapper Valve (Fig. 201)

A. References

- (1) AMM 26-16-02/401, Smoke Detector Blowers
- (2) BACR15DA4-2

B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment Door
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Replace the Flapper Valve

S 032-035

(1) Remove the applicable smoke detector blower (AMM 26-16-02/401).

S 022-036

(2) Drill out the rivets to remove the flapper valve (three per valve).  
Keep the backup plate.

S 322-035

(3) Drill the backup plate and panel for the installation of blind rivets (Ref BACR15DA4-2).

S 432-037

(4) Install a new flapper and the salvaged backup plate. Use the blind rivets.

S 422-038

(5) Install the smoke detector blower (AMM 26-16-02/401).

TASK 26-16-05-142-039

5. Clean the Flapper Valve

A. References

- (1) AMM 26-16-02/401, Smoke Detector Blowers

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B. Access

(1) Location Zones

121/122	Forward Cargo Compartment
153/154	Aft Cargo Compartment Door
810	Lower Half of Fuselage (Left)
820	Lower Half of Fuselage (Right)

(2) Access Panels

811	Bulk Cargo Compartment Door
821	Forward Cargo Compartment Door
822	Aft Cargo Compartment Door

C. Do the Procedure

S 032-040

- (1) Remove the applicable smoke detector blower (AMM 26-16-02/401).

S 142-041

- (2) Remove any contaminants and remaining material on the flapper valve or around the open end of the flapper valve. Use a soft brush with soap and water.

S 862-042

- (3) Let the flapper valve dry.

S 422-043

- (4) Install the smoke detector blower (AMM 26-16-02/401).

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WHEEL WELL FIRE DETECTION – DESCRIPTION AND OPERATION

1. General

- A. A continuous loop sensor system is installed in the left and right main wheel wells. This system will find overheat conditions around the left and right main wheel well areas. When the temperature becomes too hot, the resistance of the sensor decreases. A warning signal is then sent to the flight crew.
- B. An overheat condition causes these conditions:
  - (1) The master warning lights (red) on the glare shield (P7) to come on.
  - (2) The fire bell will make a noise.
  - (3) The red light, WHEEL WELL FIRE, will come on.
  - (4) The EICAS indicator (P2) will show WHEEL WELL FIRE.
- C. To reset the fire bell and master warning lights, push one of the lights. The light, WHEEL WELL FIRE, and the EICAS display will stay on while the temperature is too hot (AMM 31-41-00).
- D. There is a test switch on the fire/overheat test module at the rear of the pilots' control stand (P8). When operated, the test switch supplies a ground at one end of the continuous loop sensor. The duct leak and wheel well fire card detects the ground as being an overheat condition. This causes a fire warning for the wheel well.
- E. The fire detection system for the wheel wells has four sensor elements. There are two elements in each wheel well. There is a detector circuit on the duct leak and wheel well fire card (P54). There is also a light, WHEEL WELL FIRE, on P3, and a test switch, W/W FIRE, on P8. The fire detection system for the wheel well uses 115 vac and 28 vdc from the standby bus.

2. Component Details (Fig. 1)

A. Wheel Well Overheat Detectors

- (1) The continuous loop sensor has four elements. There are two elements in each wheel well. The sensor loop in each wheel well is installed around the overhead by silicone bushings. The two elements start on the inboard bulkhead. These elements connect together at the outboard side through the forward and aft bulkheads. The elements connect through the wire to the other wheel well elements and to the detector card (P54).
- (2) The overheat detectors contain a thermistor material. The resistance of this material decreases while the temperature of the material increases. At a temperature larger than 400°F ± 20°F, the detector supplies an alarm signal (ground) to the detector card. The detector card is found in the P54 card file. When the temperature of material decreases sufficiently, the alarm signal is automatically cancelled.

B. Duct Leak and Wheel Well Fire Control Card

- (1) This printed-circuit card is in the P54 card file. The card file is in the forward equipment center along the right side of the nose gear wheel well. The card contains four detection circuits which operate independently. One of the circuits is used for wheel well fire detection. The remaining three circuits are used for duct leak overheat detection (AMM 26-18-00).

EFFECTIVITY

ALL

26-17-00

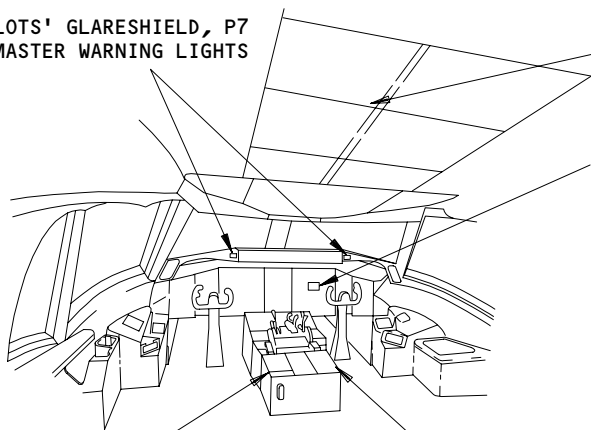
02

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PILOTS' GLARESHIELD, P7  
• MASTER WARNING LIGHTS

P11 PANEL

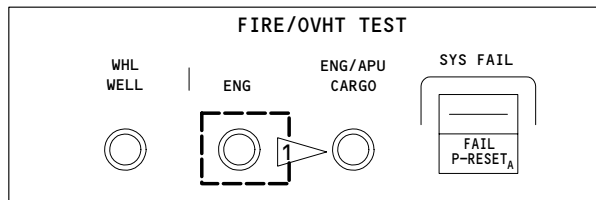
FIRST OFFICER'S INSTRUMENT  
PANEL, P3  
• WHEEL WELL FIRE LIGHT



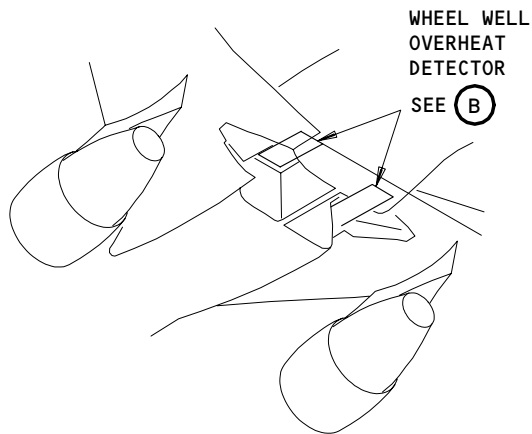
FIRE/OVHT  
TEST PANEL  
SEE (A)

P8 PANEL

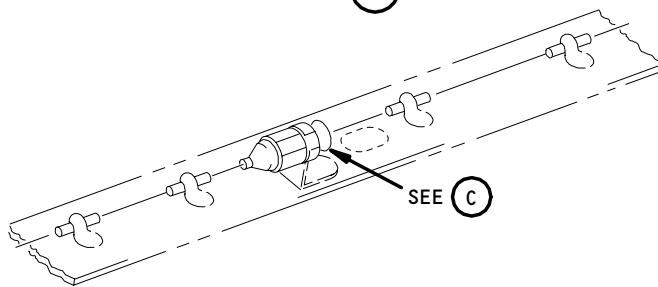
FLIGHT COMPARTMENT



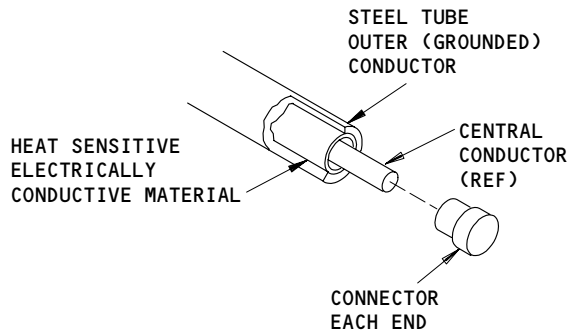
FIRE/OVHT TEST PANEL  
(A)



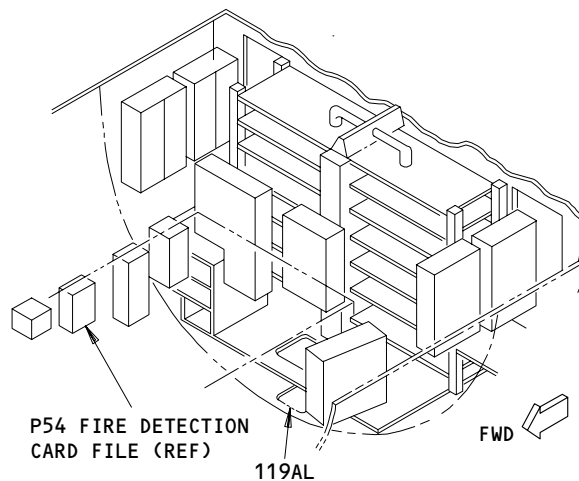
WHEEL WELL  
OVERHEAT  
DETECTOR  
SEE (B)



WHEEL WELL FIRE OVERHEAT DETECTOR  
(EXAMPLE)  
(B)



OVERHEAT DETECTOR DETAIL  
(C)



P54 FIRE DETECTION  
CARD FILE (REF)

119AL

FWD

MAIN EQUIPMENT CENTER

1 AIRPLANES WITH RB.211 ENGINES

Wheel Well Detection - Component Location  
Figure 1

EFFECTIVITY	ALL
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26-17-00

(2) The fire detection circuit for the wheel wells on the card monitors the resistance of the detection loop. It supplies an alert signal when the temperature in one of the two wheel wells becomes larger than 400°F.

C. Fire/Overheat Test Panel

(1) The fire/overheat test panel is on the pilots' control stand P8. The test panel contains the test switch for the wheel well. The test panel also contains switches and relays applicable to other fire and overheat detection systems.

D. Wheel Well Fire Light

(1) The light, WHEEL WELL FIRE, is on the first officer's instrument panel P3. The light is red.

3. Operation

A. Functional Description (Fig. 2)

- (1) The system receives 115-volt standby ac power from a circuit breaker, WW FIRE/DUCT LEAK. This circuit breaker is found on the overhead circuit breaker panel, P11. The circuit breaker, WW FIRE IND, supplies battery bus 28 VDC power to turn on the FIRE warning lights. This circuit breaker is also found on the circuit breaker panel, P11.
- (2) When a section of an overheat detector reaches a temperature greater than approximately 400 degrees F, an alarm signal (low resistance) is supplied. This alarm signal is supplied by the detection circuit on the duct leak overheat and wheel well fire card. The detection circuit receives the signal and produces an alarm signal to energize the K693 wheel well fire indication relay (P37). This relay turns on the WHEEL WELL FIRE light (P3) and the discrete FIRE warning lights (P1-3).
- (3) An EICAS alarm output signal is also sent to the left and right EICAS computers (AMM 31-41-00). This signal supplies warning alerts in the flight compartment. The EICAS alarm output also causes the warning electronics unit (WEU) (AMM 31-51-00) to start the fire bell in the flight compartment. The bell operates until one of the two landing gears are lowered inflight. The fire alarm signals stop when the fire detector temperature decreases to approximately 360 degrees F.
- (4) The two ends of the continuous fire detection loop are connected to a detection circuit. This detection circuit is found on the duct leak overheat and wheel well fire card. If a fire detector breaks (open circuit), all detectors will stay connected to the fire detection circuit. The detection circuit will supply the correct fire annunciation.

EFFECTIVITY

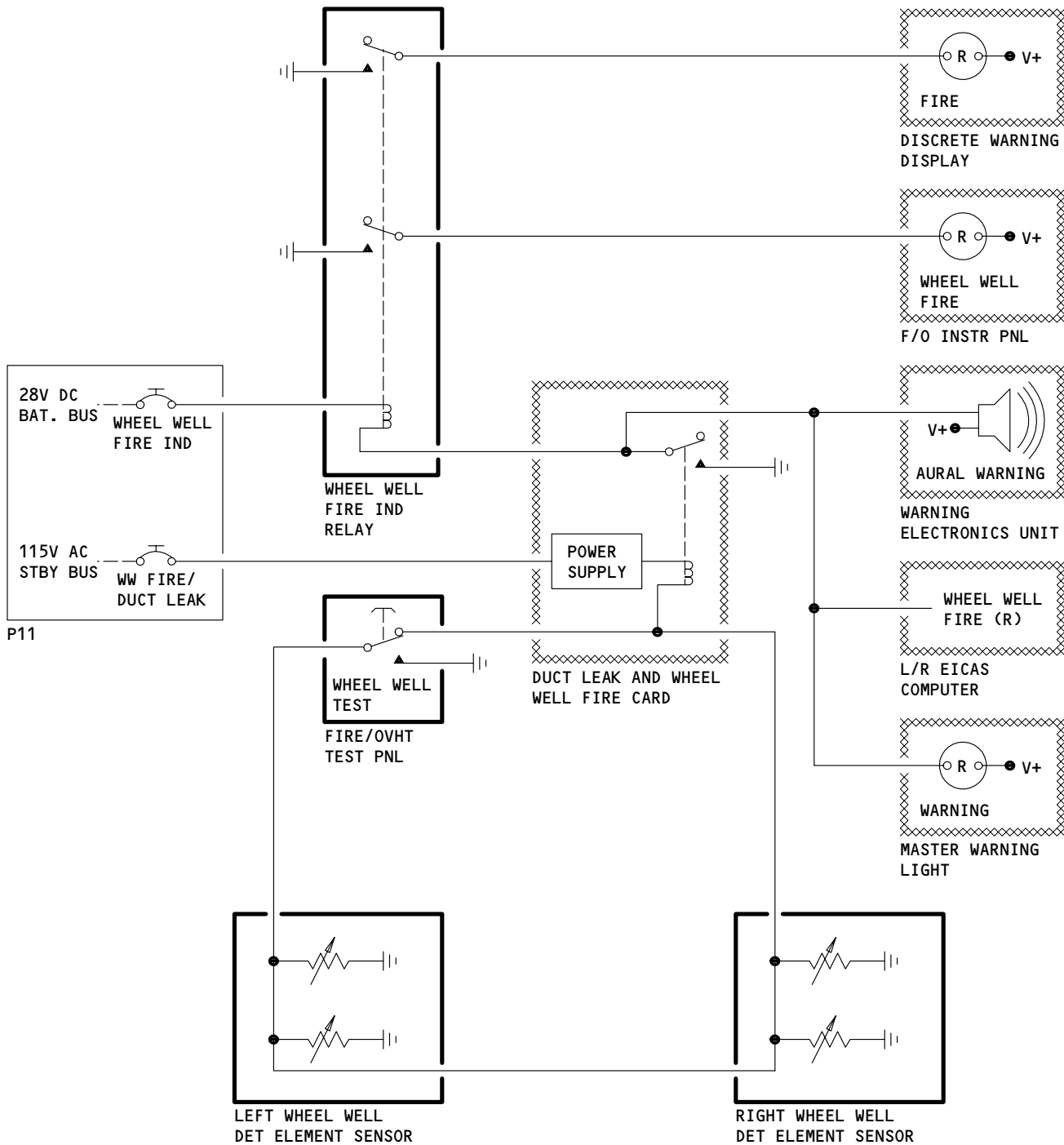
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Wheel Well Fire Detection Schematic  
Figure 2

EFFECTIVITY ————  
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B. Do the Test

- (1) Push the test switch, WHEEL WELL, on the overheat test panel, M10445, to disconnect an end of the detection loop. A ground will be applied to an end of the continuous detection loop. If there are no broken (open circuit) overheat detectors, an alarm signal is supplied by the detection circuit. This alarm signal is supplied by the detection circuit on the duct leak overheat and wheel well fire card. This alarm signal turns on the light, WHEEL WELL FIRE, on P3 and the FIRE discrete warning lights on P1-3. The alarm signal also starts a warning alert from the EICAS, and the WEU which turns on the master warning lights on P7 and supplies the fire bell sound.

C. Control

- (1) The system is on when it receives electrical power from the circuit breaker, WW FIRE/DUCT LEAK (P11).

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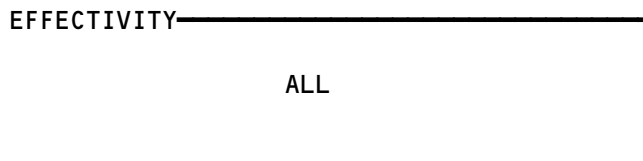
**BOEING**  
767  
FAULT ISOLATION/MAINT MANUAL

WHEEL WELL FIRE DETECTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER - WW FIRE/DUCT LEAK, C769	--	1	FLT COMPT, P11 11B10	*
WW FIRE IND, C799	--	1	11B33	*
DETECTOR - WHEEL WELL FIRE, TS202,TS203, TS204,TS205	1	4	733,734,735,743,744,745, MAIN WHEEL WELLS	26-17-01
LIGHT - WHEEL WELL FIRE, L680	2	1	FLT COMPT, P3	*
PANEL - FIRE/OVHT TEST, M10445	2	1	FLT COMPT, P8	*

\* SEE THE WDM EQUIPMENT LIST

Wheel Well Fire Detection - Component Index  
Figure 101

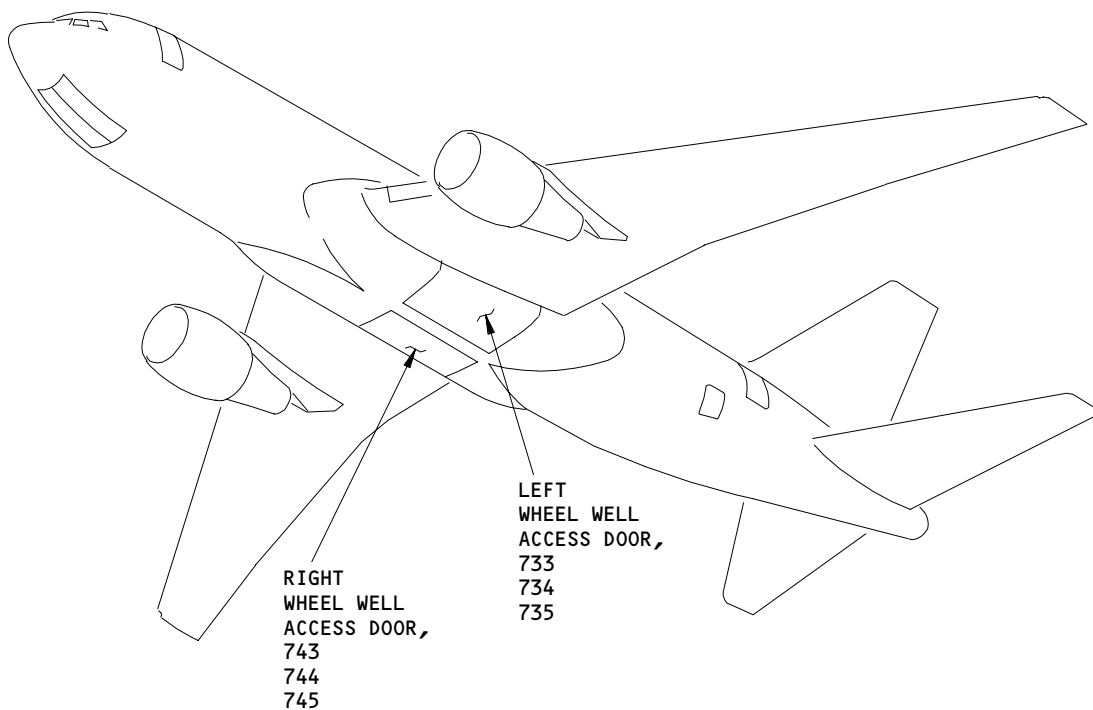


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Wheel Well Fire Detection - Component Location  
Figure 102 (Sheet 1)

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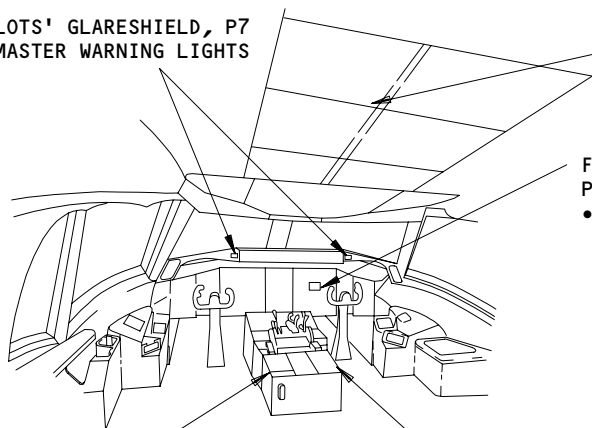
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PILOTS' GLARESHIELD, P7  
• MASTER WARNING LIGHTS

P11 PANEL

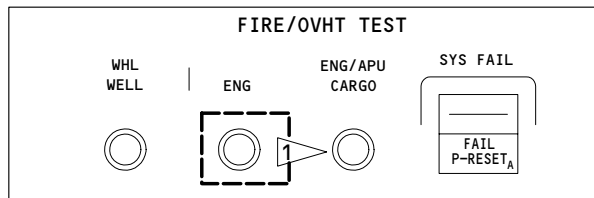
FIRST OFFICER'S INSTRUMENT  
PANEL, P3  
• WHEEL WELL FIRE LIGHT



FIRE/OVHT  
TEST PANEL,  
M10445  
SEE (A)

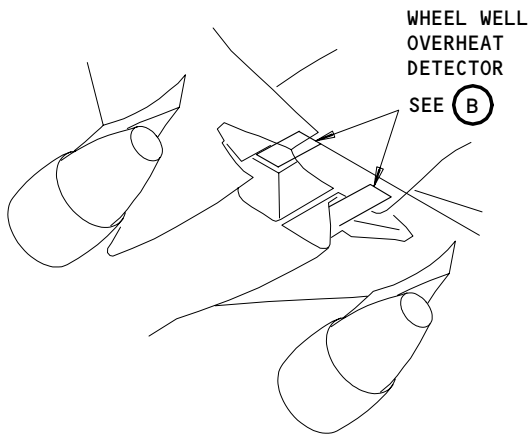
**FLIGHT COMPARTMENT**

P8 PANEL

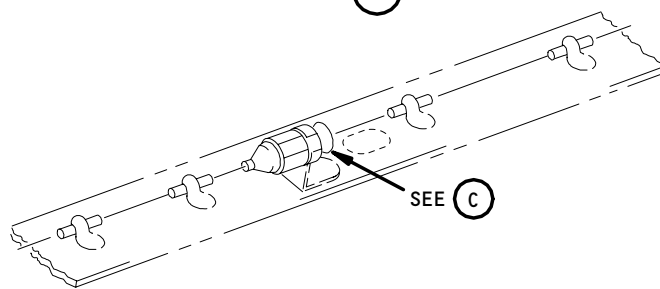


**FIRE/OVHT TEST PANEL, M10445**

(A)

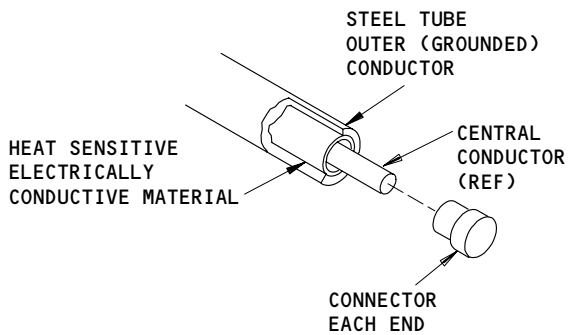


WHEEL WELL  
OVERHEAT  
DETECTOR  
SEE (B)



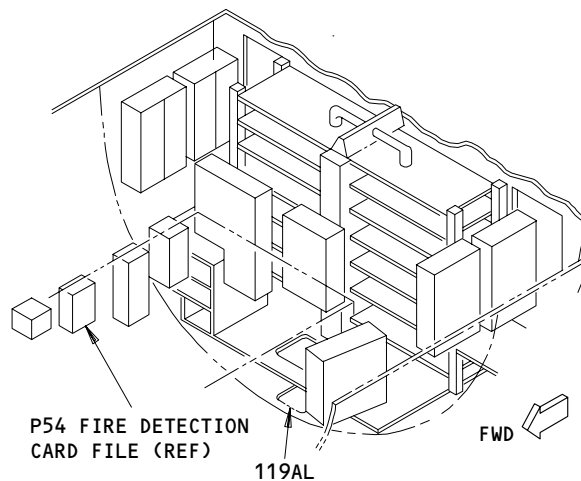
**WHEEL WELL FIRE OVERHEAT DETECTOR  
(EXAMPLE)**

(B)



**OVERHEAT DETECTOR DETAIL**

(C)



P54 FIRE DETECTION  
CARD FILE (REF)

119AL

FWD

**MAIN EQUIPMENT CENTER**

1 AIRPLANES WITH RB.211 ENGINES

**Wheel Well Detection - Component Location  
Figure 102 (Sheet 2)**

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WHEEL WELL FIRE DETECTION - ADJUSTMENT/TEST

TASK 26-17-00-715-010

1. Operational Test - Wheel Well Fire Detection

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/501, EICAS
- (3) AMM 31-51-00/501, Warning System
- (4) AMM 33-16-00/501, Master Dim and Test

B. Access

- (1) Location Zones  
211/212 Flight Compartment

C. Do a Test of the Wheel Well Fire Detection System

S 865-001

- (1) Supply electrical power (AMM 24-22-00/201).

S 865-002

- (2) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
  - (a) 11B10, WW FIRE/DUCT LEAK
  - (b) 11B33, WW FIRE IND

S 755-004

- (3) Make sure these systems operate:
  - (a) EICAS (AMM 31-41-00/501)
  - (b) Warning System (AMM 31-51-00/501)
  - (c) Master Dim and Test System (AMM 33-16-00/501)

S 755-005

- (4) Push and hold the WHL WELL test switch on the FIRE/OVHT TEST panel, M10445, on the P8 panel.
  - (a) Make sure these indications occur:
    - 1) The red WHEEL WELL FIRE light on the P3 panel comes on.
    - 2) The EICAS message, WHEEL WELL FIRE, shows on the top display.
    - 3) The red master WARNING lights on the P7 panel come on.
    - 4) The red FIRE light on the Discrete Warning Display module on the P1-3 panel comes on.
    - 5) The fire bell is heard.

S 755-006

- (5) Release the WHL WELL test switch.
  - (a) Make sure the indications stop.

S 865-009

- (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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WHEEL WELL FIRE DETECTOR – REMOVAL/INSTALLATION

1. General

- A. The wheel well fire detectors are installed in the left and right main wheel wells. The removal/installation procedure is the same for both units.

TASK 26-17-01-024-001

2. Remove the Wheel Well Fire Detector (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 32-00-15/201, Landing Gear Door Locks
- (3) AMM 32-00-20/201, Landing Gear Down Locks

B. Equipment

- (1) Main Gear Door Locks (AMM 32-00-15/201)
- (2) Caps to fit 35303-64 connectors.

C. Access

- (1) Location Zones
  - 211/212 Flight Compartment
  - 730/740 L/R Hand Main Landing Gear and Doors

D. Procedure

S 864-028

**WARNING:** USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCK. THE DOOR OPENS AND CLOSES QUICKLY AND CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT IF NOT INSTALLED CORRECTLY.

- (1) Open the door for the landing gear and install the door locks (AMM 32-00-15/201).

S 864-004

- (2) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B10, WW FIRE/DUCT LEAK
  - (b) 11B33, WW FIRE IND

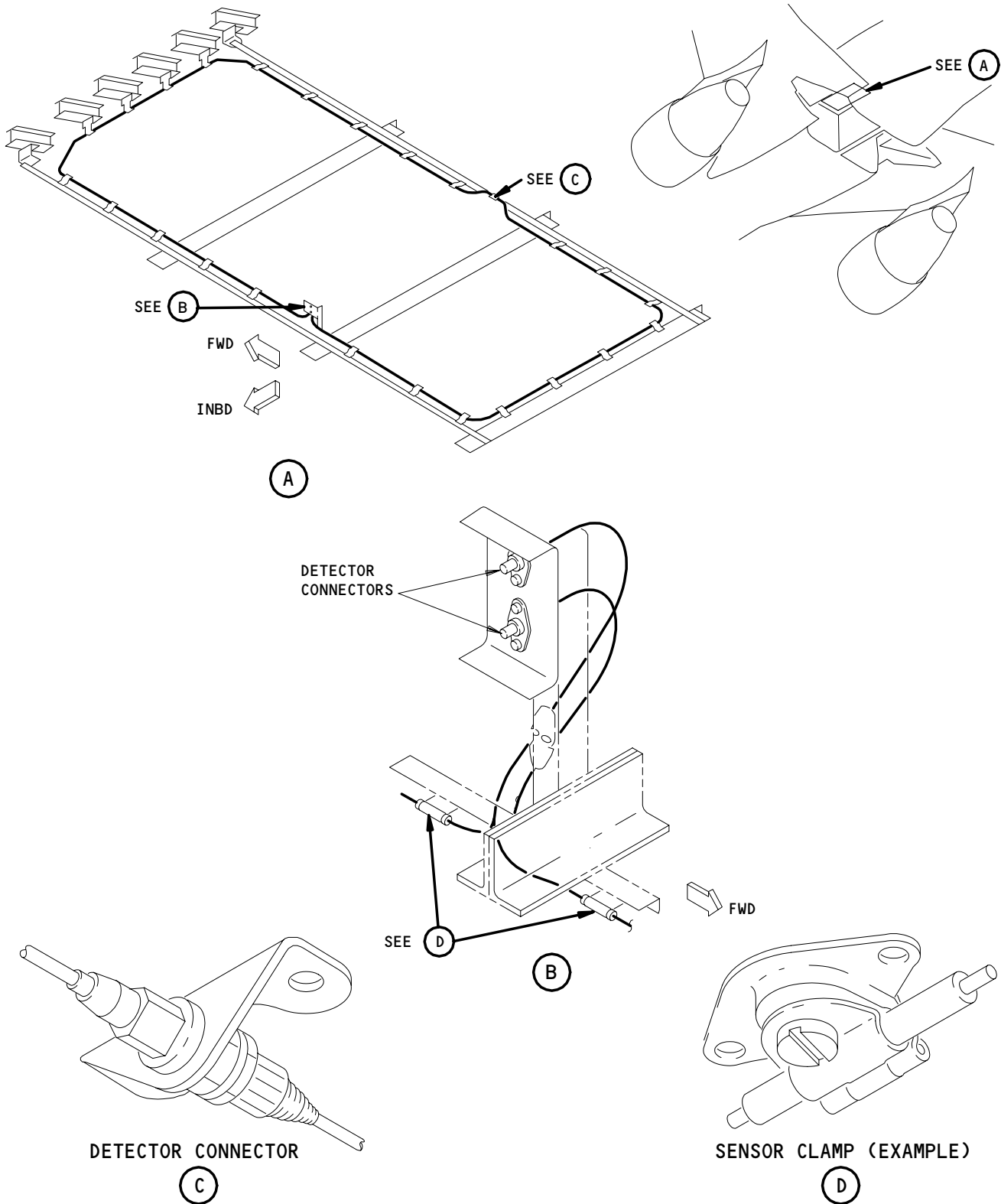
EFFECTIVITY

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Wheel Well Fire Detector Installation  
Figure 401

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S 014-023

**CAUTION:** TO DISCONNECT THE DETECTOR, MAKE SURE TO OPEN THE FIRST THREE CLAMPS FROM THE END OF THE DETECTOR BEFORE THE HEX NUT IS REMOVED AND THE DETECTOR IS DISCONNECTED. THIS IS NECESSARY TO PERMIT FREE MOVEMENT OF THE DETECTOR.

(3) Open the first three clamps near the end of the detector.

S 034-006

(4) Remove the lockwires and disconnect the connectors at both ends of the detector.

S 434-007

(5) Install the protective caps on the electrical connectors.

S 034-008

(6) Open the remaining clamps and remove the detector.

TASK 26-17-01-024-009

3. Install the Wheel Well Fire Detector (Fig. 401)

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 32-00-15/201, Landing Gear Door Locks
- (3) AMM 32-00-20/201, Landing Gear Down Locks

B. Equipment

- (1) Bonding Meter, Avtron T477W
- (2) Torque Wrench - Commercially available. Torque ranges: 50 to 60 pound-inches.
- (3) Caps to fit 35303-64 connectors.

C. Access

- (1) Location Zones
  - 211/212 Flight Compartment
  - 730/740 L/R Hand Main Landing Gear and Doors

D. Procedure

S 034-027

**CAUTION:** PUT THE ELEMENT IN POSITION. MAKE SURE IT IS FREE OF ANY ADJACENT PARTS OR STRUCTURE AT A MINIMUM OF 0.5 INCHES (1.27 CM). THE MINIMUM RADIUS FOR THE DETECTOR BEND IS ONE INCH (2.54 CM). DO NOT BEND THE DETECTOR TO LESS THAN ONE INCH (2.54 CM) OF THE CLAMPS OR FLANGE ASSEMBLIES. BE CAREFUL TO PREVENT EXCESSIVE BENDS TO THE DETECTOR. DAMAGE TO THE DETECTOR CAN OCCUR.

(1) Remove the protective caps and connect both ends of the new detector to the airplane detectors. Tighten the connectors to between 50 to 60 pound-inches.

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- S 434-010
- (2) Install the new grommets over the detector and place into the clamps which are near the connector.
- S 434-012
- (3) Make sure the grommets are centered in the clamps, and secure the clamps.
- S 424-013
- (4) Do steps 2 and 3 again for the remaining clamps. Work toward the center of the detector.
- S 864-014
- (5) Make sure the resistance between the connector shell of the detector and primary structure of the aircraft is less than 0.004 ohm. If the resistance is greater than 0.004 ohm, clean the bonded surfaces.
- S 434-015
- (6) Put lockwire on the connectors.
- S 864-016
- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel.
- (a) 11B10, WW FIRE/DUCT LEAK
- (b) 11B33, WW FIRE IND
- E. Do a Test of the Wheel Well Fire Detector Installation.
- S 864-017
- (1) Supply electrical power (AMM 24-22-00/201).
- S 864-018
- (2) Push and hold the WHL WELL switch on the fire/ovht test panel, M10445 (P8).
- S 754-019
- (3) Make sure the yellow WHEEL WELL FIRE light on the P3-1 panel is on.
- S 754-020
- (4) Release the WHL WELL switch and make sure the WHEEL WELL FIRE light goes off.
- S 034-026
- WARNING:** USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCK. THE DOOR OPENS AND CLOSES QUICKLY AND CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT IF NOT INSTALLED CORRECTLY.
- (5) Remove the landing gear door locks and close the landing gear door (AMM 32-00-15/201).

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- S 864-020  
(6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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WING AND BODY DUCT LEAK DETECTION – DESCRIPTION AND OPERATION

1. General

- A. The wing and body duct leak detection system monitors the temperature along the left and right wing bleed air duct zones and the APU duct zone. When an overheat condition is detected in any of these zones, a caution alert is provided in the flight compartment.
- B. Duct leak detection is provided by three independent series detection loops. The left loop extends from the left wing thermal anti-ice valve, through the strut, and along the body cross-over duct to the keel. The right loop covers the same zone on the right side of the airplane and also monitors the forward cargo heat duct. The body (APU) loop zone extends from the APU along the APU duct to the body cross-over duct. The body zone also includes a duct to the air driven pump and a duct for the aft cargo supplemental heating system.
- C. AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
The thermal switch circuit in the struts are independent of the duct leak detection loops.
- D. The system consists of overheat detectors, the duct leak and wheel well fire detection card (P54), three DUCT LEAK lights on the bleed air supply panel (P5) and a DUCT LEAK test switch on the miscellaneous test panel (P61).
- E. AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
In addition to the duct leak detection equipment, there is an additional strut leak test switch on the P61 panel. The independent strut leak circuit uses the same DUCT LEAK L and DUCT LEAK R indicator lights on the P5 panel.
  - (1) The duct leak and strut leak test switches are connected to ground through the AIR/GROUND relay to prevent in-flight test.
- F. The wing and body duct leak overheat detection system uses 115 vac standby bus power. The same circuit breaker also supplies power to the wheel well fire detection system (AMM 26-17-00).

2. Component Details (Fig. 1)

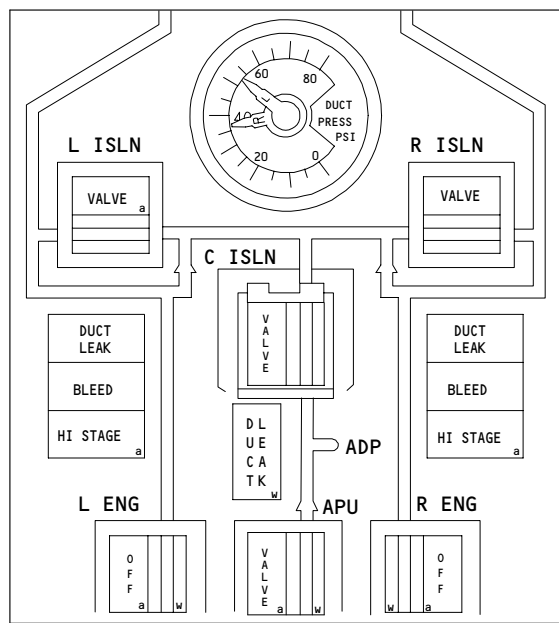
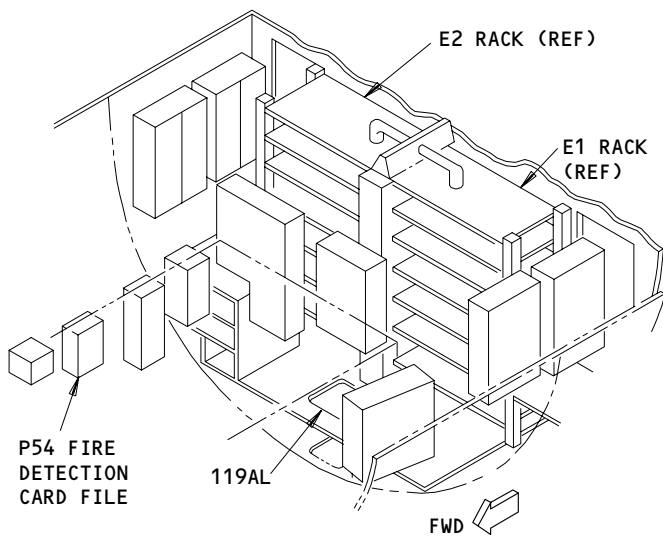
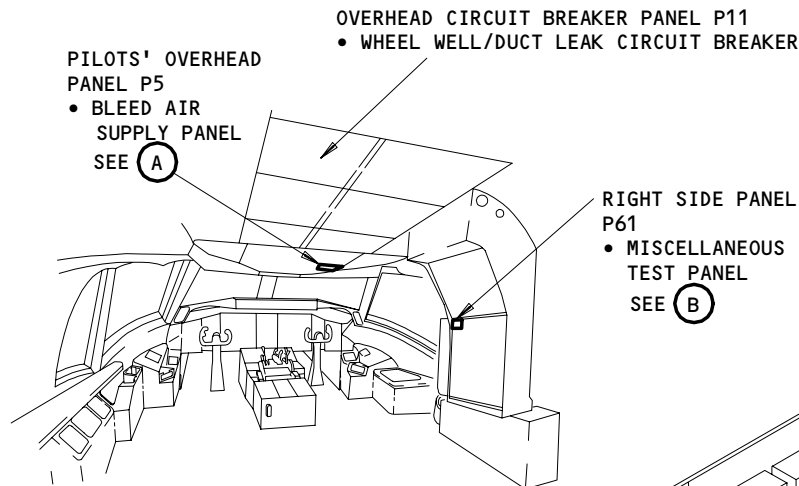
A. Duct Leak Detectors

- (1) Continuous loop thermistor type duct leak detectors are used in all areas except in the engine strut. Thermal switch duct leak detectors are used in the engine strut.
- (2) The continuous loop duct leak detectors contain a thermistor material. The resistance of this material decreases as the temperature of the material increases. At a preselected temperature (resistance value), the detector provides an alarm signal (ground) to the detector card in the P54 card file. When the temperature of material cools sufficiently, the alarm signal is automatically cancelled.

EFFECTIVITY

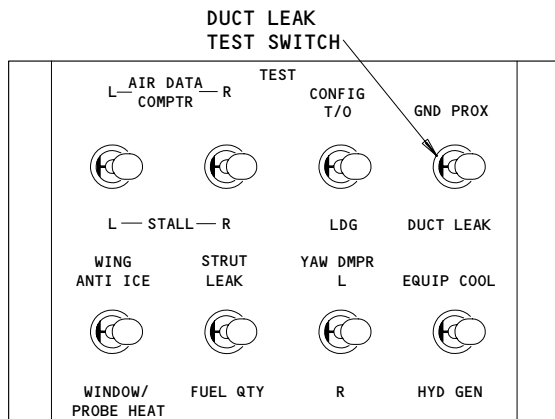
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26-18-00



BLEED AIR SUPPLY PANEL

(A)



MISCELLANEOUS TEST PANEL

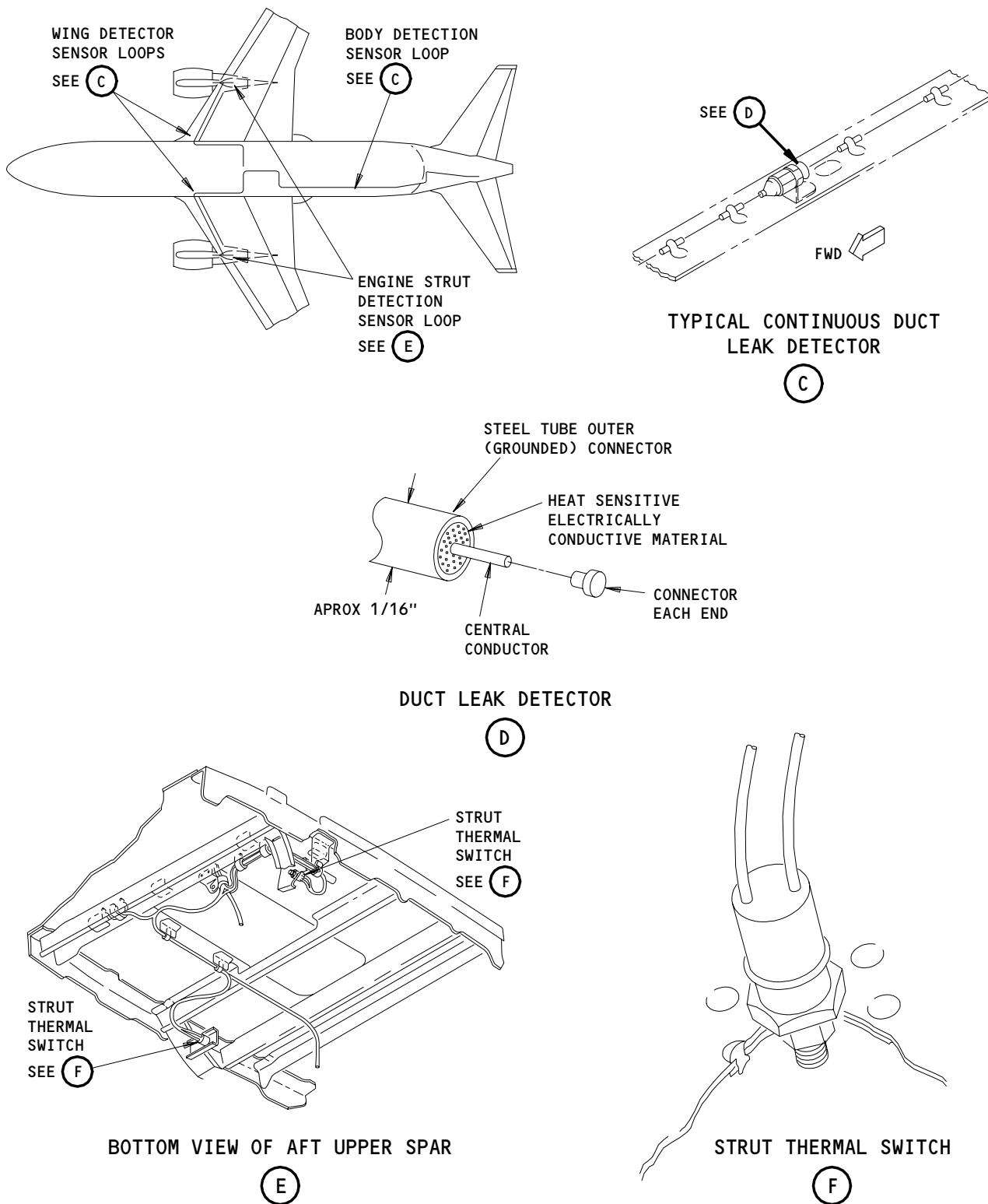
(B)

Duct Leak Detection Component Location  
Figure 1 (Sheet 1)

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Duct Leak Detection Component Location  
Figure 1 (Sheet 2)

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- (3) Thermal switch duct leak detectors consist of a snap-acting bimetal disk sensing element which provides make and break switch action through a spring contact arm. The disk is located at the base of a drawn steel cap and is hermetically sealed. The thermal switch is calibrated at a preset temperature and designed to close on that preset temperature, providing an alarm signal (ground) to the detector card in the P54 card file. It is an on-off device and breakers contact upon a temperature decrease below the set temperature. When the temperature of the material cools sufficiently, the alarm signal is automatically cancelled. In addition the unit is resistant to shock and vibrations.
- (4) AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
The strut thermal switches do not provide a ground to the P54 fire detection card. The strut thermal switches provide a direct ground for the associated duct leak indication light on the P5 panel.

B. Duct Leak and Wheel Well Fire Control Card

- (1) This printed circuit card is in the P54 fire detection card file. The card file is in the forward equipment center along the right side of the nose gear wheel well. The card contains four independent detection circuits. Three circuits are used for the three duct leak detection loops. The remaining circuit is used for wheel well fire detection (AMM 26-17-00).
- (2) Each duct leak detection circuit on the card monitors the resistance of the detection loop and provides an alert signal when the temperature in the monitored zone becomes greater than 255°F or 315°F depending on zone.

C. Air Supply Panel

- (1) The M15 air supply panel is on the overhead panel P5. The panel contains the L WING DUCT LEAK, R WING DUCT LEAK, and BODY DUCT LEAK lights. The lights provide an amber annunciation when on. The panel also contains the controls for the pneumatic system.

D. Miscellaneous Test Panel

- (1) The M10398 miscellaneous test panel is located on the right side of panel P61. This panel contains a large number of test switches for various systems. The DUCT LEAK system test switch is on this panel.
- (2) AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
The strut leak test switch is also found on this panel.

3. Operation

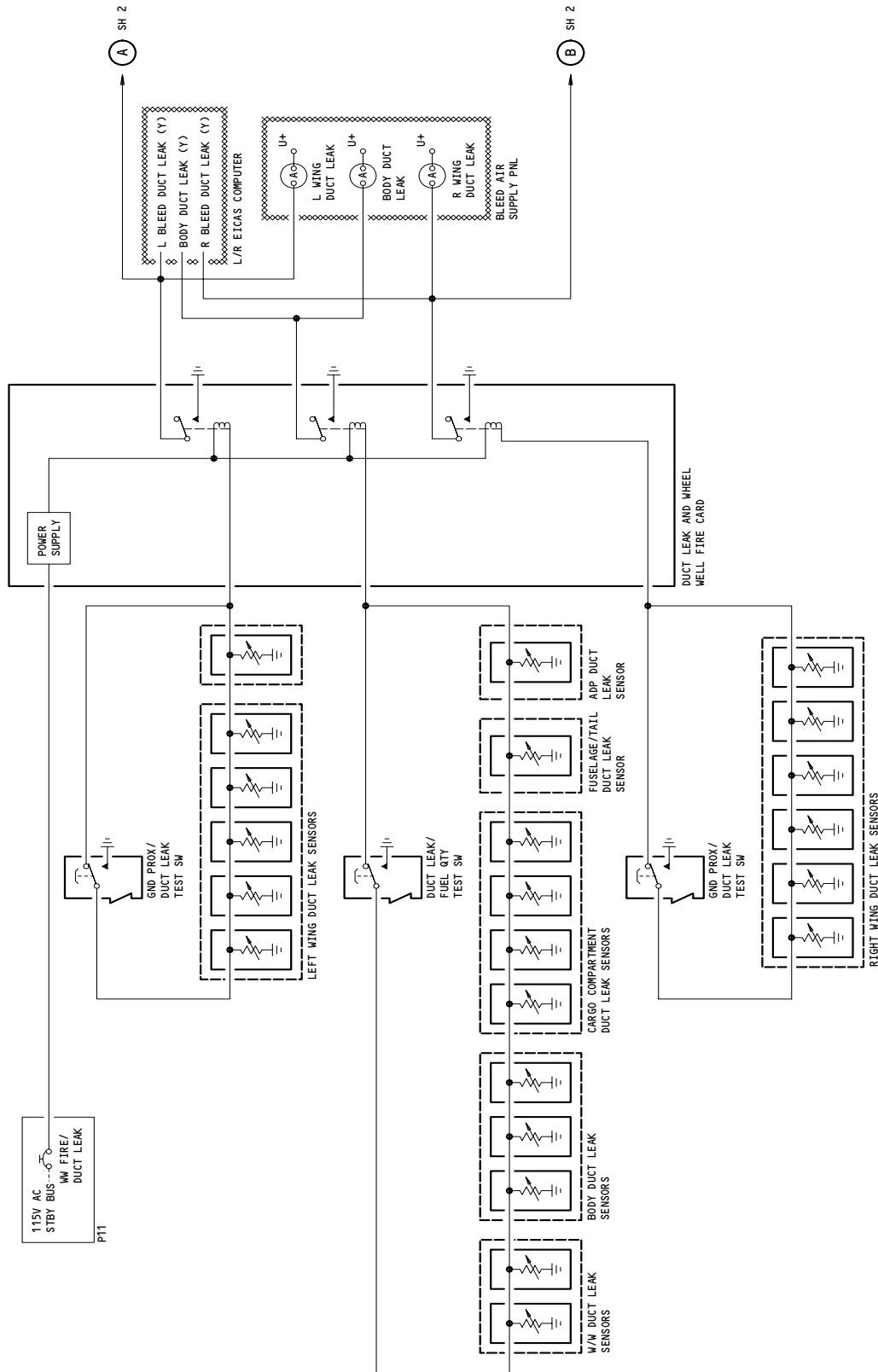
A. Functional Description (Fig. 2)

- (1) The system receives 115-volt ac power from circuit breaker WW FIRE/DUCT LEAK OVHT on overhead circuit breaker panel P11.
- (2) The system contains three independent duct leak detection circuits, left, right, and body. The duct leak detectors installed in the wings of the left and right loops provide an alarm signal at a temperature of approximately 255 degrees F and reset when the temperature cools to approximately 225 degrees F. The body detectors along the APU duct provide an alarm signal at a temperature of approximately 255 degrees F and reset when the temperature cools to approximately 225 degrees F. The duct leak detectors in each detection loop are connected in series.

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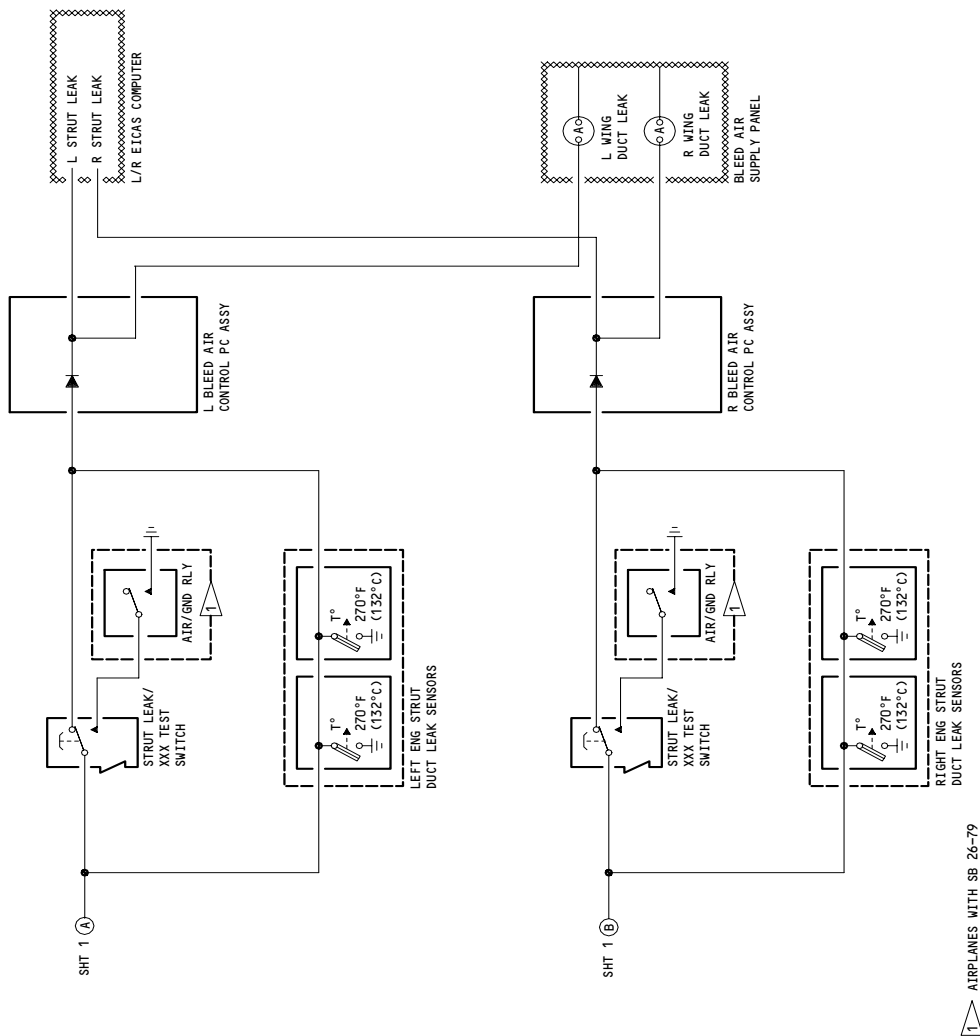
Duct Leak Detection Schematic  
Figure 2 (Sheet 1)

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Duct Leak Detection Schematic  
Figure 2 (Sheet 2)

▲ AIRPLANES WITH SB 26-79

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- (3) The thermal switch duct leak detectors installed in the left and right engine struts provide an alarm signal at a temperature of approximately 300 degrees F and reset when the temperature cools to approximately 270 degrees F.
- (4) When a segment of a duct leak detector reaches the overheat temperature, an alarm signal (low resistance to ground) is provided to the detection circuit on the duct leak overheat and wheel well fire card. The detection circuit receives the signal and produces an alarm signal to turn on the DUCT LEAK light on the bleed air supply panel. This signal is also routed to the left and right EICAS computers (AMM 31-41-00) which provide caution alerts in the flight compartment. The duct leak alarm signal is canceled when the duct leak detector cools to its reset temperature.
- (5) AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
The independent strut leak circuit provides a direct ground for the associated bleed duct light on the P5 panel. It also provides closure of the PRV and HPSOV valves in addition to generating an EICAS caution message L STRUT DCT LEAK OR R STRUT DCT LEAK.
- (6) Both ends of a duct leak detection loop are connected to a detection circuit on the overheat card. If a duct leak detector breaks (open circuit), all detectors will remain connected to the duct leak detection circuit. The duct leak detection circuits for the right wing and body operate the same as the left wing duct leak detection circuit.

B. TEST

- (1) Pressing the DUCT LEAK test switch on the misc test panel (P61) disconnects and applies a ground to one end of each of the three continuous detection loops. If there are no broken (open circuit) duct leak detectors in a loop, alarm signals are provided by each detection circuit on the duct leak overheat and wheel well fire card. Each detection circuit provides an alarm signal to turn on the associated DUCT LEAK light. The alarm signals are also provided to the EICAS to initiate a caution alert.
- (2) AIRPLANES WITH GE CF6-80C2 ENGINES OR PW 4000 ENGINES;  
There is a strut leak test switch on the P61 panel in addition to the duct leak test switch. Pushing the strut leak test switch applies a ground in the thermal switch circuit. The circuit provides alarm signals at the associated duct leak light on the P5 panel, closure of the PRV and HPSOV valves, and a strut leak message on EICAS which initiates a caution alert.

C. Control

- (1) The system is active whenever it receives electrical power from circuit breaker WW FIRE/DUCT LEAK OVHT (P11).

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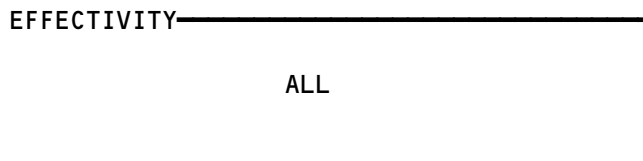

**BOEING**  
 767  
 FAULT ISOLATION/MAINT MANUAL

DUCT LEAK DETECTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CARD - (REF 26-10-00, FIG. 101) DUCT LEAK AND WHEEL WELL FIRE CONTROL, M691 CIRCUIT BREAKER WW FIRE DUCT LEAK, C769 COMPUTER - (REF 31-41-00, FIG. 101) L EICAS, M10181 R EICAS, M10182 PANEL - (REF 36-10-00, FIG. 101) BLEED AIR SUPPLY, M15 PANEL - (REF 28-43-00, FIG. 101) MISC TEST, M10398	1	1	FLT COMPT, P11 11B10	*
SENSOR - DUCT LEAK DETECTOR, TS208,TS209, TS210,TS211,TS212	2	5	733,734,735, L WING/BODY LOOP	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS207,TS236, TS237	2	3	L WING ENGINE STRUT	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS215,TS216, TS217,TS218,TS219	2	5	743,744,745, R WING/BODY LOOP	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS214,TS238, TS239	2	3	R WING ENGINE STRUT	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS220,TS221, TS229	2	3	732, L WHEEL WELL	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS222,TS223, TS224,TS225,TS226,TS240	2	5	811, AFT CARGO COMPT	26-18-01
SENSOR - DUCT LEAK DETECTOR, TS227,TS228	2	2	195SL, ADP COMPT	26-18-01

\* SEE WM EQUIPMENT LIST

Component Index  
Figure 101

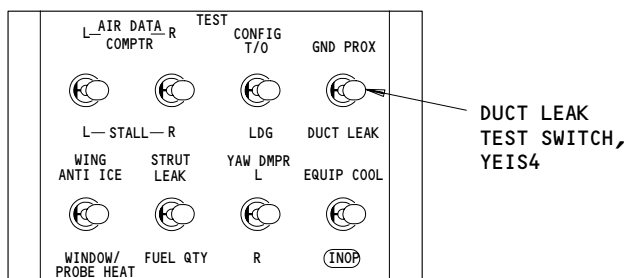
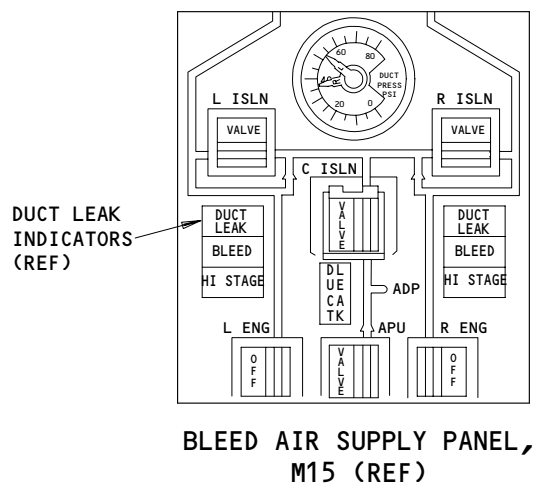
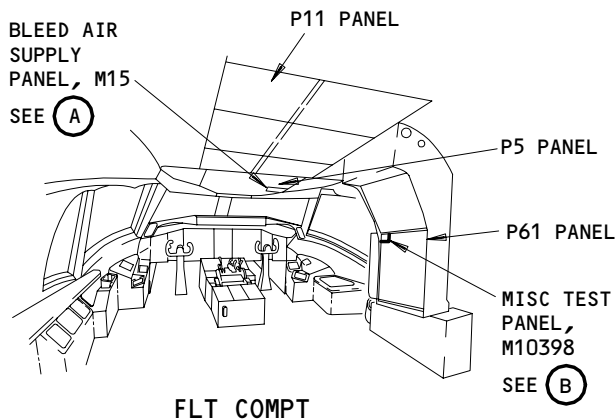
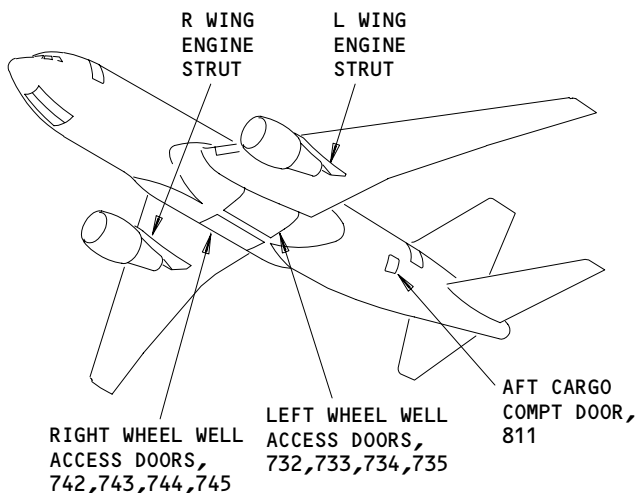


**26-18-00**

# BOEING

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### FAULT ISOLATION/MAINT MANUAL



MISC TEST PANEL, M10398 (REF)

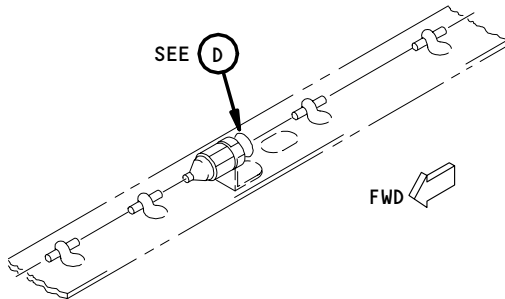
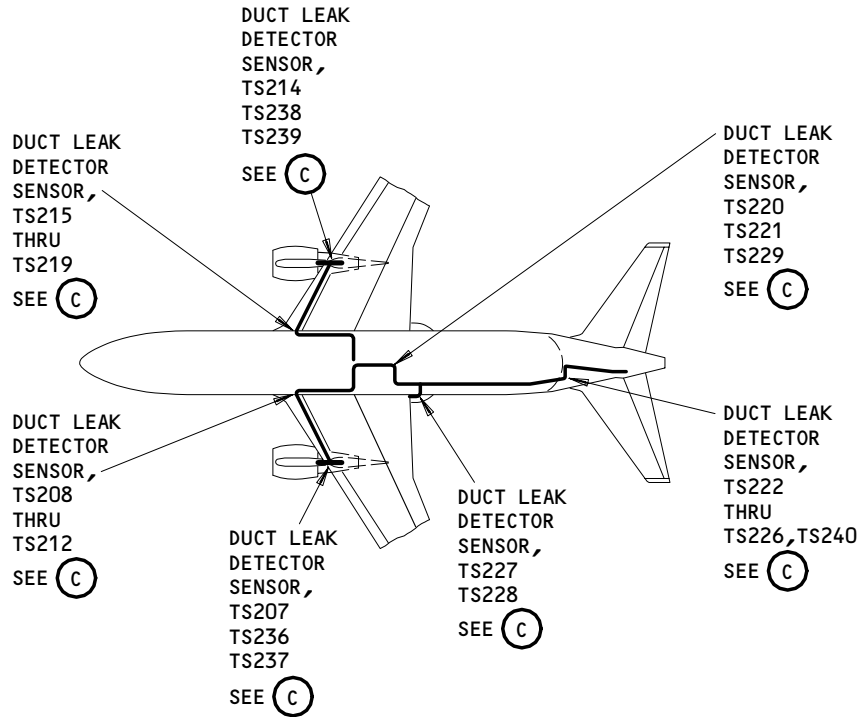
Component Location  
Figure 102 (Sheet 1)

EFFECTIVITY

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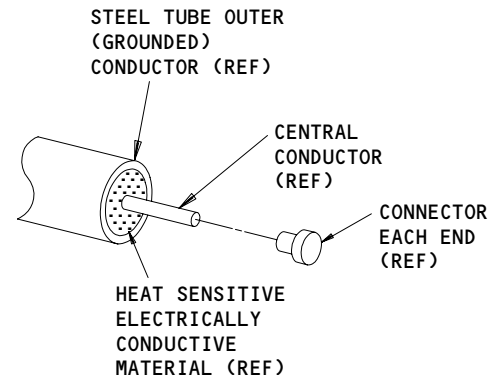
26-18-00

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FAULT ISOLATION/MAINT MANUAL



TYPICAL DUCT LEAK DETECTOR SENSOR  
(TS207 THRU TS212, TS214 THRU  
TS229, TS236 THRU TS240)

(C)



DUCT LEAK DETECTOR  
SENSOR DETAIL

(D)

Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY	ALL
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WING AND BODY DUCT LEAK DETECTION ADJUSTMENT/TEST

TASK 26-18-00-715-001

1. Operational Test - Wing and Body Duct Leak Detection

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/201, EICAS
- (3) AMM 32-09-02/201, Air/Ground Relays

B. Access

- (1) Location Zones  
211/212 Flight Compartment

C. Do a Test of the Wing and Body Duct Leak Detection System.

S 865-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 755-077

- (2) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
  - (a) 11B10, WW FIRE/DUCT LEAK
  - (b) 11S10, L ENG BLEED IND
  - (c) 11S11, L BLEED CONT
  - (d) 11S19, R ENG BLEED IND
  - (e) 11S20, R BLEED CONT

S 755-006

- (3) Make sure the EICAS system operates (AMM 31-41-00/201).

S 755-007

- (4) Put and hold the DUCT LEAK test switch on the miscellaneous test panel, M10398 (on P61), in the DUCT LEAK position, and make sure these indications occur:
  - (a) The yellow DUCT LEAK lights on the bleed air supply panel, M15 (on P5), come on (3 places).
  - (b) The EICAS messages L and R BLD DUCT LEAK and BDY DUCT LEAK show on the top display.

S 755-008

- (5) Release the switch and make sure the indications stop.

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S 865-153

- (6) Do the steps that follow:
- (a) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:
    - 1) 11C30, LDG GR POS AIR/GRND SYS 1
    - 2) 11U15, LDG GR AIR/GRND SYS 1
  - (b) Push the STRUT LEAK test switch on the M10398 test panel and make sure these indications occur:
    - 1) The yellow left and right DUCT LEAK lights on the P5 panel come on.
    - 2) The EICAS messages L STRUT DUCT LEAK and R STRUT DUCT LEAK show on the top display.
  - (c) Release the STRUT LEAK test switch.
  - (d) Move the L and R bleed control switches to the off position then to the on position.
  - (e) Make sure the EICAS messages L and R STRUT DUCT LEAK do not show on the top display.
  - (f) Make sure the yellow L and R Duct Leak lights go off.

S 865-058

- (7) AIRPLANES PRE-SB 26-79;  
Remove electrical power if it is not necessary (AMM 24-22-00/201).

S 865-120

- (8) AIRPLANES POST-SB 26-79;  
Do the steps that follow:

**WARNING:** PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR THE AIR MODE BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. IN THE AIR MODE, MANY OF THE AIRPLANE SYSTEMS CAN OPERATE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO THE EQUIPMENT.

- (a) Prepare the safety-sensitive systems for air mode simulations (AMM 32-09-02/201).
- (b) Make sure these circuit breakers on the P11 panel are closed:
  - 1) 11B10, WW FIRE/DUCT LEAK 1
- (c) Open these circuit breakers and attach DO-NOT-CLOSE tags to put the air/ground system 1 in the "AIR" mode:
  - 1) 11C30, LDG GR POS AIR/GRND SYS 1
  - 2) 11U15, LDG GR AIR/GRND SYS 1
- (d) Push and hold the STRUT LEAK test switch on the M10398 test panel.

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- (e) After five seconds, make sure the R and L Duct Leak lights do not come on.
- (f) Make sure the L STRUT and R STRUT messages do not appear on the EICAS display.
- (g) Release the STRUT LEAK test switch on the M10398 test panel.
  - 1) Move the L and R bleed control switches (on P15) to the OFF position then to the ON position.
- (h) Remove the DO-NOT-CLOSE tags and close these circuit breakers to put the air/ground system 1 in the "GROUND" mode.
  - 1) 11C30, LDG GR POS AIR/GRND SYS 1
  - 2) 11U15, LDG GR AIR/GRND SYS 1
- (i) Put the safety-sensitive systems back to their initial conditions (AMM 32-09-02/201).
- (j) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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DUCT LEAK DETECTOR – REMOVAL/INSTALLATION

1. General (Fig. 401)

- A. The duct leak detectors are installed adjacent to the pneumatic air ducts in the engine struts, wings, and fuselage.
- B. The fuselage installations are in sections 45, 46, 48, and 49.
- C. The removal/installation procedure is the same for all units. It is not applicable to get access to different units.

TASK 26-18-01-024-001

2. Remove the Duct Leak Detector

A. General

- (1) The thermal switches are installed on the inboard and outboard side of the strut, forward of the wing leading edge.
- (2) The wing/strut detectors are installed in the strut and on the front wing spar.
- (3) The wing detectors are installed on the front spar, above the pneumatic duct.
- (4) The detector in section 45 is installed on the left wall which divides the landing gear bays.
- (5) The detectors in section 46 are installed behind the wall panels in the aft cargo compartment. The detectors are installed close to the pneumatic duct, which is installed under the ceiling in the cargo compartment.
- (6) The detectors in section 48 are installed adjacent to the pneumatic duct, which is installed near the center of section 48.
- (7) The detectors in section 49 are installed adjacent to the pneumatic duct, which is installed near the bottom of the airplane.

B. Equipment

- (1) Main Gear Door Locks (AMM 32-00-15/201)
- (2) Caps to fit 35303-64 connectors
- (3) Torque wrench – commercially available  
(For torque range: 0 to 70 pound-inches)

C. References

- (1) AMM 06-41-00/201, Fuselage Access Doors and Panels
- (2) AMM 06-42-00/201, Empennage Access Doors and Panels
- (3) AMM 06-44-00/201, Wing Access Doors and Panels
- (4) AMM 06-43-00/201, Engine Nacelle Access Doors and Panels
- (5) AMM 24-22-00/201, Electrical Power – Control
- (6) AMM 25-52-01/401, Containerized Cargo Compartment Sidewall Lining
- (7) AMM 32-00-15/201, Landing Gear Door Locks
- (8) AMM 32-00-20/201, Landing Gear Downlocks

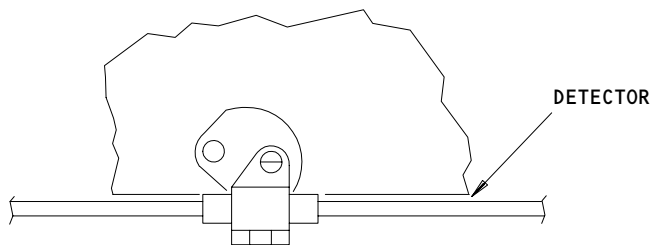
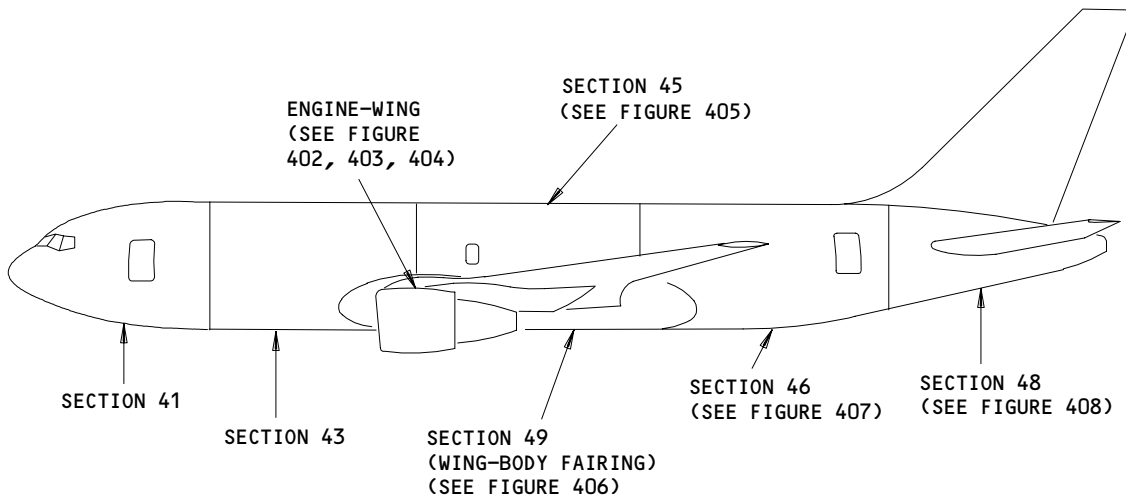
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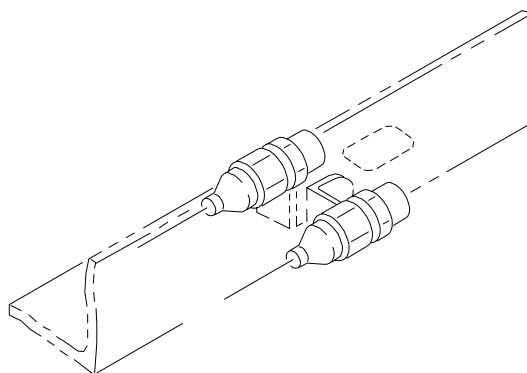
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LOOP DUCT LEAK DETECTOR MOUNTING CLAMP  
(EXAMPLE)



LOOP DUCT LEAK DETECTOR END INSTALLATION  
(EXAMPLE)

Duct Leak Detector Installation  
Figure 401

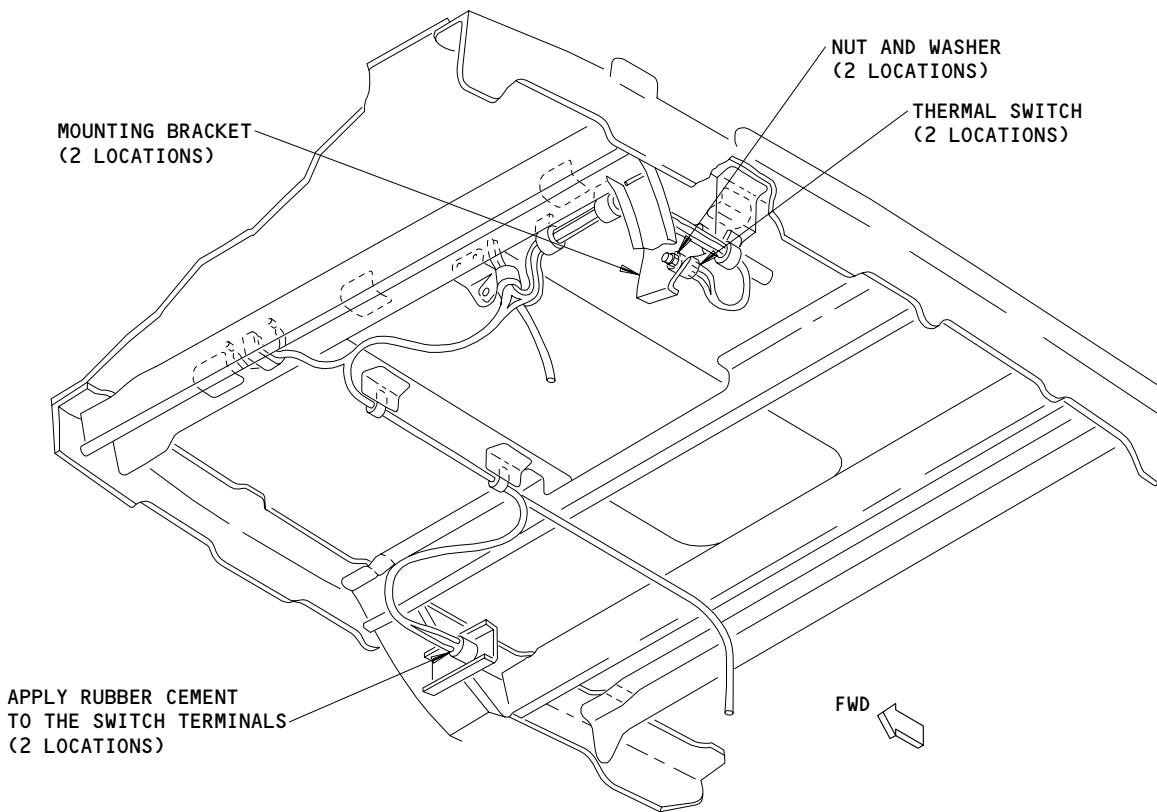
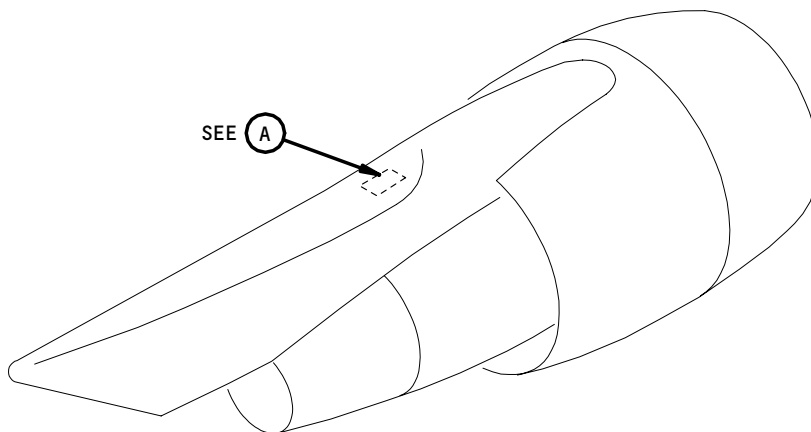
EFFECTIVITY	ALL
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BOTTOM OF AFT UPPER SPAR

(A)

Engine Strut Duct Leak Detector Installation  
Figure 402

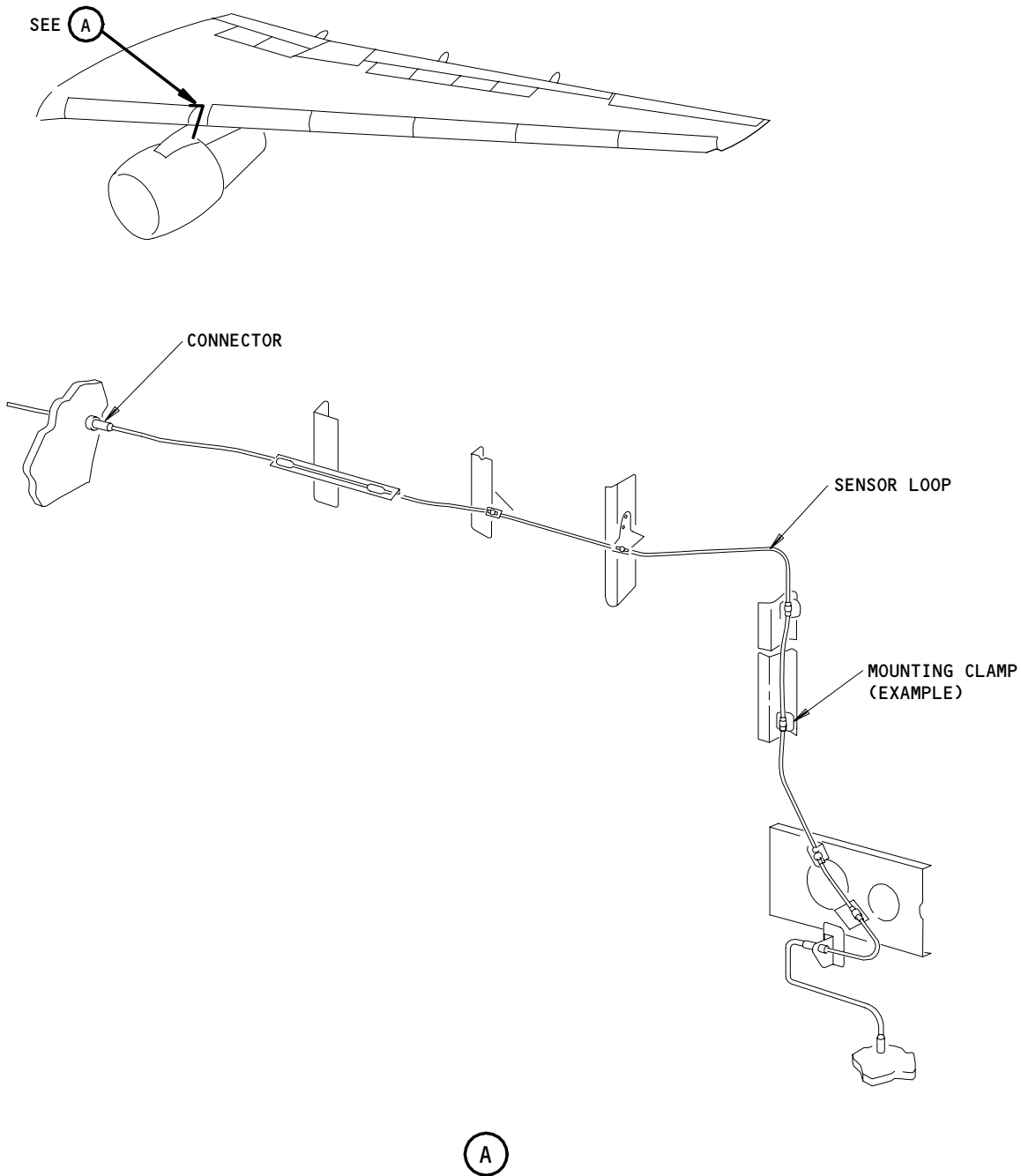
EFFECTIVITY	
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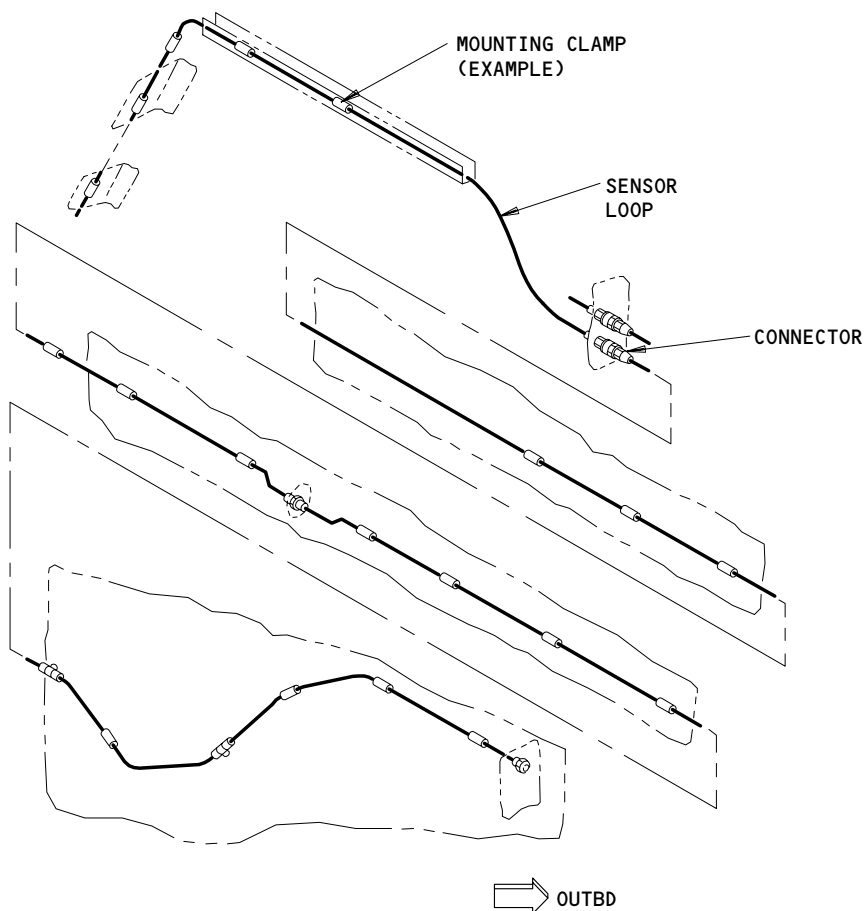
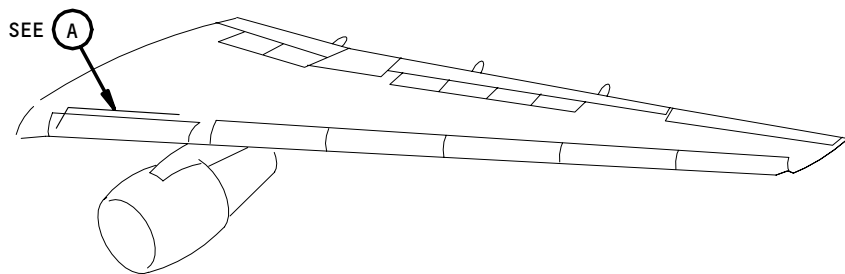
Wing/Strut Interface Duct Leak Detector Installation  
Figure 403

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(A)

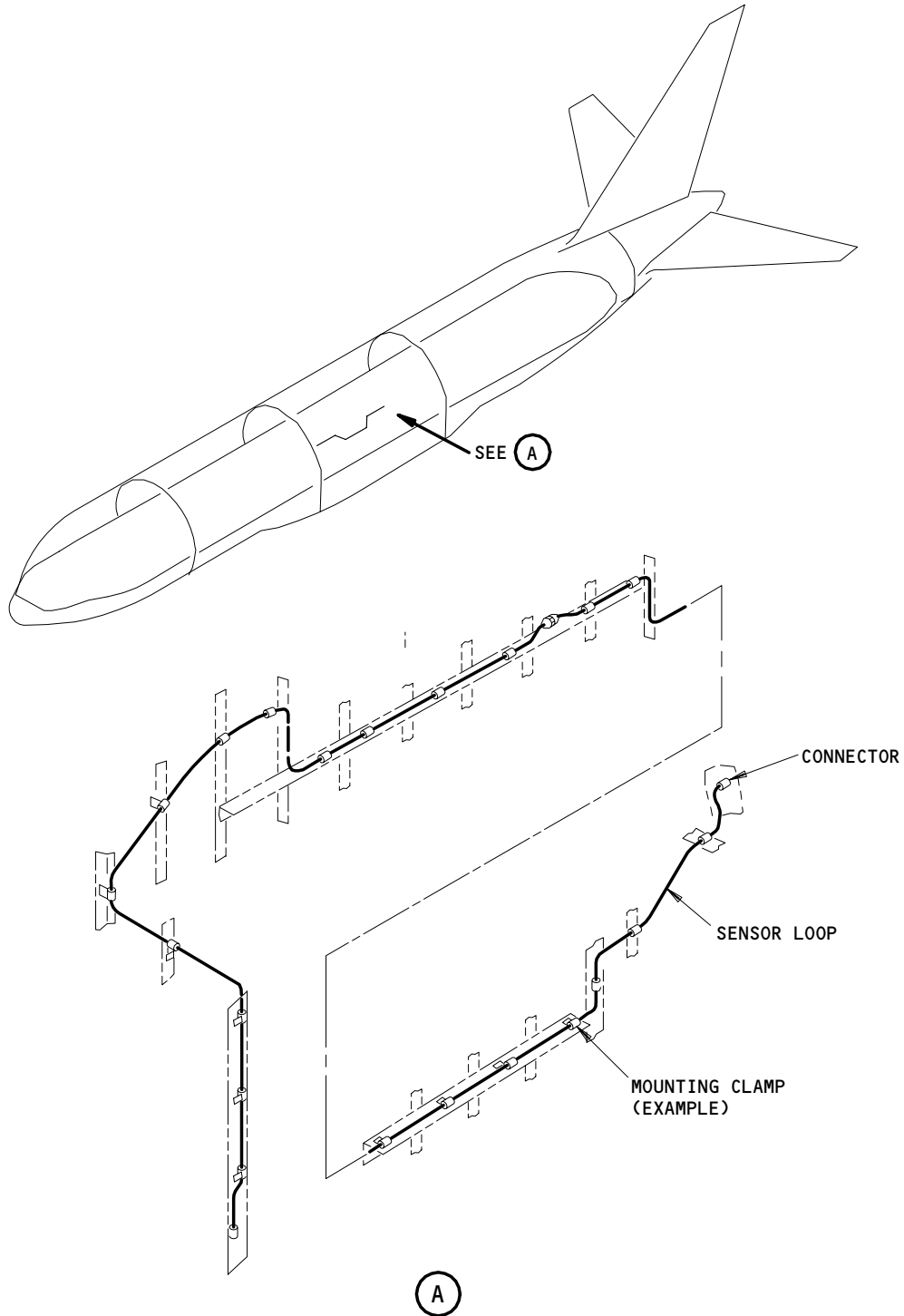
Wing Duct Leak Detector Installation  
Figure 404

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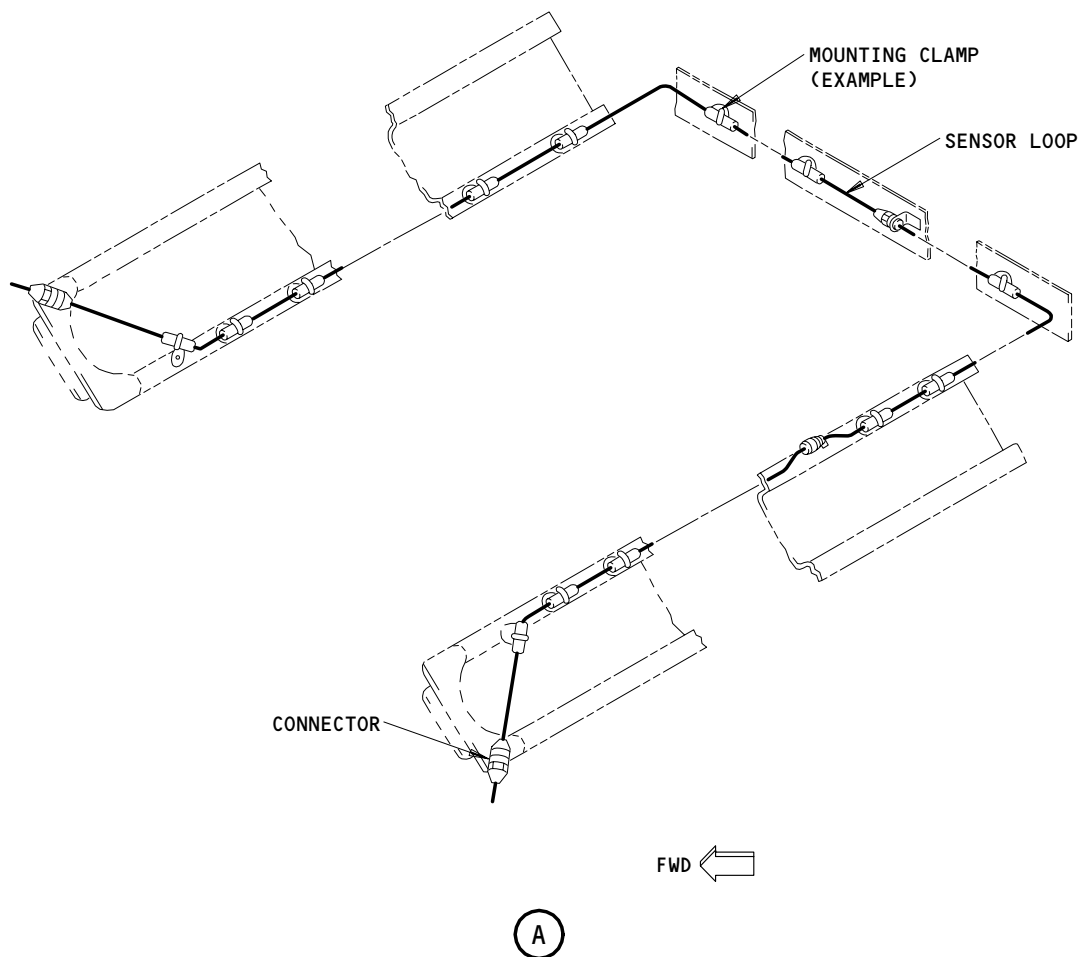
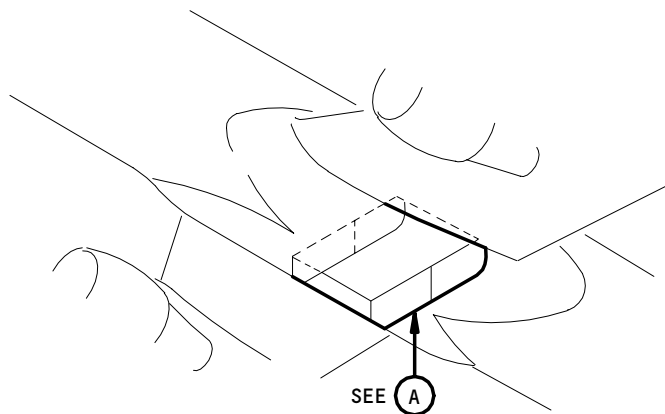
Section 45 Duct Leak Detector Installation  
Figure 405

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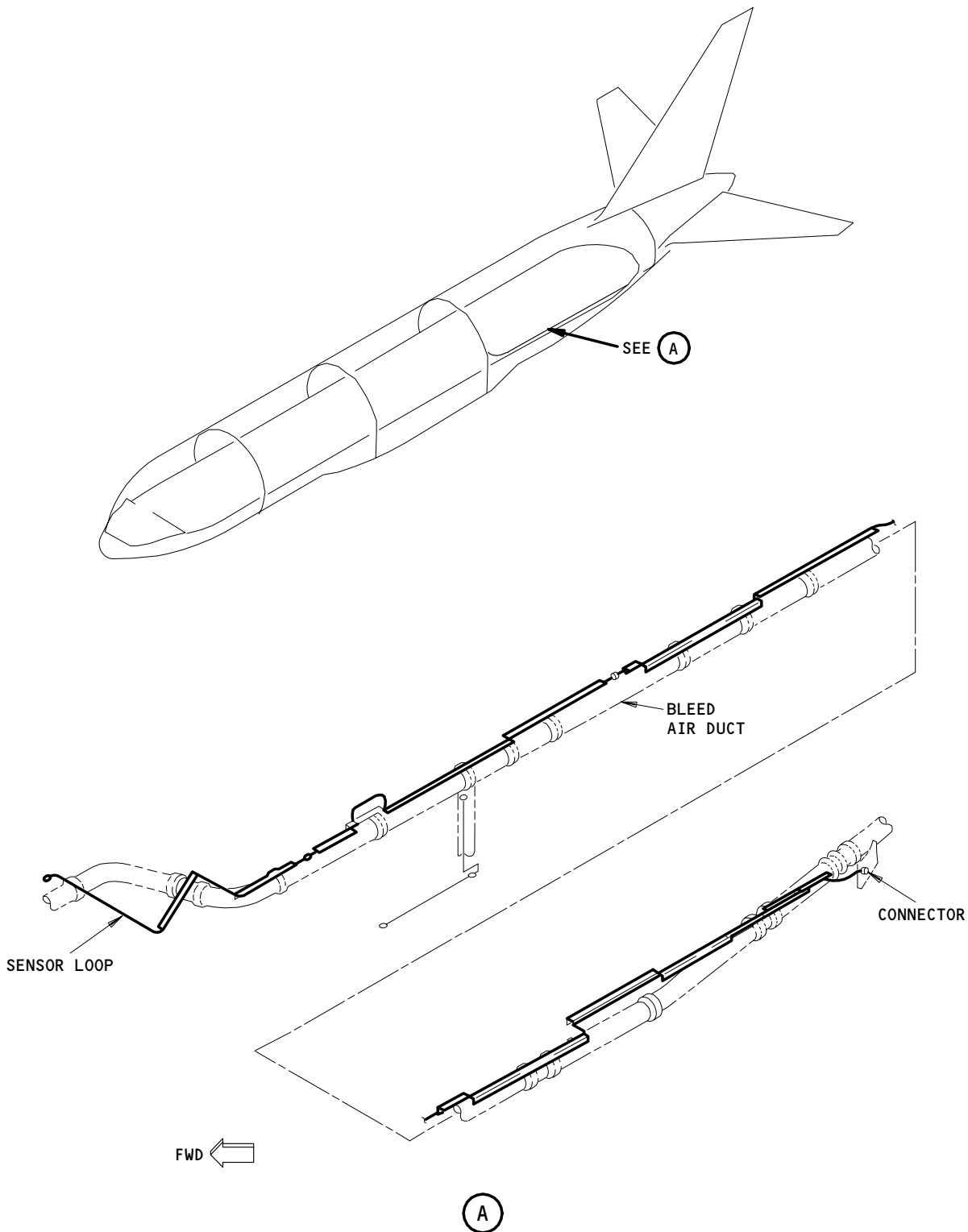
Section 49 Duct Leak Detector Installation  
Figure 406

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Section 46 Duct Leak Detector Installation  
Figure 407

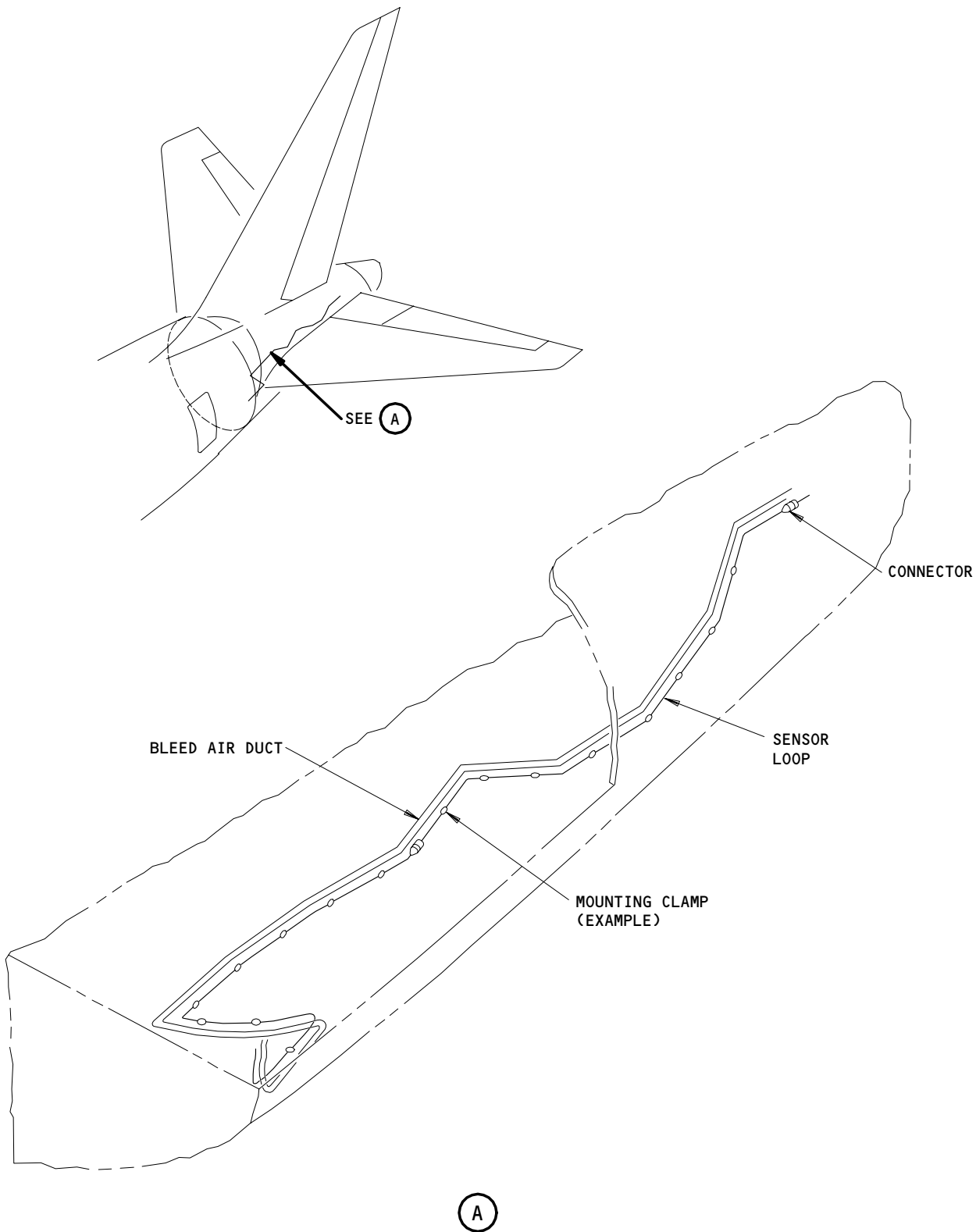
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(A)  
Section 48 Duct Leak Detector Installation  
Figure 408

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D. Access

(1) Location Zones

190	Fairings
310	Fuselage - Body Section 48
430	No. 1 Nacelle Strut
440	No. 2 Nacelle Sturt
510/610	Wing Leading Edge - Forward of Front Spar and Inboard of Nacelle/Strut
520/620	Wing Leading Edge - Forward of Front Spar and outboard of Nacelle/Strut
730/740	Left/Right Hand Main Landing Gear and Doors
810/820	Lower Half of Fuselage

(2) Access Panels

191/192	Wing to Body - Forward Upper Half (LH/RH Side)
193/194	Wing to Body - Forward Lower Half (LH/RH Side)
195/196	Wing to Body - Aft Upper Half (LH/RH Side)
197/198	Wing to Body - Aft Lower Half (LH/RH Side)
211/212	Flight Compartment
311/312	Area Aft of Pressure Bulkhead to BS 1725 (LH/RH Side)
315/316	APU Compartment (LH/RH Side)
434	Nacelle Strut - Aft Fairing (No. 1)
444	Nacelle Strut - Aft Fairing (No. 2)
511/611	Leading Edge to Front Spar
512/612	Slat No. 6 (LH), 7 (RH)
521/621	Leading Edge to Front Spar
522/622	Slat No. 5 (LH), 8 (RH)
523/623	Slat No. 4 (LH), 9 (RH)
524/624	Slat No. 3 (LH), 10 (RH)
525/625	Slat No. 2 (LH), 11 (RH)
526/626	Slat No. 1 (LH), 12 (RH)
732/742	MLG Body Doors (L,R)
822	Aft Cargo Compartment Door

E. Remove the Engine Strut Detectors (Fig. 402)

S 414-002

- (1) Remove the strut access panels if it is necessary (AMM 06-43-00/201).

- (a) Engine No. 1 left side, 434AL; right side, 434AR.  
 (b) Engine No. 2 left side, 444AL; right side, 444AR.

F. Remove the Wing/Strut Interface Detectors (Fig. 403)

S 014-003

- (1) Remove the strut access panels (AMM 06-43-00/201) and the wing access panels (AMM 06-44-00/201) as necessary.

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G. Remove the Wing Detectors (Fig. 404)

S 014-004

- (1) Remove the wing access panels between the fuselage and the engine (AMM 06-44-00/201).

H. Remove the Section 45 Detector (Fig. 405)

S 014-006

**WARNING:** USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOOR OPENS AND CLOSES QUICKLY AND CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT IF NOT INSTALLED CORRECTLY

- (1) Open the main gear doors and install the door locks (AMM 32-00-15/201).

S 864-067

- (2) Get access to the detector located on the left wall that divides the landing gear bays.

I. Remove the Section 46 Detectors (Fig. 407)

S 014-007

- (1) Remove the cargo deck wall panels if is necessary to get access to the detectors (AMM 25-52-01/401).

J. Remove the Section 48 Detectors (Fig. 408)

S 014-008

- (1) Get access to the detectors. Open the controls and service access doors (AMM 06-41-00/201).

K. Remove the Section 49 Detectors (Fig. 406)

S 014-009

- (1) Open the wing/body fairing panels and the ECS access doors to get access to the detectors (AMM 06-41-00/201).

L. Remove the Loop Duct Leak Detector

S 864-010

- (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11B10, WW FIRE/DUCT LEAK

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S 034-011

**CAUTION:** ALWAYS OPEN THE FIRST THREE CLAMPS FROM THE END OF THE DETECTOR BEFORE YOU LOOSEN THE HEX NUT. THIS MUST BE DONE TO MAKE SURE THE DETECTOR CAN MOVE FREELY. THIS WILL PREVENT DAMAGE TO THE CONNECTOR PINS.

(2) Open the first three clamps near the end of the detector.

S 034-012

(3) Remove the lockwire and disconnect the connectors at both ends of the detector.

S 434-013

(4) Install the protective caps on the electrical connectors of the plane.

S 014-068

(5) Open the remaining clamps and remove the detector.

S 434-088

(6) Put protective caps over the element ends when removed from the airplane.

S 214-089

(7) Inspect the elements for dents or kinks in the tubing and for bends of less than one inch radius. If dents or kinks reduce the tubing diameter to less than 0.07 inches or if worn spots or gouges are 0.002 inch or deeper, replace the element with a new one.

TASK 26-18-01-424-014

3. Install the Duct Leak Detector

A. Equipment

(1) Bonding Meter, Avtron T477W

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- (2) Meter, LCR – Model 875B, B AND K Precision Products Group, or Equivalent.
- (3) Torque Wrench – commercially available  
(For Torque range: 0 to 70 pound-inches).

**B. References**

- (1) AMM 24-22-00/201, Electrical Power – Control
- (2) AMM 25-52-01/401, Containerized Cargo Compartment Sidewall Lining

**C. Access**

(1) Location Zones

190	Fairings
310	Fuselage – Body Section 48
430	No. 1 Nacelle Strut
440	No. 2 Nacelle Strut
510/610	Wing Leading Edge – Forward of Front Spar and inboard of nacelle/strut
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730/740	Left/Right Hand Main Landing Gear and Doors
810/820	Lower Half of Fuselage

(2) Access Panels

191/192	Wing to Body – Forward Upper Half (LH/RH Side)
193/194	Wing to Body – Forward Lower Half (LH/RH Side)
195/196	Wing to Body – Aft Upper Half (LH/RH Side)
197/198	Wing to Body – Aft Lower Half (LH/RH Side)
211/212	Flight Compartment
311/312	Area Aft of Pressure Bulkhead to BS 1725 (LH/RH Side)
315/316	APU Compartment (LH/RH Side)
434	Nacelle Strut – Aft Fairing (No. 1)
444	Nacelle Strut – Aft Fairing (No. 2)
511/611	Leading Edge to Front Spar
512/612	Slat No. 6 (LH), 7 (RH)
521/621	Leading Edge to Front Spar
522/622	Slat No. 5 (LH), 8 (RH)
523/623	Slat No. 4 (LH), 9 (RH)
524/624	Slat No. 3 (LH), 10 (RH)
525/625	Slat No. 2 (LH), 11 (RH)
526/626	Slat No. 1 (LH), 12 (RH)
732/742	MLG Body Doors (L,R)
822	Aft Cargo Compartment Door

**D. Install the Loop Duct Leak Detector**

S 214-090

- (1) Inspect the elements for dents or kinks in the tubing and for bends of less than one inch radius. If dents or kinks reduce the tubing diameter to less than 0.07 inches or if the worn spots or gouges are 0.002 inch or deeper, do not install the element.

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S 424-015

**CAUTION:** CONTOUR ELEMENT SO AS TO CLEAR ADJACENT PARTS AND STRUCTURE A MINIMUM OF 0.5 INCH (1.27 cm). MINIMUM BEND RADIUS FOR DETECTOR IS ONE INCH (2.54 cm). DO NOT BEND DETECTOR WITHIN ONE INCH (2.54 cm) OF CLAMPS OR FLANGE ASSEMBLIES. EXERCISE CARE IN HANDLING TO AVOID EXCESS BENDING. FAILURE TO HEED THESE PRECAUTIONS CAN CAUSE DAMAGE TO DETECTORS.

- (2) Remove the protective caps from both ends of the detector and connect both ends of the new detector to the airplane detectors. Tighten the connectors to between 50 and 70 pound-inches.

S 434-017

- (3) Install the new grommets over the detector and put it into the clamps close to the connectors.

S 434-018

- (4) Put the grommets in the clamps and tighten the clamps.

S 424-019

- (5) Do steps 3 and 4 again for the remaining clamps. Do the procedure to the center of the detector.
  - (a) Make sure the resistance between the connector shell of the detector, and the primary airplane structure is not more than 0.004 ohm. If the resistance is more than the maximum value, clean the bonded surfaces and do the check again.
  - (b) Make sure the inner conductor resistance is no more than 0.2 ohm per foot of the element length at room temperature.
  - (c) Make sure the insulation resistance between the end fitting pin and the body of the element is not less than 1.25 megohm.

S 864-020

- (6) Use lockwire to lock the connectors.

S 864-021

- (7) Close the circuit breakers on the overhead circuit breaker panel, P11, and remove the DO-NOT-CLOSE tags:
  - (a) 11B10, WW FIRE/DUCT LEAK

E. Do a Test of the Detector Installation

S 864-022

- (1) Supply electrical power (AMM 24-22-00/201).

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S 864-023

- (2) Hold the W/W OVHT DUCT LEAK switch on the miscellaneous test panel , M10398, in the W/W OVHT DUCT LEAK position.
  - (a) Make sure these amber lights (as applicable) on the bleed air supply panel, M15 (on P5), come on.
    - 1) L WING
    - 2) R WING
    - 3) BODY

S 864-026

- (3) Release the W/W OVHT DUCT LEAK switch, and make sure the applicable light goes off.

S 414-030

- (4) Close the access panels as applicable.

S 414-031

- (5) Install the wall panels in the cargo deck which were removed (AMM 25-52-01/401).

S 414-032

**WARNING:** REFER TO AMM 32-00-15 FOR THE PROCEDURE TO REMOVE THE DOOR LOCK. FAST MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO THE EQUIPMENT.

- (6) Remove the main gear door locks and close the gear door.

S 864-033

- (7) Remove electrical power if it is not necessary.

TASK 26-18-01-024-034

4. Remove the Thermal Switch Duct Leak Detector

A. Access

(1) Location Zones

- 510/610 Wing Leading Edge - Forward of Front Spar and inboard of nacelle/strut
- 520/620 Wing Leading Edge - Forward of Front Spar and outboard of nacelle/strut

(2) Access Panels

- 511/611 Leading Edge to Front Spar
- 521/621 Leading Edge to Front Spar

B. Remove the Thermal Switch Duct Leak Detector

S 864-035

- (1) Open these circuit breakers on the overhead circuit breaker panel , P11, and close the DO-NOT-CLOSE tags:
  - (a) 11B10, WW FIRE/DUCT LEAK

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- S 034-036  
(2) Remove the rubber cement from the switch terminals.
- S 034-037  
(3) Disconnect the electrical wiring from the switch.
- S 034-038  
(4) Remove the mounting nut and washer from the rear of the switch and remove the switch.

TASK 26-18-01-424-039

5. Install the Thermal Switch Duct Leak Detector

A. References

- (1) AMM 24-22-00/201, Manual Control  
(2) AMM 32-00-15/201, Landing Gear Door Locks

B. Access

(1) Location Zones

- |         |   |
|---------|---|
| 510/610 | Wing Leading Edge - Forward of Front Spar and inboard of nacelle/strut  |
| 520/620 | Wing Leading Edge - Forward of Front Spar and outboard of nacelle/strut |

(2) Access Panels

- |         |                            |
|---------|----------------------------|
| 511/611 | Leading Edge to Front Spar |
| 521/621 | Leading Edge to Front Spar |

C. Install the Thermal Switch Duct Leak Detector

- S 424-040  
(1) Attach the switch to the mounting bracket with a nut and washer.
- S 434-041  
(2) Connect the electrical wiring to the switch.
- S 864-042  
(3) Close these circuit breakers on the P11 panel and remove the DO-NOT-CLOSE tags:  
(a) 11B10, WW FIRE/DUCT LEAK

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D. Do a Test of the Detector Installation

- S 864-043
- (1) Supply electrical power (AMM 24-22-00/201).
- S 434-044
- (2) Connect a jumper wire between the terminals of the thermal switch(es) to be tested.
- S 214-069
- (3) Make sure these yellow lights (as applicable) on the bleed air supply panel, M15 (on P5), come on.
- (a) L WING
- (b) R WING
- (c) BODY
- S 754-055
- (4) For the thermal switches, TS236 and/or TS237, make sure the LEFT DUCT LEAK light comes on.
- S 754-057
- (5) For thermal switches, TS238 and/or TS239, make sure the RIGHT DUCT LEAK light comes on.
- S 034-062
- (6) Remove the jumper wire.
- S 864-094
- (7) 767-200 AND 767-300 AIRPLANES WITH DUCT LEAK TEST PANEL WITH STRUT LEAK TEST SWITCH;  
Move the applicable LEFT or RIGHT bleed control switch on the Bleed Air Supply Panel M15, to the OFF position and then to the ON position.
- (a) Make sure the applicable light goes off.
- S 414-064
- (8) Close the access panels as applicable.

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S 414-065

**WARNING:** REFER TO AMM 32-00-15 FOR THE PROCEDURE TO REMOVE THE DOOR  
LOCKS FAST MOVEMENT OF THE DOORS MAY CAUSE INJURY TO PERSONNEL  
OR DAMAGE TO THE EQUIPMENT.

(9) Remove the main gear door locks and close the gear door.

S 864-066

(10) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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EXTINGUISHING - DESCRIPTION AND OPERATION

1. General

A. The airplane fire extinguishing consists of five systems:

- engine fire extinguishing,
  - APU fire extinguishing,
  - cargo compartment fire extinguishing,
  - lavatory waste compartment automatic fire extinguishing, and
  - portable fire extinguishing.
- (1) Engine Fire Extinguishing (26-21-00)
    - (a) Two fire extinguishing bottles distribute extinguishing agent to either engine. Both bottles are aft of the forward cargo door on the right side of the forward cargo compartment.
  - (2) APU Fire Extinguishing (26-22-00)
    - (a) One or two fire extinguishing bottles distribute extinguishing agent to the APU. These bottles are forward of the APU firewall on the lower right side.
  - (3) Cargo Compartment Fire Extinguishing (26-23-00)
    - (a) SAS 150-154;  
Two fire extinguishing bottles distribute extinguishing agent to either compartment. Both bottles are aft of the forward cargo door on the right side of the forward cargo compartment.
    - (b) SAS 001-149, 155-999;  
Three fire extinguishing bottles distribute extinguishing agent to either compartment. The bottles are located aft of the forward cargo door on the right side of the forward cargo compartment.
  - (4) Lavatory Waste Compartment Automatic Fire Extinguishing (26-24-00).
    - (a) Lavatory waste compartment automatic fire extinguishing provides fire extinguishing capability to the lavatory waste container. The fire extinguisher bottle is mounted inside the lavatory cabinet assembly on the waste disposal chute.
  - (5) Portable Fire Extinguishing (26-26-00)
    - (a) Portable fire extinguishers can be of the following types:  
Halon and pressurized water. These are located throughout the flight and passenger compartment areas.

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ENGINE FIRE EXTINGUISHING – DESCRIPTION AND OPERATION

1. General

- A. The engine fire extinguishing system has controls that release one or two applications of fire extinguishing agent to a fire in either engine. The system has test capability.
- B. The engine fire extinguishing system includes the following: two engine fire extinguisher bottles, engine fire control panel, and the squib test control panel.
- C. The engine fire extinguishing system receives power from the 28 vdc hot battery bus, through a circuit breakers on main power distribution panel P6. The FIRE EXTINGUISHING ENG L BTL 1 AND 2 (2 places) and FIRE EXTINGUISHING ENG R BTL 1 AND 2 (2 places) circuit breakers on main power distribution panel P6 controls power to the system.

2. Component Details (Fig. 1)

A. Engine Fire Extinguisher Bottle

- (1) Engine fire extinguisher bottle is located aft of the forward cargo door on the right side of the cargo compartment. The extinguisher bottle includes two squib cartridges, a pressure switch, and the combined safety relief and filler port.
- (2) Two squib cartridges are on the discharge valves of each extinguisher bottle. When detonated the cartridge ruptures a retaining disc in the valve releasing the extinguishing agent.
- (3) The pressure switch detects a decrease in bottle pressure and activates the bottle discharge lights. The pressure switch can be manually tested using the hex-key assembly or the ground test pushbutton.
- (4) The safety relief valve is a thermal expansion overpressure rupture disc. If bottle pressure is too high, the safety relief ruptures, allowing the bottle to discharge. The filler port is for introducing the extinguishing agent and pressurizing gas into the bottle.
- (5) The extinguishing agent is bromotrifluoromethane (halon), and the pressurizing gas dry nitrogen. The agent leaves no residue when discharged.

B. Engine Fire Switch

- (1) The left and right (L/R) engine fire switch handles are located on the engine fire control panel at pilots' aft control stand P8. When a engine fire is detected, the engine fire switch handle red warning light comes on. A solenoid energizes releasing a mechanical interlock on the fire switch handle shaft. When the mechanical interlock is released, the fire switch handle can be operated by pulling the handle out and rotating it. Rotating the handle fully releases the extinguishing agent. After rotation, the fire handle automatically returns to an off-center position. To push the handle back in it must be in the center horizontal position. The fire switch handle can be manually unlocked by pressing the button behind the handle.

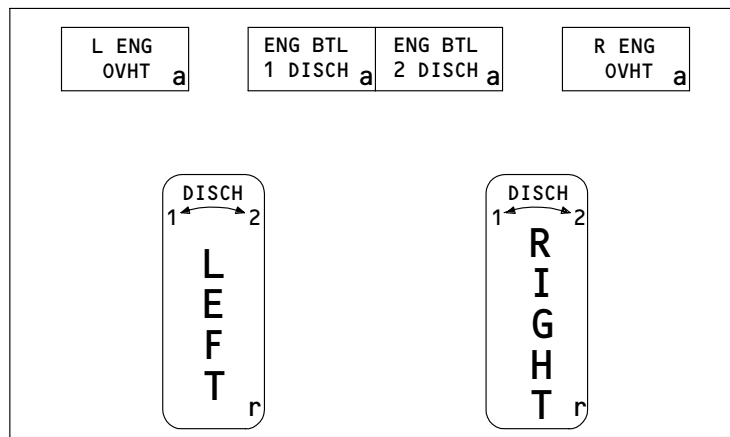
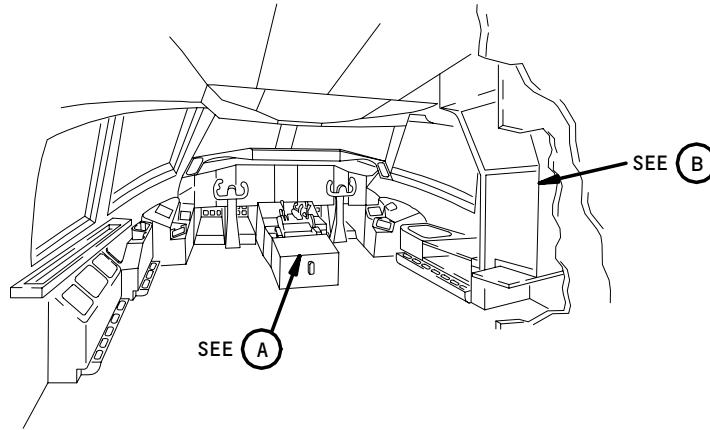
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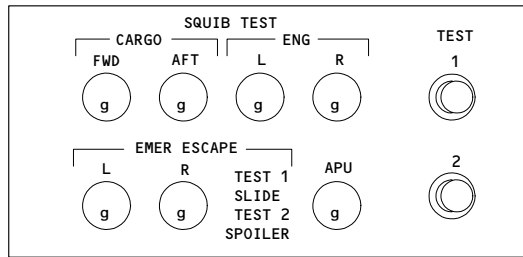
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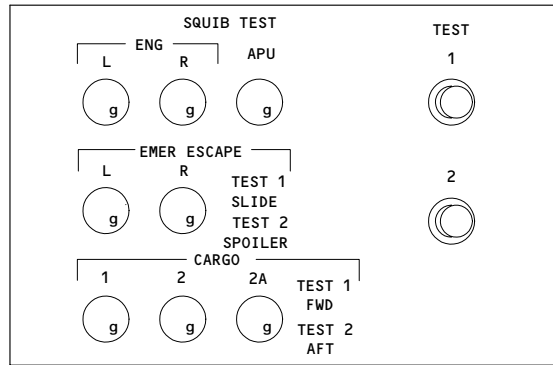
ENGINE FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

(B) 2

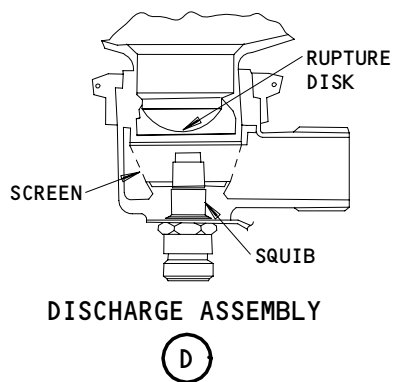
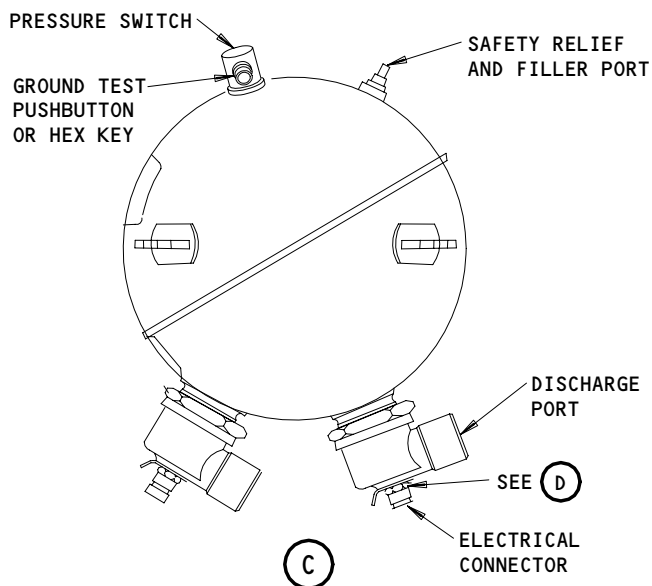
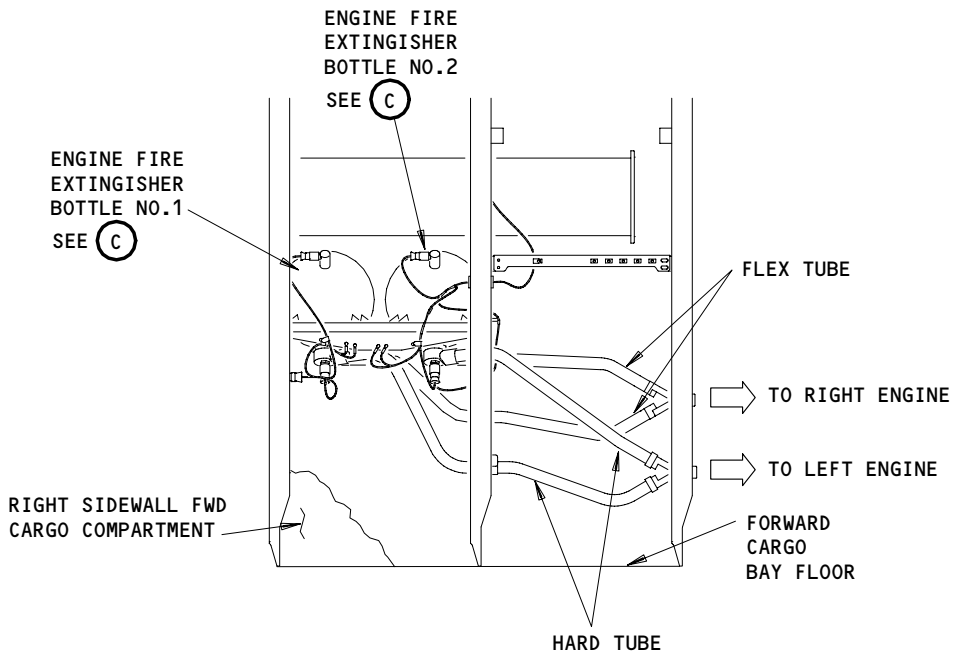
- 1 AIRPLANES WITH 2 CARGO BAY FIRE BOTTLES
- 2 AIRPLANES WITH 3 CARGO BAY FIRE BOTTLES

Engine Fire Extinguishing System Component Location  
Figure 1 (Sheet 1)

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Engine Fire Extinguishing System Component Location  
Figure 1 (Sheet 2)

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C. Squib Test Panel

- (1) The squib test panel is located on the P61 right side panel. The switches on the panel are used to check extinguisher bottle squib cartridges. When pressed, the test switches 1 and 2 on the panel check circuit continuity between the engine discharge switches and squib cartridges. A green test light comes on for a successful test.

3. Operation (Fig. 2)

A. Functional Description

- (1) When a fire is detected in an engine, the appropriate fire switch handle red warning light comes on. A solenoid energizes releasing a mechanical interlock on the handle shaft. The handle is then operable. The mechanical interlock is manually released by pressing the button located behind the handle. When an engine fire switch handle is pulled out, the extinguishing bottles are armed for that engine. The following also happens: the engine generator field relay and generator circuit breaker are tripped, the engine fuel shut-off valve closes, the fire bell is reset, the engine hydraulic pump supply shut-off valve closes, the air supply pressure regulation and shut-off valve closes, the engine high pressure fuel shutoff solenoid valve, and power to the engine thrust reverser isolation valve is cut.
- (2) After pulling a fire switch handle out, rotating it discharges the extinguishing agent into the appropriate engine. Rotating the handle fully counterclockwise discharges bottle number 1. Rotating it fully clockwise discharges bottle number 2. Decreasing bottle pressure, by discharge or leakage, activates the pressure switch. The switch sends a signal which turns on the appropriate amber ENG BTL DISCH light. The ENG BTL 1 and 2 DISCH lights are on the engine fire control panel P8. After a decrease in bottle pressure is recognized, an ENG BTL 1 or 2 DISCH message appears on the EICAS display.
- (3) Engine fire extinguishing agent can be discharged to either engine from either bottle. Tubing runs from the bottles through the forward wing spars to each engine. Extinguishing agent discharges from outlet nozzles in the forward and aft sections of the engines.

B. Engine Fire Extinguishing System Test

(1) Squib Test

- (a) The squib test panel checks the integrity of extinguisher bottle squibs. Pressing the TEST 1 or 2 switch sends a signal to the appropriate extinguisher bottle squib discharge cartridge. The TEST 1 switch checks bottle 1 left and right squibs, and the TEST 2 switch checks bottle 2 left and right squibs. If the squib and circuit continuity are good, the green ENG L/R lights on the panel will come on.

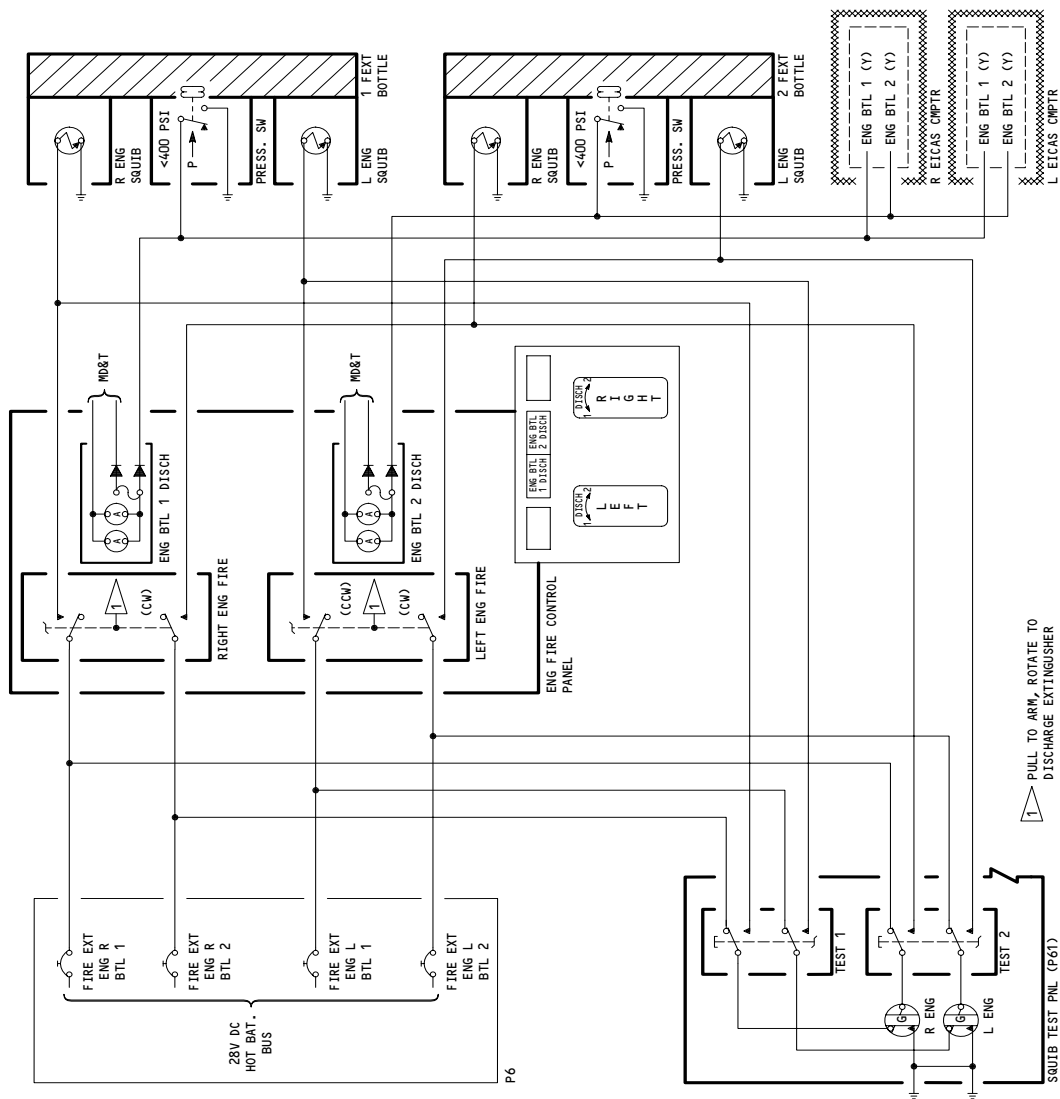
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Engine Fire Extinguishing Schematic  
Figure 2

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(2) Pressure Switch Test

- (a) Manually activating the bottle pressure switch tests discharge light circuit continuity. When the ground test pushbutton is pressed and held or when the hex key assembly is turned clockwise, the amber ENG BTL 1 or 2 DISCH light comes on and an ENG BTL 1 or 2 message appears on the EICAS display indicating a successful test.

C. Control

- (1) Provide electrical power (Ref 24-22-00)
- (2) To place the system in operation, check that the following circuit breakers on main power distribution panel P6 are closed:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

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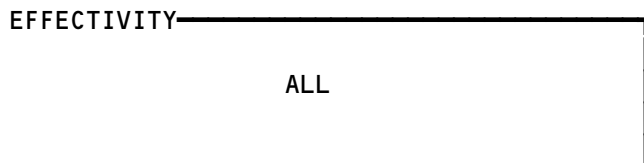
FAULT ISOLATION/MAINT MANUAL

ENGINE FIRE EXTINGUISHING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BOTTLE - ENG FIRE EXT, B17,B18	1	2	821, FWD CARGO COMPT	26-21-03
CIRCUIT BREAKERS	1		FLT COMPT, P6	
FIRE EXT L BTL 1, C778		1	6H1	
FIRE EXT ENG L BTL 2, C786		1	6H2	
FIRE EXT ENG R BTL 1, C779		1	6H3	
FIRE EXT ENG R BTL 2, C787		1	6H4	
COMPUTER - (REF 31-41-00, FIG. 101)				
EICAS L, M10181				
EICAS R, M10182				
LIGHT - ENG BTL 1 DISCH, YEGL2	2	1	FLT COMPT, ENG FIRE CONTROL PNL, M10443	*
LIGHT - ENG BTL 2 DISCH, YEGL3	2	1	FLT COMPT, ENG FIRE CONTROL PNL, M10443	*
LIGHT - L ENG, YA3L3	2	1	FLT COMPT, SQUIB TEST PNL, M32	*
LIGHT - R ENG, YA3L4	2	1	FLT COMPT, SQUIB TEST PNL, M32	*
PANEL - ENG FIRE CONTROL, M10443	2	1	FLT COMPT, P8	26-21-01
PANEL - SQUIB TEST, M32	2	1	FLT COMPT, P61	26-21-04
SQUIB - L ENG, YFUB1	2	1	821, FWD CARGO COMPT, ENG FIRE EXT BOTTLE, B17	26-21-03
SQUIB - L ENG, YFVB1	2	1	821, FWD CARGO COMPT, ENG FIRE EXT BOTTLE, B18	26-21-03
SQUIB - R ENG, YFUB2	2	1	821, FWD CARGO COMPT, ENG FIRE EXT BOTTLE, B17	26-21-03
SQUIB - R ENG, YFVB2	2	1	821, FWD CARGO COMPT, ENG FIRE EXT BOTTLE, B18	26-21-03
SWITCH - LEFT ENG FIRE, YEGS37	2	1	FLT COMPT, ENG FIRE CONTROL PNL, M10443	*
SWITCH - RIGHT ENG FIRE, YEGS38	2	1	FLT COMPT, ENG FIRE CONTROL PNL, M10443	*
SWITCH - TEST 1, YA3S1	2	1	FLT COMPT, SQUIB TEST PNL, M32	*
SWITCH - TEST 2, YA3S2	2	1	FLT COMPT, SQUIB TEST PNL, M32	*

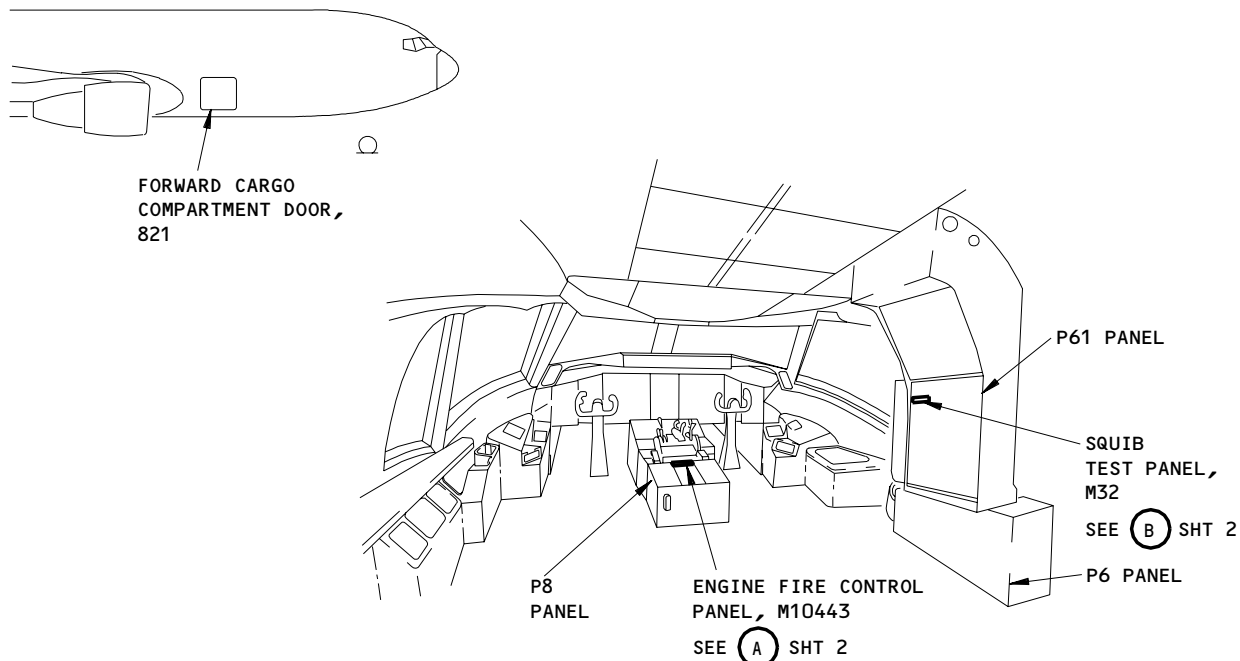
\* SEE WM EQUIPMENT LIST

Component Index  
Figure 101

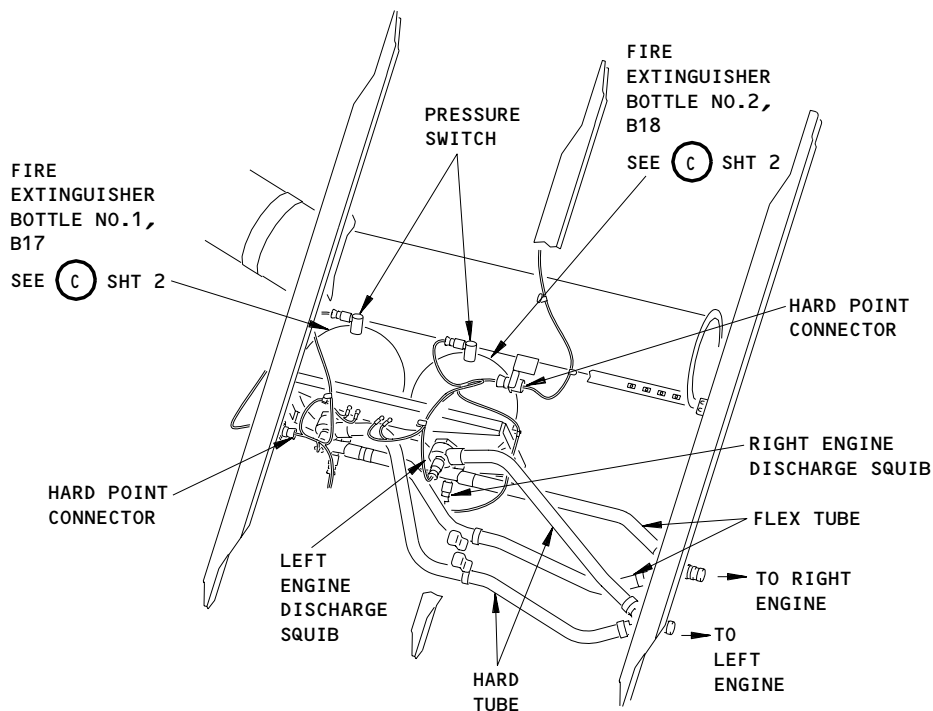


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**BOEING**  
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FAULT ISOLATION/MAINT MANUAL



**FLIGHT COMPARTMENT**



Engine Fire Extinguishing System - Component Location  
Figure 102 (Sheet 1)

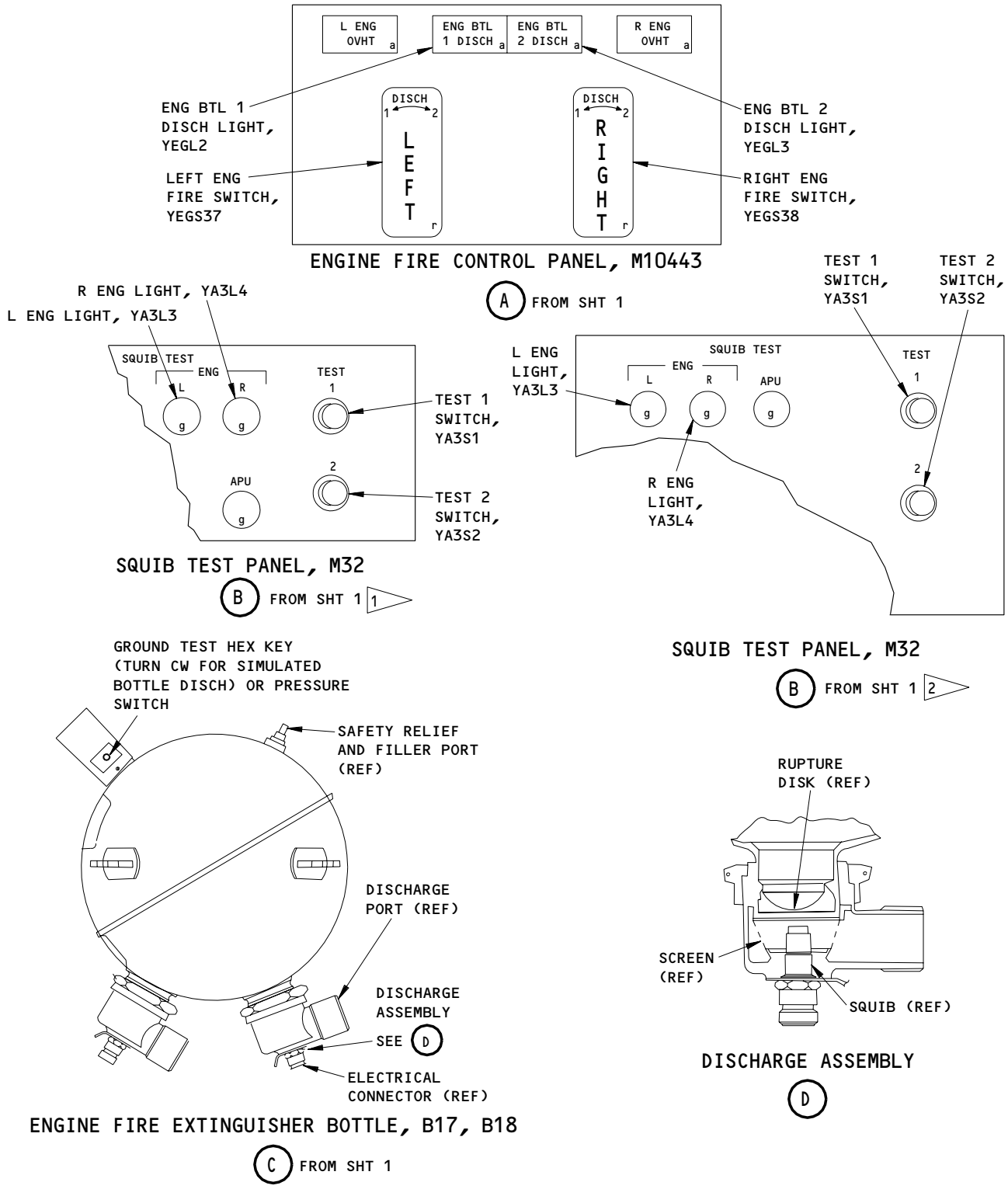
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**26-21-00**

# BOEING

## 767

### FAULT ISOLATION/MAINT MANUAL



1 AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES

2 AIRPLANES WITH THREE CARGO FIRE EXTINGUISHING BOTTLES

**Engine Fire Extinguishing System - Component Location**  
Figure 102 (Sheet 2)

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93854

ENGINE FIRE EXTINGUISHING SYSTEM – ADJUSTMENT/TEST

1. General

- A. The engine fire extinguishing system has two identical fire bottles in the forward cargo compartment, an engine fire control panel, and a squib test panel. The bottle plumbing is connected to the left and the right engine, which lets each receive extinguishing agent from the two bottles at the same time. Each engine has an independently operated fire extinguishing system.
- B. This section contains procedures to perform these tests:
  - (1) The operational test makes sure the system operates correctly. It can be done in a minimum amount of time, and uses only the equipment installed in the airplane.
  - (2) The system test has different tests for each part of the system. When all the tests are done the engine fire extinguishing system operates correctly.

TASK 26-21-00-705-218

2. Operational Test

A. References

- (1) AMM 24-22-00/201, Electrical Power – Control

B. Access

(1) Location Zones

- 121 Forward Cargo Compartment (Left)
- 122 Forward Cargo Compartment (Right)
- 153 Aft Cargo Compartment (Left)
- 154 Aft Cargo Compartment (Right)

(2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

C. Prepare for Test

S 865-001

- (1) Supply electrical power (AMM 24-22-00/201).

D. Test Fire Extinguisher Bottle 1 Pressure Switch

S 825-002

- (1) At engine fire extinguisher bottle number 1, turn and hold the ground test hex key clockwise, or push and hold the ground test button on the pressure switch connector casing.

NOTE: Use a 3/32 inch hex wrench.

- (a) Make sure that the ENG BTL 1 DISCH light on P8 (yellow) comes on.

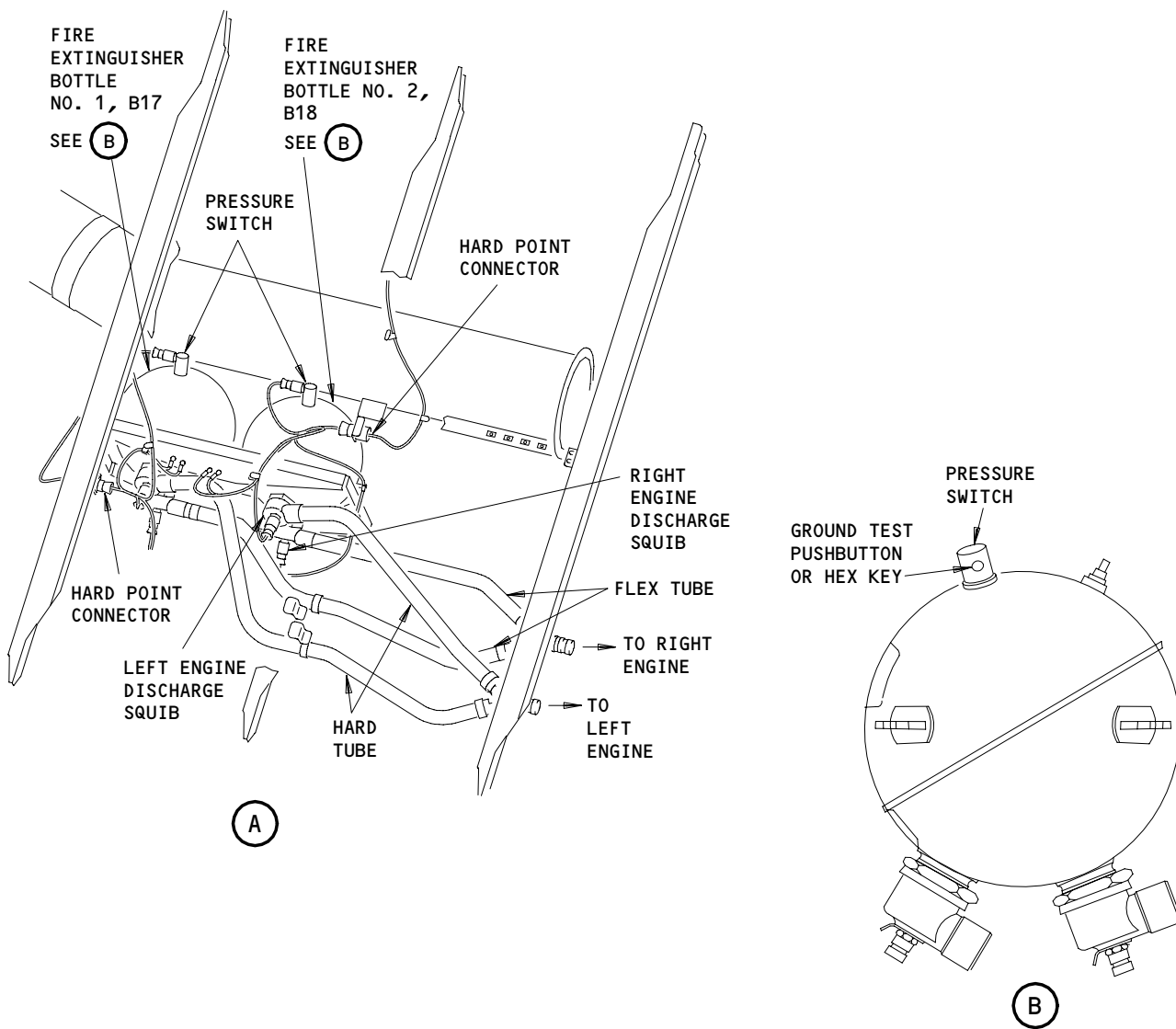
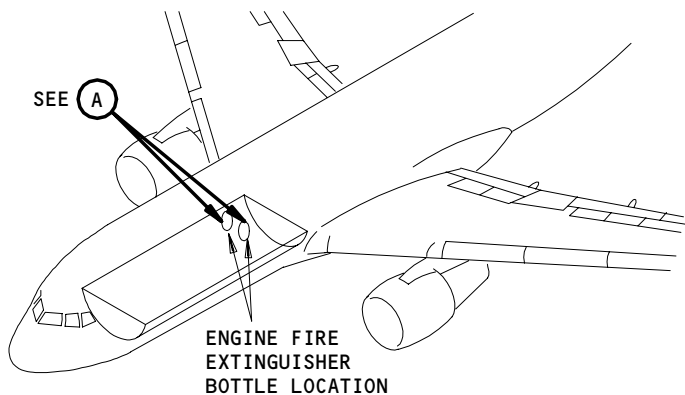
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Engine Fire Extinguisher Bottle Location  
Figure 501

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- (b) Make sure the EICAS message, ENG BTL 1, shows on the upper display.

S 865-005

- (2) Release the hex key or button.
  - (a) Make sure the EICAS message, ENG BTL 1, does not show on the upper display.
  - (b) Make sure the BTL DISCH 1 light on P8 goes off.

E. Test Fire Extinguisher Bottle 2 Pressure Switch

S 825-007

- (1) At engine fire extinguisher bottle number 2, turn and hold the ground test hex key clockwise, or push and hold the ground test button on the pressure switch connector casing.

NOTE: Use a 3/32 inch hex wrench.

- (a) Make sure that the ENG BTL 2 DISCH light on P8 (yellow) comes on.
- (b) Make sure the EICAS message, ENG BTL 2, shows on the upper display.

S 865-010

- (2) Release the hex key or button.
  - (a) Make sure the EICAS message, ENG BTL 2, does not show on the upper display.
  - (b) Make sure the BTL DISCH 2 light on panel, P8, goes off.

F. Test Extinguisher Bottle Squib Test Circuit

S 715-016

- (1) At the SQUIB TEST panel, P61, push and hold the TEST 1 switch.
  - (a) Make sure the squib test lights, L and R ENG, come on (green).

S 865-017

- (2) Release the TEST switch.
  - (a) Make sure the squib test lights, L and R ENG, go off.

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- S 715-018
- (3) At the squib test panel, P61, push and hold Test 2 switch.  
(a) Make sure the squib test lights, L and R ENG , come on (green).
- S 865-019
- (4) Release the TEST 2 switch.  
(a) Make sure the squib test lights, L and R ENG, lights go off.
- S 865-020
- (5) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-21-00-705-216

3. System Test

A. Access

(1) Location Zones

- |     |                                   |
|-----|-----------------------------------|
| 121 | Forward Cargo Compartment (Left)  |
| 122 | Forward Cargo Compartment (Right) |
| 153 | Aft Cargo Compartment (Left)      |
| 154 | Aft Cargo Compartment (Right)     |
| 821 | Forward Cargo Compartment Door    |
| 822 | Aft Cargo Compartment Door        |

B. Equipment

- (1) Squib Protective Cap  
M83723/60-210-AN or AC  
M83723/60-112-AN or AC  
M83723/60-108-AN or AC  
M83723/60-110-AN or AC
- (2) Resistor - 10 Kohms or greater
- (3) Electrical test equipment - Bottle squib, fire extinguisher system - A26001-187 (Recommended)
- (4) Electrical test equipment - Bottle squib, fire extinguisher system - A26001-165 (Alternative)
- (5) Electrical test equipment - Bottle squib, fire extinguisher system - A26001-174 (Alternative)
- (6) Multimeter - Digital Multimeter Fluke 87 or equivalent

C. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control

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- (3) AMM 31-41-00/501, Engine Indication and Crew Alerting System (EICAS)  
D. Prepare For Test

S 865-247

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-021

- (2) Supply electrical power (AMM 24-22-00/201).

S 865-022

- (3) Open these circuit breakers on the main power-distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6E1, L SPAR FUEL VALVE
  - (b) 6E2, R SPAR FUEL VALVE
  - (c) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (d) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (e) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (f) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 715-222

- (4) Make sure the EICAS messages, L ENG SHUTDOWN and R ENG SHUTDOWN, do not show.

**NOTE:** AIRPLANES WITH GE 80C2 ENGINES;  
The "ENG SHUT DOWN" messages stay on.

S 865-023

- (5) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11D29, ENG HYDR PUMP L SUPPLY
  - (b) 11D30, ENG HYDR PUMP R SUPPLY
  - (c) 11L14, HYDR L ENG PUMP DEPRESS
  - (d) 11L23, HYDR R ENG PUMP DEPRESS

S 025-024

- (6) At engine fire extinguisher bottles 1 and 2, disconnect connectors per Table 501:

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TABLE 501 ENGINE FIRE BOTTLE CONNECTIONS	
Connector	Bottle Connected To:
D1424	B17, BTL 1 - Left Engine Discharge Squib
D1430	B17, BTL 1 - Right Engine Discharge Squib
D1426	B18, BTL 2 - Left Engine Discharge Squib
D1432	B18, BTL 2 - Right Engine Discharge Squib

S 865-223

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

(7) Put the protective caps on the fire bottle squibs.

S 865-217

**WARNING:** DO NOT INSTALL ELECTRICAL CONNECTORS TO BOTTLE SQUIBS DURING TEST. ACCIDENTAL DISCHARGE OF SQUIB CARTRIDGE MAY CAUSE INJURY TO PERSONS.

(8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 865-027

(9) Make sure that these circuit breakers on the P11, panel are closed:

- (a) 11A34, IND LIGHTS 2
- (b) 11A35, IND LIGHTS 3

S 715-028

(10) At the Squib Test panel P61, push to test the L ENG and R ENG squib test lights.

- (a) Make sure the squib test lights come on.
- (b) Make sure that EICAS operates (AMM 31-41-00/501).

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S 025-226

- (11) AIRPLANES WITH PW 4000 ENGINES;  
Disconnect electrical connector D8312 from the fuel metering unit (on some airplanes, the fuel condition actuator) on the left and right engines.

E. Test Extinguisher Bottle Squib Discharge Circuit

S 865-225

- (1) Make sure the left and right engine start switches are off.

S 865-030

- (2) At control stand panel P10, set the L and R FUEL CONTROL switches to RUN.

S 865-031

- (3) Set the LOAD CHECK toggle switch on the squib circuit test box to OFF.

S 485-032

- (4) Attach the adapter cable to connector of the squib test box.

S 425-033

- (5) Connect bottle 1, left engine squib connector D1424, to the squib circuit test box adapter cable.

NOTE: Adapter cables are included with squib circuit test box. Select the cable that will fit the squib connector.

S 485-034

- (6) Connect the multimeter to the squib circuit test box.

S 865-035

- (7) Set the LOAD CHECK toggle switch on the squib circuit test box to ON.

S 865-036

- (8) On P8, pull the LEFT engine fire handle out to emergency fire position.

NOTE: When you pull the fire handle into the emergency position, it is necessary to use the manual unlock pushbutton behind the fire handle. When you turn the fire handle, it is necessary to hold the handle against the stops while the voltage is measured .

S 745-037

- (9) Make sure the EICAS message, L ENG SHUTDOWN, shows on upper display.

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- S 765-038
- (10) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box stays off.
- S 765-039
- (11) Make sure that the multimeter on the squib circuit test box shows 0  $\pm$ 2 volts.
- S 865-040
- (12) Turn and hold the LEFT engine fire handle fully counterclockwise to the DISCH 1 position.
- S 765-041
- (13) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- S 765-042
- (14) Make sure that the multimeter on the squib circuit test box shows 16 volts minimum.
- NOTE: If voltage is less than 16 volts, the circuit may not give sufficient current to fire the squib.
- S 865-043
- (15) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 765-044
- (16) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box goes off.
- S 765-045
- (17) Make sure the multimeter on the squib circuit test box shows 0  $\pm$ 2 volts.
- S 865-046
- (18) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 865-047
- (19) Release the fire handle and make sure that the handle moves quickly toward center about 10 degrees.
- S 865-048
- (20) Set the LOAD CHECK toggle switch on the squib circuit test box to OFF.

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S 025-049

- (21) Disconnect bottle 1, left engine squib connector D1424, from the squib circuit test box cable.

S 425-050

- (22) Connect bottle 2, left engine squib connector D1426, to the squib circuit test box adapter cable.

NOTE: Adapter cables are included with squib circuit test box. Select the cable that will fit the squib connector.

S 865-051

- (23) Set the LOAD CHECK toggle switch on the squib circuit test box to ON.

S 865-052

- (24) Turn and hold the LEFT engine fire handle fully clockwise to the DISCH 2 position.

S 765-053

- (25) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.

S 765-054

- (26) Make sure that the multimeter on the squib circuit test box shows 16 volts minimum.

NOTE: If voltage is less than 16 volts, the circuit may not give sufficient current to fire the squib.

S 865-055

- (27) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 765-056

- (28) Make sure the BOTTLE DISCHARGE light goes off.

S 765-057

- (29) Make sure the multimeter on the squib circuit test box shows  $0 \pm 2$  volts.

S 865-058

- (30) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

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- S 745-059
- (31) Release the fire handle and make sure that the fire handle moves quickly toward center about 10 degrees.
- S 865-060
- (32) Put the fire handle to vertical stowed position.
- S 745-061
- (33) Put the LOAD CHECK toggle switch on the squib circuit test box to OFF.
- S 025-062
- (34) Disconnect bottle 2, left engine squib connector D1426, from the squib circuit test box cable.
- S 425-063
- (35) Connect bottle 1, right engine squib connector D1430, to the squib circuit test box adapter cable.

**NOTE:** Adapter cables are included with squib circuit tester.  
Select the cable that will fit the squib connector.

- S 865-064
- (36) Set the LOAD CHECK toggle switch on the squib circuit test box to ON.
- S 865-065
- (37) On P8 panel, pull the RIGHT engine fire handle out to the emergency fire position.

**NOTE:** When you pull the fire handle into the emergency position, it is necessary to use the manual unlock pushbutton behind the fire handle. When you turn the fire handle, it is necessary to hold the handle against the stops during the voltage measure.

- S 745-066
- (38) Make sure the EICAS message, R ENG SHUTDOWN, shows on the upper display.
- S 765-067
- (39) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box stays off.
- S 765-068
- (40) Make sure that the multimeter on the squib circuit test box shows 0  $\pm$ 2 volts.

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S 865-069

- (41) Turn and hold the RIGHT engine fire handle fully counterclockwise to the DISCH 1 position.

S 765-070

- (42) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.

S 765-071

- (43) Make sure that the multimeter on the squib circuit test box shows 16 volts.

NOTE: If voltage is less than 16 volts, the circuit may not give sufficient current to fire the squib.

S 865-072

- (44) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1

S 765-073

- (45) Make sure that the BOTTLE DISCHARGE light goes off.

S 865-074

- (46) Make sure the multimeter on the squib circuit test box shows  $0 \pm 2$  volts.

S 865-075

- (47) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1

S 865-076

- (48) Release the fire handle and make sure that the fire handle moves quickly toward center about 10 degrees.

S 865-077

- (49) Set the LOAD CHECK toggle switch on the squib circuit test box to OFF.

S 025-078

- (50) Disconnect bottle 1, right engine squib connector D1430, from the squib circuit test box cable.

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S 425-079

- (51) Connect bottle 2, right engine squib connector D1432, to the squib circuit test box adapter cable.

NOTE: Adapter cables are included with squib circuit tester.  
Select the cable that will fit the squib connector.

S 865-080

- (52) Set the LOAD CHECK toggle switch on the squib circuit test box to ON.

S 865-081

- (53) Turn and hold the RIGHT engine fire handle fully clockwise to the DISCH 2 position.

S 765-082

- (54) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.

S 765-083

- (55) Make sure that the multimeter on the squib circuit test box shows 16 volts minimum.

NOTE: If voltage is less than 16 volts, the circuit may not give sufficient current to fire the squib.

S 865-084

- (56) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 765-085

- (57) Make sure that the BOTTLE DISCHARGE light goes off.

S 765-086

- (58) Make sure the multimeter on the squib circuit test box shows  $0 \pm 2$  volts.

S 865-087

- (59) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 865-088

- (60) Release the fire handle and make sure that the fire handle moves quickly toward center about 10 degrees.

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S 865-089

- (61) Put the fire handle to the vertical stowed position.

S 865-090

- (62) Set the LOAD CHECK toggle switch on the squib circuit test box to OFF.

S 025-091

- (63) Disconnect bottle 2, right engine squib connector D1432, from the squib circuit test box cable.

S 745-092

- (64) Make sure the EICAS messages, L ENG SHUTDOWN and R ENG SHUTDOWN, are not shown on the upper display.

**NOTE:** This message will not disappear until the L and R FUEL CONTROL switches are returned to the CUTOFF position for 767-300 airplanes with GE 80C2 engines.

S 865-220

- (65) At control stand panel P10, set the L and R FUEL CONTROL switches to CUTOFF position.

F. Squib Electrical Connection Procedure

S 425-168

- (1) Do the steps that follow whenever you connect an electrical connector to a fire bottle squib.

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).  
(b) Remove the protective caps from the fire bottle squibs.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (c) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

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- (d) If there is voltage between pins 1 and 2, do these steps:
  - 1) Connect the multimeter across pins 1 and 2.
  - 2) Connect a 10 Kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - 3) Disconnect the multimeter.

(e) Connect the electrical connector to the fire bottle squib.

G. Test Squib Test Panel

S 865-093

- (1) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 745-094

- (2) Make sure these circuit breakers on the P11 panel are closed:
  - (a) 11A34, IND LTS CKT 2
  - (b) 11A35, IND LTS CKT 3

S 025-224

- (3) Do the Squib Electrical Connection procedure to connect the electrical connector D1424 to the left engine discharge squib of bottle 1.

S 865-097

- (4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 865-098

- (5) At the SQUIB TEST panel, P61, push and hold the TEST 1 switch.

S 745-099

- (6) Make sure that L ENG squib light on the SQUIB TEST panel comes on (green) and R ENG squib light stays off.

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- S 865-162
- (7) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 745-100
- (8) Make sure that L ENG squib light on the SQUIB TEST panel goes off.
- S 865-163
- (9) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 745-101
- (10) Make sure that L ENG squib light on the SQUIB TEST panel comes on.
- S 865-102
- (11) Release the TEST switch.
- S 745-103
- (12) Make sure that L ENG squib test light goes off.
- S 865-105
- (13) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 425-111
- (14) Do the Squib Electrical Connection procedure to connect the electrical connector D1430 to the right engine discharge squib of bottle 1.
- S 865-112
- (15) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 865-113
- (16) At the SQUIB TEST panel, P61, push and hold the TEST 1 switch.
- S 745-114
- (17) Make sure that L ENG and R ENG squib lights on SQUIB TEST panel come on (green).

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- S 865-104
- (18) Open this circuit breaker on the P6 panel and attach DO-NOT-CLOSE tag.
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 745-115
- (19) Make sure that R ENG squib light on the SQUIB TEST panel goes off.
- S 865-106
- (20) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 745-116
- (21) Make sure that the R ENG squib light on the squib test panel comes on.
- S 865-117
- (22) Release the TEST switch.
- S 745-118
- (23) Make sure that the R ENG squib lights on the squib test panel go off.
- S 865-119
- (24) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:
- (a) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- S 425-120
- (25) Do the Squib Electrical Connection procedure to connect the electrical connector D1426 to the left engine discharge squib of bottle 2.
- S 865-121
- (26) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
- (a) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- S 865-122
- (27) At the SQUIB TEST panel, P61, push and hold the TEST 2 switch.
- S 745-123
- (28) Make sure that L ENG and R ENG squib lights on SQUIB TEST panel comes on (green).
- S 865-108
- (29) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:
- (a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

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- S 745-124  
(30) Make sure that L ENG light on the SQUIB TEST panel goes off.
- S 865-107  
(31) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- S 745-125  
(32) Make sure that L ENG squib light on the SQUIB TEST panel comes on.
- S 865-126  
(33) Release the TEST switch.
- S 745-127  
(34) Make sure that L ENG squib test light goes off.
- S 865-128  
(35) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 425-129  
(36) Do the Squib Electrical Connection procedure to connect the electrical connector D1432 to the right engine discharge squib (outboard) of bottle 2.
- S 865-130  
(37) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 865-131  
(38) At the SQUIB TEST panel, P61, push and hold the TEST 2 switch.
- S 745-132  
(39) Make sure that L ENG and R ENG squib lights on the SQUIB TEST panel come on (green).
- S 865-109  
(40) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 745-133  
(41) Make sure that R ENG squib light on the SQUIB TEST panel goes off.

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S 865-110

- (42) Remove the DO NOT CLOSE tag and close this circuit breaker on the P6 panel.  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 745-134

- (43) Make sure that R ENG squib light on the SQUIB TEST panel comes on.

S 865-135

- (44) Release TEST switch.

S 745-136

- (45) Make sure the L ENG and R ENG squib lights go off.

S 715-245

- (46) Do the Extinguisher Bottle Squib Test Circuit in Operational Test.  
H. Put the Airplane Back to Its Usual Condition.

S 425-228

- (1) AIRPLANES WITH PW 4000 ENGINES;  
Connect the electrical connector D8312 to the fuel metering unit (on some airplanes, the fuel condition actuator) on the left and right engines.

S 865-164

- (2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:  
(a) 11D29, ENG HYDR PUMP L SHUTOFF  
(b) 11D30, ENG HYDR PUMP R SHUTOFF  
(c) 11L14, HYDR L ENG PUMP DEPRESS  
(d) 11L23, HYDR R ENG PUMP DEPRESS

S 865-137

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:  
(a) 6E1, L SPAR FUEL VALVE  
(b) 6E2, R SPAR FUEL VALVE

S 865-138

- (4) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-21-00-705-219

4. Fire Extinguisher Discharge Lines System Test

A. Reference

- (1) AMM 20-10-33/401, Power Device Cartridge

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B. Access

(1) Location Zones

- 121 Forward Cargo Compartment (Left)
- 122 Forward Cargo Compartment (Right)
- 153 Aft Cargo Compartment (Left)
- 154 Aft Cargo Compartment (Right)
- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

(2) Access Panels

- 194HR Pressure Relief Door
- 193GL Pressure Relief Door
- 193CL Pressure Relief Door
- 193CR Pressure Relief Door

C. Equipment

- (1) Pipe Plug, MS24391-16
- (2) Nitrogen Air Cart (capable of supplying 50 psig minimum pressure)

D. Prepare for Test

S 865-249

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-191

- (2) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H3, FIRE EXTINGUISHING ENG R BTL 2

S 025-192

- (3) At the fire extinguisher bottles 1 and 2, disconnect the electrical connectors from discharge squibs (Ref Table 501).

E. Test Fire Extinguisher Discharge Lines

S 025-193

- (1) Disconnect the left engine bottle 2 discharge line from the bottle discharge port.

S 435-194

- (2) Install the pipe plug to left engine bottle 2 discharge line.

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S 865-195

- (3) Torque the pipe plug to 20 ft-lbs.

S 025-196

- (4) Disconnect left engine bottle 1 discharge line from bottle squib.

S 435-197

- (5) Connect the nitrogen pressure regulator to the left engine bottle 1 discharge line.

S 865-232

**CAUTION:** APPLY PRESSURE ONLY TO TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO DISCHARGE PORTS CAN OCCUR.

- (6) Apply 40 ±5 psig pressure to the left engine bottle 1 discharge line.

S 745-200

- (7) At the underside of the strut, make sure that nitrogen flows freely from the two left engine discharge nozzles and the fire extinguisher discharge outlets at the engine accessory compartment.

S 095-201

- (8) Disconnect the nitrogen pressure at the left engine bottle 1 discharge line.

S 095-202

- (9) Remove the pipe plug at the left engine bottle 2 discharge line.

S 425-203

- (10) Install the pipe plug to the left engine bottle 1 discharge line.

S 865-204

- (11) Torque the pipe plug to 20 ft-lbs.

S 425-234

- (12) Connect the nitrogen pressure regulator to the left engine bottle 2 discharge line.

S 865-233

**CAUTION:** APPLY PRESSURE ONLY TO TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO DISCHARGE PORTS CAN OCCUR.

- (13) Apply 40 ±5 psig pressure to left engine bottle 2 discharge line.

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S 715-235

- (14) At the underside of the strut midspar, make sure that nitrogen flows freely from the two left engine discharge nozzles and the six fire extinguisher discharge tube outlets at the engine accessory compartment.

S 095-209

- (15) Disconnect the nitrogen pressure at the left engine bottle 2 discharge line.

S 095-210

- (16) Remove the pipe plug at the left engine bottle 1 discharge line.

S 425-211

- (17) Connect the discharge lines to the bottle discharge ports.

S 865-212

- (18) Do the above procedure for the right engine bottle 1 and bottle 2 discharge lines.

F. Put the Airplane Back to Its Usual Condition

S 735-221

- (1) Do the Test Squib Test Panel in System Test.

S 865-155

- (2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

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ENGINE FIRE SWITCH – INSPECTION CHECK

1. General

- A. This procedure does an operational test of the engine fire switch to make sure the firing circuit is correct and the engine is isolated.

TASK 26-21-01-716-001

2. Do the Engine Fire Switch Operation Test

A. Equipment

- (1) Squib Protective Cover  
M83723/60-210-AN or AC  
M83723/60-112-AN or AC  
M83723/60-108-AN or AC  
M83723/60-110-AN or AC
- (2) Resistor – 10 Kohms or greater
- (3) Electrical Test Equipment – Bottle Squib, Fire Extinguisher System – A26001-187 (Recommended)
- (4) Electrical Test Equipment – Bottle Squib, Fire Extinguisher System – A26001-165 (Alternative)
- (5) Electrical Test Equipment – Bottle Squib, Fire Extinguisher System – A26001-174 (Alternative)
- (6) Multimeter 0-1000 VDC  $\pm 1\%$ , 0-750 VAC, 0-2 AMPS, 0-2 MEG OHMS (commercially available)

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power
- (3) AMM 27-61-00/201, Spoiler/Speedbrake Control System
- (4) AMM 29-11-00/201, Main Hydraulic Systems
- (5) AMM 31-41-00/201, Engine Indication and Crew Alerting System (EICAS)
- (6) AMM 36-00-00/201, Pneumatic General
- (7) AMM 71-11-04/201, Fan Cowl Panels
- (8) AMM 71-11-06/201, Core Cowl Panels
- (9) AMM 78-31-00/201, Thrust Reverser
- (10) AMM 78-31-01/401, Thrust Reverser

C. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 153/154 Aft Cargo Compartment
  - 211/212 Flight Compartment
  - 410/420 Power Plant

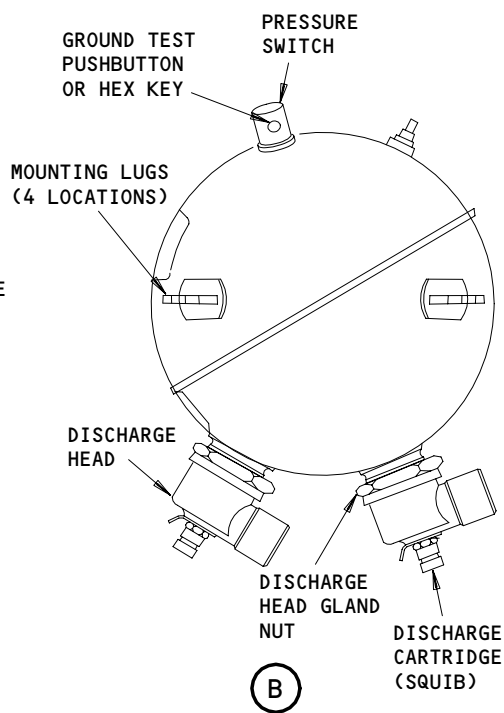
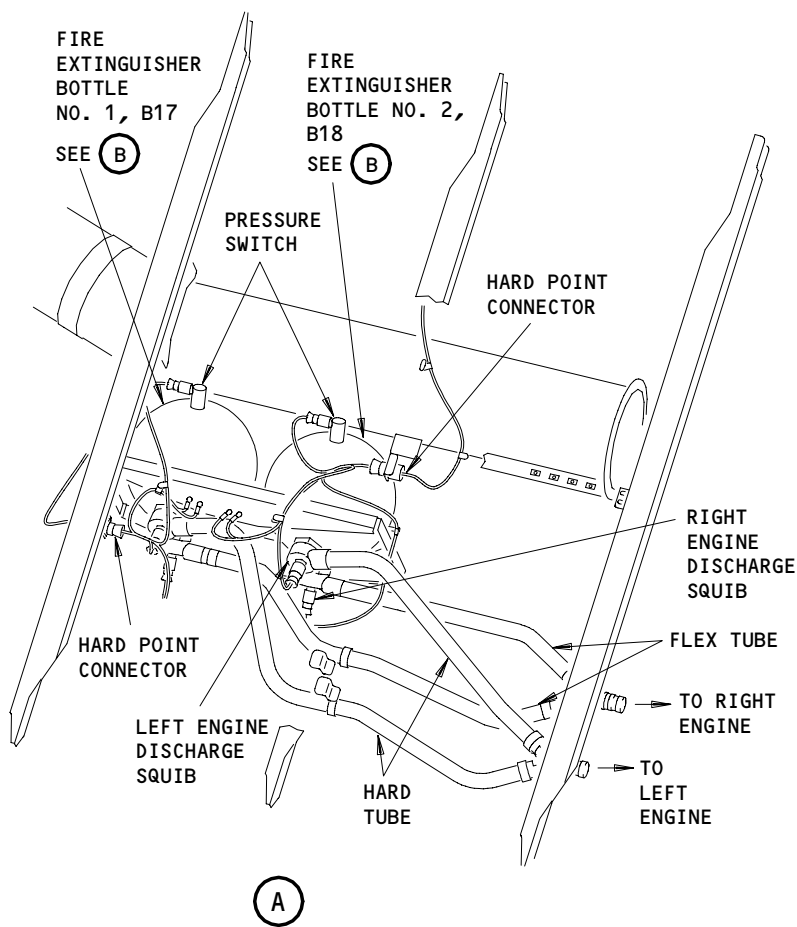
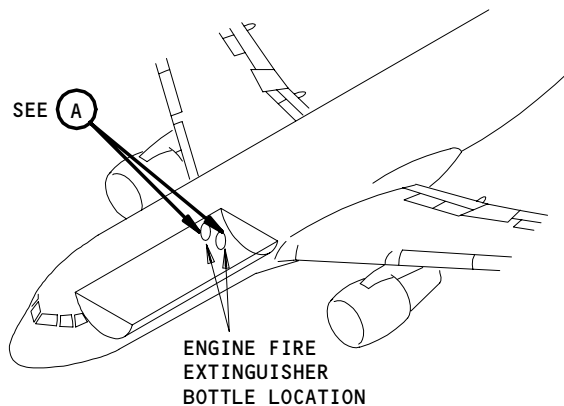
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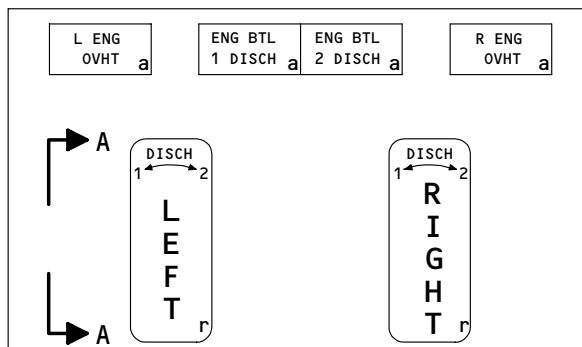
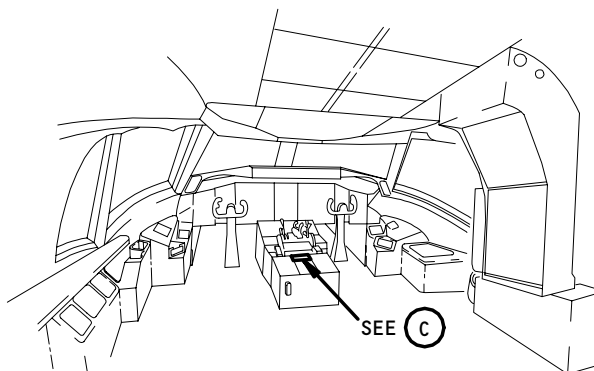
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Engine Fire Switch - Inspection Check  
Figure 601 (Sheet 1)

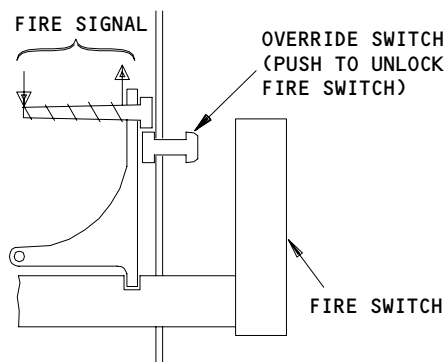
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ENGINE FIRE CONTROL PANEL

(C)



A-A

Engine Fire Switch - Inspection Check  
Figure 601 (Sheet 2)

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(2) Access Panels

413AL/423AL	Fan Cowl Panel (Left)
414AR/424AR	Fan Cowl Panel (Right)
415AL/425AL	Thrust Reverser (Left)
416AR/426AR	Thrust Reverser (Right)
417AL/427AL	Core Cowl Panel (Left)
418AR/428AR	Core Cowl Panel (Right)
821	Forward Cargo Door
822	Aft Cargo Door
831	Forward Entry Door

D. Prepare to Test the Engine Fire Switch Operation

S 866-246

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-002

- (2) Supply electrical power (AMM 24-22-00/201).

S 866-003

- (3) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 866-211

- (4) Open these circuit breakers on the P11 panel and attach DO NOT CLOSE tags:
- (a) 11D29, ENG HYDR PUMP L SUPPLY
  - (b) 11D30, ENG HYDR PUMP R SUPPLY
  - (c) 11L14, HYDR L ENG PUMP DEPRESS
  - (d) 11L23, HYDR R ENG PUMP DEPRESS

S 866-220

- (5) Open these circuit breakers on the P6-1 panel and attach DO NOT CLOSE tags:
- (a) 06E1, LEFT ENGINE SPAR VALVE
  - (b) 06E2, RIGHT ENGINE SPAR VALVE

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S 036-004

- (6) Disconnect the connectors at the engine fire extinguisher bottles. Refer to Table 601:

TABLE 601 ENGINE FIRE BOTTLE CONNECTIONS	
Connector	Bottle Connected To:
D1424 D1430	B17, BTL 1 - Left Engine Discharge Squib B17, BTL 1 - Right Engine Discharge Squib
D1426 D1432	B18, BTL 2 - Left Engine Discharge Squib B18, BTL 2 - Right Engine Discharge Squib

S 426-219

**WARNING:** PUT THE PROTECTIVE COVERS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE COVERS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (7) Put the protective covers on all the fire bottle squibs.  
 E. Do a Test of the Fire Switch Discharge Circuit (Fig. 601)

S 866-247

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-153

- (2) Set the LOAD CHECK toggle switch on the squib test box to OFF.

S 436-007

- (3) Attach an adapter cable to the connector of the squib test box.

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S 436-008

**WARNING:** DO NOT INSTALL THE ELECTRICAL CONNECTORS TO THE BOTTLE DURING THE TEST. THE SQUIB CARTRIDGE MAY BE ACCIDENTALLY FIRED AND CAN CAUSE INJURY TO PERSONS.

- (4) Connect the bottle 1, left engine squib connector D1424 to the squib test box adapter cable.

S 866-006

- (5) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1

S 986-009

- (6) Set the L FUEL CONTROL switch on the control stand panel P10 to RUN.

S 866-154

- (7) Connect the multimeter to the squib test box.

S 866-155

- (8) Set the LOAD CHECK toggle switch on the squib test box to ON.

S 986-011

- (9) Pull the LEFT engine fire handle on the P8 panel out to the emergency fire position.

**NOTE:** You must push the fire override switch behind the fire handle to pull the fire handles into the emergency fire position. When you turn the handle, it must be held against the stops when you read the indications.

- (a) Make sure the L ENG SHUTDOWN shows on the EICAS display.

S 216-156

- (10) Make sure the BOTTLE DISCHARGE light on the squib test box stays off.

S 216-157

- (11) Make sure the multimeter shows  $0 \pm 2$  volts.

S 986-010

- (12) Set the L FUEL CONTROL switch on the control stand panel P10 to the CUTOFF position.

S 986-012

- (13) Turn and hold the LEFT engine fire handle fully counterclockwise to the DISCH 1 position.  
(a) Make sure the BOTTLE DISCHARGE light on the test box comes on.

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- (b) Make sure that the multimeter on the squib test box shows 16 volts minimum.

NOTE: If voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-212

- (14) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1

S 216-158

- (15) Make sure that the BOTTLE DISCHARGE light on the squib test box goes off.

S 216-159

- (16) Make sure the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 216-014

- (17) Release the handle and make sure the handle moves quickly toward the center about 10 degrees.  
(a) Make sure the BOTTLE DISCHARGE light on the test box stays off.

S 866-213

- (18) Set the LOAD CHECK toggle switch on the squib test box to OFF.

S 036-016

- (19) Disconnect the bottle 1, left engine squib connector D1424 from the squib test box.

S 436-017

- (20) Connect the bottle 2, left engine squib connector D1426 to the squib test box adapter cable.

S 866-179

- (21) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 866-161

- (22) Set the LOAD CHECK toggle switch on the squib test box to ON.  
(a) Make sure the BOTTLE DISCHARGE light on the squib test box stays off.  
(b) Make sure the multimeter shows  $0 \pm 2$  volts.

S 986-018

- (23) Turn and hold the LEFT engine fire handle fully clockwise to the DISCH 2 position.  
(a) Make sure the BOTTLE DISCHARGE light on the test box comes on.

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- (b) Make sure that the multimeter on the squib test box shows 16 volts minimum.

NOTE: If voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-162

- (24) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 216-163

- (25) Make sure that the BOTTLE DISCHARGE light on the squib test box goes off.

S 216-164

- (26) Make sure the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 216-020

- (27) Release the handle and make sure the handle moves quickly toward the center about 10 degrees.  
(a) Make sure the BOTTLE DISCHARGE light on the test box stays off.

S 986-022

- (28) Turn the fire handle to the vertical position.

S 866-141

- (29) Push the fire handle into the usual position.

S 866-166

- (30) Set the LOAD CHECK toggle switch on the squib test box to off.

S 036-023

- (31) Disconnect the bottle 2, left engine squib connector D1426 from the squib test box.

S 436-024

- (32) Connect the bottle 1, right engine squib connector D1430 to the squib test box adapter cable.

S 866-180

- (33) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1

S 866-167

- (34) Set the LOAD CHECK toggle switch on the squib test box to ON.

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S 986-025

- (35) Set the R FUEL CONTROL switch on the control stand panel P10, to the RUN position.

S 216-026

- (36) Pull the RIGHT engine fire handle on the P8 out to the emergency fire position.

**NOTE:** You must push the fire override switch behind the fire handle to pull the fire handles into the emergency fire position. When you turn the handle, it must be held against the stops when you read the indications.

- (a) Make sure the R ENG SHUTDOWN shows on the EICAS display.  
(b) Make sure the BOTTLE DISCHARGE light on the squib test box stays off.

S 216-343

- (37) Make sure the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 986-027

- (38) Set the R FUEL CONTROL switch on the control stand panel P10 to the CUTOFF position.

S 986-028

- (39) Turn and hold the RIGHT engine fire handle fully counterclockwise to the DISCH 1 position.  
(a) Make sure the BOTTLE DISCHARGE light on the test box comes on.  
(b) Make sure that the multimeter on the squib test box shows 16 volts minimum.

**NOTE:** If voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-181

- (40) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1

S 216-168

- (41) Make sure that the BOTTLE DISCHARGE light on the squib test box goes off.

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S 216-344

- (42) Make sure the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 216-030

- (43) Release the handle and make sure the handle moves quickly toward the center about 10 degrees.

S 866-170

- (44) Set the LOAD CHECK toggle switch on the squib test box to OFF.  
(a) Make sure the BOTTLE DISCHARGE light on the test box stays off.

S 036-032

- (45) Disconnect the bottle 1, right engine squib connector D1430 from the squib test box.

S 436-033

- (46) Connect the bottle 2, right engine squib connector D1432 to the squib test box adapter cable.

S 866-183

- (47) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 866-171

- (48) Set the LOAD CHECK toggle switch on the squib test box to ON.  
(a) Make sure that the BOTTLE DISCHARGE light on the squib test box goes off.  
(b) Make sure that the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 986-034

- (49) Turn and hold the RIGHT engine fire handle fully clockwise to the DISCH 2 position.  
(a) Make sure the BOTTLE DISCHARGE light on the test box comes on.  
(b) Make sure that the multimeter on the squib test box shows 16 volts minimum.

NOTE: If voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-184

- (50) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 216-172

- (51) Make sure that the BOTTLE DISCHARGE light on the squib test box goes off.

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S 216-173

- (52) Make sure that the multimeter on the squib test box shows  $0 \pm 2$  volts.

S 216-036

- (53) Release the handle and make sure the handle moves quickly toward the center about 10 degrees.  
(a) Make sure the BOTTLE DISCHARGE light on the test box stays off.

S 866-143

- (54) Turn the fire handle to the vertical position.

S 866-142

- (55) Push the fire handle into the usual position.

S 866-175

- (56) Set the LOAD CHECK toggle switch on the squib test box to OFF.

S 036-039

- (57) Disconnect the bottle 2, right engine squib connector D1432 from the squib test box.

S 866-240

- (58) Remove the DO NOT CLOSE tag and close these circuit breakers on the P6-1 panel:  
(a) 06E1, LEFT ENGINE SPAR VALVE  
(b) 06E2, RIGHT ENGINE SPAR VALVE

F. Squib Electrical Connection Procedure

S 426-196

- (1) Do the steps that follow whenever you connect an electrical connector to a fire bottle squib.

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).  
(b) Remove the protective covers from the fire bottle squibs.

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**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (c) Make sure there is no voltage between pins 1 and 2 of the electrical connector.
- (d) If there is voltage between pins 1 and 2, do these steps:
  - 1) Connect the multimeter across pins 1 and 2.
  - 2) Connect a 10 Kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - 3) Disconnect the multimeter.
- (e) Connect the electrical connector to the fire bottle squib.

G. Do a Test of the Squib Connection

S 866-042

- (1) Make sure these P6 panel circuit breakers are open:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 436-044

- (2) Do the Squib Electrical Connection procedure to connect the electrical connector, D1424, to the left engine discharge (inboard) squib of bottle 1.

S 866-045

- (3) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1

S 986-046

- (4) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).
  - (a) Make sure the L ENG squib light on the SQUIB TEST panel comes on (green) and the R ENG squib light does not come on.

S 216-048

- (5) Release the TEST switch.
  - (a) Make sure the L ENG squib light goes off.

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- S 866-311
- (6) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 436-050
- (7) Do the Squib Electrical Connection procedure to connect the electrical connector, D1430, to the right engine discharge squib of bottle 1.
- S 866-051
- (8) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 986-052
- (9) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).  
(a) Make sure the R ENG squib light on the SQUIB TEST panel comes on (green) and the L ENG squib light does not come on.
- S 216-054
- (10) Release the TEST switch.  
(a) Make sure the R ENG squib light goes off.
- S 866-055
- (11) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 436-056
- (12) Do the Squib Electrical Connection procedure to connect the electrical connector D1426 to the left engine discharge squib (inboard) of bottle 2.
- S 866-057
- (13) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- S 986-058
- (14) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).  
(a) Make sure the L ENG squib light on the SQUIB TEST panel comes on (green) and the R ENG squib light does not come on.
- S 216-060
- (15) Release the TEST switch.  
(a) Make sure the L ENG squib light goes off.

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- S 866-149
- (16) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- S 436-061
- (17) Do the Squib Electrical Connection procedure to connect the electrical connector D1432 to the right engine discharge squib (outboard) of bottle 2.
- S 866-062
- (18) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 986-063
- (19) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).  
(a) Make sure the R ENG squib light on the SQUIB TEST panel comes on (green) and the L ENG squib light does not come on.
- S 216-065
- (20) Release the TEST switch.  
(a) Make sure the R ENG squib light goes off.
- H. Do a test of the Left and Right Generator Field Control Relay Trip Because of Fire Switch Actuation
- S 866-066
- (1) Make sure these P6 panel circuit breakers are open:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1  
(b) 6H2, FIRE EXTINGUISHING ENG L BTL 2  
(c) 6H3, FIRE EXTINGUISHING ENG R BTL 1  
(d) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 216-067
- (2) Make sure the L GEN CONT switch on the pilots' overhead panel P5 is OFF (out position).
- S 216-136
- (3) Make sure the yellow OFF light in the L GEN CONT switch is on.
- S 216-068
- (4) Make sure the R GEN CONT switch (P5) is OFF (out position).
- S 216-137
- (5) Make sure the yellow OFF light in the R GEN CONT switch is on.

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S 216-069

- (6) Make sure the white FIELD OFF lights are on in the L and R GEN FIELD MAN RESET switches.

NOTE: The L and R GEN FIELD MAN RESET switches are on the right side panel P61.

S 216-070

- (7) Push the L GEN FIELD MAN RESET switch (P61).  
(a) Make sure the FIELD OFF light in the switch goes off.

S 216-071

- (8) Push the R GEN FIELD MAN RESET switch (P61).  
(a) Make sure the FIELD OFF light in the switch goes off.

S 986-072

- (9) Pull the LEFT engine fire switch (P8) out to the emergency fire position.  
(a) Five seconds after the LEFT fire switch operation make sure the white FIELD OFF light comes on in the L GEN FIELD MAN RESET switch (P61).

S 986-073

- (10) Push the left engine fire switch (P8) to the usual position.

S 986-074

- (11) Pull the RIGHT engine fire switch (P8) out to the emergency fire position.  
(a) Five seconds after the R engine fire switch operation make sure the white FIELD OFF light comes on in the R GEN FIELD MAN RESET switch (P61).

S 986-076

- (12) Push the RIGHT engine fire switch (P8) in its usual position.

S 986-079

- (13) Set the L GEN CONT switch on the pilots' overhead panel P5 to the ON position (in position).  
(a) Make sure the white ON light in the L GEN CONT switch comes on.

S 986-081

- (14) Set the R GEN CONT switch (P5) to the ON position (in position).  
(a) Make sure the white ON light in the R GEN CONT switch comes on.

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I. Do a Check of the Hydraulic Supply Shutoff Due to Activation of Fire Switch

S 866-251

- (1) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
  - (a) 11D29, ENG HYDR PUMP L SUPPLY
  - (b) 11D30, ENG HYDR PUMP R SUPPLY

S 986-083

- (2) Pull the LEFT (RIGHT) fire handle on the P8 panel to the emergency fire position.

NOTE: You must push the manual unlock pushbutton behind the fire handle to pull the fire handle into the emergency fire position.

S 416-084

- (3) Open the applicable aft strut hydraulic bay access door.
  - (a) 437BL, Left Engine
  - (b) 447BL, Right Engine

S 216-085

- (4) Make sure the EDP supply shutoff valve indicator moves to the CLOSE position.

NOTE: The EDP supply shutoff valve indicator is on the strut.

S 866-144

- (5) Push the fire handle into the usual position.
  - (a) Make sure the EDP supply shutoff valve moves to the OPEN position.

S 866-250

- (6) Open these circuit breakers on the P11 panel and attach DO NOT CLOSE tags:
  - (a) 11D29, ENG HYDR PUMP L SUPPLY
  - (b) 11D30, ENG HYDR PUMP R SUPPLY

J. Do an Air Supply Pressure Regulating and Shutoff Valve (PRSOV) Check Because of the Operation of the Fire Switch

S 866-197

- (1) Push the applicable L (R) ENG bleed air switch on P5 panel to the ON position.
  - (a) Make sure the white flow bar light comes on.
  - (b) Make sure the applicable L or R ENG bleed air OFF light on P5 panel comes on (yellow).

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- S 216-198
- (2) Make sure the LEFT and RIGHT engine fire handles are in the usual position.
- S 866-199
- (3) Disconnect the electrical connectors from the PRSOV valve.
- (a) D22, left valve
- (b) D64, right valve
- S 436-200
- (4) Put the negative lead of a 28v dc meter into pin 6 of the connector.
- S 436-201
- (5) Put the positive lead into pin 5 of the connector.
- (a) Make sure the voltmeter shows 0 to 5 volt.
- S 986-203
- (6) Pull the LEFT (RIGHT) fire handle out to the emergency fire position.
- (a) Make sure the voltmeter shows 28 volts.
- (b) After 6 seconds, make sure the voltmeter shows between 0 and 5 volts.
- S 436-205
- (7) Put the positive lead into pin 7 of connector.
- (a) Make sure the voltmeter shows between 0 and 5 volts.
- S 866-206
- (8) Push the fire handle into the usual position.
- (a) Make sure the voltmeter shows 28 volts.
- (b) After 6 seconds, make sure the voltmeter shows between 0 and 5 volts.
- S 436-208
- (9) Connect these electrical connectors to the PRSOV valves.
- (a) D22, left valve
- (b) D64, right valve
- S 716-236
- (10) Make sure the white flow bar light comes on.
- K. Do a Check of the Engine Fuel Supply Shutoff Because of the Operation of the Fire Switch
- S 756-309
- (1) Open these circuit breakers and attach DO-NOT-CLOSE tags on the P6 panel:
- (a) 6E1, L SPAR FUEL VALVE or L SPAR FUEL VALVE/RESET B

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- (b) 6E2, R SPAR FUEL VALVE or R SPAR FUEL VALVE/RESET B
- S 756-305
- (2) Make sure all boost pumps and override/jettison pumps are in the OFF position.
- S 756-306
- (3) Make sure the manual override lever on each engine fuel shutoff valve actuator is in the CLOSED position (Ref 28-22-00/501).
- S 756-307
- (4) Make sure the left and right Fuel Control switches on the P10 quadrant stand are in the CUTOFF position.
- S 756-308
- (5) Make sure the left and right Engine Fire switch handles on the P8 Aft Control stand are in the stowed (normal) position.
- S 866-237
- (6) Make sure these P6 panel circuit breakers are open:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 756-281
- (7) Disconnect the connectors D1554 and D1572 from the left and right engine fuel shutoff valve actuators.
- S 756-280
- (8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6-1 panel:
- (a) 06E1, L SPAR FUEL VALVE or L SPAR FUEL VALVE/RESET B
  - (b) 06E2, R SPAR FUEL VALVE or R SPAR FUEL VALVE/RESET B
- S 756-313
- (9) AIRPLANES PRE-SB 28-066;
- Do these steps:
- (a) Measure and make sure that 0 vdc exists between pins 2 and 4 and between pins 6 and 4 of the connectors D1554 and D1572.
  - (b) Measure and make sure that 28 vdc exists between pins 5 and 4 of the connectors D1554 and D1572.
  - (c) Put the L FUEL CONTROL switch on the quadrant stand, P10, in the RUN position.
  - (d) Measure and make sure that 28 vdc exists between pins 2 and 4 of the connector D1554.
  - (e) Measure and make sure that 0 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1554.
  - (f) Measure and make sure that 0 vdc exists between pins 2 and 4 and between pins 6 and 4 of the connector D1572.

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- (g) Measure and make sure that 28 vdc exists between pins 5 and 4 of the connector D1572.
- (h) Pull the left engine fire switch handle out.
- (i) Measure and make sure that 0 vdc exists between pins 2 and 4 and between pins 5 and 4 of the connector D1554.
- (j) Measure and make sure that 28 vdc exists between pins 6 and 4 of the connector D1554.
- (k) Push the left fire handle into the stowed (normal) position.
- (l) Put the left FUEL CONTROL switch on the P10 panel in the CUTOFF position.
- (m) Put the right FUEL CONTROL switch on the P10 panel in the RUN position.
- (n) Measure and make sure that 0 vdc exists between pins 2 and 4 and between pins 6 and 4 of the connector D1554.
- (o) Measure and make sure that 28 vdc exists between pins 5 and 4 of the connector D1554.
- (p) Measure and make sure that 28 vdc exists between pins 2 and 4 of the connector D1572.
- (q) Measure and make sure that 0 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1572.
- (r) Pull the right engine fire switch handle out.
- (s) Measure and make sure that 0 vdc exists between pins 2 and 4 and between pins 5 and 4 of the connector D1572.
- (t) Measure and make sure that 28 vdc exists between pins 6 and 4 of the connector D1572.

S 756-312

(10) AIRPLANES POST-SB 28-066;

Do these steps:

- (a) Measure and make sure that 0 vdc exists between pins 2 and 4 of the connectors D1554 and D1572.
- (b) Measure and make sure that 28 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connectors D1554 and D1572.
- (c) Put the L FUEL CONTROL switch on the quadrant stand, P10, in the RUN position.
- (d) Measure and make sure that 28 vdc exists between pins 2 and 4 of the connector D1554.
- (e) Measure and make sure that 0 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1554.
- (f) Measure and make sure that 0 vdc exists between pins 2 and 4 of the connector D1572.
- (g) Measure and make sure that 28 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1572.
- (h) Pull the left engine fire switch handle out.
- (i) Measure and make sure that 0 vdc exists between pins 2 and 4 of the connector D1554.
- (j) Measure and make sure that 28 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1554.
- (k) Push the left fire handle into the stowed (normal) position.
- (l) Put the left FUEL CONTROL switch on the P10 panel in the CUTOFF position.

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- (m) Put the right FUEL CONTROL switch on the P10 panel in the RUN position.
- (n) Measure and make sure that 0 vdc exists between pins 2 and 4 of the connector D1554.
- (o) Measure and make sure that 28 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1554.
- (p) Measure and make sure that 28 vdc exists between pins 2 and 4 of the connector D1572.
- (q) Measure and make sure that 0 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1572.
- (r) Pull the right engine fire switch handle out.
- (s) Measure and make sure that 0 vdc exists between pins 2 and 4 of the connector D1572.
- (t) Measure and make sure that 28 vdc exists between pins 5 and 4 and between pins 6 and 4 of the connector D1572.

S 756-298

- (11) Push the right engine fire switch handle into the stowed (normal) position.

S 756-299

- (12) Put the right FUEL CONTROL switch on the P10 panel in the CUTOFF position.

S 756-300

- (13) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - (a) 6E1, L SPAR FUEL VALVE or L SPAR FUEL VALVE/RESET B
  - (b) 6E2, R SPAR FUEL VALVE or R SPAR FUEL VALVE/RESET B

S 756-301

- (14) Connect the connectors D1554 and D1572 to the left and right engine fuel shutoff valve actuators, respectively.

S 756-303

- (15) Close these P6 panel circuit breakers:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1

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- (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 756-302

- (16) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the power distribution panel, P6:
- (a) 6E1, L SPAR FUEL VALVE or L SPAR FUEL VALVE/RESET B
  - (b) 6E2, R SPAR FUEL VALVE or R SPAR FUEL VALVE/RESET B

S 756-349

- (17) Do the steps that follow to do a test of the engine fuel shutoff valve:
- (a) Make sure the manual override handle (5) of the actuator (1) is in the CLOSED position.
  - (b) Put the applicable L or R FUEL CONTROL switch on the quadrant stand, P10, to the RUN position.
    - 1) Make sure the amber SPAR VALVE light on the P10 stand comes on and then goes off.
  - (c) Make sure the manual override handle moves to the OPEN position.
  - (d) Put the applicable L or R FUEL CONTROL switch on the P10 panel to the CUTOFF position.
    - 1) Make sure the amber SPAR VALVE light on the P10 panel comes on and then goes off.

S 026-262

- (18) Do these steps to make sure power to the Fuel Metering Unit or Fuel Conditioning Control Actuator is removed when the fire handle is pulled.
- (a) Open the fan cowl panels (AMM 71-11-04/201).

**WARNING:** DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (b) Do the Thrust Reverser Deactivation for Ground Maintenance procedure (AMM 78-31-00/201).
- (c) Open the core cowl panels (AMM 71-11-06/201).

**WARNING:** OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT MAY OCCUR.

- (d) Open the thrust reversers (AMM 78-31-00/201).

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- (e) Open these circuit breakers on the power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - 1) 6E1, L SPAR FUEL VALVE
  - 2) 6E2, R SPAR FUEL VALVE
- (f) Disconnect the electrical connector from the Engine Fuel Metering Unit or from the Fuel Conditioning Control Actuator.
  - 1) AIRPLANES WITH PW4000 ENGINES;  
D8312
- (g) Connect the 28 vdc meter.
  - 1) AIRPLANES WITH PW4000 ENGINES;  
put the negative lead into D8312, pin 5.
- (h) Put the FUEL CONT switch in run position
- (i) Check the voltage.
  - 1) AIRPLANES WITH PW4000 ENGINES;  
check for 0 vdc on pin 1 and 6.
- (j) Pull the LEFT (RIGHT) fire handle out to the emergency fire position.

NOTE: Do not rotate the fire handle to the right or to the left because this will discharge the bottle.

- (k) Check the voltages.
  - 1) AIRPLANES WITH PW4000 ENGINES;  
check for 28 vdc on pin 1 and 6.
- (l) Push the fire handle into the usual position.
- (m) Put the FUEL CONT switch in cutoff.
- (n) Remove the meter from the electrical connector.
- (o) Connect the electrical connector to the Engine Fuel Conditioning Control Actuator OR to the Engine Fuel Metering Unit.
  - 1) AIRPLANES WITH PW4000 ENGINES;  
D8312
- (p) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the power distribution panel, P6:
  - 1) 6E1, L SPAR FUEL VALVE
  - 2) 6E2, R SPAR FUEL VALVE

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT MAY OCCUR.

- (q) Close the thrust reversers (AMM 78-31-00/201).

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- (r) Close the core cowl panels (AMM 71-11-06/201).
- (s) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).
- (t) Close the fan cowl panels(AMM 71-11-04/201).

S 266-350

- (19) Push the L GEN CONT switch on the pilots' overhead panel P5 to the OFF position (out position).
  - (a) Make sure the yellow OFF light in the switch is on.

S 266-351

- (20) Push the L GEN FIELD MAN RESET switch (P61).
  - (a) Make sure the FIELD OFF light in the switch goes off.

S 266-352

- (21) Push the R GEN CONT switch on the pilots' overhead panel P5 to the OFF position (out position).
  - (a) Make sure the yellow OFF light in the switch is on.

S 266-353

- (22) Push the R GEN FIELD MAN RESET switch (P61).
  - (a) Make sure the FIELD OFF light in the switch goes off.

S 266-354

- (23) Push the L and R GEN CONT switches on the pilots' overhead panel P5 to the ON position (in position).
  - (a) Make sure the white ON light in the L and R GEN CONT switches comes on.

- L. Do a Thrust Reverser (T/R) Power Shutoff Check Because of the Activation of Engine Fire Switch (Information for RIGHT engine in parenthesis)

S 866-127

- (1) ON AIRPLANES WITH HYDRAULIC OPERATED THRUST REVERSER SYSTEM;  
Do these steps:

**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 INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Do the deactivation procedure for the spoilers (AMM 27-61-00/201) or move all persons and equipment away from the spoilers.

**CAUTION:** DO NOT EXTEND THE THRUST REVERSERS WHEN CORE COWL PANELS ARE OPEN. DAMAGE WILL OCCUR TO THE THRUST REVERSER AND CORE COWL PANELS.

- (b) Do a check to make sure that the core cowl panels are closed and latched.

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- (c) Do a check to make sure that the D-shaped pressure relief doors on both sides of the strut are closed and latched.
- (d) Do a check to make sure that the thrust reverser is closed and latched.
- (e) Make sure that the applicable circuit breakers for the Thrust Reverser are closed (AMM 78-31-01/401).
- (f) Do this procedure: Apply Hydraulic Power (AMM 29-11-00/201).

**WARNING:** MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREA AFT OF THE THRUST REVERSERS. WHEN THE THRUST REVERSERS EXTENDS AFT, IT CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (g) Set the LEFT (RIGHT) THRUST REVERSER in DEPLOY position.
  - 1) Make sure that the LEFT (RIGHT) THRUST REVERSER deploys.
- (h) Stow the LEFT (RIGHT) THRUST REVERSER.
- (i) Pull the LEFT (RIGHT) engine fire handle out to the emergency fire position.

**NOTE:** When you pull the fire handle into the emergency fire position, use the manual unlock pushbutton behind the fire handle.

- (j) Set the LEFT (RIGHT) THRUST REVERSER in DEPLOY position.
  - 1) Make sure that the LEFT (RIGHT) THRUST REVERSER remains stowed.
- (k) Set the LEFT (RIGHT) THRUST REVERSE LEVER in the STOW position.
- (l) Push the LEFT (RIGHT) engine fire handle into the usual position.
- (m) Do this procedure: Remove Hydraulic Power (AMM 29-11-00/201).

M. Put the airplane back to its usual position.

S 866-252

- (1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the main power distribution panel, P6:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 866-253

- (2) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P11 panel:
  - (a) 11D29, ENG HYDR PUMP L
  - (b) 11D30, ENG HYDR PUMP R
  - (c) 11L14, HYDR L ENG PUMP DEPRESS
  - (d) 11L23, HYDR R ENG PUMP DEPRESS

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S 866-254

- (3) Remove the DO-NOT-CLOSE tag and close these circuit breakers on the P6 panel:
- (a) 06E1, L SPAR FUEL VALVE
  - (b) 06E2, R SPAR FUEL VALVE

S 866-209

- (4) Remove electrical power if it is not needed (AMM 24-22-00/201).

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ENGINE FIRE CONTROL PANEL – MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Remove the Engine Fire Control Panel
  - (2) Install the Engine Fire Control Panel
  - (3) Remove the Engine Fire Switch
  - (4) Install the Engine Fire Switch

TASK 26-21-02-002-001

2. Remove the Engine Fire Control Panel (Fig. 201)

A. General

- (1) The engine fire control panel, M10443, is installed on the aisle control stand, P8.

B. Access

- (1) Location Zones  
211/212 Flight Compartment

C. Procedure

S 862-002

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6B1, GEN CONT UNIT L
  - (b) 6B2, GEN CONT UNIT R
  - (c) 6E1, FUEL VALVE L SPAR
  - (d) 6E2, FUEL VALVE R SPAR
  - (e) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (f) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (g) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (h) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 862-003

- (2) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11A34, INDICATOR LIGHTS 2
  - (b) 11A35, INDICATOR LIGHTS 3
  - (c) 11B18, WARN ELEX B
  - (d) 11B19, FIRE SWITCH UNLOCK
  - (e) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (f) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (g) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (h) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (i) 11B24, FIRE DETECTION APU 1
  - (j) 11B25, FIRE DETECTION APU 2

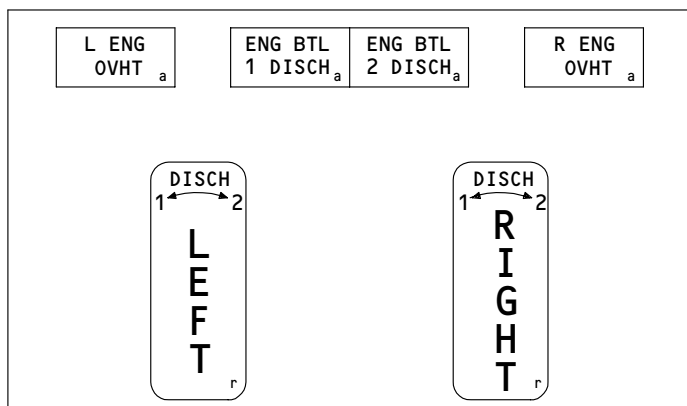
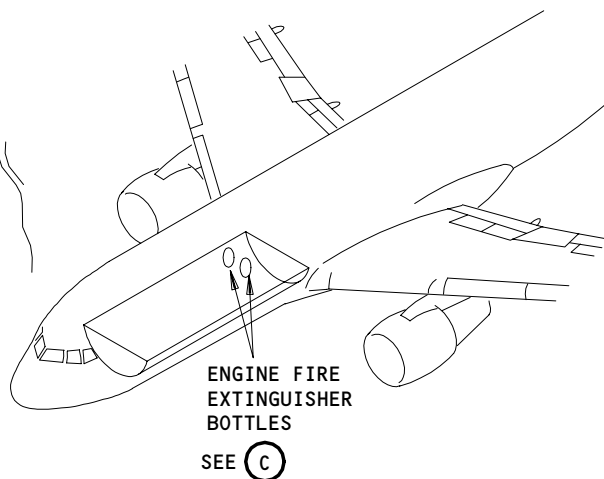
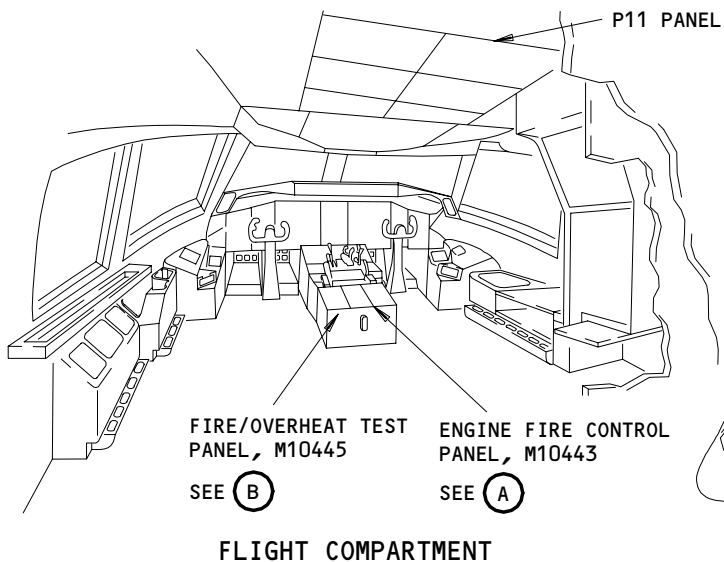
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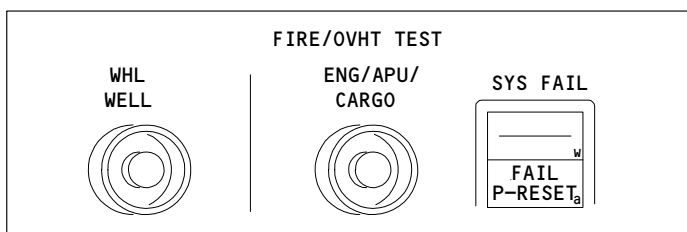
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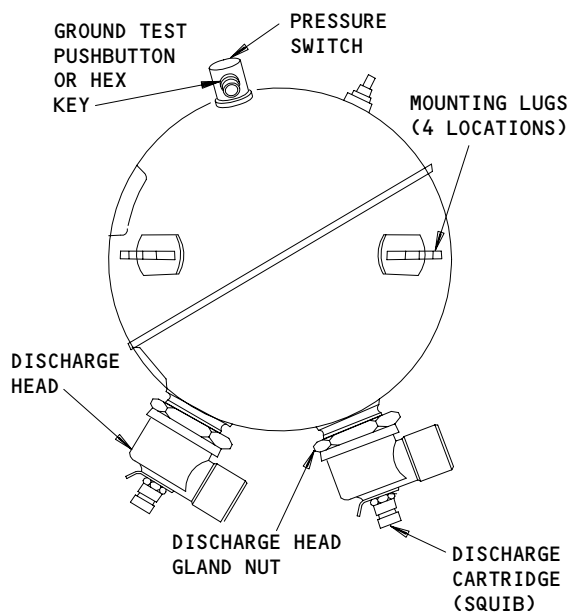
**ENGINE FIRE CONTROL PANEL, M10443**

(A)



**FIRE/OVERHEAT TEST PANEL, M10445**

(B)



**ENGINE FIRE EXTINGUISHER BOTTLE (EXAMPLE)**

(C)

**Engine Fire Control Panel Location  
Figure 201**

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- (k) 11B26, FIRE DETECTION CARGO 1
- (l) 11B27, FIRE DETECTION CARGO 2
- (m) 11B29, OVERHEAT DETECTION L ENGINE 1
- (n) 11B30, OVERHEAT DETECTION L ENGINE 2
- (o) 11B31, OVERHEAT DETECTION R ENGINE 1
- (p) 11B32, OVERHEAT DETECTION R ENGINE 2
- (q) 11D14, ENGINE T/R CONT L
- (r) 11D29, HYDRAULICS ENG PUMP SUPPLY L
- (s) 11D30, HYDRAULICS ENG PUMP SUPPLY R
- (t) 11J34, WARN ELEX A
- (u) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (v) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (w) 11K32, ALTERNATE POWER FIRE DETECTION APU
- (x) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (y) 11K34, OVERHEAT DETECT ALTN PWR L ENGINE
- (z) 11K35, OVERHEAT DETECT ALTN PWR R ENGINE
- (aa) 11L33, R ENGINE T/R CONT
- (ab) 11L6, L ENGINE T/R CONT
- (ac) 11S12, ISOL VALVE PWR L
- (ad) 11S13, ISOLATION VALVE CONT L
- (ae) 11S21, ISOL VALVE PWR R
- (af) 11S22, ISOLATION VALVE CONT R

S 022-004

- (3) Remove the engine fire control panel.

TASK 26-21-02-402-081

### 3. Install the Engine Fire Control Panel

#### A. General

- (1) The engine fire control panel, M10443, is installed on the aisle control stand, P8.

#### B. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 26-21-01/601, Engine Fire Switch

#### C. Access

- (1) Location Zones  
211/212 Flight Compartment

#### D. Procedure

S 422-006

- (1) Install the engine fire control panel.

S 862-007

- (2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6B1, GEN CONT UNIT L
  - (b) 6B2, GEN CONT UNIT R
  - (c) 6E1, FUEL VALVE L SPAR
  - (d) 6E2, FUEL VALVE R SPAR
  - (e) 6H1, FIRE EXTINGUISHING ENG L BTL 1

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- (f) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (g) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (h) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 862-008

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

- (a) 11A34, INDICATOR LIGHTS 2
- (b) 11A35, INDICATOR LIGHTS 3
- (c) 11B18, WARN ELEX B
- (d) 11B19, FIRE SWITCH UNLOCK
- (e) 11B20, FIRE DETECTION LEFT ENGINE 1
- (f) 11B21, FIRE DETECTION LEFT ENGINE 2
- (g) 11B22, FIRE DETECTION RIGHT ENGINE 1
- (h) 11B23, FIRE DETECTION RIGHT ENGINE 2
- (i) 11B24, FIRE DETECTION APU 1
- (j) 11B25, FIRE DETECTION APU 2
- (k) 11B26, FIRE DETECTION CARGO 1
- (l) 11B27, FIRE DETECTION CARGO 2
- (m) 11B29, OVERHEAT DETECTION L ENGINE 1
- (n) 11B30, OVERHEAT DETECTION L ENGINE 2
- (o) 11B31, OVERHEAT DETECTION R ENGINE 1
- (p) 11B32, OVERHEAT DETECTION R ENGINE 2
- (q) 11D14, ENGINE T/R CONT L
- (r) 11D29, HYDRAULICS ENG PUMP SUPPLY L
- (s) 11D30, HYDRAULICS ENG PUMP SUPPLY R
- (t) 11J34, WARN ELEX A
- (u) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (v) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (w) 11K32, ALTERNATE POWER FIRE DETECTION APU
- (x) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (y) 11K34, OVERHEAT DETECT ALTN PWR L ENGINE
- (z) 11K35, OVERHEAT DETECT ALTN PWR R ENGINE
- (aa) 11L33, R ENGINE T/R CONT
- (ab) 11L6, L ENGINE T/R CONT
- (ac) 11S12, ISOL VALVE PWR L
- (ad) 11S13, ISOLATION VALVE CONT L

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- (ae) 11S21, ISOL VALVE PWR R
- (af) 11S22, ISOLATION VALVE CONT R

S 712-083

- (4) Do the Engine Fire Switch Operational Test (AMM 26-21-01/601).

E. Engine Fire Control Panel Test

S 862-029

- (1) Supply electrical power (AMM 24-22-00/201).

S 862-009

- (2) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

- (a) 11B20, FIRE DETECTION L ENGINE 1
- (b) 11B21, FIRE DETECTION L ENGINE 2
- (c) 11B22, FIRE DETECTION R ENGINE 1
- (d) 11B23, FIRE DETECTION R ENGINE 2
- (e) 11B24, FIRE DETECTION APU 1
- (f) 11B25, FIRE DETECTION APU 2
- (g) 11B26, CARGO FIRE DET 1
- (h) 11B27, CARGO FIRE DET 2
- (i) 11B31, OVERHEAT DETECTION R ENGINE 1
- (j) 11B32, OVERHEAT DETECTION R ENGINE 2
- (k) 11K30, FIRE DETECTION ALTN PWR L ENGINE
- (l) 11K31, FIRE DETECTION ALTN PWR R ENGINE
- (m) 11K32, FIRE DET ALTN PWR APU
- (n) 11K33, CARGO FIRE DET ALTN PWR
- (o) 11K34, OVERHEAT DETECT ALTN PWR L ENGINE
- (p) 11K35, OVERHEAT DETECT ALTN PWR R ENGINE

S 742-010

- (3) Push and hold the ENG/APU/CARGO test switch on the FIRE/OVHT test panel.

S 752-012

- (4) Make sure the L ENG OVHT light on the ENGINE FIRE CONTROL panel comes on.

S 742-011

- (5) Release the ENG/APU/CARGO test switch.

S 752-013

- (6) Make sure the L ENG OVHT light goes off.

S 862-014

- (7) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

- (a) 11B29, OVERHEAT DETECTION L ENGINE 1
- (b) 11B30, OVERHEAT DETECTION L ENGINE 2

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- S 862-015
- (8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B31, OVERHEAT DETECTION R ENGINE 1
  - (b) 11B32, OVERHEAT DETECTION R ENGINE 2
- S 742-016
- (9) Push and hold the ENG/APU/CARGO test switch on the FIRE/OVHT test panel.
- S 752-017
- (10) Make sure the R ENG OVHT light on the ENGINE FIRE CONTROL panel comes on.
- S 742-019
- (11) Release the ENG/APU/CARGO test switch.
- S 752-018
- (12) Make sure the R ENG OVHT light goes off.
- S 862-020
- (13) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11B20, FIRE DETECTION L ENGINE 1
  - (b) 11B21, FIRE DETECTION L ENGINE 2
  - (c) 11B22, FIRE DETECTION R ENGINE 1
  - (d) 11B23, FIRE DETECTION R ENGINE 2
  - (e) 11B24, FIRE DETECTION APU 1
  - (f) 11B25, FIRE DETECTION APU 2
  - (g) 11B26, CARGO FIRE DET 1
  - (h) 11B27, CARGO FIRE DET 2
  - (i) 11B29, OVERHEAT DETECTION L ENGINE 1
  - (j) 11B30, OVERHEAT DETECTION L ENGINE 2
  - (k) 11K30, FIRE DETECTION ALTN PWR L ENGINE
  - (l) 11K31, FIRE DETECTION ALTN PWR R ENGINE
  - (m) 11K32, FIRE DET ALTN PWR APU
  - (n) 11K33, CARGO FIRE ALTN PWR
  - (o) 11K34, OVERHEAT DETECT ALTN PWR L ENGINE
  - (p) 11K35, OVERHEAT DETECT ALTN PWR R ENGINE
- S 862-021
- (14) Make sure these circuit breakers on the P6 panel are closed:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2
- S 862-022
- (15) Make sure this circuit breaker on the P11 panel is closed:
- (a) 11A34, INDICATOR LIGHTS 2

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S 862-023

- (16) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:  
(a) 11A35, INDICATOR LIGHTS 3

S 742-024

- (17) Push and hold the ground test switch or turn and hold the hex key clockwise on the pressure switch connector case of engine fire bottle 1, B17.

S 752-030

- (18) Make sure the ENG BTL 1 DISCH light on the ENGINE FIRE CONTROL panel comes on.

S 752-031

- (19) Make sure the EICAS message, ENG BTL 1, shows on the upper display.

S 862-032

- (20) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:  
(a) 11A34, INDICATOR LIGHTS 2

S 752-033

- (21) Make sure the ENG BTL 1 DISCH light goes off.

S 742-034

- (22) Release the ground test pushbutton or hex key.

S 752-039

- (23) Make sure the EICAS message does not show on the upper display.

S 862-040

- (24) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:  
(a) 11A34, INDICATOR LIGHTS 2

S 752-041

- (25) Make sure the ENG BTL 1 DISCH light stays off.

S 862-042

- (26) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:  
(a) 11A35, INDICATOR LIGHTS 3

S 742-043

- (27) Push and hold the ground test pushbutton or turn and hold the ground test hex key on the pressure switch case of engine fire bottle 2, B18.

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- S 752-048  
(28) Make sure the ENG BTL 2 DISCH light on the ENGINE FIRE CONTROL panel comes on.
- S 752-049  
(29) Make sure the EICAS message, ENG BTL 2, shows on the upper display.
- S 862-050  
(30) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:  
(a) 11A35, INDICATOR LIGHTS 3
- S 752-051  
(31) Make sure the ENG BTL 2 DISCH light goes off.
- S 742-052  
(32) Release the ground test pushbutton or hex key.
- S 752-056  
(33) Make sure the EICAS message does not show on the upper display.
- S 862-057  
(34) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:  
(a) 11A35, INDICATOR LIGHTS 3
- S 752-058  
(35) Make sure the ENG BTL 2 DISCH light stays off.
- F. Put the Airplane Back to Its Usual Condition
- S 862-060  
(1) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-21-02-002-061

4. Remove the Engine Fire Switch

A. General

- (1) The left engine fire switch, S37, and right engine fire switch, S38 are on the engine fire control panel on the aisle control stand, P8. The removal/installation procedure is the same for the two switches.

B. Access

- (1) Location Zones  
211/212 Flight Compartment

C. Prepare for Removal

- S 862-062  
(1) For the left engine fire switch, open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:  
(a) 11A35, IND LTS 3  
(b) 11B19, FIRE SW UNLOCK  
(c) 11D25, L ENG FUEL CONTROL VALVE

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- (d) 11D29, L ENG HYD PUMP SUPPLY SHUTOFF
- (e) 11L6, L ENG T/R CONTROL

S 862-063

- (2) For the left engine fire switch, open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6E1, L SPAR FUEL VALVE
  - (b) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (c) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 862-064

- (3) For the right engine fire switch, open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
  - (a) 11A34, IND LTS 2
  - (b) 11B19, FIRE SW UNLOCK
  - (c) 11D26, R ENG FUEL CONTROL VALVE
  - (d) 11D30, HYDRAULICS ENG PUMP SUPPLY R
  - (e) 11L33, R ENG T/R CONTROL

S 862-065

- (4) For the right engine fire switch, open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6E2, R SPAR FUEL VALVE
  - (b) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (c) 6H4, FIRE EXTINGUISHING ENG R BTL 2

D. Procedure

S 012-066

- (1) Remove the engine fire control panel.

S 032-067

- (2) Remove the four fasteners that hold the switch to the baseplate.

S 022-068

- (3) Remove the engine fire switch.

TASK 26-21-02-402-082

5. Install the Engine Fire Switch

A. General

- (1) The left engine fire switch, S37, and right engine fire switch, S38 are on the engine fire control panel on the aisle control stand, P8. The removal/installation procedure is the same for the two switches.

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones  
211/212 Flight Compartment

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D. Procedure

S 422-069

- (1) Install the switch on the control panel baseplate with the four fasteners.

S 412-070

- (2) Install the engine fire control panel.

S 862-071

- (3) For the left engine fire switch, remove the DO-NOT-CLOSE tags and close these circuit breakers on P11 panel:
  - (a) 11A35, IND LTS 3
  - (b) 11B19, FIRE SW UNLOCK
  - (c) 11D25, L ENG FUEL CONTROL VALVE
  - (d) 11D29, HYDRAULICS ENG PUMP SUPPLY L
  - (e) 11L6, L ENG T/R CONTROL

S 862-072

- (4) For the left engine fire switch, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6E1, L SPAR FUEL VALVE
  - (b) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (c) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 862-073

- (5) For the right engine fire switch, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11A34, IND LTS 2
  - (b) 11B19, FIRE SW UNLOCK
  - (c) 11D26, R ENG FUEL CONTROL VALVE
  - (d) 11L33, R ENG T/R CONTROL
  - (e) 11D30, HYDRAULICS ENG PUMP SUPPLY R

S 862-074

- (6) For the right engine fire switch, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6E2, R SPAR FUEL VALVE
  - (b) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (c) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 712-084

- (7) Do the Engine Fire Switch Operational Test (AMM 26-21-01/601).

E. Engine Fire Switch Test

S 862-075

- (1) Supply electrical power (AMM 24-22-00/201).

S 742-076

- (2) Push and hold the ENG/APU/CARGO test switch on the FIRE/OVHT test panel.

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S 752-077

- (3) Make sure the lights in the LEFT/RIGHT engine fire switch handle come on (red).

S 742-078

- (4) Release the ENG/APU/CARGO test switch.

S 752-079

- (5) Make sure the lights in the LEFT/RIGHT engine fire switch handle go off.

F. Put the Airplane Back to Its Usual Condition

S 862-080

- (1) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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ENGINE FIRE EXTINGUISHER BOTTLE/DISCHARGE CARTRIDGE - REMOVAL/INSTALLATION

1. General

- A. Two engine fire extinguisher bottles are in the lower cargo compartment aft of the forward cargo door. Each fire extinguisher bottle has two discharge cartridges (squibs). The removal/installation procedure is the same for all bottles and squibs.
- B. This procedure contains these four tasks.
  - (1) The first task removes the discharge cartridge from the fire bottle.
  - (2) The second task installs the discharge cartridge to the fire bottle.
  - (3) The third task removes the fire bottle from the cargo compartment.
  - (4) The fourth task installs the fire bottle to the cargo compartment.

TASK 26-21-03-004-001

2. Remove the Discharge Cartridge

A. Equipment

- (1) Squib Protective Cap
  - M83723/60-210-AN or AC
  - M83723/60-112-AN or AC
  - M83723/60-108-AN or AC
  - M83723/60-110-AN or AC
- (2) Discharge Port Cap (supply with fire extinguisher bottles)

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones
  - 121 Forward Cargo Compartment (Left)
  - 122 Forward Cargo Compartment (Right)
  - 153 Aft Cargo Compartment (Left)
  - 154 Aft Cargo Compartment (Right)
- (2) Access Panels
  - 821 Forward Cargo Compartment Door
  - 822 Aft Cargo Compartment Door

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D. Remove the Discharge Cartridge (Squib) (Fig. 401)

S 864-008

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 864-106

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 034-100

- (3) Disconnect the electrical connector from the applicable squib (8).

S 434-085

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (4) Put the squib protective caps, attached to the bottles, on the fire bottle squibs.

S 024-010

- (5) Loosen the squib and remove it from the discharge head (8).

TASK 26-21-03-404-111

3. Install the Discharge Cartridge (Squib) (Fig. 401)

A. Equipment

- (1) Resistor - 10 Kohms or greater
- (2) Voltmeter - 28 Vdc
- (3) Torque Wrench

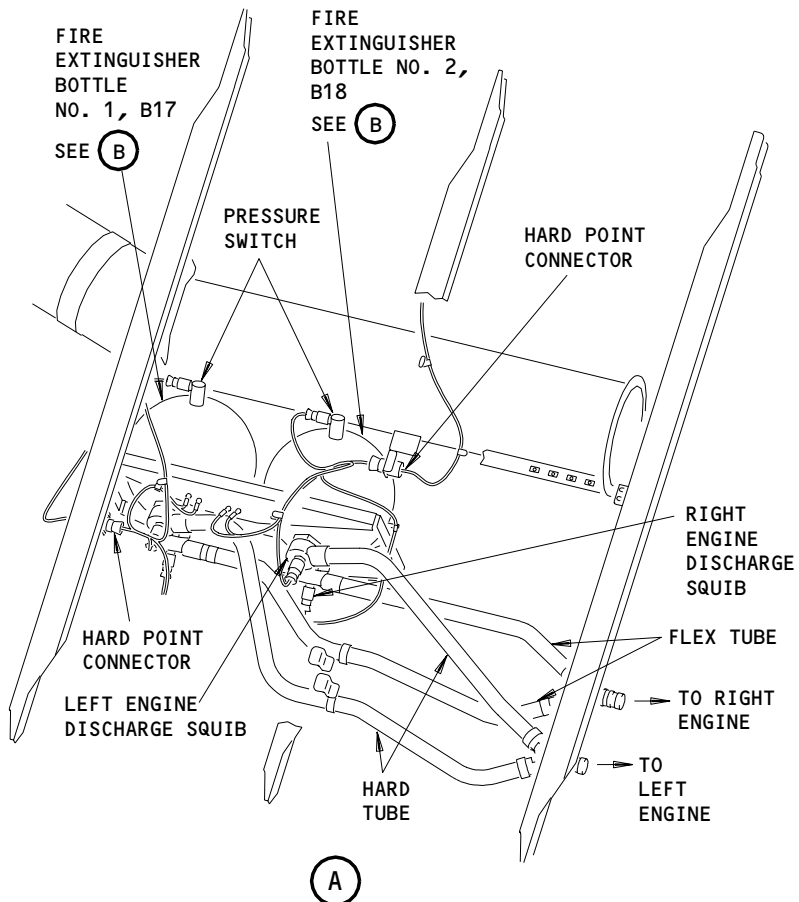
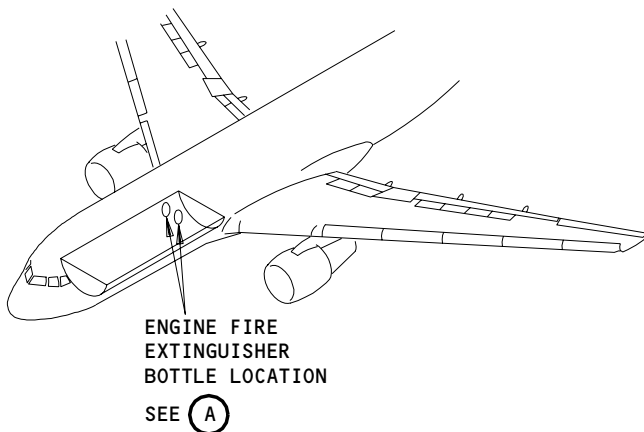
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Engine Fire Extinguisher Bottle/Discharge Cartridge Installation  
Figure 401 (Sheet 1)

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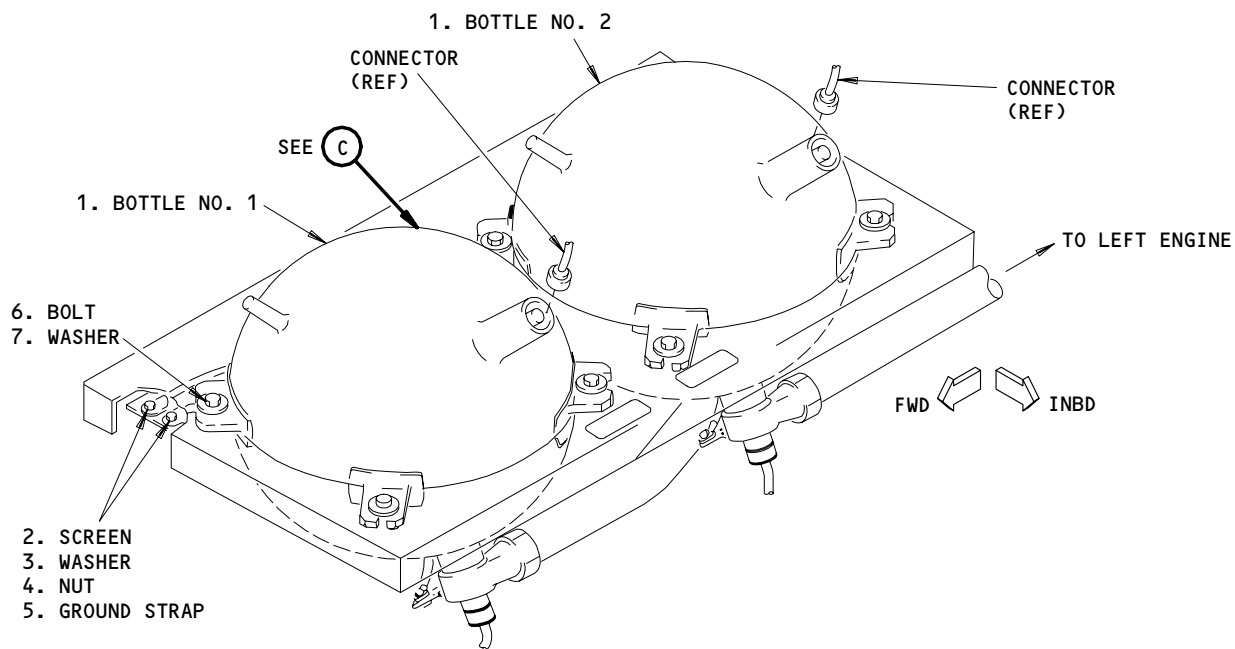
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(B)

Engine Fire Extinguisher Bottle/Discharge Cartridge Installation  
Figure 401 (Sheet 2)

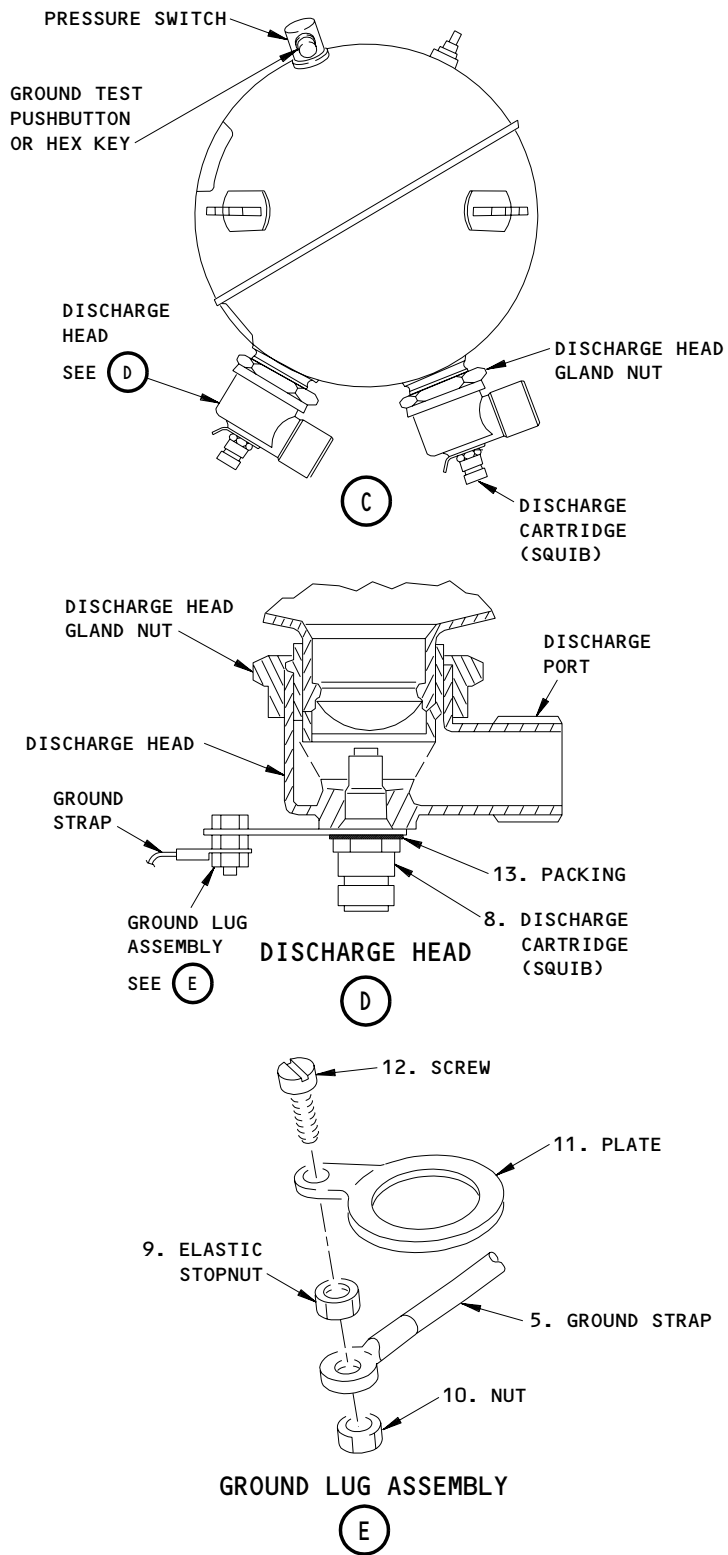
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Engine Fire Extinguisher Bottle/Discharge Cartridge Installation  
Figure 401 (Sheet 3)

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B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control

C. Access

(1) Location Zones

- 121 Forward Cargo Compartment (Left)
- 122 Forward Cargo Compartment (Right)
- 153 Aft Cargo Compartment (Left)
- 154 Aft Cargo Compartment (Right)

(2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

D. Install Discharge Cartridge (Squib) (Fig. 401)

S 864-107

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 414-011

- (2) Install the squib (8).

S 434-132

- (3) Install the packing (13) to the squib (8).

S 434-004

- (4) Tighten the squib (8) to the discharge head to 80-100 pound-inches.

**NOTE:** Cartridge's total life is 10 years from the date of manufacture. Before you install the cartridge, make sure that the remaining service life is sufficient to continue until the next "C" check.

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S 434-114

- (5) Install lockwire on the squib (8) to the discharge port.

S 034-101

- (6) If a protective cap is installed on the squib, remove the protective cap.

S 034-102

**CAUTION:** IF A SHUNT PLUG IS INSTALLED, PULL THE SHUNT PLUG STRAIGHT OFF THE FIRE BOTTLE SQUIB. IF YOU TWIST OR WIGGLE THE SHUNT PLUG, YOU CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (7) If a shunt plug is installed, pull the shunt plug straight off the squib and discard the shunt plug.

**NOTE:** Shunt plugs should not be used to cover the fire bottle squibs because they can cause damage to the squib pins.

S 754-088

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

- (8) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

S 754-129

- (9) If there is voltage between pins 1 and 2, do these steps:  
(a) Connect the voltmeter across pins 1 and 2.  
(b) Connect a 10 kohm resistor across the voltmeter to remove any stray voltage from the electrical connector.

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(c) Disconnect the voltmeter.

S 754-090

(10) Make sure the squib electrical pins are not bent or damaged.

S 214-103

(11) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 434-014

(12) Connect the electrical connector to the fire bottle squib.

S 214-117

(13) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.
- (b) Make sure the squib electrical pins are not bent or damaged.
- (c) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles

(d) Connect the electrical connector to the fire bottle squib.

S 864-015

(14) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

E. Squib Installation Test:

S 864-017

(1) Supply electrical power (AMM 24-22-00/201).

S 864-018

(2) Push the TEST 1 (for bottle 1) switch on the Squib Test panel on the P61 panel.

S 214-005

(3) Make sure the green ENG L and ENG R squib test lights come on.

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- S 864-006
- (4) Push the TEST 2 (for bottle 2) switch on the Squib Test panel on the P61 panel.
- S 214-007
- (5) Make sure the green ENG L and ENG R squib test lights come on.
- S 864-019
- (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-21-03-004-094

4. Remove the Engine Fire Extinguisher Bottle (1 or 2 as Applicable) (Fig. 401)

A. Equipment

- (1) Squib Protective Caps  
M83723/60-210-AN or AC  
M83723/60-112-AN or AC  
M83723/60-108-AN or AC  
M83723/60-110-AN or AC
- (2) Discharge Port Cap - (Provided with fire extinguisher bottles)

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge  
(2) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones
- |     |                                   |
|-----|-----------------------------------|
| 121 | Forward Cargo Compartment (Left)  |
| 122 | Forward Cargo Compartment (Right) |
| 153 | Aft Cargo Compartment (Left)      |
| 154 | Aft Cargo Compartment (Right)     |
- (2) Access Panels
- |     |                                |
|-----|--------------------------------|
| 821 | Forward Cargo Compartment Door |
| 822 | Aft Cargo Compartment Door     |

D. Remove the Engine Fire Extinguisher Bottle (1 or 2 as applicable) (Fig. 401)

- S 034-125
- (1) If required, remove the pneumatic duct located above the fire extinguishers.

S 864-108

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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- S 864-020
- (3) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

- S 034-021
- (4) Disconnect the electrical connectors from bottle squibs and pressure switch per Table 401.

ENGINE FIRE BOTTLE CONNECTIONS TABLE 401		
CONNECTORS	BOTTLE CONNECTED TO	DISCHARGE PORT SIZE
D1428 (Red)	B17, Bottle 1 - Pressure Switch	N/A
D1424 (Yellow)	B17, Bottle 1 - Left Engine Discharge Squib	1.25
D1430 (Blue)	B17, Bottle 1 - Right Engine Discharge Squib	1.00
D1434 (Red)	B18, Bottle 2 - Pressure Switch	N/A
D1426 (Yellow)	B18, Bottle 2 - Left Engine Discharge Squib	1.25
D1432 (Blue)	B18, Bottle 2 - Right Engine Discharge Squib	1.00

S 434-091

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (5) Put the squib protective caps, attached to the bottles, on the fire bottle squibs.

- S 864-023
- (6) Remove the ground strap (5) from the bottle ground lug.

- S 034-024
- (7) Disconnect the discharge hoses and tubes.

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S 434-025  
(8) Install the discharge port caps on the bottle discharge ports.

S 034-026  
(9) Remove the four nuts (4) and bolts (6) from the mounting lugs.

S 024-027  
(10) Remove the fire extinguisher bottle (1).

TASK 26-21-03-424-095

5. Install Engine Fire Extinguisher Bottle (1 or 2 as applicable) (Fig. 401)

A. Equipment

- (1) Beam Balance type scale with minimum capacity of 70 pounds, divisions of 0.01 pounds and accuracy of 0.1 percent.
- (2) Resistor - 10 Kohms or greater
- (3) Voltmeter - 28 Vdc

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control

C. Access

(1) Location Zones

- 121 Forward Cargo Compartment (Left)
- 122 Forward Cargo Compartment (Right)
- 153 Aft Cargo Compartment (Left)
- 154 Aft Cargo Compartment (Right)

(2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

D. Procedure

S 864-109

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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S 434-088

**WARNING:** DO NOT TOUCH THE BOTTLE WHEN THE DISCHARGE PORTS ARE EXPOSED. KEEP CAPS ON THE PORTS. DO NOT LET THE BOTTLE HIT THE AIRPLANE. BE CAREFUL NOT TO DAMAGE THE BOTTLE. IF THE BOTTLE IS ACCIDENTALLY DISCHARGED, IT CAN CAUSE INJURY TO PERSONS.

- (2) Do a weight check of the fire extinguisher bottle.  
(a) Before the bottle is installed, weigh the bottle per manufacturers instructions and make sure its weight is not more than 0.1 pound than the weight listed on the data plate.

**NOTE:** Depending on the bottle manufacturer and/or bottle part number, the measured weight marked on the bottle may or may not include some of the protective caps.

**NOTE:** Do not remove the fill/safety protective cap when weighing the bottle.

S 434-029

- (3) Install the bottle mounting lugs to hold the bracket.

S 434-030

- (4) Install the mounting nuts (4) and bolts (6) in four places.

S 034-031

- (5) Loosen the discharge head gland nut.

S 824-032

- (6) Adjust the discharge heads so they provide the best possible hose connections.

S 864-113

- (7) AIRPLANES WITH HTL FIRE BOTTLES;  
Tighten the discharge head gland nut to 45 to 55 pound-feet (61.0 to 74.6 newton-meters).

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S 434-033

- (8) AIRPLANES WITH WALTER KIDDE FIRE BOTTLES;  
Tighten the discharge head gland nut to 55 to 65 pound-feet  
(74.6 to 88.1 newton-meters).

S 434-034

- (9) Use a lockwire to attach the gland nut to the discharge head.

S 864-122

- (10) Remove the protective cap from the thermal relief port and refill  
port if it is installed.

S 034-035

- (11) Remove the discharge port caps and connect the discharge hoses to  
the ports. Refer to the outlet identification decal above each  
discharge outlet.

**NOTE:** Make sure the Y Fitting discharge hose are connected to each  
fire bottle 1 and 2. The discharge hoses are the hard yellow  
tube with 1.25 inch diameter for the left engine discharge  
port, and the blue flexible tube with 1.00 inch diameter for  
the right engine discharge port.

S 434-036

- (12) Connect the ground strap to the ground lugs.

S 034-093

- (13) If a protective cap is installed on the squib, remove the protective  
cap.

S 034-105

**CAUTION:** IF A SHUNT PLUG IS INSTALLED, PULL THE SHUNT PLUG STRAIGHT OFF  
THE FIRE BOTTLE SQUIB. IF YOU TWIST OR WIGGLE THE SHUNT PLUG,  
YOU CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (14) If a shunt plug is installed, pull the shunt plug straight off the  
squib and discard the shunt plug.

**NOTE:** Shunt plugs should not be used to cover the fire bottle  
squibs because they can cause damage to the squib pins.

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S 754-094

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

- (15) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

S 754-130

- (16) If there is voltage between pins 1 and 2, do these steps:
- (a) Connect the voltmeter across pins 1 and 2.
  - (b) Connect a 10 kohm resistor across the voltmeter to remove any stray voltage from the electrical connector.
  - (c) Disconnect the voltmeter.

S 754-096

- (17) Make sure the squib electrical pins are not bent.

S 214-106

- (18) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 214-118

- (19) Do the steps that follow the first time a connector is connected to a squib to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Connect the electrical connector to the fire bottle squib.
- (b) Disconnect the electrical connector from the fire bottle squib.
- (c) Make sure the squib electrical pins are not bent or damaged.

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(d) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 864-128

(20) If removed, install the pneumatic duct located above the fire extinguisher bottles.

E. Do a Test of the squib connections of the fire extinguisher bottle 1.

S 864-110

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 864-040

(2) Supply electrical power (AMM 24-22-00/201).

S 864-041

(3) Make sure these circuit breakers on the P6 panel are open:

- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 434-042

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTORS TO THE SQUIBS WITH VOLTAGE AT THE PINS OF THE CONNECTOR. ACCIDENTAL OPERATION OF THE SQUIBS CAN CAUSE INJURY TO PERSONS.

(4) Connect the bottle squib electrical connector D1424 to the left engine discharge squib (inboard) of bottle 1.

S 864-043

(5) Remove the DO-NOT-CLOSE tags and close this circuit breaker on the P6 panel:

- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1

S 984-044

(6) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).

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- S 214-045
- (7) Make sure the green L ENG squib light on the SQUIB TEST panel comes on and the R ENG squib light does not come on.
- S 214-046
- (8) Release the TEST switch.
- S 214-075
- (9) Make sure the L ENG squib light goes off.
- S 864-047
- (10) Open this circuit breaker on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- S 434-048
- (11) Connect the bottle squib electrical connector D1430 to the right engine discharge squib (outboard) of bottle 1.
- S 864-049
- (12) Remove the DO-NOT-CLOSE tags and close this circuit breaker on the P6 panel:
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- S 984-050
- (13) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).
- S 214-051
- (14) Make sure the green R ENG squib light on the SQUIB TEST panel comes on and the L ENG squib light does not come on.
- S 214-052
- (15) Release the TEST switch.
- S 214-076
- (16) Make sure the R ENG squib light goes off.
- S 864-053
- (17) Open this circuit breaker on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- F. Do a Test of the squib connections of the fire extinguisher bottle 2.
- S 864-055
- (1) Make sure these circuit breakers on the P6 panel are open:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
- (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
- (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
- (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

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S 434-056

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTORS TO THE SQUIBS WITH VOLTAGE PRESENT AT THE PINS OF THE CONNECTOR. ACCIDENTAL OPERATION OF SQUIBS CAN CAUSE INJURY TO PERSONS.

- (2) Connect the bottle squib electrical connector D1426 to the left engine discharge squib (inboard) of bottle 2.

S 864-057

- (3) Remove the DO-NOT-CLOSE tags and close this circuit breaker on the P6 panel:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 984-058

- (4) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).

S 214-059

- (5) Make sure the green L ENG squib light on the SQUIB TEST panel comes on and the R ENG squib light does not come on.

S 214-060

- (6) Release the TEST switch.

S 214-077

- (7) Make sure the L ENG squib light goes off.

S 864-061

- (8) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:  
(a) 6H2, FIRE EXTINGUISHING ENG L BTL 2

S 434-062

- (9) Connect the bottle squib electrical connector D1432 to the right engine discharge squib (outboard) of bottle 2.

S 864-063

- (10) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 984-064

- (11) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).

S 214-065

- (12) Make sure the green R ENG squib light on the SQUIB TEST panel comes on and the L ENG squib light does not come on.

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S 214-066  
(13) Release the TEST switch.

S 214-078  
(14) Make sure the R ENG squib light goes off.

S 864-067  
(15) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:  
(a) 6H1, FIRE EXTINGUISHING ENG L BTL 1  
(b) 6H2, FIRE EXTINGUISHING ENG L BTL 2  
(c) 6H3, FIRE EXTINGUISHING ENG R BTL 1

G. Fire Extinguisher Bottle Installation Test:

S 214-068  
(1) Push the TEST 1 switch on the SQUIB TEST panel at the right side panel P61.

S 214-079  
(2) Make sure the green ENG L and ENG R squib test lights come on.

S 214-069  
(3) Push the TEST 2 switch on the SQUIB TEST panel.

S 214-080  
(4) Make sure the green ENG L and ENG R squib test lights come on.

S 214-071  
(5) Push and hold the ground test pushbutton or turn and hold the hex key clockwise on the bottle's pressure switch casing.

NOTE: Use a 3/32 inch hex wrench.

S 214-082  
(6) Make sure the yellow ENG BTL 1 or ENG BTL 2 (as applicable) DISCH light comes on.

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S 214-072

- (7) Release the ground test pushbutton or hex key.

S 214-083

- (8) Make sure the ENG BTL (1 or 2) DISCH light goes off.

S 864-127

- (9) If the pneumatic duct has been removed and installed during the removal/installation of the extinguisher bottle, do the Air Supply Distribution System Leakage Test (AMM 36-11-00/501).

H. Return the airplane to its usual condition.

S 864-084

- (1) Make sure these circuit breakers on the P6 panel are closed:
- (a) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (b) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (c) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (d) 6H4, FIRE EXTINGUISHING ENG R BTL 2

S 864-074

- (2) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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SQUIB TEST PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure contains two tasks. The first task removes the squib test control panel, M32 from the right side panel, P61. The second task installs the squib test panel onto the right side panel.

TASK 26-21-04-004-009

2. Remove the Squib Test Panel

A. General

- (1) This task gives the instructions to remove the squib test panel from the right side panel, P61.

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones  
211/212 Flight Compartment

D. Procedure

S 864-001

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) AIRPLANES WITH TWO APU FIRE BOTTLES;  
6G2, FIRE EXTINGUISHING APU 2
  - (c) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (d) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (e) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (f) 6H4, FIRE EXTINGUISHING ENG R BTL 2
  - (g) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (h) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 024-011

- (2) Remove the squib test panel.

TASK 26-21-04-404-003

3. Install the Squib Test Panel

A. General

- (1) This task gives the instructions to install the squib test panel onto the right side panel.

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control

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C. Access

- (1) Location Zones  
211/212 Flight Compartment

D. Procedure

S 424-012

- (1) Install the squib test panel.

S 864-005

- (2) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) AIRPLANES WITH TWO APU FIRE BOTTLES;  
6G2, FIRE EXTINGUISHING APU 2
  - (c) 6H1, FIRE EXTINGUISHING ENG L BTL 1
  - (d) 6H2, FIRE EXTINGUISHING ENG L BTL 2
  - (e) 6H3, FIRE EXTINGUISHING ENG R BTL 1
  - (f) 6H4, FIRE EXTINGUISHING ENG R BTL 2
  - (g) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (h) 6H6, FIRE EXTINGUISHING CARGO BTL 2

E. Squib Test Panel Post-installation Test.

S 864-010

- (1) Supply electrical power (AMM 24-22-00/201).

S 864-013

- (2) Push and hold one of the L/R ENG SQUIB TEST switch/lights on the squib test panel M32 (P61).

S 214-014

- (3) Make sure the light in the switch comes on (green).

S 864-015

- (4) Release the SQUIB TEST switch/light.

S 214-016

- (5) Make sure the light goes off.

S 864-008

- (6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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SQUIB TEST PANEL – INSPECTION/CHECK

1. General

- A. This procedure does a check of the squibs of the emergency escape actuators. It also does a check of the engines, APU, and cargo fire extinguishing bottles from the squib test panel on P61.

TASK 26-21-04-736-001

2. The Squib Test Panel Activation Check (Fig. 601)

A. Reference

- (1) AMM 24-22-00/201, Electrical Power

B. Prepare to do a test of the Squib Test Panel

S 866-002

- (1) Supply electrical power (AMM 24-22-00/201).

C. Do a test of the Squib Test Panel

S 986-003

- (1) Push the indicator lights on the SQUIB-TEST panel (P61) to do a test of the bulbs.

S 216-004

- (2) Push the TEST 1 switch on the SQUIB TEST panel.

S 216-005

- (3) Make sure all of the indicator lights on the panel come on (green).

S 216-006

- (4) Release the TEST 1 switch.  
(a) Make sure the indicator lights go off.

S 216-007

- (5) Push the TEST 2 switch on the SQUIB TEST panel.

S 216-024

- (6) AIRPLANES WITH SINGLE APU FIRE EXTINGUISHER BOTTLE;  
Make sure all of the indicator lights on the panel, but not the APU light, come on (green).

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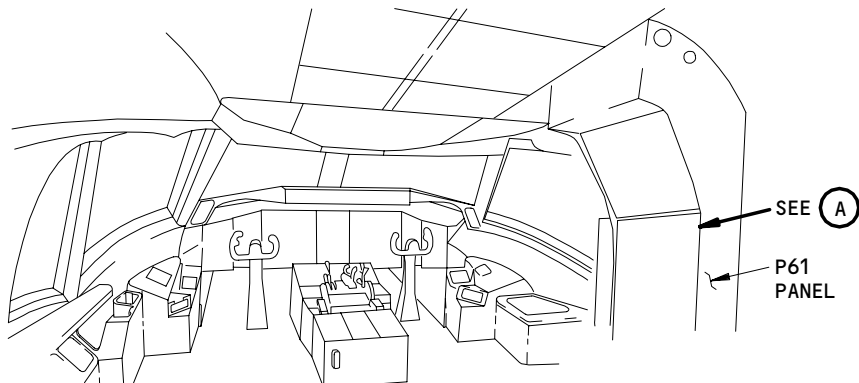
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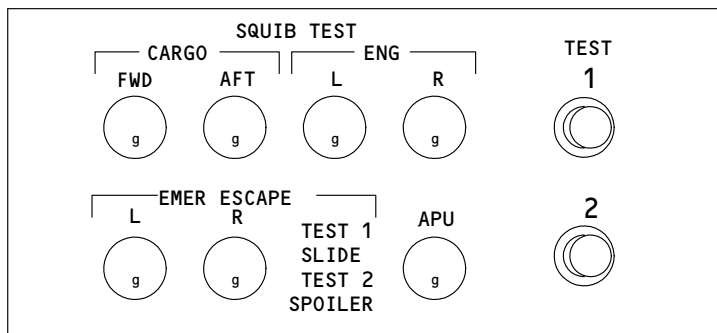
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# BOEING

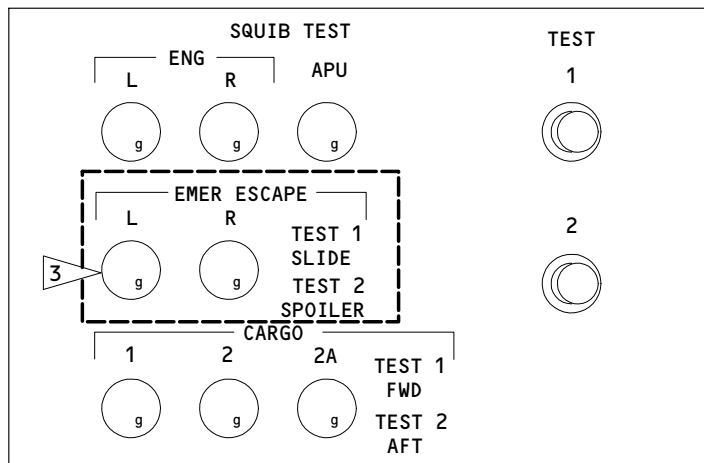
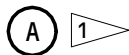
## 767 MAINTENANCE MANUAL



**FLIGHT COMPARTMENT**



**SQUIB TEST PANEL**



**SQUIB TEST PANEL**



- 1 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHING BOTTLES INSTALLED
- 2 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHING BOTTLES INSTALLED
- 3 AIRPLANES WITH OVERWING EXITS

**Squib Test Component Location  
Figure 601**

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- S 216-023
- (7) AIRPLANES WITH DUAL APU FIRE EXTINGUISHER BOTTLES;  
Make sure all of the indicator lights on the panel come on (green).
- S 216-019
- (8) Release the TEST 2 switch.
- S 216-018
- (9) Make sure the indicator lights go off.
- S 866-017
- (10) Remove the electrical power if it is not necessary  
(AMM 24-22-00/201).

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APU FIRE EXTINGUISHING – DESCRIPTION AND OPERATION

1. General

- A. The APU fire extinguishing system has controls in two locations that release one application of fire extinguishing agent to a fire in the APU compartment. The system has test capability.
- B. The APU fire extinguishing system includes the APU fire extinguisher bottle, the APU/CARGO fire control panel, the P40 APU shutdown panel and the squib test panel.
- C. The APU fire extinguishing system receives power from the 28 vdc hot battery bus, through a circuit breaker on main power distribution panel P6.
  - (1) The FIRE EXTINGUISHING APU circuit breaker on main power distribution panel P6 controls power to the system.

2. Component Details (Fig. 1)

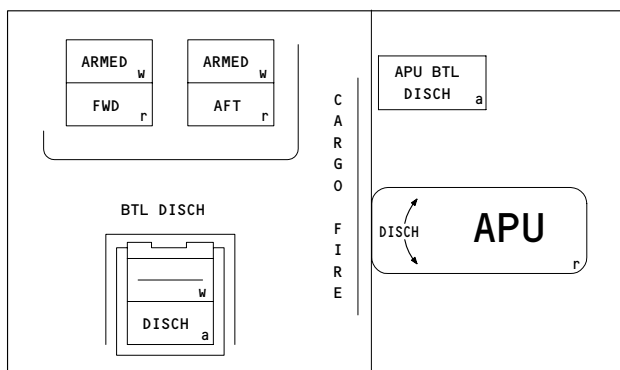
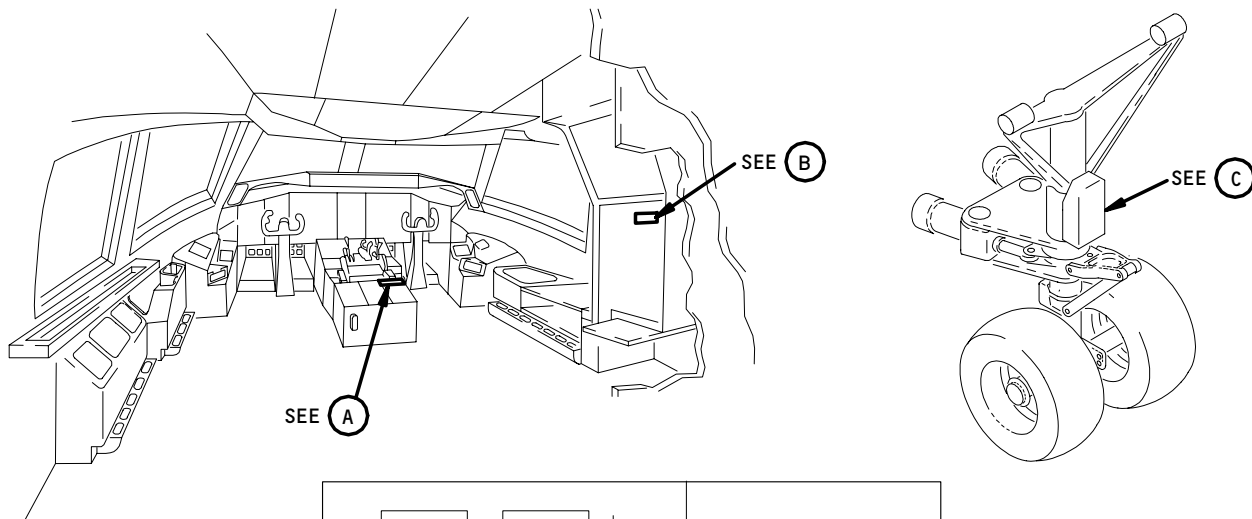
A. APU Fire Extinguisher Bottle

- (1) One APU fire extinguisher bottle is located forward of the APU firewall on the lower right side. The extinguisher bottle includes a squib cartridge, pressure switch, and the combined safety relief and filler port.
- (2) The APU fire extinguisher bottle is the same bottle that is used in the engine fire extinguishing system. The discharge head is removed from the unused discharge port and the port is then capped.
- (3) The squib cartridge is located on the discharge valve. When detonated, the cartridge ruptures a retaining disc in the valve releasing the extinguishing agent.
- (4) The pressure switch detects a decrease in bottle pressure and activates the bottle discharge lights. The pressure switch can be manually tested using the pushbutton test switch located on the pressure switch casing.
- (5) The safety relief is a thermal expansion overpressure rupture disc. If bottle pressure is too high, the safety relief ruptures, allowing the bottle to discharge. The filler port is for introducing the extinguishing agent and pressurizing gas into the bottle.
- (6) The extinguishing agent is bromotrifluoromethane (halon), and the pressurizing gas dry nitrogen. The agent leaves no residue when discharged.

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

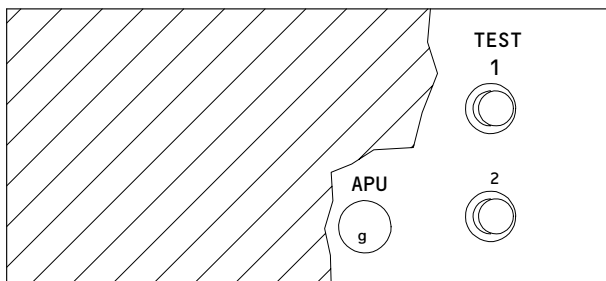
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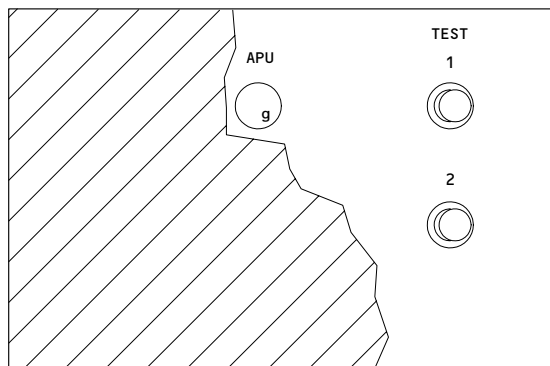
APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

(B) 2

- 1 AIRPLANES WITH TWO CARGO EXTINGUISHING BOTTLES INSTALLED
- 2 AIRPLANES WITH THREE CARGO EXTINGUISHING BOTTLES INSTALLED

APU Fire Extinguishing System - Component Location  
Figure 1 (Sheet 1)

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

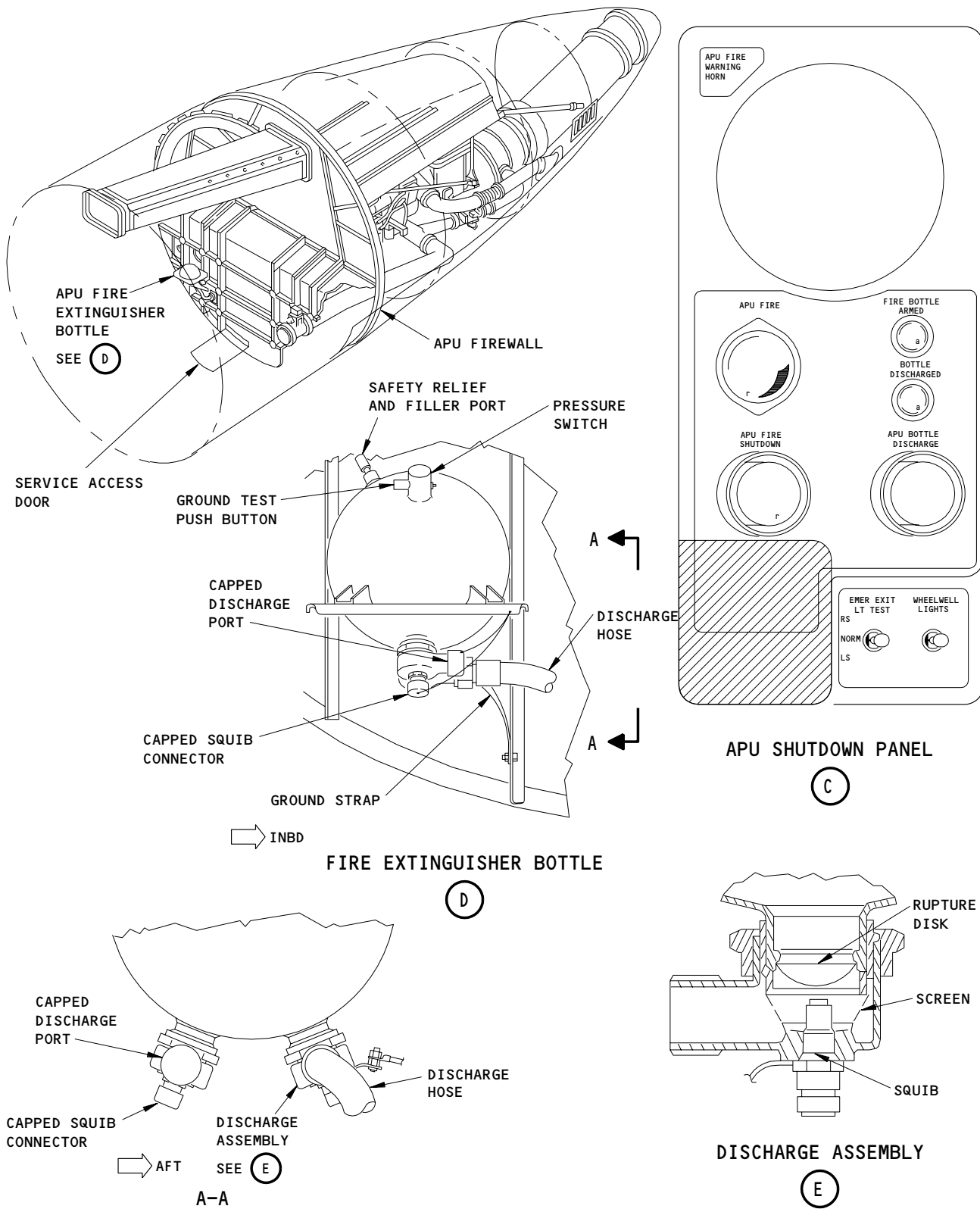
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APU Fire Extinguishing System - Component Location  
Figure 1 (Sheet 2)

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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B. APU Fire Switch

(1) The APU fire switch is located on the APU/CARGO fire control panel at pilots' aft control stand P8. When a fire is detected in the APU compartment, the APU fire switch handle red warning light comes on. A solenoid energizes releasing a mechanical interlock on the fire switch handle shaft. When the mechanical interlock is released, the fire switch handle can be operated by pulling the handle out and rotating it. Rotating the handle releases the extinguishing agent. After rotation, the fire handle automatically returns to an off center position. To push the handle back in it must be in the center horizontal position. The fire switch handle can be manually unlocked by pressing the button behind the handle.

C. APU Shutdown Panel

(1) An APU bottle discharge switch is located on the P40 APU shutdown panel which mounts on the nose landing gear. The switch controls the release of extinguishing agent into the APU compartment when a fire is detected. The APU fire light (red) and APU fire warning horn come on and remain on until one of the two APU fire switches (P8, or P40) is activated. The APU can be shutdown by a switch on the P40 panel.

D. Squib Test Panel

(1) The squib test panel is located on the P61 right side panel. The switches on the panel are used to check extinguisher bottle squib cartridges. When pressed, the TEST switch on the panel checks circuit continuity between the APU discharge switches and squib cartridges. A green test light comes on for a successful test.

3. Operation (Fig. 2)

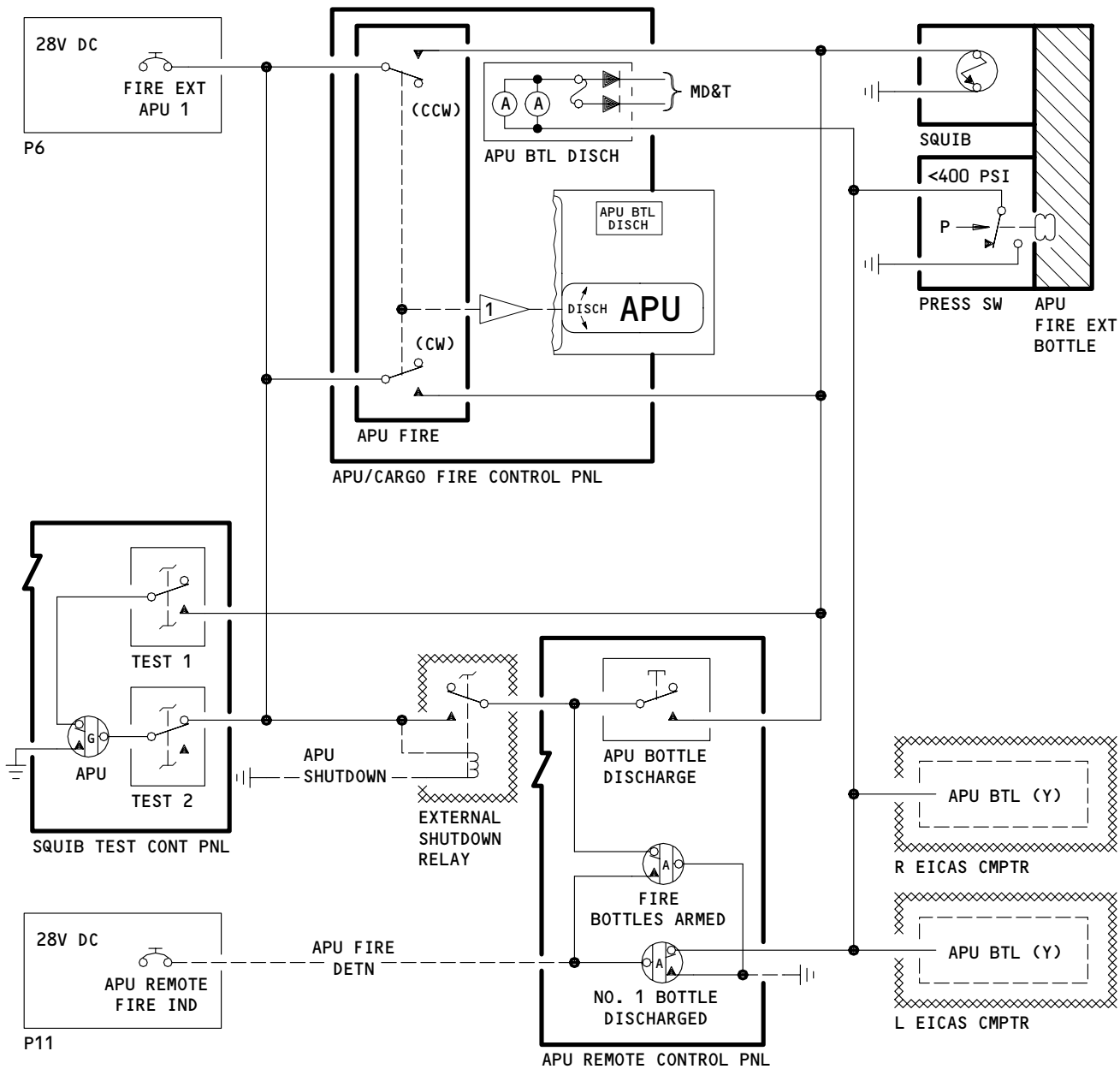
A. Functional Description

- (1) When a fire is detected in the APU compartment, the APU fire switch handle red warning light comes on and the fire warning bell sounds through the aural warning speakers. When the airplane is on the ground and a fire is detected, the APU fire warning horn and red APU FIRE light on the P40 APU shutdown panel also come on.
- (2) After a fire is detected in the APU compartment, a solenoid energizes releasing a mechanical interlock on the fire switch handle shaft. The handle is then operable. The mechanical interlock is manually released by pressing the button located behind the fire handle.
- (3) When the APU fire switch handle is pulled out, the APU automatically shuts down and the extinguishing bottle is armed. The following also happens: the APU generator field relay and generator circuit breaker are tripped; the APU fuel shut-off valve closes; the APU air supply valve closes; and the warning lights are shut off. If the airplane is on the ground, the external fire warning horn and APU fire light on P40 shutdown panel are also shut off.

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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1 PULL TO SHUTDOWN APU,  
ROTATE TO DISCHARGE EXTINGUISHER

APU Fire Extinguishing Schematic  
Figure 2

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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- (4) Extinguishing occurs when the APU fire handle is pulled out and rotated in either direction. After rotation of the handle, an electrical signal is applied to the squib cartridge of the extinguisher bottle. The electrical signal detonates the bottle squib producing a rupture in the retaining disc allowing the extinguishing agent to be released. The extinguishing agent runs to an outlet nozzle at the bottom of the APU fire wall and is discharged into the APU compartment.
- (5) Decreasing bottle pressure, by discharge or leakage, activates the bottle pressure switch. The following occurs when a decrease in pressure is detected: the APU BTL DISCH light on APU/CARGO fire control panel (P8) comes on, and a APU BTL message appears on the EICAS display.

B. APU Extinguishing System Test

- (1) Squib Test
  - (a) The squib test control panel checks the integrity of extinguisher bottle squibs. Pressing the TEST switch sends a signal to the squib discharge cartridge. If the squib and circuit continuity are good, the green APU light on the panel comes on.
- (2) Pressure Switch Test
  - (a) Manually activating the bottle pressure switch tests discharge light circuit continuity. When the pushbutton test switch located on the pressure switch is pressed the amber APU BTL DISCH light comes on and an APU BTL message appears on the EICAS display indicating a successful test.

C. Control

- (1) Provide electrical power (AMM 24-22-00/201).
- (2) To place the system in operation, check that the following circuit breakers are closed: FIRE EXTINGUISHING APU 1 on main power distribution panel P6, and FIRE SWITCH UNLOCK on overhead circuit breaker panel P11.

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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APU FIRE EXTINGUISHING – DESCRIPTION AND OPERATION

1. General

- A. The APU fire extinguishing system has controls in two locations that release one or two applications of fire extinguishing agent to a fire in the APU compartment. The system has test capability.
- B. The APU fire extinguishing system includes two APU fire extinguisher bottles, the APU/CARGO fire control panel, the P40 APU shutdown panel and the squib test panel.
- C. The APU fire extinguishing system receives power from the 28 vdc hot battery bus, through a circuit breaker on main power distribution panel P6.
  - (1) The FIRE EXTINGUISHING APU 1 and APU 2 circuit breakers on main power distribution panel P6 controls power to the system.

2. Component Details (Fig. 1)

A. APU Fire Extinguisher Bottle

- (1) Two APU fire extinguisher bottles are located forward of the APU firewall. The extinguisher bottles include a squib cartridge, pressure switch, and a combined safety relief and filler port.
- (2) The squib cartridge is located on the discharge valve. When detonated, the cartridge ruptures a retaining disc in the valve releasing the extinguishing agent.
- (3) The pressure switch detects a decrease in bottle pressure and activates the bottle discharge lights. The pressure switch can be manually tested by using a hex-key assembly or a pushbutton test switch located on the pressure switch casing.
- (4) The safety relief is a thermal expansion overpressure rupture disc. If bottle pressure is too high, the safety relief ruptures, allowing the bottle to discharge. The filler port is for introducing the extinguishing agent and pressurizing gas into the bottle.
- (5) The extinguishing agent is bromotrifluoromethane (halon), and the pressurizing gas dry nitrogen. The agent leaves no residue when discharged.

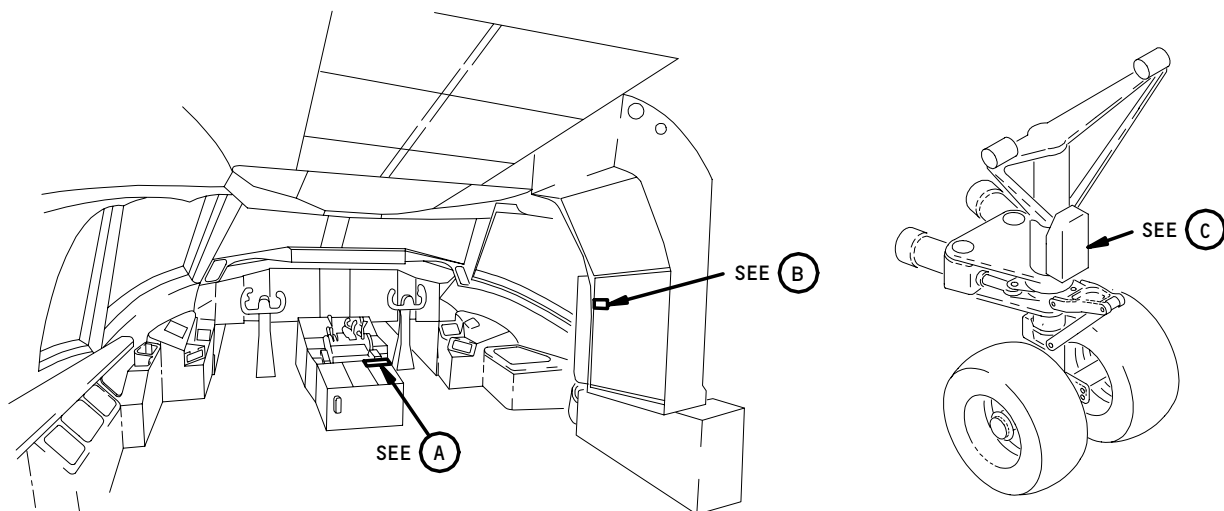
B. APU Fire Switch

- (1) The APU fire switch is located on the APU/CARGO fire control panel at pilots' aft control stand P8. When a fire is detected in the APU compartment, the APU fire switch handle red warning light comes on. A solenoid energizes releasing a mechanical interlock on the fire switch handle shaft. When the mechanical interlock is released the fire switch handle can be operated by pulling the handle out and rotating it. Rotating the handle clockwise releases bottle one extinguishing agent. Rotating the handle counterclockwise releases bottle two extinguishing agent. After rotation, the fire handle automatically returns to an off center position. To push the handle back in it must be in the center horizontal position. The fire switch handle can be manually unlocked by pressing the button behind the handle.

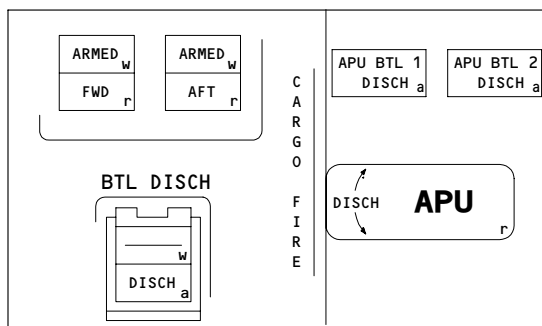
EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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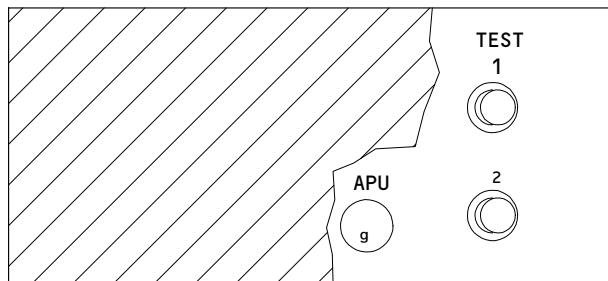


FLIGHT COMPARTMENT



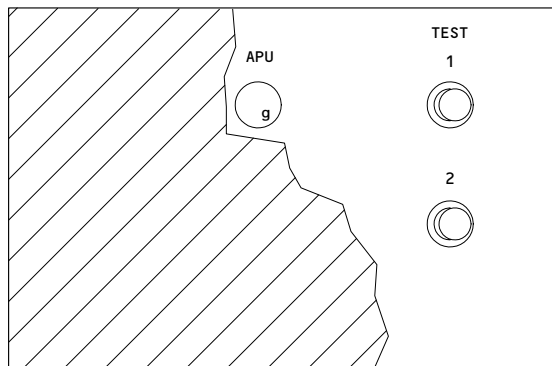
APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

(B) 2

- 1 AIRPLANES WITH TWO CARGO EXTINGUISHING BOTTLES INSTALLED
- 2 AIRPLANES WITH THREE CARGO EXTINGUISHING BOTTLES INSTALLED

APU Fire Extinguishing System - Component Location  
Figure 1 (Sheet 1)

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

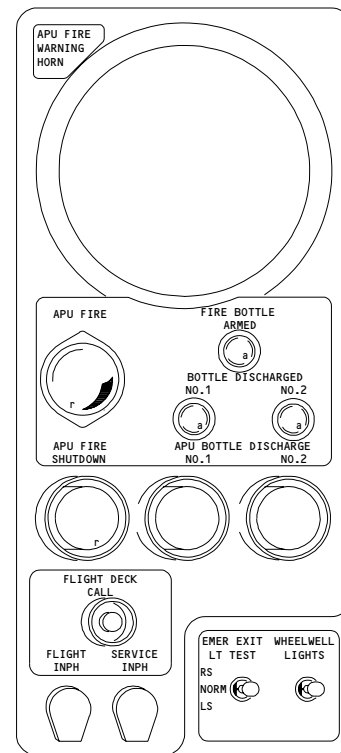
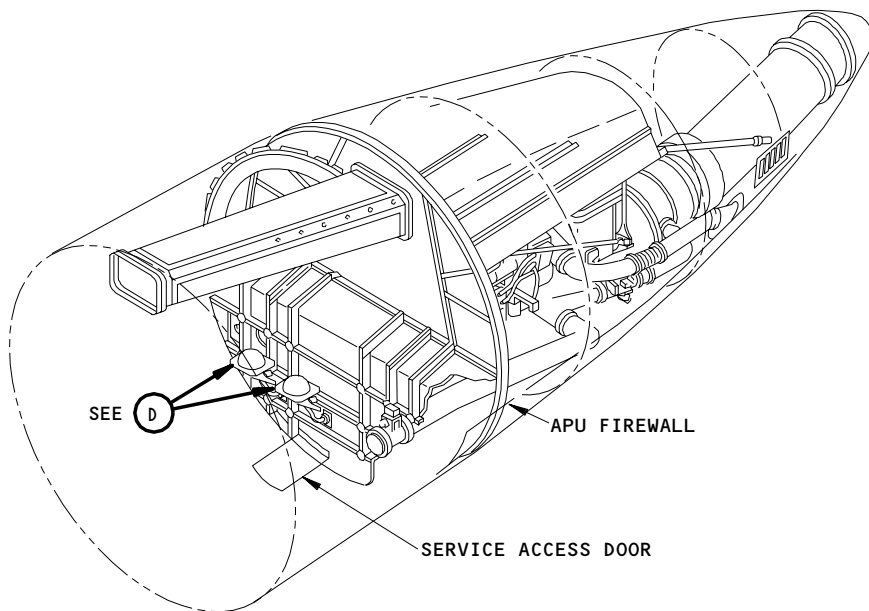
26-22-00

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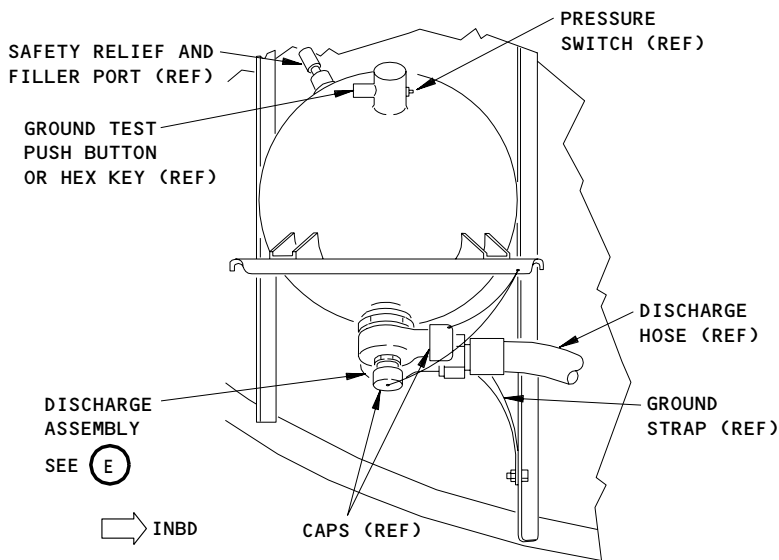
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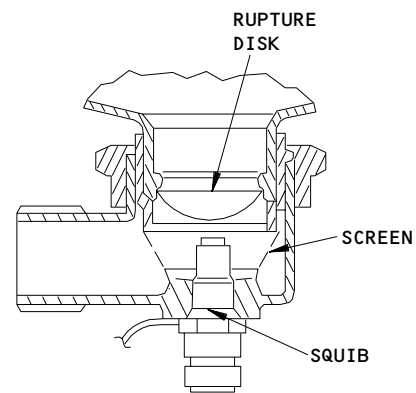
APU SHUTDOWN PANEL

(C)



FIRE EXTINGUISHER BOTTLE

(D)



DISCHARGE ASSEMBLY

(E)

APU Fire Extinguishing System - Component Location  
Figure 1 (Sheet 2)

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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C. APU Shutdown Panel

- (1) Two APU bottle discharge switches are located on the P40 APU shutdown panel which mounts on the nose landing gear. The switches control the release of extinguishing agent into the APU compartment when a fire is detected. The APU fire light (red) and APU fire warning horn come on and remain on until one of the two APU fire switches (P8, or P40) is activated. The APU can be shutdown by a switch on the P40 panel.

D. Squib Test Panel

- (1) The squib test panel is located on the P61 right side panel. The switches on the panel are used to check extinguisher bottle squib cartridges. When pressed, the TEST 1 (bottle 1) and TEST 2 (bottle 2) switches on the panel check circuit continuity between the APU discharge switches and squib cartridges. A green test light comes on for a successful test.

3. Operation (Fig. 2)

A. Functional Description

- (1) When a fire is detected in the APU compartment, the APU fire switch handle red warning light comes on and the fire warning bell sounds through the aural warning speakers. When the airplane is on the ground and a fire is detected, the APU fire warning horn and red APU FIRE light on the P40 APU shutdown panel also come on.
- (2) After a fire is detected in the APU compartment, a solenoid energizes releasing a mechanical interlock on the fire switch handle shaft. The handle is then operable. The mechanical interlock is manually released by pressing the button located behind the fire handle.
- (3) When the APU fire switch handle is pulled out, the APU automatically shuts down and the extinguishing bottles are armed. The following also happens: the APU generator field relay and generator circuit breaker are tripped; the APU fuel shut-off valve closes; the APU air supply valve closes; and the warning lights are shut off. If the airplane is on the ground, the external fire warning horn and APU fire light on P40 shutdown panel are also shut off.
- (4) Extinguishing occurs when the APU fire handle is pulled out and rotated in either direction. After rotation of the handle, an electrical signal is applied to the squib cartridge of the extinguisher bottle. The electrical signal detonates the bottle squib producing a rupture in the retaining disc allowing the extinguishing agent to be released. The extinguishing agent runs to an outlet nozzle at the bottom of the APU fire wall and is discharged into the APU compartment.

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

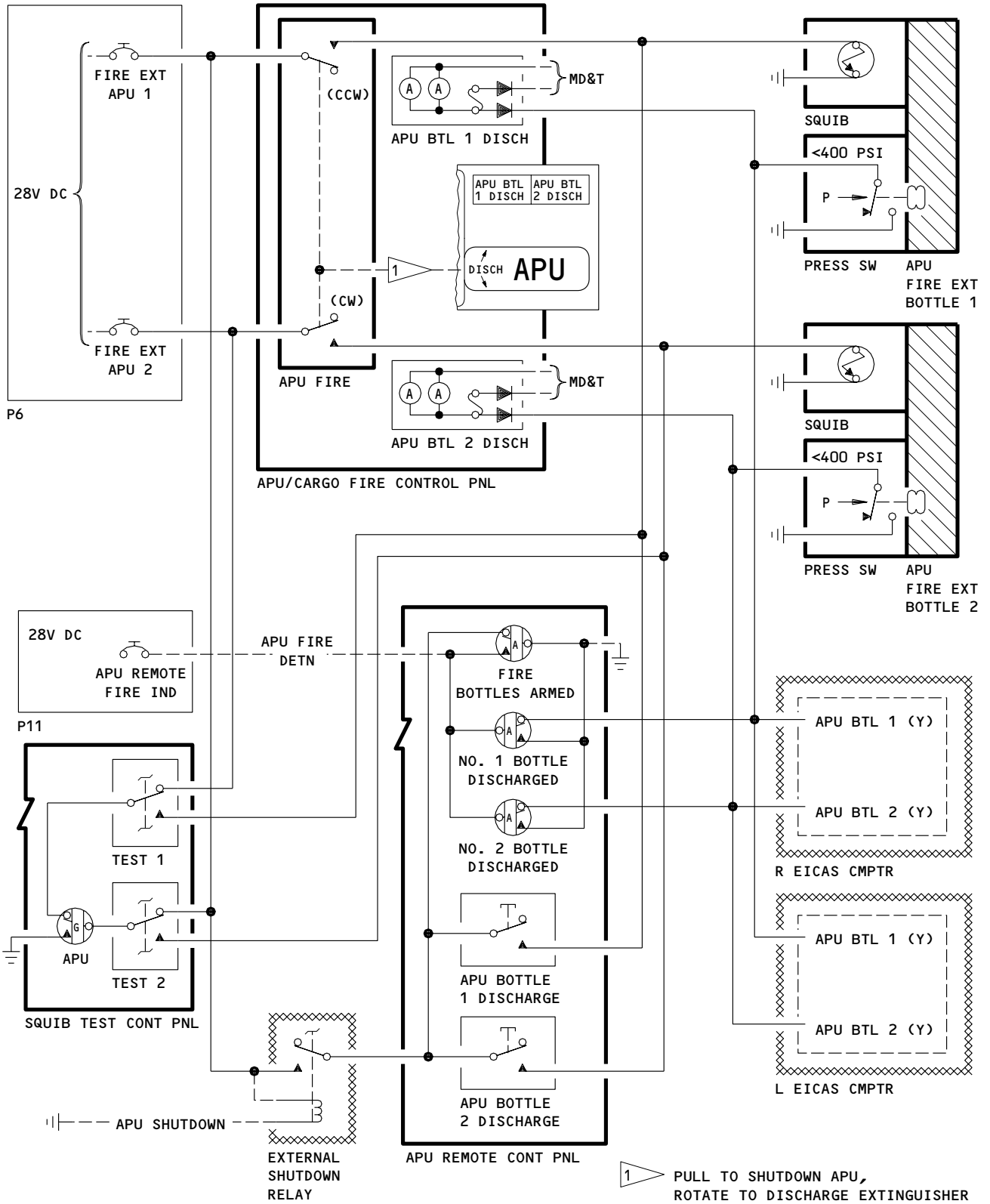
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1 PULL TO SHUTDOWN APU,  
ROTATE TO DISCHARGE EXTINGUISHER

APU Fire Extinguishing Schematic  
Figure 2

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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- (5) Decreasing bottle pressure, by discharge or leakage, activates the bottle pressure switch. The following occurs when a decrease in pressure is detected: the APU BTL DISCH light on APU/CARGO fire control panel (P8) comes on, and a APU BTL message appears on the EICAS display.

B. APU Extinguishing System Test

(1) Squib Test

- (a) The squib test control panel checks the integrity of extinguisher bottle squibs. Pressing the TEST switch sends a signal to the squib discharge cartridge. If the squib and circuit continuity are good, the green APU light on the panel comes on.

(2) Pressure Switch Test

- (a) Manually activating the bottle pressure switch tests discharge light circuit continuity. When the hex-key assembly is turned clockwise or the push button is pushed, the appropriate amber APU BTL 1 DISCH OR APU BTL 2 DISCH light comes on and an APU BTL 1 or APU BTL 2 message appears on the EICAS display indicating a successful test.

C. Control

- (1) Provide electrical power (AMM 24-22-00/201).
- (2) To place the system in operation, check that the following circuit breakers are closed: FIRE EXTINGUISHING APU 1 and APU 2 (two places) on main power distribution panel P6, and FIRE SWITCH UNLOCK on overhead circuit breaker panel P11.

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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APU FIRE EXTINGUISHING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BOTTLE - APU FIRE EXTINGUISHING, B25	2	1	313AL, SERVICE DOOR	26-22-02
CIRCUIT BREAKER - FIRE EXTINGUISHING APU 1, C780		1	FLT COMPT, P6 6G1	*
CIRCUIT BREAKER - APU REMOTE FIRE IND, C796			FLT COMPT, P11 11B34	*
COMPUTERS - (31-41-00/101) EICAS L, M10181 EICAS R, M10182				
LIGHT - APU BTL DISCH, YD0L1		1	FLT COMPT, APU/CARGO FIRE CONT PNL, M10444	*
LIGHT - APU SQUIB TEST, YA3L7	1	1	FLT COMPT, SQUIB TEST CONT PNL, M32	*
PANEL - (26-15-00/101) APU REMOTE CONTROL, P40				
PANEL - (26-21-00/101) SQUIB TEST CONT, M32				
PANEL - APU/CARGO FIRE CONT, M10444	1	1	FLT COMPT, P8	*
RELAY - (31-01-37/101) EXTERNAL SHUTDOWN, K421				
SQUIB - YFWB1	2	1	313AL, SERVICE DOOR, APU FIRE EXTINGUISHING BTL, B25	26-22-02
SWITCH - APU FIRE, YD0S39	1	1	FLT COMPT, P8, APU CARGO FIRE CONT PNL, M10444	26-22-02
SWITCH - TEST 1, YA3S1	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*
SWITCH - TEST 2, YA3S2	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*

\* SEE THE WDM EQUIPMENT LIST

APU Fire Extinguishing System - Component Index  
Figure 101

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

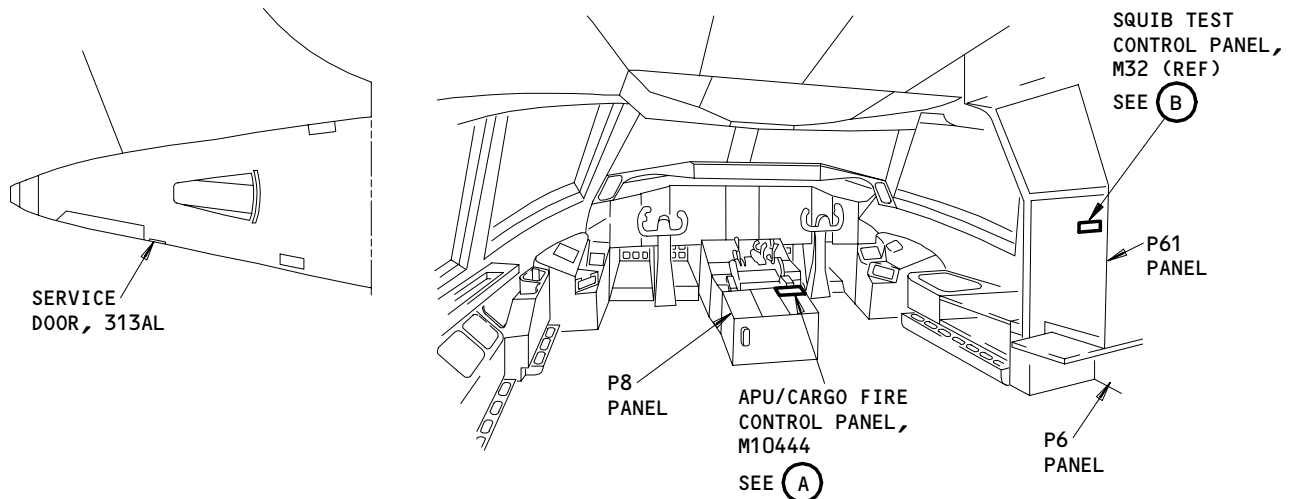
**26-22-00**  
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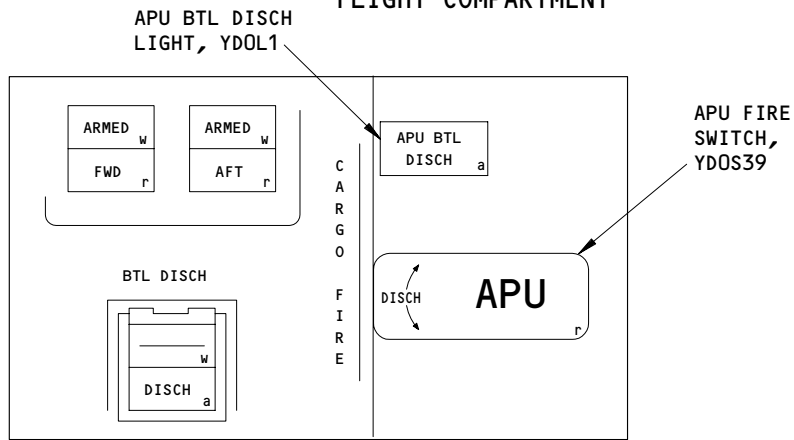
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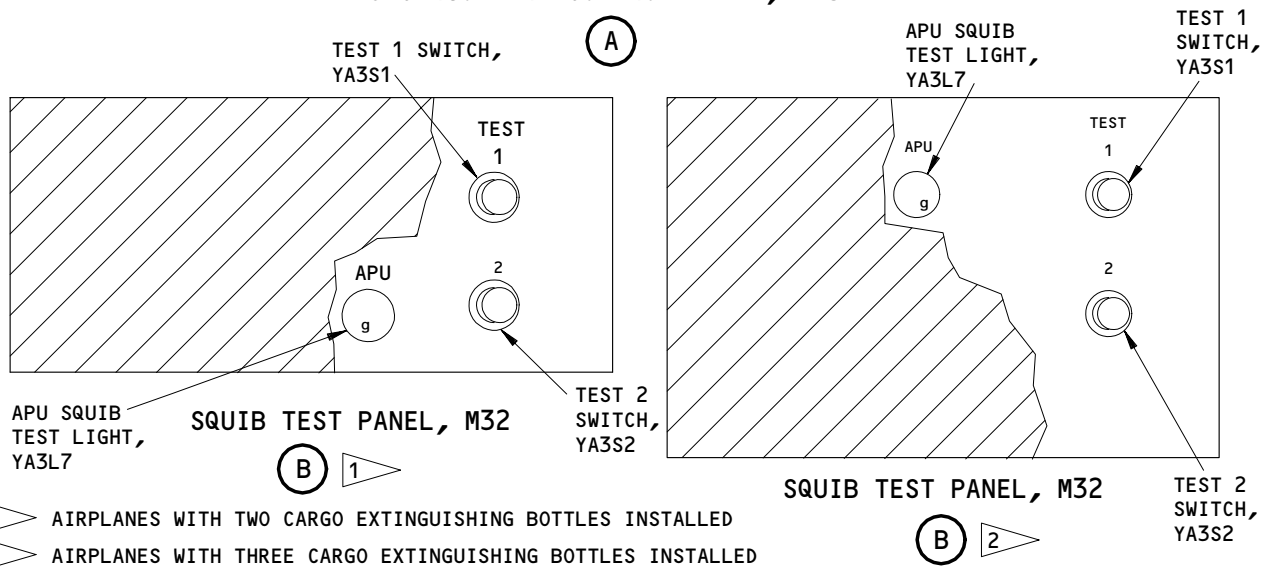
### FAULT ISOLATION/MAINT MANUAL



#### FLIGHT COMPARTMENT



APU/CARGO FIRE CONTROL PANEL, M10444



- 1 AIRPLANES WITH TWO CARGO EXTINGUISHING BOTTLES INSTALLED
- 2 AIRPLANES WITH THREE CARGO EXTINGUISHING BOTTLES INSTALLED

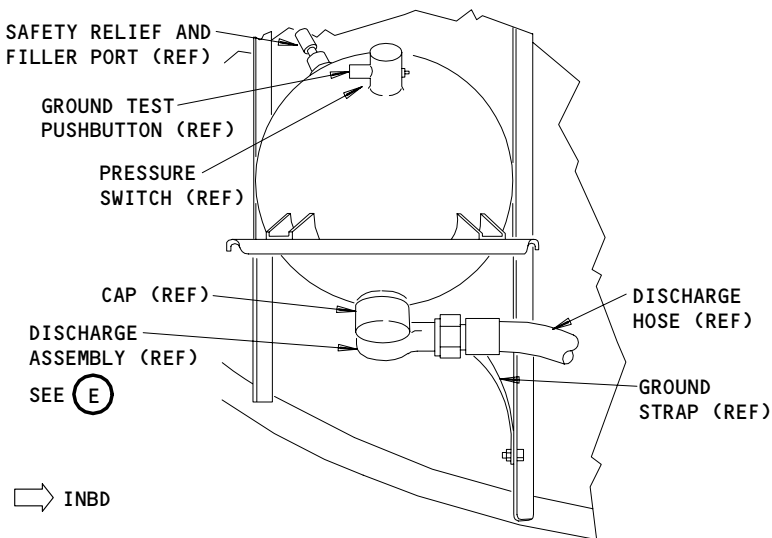
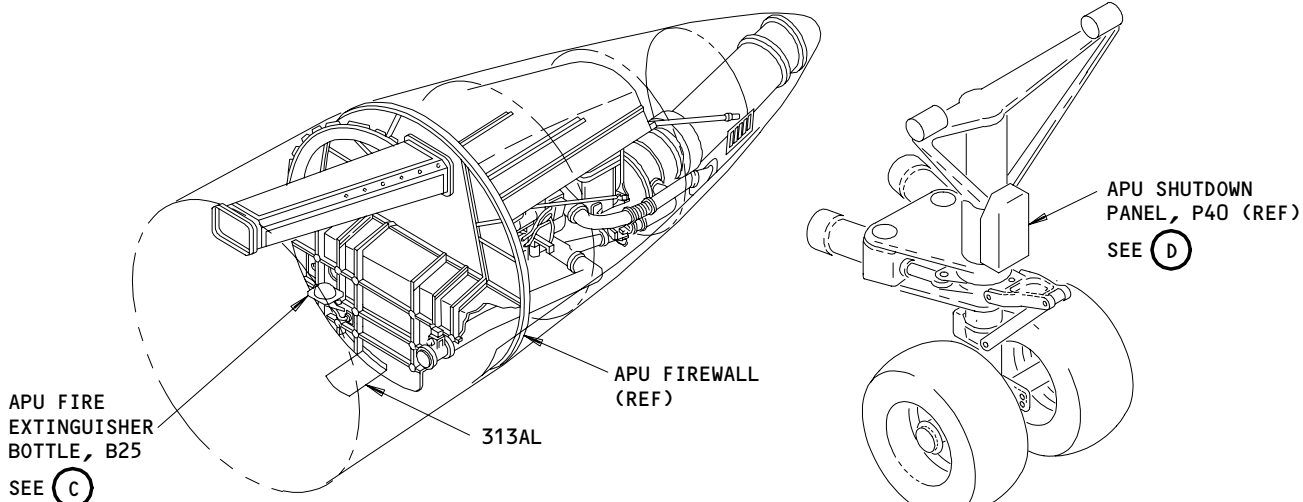
APU Fire Extinguishing System - Component Location  
Figure 102 (Sheet 1)

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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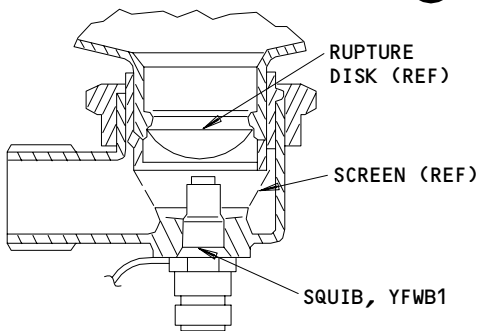
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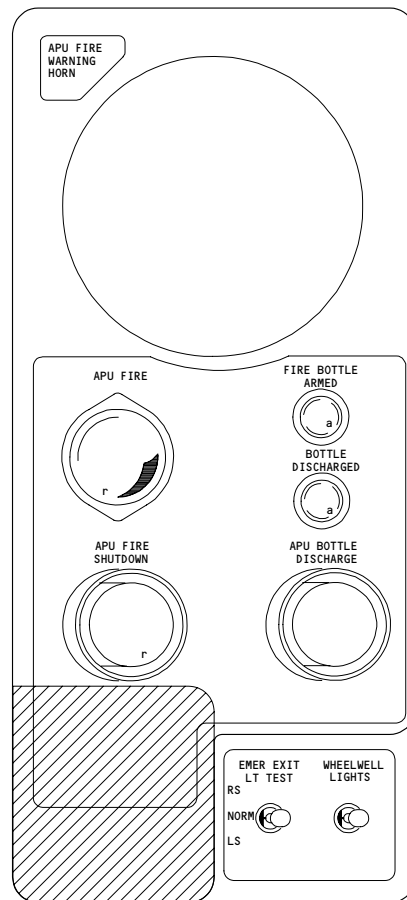
APU FIRE EXTINGUISHER BOTTLE, B25

(C)



DISCHARGE ASSEMBLY DETAIL (REF)

(E)



APU SHUTDOWN PANEL

(D)

APU Fire Extinguishing System - Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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APU FIRE EXTINGUISHING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BOTTLE - APU FIRE EXTINGUISHING, B25,B138	2	2	313AL, SERVICE DOOR	26-22-02
CIRCUIT BREAKERS -			FLT COMPT, P6	
FIRE EXT APU 1, C780		1	6G1	*
FIRE EXT APU 2, C782		1	6G2	*
CIRCUIT BREAKER -				
APU REMOTE FIRE IND, C796			11B34	*
COMPUTERS - (31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
LIGHT - APU SQUIB TEST, YA3L7	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*
LIGHT - APU BTL 1 DISCH, YDOL1	1	1	FLT COMPT, P8, APU CARGO FIRE CONTROL PNL, M10444	*
LIGHT - APU BTL 2 DISCH, YDOL2	1	1	FLT COMPT, P8, APU CARGO FIRE CONTROL PNL, M10444	*
PANEL - (26-15-00/101)				
APU REMOTE CONTROL, P40				
PANEL - (26-21-00/101)				
SQUIB TEXT CONT, M32				
PANEL - APU CARGO FIRE CONT, M10444	1	1	FLT COMPT, P8	*
RELAY - (31-01-37/101)				
EXTERNAL SHUTDOWN, K421				
SQUIB, YFWB1	2	1	313AL, SERVICE DOOR, APU FIRE EXT BTL, B25	26-22-02
SQUIB, YFXB1	2	1	313AL, SERVICE DOOR, APU FIRE EXT BTL, B138	26-22-02
SWITCH - APU FIRE, YDOS39	1	1	FLT COMPT, P8, APU FIRE CONTROL PNL, M10444	*
SWITCH - TEST 1, YA3S1	1	1	FLT COMPTAA, P61, SQUIB TEST CONT PNL, M32	*
SWITCH - TEST 2, YA3S2	1	1	FLT COMPT, P61, SQUIB TEST PNL, M32	*

\* SEE THE WDM EQUIPMENT LIST

APU Fire Extinguishing System - Component Index  
Figure 101

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

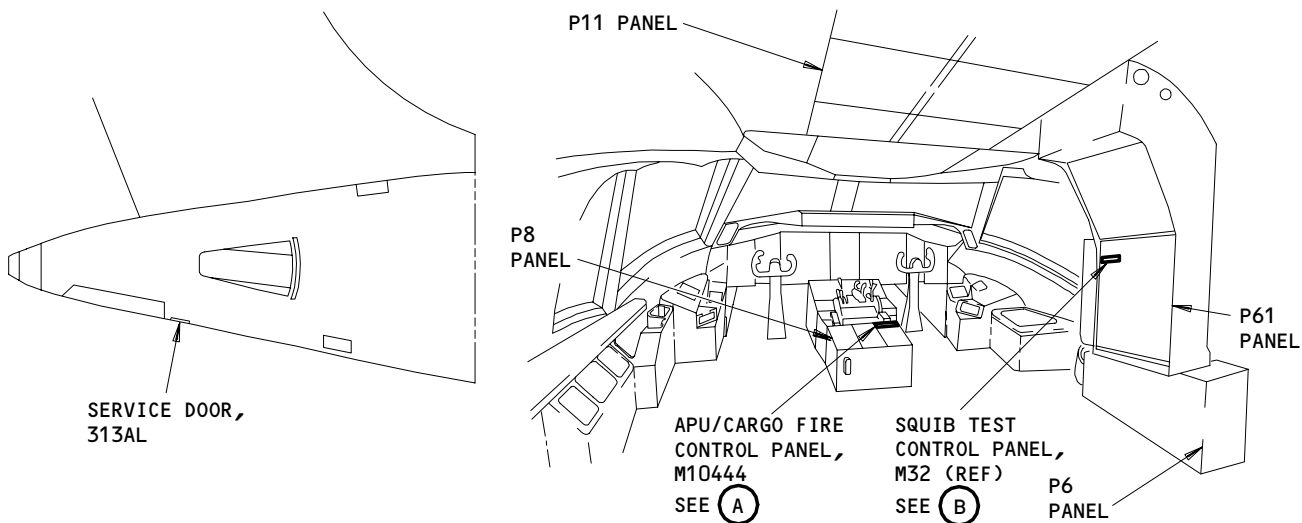
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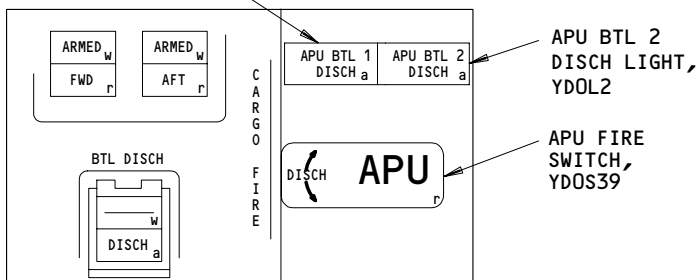
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### FAULT ISOLATION/MAINT MANUAL



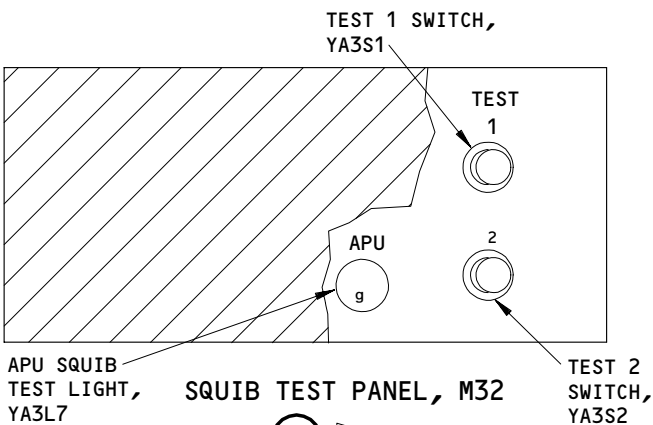
#### FLIGHT COMPARTMENT

APU BTL 1 DISCH LIGHT, YDOL1

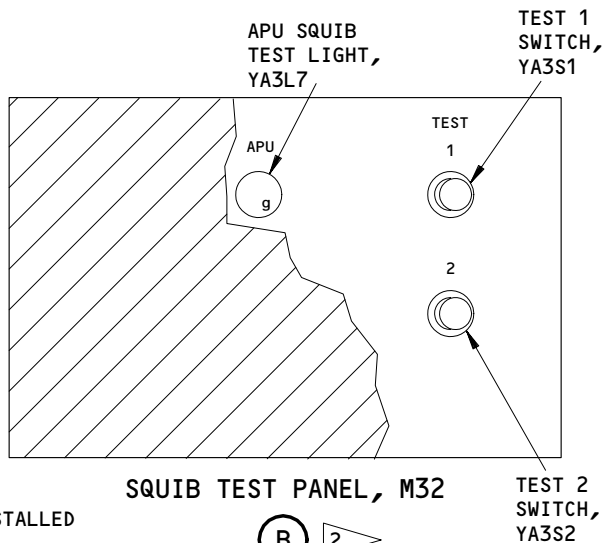


APU/CARGO FIRE CONTROL PANEL, M10444

(A)



(B) 1



(B) 2

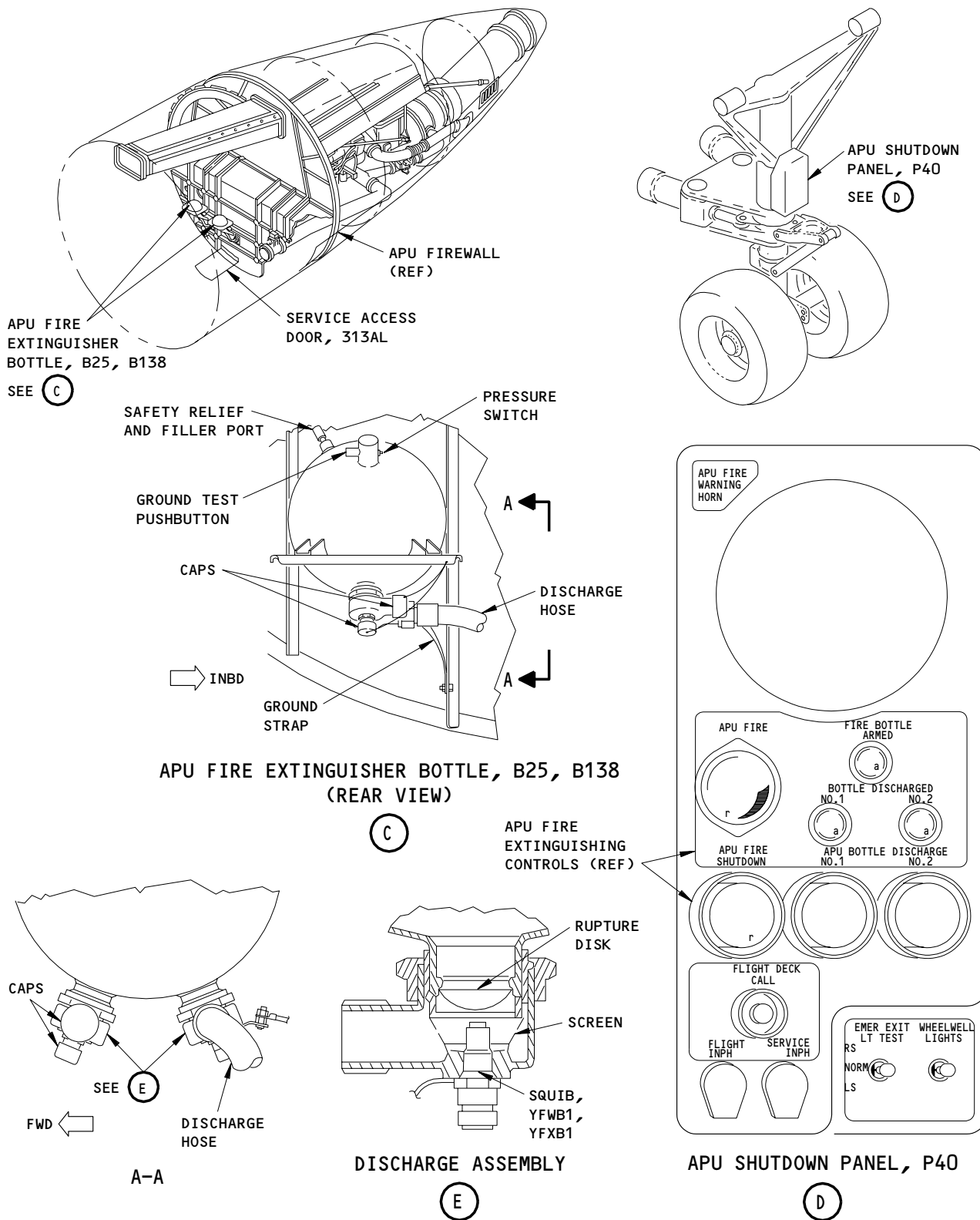
- 1 AIRPLANES WITH TWO CARGO EXTINGUISHING BOTTLES INSTALLED
- 2 AIRPLANES WITH THREE CARGO EXTINGUISHING BOTTLES INSTALLED

APU Fire Extinguishing System - Component Location  
Figure 102 (Sheet 1)

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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APU Fire Extinguishing System - Component Location  
Figure 102 (Sheet 2)

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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APU FIRE EXTINGUISHING SYSTEM – ADJUSTMENT TEST

1. General

- A. This section contains procedures to do a Pressure Switch operational test, a Squib Test Circuit operational test and a system test of the APU fire extinguishing system.
- (1) The APU bottle pressure switch operational test makes sure the pressure switch on the bottle operates correctly by use of the manual test switch. This manual test switch can be either a pushbutton or hex key configuration. The squib test circuit operational test uses the squib test panel to make sure the squib circuit operates correctly. The two tests only use equipment installed on the airplane.
  - (2) The system test makes sure of the correct operation of the systems that interface with the fire extinguishing system.

TASK 26-22-00-715-001-001

2. Operational Test – APU Bottle Pressure Switch

- A. Equipment
- (1) Service platform – A51001-19
- B. References
- (1) AMM 24-22-00/201, Electrical Power – Control
  - (2) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- C. Access
- (1) Location Zones
    - 211 Flight Compartment (Left)
    - 212 Flight Compartment (Right)
    - 315 APU Compartment (Left)
    - 316 APU Compartment (Right)
  - (2) Access Panels
    - 313AL Control Bay Access Door
    - 315AL APU Access Door
    - 316AR APU Access Door
- D. Prepare for Test
- S 865-002-001
- (1) Supply electrical power (AMM 24-22-00/201).
- E. Pressure Switch Test

S 035-065-001

**WARNING:** STAY OFF THE SERVICE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

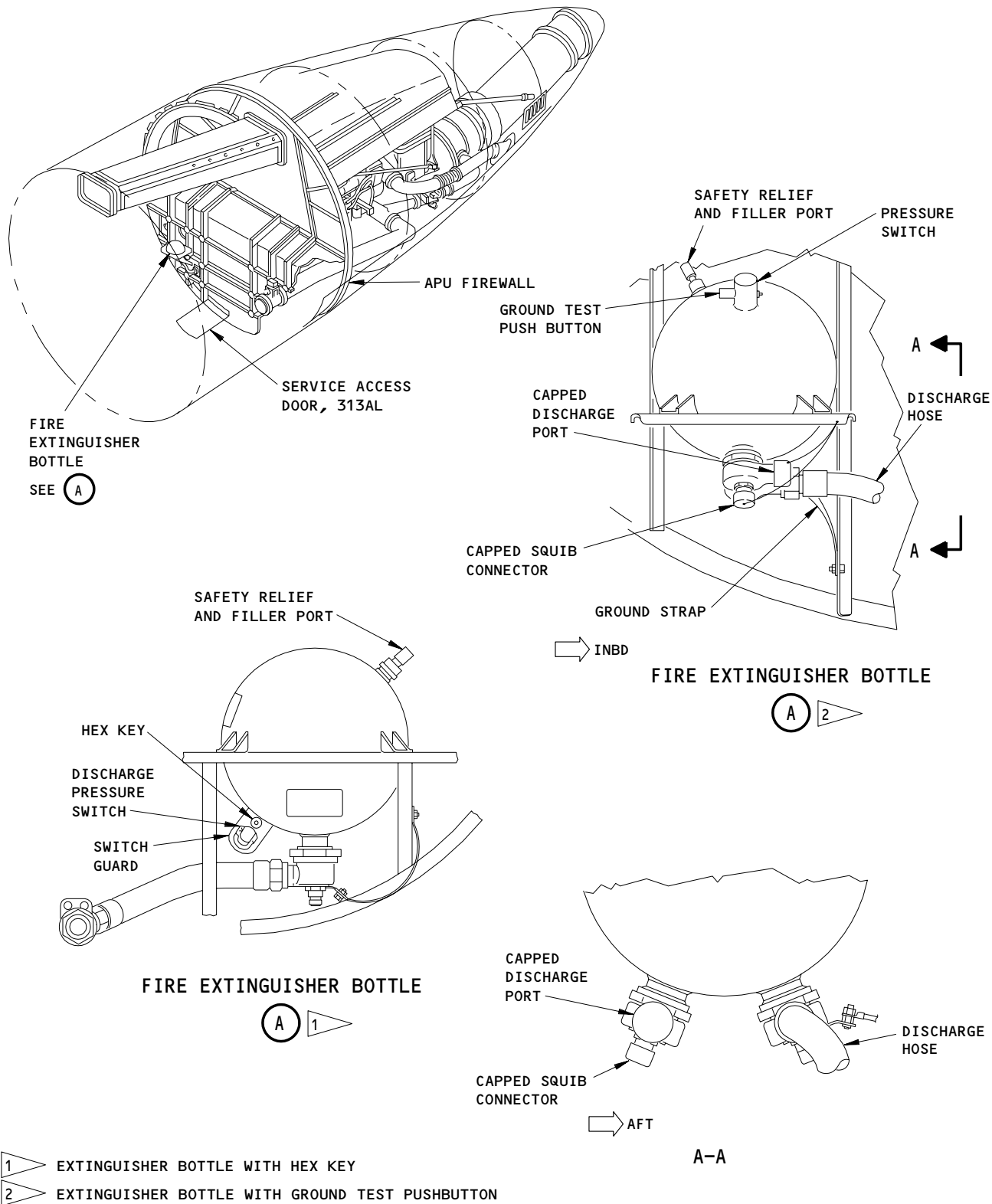
- (1) Open the access door, 313AL (AMM 06-42-00/201).

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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APU Fire Extinguishing System Test  
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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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- S 495-004-001
- (2) Install the service platform above the access door, 313AL.
- S 865-005-001
- (3) Push and hold the test switch or turn and hold the ground test hex key fully clockwise on the extinguisher bottle pressure switch.
- (a) On the APU/CARGO FIRE control panel, make sure that the APU BTL DISCH light comes on.
- (b) On the APU SHUTDOWN panel, P40, make sure that the BOTTLE DISCHARGED light comes on.
- (c) Make sure that the EICAS message APU BTL comes on.
- S 865-006-001
- (4) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:
- (a) 11A34, IND LTS 2
- S 865-007-001
- (5) Make sure the APU BTL DISCH light on the APU/CARGO FIRE Control Panel goes off.
- S 865-008-001
- (6) Make sure the BOTTLE DISCHARGED light on the APU SHUTDOWN panel stays on.
- (a) Make sure the EICAS message, APU BTL, shows on the top display.
- S 865-059-001
- (7) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11B34, APU REMOTE FIRE IND
- S 865-060-001
- (8) Make sure the BOTTLE DISCHARGED light on the APU SHUTDOWN panel goes off.
- S 865-009-001
- (9) Release the hex key or the pushbutton switch.
- (a) Make sure the EICAS message, APU BTL, does not show on the top display.
- S 865-010-001
- (10) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11A34, IND LTS 2
- (b) 11B34, APU REMOTE FIRE IND
- S 865-011-001
- (11) Make sure the APU BTL DISCH light stays off.

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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S 865-012-001

(12) Make sure the BOTTLE DISCHARGED light stays off.

F. Put the Airplane Back to its Usual Condition

S 865-013-001

(1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

S 095-014-001

(2) Remove the service platform from above the access door, 313AL.

S 415-015-001

(3) Close the access door, 313AL (AMM 06-42-00/201).

TASK 26-22-00-715-016-001

3. Operational Test - APU Squib Test Circuit

A. References

(1) AMM 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones

211 Flight Compartment (Left)

212 Flight Compartment (Right)

C. Prepare for Test

S 865-017-001

(1) Supply electrical power (AMM 24-22-00/201).

D. APU Squib Test Circuit Test

S 865-018-001

(1) On the SQUIB TEST control panel, P61, push and hold the TEST 1 (or TEST) switch.

(a) Make sure that the green APU TEST light comes on.

S 865-019-001

(2) Release the TEST 1 (or TEST) switch.

(a) Make sure that the APU TEST light goes off.

E. Put the Airplane Back to its Usual Condition

S 865-020-001

(1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-22-00-735-021-001

4. System Test - APU Fire Extinguishing

A. Equipment

(1) Electrical test equipment - bottle squib, fire extinguisher system- A26001-187 (Recommended)

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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- (2) Electrical test equipment - bottle squib, fire extinguisher system- A26001-165 (Alternative)
  - (3) Electrical test equipment - bottle squib, fire extinguisher system- A26001-174 (Alternative)
  - (4) Resistor - 10 Kohm
  - (5) Squib Protective Caps
    - M83723/60-18-AN or AC
    - M83723/60-110-AN or AC
  - (6) Service platform - A51001-19
- B. References
- (1) AMM 20-10-33/401, Power Device Cartridge
  - (2) AMM 24-22-00/201 Electrical Power - Control
  - (3) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- C. Access
- (1) Location Zones
    - 211 Flight Compartment (Left)
    - 212 Flight Compartment (Right)
    - 315 APU Compartment (Left)
    - 316 APU Compartment (Right)
  - (2) Access Panels
    - 313AL Control Bay Access Door
    - 315AL APU Access Door
    - 316AR APU Access Door
- D. Prepare For Test

S 865-062-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-022-001

- (2) Supply electrical power (AMM 24-22-00/201).

EFFECTIVITY  
AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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S 865-023-001

- (3) On the SQUIB TEST control panel, P61, push and hold the APU test switch.  
(a) Make sure that the green APU TEST light comes on.

S 865-024-001

- (4) Release the TEST switch.

S 865-025-001

- (5) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 865-026-001

- (6) Open these P11 panel circuit breakers and attach DO-NOT-CLOSE tags:  
(a) 11A34, IND LTS 2  
(b) 11B34, APU REMOTE FIRE IND

S 035-066-001

**WARNING:** STAY OFF THE SERVICE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (7) Open the access door, 313AL (AMM 06-42-00).

S 495-028-001

- (8) Install the service platform above the access door, 313AL.

S 865-029-001

- (9) On the APU fire extinguisher bottle, disconnect the connector, D1436, from the squib.

S 865-067-001

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (10) Put the protective caps on all the fire bottle squibs.

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S 865-068-001

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTOR TO THE SQUIB DURING THE TEST. ACCIDENTAL DISCHARGE OF THE SQUIB CARTRIDGE CAN CAUSE INJURY TO PERSONNEL.

- (11) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

E. Extinguisher Bottle Squib Discharge Circuit Test

S 865-032-001

- (1) Set the LOAD CHECK toggle switch on the squib circuit test set to the OFF position.

S 865-033-001

- (2) Attach the adapter cable to the connector on the squib circuit test set.

S 485-034-001

- (3) Connect the APU squib electrical connector, D1436, to the squib circuit test set adapter cable.

**NOTE:** Adapter cables are included with the squib circuit test set and must have the correct connectors.

S 865-035-001

- (4) Connect the multimeter to the squib circuit test set.

S 865-036-001

- (5) Set the LOAD CHECK switch on the squib circuit test set to the ON position.

S 865-037-001

- (6) On the P8 panel, pull the APU fire handle out to the emergency fire position.  
(a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box stays off.

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- (b) Make sure that the multimeter on the squib circuit test box shows a value of  $0 \pm 2$  volts.

S 865-038-001

- (7) Turn and hold the APU fire handle fully counterclockwise.
  - (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 865-039-001

- (8) Release the APU fire handle and make sure that the handle moves quickly toward the center position.
  - (a) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 865-073-001

- (9) Turn the APU fire handle in the vertical position.

S 865-040-001

- (10) Put the APU fire handle in the locked position.

S 865-074-001

- (11) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11A34, IND LT 2
  - (b) 11B34, APU REMOTE FIRE IND

S 865-042-001

- (12) Make sure that the BAT switch on the P5 panel is in the ON position.

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S 865-043-001

- (13) On the APU SHUTDOWN panel, P40, push the SHUTDOWN switch momentarily.
- (a) Make sure that the yellow FIRE BOTTLE ARMED light on the P40 panel comes on.

S 865-061-001

- (14) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE switch.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib test set comes on.
- (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 865-044-001

- (15) Release the APU BOTTLE DISCHARGE switch.
- (a) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 865-046-001

- (16) Put the BAT switch on the P5 panel in the OFF position.
- (a) Make sure that the FIRE BOTTLE ARMED light goes off.

S 865-070-001

- (17) Set the LOAD CHECK switch on the squib circuit test set to the OFF position.

S 085-047-001

- (18) Disconnect the APU squib electrical connector, D1436, from the squib circuit test set adapter cable.

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S 865-048-001

- (19) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:

F. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 865-063-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-057-001

- (2) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (a) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 kohm resistor across the meter to remove any stray voltage from the electrical connector.

S 865-071-001

- (3) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.  
(b) Make sure the squib pins are not bent or damaged.

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(c) Make sure the electrical connector is not damaged.

NOTE: The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 865-072-001

(4) Connect the electrical connector to the fire bottle squib.

G. Squib Connection Test

S 865-050-001

(1) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector, D1436, (BTL 1) to the squib cartridge.

S 865-051-001

(2) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 865-052-001

(3) Push and hold the TEST 1 (or TEST) switch on SQUIB TEST control panel, P61.  
(a) Make sure that the green APU squib TEST light comes on.

S 865-053-001

(4) Release the TEST 1 (or TEST) switch.  
(a) Make sure that the APU squib TEST light goes off.

H. Put the Airplane Back to Its Usual Condition

S 865-055-001

(1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

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APU FIRE EXTINGUISHING SYSTEM – ADJUSTMENT TEST

1. General

- A. This section contains procedures to do a Pressure Switch operational test, a Squib Test Circuit operational test and a system test of the APU fire extinguishing system.
- (1) The APU bottle pressure switch operational test makes sure the pressure switch on the bottle operates correctly by use of the manual test switch. This manual test switch can be either a pushbutton or hex key configuration. The squib test circuit operational test uses the squib test panel to make sure the squib circuit operates correctly. The two tests only use equipment installed on the airplane.
  - (2) The system test makes sure of the correct operation of the systems that interface with the fire extinguishing system.

TASK 26-22-00-715-001-002

2. Operational Test – APU Bottle Pressure Switch

- A. Equipment
- (1) Service platform – A51001-19
- B. References
- (1) AMM 24-22-00/201, Electrical Power – Control
  - (2) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- C. Access
- (1) Location Zones
    - 211 Flight Compartment (Left)
    - 212 Flight Compartment (Right)
    - 315 APU Compartment (Left)
    - 316 APU Compartment (Right)
  - (2) Access Panels
    - 313AL Control Bay Access Door
    - 315AL APU Access Door
    - 316AR APU Access Door
- D. Prepare for Test
- S 865-002-002
  - (1) Supply electrical power (AMM 24-22-00/201).
- E. Pressure Switch Test

S 035-089-002

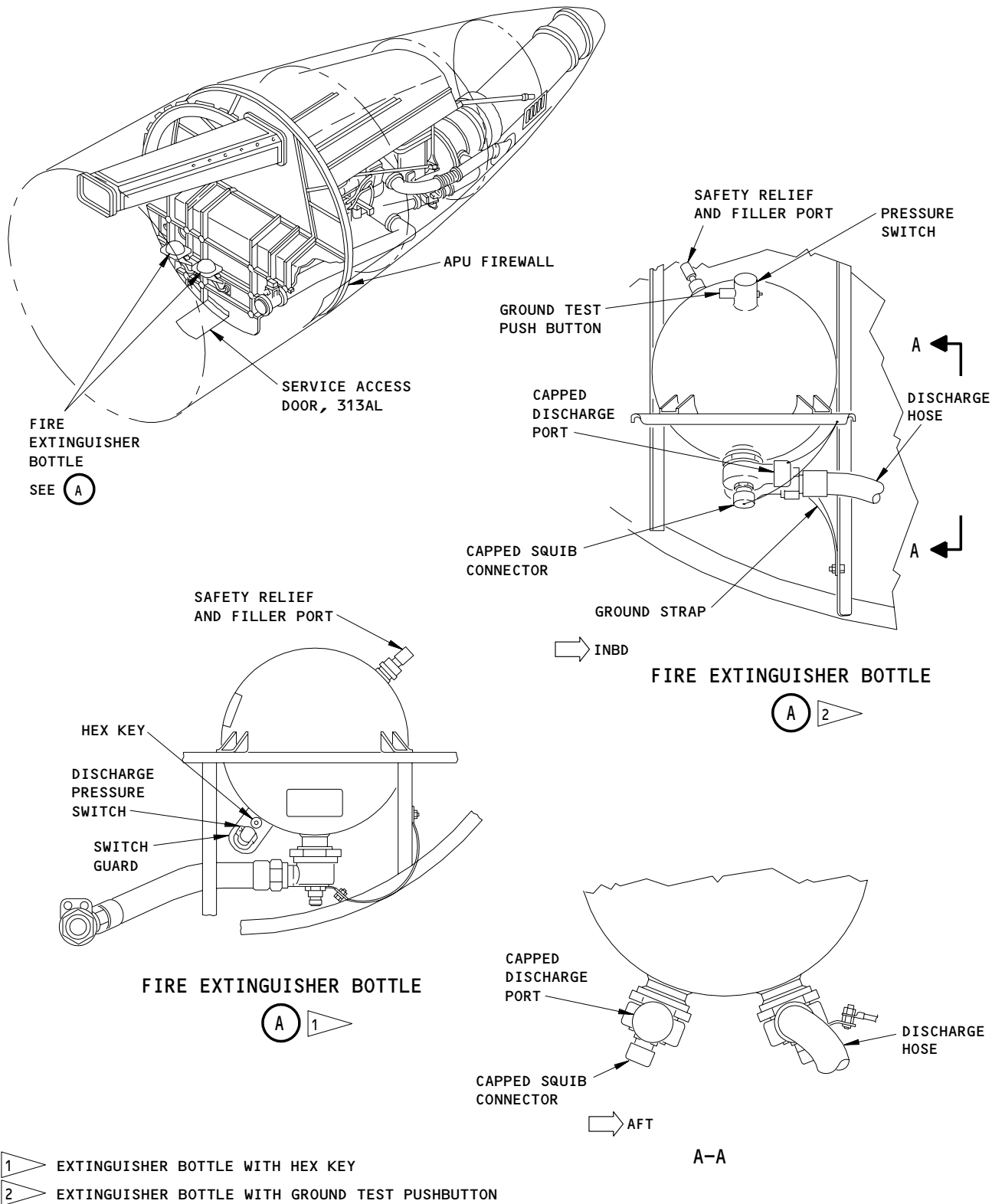
**WARNING:** STAY OFF THE SERVICE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (1) Open the access door, 313AL (AMM 06-42-00/201).

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- 1 EXTINGUISHER BOTTLE WITH HEX KEY
- 2 EXTINGUISHER BOTTLE WITH GROUND TEST PUSHBUTTON

APU Fire Extinguishing System Test  
Figure 501

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- S 495-004-002
- (2) Install the service platform above the access door, 313AL.
- S 865-005-002
- (3) On the APU fire extinguisher bottle No. 1, push and hold the test switch or turn and hold the ground test hex key fully clockwise.
- (a) On the APU/CARGO FIRE control panel, make sure that the APU BTL DISCH NO. 1 light comes on.
- (b) On the APU SHUTDOWN panel, P40, make sure that the BOTTLE DISCHARGED NO. 1 light comes on.
- (c) Make sure that the EICAS message APU BTL 1 comes on.
- S 865-006-002
- (4) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:
- (a) 11A34, IND LTS 2
- S 865-077-002
- (5) Make sure the APU BLT DISCH NO. 1 light on the APU/CARGO FIRE Control Panel goes off.
- S 865-078-002
- (6) Make sure the BOTTLE DISCHARGED NO./1 light on the APU SHUTDOWN panel stays on.
- (a) Make sure that the EICAS message, APU BTL 1, shows on the top of the display.
- S 865-079-002
- (7) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11B34, APU REMOTE FIRE IND
- (b) 11A35, IND LTS 3
- S 865-080-002
- (8) Make sure the BOTTLE DISCHARGED NO./1 light on the APU SHUTDOWN panel goes off.
- S 865-007-002
- (9) Release the hex key or the pushbutton switch.
- (a) Make sure that the EICAS message APU BTL 1, does not show on the top display.

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S 865-083-002

- (10) Remove the D0-NOT-CLOSE tags and close these P11 panel circuit breakers:
- (a) 11A35, IND LTS 3
  - (b) 11B34, APU REMOTE FIRE IND
  - (c) 11A34, IND LTS 2

S 865-008-002

- (11) On the APU fire extinguisher bottle No. 2, push and hold the test switch or turn and hold the ground test hex key fully clockwise.
- (a) On the APU/CARGO FIRE control panel, make sure that the APU BTL DISCH NO. 2 light comes on.
  - (b) On the APU SHUTDOWN panel, make sure that the BOTTLE DISCHARGED NO. 2 light comes on.
  - (c) Make sure that the EICAS message APU BTL 2 comes on.

S 865-009-002

- (12) Open this P11 panel circuit breaker and attach a D0-NOT-CLOSE tag:
- (a) 11A35, IND LTS 3

S 865-084-002

- (13) Make sure the APU BLT DISCH NO. 2 light on the APU/CARGO FIRE Control Panel goes off.

S 865-085-002

- (14) Make sure the BOTTLE DISCHARGED NO./2 light on the APU SHUTDOWN panel stays on.
- (a) Make sure that the EICAS message, APU BTL 2, shows on the top of the display .

S 865-081-002

- (15) Open this circuit breaker on the P11 panel and attach a D0-NOT-CLOSE tag:
- (a) 11B34, APU REMOTE FIRE IND
  - (b) 11A34, IND LTS 2

S 865-082-002

- (16) Make sure the BOTTLE DISCHARGED NO./2 light on the APU SHUTDOWN panel goes off.

S 865-010-002

- (17) Release the hex key or the pushbutton switch.
- (a) Make sure that the EICAS message APU BTL 2, does not show on the top display.

S 865-011-002

- (18) Remove the D0-NOT-CLOSE tags and close these P11 panel circuit breakers:
- (a) 11A34, IND LTS 2
  - (b) 11A35, IND LTS 3

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- (c) 11B34, APU REMOTE FIRE IND
- F. Put the Airplane Back to its Usual Condition

S 865-012-002

- (1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

S 095-013-002

- (2) Remove the service platform from above the access door, 313AL.

S 415-014-002

- (3) Close the access door, 313AL (AMM 06-42-00/201).

TASK 26-22-00-715-015-002

3. Operational Test - APU Squib Test Circuit

A. References

- (1) AMM 24-22-00/201, Electrical Power - Control

B. Access

- (1) Location Zones
  - 211 Flight Compartment (Left)
  - 212 Flight Compartment (Right)

C. Prepare for Test

S 865-016-002

- (1) Supply electrical power (AMM 24-22-00/201).

D. APU Squib Test Circuit Test

S 865-017-002

- (1) On the SQUIB TEST control panel, P61, push and hold the TEST 1 switch.
  - (a) Make sure that the APU TEST light comes on.

S 865-018-002

- (2) Release the TEST 1 switch.
  - (a) Make sure that the APU TEST light goes off.

S 865-019-002

- (3) On the SQUIB TEST control panel, push and hold the TEST 2 switch.
  - (a) Make sure that the APU TEST light comes on.

S 865-020-002

- (4) Release the TEST 2 switch.
  - (a) Make sure that the APU TEST light goes off.

E. Put the Airplane Back to its Usual Condition

S 865-021-002

- (1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

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TASK 26-22-00-735-022-002

4. System Test - APU Fire Extinguishing

A. Equipment

- (1) Electrical test equipment - bottle squib, fire extinguisher system- A26001-187 (Recommended)
- (2) Electrical test equipment - bottle squib, fire extinguisher system - A26001-165 (Alternative)
- (3) Electrical test equipment - bottle squib, fire extinguisher system - A26001-174 (Alternative)
- (4) Resistor - 10 Kohm
- (5) Squib Protective Caps  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC
- (6) Service platform - A51001-19

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge.
- (2) AMM 24-22-00/201 Electrical Power - Control
- (3) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels

C. Access

- (1) Location Zones  
211 Flight Compartment (Left)  
212 Flight Compartment (Right)  
315 APU Compartment (Left)  
316 APU Compartment (Right)
- (2) Access Panels  
313AL Control Bay Access Door  
315AL APU Access Door  
316AR APU Access Door

D. Prepare For Test

S 865-086-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-023-002

- (2) Supply electrical power (AMM 24-22-00/201).

S 865-024-002

- (3) On the SQUIB TEST control panel, P61, push and hold the APU test switch.
  - (a) Make sure that the green APU TEST light comes on.

S 865-025-002

- (4) Release the TEST switch.

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S 865-026-002

- (5) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

S 865-027-002

- (6) Open these P11 panel circuit breakers and attach DO-NOT-CLOSE tags:
- (a) 11A34, IND LTS 2
  - (b) 11A35, IND LTS 3
  - (c) 11B34, APU REMOTE FIRE IND

S 035-090-002

**WARNING:** STAY OFF THE SERVICE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (7) Open the access door, 313AL (AMM 06-42-00/201).

S 495-029-002

- (8) Install the service platform above the access door, 313AL.

S 865-030-002

- (9) On the APU fire extinguisher bottles 1 and 2, disconnect the connectors, D1436 and D2064, from the two squibs.

S 435-091-002

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (10) Put the protective caps on all the fire bottle squibs.

S 865-092-002

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTOR TO THE SQUIB DURING THE TEST. ACCIDENTAL DISCHARGE OF THE SQUIB CARTRIDGE CAN CAUSE INJURY TO PERSONNEL.

- (11) Remove the DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

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E. Extinguisher Bottle 1 Squib Discharge Circuit Test

S 865-033-002

- (1) Set the LOAD CHECK toggle switch on the squib test set to the OFF position.

S 865-034-002

- (2) Attach the adapter cable to the connector on the squib circuit test set.

S 485-035-002

- (3) Connect the bottle 1 APU squib electrical connector, D1436, to the squib circuit test set adapter cable.

NOTE: Adapter cables are included with the squib circuit test set and must have the correct connectors.

S 865-036-002

- (4) Connect the multimeter to the squib circuit test set.

S 865-037-002

- (5) Set the LOAD CHECK switch on the squib circuit test set to the ON position.

S 865-038-002

- (6) On the P8 panel, pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the BOTTLE DISCHARGE light on the squib test box stays off.
  - (b) Make sure that the multimeter on the squib test box shows a value of  $0 \pm 2$  volts.

S 865-039-002

- (7) Turn and hold the APU fire handle fully counterclockwise.
  - (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 865-040-002

- (8) Release the APU fire handle and make sure that the handle moves quickly toward the center position.
  - (a) Make sure that the multimeter on the squib test set shows a value of  $0 \pm 2$  volts.

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- S 865-098-002
- (9) Turn the APU fire handle in the vertical position.
- S 865-041-002
- (10) Put the APU fire handle in the locked position.
- S 865-102-002
- (11) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11A34, IND LT 2
  - (b) 11A35, IND LT 3
  - (c) 11B34, APU REMOTE FIRE IND
- S 865-043-002
- (12) Make sure that the BAT switch on the P5 panel is in the ON position.
- S 865-044-002
- (13) On the APU SHUTDOWN panel, P40, push the SHUTDOWN switch momentarily.
- (a) Make sure that the yellow FIRE BOTTLE ARMED light on the P40 panel comes on.
- S 865-045-002
- (14) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE NO. 1 switch.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib test set comes on.
  - (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.
- NOTE:** If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.
- S 865-046-002
- (15) Release the APU BOTTLE DISCHARGE NO. 1 switch.
- (a) Make sure that the multimeter on the squib test set shows a value of  $0 \pm 2$  volts.
- S 865-048-002
- (16) Put the BAT switch on the P5 panel in the OFF position.
- (a) Make sure that the FIRE BOTTLE ARMED light goes off.
- S 865-094-002
- (17) Set the LOAD CHECK toggle switch on the squib circuit test set to the OFF position.

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S 085-049-002

- (18) Disconnect the bottle 1 APU squib electrical connector, D1436, from the squib circuit test set adapter cable.

F. Extinguisher Bottle 2 Squib Discharge Circuit Test

S 085-050-002

- (1) Connect the bottle 2 APU squib electrical connector, D2064, to the squib circuit test set adapter cable.

S 865-051-002

- (2) Set the LOAD CHECK switch on the squib circuit test set to the ON position.

S 865-052-002

- (3) On the P8 panel, pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test set stays off.
  - (b) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 865-053-002

- (4) Turn and hold the APU fire handle fully clockwise.
  - (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 865-054-002

- (5) Release the APU fire handle and make sure that the handle moves quickly toward the center position.
  - (a) Make sure the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 865-056-002

- (6) Put the APU fire handle in the locked position.

S 865-057-002

- (7) Make sure that the BAT switch on the P5 panel is in the ON position.

S 865-058-002

- (8) On the APU SHUTDOWN panel, P40, push the SHUTDOWN switch momentarily.
  - (a) Make sure that the yellow FIRE BOTTLE ARMED light comes on.

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S 865-059-002

- (9) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE NO. 2 switch.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test set comes on.
  - (b) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

**NOTE:** If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 865-060-002

- (10) Release the APU BOTTLE DISCHARGE NO. 2 switch.
- (a) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 865-062-002

- (11) Put the BAT switch on the P5 panel to the OFF position.
- (a) Make sure that the FIRE BOTTLE ARMED light goes off.

S 865-095-002

- (12) Set the LOAD CHECK switch on the squib test set to the OFF position.

S 485-063-002

- (13) Disconnect the bottle 2 APU squib electrical connector, D2064, from the squib circuit test set.

S 865-064-002

- (14) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2
- G. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 865-087-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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S 015-065-002

- (2) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS AND CAUSE INJURY TO PERSONS.

- (a) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 kohm resistor across the meter to remove any stray voltage from the electrical connector.

S 865-096-002

- (3) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.  
(b) Make sure the squib pins are not bent or damaged.  
(c) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 865-097-002

- (4) Connect the electrical connector to the fire bottle squib.

#### H. Squib Connection Test

S 865-066-002

- (1) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector, D1436, (BTL 1) to the squib cartridge.

S 865-067-002

- (2) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 865-068-002

- (3) Push and hold the TEST 1 switch on SQUIB TEST control panel, P61.  
(a) Make sure that the green APU squib TEST light comes on.

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- S 865-069-002
- (4) Release the TEST 1 switch.
- (a) Make sure that the APU squib TEST light goes off.
- S 865-070-002
- (5) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector, D2064 (BTL 2), to the squib cartridge.
- S 865-071-002
- (6) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:
- (a) 6G2, FIRE EXTINGUISHING APU 2
- S 865-072-002
- (7) Push and hold the TEST 2 switch on the SQUIB TEST control panel.
- (a) Make sure that APU squib TEST light comes on.
- S 865-073-002
- (8) Release the TEST 2 switch.
- (a) Make sure that APU squib TEST light goes off.

I. Put the Airplane Back to Its Usual Condition

- S 865-075-002
- (1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

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APU FIRE SWITCH - INSPECTION/CHECK

1. General

- A. This procedure does a test of the APU fire switch to make sure of circuit continuity and APU isolation.

TASK 26-22-01-206-001-001

2. APU Fire Switch Check

A. Equipment

- (1) Electrical test equipment - bottle squib, fire extinguisher system - A26001-187 (Recommended)
- (2) Electrical test equipment - bottle squib, fire extinguisher system A26001-165 (Alternative)
- (3) Electrical test equipment - bottle squib, fire extinguisher system A26001-174 (Alternative)
- (4) Squib Protective Caps  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC
- (5) Resistor - 10 Kohm

**WARNING:** DO NOT USE OHMMETER CAPABLE OF SUPPLYING MORE THAN 80 MILLIAMPS OR FIRE EXTINGUISHER BOTTLE SQUIB MAY BE DETONATED.

- (6) Multimeter - Commercially available ohmmeter should be incapable of supplying more than 80 milliamps.
- (7) Service Platform - A51001-19

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 20-10-33/401, Power Device Cartridge
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 33-16-00/501, Master Dim and Test System

C. Access

- (1) Location Zones  
211 Flight Compartment (Left)  
212 Flight Compartment (Right)  
315 APU Compartment (Left)  
316 APU Compartment (Right)
- (2) Access Panels  
313AL Control Bay Access Door  
315AL APU Access Door  
316AR APU Access Door

D. Prepare for Check

S 866-002-001

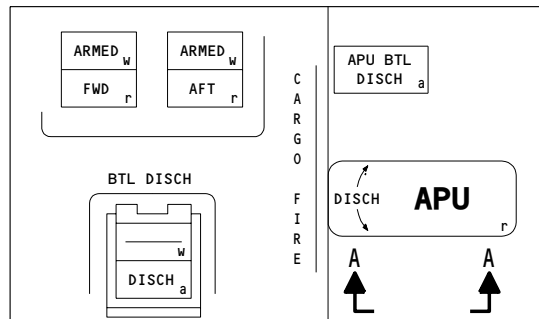
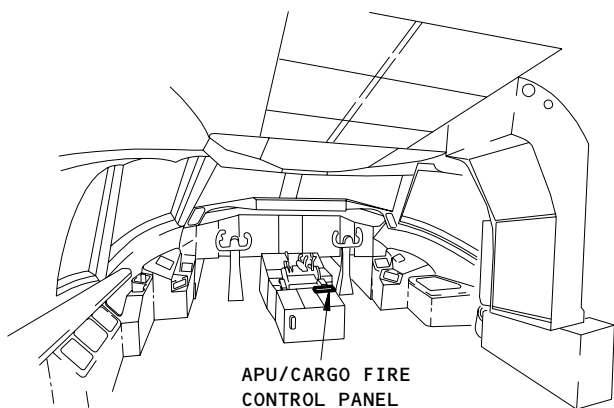
- (1) Supply electrical power (AMM 24-22-00/201).

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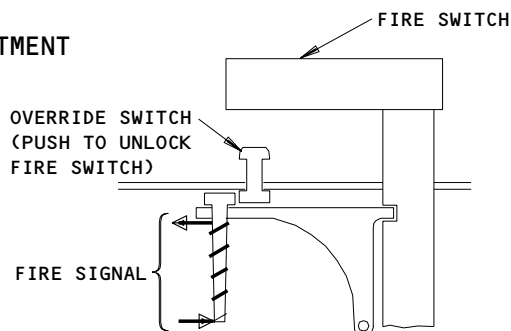
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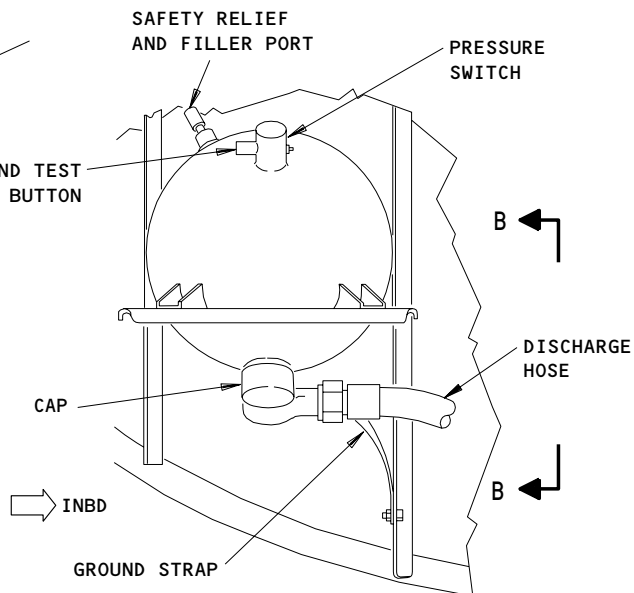
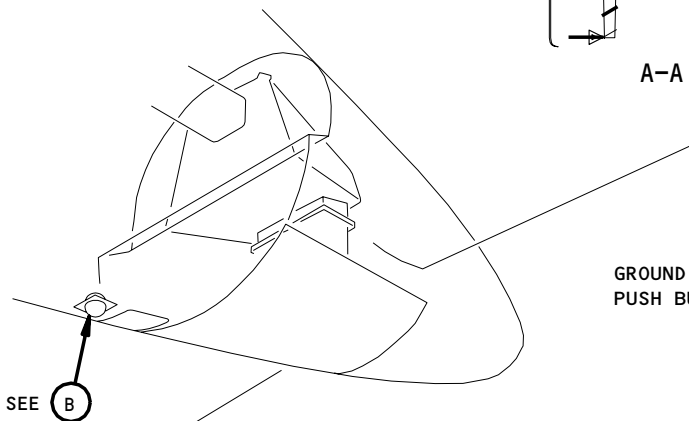




FLIGHT COMPARTMENT

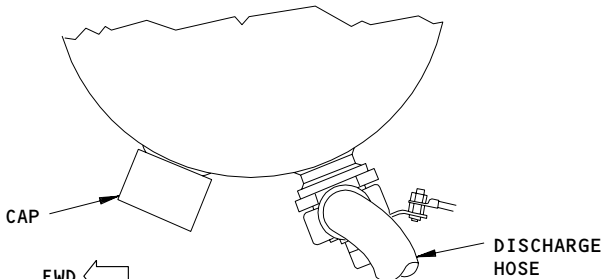


A-A



FIRE EXTINGUISHER BOTTLE

(B)



B-B

APU Fire Extinguishing System Inspection  
Figure 601

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E. Fire Switch Squib Discharge Circuit Check (Fig. 601)

S 866-066-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-003-001

- (2) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:
  - (a) 6G1, FIRE EXTINGUISHING APU 1

S 016-076-001

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (3) Open the access door, 313AL (AMM 06-42-00/201).

S 496-005-001

- (4) Install the service platform above the access door, 313AL.

S 866-006-001

- (5) Set the LOAD CHECK toggle switch on the squib test set to the OFF position.

S 026-122-001

- (6) Disconnect the APU fire extinguisher electrical connector, D1436, from the APU fire extinguisher bottle 1 squib.

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S 436-070-001

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (7) Put the protective caps on all the fire bottle squibs.

S 436-072-001

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTOR TO THE SQUIB DURING THE CHECK. ACCIDENTAL DISCHARGE OF THE SQUIB CARTRIDGE CAN CAUSE INJURY TO PERSONNEL.

- (8) Attach the adapter cable to the connector on the squib circuit test set.

S 036-008-001

- (9) Connect the APU squib electrical connector, D1436, to the squib circuit test set adapter cable.

**NOTE:** Adapter cables are included with the squib circuit test set and must have the correct connectors.

S 436-123-001

- (10) Connect a multimeter to the squib circuit test set.

S 866-011-001

- (11) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

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S 866-063-001

- (12) Set the LOAD CHECK switch on the squib test set to the ON position.

NOTE: To put the fire handle in the emergency fire position, it is necessary to use the manual unlock switch behind the fire handle.

S 866-012-001

- (13) On the P8 panel, pull the APU fire handle out to the emergency fire position.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - (b) Make sure the multimeter on the squib circuit test box shows a value of 0 volts.

S 866-013-001

- (14) Turn and hold the APU fire handle fully counterclockwise.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-014-001

- (15) Release the handle.
- (a) Make sure that the handle goes back to the center position.
  - (b) Make sure the multimeter on the squib test set shows a value of 0 volts.

S 866-015-001

- (16) Put the handle back to the locked position.

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S 866-077-001

- (17) Make sure the following circuit breakers on the P11 panel are closed:
- (a) 11A34, IND LTS 2
  - (b) 11B34, APU REMOTE FIRE IND

S 866-078-001

- (18) Make sure that the BAT switch on the P5 panel is in the ON position.

S 866-079-001

- (19) On the APU SHUTDOWN panel, P40, push then release the SHUTDOWN switch.
- (a) Make sure that the yellow FIRE BOTTLE ARMED light on the P40 panel comes on.

S 846-080-001

- (20) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE switch.
- (a) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-084-001

- (21) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:
- (a) 6G1, FIRE EXTINGUISHING APU 1

S 866-085-001

- (22) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 866-086-001

- (23) Release the APU BOTTLE DISCHARGE switch.
- (a) Make sure that the FIRE BOTTLE ARMED light goes off.

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- S 866-118-001  
(24) Set the LOAD CHECK switch on the squib test set to the OFF position.

- S 016-119-001  
(25) Disconnect the APU squib electrical connector, D1436, from the squib circuit test set adapter cable.

F. APU External Shutdown Relay Circuit Check

- S 866-124-001  
(1) Make sure this circuit breaker on the P6 panel is open:  
(a) 6G1, FIRE EXTINGUISHING APU 1

- S 866-133-001  
(2) Make sure these circuit breakers on the P11 panel are open:  
(a) 11B34, APU REMOTE FIRE IND  
(b) 11A34, IND LIGHT 2

- S 436-134-001  
(3) Connect a jumper between pins 1 and 2 on the bottle 1 APU squib electrical connector, D1436.

- S 016-125-001  
(4) Remove the external shutdown relay, K421, from the right miscellaneous electrical equipment panel, P37.

- S 436-126-001  
(5) Connect a jumper between pins 1A and 2A of connector D3750.

- S 436-127-001  
(6) Connect a multimeter between the load side of this P6 panel circuit breaker and ground:  
(a) 6G1, FIRE EXTINGUISHING APU 1

- S 866-128-001  
(7) Push and hold the APU BOTTLE DISCHARGE switch on the APU shutdown panel, P40.

NOTE: The APU shutdown panel is found on the nose landing gear.

- (a) Make sure that the multimeter shows a value less than 3 ohms.

- S 866-129-001  
(8) Release the APU BOTTLE DISCHARGE switch on the APU shutdown panel.

- S 036-130-001  
(9) Remove the multimeter from the load side of this P6 panel circuit breaker and ground:  
(a) 6G1, FIRE EXTINGUISHING APU 1

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S 036-131-001

- (10) Remove the jumper from pins 1 and 2 of connector D3750.

S 416-132-001

- (11) Connect the external shutdown relay, K421, to the right miscellaneous electrical equipment panel, P37.

S 036-135-001

- (12) Remove the jumper from pins 1 and 2 of bottle 1 APU squib electrical connector, D1436.

S 866-136-001

- (13) Close the following circuit breakers on the P11 panel:  
(a) 11B34, APU REMOTE FIRE IND  
(b) 11A34, IND LIGHT 2

G. Do the Squib Connection Test

S 426-068-001

**WARNING:** DO NOT INSTALL THE ELECTRICAL CONNECTOR ON THE SQUIB WITH A VOLTAGE AT THE PINS OF THE CONNECTOR. ACCIDENTAL DISCHARGE OF THE SQUIB CAN CAUSE INJURY TO PERSONNEL.

- (1) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector D1436 to the squib cartridge.

S 866-019-001

- (2) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 866-020-001

- (3) On the P61 panel, push and hold the TEST 1 switch on the SQUIB TEST control panel.  
(a) Make sure that the green APU SQUIB TEST light comes on.

S 866-021-001

- (4) Release the TEST 1 switch on the SQUIB TEST control panel.  
(a) Make sure that the APU SQUIB TEST light goes off.

H. Do The APU Fire Handle Unlock Solenoid Circuit Check

S 866-106-001

- (1) Supply electrical Power (AMM 24-22-00/201).

S 866-107-001

- (2) Make sure these systems operate:  
(a) Warning System (AMM 31-51-00/501).  
(b) Master Dim and Test System (AMM 33-16-00/501).

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- S 866-108-001
- (3) Open this circuit breaker on the P6 panel and attach a DO-NOT-CLOSE tag:
- (a) 6G1, FIRE EXTINGUISHING APU 1

- S 866-112-001
- (4) Make sure the following circuit breakers on the P11 panel are closed:
- (a) 11B19, FIRE SWITCH UNLOCK  
(b) 11B24, FIRE DET APU 1  
(c) 11B25, FIRE DET APU 2

- S 866-113-001
- (5) Pull the APU fire handle on the aft pilot's control stand P8, and make sure that it is locked into its usual position.

- S 866-114-001
- (6) Push and hold the ENG/APU/CARGO Test switch on the P8 panel.
- (a) Make sure the APU fire handle light comes on.

S 866-115-001

**CAUTION:** DO NOT TURN THE FIRE HANDLE WHEN YOU PULL IT INTO THE EMERGENCY FIRE POSITION. IF YOU TURN THE FIRE HANDLE, THE CONTENTS OF THE FIRE BOTTLE CAN BE LET OUT.

- (7) Pull the APU fire handle into the FIRE position.
- (a) Make sure the APU fire handle releases from its usual position.
- (b) Make sure the APU handle light remains on when the handle is pulled.

- S 866-116-001
- (8) Put the APU fire handle back to its usual position.

- S 866-117-001
- (9) Release the ENG/APU/CARGO Test switch.

I. APU Generator Field Control Relay Trip Check

- S 866-022-001
- (1) Set the APU GEN switch on the overhead panel, P5, to the OFF position.
- (a) Make sure that the yellow OFF light comes on in the switch.  
(b) Make sure that the white FIELD OFF light comes on on the APU GEN FIELD MANUAL RESET panel (located on P61 panel).

- S 866-023-001
- (2) Push the light-switch.
- (a) Make sure that the FIELD OFF light goes off.

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S 866-024-001

- (3) On the P8 panel, pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the white FIELD OFF light comes on within 5 seconds.

S 866-025-001

- (4) Put the APU fire handle in the locked position.

S 866-026-001

- (5) On the overhead panel, set the APU GEN switch to the ON position.
  - (a) Make sure that the white ON light comes on in the switch.

J. APU Fuel Valve Operation Check

S 866-073-001

**CAUTION:** DO NOT PUT THE APU SWITCH IN THE START POSITION. THE APU CAN ACCIDENTALLY START.

- (1) On the overhead panel, put the APU master control to the ON position.

S 926-028-001

- (2) Go to the APU fuel shut off valve actuator through the left main landing gear door.

**NOTE:** The APU fuel shutoff valve actuator is found on the left inboard rear spar.

S 866-029-001

- (3) Make sure that the manual override handle of the APU fuel shutoff valve actuator is in the OPEN position.

S 866-030-001

- (4) Pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the manual override handle of the APU fuel shutoff valve actuator is in the CLOSE position.

S 866-031-001

- (5) Put the APU fire handle in the locked position.

S 866-032-001

- (6) On the overhead control panel, put the APU master control switch in the OFF position.

K. APU Air Supply Valve Operation Check

S 866-033-001

- (1) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:
  - (a) 11S24, AIR SUPPLY APU BLEED CONT

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- S 866-034-001  
(2) Release the six fasteners on the bleed air supply module, M15.

NOTE: The bleed air supply module is found on the overhead control panel.

- S 026-064-001  
(3) Remove the bleed air supply module from the overhead control panel.

- S 016-035-001  
(4) Remove the electrical connector, D1348, from the bleed air supply panel.

- S 866-036-001  
(5) Connect a jumper between pin 10 of connector D1348 and ground.

- S 866-037-001  
(6) Close this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 11S24, AIR SUPPLY APU BLEED CONT  
(b) Make sure that the manual override handle of the APU air supply shutoff valve is in the OPEN position.

NOTE: The APU air supply shutoff valve is found in the APU compartment.

- S 866-038-001  
(7) Pull the APU fire handle out to the emergency fire position.  
(a) Make sure that the manual override handle of the APU air supply shutoff valve is in the CLOSED position.

- S 866-039-001  
(8) Put the APU fire handle in the locked position.

- S 866-062-001  
(9) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 11S24, AIR SUPPLY APU BLEED CONT

- S 866-040-001  
(10) Remove the jumper from connector D1348 and ground.

- S 416-041-001  
(11) Connect the connector, D1348, to the bleed air supply panel.

- S 866-042-001  
(12) Remove the DO-NOT-CLOSE tag and close this P11 panel circuit breaker:  
(a) 11S24, AIR SUPPLY APU BLEED CONT

L. APU Shutdown Function Check

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S 866-074-001

**CAUTION:** DO NOT PUT THE APU MASTER CONTROL IN THE START POSITION. THE APU CAN ACCIDENTALLY START.

- (1) On the overhead control panel, put the APU master control to the ON position.
  - (a) Make sure that the APU air intake door opens.

S 866-044-001

- (2) Pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the APU air intake door closes.

S 866-045-001

- (3) Put the APU master control to the OFF position.

S 866-046-001

- (4) Put the APU fire handle in the locked position.

M. Put the Airplane Back to Its Usual Condition

S 866-056-001

- (1) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:
  - (a) 6G1, FIRE EXTINGUISHING APU 1

S 866-057-001

- (2) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

N. Squib Electrical Connection Procedure (reference only)

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 866-150-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLES TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-151-001

- (2) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (a) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 Kohm resistor across the meter to remove any stray voltage from the electrical connector.

S 866-152-001

- (3) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.
- (b) Make sure the squib pins are not bent or damaged.
- (c) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the connector if the pins do not enter the connector receptacles.

S 866-153-001

- (4) Connect the electrical connector to the fire bottle squib.

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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APU FIRE SWITCH - INSPECTION/CHECK

1. General

- A. This procedure does a test of the APU fire switch to make sure of circuit continuity and APU isolation.

TASK 26-22-01-206-001-002

2. APU Fire Switch Check

A. Equipment

- (1) Electrical test equipment - bottle squib, fire extinguisher system - A26001-187 (Recommended)
- (2) Electrical test equipment - bottle squib, fire extinguisher system - A26001-165 (Alternative)
- (3) Electrical test equipment - bottle squib, fire extinguisher system - A26001-174 (Alternative)
- (4) Resistor - 10 Kohm

**WARNING:** DO NOT USE OHMMETER CAPABLE OF SUPPLYING MORE THAN 80 MILLIAMPS OR FIRE EXTINGUISHER BOTTLE SQUIB MAY BE DETONATED.

- (5) Multimeter - Commercially available ohmmeter should be incapable of supplying more than 80 milliamps.
- (6) Squib Protective Caps  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC
- (7) Service Platform - A51001-19

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 20-10-33/401, Power Device Cartridge
- (3) AMM 24-22-00/201, Electrical Power - Control
- (4) AMM 31-51-00/501, Warning System
- (5) AMM 33-16-00/501, Master Dim and Test System

C. Access

- (1) Location Zones  
211 Flight Compartment (Left)  
212 Flight Compartment (Right)  
315 APU Compartment (Left)  
316 APU Compartment (Right)
- (2) Access Panels  
313AL Control Bay Access Door  
315AL APU Access Door  
316AR APU Access Door

D. Prepare for Check

S 866-002-002

- (1) Supply electrical power (AMM 24-22-00/201).

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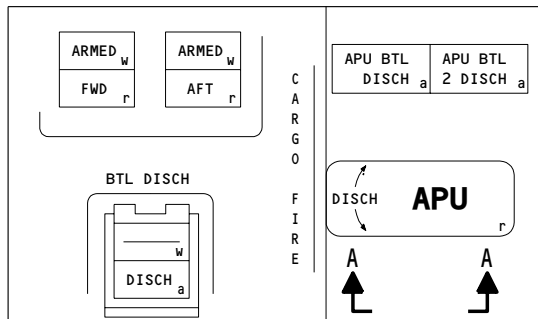
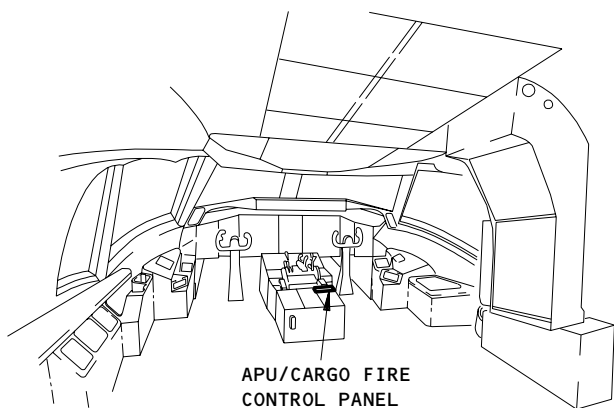
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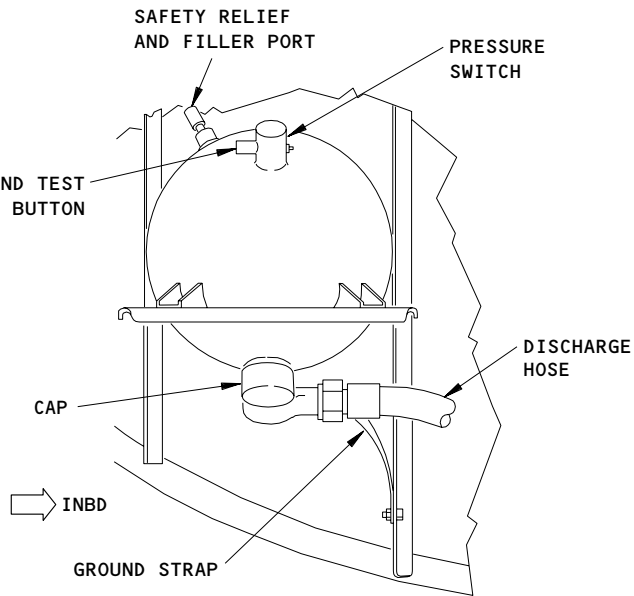
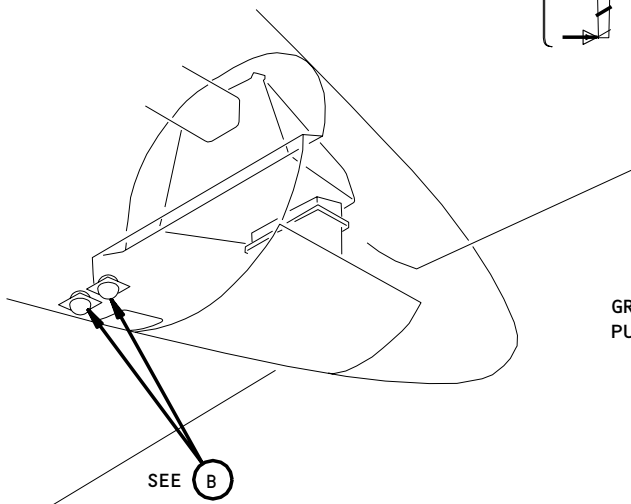
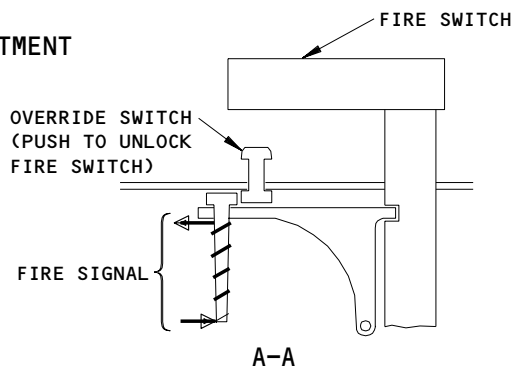
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FLIGHT COMPARTMENT



FIRE EXTINGUISHER BOTTLE

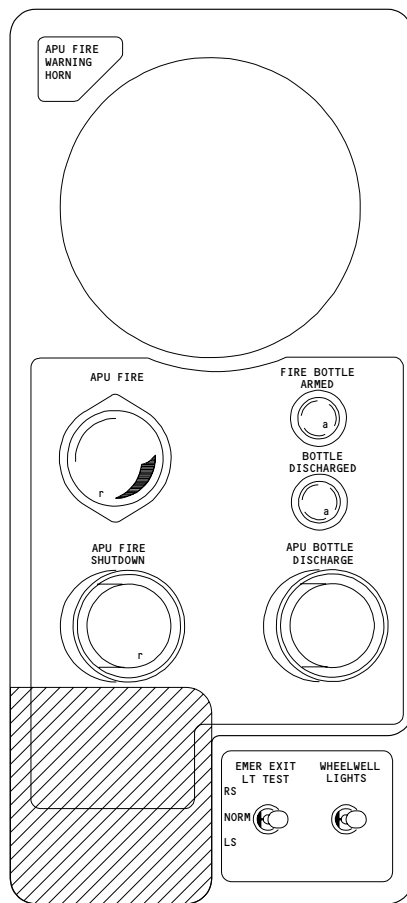
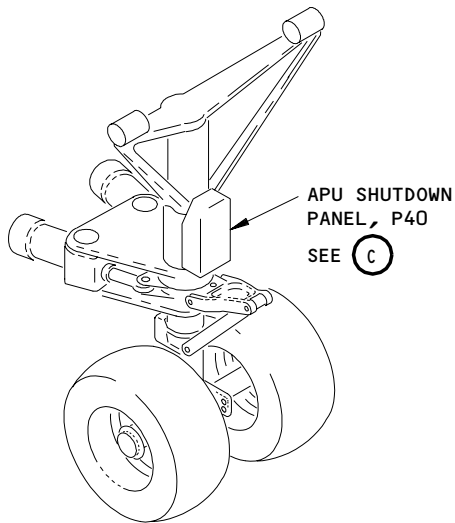
(B)

APU Fire Extinguishing System Inspection  
Figure 601 (Sheet 1)

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APU FIRE BOTTLES

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APU SHUTDOWN PANEL, P40

(C)

APU Fire Extinguishing System Inspection  
Figure 601 (Sheet 2)

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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E. Fire Switch Squib Discharge Circuit Check (Fig. 601)

S 866-081-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-003-002

- (2) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

S 016-085-002

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (3) Open the access door, 313AL (AMM 06-42-00/201).

S 496-005-002

- (4) Install the service platform above the access door, 313AL.

S 866-006-002

- (5) Set the LOAD CHECK toggle switch on the squib circuit test set to the OFF position.

S 026-174-002

- (6) Disconnect the APU fire extinguisher electrical connector, D1436, from the APU extinguisher fire bottle 1 squib.

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AIRPLANES WITH DUAL  
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S 436-086-002

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT A SHUNT PLUG ON THE FIRE BOTTLE SQUIB. THE SHUNT PLUG CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (7) Put the protective caps on all the fire bottle squibs.

S 436-087-002

**WARNING:** DO NOT CONNECT THE ELECTRICAL CONNECTOR TO THE SQUIB DURING THE CHECK. ACCIDENTAL DISCHARGE OF THE SQUIB CARTRIDGE CAN CAUSE INJURY TO PERSONNEL.

- (8) Attach the adapter cable to the connector on the squib circuit test set.

S 036-008-002

- (9) Connect the bottle 1 APU squib electrical connector, D1436, to the squib circuit test set adapter cable.

**NOTE:** Adapter cables are included with the squib circuit test set and must have the correct connectors.

S 436-175-002

- (10) Connect a multimeter to the squib circuit test set.

S 866-011-002

- (11) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

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S 866-075-002

- (12) Set the LOAD CHECK switch on the squib circuit test set to the ON position.

NOTE: To put the fire handle in the emergency fire position, it is necessary to use the manual unlock switch behind the fire handle.

S 866-012-002

- (13) On the P8 panel, pull the APU fire handle out to the emergency fire position.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - (b) Make sure the multimeter on the squib circuit test box shows a value of 0 volts.

S 866-013-002

- (14) Turn and hold the APU fire handle fully counterclockwise.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-014-002

- (15) Release the handle.
- (a) Make sure that the handle goes back to the center position.
  - (b) Make sure the multimeter on the squib test set shows a value of 0 volts.

S 866-015-002

- (16) Put the handle back to the locked position.

S 866-120-002

(17) Make sure the following circuit breakers on the P11 panel are closed:

- (a) 11A34, IND LTS 2
- (b) 11A35, IND LT 3
- (c) 11B34, APU REMOTE FIRE IND

S 866-121-002

(18) Make sure that the BAT switch on the P5 panel is in the ON position.

S 866-122-002

(19) On the APU SHUTDOWN panel, P40, push then release the SHUTDOWN switch.

- (a) Make sure that the yellow FIRE BOTTLE ARMED light on the P40 panel comes on.

S 866-125-002

(20) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE NO. 1 switch.

- (a) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

S 866-127-002

(21) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:

- (a) 6G1, FIRE EXTINGUISHING APU 1

S 866-128-002

(22) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.

S 866-131-002

(23) Release the APU BOTTLE DISCHARGE NO. 1 switch.

- (a) Make sure that the FIRE BOTTLE ARMED light goes off.

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- S 866-168-002
- (24) Set the LOAD CHECK switch on the squib circuit test set to the OFF position.
- S 016-169-002
- (25) Disconnect the bottle 1 APU squib electrical connector, D1436, from the squib circuit test set adapter cable.
- S 436-017-002
- (26) Connect the bottle 2 APU squib electrical connector, D2064, to the squib circuit test set adapter cable.
- S 866-018-002
- (27) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2
- S 866-077-002
- (28) Set the LOAD CHECK switch on the squib circuit test set to the ON position.
- S 866-019-002
- (29) On the P8 panel, pull the APU fire handle out to the emergency fire position.
- (a) Make sure the multimeter on the squib circuit test set shows a value of 0 volts.
- S 866-020-002
- (30) Turn and hold the APU fire handle fully clockwise.
- (a) Make sure that the BOTTLE DISCHARGE light on the squib circuit test box comes on.
  - (b) Make sure the multimeter on the squib circuit test box shows a minimum value of 16 volts.
- NOTE:** If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.
- S 866-021-002
- (31) Release the handle.
- (a) Make sure that the handle goes back to the center position.
  - (b) Make sure the multimeter on the squib circuit test set shows a value of 0 volts.

- S 866-022-002
- (32) Put the handle back to the locked position.
- S 866-149-002
- (33) Make sure that the BAT switch on the P5 panel is in the ON position.
- S 866-150-002
- (34) On the APU SHUTDOWN panel, P40, push then release the SHUTDOWN switch.
- (a) Make sure that the yellow FIRE BOTTLE ARMED light comes on.
- S 866-151-002
- (35) On the APU SHUTDOWN panel, push and hold the APU BOTTLE DISCHARGE NO. 2 switch.
- (a) Make sure that the multimeter on the squib circuit test box shows a minimum value of 16 volts.

NOTE: If the voltage is less than 16 volts, the circuit may not provide sufficient current to fire the squib.

- S 866-152-002
- (36) Open the following circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6G1, FIRE EXTINGUISHING APU 1
- (b) 6G2, FIRE EXTINGUISHING APU 2
- S 866-153-002
- (37) Make sure that the multimeter on the squib circuit test set shows a value of  $0 \pm 2$  volts.
- S 866-154-002
- (38) Release the APU BOTTLE DISCHARGE NO. 2 switch.
- (a) Make sure that the FIRE BOTTLE ARMED light goes off.
- S 866-170-002
- (39) Set the LOAD CHECK switch on the squib test set to the OFF position.
- S 016-171-002
- (40) Disconnect the bottle 2 APU squib electrical connector, D2064, from the squib circuit test set.
- F. APU External Shutdown Relay Circuit Check
- S 866-180-002
- (1) Make sure the following circuit breakers on the P6 panel are open:
- (a) 6G1, FIRE EXTINGUISHING APU 1
- (b) 6G2, FIRE EXTINGUISHING APU 2

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- S 866-181-002
- (2) Make sure these following circuit breakers on the P11 panel are open:
- (a) 11B34, APU REMOTE FIRE IND
  - (b) 11A34, IND LIGHT 2
  - (c) 11A35, IND LIGHT 3
- S 436-182-002
- (3) Connect a jumper between pins 1 and 2 on the bottle 1 APU squib electrical connector, D1436.
- S 436-183-002
- (4) Connect a jumper between pins 1 and 2 on the bottle 2 APU squib electrical connector, D2064.
- S 016-184-002
- (5) Remove the external shutdown relay, K421, from the right miscellaneous electrical equipment panel, P37.
- S 436-185-002
- (6) Connect a jumper between pins 1A and 2A of connector D3750.
- S 436-186-002
- (7) Connect a multimeter between the load side of this P6 panel circuit breaker and ground:
- (a) 6G1, FIRE EXTINGUISHING APU 1
- S 866-187-002
- (8) Push and hold the APU BOTTLE DISCHARGE NO. 1 switch on the APU shutdown panel, P40.
- NOTE:** The APU shutdown panel is found on the nose landing gear.
- (a) Make sure that the multimeter shows a value less than 3 ohms.
- S 866-188-002
- (9) Release the APU BOTTLE DISCHARGE NO. 1 switch on the APU shutdown panel.
- S 866-189-002
- (10) Push and hold the APU BOTTLE DISCHARGE NO. 2 switch on the APU shutdown panel.
- (a) Make sure that the multimeter shows a value less than 3 ohms.
- S 866-190-002
- (11) Release the APU BOTTLE DISCHARGE 2 switch on the APU shutdown panel.

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S 036-191-002

- (12) Remove the multimeter from the load side of this P6 panel circuit breaker and ground:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 036-192-002

- (13) Remove the jumper from pins 1 and 2 of connector D3750.

S 416-193-002

- (14) Connect the external shutdown relay, K421, to the right miscellaneous electrical equipment panel, P37.

S 036-195-002

- (15) Remove the jumper from pin 1 and 2 of the bottle 1 APU squib electrical connector D1436.

S 036-196-002

- (16) Remove the jumper from pins 1 and 2 of the bottle 2 APU squib electrical connector D2064.

S 866-194-002

- (17) Close these following circuit breakers on the P11 panel:  
(a) 11B34, APU REMOTE FIRE IND  
(b) 11A34, IND LIGHT 2  
(c) 11A35, IND LIGHT 3

G. Do The Squib Connection Test

S 426-083-002

**WARNING:** DO NOT INSTALL THE ELECTRICAL CONNECTOR ON THE SQUIB WITH A VOLTAGE AT THE PINS OF THE CONNECTOR. ACCIDENTAL DISCHARGE OF THE SQUIB CAN CAUSE INJURY TO PERSONNEL.

- (1) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector D1436 to the squib cartridge.

S 866-026-002

- (2) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:  
(a) 6G1, FIRE EXTINGUISHING APU 1

S 866-027-002

- (3) On the P61 panel, push and hold the TEST 1 switch on the SQUIB TEST control panel.  
(a) Make sure that the green APU SQUIB TEST light comes on.

S 866-028-002

- (4) Release the TEST 1 switch on the SQUIB TEST control panel.  
(a) Make sure that the APU SQUIB TEST light goes off.

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- S 416-029-002
- (5) Do the Squib Electrical Connection procedure to connect the APU fire extinguisher squib electrical connector D2064 to the squib cartridge.
- S 866-030-002
- (6) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit breaker:
- (a) 6G2, FIRE EXTINGUISHING APU 2
- S 866-031-002
- (7) Push and hold the TEST 2 switch on the SQUIB TEST control panel.
- (a) Make sure that the green APU SQUIB TEST light comes on.
- S 866-032-002
- (8) Release the TEST 2 switch on the SQUIB TEST control panel.
- (a) Make sure that the APU SQUIB TEST light goes off.
- H. Do The APU Fire Handle Unlock Solenoid Circuit Check
- S 866-156-002
- (1) Supply electrical Power (AMM 24-22-00/201).
- S 866-157-002
- (2) Make sure these systems operate:
- (a) Warning System (AMM 31-51-00/501).
- (b) Master Dim and Test System (AMM 33-16-00/501).
- S 866-160-002
- (3) Open these circuit breakers on the P6 panel and attach DO-NOT- CLOSE tags:
- (a) 6G1, FIRE EXTINGUISHING APU 1
- (b) 6G2, FIRE EXTINGUISHING APU 2
- S 866-162-002
- (4) Make sure the following circuit breakers on the P11 panel are closed:
- (a) 11B19, FIRE SWITCH UNLOCK
- (b) 11B24, FIRE DET APU 1
- (c) 11B25, FIRE DET APU 2
- S 866-163-002
- (5) Pull the APU fire handle on the aft pilot's control stand P8, and make sure that it is locked into its usual position.

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S 866-164-002

- (6) Push and hold the ENG/APU/CARGO Test switch on the P8 panel.
  - (a) Make sure the APU fire handle light comes on.

S 866-165-002

**CAUTION:** DO NOT TURN THE FIRE HANDLE WHEN YOU PULL IT INTO THE EMERGENCY FIRE POSITION. IF YOU TURN THE FIRE HANDLE, THE CONTENTS OF THE FIRE BOTTLE CAN BE LET OUT.

- (7) Pull the APU fire handle into the FIRE position.
  - (a) Make sure the APU fire handle releases from its usual position.
  - (b) Make sure the APU handle light remains on when the handle is pulled.

S 866-166-002

- (8) Pull the APU fire handle back to its usual position.

S 866-167-002

- (9) Release the ENG/APU/CARGO Test switch.

I. APU Generator Field Control Relay Trip Check

S 866-033-002

- (1) Set the APU GEN switch on the overhead panel, P5, to the OFF position.
  - (a) Make sure that the yellow OFF light comes on in the switch.
  - (b) Make sure that the white FIELD OFF light comes on on the APU GEN FIELD MANUAL RESET panel (located on P61 panel).

S 866-034-002

- (2) Push the light-switch.
  - (a) Make sure that the FIELD OFF light goes off.

S 866-035-002

- (3) On the P8 panel, pull the APU fire handle out to the emergency fire position.
  - (a) Make sure that the white FIELD OFF light comes on within 5 seconds.

S 866-036-002

- (4) Put the APU fire handle in the locked position.

S 866-037-002

- (5) On the overhead panel, set the APU GEN switch to the ON position.
  - (a) Make sure that the white ON light comes on in the switch.

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J. APU Fuel Valve Operation Check

S 866-088-002

**CAUTION:** DO NOT PUT THE APU SWITCH IN THE START POSITION. THE APU CAN ACCIDENTALLY START.

- (1) On the overhead panel, put the APU master control to the ON position.

S 926-039-002

- (2) Go to the APU fuel shut off valve actuator through the left main landing gear door.

**NOTE:** The APU fuel shutoff valve actuator is found on the left inboard rear spar.

S 866-040-002

- (3) Make sure that the manual override handle of the APU fuel shutoff valve actuator is in the OPEN position.

S 866-041-002

- (4) Pull the APU fire handle out to the emergency fire position.  
(a) Make sure that the manual override handle of the APU fuel shutoff valve actuator is in the CLOSE position.

S 866-042-002

- (5) Put the APU fire handle in the locked position.

S 866-043-002

- (6) On the overhead control panel, put the APU master control switch in the OFF position.

K. APU Air Supply Valve Operation Check

S 866-044-002

- (1) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:  
(a) 11S24, AIR SUPPLY APU BLEED CONT

S 866-045-002

- (2) Release the six fasteners on the bleed air supply module, M15.

**NOTE:** The bleed air supply module is found on the overhead control panel.

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- S 026-079-002
- (3) Remove the bleed air supply module from the overhead control panel.
- S 016-046-002
- (4) Remove the electrical connector, D1348, from the bleed air supply panel.
- S 866-047-002
- (5) Connect a jumper between pin 10 of connector D1348 and ground.
- S 866-048-002
- (6) Close this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:
- (a) 11S24, AIR SUPPLY APU BLEED CONT
  - (b) Make sure that the manual override handle of the APU air supply shutoff valve is in the OPEN position.
- NOTE: The APU air supply shutoff valve is found in the APU compartment.
- S 866-049-002
- (7) Pull the APU fire handle out to the emergency fire position.
- (a) Make sure that the manual override handle of the APU air supply shutoff valve is in the CLOSED position.
- S 866-050-002
- (8) Put the APU fire handle in the locked position.
- S 866-074-002
- (9) Open this P11 panel circuit breaker and attach a DO-NOT-CLOSE tag:
- (a) 11S24, AIR SUPPLY APU BLEED CONT
- S 866-051-002
- (10) Remove the jumper from connector D1348 and ground.

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S 416-052-002

- (11) Connect the connector, D1348, to the bleed air supply panel.

S 866-053-002

- (12) Remove the DO-NOT-CLOSE tag and close this P11 panel circuit breaker:

(a) 11S24, AIR SUPPLY APU BLEED CONT

L. APU Shutdown Function Check

S 866-089-002

**CAUTION:** DO NOT PUT THE APU MASTER CONTROL IN THE START POSITION. THE APU CAN ACCIDENTALLY START.

- (1) On the overhead control panel, put the APU master control to the ON position.

(a) Make sure that the APU air intake door opens.

S 866-055-002

- (2) Pull the APU fire handle out to the emergency fire position.

(a) Make sure that the APU air intake door closes.

S 866-056-002

- (3) Put the APU master control to the OFF position.

S 866-057-002

- (4) Put the APU fire handle in the locked position.

M. Put the Airplane Back to Its Usual Condition

S 866-069-002

- (1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

(a) 6G1, FIRE EXTINGUISHING APU 1

(b) 6G2, FIRE EXTINGUISHING APU 2

S 866-070-002

- (2) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

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N. Squib Electrical Connection Procedure (reference only)

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 866-197-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-198-002

- (2) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE SUDDENLY AND CAUSE INJURY TO PERSONS.

- (a) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 Kohm resistor across the meter to remove any stray voltage from the electrical connector.

S 866-199-002

- (3) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.

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APU FIRE BOTTLES

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- (b) Make sure the squib pins are not bent or damaged.
- (c) Make sure the electrical connector is not damaged.

NOTE: The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 866-200-002

- (4) Connect the electrical connector to the fire bottle squib.

EFFECTIVITY  
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APU FIRE EXTINGUISHER BOTTLE/DISCHARGE CARTRIDGE – REMOVAL/INSTALLATION

1. General

- A. One auxiliary power unit (refer to as APU) fire extinguisher bottle is found forward of the APU firewall.
- B. An APU fire extinguisher bottle has one discharge cartridge, which is referred to as a squib. The procedures that follow provide instructions for the removal, installation, and test of the fire extinguisher bottle and squib.

TASK 26-22-02-004-001-001

2. Discharge Cartridge (Squib) Removal

A. Equipment

- (1) Service platform – A51001-19
- (2) Squib Protective Caps  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC
- (3) Resistor – 10 Kohm
- (4) Voltmeter – 28 vdc

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 20-10-35/401, Power Device Cartridge

C. Access

- (1) Location Zones
  - 211 Flight Compartment (Left)
  - 212 Flight Compartment (Right)
  - 315 APU Compartment (Left)
  - 316 APU Compartment (Right)

D. Prepare for Removal

S 864-071-001

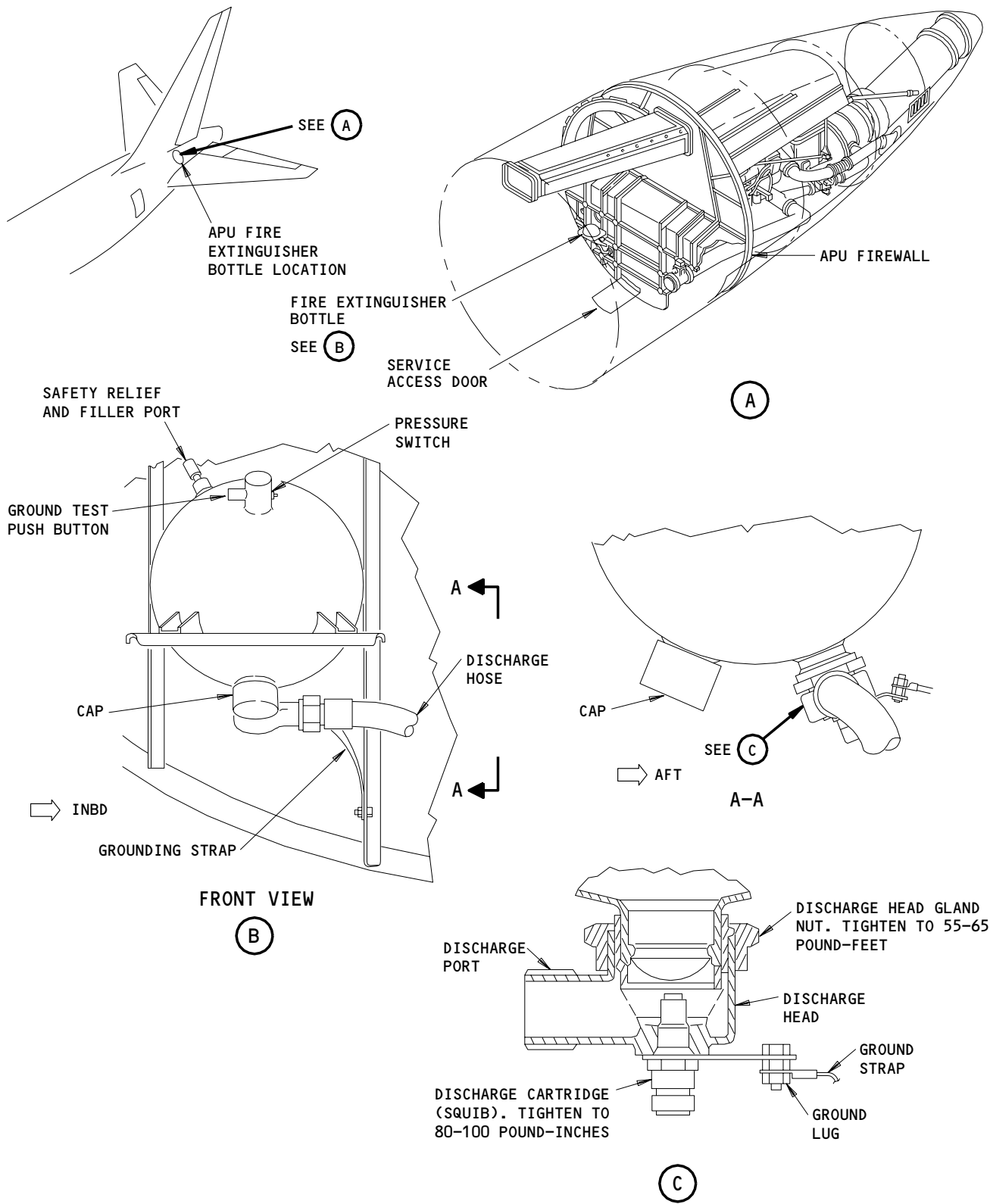
**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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APU Fire Extinguisher Bottle/Discharge Cartridge Installation  
Figure 401

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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S 864-002-001

- (2) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:
  - (a) 6G1, FIRE EXTINGUISHING APU 1

S 014-059-001

- (3) Open the access door, 313AL, for the APU fire extinguisher bottle (AMM 06-42-00/201).

S 424-060-001

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (4) Install the service platform above the access door, 313AL.

E. Procedure

S 034-003-001

- (1) Disconnect the electrical connector from the fire bottle squib. Refer to Table 401.

S 424-061-001

**WARNING:** PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB. IF YOU DO NOT PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB, THE FIRE BOTTLE CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (2) Put a protective cap on the fire bottle squib.

S 014-005-001

- (3) Remove the screws that hold the squib.

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APU FIRE BOTTLE

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- S 034-082-001  
(4) Remove the lockwire that attaches the squib to the discharge port.

- S 024-006-001  
(5) Remove the squib.

F. Put the Airplane Back to its Usual Condition

- S 864-007-001  
(1) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:  
(a) 6G1, FIRE EXTINGUISHING APU 1

- S 094-008-001  
(2) Remove the service platform from above the access door, 313AL.

- S 414-009-001  
(3) Close the access door, 313AL (AMM 06-42-00/201).

TASK 26-22-02-404-010-001

3. Discharge Cartridge (Squib) Installation (Fig 401)

A. Equipment

- (1) Service platform - A51001-19

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels  
(2) AMM 20-10-33/401, Power Device Cartridge  
(3) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones  
211 Flight Compartment (Left)  
212 Flight Compartment (Right)  
315 APU Compartment (Left)  
316 APU Compartment (Right)

D. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 864-088-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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AIRPLANES WITH SINGLE  
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S 024-089-001

- (2) If a protective cap is installed, remove the protective cap.

S 024-090-001

**CAUTION:** IF A SHUNT PLUG IS INSTALLED, PULL THE SHUNT PLUG STRAIGHT OFF THE FIRE BOTTLE SQUIB. IF YOU TWIST OR WIGGLE THE SHUNT PLUG, YOU CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (3) If a shunt plug is installed, pull the shunt plug straight off the squib and discard the shunt plug.

**NOTE:** Shunt plugs should not be used to cover the fire bottle squibs because they can cause damage to the squib pins.

S 764-091-001

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (4) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 Kohm resistor across the meter to remove any stray voltage from the electrical connector.

S 214-092-001

- (5) Make sure the squib electrical pins are not bent or damaged.

S 214-093-001

- (6) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 424-094-001

- (7) Connect the electrical connector to the fire bottle squib.

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S 304-095-001

- (8) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.
- (b) Make sure the squib pins are not bent or damaged.
- (c) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

- (d) Connect the electrical connector to the fire bottle squib.

E. Prepare for Installation

S 864-072-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 014-062-001

- (2) Open the access door, 313AL, for the APU fire extinguisher bottle (Ref 06-42-00).

S 424-063-001

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (3) Install the service platform above the access door, 313AL.

F. Procedure

S 424-011-001

- (1) Install the squib.

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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- S 434-012-001
- (2) Tighten the squib fasteners to 80-100 pound-inches (9.04-11.30 newton-meters).
- S 434-083-001
- (3) Install lockwire on the squib to the discharge port.
- S 434-014-001
- (4) Do the Squib Electrical Connection procedure to connect the electrical connector to the squib (Ref Table 401).

TABLE 401 APU FIRE BOTTLE CONNECTIONS	
CONNECTOR	BOTTLE CONNECTED TO:
D1436	B25, BTL 1 - APU Discharge Squib
D1438	B25, BTL 1 - Pressure Switch

G. Squib Installation Test:

- S 864-015-001
- (1) Supply electrical power (AMM 24-22-00/201).
- S 864-016-001
- (2) Remove the DO-NOT-CLOSE tag identifier and close this P6 panel circuit breaker:
  - (a) 6G1, FIRE EXTINGUISHER APU 1
- S 864-064-001
- (3) Push the TEST 1 switch on the SQUIB TEST control panel.
  - (a) Make sure that the green APU light comes on.

H. Put the Airplane Back to Its Usual Condition

- S 864-017-001
- (1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).
- S 094-018-001
- (2) Remove the service platform from above the access door, 313AL.

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S 414-019-001

- (3) Close the access door, 313AL.

TASK 26-22-02-024-065-001

4. APU Fire Extinguisher Bottle Removal (Fig. 401)

A. Equipment

- (1) Service platform - A51001-19
- (2) Squib Protective Caps
  - M83723/60-18-AN or AC
  - M83723/60-110-AN or AC

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 20-10-33/401, Power Device Cartridge

C. Access

- (1) Location Zones
  - 211/212 Flight Compartment
  - 315/316 APU Compartment

D. Prepare for Removal

S 864-073-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 864-020-001

- (2) Open this P6 panel circuit breaker and attach a DO-NOT-CLOSE tag:
  - (a) 6G1, FIRE EXTINGUISHING APU 1

E. Procedure

S 014-021-001

- (1) Open the access door, 313AL (AMM 06-42-00/201).

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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S 494-022-001

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(2) Install the service platform above the access door, 313AL.

S 034-023-001

(3) Disconnect the electrical connectors from the squib and pressure switch (Ref Table 401).

S 434-079-001

**WARNING:** PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB. IF YOU DO NOT PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB, THE FIRE BOTTLE CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT A SHUNT PLUG ON THE FIRE BOTTLE SQUIB. THE SHUNT PLUG CAN CAUSE DAMAGE TO THE SQUIB PINS.

(4) Put a protective cap on the fire bottle squib.

S 014-025-001

(5) Remove the ground strap from the bottle ground lug.

S 034-084-001

(6) Remove the lockwire that attaches the squib to the discharge port.

S 014-026-001

(7) Disconnect the discharge hose.

S 434-027-001

(8) Install the cap on the bottle discharge port.

S 014-028-001

(9) Remove the four fasteners from the mounting lugs.

S 024-029-001

(10) Remove the extinguisher bottle.

TASK 26-22-02-424-066-001

5. APU Fire Extinguisher Bottle Installation (Fig. 401)

A. Equipment

(1) Service platform - A51001-19

B. References

(1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels

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- (2) AMM 20-10-33/401, Power Device Cartridge
- (3) AMM 24-22-00/201, Electrical Power - Control

C. Procedure

S 864-074-001

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 284-067-001

**WARNING:** DO NOT HANDLE BOTTLE WITH DISCHARGE PORT EXPOSED. KEEP PROTECTIVE CAP ON PORT. AVOID BUMPING AGAINST AIRPLANE. CARELESS HANDLING MAY DAMAGE BOTTLE. ACCIDENTAL DISCHARGE OF BOTTLE CAN CAUSE INJURY TO PERSONNEL.

- (2) Do a weight check of the fire extinguisher bottle.
  - (a) Before the bottle is installed, weigh the bottle per manufacturers instructions and make sure its weight is not more than 0.1 pound than the weight listed on the data plate.

**NOTE:** Depending on the bottle manufacturer and/or bottle part number, the measured weight marked on the bottle may or may not include some of the protective caps.

**NOTE:** Do not remove the fill/safety protective cap when weighing the bottle.

S 034-030-001

- (3) Remove the not used discharge head from the bottle.

S 434-031-001

- (4) Install the cap on the bottle port.

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AIRPLANES WITH SINGLE  
APU FIRE BOTTLE

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- S 284-068-001  
(5) Weigh the bottle again.
- S 974-032-001  
(6) Write the new weight on the bottle identification plate.
- S 414-033-001  
(7) Install the discharge cartridge.
- S 434-085-001  
(8) Install lockwire on the squib to the discharge port.
- S 864-034-001  
(9) Align the bottle mounting lugs with the support bracket.
- S 434-035-001  
(10) Install the mounting nuts and bolts (four places).
- S 034-036-001  
(11) Loosen the discharge head gland nut.
- S 864-037-001  
(12) Adjust the discharge head so that the discharge port points inboard.
- S 864-081-001  
(13) AIRPLANES WITH HTL FIRE BOTTLES;  
Tighten the gland nut to 45-55 pound-feet (61.0-74.6 newton-meters).
- S 864-038-001  
(14) AIRPLANES WITH WALTER KIDDE FIRE BOTTLES;  
Tighten the gland nut to 55-65 pound-feet (74.6-88.1 newton-meters).
- S 864-040-001  
(15) Lock the gland nut to the discharge head with wire.
- S 034-041-001  
(16) Remove the discharge port cap.
- S 424-076-001  
(17) Connect the discharge hose to the port.
- S 434-042-001  
(18) Install the ground strap to the ground lug.

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- S 424-077-001  
(19) Install the electrical connector to the bottle pressure switch.  
Refer to Table 401.

- S 914-069-001  
(20) Do the Squib Electrical Connection procedure to connect the  
connector to the squib.

D. Squib Connection Test

- S 864-044-001  
(1) Bottle 1  
(a) Do the Squib Electrical Connection procedure to connect the APU  
fire extinguisher bottle squib electrical connector, D1436 (BTL  
1), to the squib cartridge.  
(b) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit  
breaker:  
1) 6G1, FIRE EXTINGUISHING APU 1  
(c) Push and hold the TEST 1 switch on SQUIB TEST control panel.  
1) Make sure that the green APU squib TEST light comes on.  
(d) Release the TEST 1 switch.  
1) Make sure that the APU squib TEST light goes off.

E. Fire Extinguisher Bottle Installation Test

- S 864-045-001  
(1) Supply electrical power (AMM 24-22-00/201).

- S 864-046-001  
(2) Make sure that this P6 panel circuit breaker is closed:  
(a) 6G1, FIRE EXTINGUISHER APU 1

- S 864-047-001  
(3) Push the pressure pushbutton test switch on the bottle, or insert  
the hex key in the receptacle on the bottle and turn it clockwise.

**NOTE:** The APU fire bottle has either a pushbutton test switch or a  
hex key.

- (a) On the APU/CARGO FIRE control panel, make sure that the APU BTL  
DISCH light comes on.

- S 864-048-001  
(4) Release the TEST switch.  
(a) Make sure that the APU BTL DISCH light goes off.

F. Put the Airplane Back to Its Usual Condition

- S 864-049-001  
(1) Remove the electrical power if it is not necessary  
(AMM 24-22-00/201).

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- S 094-050-001  
(2) Remove the service platform.
- S 414-051-001  
(3) Close the access door, 313AL.

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APU FIRE EXTINGUISHER BOTTLE/DISCHARGE CARTRIDGE – REMOVAL/INSTALLATION

1. General

- A. Two auxiliary power unit (refer to as APU) fire extinguisher bottles are found forward of the APU firewall.
- B. An APU fire extinguisher bottle has one discharge cartridge, which is referred to as a squib. The procedures that follow provide instructions for the removal, installation, and test of the fire extinguisher bottle and squib.

TASK 26-22-02-004-001-002

2. Discharge Cartridge (Squib) Removal

A. Equipment

- (1) Service platform – A51001-19
- (2) Squib Protective Cap  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC
- (3) Resistor – 10 Kohm
- (4) Voltmeter – 28 vdc

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 20-10-33/401, Power Device Cartridge

C. Access

- (1) Location Zones
  - 211 Flight Compartment (Left)
  - 212 Flight Compartment (Right)
  - 315 APU Compartment (Left)
  - 316 APU Compartment (Right)

D. Prepare for Removal

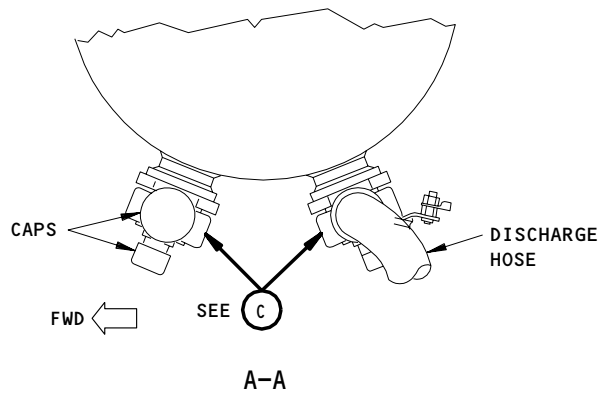
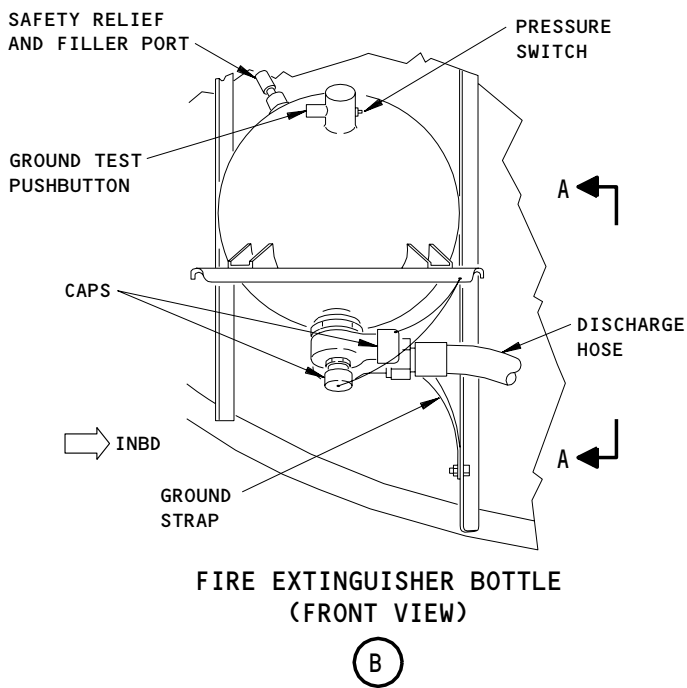
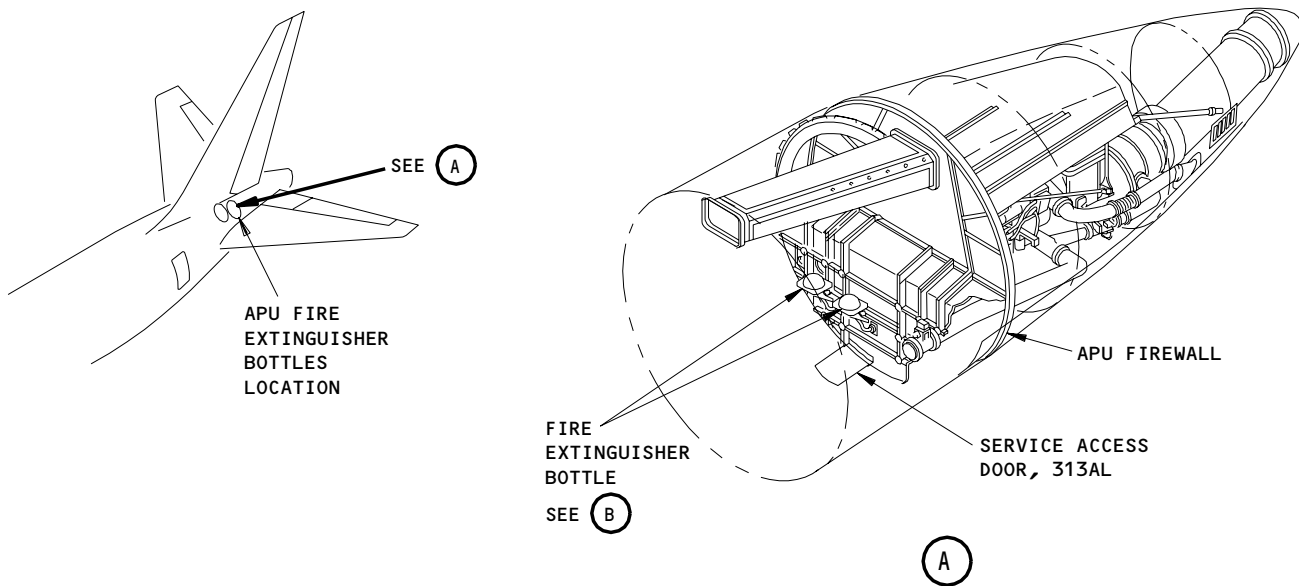
S 864-002-002

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6G1, FIRE EXTINGUISHING APU 1

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APU Fire Extinguisher Bottle/Discharge Cartridge Installation  
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(b) 6G2, FIRE EXTINGUISHING APU 2

S 014-057-002

- (2) Open the access door, 313AL, for the APU fire extinguisher bottle (AMM 06-42-00/201).

S 424-058-002

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (3) Install the service platform above the access door, 313AL.

E. Procedure

S 844-072-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 034-003-002

- (2) Disconnect the electrical connector from the squib (refer to Table 401).

S 424-059-002

**WARNING:** PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB. IF YOU DO NOT PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB, THE FIRE BOTTLE CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT A SHUNT PLUG ON THE FIRE BOTTLE SQUIB. THE SHUNT PLUG CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (3) Put a protective cap on the fire bottle squib.

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- S 014-005-002  
(4) Remove the screws that hold the squib.

- S 034-080-002  
(5) Remove the lockwire that attaches the squib to the discharge port.

- S 024-006-002  
(6) Remove the squib.

F. Put the Airplane Back to its Usual Condition

- S 864-007-002  
(1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:  
(a) 6G1, FIRE EXTINGUISHING APU 1  
(b) 6G2, FIRE EXTINGUISHING APU 2

- S 094-008-002  
(2) Remove the service platform from above the access door, 313AL.

- S 414-009-002  
(3) Close the access door, 313AL (AMM 06-42-00/201).

TASK 26-22-02-404-010-002

3. Discharge Cartridge (Squib) Installation (Fig 401)

A. Equipment

- (1) Service platform - A51001-19  
(2) Torque wrench, commercially available.  
Torque range: 80-100 pound-inches (9.04-11.30 newton-meters)

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels  
(2) AMM 20-10-33/401, Power Device Cartridge  
(3) AMM 24-22-00/201, Electrical Power - Control

C. Access

- (1) Location Zones  
211 Flight Compartment (Left)  
212 Flight Compartment (Right)  
315 APU Compartment (Left)  
316 APU Compartment (Right)

D. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

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S 864-084-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 024-085-002

- (2) If a protective cap is installed, remove the protective cap.

S 024-086-002

**CAUTION:** IF A SHUNT PLUG IS INSTALLED, PULL THE SHUNT PLUG STRAIGHT OFF THE FIRE BOTTLE SQUIB. IF YOU TWIST OR WIGGLE THE SHUNT PLUG, YOU CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (3) If a shunt plug is installed, pull the shunt plug straight off the squib and discard the shunt plug.

**NOTE:** Shunt plugs should not be used to cover the fire bottle squibs because they can cause damage to the squib pins.

S 284-087-002

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

- (4) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

**NOTE:** Connect a 10 Kohm resistor across the meter to remove any stray voltage from the electrical connector.

- (a) Make sure the squib pins are not bent or damaged.
- (b) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

- (c) Connect the electrical connector to the fire bottle squib.

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- (d) Do the steps that follow to make sure you did not bend or damage the squib pins.

NOTE: This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- 1) Disconnect the electrical connector from the fire bottle squib.
- 2) Make sure the squib pins are not bent or damaged.
- (e) Make sure the electrical connector is not damaged.

NOTE: The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

- 1) Connect the electrical connector to the fire bottle squib.

#### E. Prepare for Installation

S 864-069-002

WARNING: DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 014-060-002

- (2) Open the access door, 313AL, for the APU fire extinguisher bottle (AMM 06-42-00/201).

S 424-061-002

WARNING: DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (3) Install the service platform above the access door, 313AL.

#### F. Procedure

S 424-011-002

- (1) Install the squib.

S 434-012-002

- (2) Tighten the squib fasteners to 80-100 pound-inches (9.04-11.30 newton-meters).

S 434-081-002

- (3) Install lockwire on the squib to the discharge port.

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S 094-013-002

**CAUTION:** DO NOT TURN THE ALUMINUM CAP OR SHUNT PLUG IN THE ELECTRICAL RECEPTACLE. THIS CAN CAUSE DAMAGE TO THE RECEPTACLE PINS.

- (4) Do the Squib Electrical Connection procedure to connect the electrical connector to the squib (Ref Table 401).

TABLE 401 APU FIRE BOTTLE CONNECTIONS	
CONNECTOR	BOTTLE CONNECTED TO:
D1436	B25, BTL 1 - APU Discharge Squib
D1438	B25, BTL 1 - Pressure Switch
D2064	B138, BTL 2 - APU Discharge Squib
D2066	B138, BTL 2 - Pressure Switch

G. Squib Installation Test:

S 864-015-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 864-016-002

- (2) Remove the DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
- (a) 6G1, FIRE EXTINGUISHER APU 1
  - (b) 6G2, FIRE EXTINGUISHER APU 2

S 864-062-002

- (3) Push the TEST 1 switch on the SQUIB TEST control panel.
- (a) Make sure that the green APU light comes on.

S 864-017-002

- (4) Push the TEST 2 switch on the SQUIB TEST control panel.
- (a) Make sure that the green APU light comes on.

H. Put the Airplane Back to Its Usual Condition

S 864-018-002

- (1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

S 094-019-002

- (2) Remove the service platform from above the access door, 313AL.

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S 414-020-002

- (3) Close the access door, 313AL.

TASK 26-22-02-024-063-002

4. APU Fire Extinguisher Bottle Removal (Fig. 401)

A. Equipment

- (1) Service platform - A51001-19
- (2) Squib Protective Caps  
M83723/60-18-AN or AC  
M83723/60-110-AN or AC

B. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 20-10-33/401, Power Device Cartridge

C. Access

- (1) Location Zones  
211/212 Flight Compartment  
315/316 APU Compartment

D. Prepare for Removal

S 864-070-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 864-021-002

- (2) Open these P6 panel circuit breakers and attach DO-NOT-CLOSE tags:
  - (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

E. Procedure

S 014-022-002

- (1) Open the access door, 313AL (AMM 06-42-00/201).

S 494-023-002

**WARNING:** DO NOT STAND ON THE ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

- (2) Install the service platform above the access door, 313AL.

S 034-024-002

- (3) Disconnect the electrical connectors from the squib and pressure switch (Ref Table 401).

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S 434-077-002

**WARNING:** PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB. IF YOU DO NOT PUT A PROTECTIVE CAP ON THE FIRE BOTTLE SQUIB, THE FIRE BOTTLE CAN RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT A SHUNT PLUG ON THE FIRE BOTTLE SQUIB. THE SHUNT PLUG CAN CAUSE DAMAGE TO THE SQUIB PINS.

(4) Put a protective cap on the fire bottle squib.

S 014-026-002

(5) Remove the ground strap from the bottle ground lug.

S 034-082-002

(6) Remove the lockwire that attaches the squib to the discharge port.

S 014-027-002

(7) Disconnect the discharge hose.

S 434-028-002

(8) Install the cap on the bottle discharge port.

S 014-029-002

(9) Remove the four fasteners from the mounting lugs.

S 024-030-002

(10) Remove the fire extinguisher bottle 1 or 2, as applicable.

TASK 26-22-02-424-064-002

5. APU Fire Extinguisher Bottle Installation (Fig. 401)

A. Equipment

(1) Service platform - A51001-19

B. References

(1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels

(2) AMM 20-10-33/401, Power Device Cartridge

(3) AMM 24-22-00/201, Electrical Power - Control

C. Procedure

S 864-071-002

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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S 284-065-002

**WARNING:** DO NOT HANDLE BOTTLE WITH DISCHARGE PORT EXPOSED. KEEP PROTECTIVE CAP ON PORT. AVOID BUMPING AGAINST AIRPLANE. CARELESS HANDLING MAY DAMAGE BOTTLE. ACCIDENTAL DISCHARGE OF BOTTLE CAN CAUSE INJURY TO PERSONNEL.

- (2) Do a weight check of the fire extinguisher bottle.  
(a) Before the bottle is installed, weigh the bottle per manufacturers instructions and make sure its weight is not more than 0.1 pound than the weight listed on the data plate.

**NOTE:** Depending on the bottle manufacturer and/or bottle part number, the measured weight marked on the bottle may or may not include some of the protective caps.

**NOTE:** Do not remove the fill/safety protective cap when weighing the bottle.

S 414-034-002

- (3) Install the discharge cartridge (squib).

S 434-083-002

- (4) Install lockwire on the squib to the discharge port.

S 864-035-002

- (5) Align the bottle mounting lugs with the support bracket.

S 434-036-002

- (6) Install the mounting nuts and bolts (four places).

S 034-037-002

- (7) Loosen the discharge head gland nut.

S 864-038-002

- (8) Adjust the discharge head so that the discharge port points inboard.

S 864-079-002

- (9) AIRPLANES WITH HTL FIRE BOTTLES;  
Tighten the gland nut to 45-55 pound-feet (61.0-74.6 newton-meters).

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- S 864-039-002
- (10) AIRPLANES WITH WALTER KIDDE FIRE BOTTLES;  
Tighten the gland nut to 55-65 pound-feet  
(74.6-88.1 newtons-meters).
- S 864-040-002
- (11) Lock the gland nut to the discharge head with wire.
- S 034-041-002
- (12) Remove the discharge port cap.
- S 424-074-002
- (13) Connect the discharge hose to the port.
- S 434-042-002
- (14) Install the ground strap to the ground lug.
- S 424-075-002
- (15) Install the electrical connector to the bottle pressure switch.  
Refer to Table 401.
- S 914-067-002
- (16) Do the Squib Electrical Connection procedure to connect the  
electrical connector.
- D. Squib Connection Test
- S 864-044-002
- (1) Bottle 1
- (a) Do the Squib Electrical Connection procedure to connect the APU  
fire extinguisher bottle squib electrical connector, D1436 (BTL  
1), to the squib cartridge.
- (b) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit  
breaker:
- 1) 6G1, FIRE EXTINGUISHING APU 1
- (c) Push and hold the TEST 1 switch on SQUIB TEST control panel.
- 1) Make sure that the green APU squib TEST light comes on.
- (d) Release the TEST 1 switch.
- 1) Make sure that the APU squib TEST light goes off.
- S 864-045-002
- (2) Bottle 2
- (a) Do the Squib Electrical Connection procedure to connect the APU  
fire extinguisher bottle squib electrical connector, D2064 (BTL  
2), to the squib cartridge.
- (b) Remove the DO-NOT-CLOSE tag and close this P6 panel circuit  
breaker:
- 1) 6G2, FIRE EXTINGUISHING APU 2
- (c) Push and hold the TEST 2 switch on the SQUIB TEST control  
panel.
- 1) Make sure that the green APU squib TEST light comes on.

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(d) Release the TEST 2 switch.

1) Make sure that the APU squib TEST light goes off.

E. Fire Extinguisher Bottle Installation Test

S 864-046-002

(1) Supply electrical power (AMM 24-22-00/201).

S 864-047-002

(2) Make sure that these P6 panel circuit breakers are closed:

(a) 6G1, FIRE EXTINGUISHER APU 1

(b) 6G2, FIRE EXTINGUISHER APU 2

S 864-048-002

(3) Insert the hex key in the receptacle on the bottle and turn it clockwise, or push the TEST switch on the bottle pressure switch.

NOTE: The APU fire extinguisher bottle will have either a hex key or a pushbutton switch.

(a) On the APU/CARGO FIRE control panel, make sure that the applicable APU BTL DISCH light comes on.

S 864-050-002

(4) Release the hex key or the pushbutton switch.

(a) Make sure that the APU BTL DISCH light goes off.

F. Put the Airplane Back to Its Usual Condition

S 864-051-002

(1) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

S 094-052-002

(2) Remove the service platform.

S 414-053-002

(3) Close the access door, 313AL.

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APU/CARGO FIRE CONTROL PANEL – MAINTENANCE PRACTICES

1. General

- A. This procedure contains four tasks. The first task removes the APU/CARGO fire control panel and the second task installs and tests it. The third task removes the APU fire switch and the fourth task installs and tests it.

TASK 26-22-03-002-001-001

2. Remove the APU/CARGO Fire Control Panel (Fig. 201)

A. General

- (1) The APU/CARGO fire control panel, M10444, is on the aft pilot's control stand, P8.

B. Access

- (1) Location Zone  
211/212 Control Cabin

C. Prepare for Removal

S 862-002-001

- (1) Open these circuit breakers on main power-distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6B1, GEN CONT UNIT L
  - (b) 6B2, GEN CONT UNIT R
  - (c) 6E3, FUEL VALVES APU
  - (d) 6G1, FIRE EXTINGUISHING APU 1
  - (e) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (f) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 862-003-001

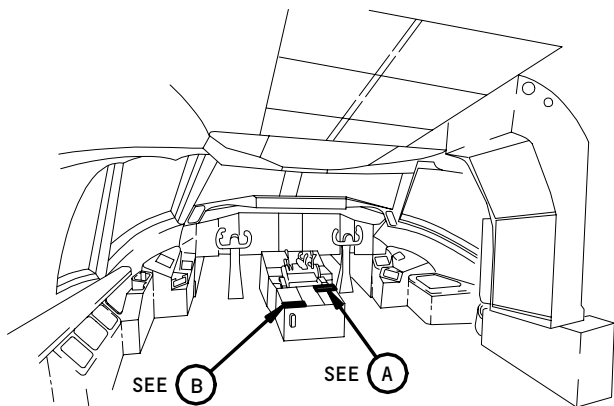
- (2) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11A33, IND LTS 1
  - (b) 11A34, IND LTS 2
  - (c) 11A35, IND LTS 3
  - (d) 11B18, WARN ELEX B
  - (e) 11B19, FIRE SWITCH UNLOCK
  - (f) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (g) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (h) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (i) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (j) 11B24, FIRE DETECTION APU 1
  - (k) 11B25, FIRE DETECTION APU 2
  - (l) 11B26, FIRE DETECTION CARGO 1
  - (m) 11B27, FIRE DETECTION CARGO 2
  - (n) 11B34, APU REMOTE FIRE IND

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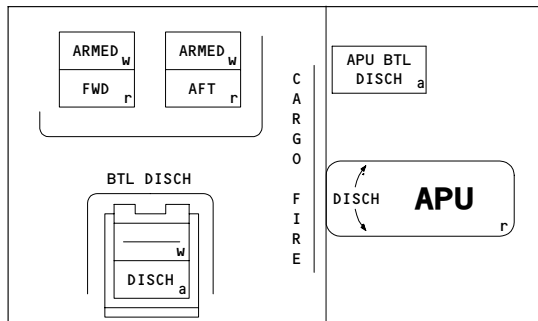
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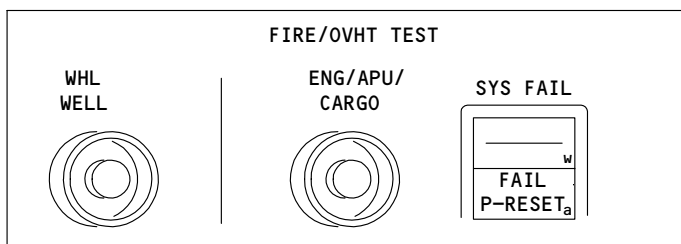


FLIGHT COMPARTMENT



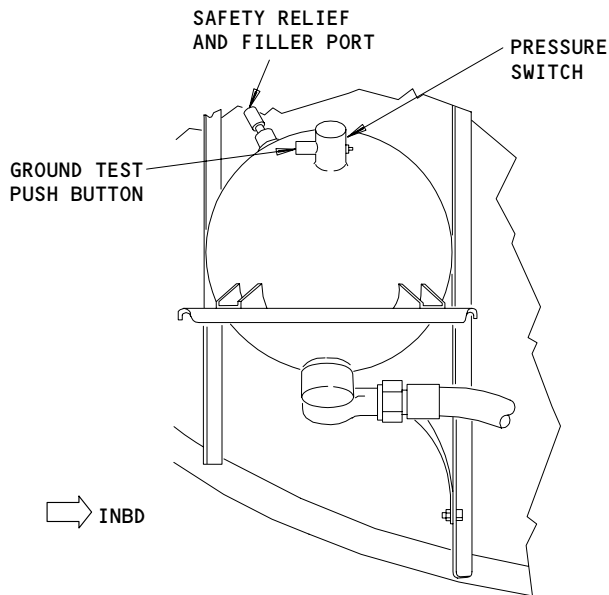
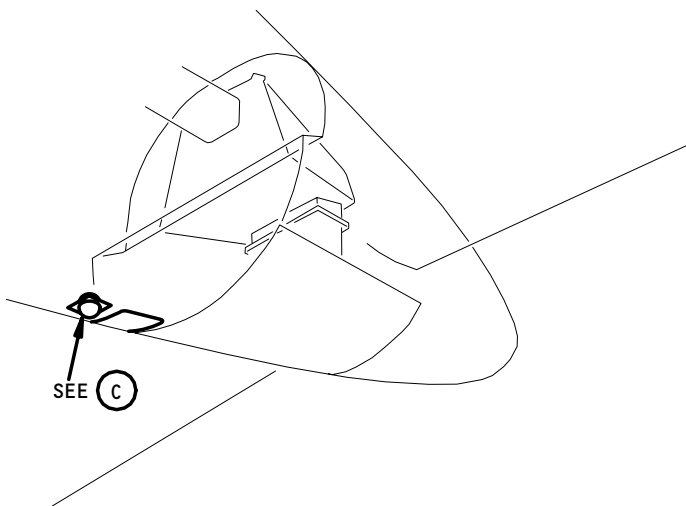
APU/CARGO FIRE CONTROL PANEL

(A)



FIRE/OVHT TEST PANEL

(B)



APU FIRE EXTINGUISHER BOTTLE

(C)

APU Fire Extinguishing System  
Figure 201

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- (o) 11J34, WARN ELEX A
- (p) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (q) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (r) 11K32, ALTERNATE POWER FIRE DETECTION APU
- (s) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (t) 11S23, APU BLEED PWR
- (u) 11S24, AIR SUPPLY APU BLEED CONT

D. Remove the APU/CARGO Fire Control Panel

S 032-004-001

- (1) Loosen the four screws which hold the APU/CARGO fire control panel to the P8 panel.

S 032-005-001

- (2) Remove the four screws.

S 012-006-001

- (3) Lift the APU/CARGO fire control panel out of the P8 panel until you can get access to the electrical connectors on the rear of the panel.

S 032-007-001

- (4) Disconnect the electrical connectors.

S 022-008-001

- (5) Remove the APU/CARGO fire control panel from the P8 panel.

TASK 26-22-03-402-009-001

3. Install the APU/CARGO Fire Control Panel

A. General

- (1) This task installs and tests the APU/CARGO fire control panel. A number of tests are included to make sure that the panel is installed and connected correctly.

B. Equipment

- (1) Service Platform - Controls Bay Access Door,  
313AL - A51001-19

C. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 26-22-01/601, APU Fire Switch
- (4) AMM 26-23-01/601, Cargo Fire Extinguishing Armed Switches
- (5) AMM 31-41-00/501, Engine Indication and Crew Alerting System
- (6) AMM 31-51-00/501, Warning System
- (7) AMM 33-16-00/501, Master Dim and Test

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D. Access

(1) Location Zones

211/212	Control Cabin
310	Fuselage Body Section 48
710	Nose Landing Gear
821	Forward Cargo Compartment Door

(2) Access Panel

313AL	Controls Bay Access Door
-------	--------------------------

E. Install the APU/CARGO Fire Control Panel

S 862-138-001

**CAUTION:** MAKE SURE THE CIRCUIT BREAKERS LISTED IN THE REMOVAL PROCEDURE ARE OPEN BEFORE YOU INSTALL THE APU/CARGO FIRE CONTROL PANEL. ON PANELS P/N 233N6203-161 AND ON, THE CARGO DISCHARGE SWITCH DOES NOT HAVE A "FREE PUSH". IF THE CIRCUIT BREAKERS ARE NOT OPEN, THE CARGO FIRE BOTTLES WILL DISCHARGE THE FIRST TIME YOU PUSH THE CARGO DISCHARGE SWITCH.

- (1) Make sure the circuit breakers listed in the Removal procedure are open and have a DO-NOT-CLOSE tag attached to them.

S 012-010-001

- (2) Lower the APU/CARGO fire control panel until the electrical connectors can be connected to the connectors to the rear of the panel.

S 432-011-001

- (3) Connect the electrical connectors to the applicable connectors.

S 422-012-001

- (4) Lower the APU/CARGO fire control panel into the P8 panel.

S 432-013-001

- (5) Install the four screws.

S 432-014-001

- (6) Tighten the four screws until the APU/CARGO fire control panel is tight in the P8 panel.

S 862-015-001

- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

- |     |      |                                |
|-----|------|--------------------------------|
| (a) | 6B1, | GEN CONT UNIT L                |
| (b) | 6B2, | GEN CONT UNIT R                |
| (c) | 6E3, | FUEL VALVES APU                |
| (d) | 6G1, | FIRE EXT APU                   |
| (e) | 6H5, | FIRE EXTINGUISHING CARGO BTL 1 |

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(f) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 862-016-001

(8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

- (a) 11A33, IND LTS 1
- (b) 11A34, IND LTS 2
- (c) 11A35, IND LTS 3
- (d) 11B18, WARN ELEX B
- (e) 11B19, FIRE SWITCH UNLOCK
- (f) 11B20, FIRE DETECTION LEFT ENGINE 1
- (g) 11B21, FIRE DETECTION LEFT ENGINE 2
- (h) 11B22, FIRE DETECTION RIGHT ENGINE 1
- (i) 11B23, FIRE DETECTION RIGHT ENGINE 2
- (j) 11B24, FIRE DETECTION APU 1
- (k) 11B25, FIRE DETECTION APU 2
- (l) 11B26, FIRE DETECTION CARGO 1
- (m) 11B27, FIRE DETECTION CARGO 2
- (n) 11B34, APU REMOTE FIRE IND
- (o) 11J34, WARN ELEX A
- (p) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (q) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (r) 11K32, ALTERNATE POWER FIRE DETECTION APU
- (s) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (t) 11S23, APU BLEED PWR
- (u) 11S24, AIR SUPPLY APU BLEED CONT

F. Test the APU/CARGO Fire Control Panel installation by use of the ENG/APU/CARGO test switch on FIRE/OVERHEAT test panel, M10445.

S 862-017-001

(1) Supply electrical power (AMM 24-22-00/201).

S 862-018-001

- (2) Make sure these systems operate:
- (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 862-019-001

- (3) Make sure these circuit breakers on the P11 panel are closed:
- (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11B34, APU REMOTE FIRE IND

S 862-020-001

- (4) Open this circuit breaker on the P6 panel and attach DO-NOT-CLOSE tag:
- (a) 6G1, FIRE EXTINGUISHING APU 1

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S 862-022-001

- (5) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION L ENGINE 1
  - (b) 11B21, FIRE DETECTION L ENGINE 2
  - (c) 11B22, FIRE DETECTION R ENGINE 1
  - (d) 11B23, FIRE DETECTION R ENGINE 2
  - (e) 11B26, FIRE DETECTION CARGO 1
  - (f) 11B27, FIRE DETECTION CARGO 2
  - (g) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (h) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (i) 11K32, ALTERNATE POWER FIRE DETECTION APU
  - (j) 11K33, ALTERNATE POWER FIRE DETECTION CARGO

S 282-023-001

- (6) Try to pull the APU fire switch handle out, on aft pilot's control stand P8. See that it is locked in place.

S 862-024-001

- (7) Push the ECS/MSG switch on the EICAS MAINT panel on the right side panel, P61.

S 862-025-001

- (8) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT test panel (P8).

**NOTE:** Use the ECS/MSG switch as necessary to advance EICAS pages until all messages have been shown.

S 712-026-001

- (9) Make sure that the EICAS maintenance messages APU FIRE LP 1 and 2 are shown on the bottom display.

S 712-027-001

- (10) After a 2-4 second delay, make sure that these conditions occur:
- (a) The red APU fire switch handle, on P8, lights up.
  - (b) The red FIRE light, on captain's instrument panel P1-3, comes on.
  - (c) The EICAS warning message, APU FIRE, is shown on the top display.
  - (d) The red master WARNING lights, on glareshield panels P7, come on.
  - (e) The fire bell can be heard on the flight deck aural warning speakers.
  - (f) The red APU FIRE light, on APU Shutdown panel P40, comes on. P40 is located on the right side of the nose landing gear.
  - (g) The APU fire warning horn, on P40, can be heard, when the airplane is on the ground.

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S 862-028-001

- (11) Pull the APU fire switch handle out (P8). Do NOT turn the handle.

S 712-029-001

- (12) Make sure these conditions occur:
- (a) The red APU fire switch remains lit.
  - (b) The fire bell stays on.
  - (c) The red APU FIRE light (on P40) goes off.
  - (d) The APU fire warning horn stops.

S 862-030-001

- (13) Push the APU fire switch back in.

S 862-031-001

- (14) Release the ENG/APU/CARGO switch.

S 712-032-001

- (15) Make sure that all the above conditions stop.
- G. Test the APU/CARGO Fire Control Panel installation by use of the manual override on the pressure switch.

S 862-033-001

- (1) Make sure that this circuit breaker on the P6 panel is closed:
- (a) 6G1, FIRE EXTINGUISHING APU 1

S 012-143-001

**WARNING:** DO NOT STAND ON THE CONTROLS BAY ACCESS DOOR, 313AL. THE WEIGHT OF PERSONNEL COULD CAUSE THE SPRING-LOADED LATCHES TO RELEASE, AND PERSONNEL TO BE INJURED BY FALLING THROUGH THE OPENING.

ALSO, IF SERVICE ACCESS DOOR, 311AL, IS TO BE OPENED FOR ANY REASON (NOT REQUIRED FOR THIS PROCEDURE), DO NOT STAND ON THIS DOOR, FOR THE SAME REASON STATED ABOVE.

- (2) Open the controls bay access door, 313AL (AMM 06-42-00/201).

S 492-036-001

- (3) Install service platform over controls bay access door, 313AL.

S 862-139-001

- (4) Push and hold the test pushbutton located on the extinguisher bottle pressure switch or turn and hold the ground hex key clockwise on the APU fire extinguisher bottle.

S 712-051-001

- (5) Make sure that these conditions occur:
- (a) The APU BTL DISCH light (yellow) on APU/CARGO fire control panel comes on.

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- (b) The BOTTLE DISCHARGED light on the APU SHUTDOWN panel (P40) comes on (yellow).
- (c) The EICAS message APU BTL is shown on the top display.

S 862-052-001

- (6) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
  - (a) 11A34, IND LTS 2

S 712-053-001

- (7) Make sure that these conditions occur:
  - (a) The APU BTL DISCH light goes off.
  - (b) The BOTTLE DISCHARGED light on the P40 panel stays on.
  - (c) The EICAS message remains shown on the top display.

S 862-054-001

- (8) Release hold on the hex key or the pushbutton.

S 712-057-001

- (9) Make sure that all the above conditions go off.

S 862-058-001

- (10) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
  - (a) 11A34, IND LTS 2

S 862-100-001

- (11) Make sure these circuit breakers on the P6 panel are closed:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 862-101-001

- (12) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 1.

S 712-102-001

- (13) Make sure that these conditions occur:
  - (a) The BTL DISCH light on the APU/CARGO fire control panel (P8) comes on (yellow).
  - (b) The EICAS message CARGO BTL 1 is shown on the top display.

S 862-103-001

- (14) Release the manual override button.

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- S 712-104-001
- (15) Make sure that all the above conditions stop.
- S 862-105-001
- (16) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 2.
- S 712-106-001
- (17) Make sure that these conditions occur:
- (a) The BTL DISCH light on the APU/CARGO fire control panel (P8) comes on (yellow).
  - (b) EICAS message CARGO BTL 2 is shown on the top display.
- S 862-107-001
- (18) Release the manual override button.
- S 712-145-001
- (19) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Do these steps:
- (a) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 2A.
  - (b) Make sure these conditions occur:
    - 1) The BTL DISCH light on the APU/CARGO fire control panel (P8) comes on (yellow).
    - 2) EICAS message CARGO BTL 2 is shown on the top display.
  - (c) Release the manual override button.
  - (d) Make sure that all the above conditions stop.
- S 912-140-001
- (20) To test the cargo fire extinguishing armed switch activation, perform the Cargo Fire Extinguishing Armed Switch Activation Check (AMM 26-23-01/601).
- S 912-141-001
- (21) To test the interfaces for the APU/CARGO Fire Control Panel, perform the APU Fire Switch Inspection Check (AMM 26-22-01/601).

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TASK 26-22-03-002-121-001

4. Remove the APU Fire Switch

A. General

- (1) The APU fire switch (S39) is on the APU/CARGO fire control panel.  
The control panel is on the aft pilots control stand P8.

B. Access

- (1) Location Zone  
211/212 Control Cabin

C. Prepare for Removal

S 862-122-001

- (1) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:  
(a) 6E3, APU FUEL VALVE  
(b) 6G1, FIRE EXT APU 1

S 862-123-001

- (2) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:  
(a) 11A34, IND LTS 2  
(b) 11B19, FIRE SW UNLOCK  
(c) 11B34, APU REMOTE FIRE IND  
(d) 11S24, AIR SUPPLY APU BLEED AIR VALVE CONTROL

D. Remove the APU Fire Switch

S 032-124-001

- (1) Remove the APU/CARGO fire control panel.

S 032-125-001

- (2) Remove the four screws holding the APU fire switch to the baseplate.

S 022-126-001

- (3) Remove the APU fire switch.

TASK 26-22-03-402-127-001

5. Install the APU Fire Switch

A. General

- (1) This task installs and tests the APU fire switch. The test only tests the operation of the APU fire switch.

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control

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- (2) AMM 26-22-00/501, APU Fire Extinguishing System - A/T
- C. Access
- (1) Location Zone  
211/212 Control Cabin
- D. Install the APU Fire Switch
- S 422-128-001
- (1) Install the APU fire switch to the APU/CARGO fire control panel baseplate with the four screws.
- S 432-129-001
- (2) Install the APU/CARGO fire control panel.
- S 862-130-001
- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
- (a) 11A34, IND LTS 2  
(b) 11B19, FIRE SW UNLOCK  
(c) 11B34, APU REMOTE FIRE IND  
(d) 11S24, AIR SUPPLY APU BLEED AIR VALVE CONTROL
- S 862-131-001
- (4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6E3, APU FUEL VALVE  
(b) 6G1, FIRE EXT APU 1
- E. Test the APU Fire Switch Installation
- S 862-132-001
- (1) Supply electrical power (AMM 24-22-00/201).
- S 862-133-001
- (2) Push and hold the ENG/APU/CARGO button on the FIRE/OVHT test panel M10445 (P8).
- S 712-134-001
- (3) Make sure that the lights in the APU fire switch handle come on (red).
- S 862-135-001
- (4) Release the ENG/APU/CARGO button on the FIRE/OVHT test panel.
- S 712-136-001
- (5) Make sure that the lights in the APU fire switch handle go off.
- S 862-146-001
- (6) Do this procedure: APU Fire Extinguishing System Test (AMM 26-22-00/501).

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- S 862-137-001  
(7) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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APU/CARGO FIRE CONTROL PANEL – MAINTENANCE PRACTICES

1. General

- A. This procedure contains four tasks. The first task removes the APU/CARGO fire control panel and the second task installs and tests it. The third task removes the APU fire switch and the fourth task installs and tests it.

TASK 26-22-03-002-001-002

2. Remove the APU/CARGO Fire Control Panel (Fig. 201)

A. General

- (1) The APU/CARGO fire control panel, M10444, is on the aft pilot's control stand, P8.

B. Access

- (1) Location Zone  
211/212 Control Cabin

C. Prepare for Removal

S 862-002-002

- (1) Open these circuit breakers on main power-distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6B1, GEN CONT UNIT L
  - (b) 6B2, GEN CONT UNIT R
  - (c) 6E3, FUEL VALVES APU
  - (d) 6G1, FIRE EXTINGUISHING APU 1
  - (e) 6G2, FIRE EXTINGUISHING APU 2
  - (f) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (g) 6H6, FIRE EXTINGUISHING CARGO BTL 2

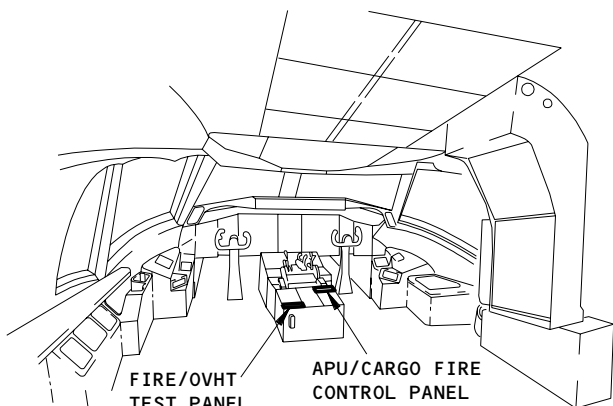
S 862-003-002

- (2) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
- (a) 11A33, IND LTS 1
  - (b) 11A34, IND LTS 2
  - (c) 11A35, IND LTS 3
  - (d) 11B18, WARN ELEX B
  - (e) 11B19, FIRE SWITCH UNLOCK
  - (f) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (g) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (h) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (i) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (j) 11B24, FIRE DETECTION APU 1
  - (k) 11B25, FIRE DETECTION APU 2
  - (l) 11B26, FIRE DETECTION CARGO 1
  - (m) 11B27, FIRE DETECTION CARGO 2

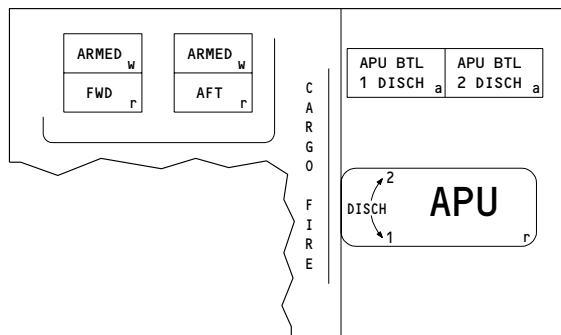
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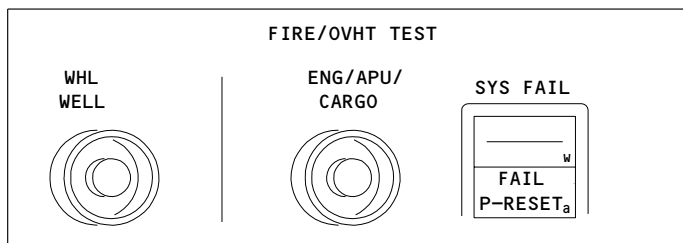
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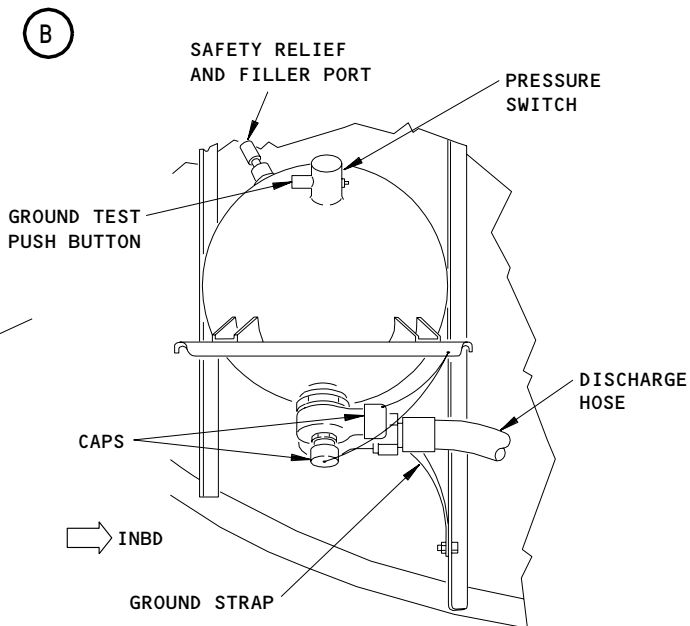
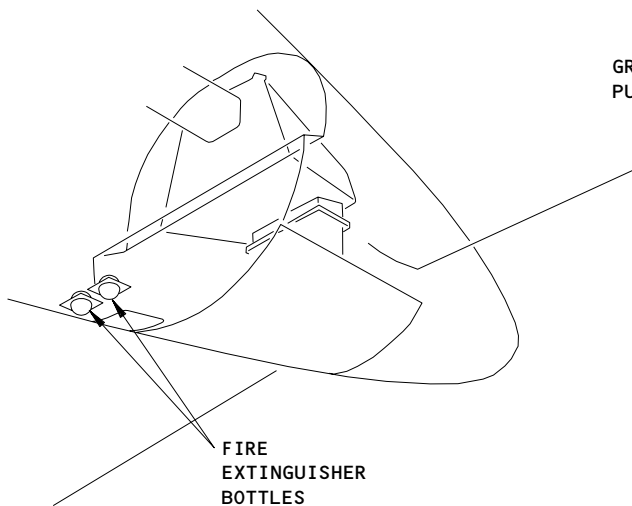
FLIGHT COMPARTMENT



APU/CARGO FIRE CONTROL PANEL



FIRE/OVHT TEST PANEL



FIRE EXTINGUISHER BOTTLE (EXAMPLE)

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- (n) 11B34, APU REMOTE FIRE IND
- (o) 11J34, WARN ELEX A
- (p) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
- (q) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
- (r) 11K32, ALTERNATE POWER FIRE DETECTION APU
- (s) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
- (t) 11S23, APU BLEED PWR
- (u) 11S24, AIR SUPPLY APU BLEED CONT

D. Remove the APU/CARGO Fire Control Panel

S 032-004-002

- (1) Loosen the four screws which hold the APU/CARGO fire control panel to the P8 panel.

S 032-005-002

- (2) Remove the four screws.

S 012-006-002

- (3) Lift the APU/CARGO fire control panel out of the P8 panel until you can get access to the electrical connectors on the rear of the panel.

S 032-007-002

- (4) Disconnect the electrical connectors.

S 022-008-002

- (5) Remove the APU/CARGO fire control panel from the P8 panel.

TASK 26-22-03-402-009-002

3. Install the APU/CARGO Fire Control Panel

A. General

- (1) This task installs and tests the APU/CARGO fire control panel. A number of tests are included to make sure that the panel is installed and connected correctly.

B. Equipment

- (1) Service Platform - Controls Bay Access Door,  
313AL - A51001-19

C. References

- (1) AMM 06-42-00/201, Empennage (Major Zone 300) Access Doors and Panels
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 26-22-01/601, APU Fire Switch
- (4) AMM 26-23-01/601, Cargo Fire Extinguishing Armed Switches
- (5) AMM 31-41-00/501, Engine Indication and Crew Alerting System
- (6) AMM 31-51-00/501, Warning System
- (7) AMM 33-16-00/501, Master Dim and Test

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D. Access

(1) Location Zones

211/212	Control Cabin
310	Fuselage Body Section 48
710	Nose Landing Gear
821	Forward Cargo Compartment Door

(2) Access Panel

313AL	Controls Bay Access Door
-------	--------------------------

E. Install the APU/CARGO Fire Control Panel

S 862-075-002

**CAUTION:** MAKE SURE THE CIRCUIT BREAKERS LISTED IN THE REMOVAL PROCEDURE ARE OPEN BEFORE YOU INSTALL THE APU/CARGO FIRE CONTROL PANEL. ON PANELS P/N 233N6203-161 AND ON, THE CARGO DISCHARGE SWITCH DOES NOT HAVE A "FREE PUSH". IF THE CIRCUIT BREAKERS ARE NOT OPEN, THE CARGO FIRE BOTTLES WILL DISCHARGE THE FIRST TIME YOU PUSH THE CARGO DISCHARGE SWITCH.

- (1) Make sure the circuit breakers listed in the Removal procedure are open and have a DO-NOT-CLOSE tag attached to them.

S 012-010-002

- (2) Lower the APU/CARGO fire control panel until the electrical connectors can be connected to the connectors to the rear of the panel.

S 432-011-002

- (3) Connect the electrical connectors to the applicable connectors.

S 422-012-002

- (4) Lower the APU/CARGO fire control panel into the P8 panel.

S 432-013-002

- (5) Install the four screws.

S 432-014-002

- (6) Tighten the four screws until the APU/CARGO fire control panel is tight in the P8 panel.

S 862-015-002

- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

- (a) 6B1, GEN CONT UNIT L
- (b) 6B2, GEN CONT UNIT R
- (c) 6E3, FUEL VALVES APU
- (d) 6G1, FIRE EXT APU
- (e) 6G2, FIRE EXTINGUISHING APU 2

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- (f) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- (g) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 862-016-002

- (8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
  - (a) 11A33, IND LTS 1
  - (b) 11A34, IND LTS 2
  - (c) 11A35, IND LTS 3
  - (d) 11B18, WARN ELEX B
  - (e) 11B19, FIRE SWITCH UNLOCK
  - (f) 11B20, FIRE DETECTION LEFT ENGINE 1
  - (g) 11B21, FIRE DETECTION LEFT ENGINE 2
  - (h) 11B22, FIRE DETECTION RIGHT ENGINE 1
  - (i) 11B23, FIRE DETECTION RIGHT ENGINE 2
  - (j) 11B24, FIRE DETECTION APU 1
  - (k) 11B25, FIRE DETECTION APU 2
  - (l) 11B26, FIRE DETECTION CARGO 1
  - (m) 11B27, FIRE DETECTION CARGO 2
  - (n) 11B34, APU REMOTE FIRE IND
  - (o) 11J34, WARN ELEX A
  - (p) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (q) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (r) 11K32, ALTERNATE POWER FIRE DETECTION APU
  - (s) 11K33, ALTERNATE POWER FIRE DETECTION CARGO
  - (t) 11S23, APU BLEED PWR
  - (u) 11S24, AIR SUPPLY APU BLEED CONT
- F. Test the APU/CARGO Fire Control Panel installation by use of the ENG/APU/CARGO test switch on FIRE/OVERHEAT test panel, M10445.

S 862-017-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 862-018-002

- (2) Make sure these systems operate:
  - (a) EICAS (AMM 31-41-00/501).
  - (b) Warning System (AMM 31-51-00/501).
  - (c) Master Dim and Test System (AMM 33-16-00/501).

S 862-019-002

- (3) Make sure these circuit breakers on the P11 panel are closed:
  - (a) 11B24, FIRE DETECTION APU 1
  - (b) 11B25, FIRE DETECTION APU 2
  - (c) 11B34, APU REMOTE FIRE IND

S 862-020-002

- (4) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

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S 862-021-002

- (5) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
- (a) 11B20, FIRE DETECTION L ENGINE 1
  - (b) 11B21, FIRE DETECTION L ENGINE 2
  - (c) 11B22, FIRE DETECTION R ENGINE 1
  - (d) 11B23, FIRE DETECTION R ENGINE 2
  - (e) 11B26, FIRE DETECTION CARGO 1
  - (f) 11B27, FIRE DETECTION CARGO 2
  - (g) 11K30, ALTERNATE POWER FIRE DETECTION ENGINE L
  - (h) 11K31, ALTERNATE POWER FIRE DETECTION ENGINE R
  - (i) 11K32, ALTERNATE POWER FIRE DETECTION APU

S 282-022-002

- (6) Try to pull the APU fire switch handle out, on aft pilot's control stand P8. See that it is locked in place.

S 862-023-002

- (7) Push the ECS/MSG switch on the EICAS MAINT panel on the right side panel, P61.

S 862-024-002

- (8) Push and hold the ENG/APU/CARGO switch on the FIRE/OVHT test panel (P8).

**NOTE:** Use the ECS/MSG switch as necessary to advance EICAS pages until all messages have been shown.

S 712-025-002

- (9) Make sure that the EICAS maintenance messages APU FIRE LP 1 and 2 are shown on the bottom display.

S 712-026-002

- (10) After a 2-4 second delay, make sure that these conditions occur:
- (a) The red APU fire switch handle, on P8, lights up.
  - (b) The red FIRE light, on captain's instrument panel P1-3, comes on.
  - (c) The EICAS warning message, APU FIRE, is shown on the top display.
  - (d) The red master WARNING lights, on glareshield panels P7, come on.
  - (e) The fire bell can be heard on the flight deck aural warning speakers.

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- (f) The red APU FIRE light, on the APU Shutdown panel P40, comes on. P40 is located on the right side of the nose landing gear.
- (g) The APU fire warning horn, on P40, can be heard, when the airplane is on the ground.

S 862-027-002

- (11) Pull the APU fire switch handle out (P8). Do NOT turn the handle.

S 712-028-002

- (12) Make sure these conditions occur:
  - (a) The red APU fire switch remains lit.
  - (b) The fire bell stays on.
  - (c) The red APU FIRE light (on P40) goes off.
  - (d) The APU fire warning horn stops.

S 862-029-002

- (13) Push the APU fire switch back in.

S 862-030-002

- (14) Release the ENG/APU/CARGO switch.

S 712-031-002

- (15) Make sure that all the above conditions stop.
- G. Test the APU/CARGO Fire Control Panel installation by use of the manual override on the pressure switch.

S 862-032-002

- (1) Make sure that these circuit breakers on the P6 panel are closed:
  - (a) 6G1, FIRE EXTINGUISHING APU 1
  - (b) 6G2, FIRE EXTINGUISHING APU 2

S 012-079-002

**WARNING:** DO NOT STAND ON THE CONTROLS BAY ACCESS DOOR, 313AL. THE WEIGHT OF PERSONNEL COULD CAUSE THE SPRING-LOADED LATCHES TO RELEASE, AND PERSONNEL TO BE INJURED BY FALLING THROUGH THE OPENING.

ALSO, IF SERVICE ACCESS DOOR, 311AL, IS TO BE OPENED FOR ANY REASON (NOT REQUIRED FOR THIS PROCEDURE), DO NOT STAND ON THIS DOOR, FOR THE SAME REASON STATED ABOVE.

- (2) Open the controls bay access door, 313AL (AMM 06-42-00/201).

S 492-034-002

- (3) Install service platform over controls bay access door, 313AL.

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- S 862-035-002
- (4) Turn and hold the ground test hex key fully clockwise or push and hold the ground test push button switch located on extinguisher bottle pressure switch on APU fire extinguisher bottle number 1.
- S 712-036-002
- (5) Make sure that these conditions occur:
- (a) The APU BTL DISCH 1 light (yellow) on APU/CARGO fire control panel comes on.
  - (b) The BOTTLE DISCHARGED No. 1 light on the APU SHUTDOWN panel (P40) comes on (yellow).
  - (c) The EICAS message APU BTL 1 is shown on the top display.
- S 862-037-002
- (6) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11A34, IND LTS 2
- S 712-038-002
- (7) Make sure that these conditions occur:
- (a) The APU BTL DISCH 1 light goes off.
  - (b) The BOTTLE DISCHARGED No. 1 light stays on.
  - (c) The EICAS message remains shown on the top display.
- S 862-039-002
- (8) Release hold on the hex key or the pushbutton switch.
- S 712-040-002
- (9) Make sure that all the above conditions are off.
- S 862-081-002
- (10) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11A34, IND LTS 2
- S 862-041-002
- (11) Turn and hold the ground test hex key fully clockwise or push and hold the test pushbutton located on extinguisher bottle pressure switch on APU fire extinguisher bottle number 2.
- S 712-042-002
- (12) Make sure that these conditions occur:
- (a) The APU BTL 2 DISCH light (yellow) on APU/CARGO fire control panel comes on.
  - (b) The BOTTLE DISCHARGED No. 2 light on the APU SHUTDOWN panel (P40) comes on (yellow).
  - (c) The EICAS message APU BTL 2 is shown on the top display.

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AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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- S 862-043-002
- (13) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:
- (a) 11A35, IND LTS 3
- S 712-044-002
- (14) Make sure that these conditions occur:
- (a) The APU BTL 2 DISCH light goes off.
  - (b) The BOTTLE DISCHARGE No. 2 light stays on.
  - (c) The EICAS message shows on the top display.
- S 862-045-002
- (15) Release hold on the hex key or the pushbutton switch.
- S 712-046-002
- (16) Make sure that all the above conditions go off.
- S 862-047-002
- (17) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
- (a) 11A35, IND LTS 3
- S 862-048-002
- (18) Make sure these circuit breakers on the P6 panel are closed:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 862-049-002
- (19) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 1.
- S 712-050-002
- (20) Make sure that these conditions occur:
- (a) The BTL DISCH (or BTL DISCH 1) light on the APU/CARGO fire control panel (P8) comes on (yellow).
  - (b) The EICAS MESSAGE CARGO BTL 1 is shown on the top display.
- S 862-051-002
- (21) Release the manual override button.
- S 712-052-002
- (22) Make sure that all the above conditions stop.
- S 862-053-002
- (23) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 2.

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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S 712-054-002

- (24) Make sure that these conditions occur:
- (a) The BTL DISCH (or BTL DISCH 2) light on the APU/CARGO fire control panel (P8) comes on (yellow).
  - (b) EICAS message CARGO BTL 2 is shown on the top display.

S 862-055-002

- (25) Release the manual override button.

S 712-056-002

- (26) Make sure that all the above conditions stop.

S 712-082-002

- (27) AIRPLANES WITH CARGO FIRE BOTTLE 2A INSTALLED;  
Do these steps:
- (a) Push and hold the manual override button on the pressure switch connector casing on cargo compartment fire extinguisher bottle number 2A.
  - (b) Make sure that these conditions occur:
    - 1) The BTL DISCH light on the APU/CARGO fire control panel (P8) comes on (yellow).
    - 2) The EICAS message CARGO BTL 2 is shown on the top display.
  - (c) Release the manual override button.
  - (d) Make sure that all the above conditions stop.

S 912-076-002

- (28) To test the cargo fire extinguishing armed switch activation, perform the Cargo Fire Extinguishing Armed Switch Activation Check (AMM 26-23-01/601).

S 912-077-002

- (29) To test the interfaces fo the APU/CARGO Fire Control Panel, perform the APU Fire Switch Inspection Check (AMM 26-22-01/601).

TASK 26-22-03-002-058-002

4. Remove the APU Fire Switch

A. General

- (1) The APU fire switch (S39) is on the APU/CARGO fire control panel.  
The control panel is on the aft pilots control stand P8.

B. Access

- (1) Location Zone  
211/212 Control Cabin

C. Prepare for Removal

S 862-059-002

- (1) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
- (a) 6E3, APU FUEL VALVE
  - (b) 6G1, FIRE EXT APU 1

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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(c) 6G2, FIRE EXT APU 2

S 862-060-002

(2) Open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

(a) 11A34, IND LTS 2

(b) 11A35, IND LTS 3

(c) 11B19, FIRE SW UNLOCK

(d) 11B34, APU REMOTE FIRE IND

(e) 11S24, AIR SUPPLY APU BLEED AIR VALVE CONTROL

D. Remove the APU Fire Switch

S 032-061-002

(1) Remove the APU/CARGO fire control panel.

S 032-062-002

(2) Remove the four screws holding the APU fire switch to the baseplate.

S 022-063-002

(3) Remove the APU fire switch.

TASK 26-22-03-402-064-002

5. Install the APU Fire Switch

A. General

(1) This task installs and tests the APU fire switch. The test only tests the operation of the APU fire switch.

B. References

(1) AMM 24-22-00/201, Electrical Power - Control

(2) AMM 26-22-00/501, APU Fire Extinguishing System - A/T

C. Access

(1) Location Zone  
211/212 Control Cabin

D. Install the APU Fire Switch

S 422-065-002

(1) Install the APU fire switch to the APU/CARGO fire control panel baseplate with the four screws.

S 432-066-002

(2) Install the APU/CARGO fire control panel.

S 862-067-002

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

(a) 11A34, IND LTS 2

(b) 11A35, IND LTS 3

(c) 11B19, FIRE SW UNLOCK

(d) 11B34, APU REMOTE FIRE IND

(e) 11S24, AIR SUPPLY APU BLEED AIR VALVE CONTROL

EFFECTIVITY  
AIRPLANES WITH DUAL  
APU FIRE BOTTLES

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S 862-068-002

- (4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6E3, APU FUEL VALVE
  - (b) 6G1, FIRE EXT APU 1
  - (c) 6G2, FIRE EXT APU 2

E. Test the APU Fire Switch Installation

S 862-069-002

- (1) Supply electrical power (AMM 24-22-00/201).

S 862-070-002

- (2) Push and hold the ENG/APU/CARGO button on the FIRE/OVHT test panel M10445 (P8).

S 712-071-002

- (3) Make sure that the lights in the APU fire switch handle come on (red).

S 862-072-002

- (4) Release the ENG/APU/CARGO button on the FIRE/OVHT test panel.

S 712-073-002

- (5) Make sure that the lights in the APU fire switch handle go off.

S 862-085-002

- (6) Do this procedure: APU Fire Extinguishing System Test (AMM 26-22-00/501).

S 862-074-002

- (7) Remove electrical power if it is not necessary (AMM 24-22-00/201).

CARGO COMPARTMENT FIRE EXTINGUISHING – DESCRIPTION AND OPERATION

1. General

- A. The cargo compartment fire extinguishing system has controls that release applications of fire extinguishing agent to a fire in either cargo compartment. The system has test capability. The cargo fire extinguisher system has these parts:
- APU/CARGO fire control panel
  - squib test control panel
  - fire extinguishing bottles
  - in-line pressure discharge switch
  - discharge filter/dryers
  - discharge regulators
- B. The cargo fire extinguishing system receives power from the 28 vdc hot battery bus, through a circuit breaker on main power distribution panel P6. Electrical power to the system is provided through FIRE EXTINGUISHING CARGO BTL 1 or BTL 2 circuit breakers on main power distribution panel P6.

2. Component Details (Fig. 1)

A. Cargo Compartment Fire Extinguisher Bottle

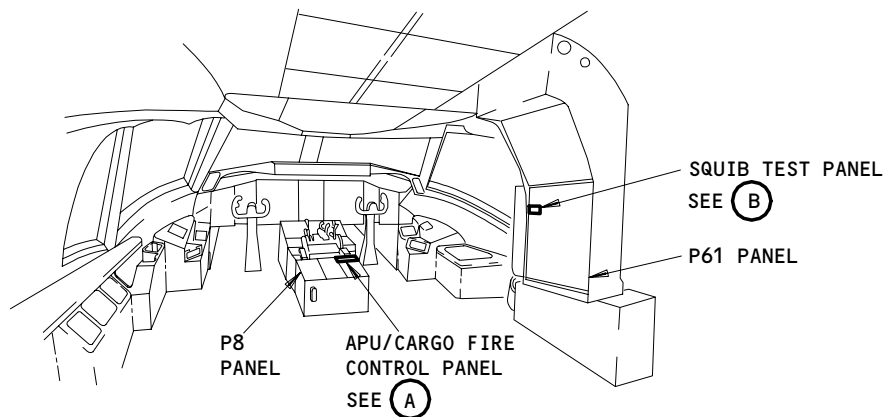
- (1) SAS 150-154;  
Two cargo compartment fire extinguisher bottles are located aft of the forward cargo door on the right side of the cargo compartment. The extinguisher bottle includes two squib cartridges, a temperature compensated pressure switch, and the combined safety relief and filler port.
- (2) SAS 050-149, 155-999;  
ALL MTH AIRPLANES;  
Three cargo compartment fire extinguisher bottles are located aft of the forward cargo door on the right side of the cargo compartment. The extinguisher bottle includes two squib cartridges, a temperature compensated pressure switch, and the combined safety relief and filler port.
- (3) Two squib cartridges are on the discharge valves of each extinguisher bottle. When detonated, the cartridge ruptures a retaining disc in the valve releasing the extinguishing agent.
- (4) The extinguishing agent is bromotrifluoromethane (halon) and the pressurizing gas dry nitrogen. The agent leaves no residue when discharged.
- (5) The pressure switch on the extinguisher bottle detects a decrease in bottle pressure and activates the bottle discharge lights. The pressure switch can be manually tested by pressing the button located on the switch.
- (6) The safety relief valve is a thermal expansion over-pressure rupture disc. If bottle pressure is too high, the safety relief ruptures, allowing the bottle to discharge. The filler port is for introducing the extinguishing agent and pressurizing gas into the bottle.

EFFECTIVITY

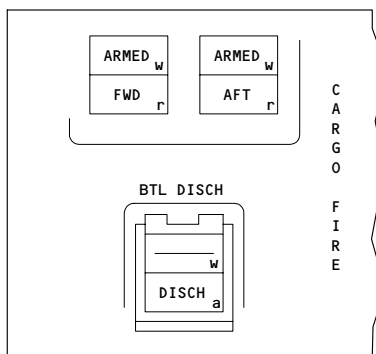
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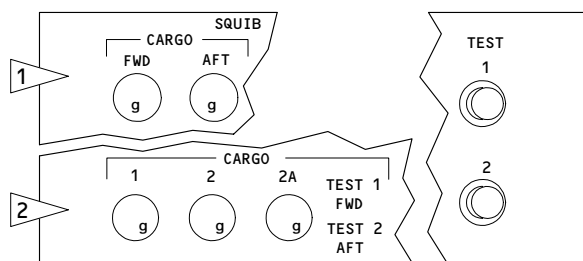


FLIGHT COMPARTMENT



APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

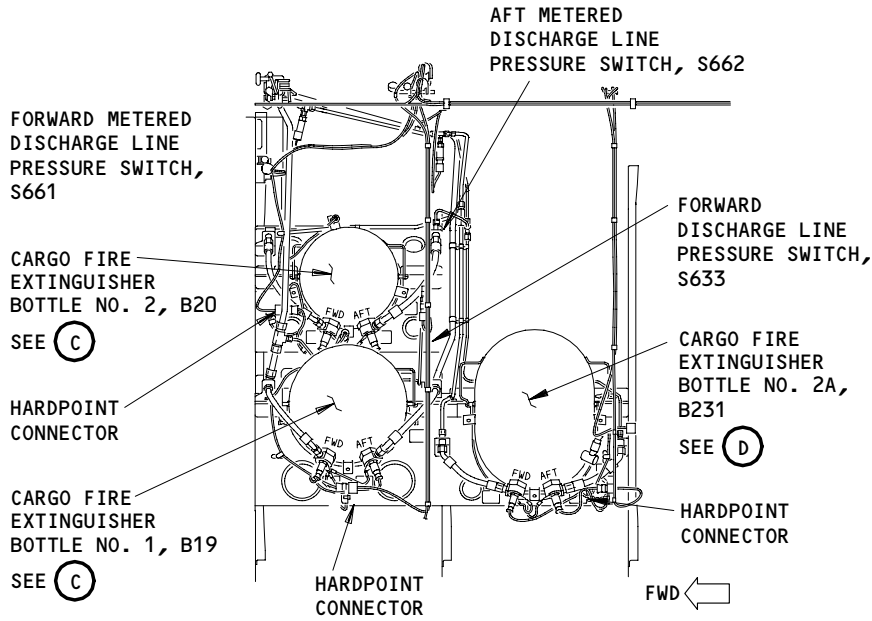
(B)

- 1 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHER BOTTLES
- 2 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHER BOTTLES

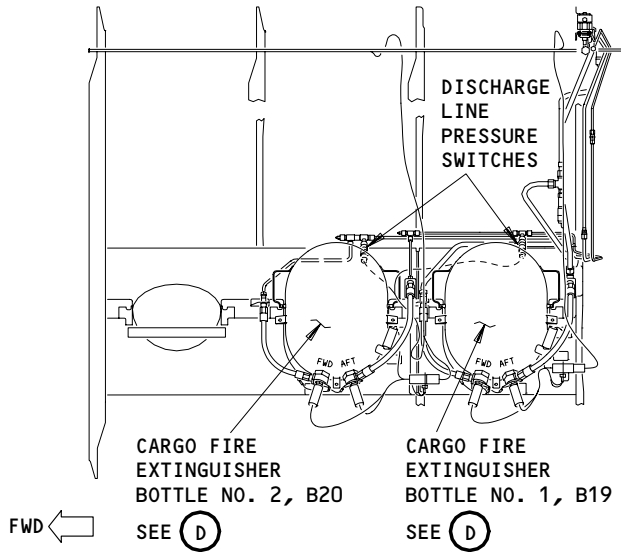
Cargo Compartment Fire Extinguishing System - Component Location  
Figure 1 (Sheet 1)

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RIGHT SIDEWALL  
FORWARD CARGO COMPARTMENT 3



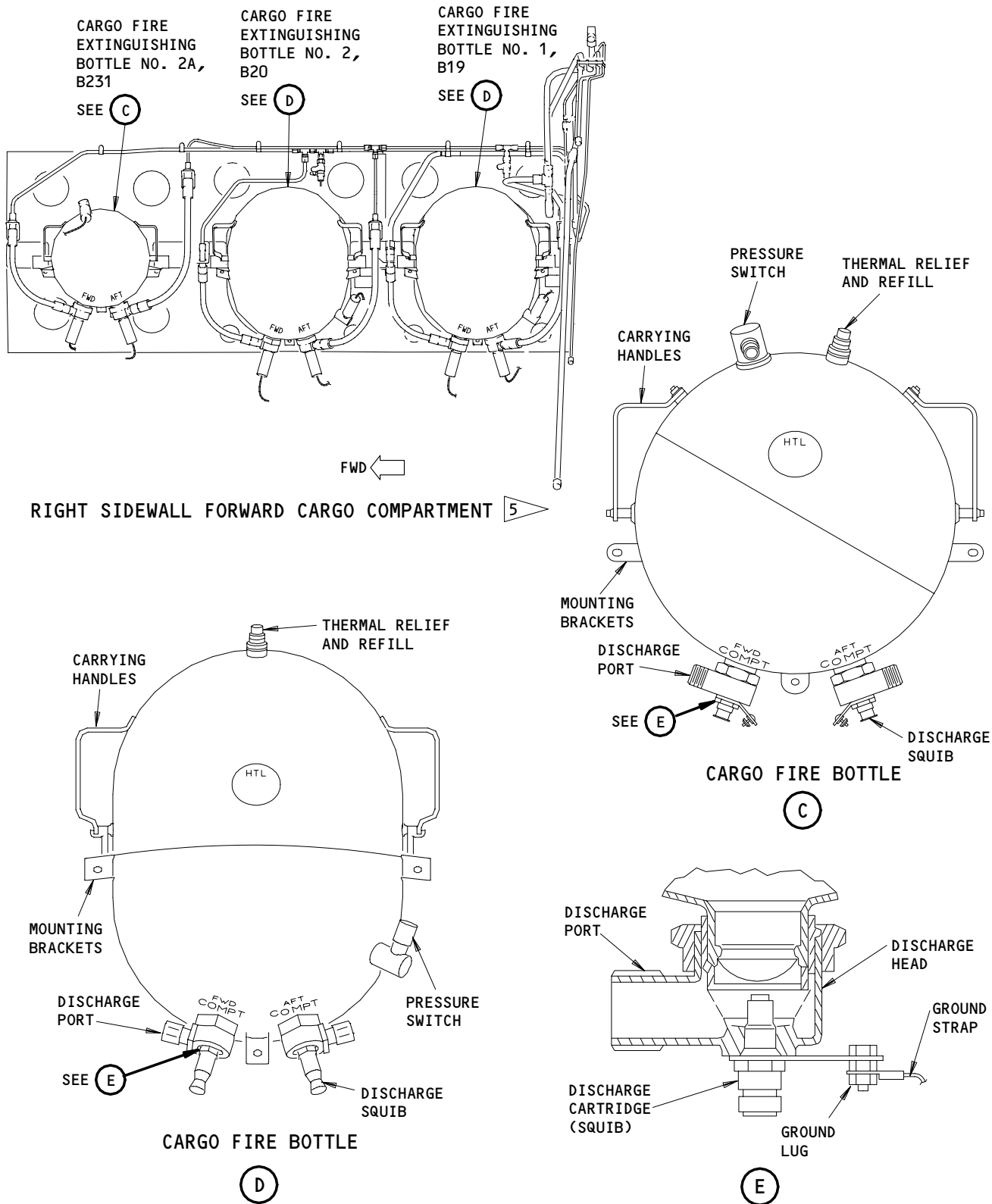
RIGHT SIDEWALL  
FORWARD CARGO COMPARTMENT 6

- 3 SAS 050-149
- 4 NOT USED
- 5 SAS 155-999, MTH ALL
- 6 SAS 150-154

Cargo Compartment Fire Extinguisher System - Component Location  
Figure 1 (Sheet 2)

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Cargo Compartment Fire Extinguisher System Component Location  
Figure 1 (Sheet 3)

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B. APU/CARGO Fire Control Panel

(1) The FWD/AFT ARMED and BTL DISCH switches are located on the APU/CARGO fire control panel at pilots' aft control stand P8. When a cargo compartment fire is detected, the red FWD or AFT warning light comes on. The ARMED switch on the panel, when pressed, arms the extinguisher bottle for discharge to the compartment desired. When the bottle is armed, a white (ARMED) light appears on the switch. To discharge the extinguishing agent, press the BTL DISCH switch. Cargo bottles will be discharged and the amber DISCH light comes on when the bottles begin to discharge.

C. Squib Test Panel

(1) The squib test panel is located on the P61 right side panel. The switches on the panel are used to check extinguisher bottle squib cartridges. When pressed, the test switches 1 and 2 on the panel check circuit continuity between the cargo discharge switches and squib cartridges. A green test light comes on for a successful test (continuity to ground).

(2) The filter/dryers are installed on the metered discharge lines (all discharge lines except for cargo bottle 1). The filter/dryers are located in the ceiling on the left side of the forward cargo compartment and the aft cargo compartment. When the extinguishing agent is discharged, the filter/dryer removes the water from the extinguishing agent to prevent the outlet nozzles from freezing. Filter/dryers must be replaced after use.

D. Regulators

(1) The regulators are installed on the metered discharge lines (all discharge lines except for cargo bottle 1). The regulators are located in the ceiling on the left side of the forward cargo compartment and of the aft cargo compartment. After the extinguishing agent passes through the filter/dryers, the extinguishing agent passes through the regulators. The regulator releases the extinguishant at a constant rate to the cargo compartment.

3. Operation (Fig. 2)

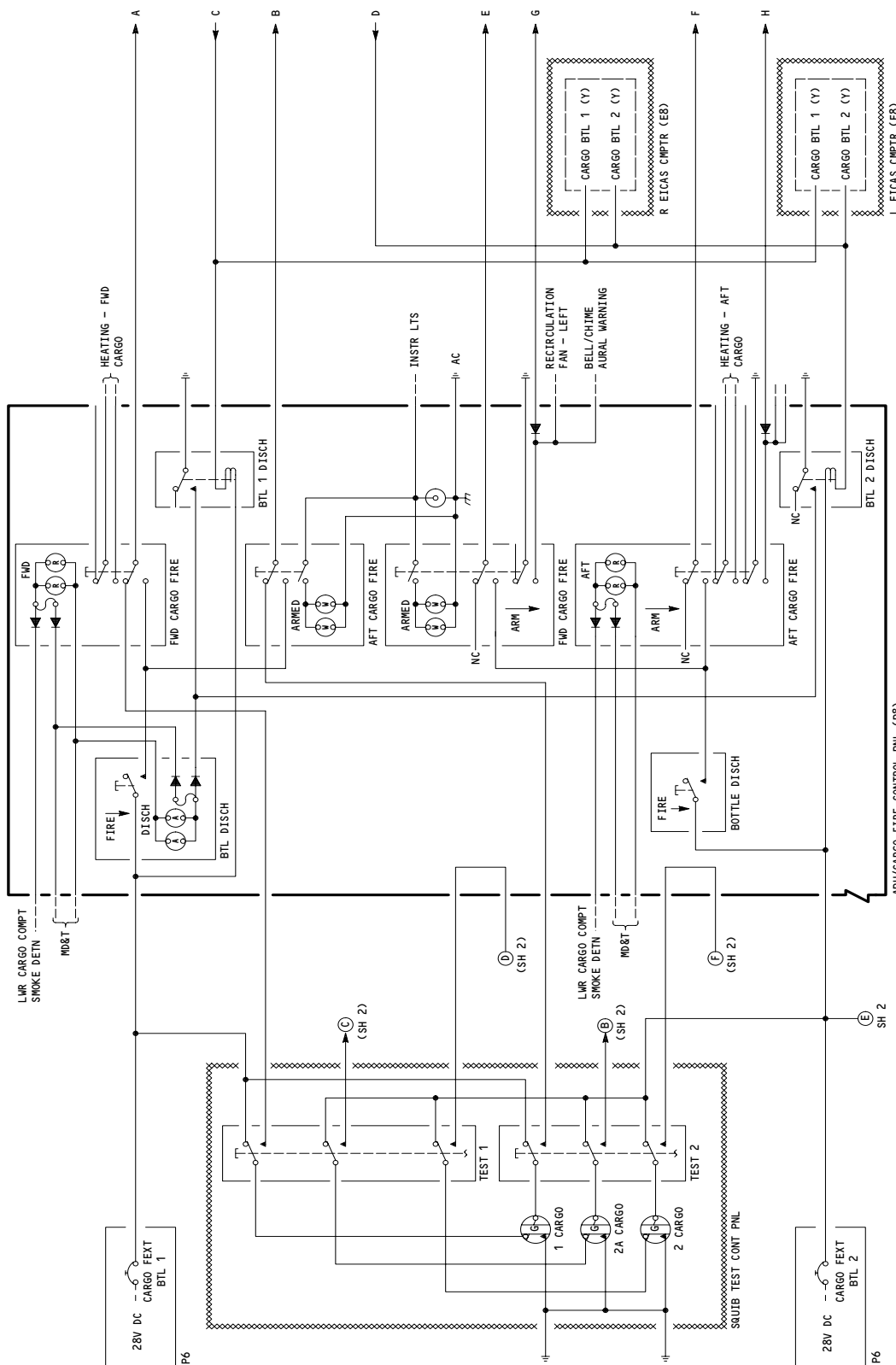
A. Functional Description

(1) When a fire is detected in a cargo compartment (forward or aft), the appropriate red light (FWD or AFT) on the APU/CARGO fire control panel comes on.

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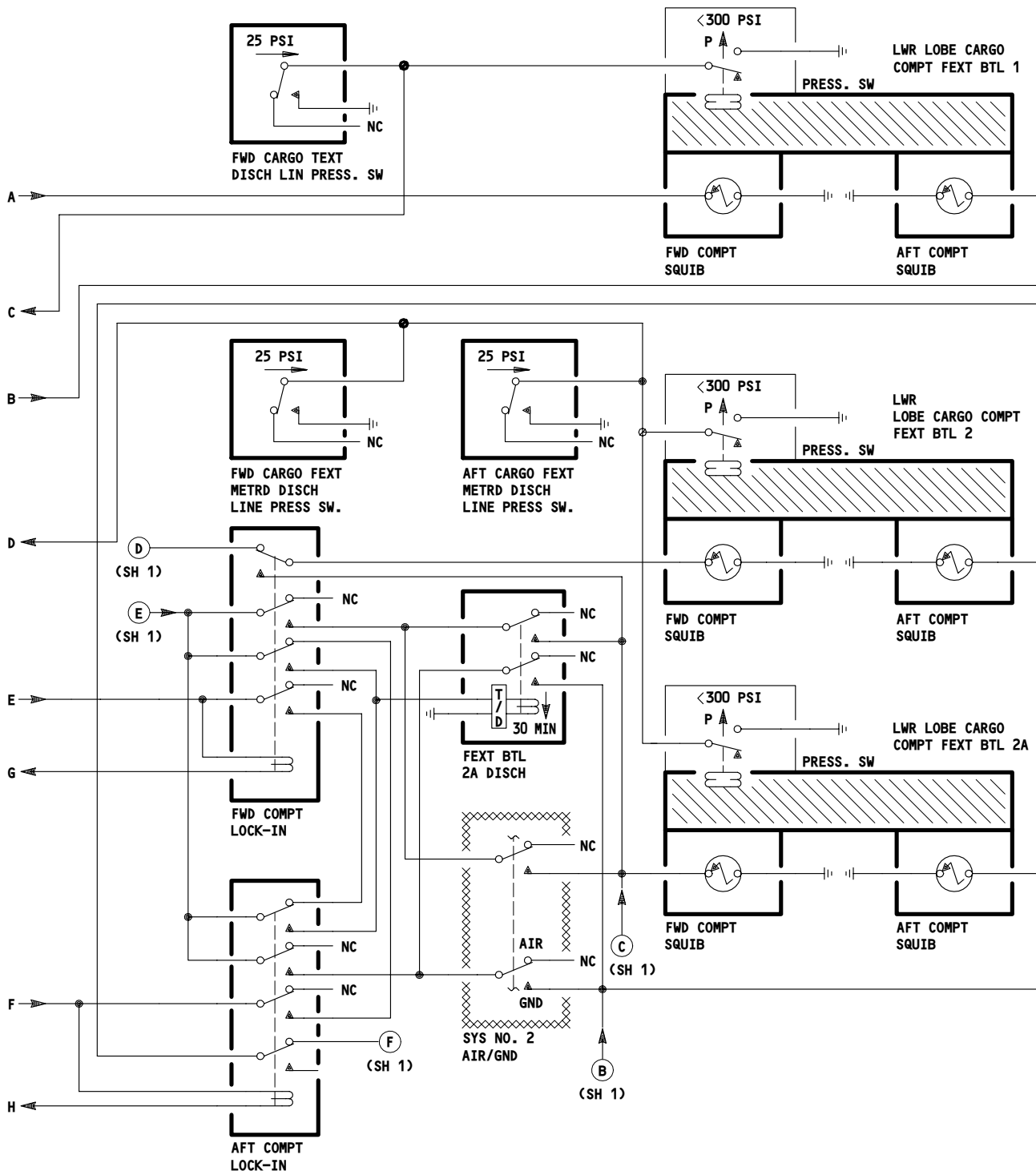
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Lower Cargo Compartment Fire Extinguishing Schematic  
Figure 2 (Sheet 1)

EFFECTIVITY  
SAS 155-999;  
ALL MTH AIRPLANES

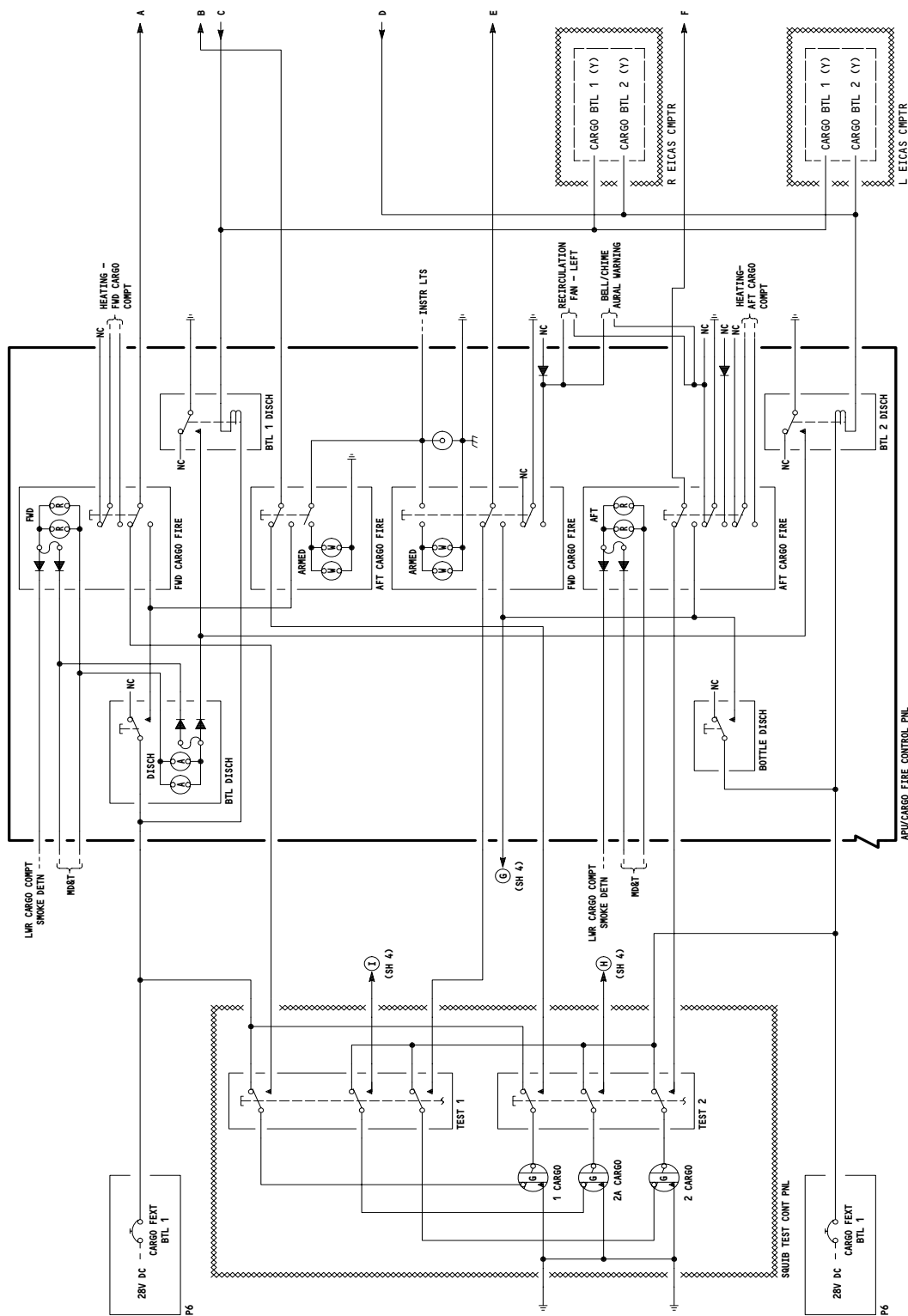
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Lower Cargo Compartment Fire Extinguishing Schematic  
Figure 2 (Sheet 2)

EFFECTIVITY  
SAS 155-999;  
ALL MTH AIRPLANES

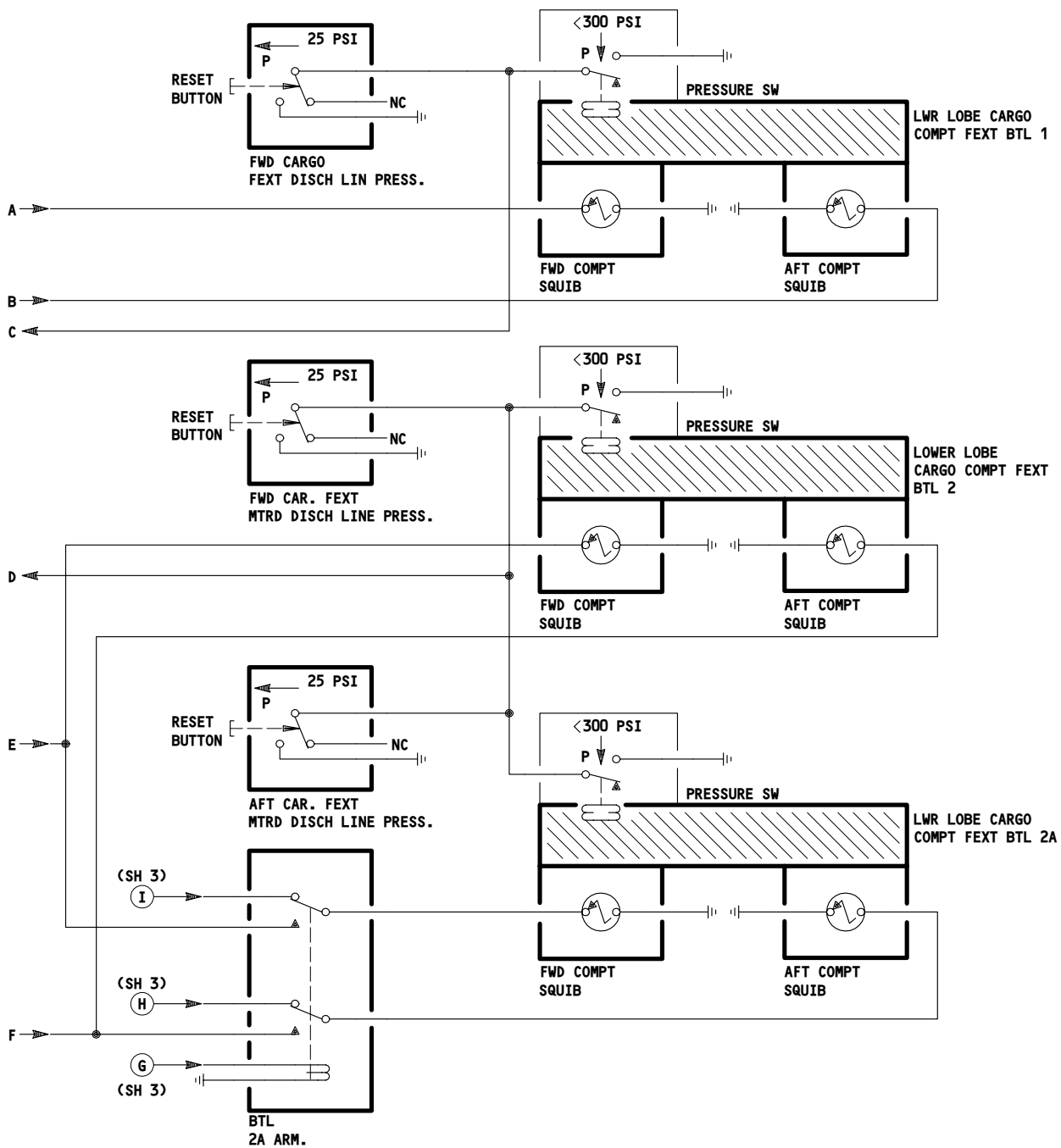
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Lower Cargo Compartment Fire Extinguishing Schematic  
Figure 2 (Sheet 3)

EFFECTIVITY  
SAS 050-149

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Lower Cargo Compartment Fire Extinguishing Schematic  
Figure 2 (Sheet 4)

EFFECTIVITY  
SAS 150-154

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MAINTENANCE MANUAL

- (2) The discharge circuit for the appropriate cargo compartment is armed by pressing the ARMED switch on the APU/CARGO fire control panel. A white light in the switch will come on to verify the extinguisher bottle is armed.
- (3) When the FWD ARMED switch is pressed, the following occurs:
  - (a) FWD cargo compartment heat valves close.
  - (b) Left and right recirculation fans are turned off.
  - (c) Fire warning bell is silenced.
  - (d) FWD Squib test function is disabled.
  - (e) Power to the galleys is removed.
- (4) When the AFT ARMED switch is pressed, the following occurs:
  - (a) Aft and bulk cargo compartment heat valves close.
  - (b) Left and right recirculation fans are turned off.
  - (c) Fire warning bell is silenced.
  - (d) Aft Equipment Lav/Galley Ventilation Fans (1 & 2) are off.
  - (e) AFT squib test function disabled.
  - (f) 767-200;  
The air conditioning packs switch to high flow mode (On airplanes prior to SB 21-76, EICAS shows HI FLOW ON).
  - (g) 767-300;  
The air conditioning packs are inhibited from going to high flow mode (EICAS shows HI FLOW INHIBIT).
  - (h) Power to the galleys is removed.
- (5) To discharge the extinguisher bottles into the selected compartment, press the BTL DISCH switch on APU/CARGO fire control panel. The electrical signal from the bottle discharge switch detonates the squib cartridge, rupturing the retaining discs on each bottle, and releasing the extinguishing agent. Extinguishing agent is then discharged into distribution tubing leading to outlet nozzles in the cargo compartments. The forward compartment has three nonmetered nozzles on the left wall and two metered nozzles in the ceiling. The aft compartment has three nonmetered nozzles on the left wall and one on the right wall in the bulk cargo area. The aft compartment also has three metered nozzles. Two of the nozzles are in the ceiling of the aft compartment and one is in the ceiling of the bulk cargo area.

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- (6) SAS 050-149, 155-999;  
ALL MTH AIRPLANES;  
A discharge line pressure switch (S633), located in the fwd cargo compartment, is connected to the aft compartment nonmetered distribution tubing for extinguisher bottle 1. This switch is connected in parallel with the pressure switch on extinguisher bottle 1. Discharge line pressure switches (S661 and S662), also located in the fwd cargo compartment, are attached to the forward and aft compartment metered distribution tubing for extinguisher bottles 2 and 2A. These switches are connected in parallel with the pressure switches on extinguisher bottle 2 and 2A. The discharge line pressure switches recognize bottle discharge prior to the temperature compensated pressure switch on the extinguisher bottles. The discharge line pressure switch gives an immediate indication (EICAS message: CARGO BTL 1 OR 2) that extinguishing agent is being released in the metered lines, both forward and aft, and the nonmetered aft discharge line. The reset switch on the discharge line pressure switches should be pressed after servicing the fire extinguishing system.
- (7) SAS 150-154;  
A discharge line pressure switch (S633) located in the forward compartment, is connected to the aft nonmetered distribution tubing for extinguisher bottle 1. This switch is connected in parallel with the pressure switch on extinguisher bottle 1. Discharge line pressure switches (S661 and S662), also located in the fwd cargo compartment, is connected to the forward and aft compartment metered distribution tubing for extinguisher bottle 2. These switches are connected in parallel with the pressure switch on extinguisher bottle 2. The discharge line pressure switches recognize bottle discharge prior to the temperature compensated pressure switch on the extinguisher bottles. The discharge line pressure switch gives an immediate indication (EICAS message: CARGO BTL 1 OR 2) that extinguishing agent is being released in the metered lines, both forward and aft, and the nonmetered line. A reset switch on the discharge line pressure switches should be pressed after servicing the fire extinguishing system.

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- (8) SAS 150-154;  
Bottle 2 is automatically discharged by a time delay relay 30 minutes after bottle 1 has been discharged. In the event the airplane lands before the 30 minutes have elapsed, bottle 2 will discharge at touchdown, by an override signal from the landing gear air/ground system.
- (9) SAS 150-154;  
Extinguisher bottles 1 and 2 are discharged by pressing the BTL DISCH switch on P8. The regulators in the forward and aft cargo compartment distribution tubing for bottle 2 provide a metered release of the extinguishing agent to provide fire protection. This, coupled with the protection from bottle 1 provides 120 minutes of fire protection for the forward and aft cargo compartments.
- (10) SAS 050-149;  
Extinguisher bottles 1, 2 and 2A are discharged simultaneously by pressing the BTL DISCH switch on P8. The regulators in the forward and aft cargo compartment distribution tubing for bottles 2 and 2A provide a metered release of the extinguishing agent to provide fire protection. This, coupled with the protection from bottle 1 provides 195 minutes of fire protection for the forward and aft cargo compartments.
- (11) SAS 155-999;  
ALL MTH AIRPLANES;  
Bottles 2 and 2A are automatically discharged by a time delay relay 30 minutes after bottle 1 has been discharged by the BTL DISCH switch. Bottles 2 and 2A will discharge at touchdown if 30 minutes has not elapsed. The regulators in the forward and aft cargo compartments for bottles 2 and 2A meter the release of extinguishing agent. The system provides 195 minutes of fire protection.
- (12) Decreasing bottle pressure, by discharge or leakage, activates the temperature compensated pressure switch on the extinguisher bottle. The switch sends a signal which turns on the appropriate amber DISCH light on the APU/CARGO fire control panel, and generates a CARGO BTL 1 OR 2 message on the EICAS display.

B. Cargo Fire Extinguishing System Test

(1) Squib Test

- (a) SAS 150-154;  
The squib test control panel checks the integrity of extinguisher bottle squibs. Pressing the TEST 1 or 2 switch sends a signal to the appropriate extinguisher bottle squib discharge cartridge. The TEST 1 switch checks bottle 1 FWD and AFT squibs, and the TEST 2 switch checks bottle 2 FWD and AFT squibs. If the squib and circuit continuity are good, the green CARGO FWD/AFT lights on the panel will come on.

NOTE: When forward or aft system is armed the corresponding squibs will not test. (System must be disarmed to conduct squib test.)

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- (b) SAS 050-149, 155-999;  
ALL MTH AIRPLANES;  
The squib test control panel checks the integrity of extinguisher bottle squibs. Pressing the TEST 1 or 2 switch sends a signal to the appropriate extinguisher bottle squib discharge cartridge. The TEST 1 switch checks all of the forward squibs and TEST 2 switch checks all aft squibs. If the squib and circuit continuity are good, the green CARGO 1, 2, and 2A lights on the panel will come on.

NOTE: When forward or aft system is armed the corresponding squibs will not test. (System must be disarmed to conduct squib test.)

(2) Pressure Switch Test

- (a) Manually activating the bottle pressure switch tests discharge light circuit continuity. Pressing the button located on the switch simulates bottle discharge. The appropriate amber DISCH light will come on and a CARGO BTL DISCH message will appear on the EICAS display, indicating a successful test.

C. Control

- (1) Provide electrical power (AMM 24-22-00/201).  
(2) To place the system in operation, check that the following circuit breakers on main power distribution panel P6 are closed:  
(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1  
(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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FAULT ISOLATION/MAINT MANUAL

CARGO COMPARTMENT FIRE EXTINGUISHING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
BOTTLE - CARGO COMPT FIRE EXT, B19,B20,B231	2	3	821, FWD CARGO COMPT	26-23-02
CIRCUIT BREAKER -	1		FLT COMPT, P6	
CARGO FEXT BTL 1, C781		1	6H5	*
CARGO FEXT BTL 2, C773		1	6H6	*
COMPUTER - (FIM 31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
DIODE - (FIM 31-01-37/101)				
R248,R249				
FILTER/DRYER	2	2	FWD AND AFT CARGO COMPT CEILING	26-23-00
LIGHT - 1 CARGO, YA3L1	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*
LIGHT - 2 CARGO, YA3L2	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*
LIGHT - 2A CARGO, YA3L8	1	1	FLT COMPT, P61, SQUIB TEST CONT PNL, M32	*
PANEL - (FIM 26-21-00/101)				
SQUIB TEST CONT, M32				
PANEL APU/CARGO FIRE CONTROL, M10444	1	1	FLT COMPT, P8	23-23-00
REGULATOR	2	2	FWD AND AFT CARGO COMPT CEILING	26-23-00
RELAY - (FIM 31-01-37/101)				
AFT COMPT LOCK-IN, K823				
FEXT BTL 2A DISCH, K826				
FWD COMPT LOCK-IN, K822				
SYS NO. 2 AIR/GND, K721				
BTL 2A ARM RELAY, K881				
RELAY - BTL 1 DISCH, YDOK1		1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
RELAY - BTL 2 DISCH, YDOK2		1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
SQUIB - AFT COMPT, YFYB2	3	1	821, FWD CARGO COMPT, B19, CARGO COMPT FIRE EXT BOTTLE 1	*
SQUIB - AFT COMPT, YFZB2	3	1	821, FWD CARGO COMPT, B20, CARGO COMPT FIRE EXT BOTTLE 2	*
SQUIB - AFT COMPT, YGAB2	3	1	821, FWD CARGO COMPT, B231, CARGO COMPT FIRE EXT BOTTLE 2A	*
SQUIB - FWD COMPT, YFYB1	3	1	821, FWD CARGO COMPT, B19, CARGO COMPT FIRE EXT BOTTLE 1	*
SQUIB - FWD COMPT, YFZB1	3	1	821, FWD CARGO COMPT, B20, CARGO COMPT FIRE EXT BOTTLE 2	*
SQUIB - FWD COMPT, YGAB1	3	1	821, FWD CARGO COMPT, B231, CARGO COMPT FIRE EXT BOTTLE 2A	*

\* SEE THE WDM EQUIPMENT LIST

Cargo Compartment Fire Extinguishing System - Component Index  
Figure 101 (Sheet 1)

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 FAULT ISOLATION/MAINT MANUAL

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
SWITCH - AFT CARGO FEXT MTRD DISCH LINE, S662	2	1	821, FWD CARGO COMPT, DISCHARGE LINE	*
SWITCH - AFT CARGO FIRE, YDOS2	1	1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
SWITCH - BTL DISCH, YDOS3	1	1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
SWITCH - FWD CARGO FEXT DISCH LINE, S661,S633	2	2	821, FWD CARGO COMPT, DISCHARGE LINE	*
SWITCH - FWD CARGO FIRE, YDOS1	1	1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
SWITCH - TEST 1, YA3S1	1	1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*
SWITCH - TEST 2, YA3S2	1	1	FLT COMPT, P8, APU/CARGO FIRE CONT PNL, M10444	*

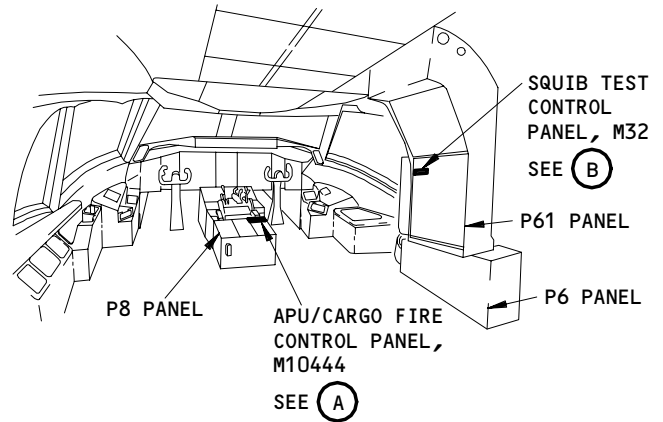
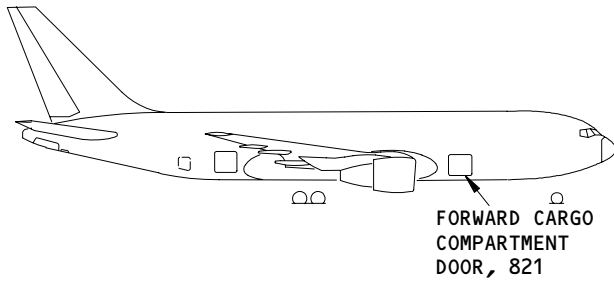
\* SEE THE WDM EQUIPMENT LIST

Cargo Compartment Fire Extinguishing System - Component Index  
Figure 101 (Sheet 2)

EFFECTIVITY

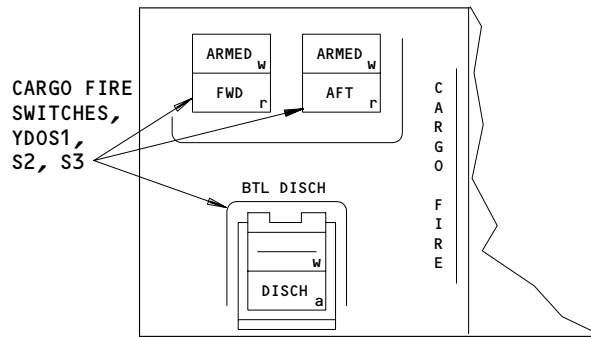
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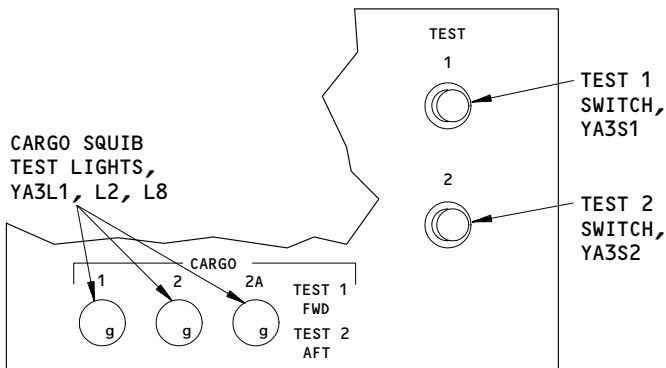
- 1 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHER BOTTLES
- 2 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHER BOTTLES

**FLIGHT COMPARTMENT**



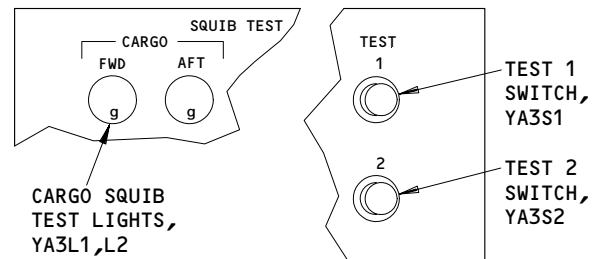
APU/CARGO FIRE CONTROL PANEL, M10444

(A)



SQUIB TEST CONTROL PANEL, M32

(B) 1



SQUIB TEST CONTROL PANEL, M32

(B) 2

**Cargo Compartment Fire Extinguishing System - Component Location**  
Figure 102 (Sheet 1)

EFFECTIVITY

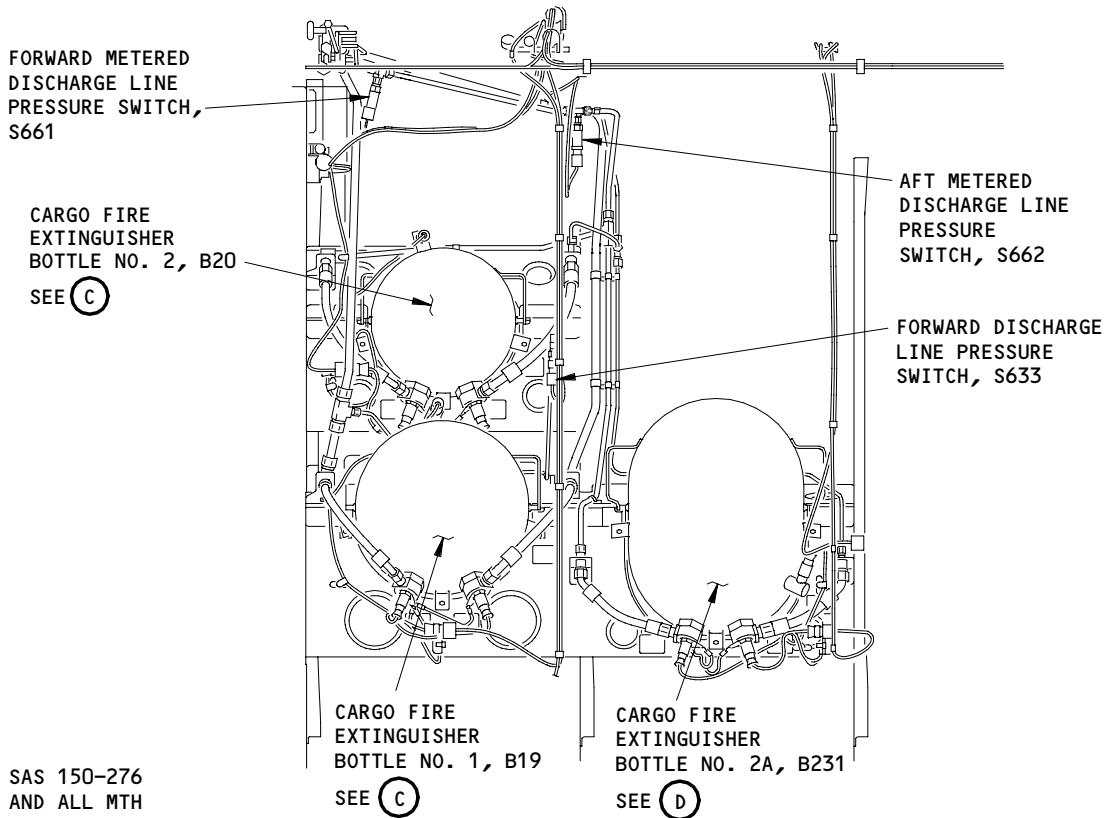
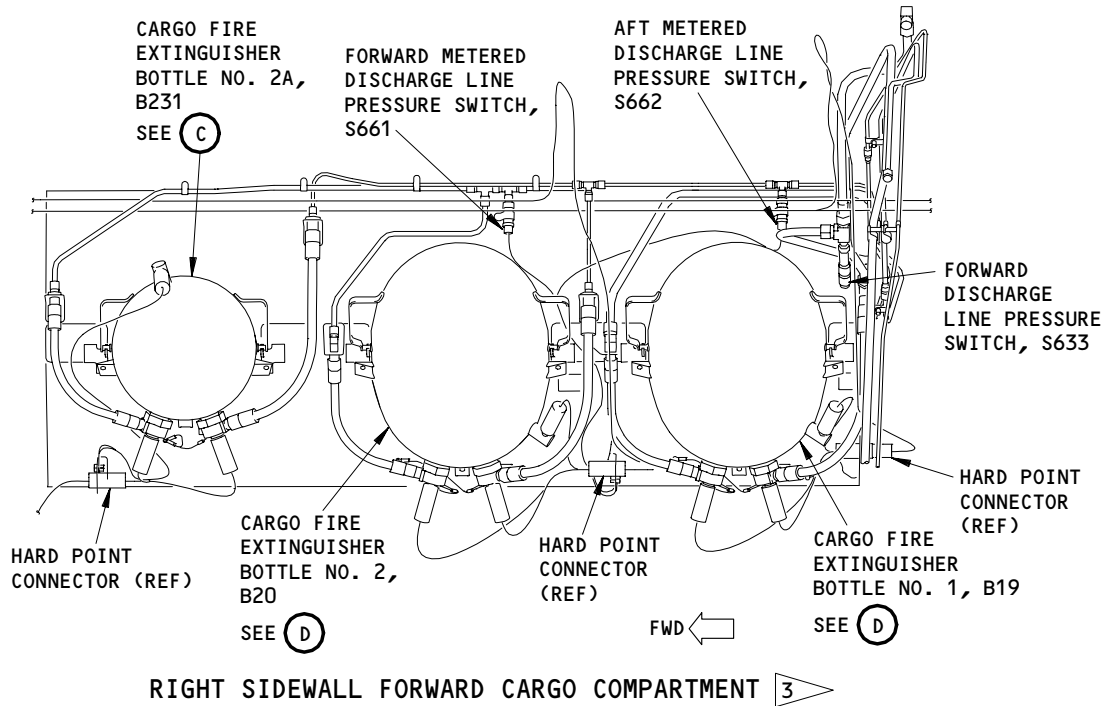
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**BOEING**  
767  
FAULT ISOLATION/MAINT MANUAL



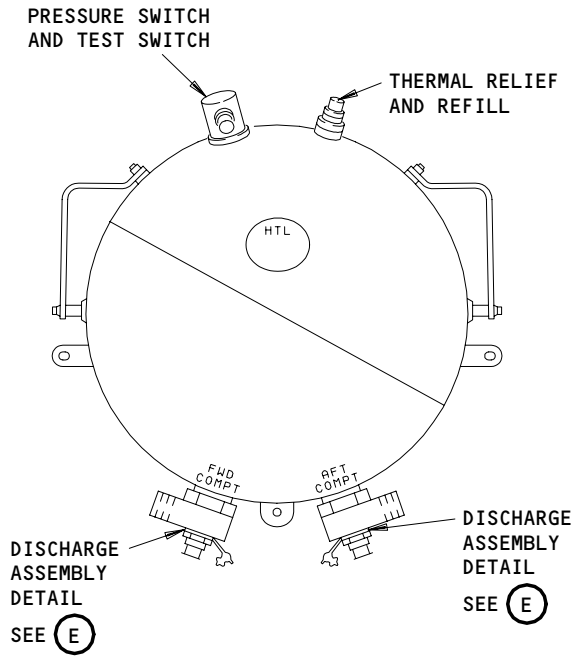
- 3 SAS 150-276 AND ALL MTH
- 4 SAS 050-149

RIGHT SIDEWALL FORWARD CARGO COMPARTMENT 4  
Cargo Compartment Fire Extinguishing System - Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY	
	ALL

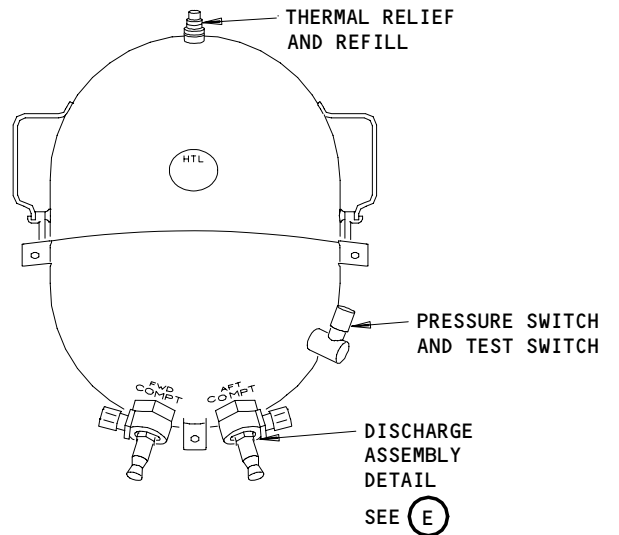
26-23-00





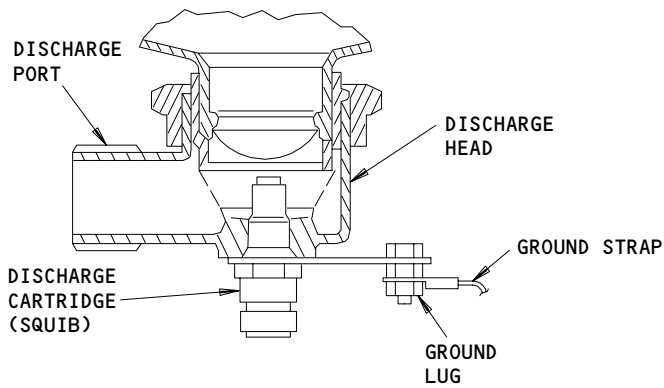
**FIRE EXTINGUISHER BOTTLE**

**(C)** FROM SHT 2



**FIRE EXTINGUISHER BOTTLE**

**(D)** FROM SHT 2



**DISCHARGE ASSEMBLY DETAIL**

**(E)**

**Cargo Compartment Fire Extinguishing System - Component Location  
Figure 102 (Sheet 3)**

EFFECTIVITY	ALL
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CARGO FIRE EXTINGUISHING SYSTEM – ADJUSTMENT/TEST

1. General

- A. This procedure has tasks to perform operational and system tests.
- (1) The operational test consists of these tasks:
    - (a) A task to test fire extinguisher bottle pressure switches.
    - (b) A task to test the circuit from the SQUIB TEST panel to the bottle squibs.
  - (2) The system test consists of these tasks:
    - (a) A task to test the cargo fire extinguishing system.
    - (b) A task to test the nonmetered discharge lines from the fire bottles.
    - (c) A task to test the metered discharge lines from the fire bottles.
  - (3) The operational tests use only equipment installed on the airplane to make sure the cargo fire extinguishing system operates correctly.
  - (4) The system tests use external test equipment and equipment installed on the airplane to make sure the cargo fire extinguishing system operates correctly.
- B. In this procedure, CARGO FIRE panel refers to the APU/CARGO FIRE CONTROL panel in the P8 panel on the aisle stand. Bottles refer to the fire extinguisher bottles in the cargo compartment. Squibs refer to the discharge cartridges on the bottles. The squib circuit test box refers to the electrical test equipment.

TASK 26-23-00-715-432

2. Operational Test – Bottle Pressure Switch

- A. References
- (1) AMM 24-22-00/201, Electrical Power – Control
  - (2) AMM 31-41-00/501, EICAS
- B. Access
- (1) Location Zones

121/122	Forward Cargo Compartment
211/212	Flight Compartment
820	Lower Half of Fuselage (Right)
- C. Prepare for the Test
- S 865-433
- (1) Supply electrical power (AMM 24-22-00/201).
- S 755-434
- (2) Make sure the EICAS is on (AMM 31-41-00/501).
- D. AIRPLANES WITH FIRE BOTTLES WITH MANUAL-OVERRIDE BUTTON ON THE PRESSURE SWITCH;
- Do a Test of the Pressure Switch for Bottle 1
- S 015-435
- (1) Get access to bottle 1 (B19) in the cargo compartment.

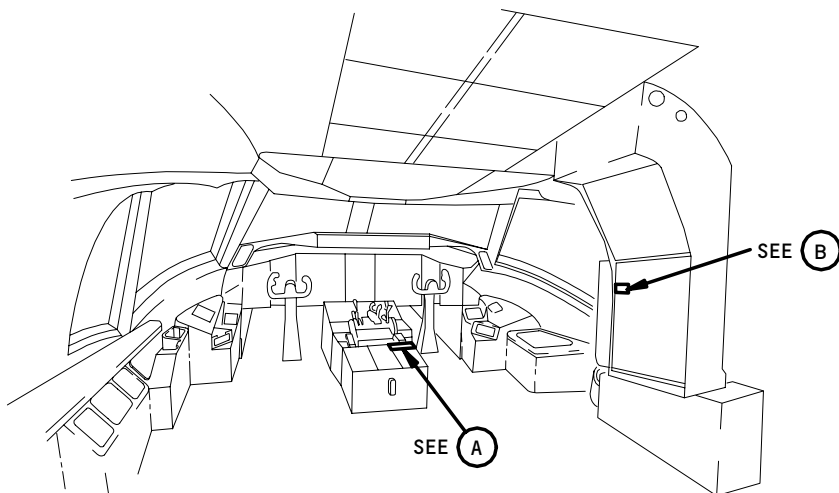
EFFECTIVITY

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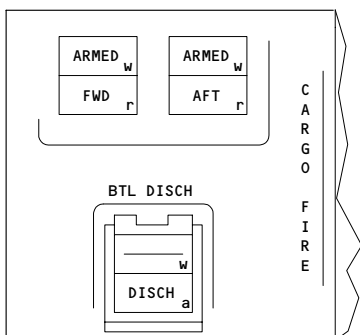
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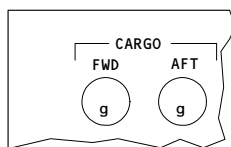


FLIGHT COMPARTMENT



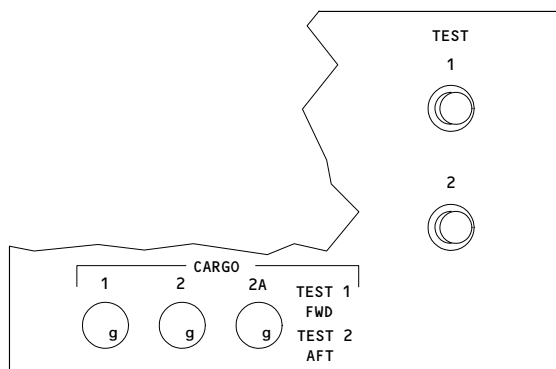
APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

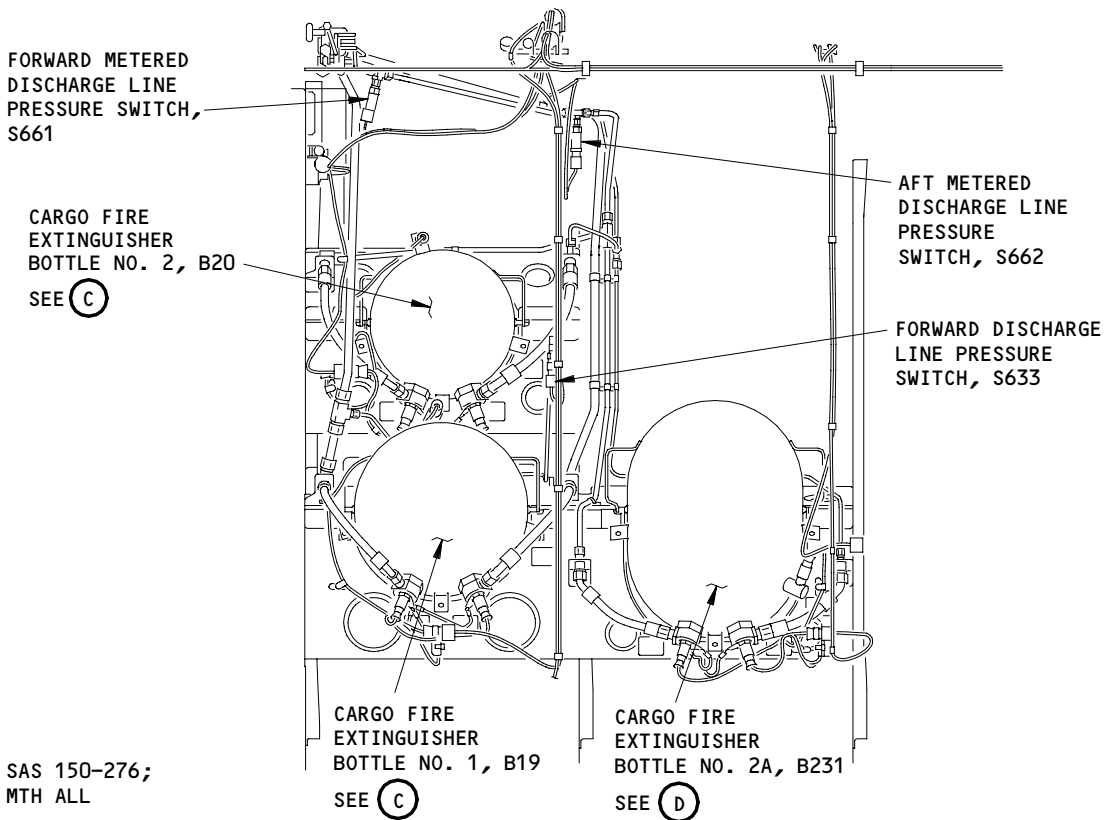
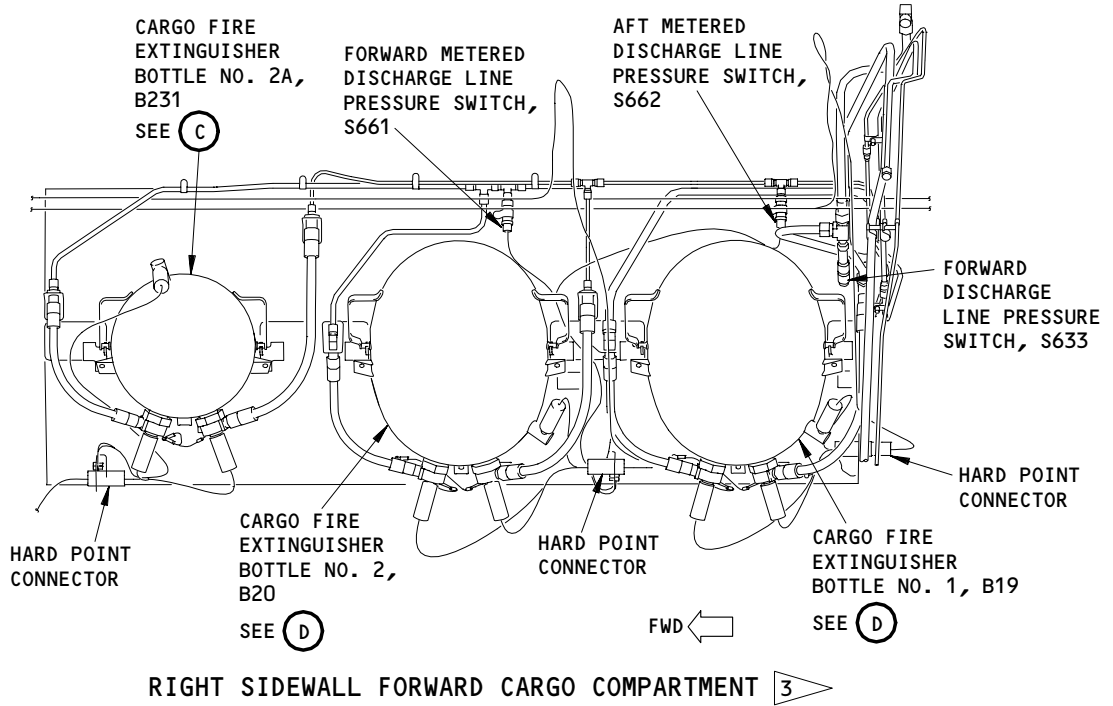
(B) 2

- 1 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHER BOTTLES
- 2 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHER BOTTLES

Cargo Compartment Fire Extinguishing System Adjustment  
Figure 501 (Sheet 1)

EFFECTIVITY	ALL
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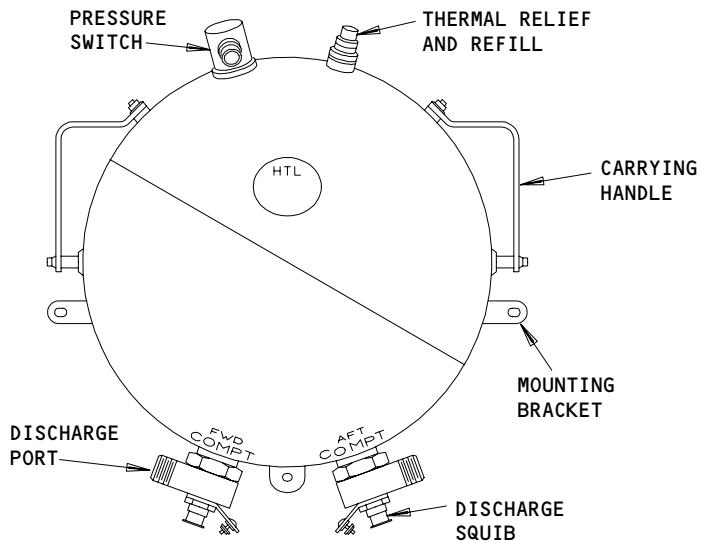


- 3 SAS 150-276;  
MTH ALL
- 4 SAS 050-149

**Cargo Compartment Fire Extinguishing System Adjustment  
Figure 501 (Sheet 2)**

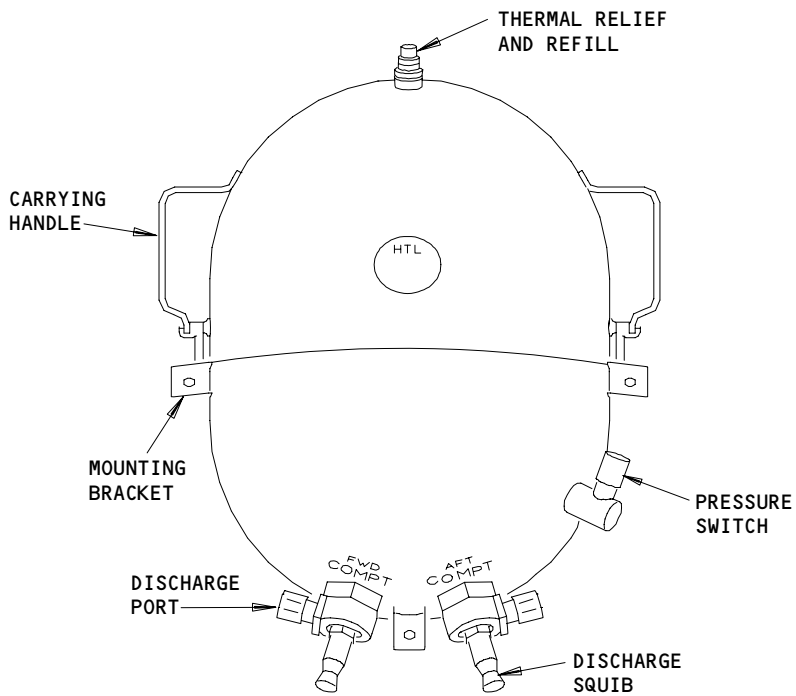
EFFECTIVITY	
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CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(C)



CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(D)

Cargo Compartment Fire Extinguishing System Adjustment  
Figure 501 (Sheet 3)

EFFECTIVITY	
	ALL

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S 865-436

- (2) Push and hold the manual override button on the connector cover of the pressure switch (D1448).
  - (a) Make sure the BTL DISCH light on the CARGO FIRE panel (P8) comes on (amber).
  - (b) Make sure the EICAS message, CARGO BTL 1, shows on the EICAS display.

S 865-437

- (3) Release the manual override button.
  - (a) Make sure the BTL DISCH light goes off.
  - (b) Make sure the EICAS message, CARGO BTL 1, does not show on the EICAS display.

E. AIRPLANES WITH FIRE BOTTLES WITH MANUAL-OVERRRIDE BUTTON ON THE PRESSURE SWITCH;

Do a Test of the Pressure Switch for Bottle 2

S 015-438

- (1) Get access to bottle 2 (B20) in the cargo compartment.

S 865-439

- (2) Push and hold the manual override button on the connector cover of the pressure switch.
  - (a) Make sure the BTL DISCH light on the cargo fire control panel (P8) comes on (amber).
  - (b) Make sure the EICAS message, CARGO BTL 2, shows on the EICAS display.

S 865-440

- (3) Release the manual override button.
  - (a) Make sure the BTL DISCH light goes off.
  - (b) Make sure the EICAS message, CARGO BTL 2, does not show on the EICAS display.

F. AIRPLANES WITH BOTTLE 2A INSTALLED AND AIRPLANES WITH FIRE BOTTLES WITH MANUAL-OVERRRIDE BUTTON ON THE PRESSURE SWITCH;

Do a Test of the Pressure Switch for Bottle 2A

S 015-441

- (1) Get access to bottle 2A (B231) in the cargo compartment.

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S 865-442

- (2) Push and hold the manual override button on the connector cover of the pressure switch.
  - (a) Make sure the BTL DISCH light on the CARGO FIRE panel (P8) comes on.
  - (b) Make sure the EICAS message, CARGO BTL 2, shows on the EICAS display.

S 865-443

- (3) Release the manual override button.
  - (a) Make sure the BTL DISCH light goes off.
  - (b) Make sure the EICAS message, CARGO BTL 2, does not show on the EICAS display.

S 865-444

- (4) Remove electrical power if it is not necessary (AMM 24-22-00/201).
- G. AIRPLANES WITH BOTTLE 2A INSTALLED AND AIRPLANES WITHOUT MANUAL-OVERRRIDE BUTTON ON THE PRESSURE SWITCH;  
Do a Test of the Pressure Switch for Bottle 2A

S 015-884

- (1) Get access to bottle 2A (B231) in the cargo compartment.

S 865-885

- (2) Remove the connector from the pressure switch.

S 865-886

- (3) Connect a jumper between pins 2 and 3 of the connector.
  - (a) Make sure that the DISCH light on the Cargo Fire Control Panel comes on.
  - (b) Make sure the EICAS message, CARGO BTL 2, shows on the EICAS display.

S 865-887

- (4) Remove the jumper.
  - (a) Make sure that the DISCH light on the Cargo Fire Control Panel goes off.

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(b) Make sure the EICAS message, CARGO BTL 2, does not show on the EICAS display.

S 865-888

(5) Install the connector on the pressure switch.

S 865-889

(6) Remove electrical power if it is not necessary (AMM 26-22-00/201).

TASK 26-23-00-715-445

3. Operational Test - Bottle Squib Circuit

A. References

(1) AMM 24-22-00/201, Electrical Power - Control

B. Access

(1) Location Zones  
211/212 Flight Compartment

C. Test of the Squib Test Circuit

S 865-446

(1) Supply electrical power (AMM 24-22-00/201).

S 865-447

(2) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).  
(a) Make sure all the CARGO squib lights on the SQUIB TEST panel come on (green).

S 865-448

(3) Release the TEST 1 switch.  
(a) Make sure the test lights go off.

S 865-449

(4) Push and hold the TEST 2 switch.  
(a) Make sure all the CARGO squib lights on the SQUIB TEST panel come on (green).

S 865-450

(5) Release the TEST 2 switch.  
(a) Make sure the test lights go off.

S 865-451

(6) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-23-00-735-452

4. System Test - Cargo Fire Extinguishing

A. General

(1) The system test has a test for each part of the fire extinguishing system in the cargo compartment. When you do the system test, it will make sure the system operates correctly.

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B. Equipment

- (1) Electrical Test Equipment - Bottle Squib, Fire Extinguisher System - A26001-187 (Recommended) (includes A26001-28 test box, usage placards and storage box)
- (2) Electrical test equipment - bottle, squib, fire extinguisher system - A26001-165 (Alternative)
- (3) Electrical test equipment - bottle, squib, fire extinguisher system - A26001-174 (Alternative)
- (4) Cable Assembly Adapter - See A26001-165 placards for P/N
- (5) Squib Protective Caps:

M83723/60-208-AN or AC (forward cap, preferred)

M83723/60-28-AN or AC (forward cap, alternate)

M83723/60-210-AN or AC (aft cap)

- (6) Resistor - 10 kohms or greater
- (7) Multimeter - 0-1000v dc +/- 1%, 0-750v ac, 0-2 amps, 0-2 meg ohms - Commercially available

C. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 31-41-00/501, EICAS
- (4) AMM 32-09-02/201, Air/Ground Relays

D. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 211/212 Flight Compartment
  - 820 Lower Half of Fuselage (Right)

E. Prepare for the Test

S 865-807

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-453

- (2) Supply electrical power (AMM 24-22-00/201).

S 865-454

- (3) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

EFFECTIVITY

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S 865-786

**WARNING:** PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR THE AIR MODE BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. IN THE AIR MODE, MANY OF THE THE AIRPLANE SYSTEMS CAN OPERATE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Prepare the safety-sensitive systems for air mode simulation (AMM 32-09-02/201).

S 865-455

- (5) Open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tags:  
(a) 11U23, LGD GR POS AIR/GND SYS 2

S 015-456

- (6) Get access to the lower cargo compartment.

S 035-457

- (7) Disconnect these connectors in Table 501:

TABLE 501 - CARGO FIRE BOTTLE CONNECTION	
Connector	Bottle Connected to:
D1440 (Yellow)	B19, Bottle 1 - Fwd Cargo Discharge Squib
D1442 (Blue)	B19, Bottle 1 - Aft Cargo Discharge Squib
D1450 (Yellow)	B20, Bottle 2 - Fwd Cargo Discharge Squib
D1452 (Blue)	B20, Bottle 2 - Aft Cargo Discharge Squib
D10680(Yellow)	B231, Bottle 2A - Fwd Cargo Discharge Squib *[1]
D10682(Blue)	B231, Bottle 2A - Aft Cargo Discharge Squib *[1]

\*[1] AIRPLANES WITH BOTTLE 2A INSTALLED

S 435-458

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE THEIR CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (8) Put the protective caps on all the fire bottle squibs.

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S 865-459

**WARNING:** DO NOT INSTALL THE ELECTRICAL CONNECTORS TO THE SQUIBS DURING THE TEST IF THERE IS VOLTAGE AT THE CONNECTOR PINS. INJURY TO PERSONS CAN OCCUR IF THE SQUIB IS ACCIDENTALLY FIRED AND THE BOTTLE RELEASES ITS CONTENTS.

- (9) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 865-460

- (10) Push the CARGO test lights on the SQUIB TEST panel (P61).
- (a) Make sure the lights come on (green).

S 755-461

- (11) Make sure EICAS operates (AMM 31-41-00/501).

S 915-804

- (12) Do the Cargo Fire Extinguisher Discharge Circuit Test (AMM 26-23-01/601).

F. ON 767-300 AIRPLANES WITH BOTTLE 2A INSTALLED;  
Test of the Time Delay Relay for Bottle 2A

S 865-538

**CAUTION:** DO THE DEACTIVATION PROCEDURE FOR FLIGHT MODE SIMULATION BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. WHEN YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS, THE AIRPLANE IS IN THE FLIGHT MODE. IN THE FLIGHT MODE, MANY OF THE AIRPLANE SYSTEMS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Prepare the safety-sensitive systems for air mode simulation (AMM 32-09-02/201).

S 865-753

- (2) Put the air/ground relay system in the air mode (AMM 32-09-02/201).

S 435-539

- (3) Connect the FWD squib connector (yellow), D10680, to the squib circuit test box.

S 865-540

- (4) Push the FWD ARMED switch.
- (a) Make sure ARMED shows.

S 865-541

- (5) Set the LOAD CHECK switch on the squib circuit test box to ON.

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S 865-542

- (6) Push and release the BTL DISCH switch to operate the time delay relay.
- (a) After 27-33 minutes, make sure the multimeter attached to the squib circuit test box shows a minimum of 19 volts.

NOTE: The voltage must be monitored continuously after the BTL DISCH switch is pressed to make sure that the voltage is 19 volts after 27-33 minutes.

S 865-543

- (7) Push the FWD ARMED switch.
- (a) Make sure ARMED does not show.
- (b) Make sure the multimeter shows 0 volts.

S 865-544

- (8) Set the LOAD CHECK switch on the squib test box to OFF.

S 035-545

- (9) Disconnect the FWD squib connector, D10680, from the squib circuit test box.

S 435-546

- (10) Connect the AFT squib connector, (blue), D10682 to the squib circuit test box.

S 865-547

- (11) Push the AFT ARMED switch.
- (a) Make sure ARMED shows.

S 865-548

- (12) Set the LOAD CHECK switch on the squib circuit test box to ON.

S 865-549

- (13) Push and release the BTL DISCH switch to operate the time delay relay.
- (a) After 27-33 minutes, make sure the multimeter attached to the squib circuit test box shows a minimum of 19 volts.

NOTE: The voltage must be monitored continuously after the BTL DISCH switch is pressed to make sure that the voltage is 19 volts after 27-33 minutes.

S 865-550

- (14) Push the AFT ARMED switch.
- (a) Make sure ARMED does not show.

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S 865-864

- (15) Open then close the following circuit breaker:  
(a) 6H6, Fire Extinguishing Cargo Btl 2

S 865-867

- (16) Make sure the multimeter shows 0 volts.

S 865-551

- (17) Set the LOAD CHECK switch on the squib circuit test box to OFF.

S 035-552

- (18) Disconnect the AFT squib connector, D10682, from the squib circuit test box.

- G. ON 767-300 AIRPLANES;  
Test of the Time Delay Relay for Bottle 2

S 865-846

**CAUTION:** DO THE DEACTIVATION PROCEDURE FOR FLIGHT MODE SIMULATION BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. WHEN YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS, THE AIRPLANE IS IN THE FLIGHT MODE. IN THE FLIGHT MODE, MANY OF THE AIRPLANE SYSTEMS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Prepare the safety-sensitive systems for air mode simulation (AMM 32-09-02/201).

S 865-847

- (2) Put the air/ground relay system in the air mode (AMM 32-09-02/201).

S 435-848

- (3) Connect the FWD squib connector (yellow), D1450, to the squib circuit test box.

S 865-850

- (4) Push the FWD ARMED switch.  
(a) Make sure ARMED shows.

S 865-851

- (5) Set the LOAD CHECK switch on the squib circuit test box to ON.

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S 865-852

- (6) Push and release the BTL DISCH switch to operate the time delay relay.
- (a) After 27-33 minutes, make sure the multimeter attached to the squib circuit test box shows a minimum of 19 volts.

NOTE: The voltage must be monitored continuously after the BTL DISCH switch is pressed to make sure that the voltage is 19 volts after 27-33 minutes.

S 865-853

- (7) Push the FWD ARMED switch.
- (a) Make sure ARMED does not show.
- (b) Make sure the multimeter shows 0 volts.

S 865-854

- (8) Set the LOAD CHECK switch on the squib test box to OFF.

S 035-855

- (9) Disconnect the FWD squib connector, D1450, from the squib circuit test box.

S 435-856

- (10) Connect the AFT squib connector, (blue), D1452 to the squib circuit test box.

S 865-858

- (11) Push the AFT ARMED switch.
- (a) Make sure ARMED shows.

S 865-859

- (12) Set the LOAD CHECK switch on the squib circuit test box to ON.

S 865-860

- (13) Push and release the BTL DISCH switch to operate the time delay relay.
- (a) After 27-33 minutes, make sure the multimeter attached to the squib circuit test box shows a minimum of 19 volts.

NOTE: The voltage must be monitored continuously after the BTL DISCH switch is pressed to make sure that the voltage is 19 volts after 27-33 minutes.

S 865-861

- (14) Push the AFT ARMED switch.
- (a) Make sure ARMED does not show.

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S 865-865

- (15) Open and attach a DO-NOT-CLOSE tag to the following circuit breakers:
- (a) 6H5, Fire Extinguishing Cargo Btl 1
  - (b) 6H6, Fire Extinguishing Cargo Btl 2

S 865-866

- (16) Make sure the multimeter shows 0 volts.

S 865-862

- (17) Set the LOAD CHECK switch on the squib circuit test box to OFF.

S 035-863

- (18) Disconnect the AFT squib connector, D1452, from the squib circuit test box.

#### H. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 865-808

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 865-553

- (2) Do the steps that follow to connect an electrical connector to a fire bottle squib.
- (a) Open and attach a DO-NOT-CLOSE tag to these circuit breakers, on the P6 panel:
    - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
    - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
  - (b) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

- (c) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

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- (d) If there is voltage between pins 1 and 2, do these steps:
  - 1) Connect the multimeter across pins 1 and 2.
  - 2) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - 3) Disconnect the multimeter.
- (e) Connect the electrical connector to the fire bottle squib.
- (f) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 915-800

- (3) Do the Squib Test Panel Test (AMM 26-23-01/601).

S 865-801

- (4) Put the Airplane Back to Its Usual Condition

S 865-573

- (5) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-23-00-735-574

5. System Test - Nonmetered Fire Extinguisher Discharge Lines

A. Equipment

- (1) Pneumatic Air Source (capable of supplying 50 psig minimum dry air) (For checking discharge line pressure switch).
- (2) Torque Wrench - commercially available with a range of 200-400 pound-inches
- (3) Plug, Discharge Nozzle (3) - A26004-2

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control
- (2) AMM 31-41-00/501, EICAS

C. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 211/212 Flight Compartment
  - 820 Lower Half of Fuselage (Right)

D. Test of the Forward Nonmetered Discharge Line (Fig. 502)

S 865-575

- (1) Supply electrical power (AMM 24-22-00/201).

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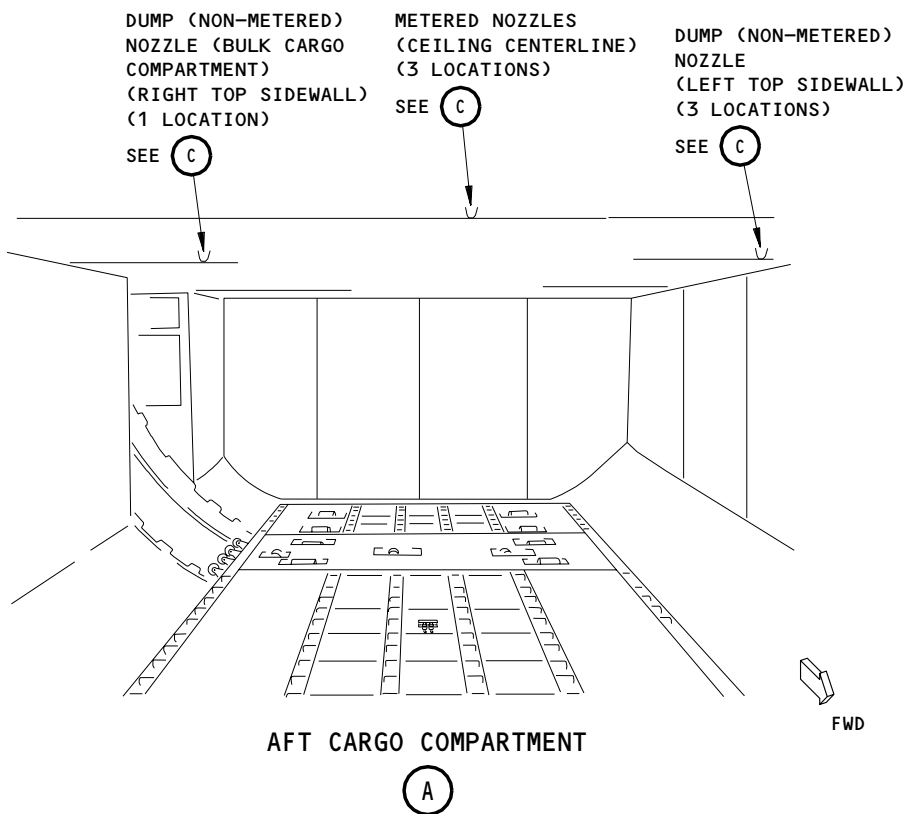
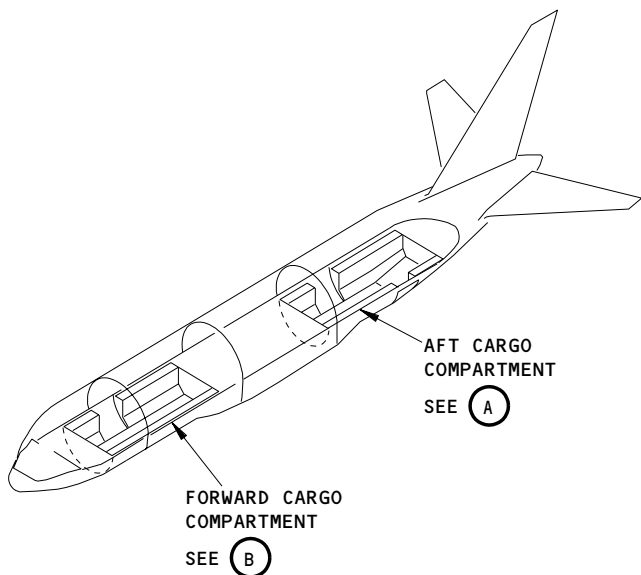
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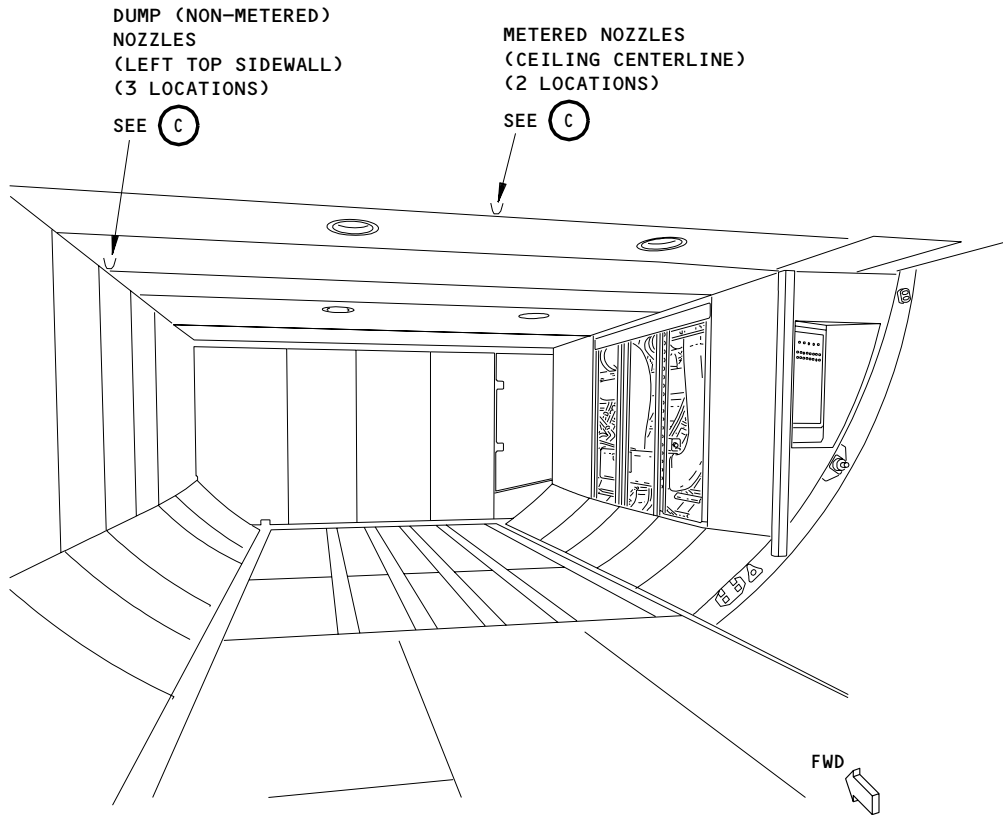


Nozzle Locations  
Figure 502 (Sheet 1)

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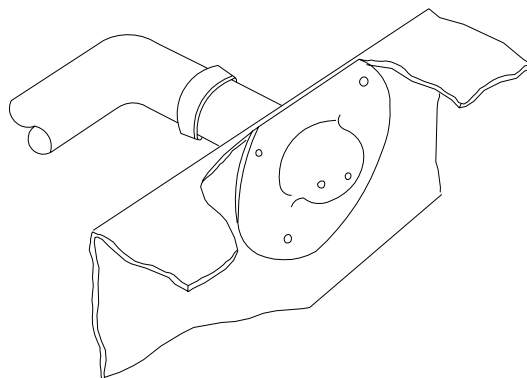
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FORWARD CARGO COMPARTMENT

(B)



NOZZLE (EXAMPLE)

(C)

Nozzle Locations  
Figure 502 (Sheet 2)

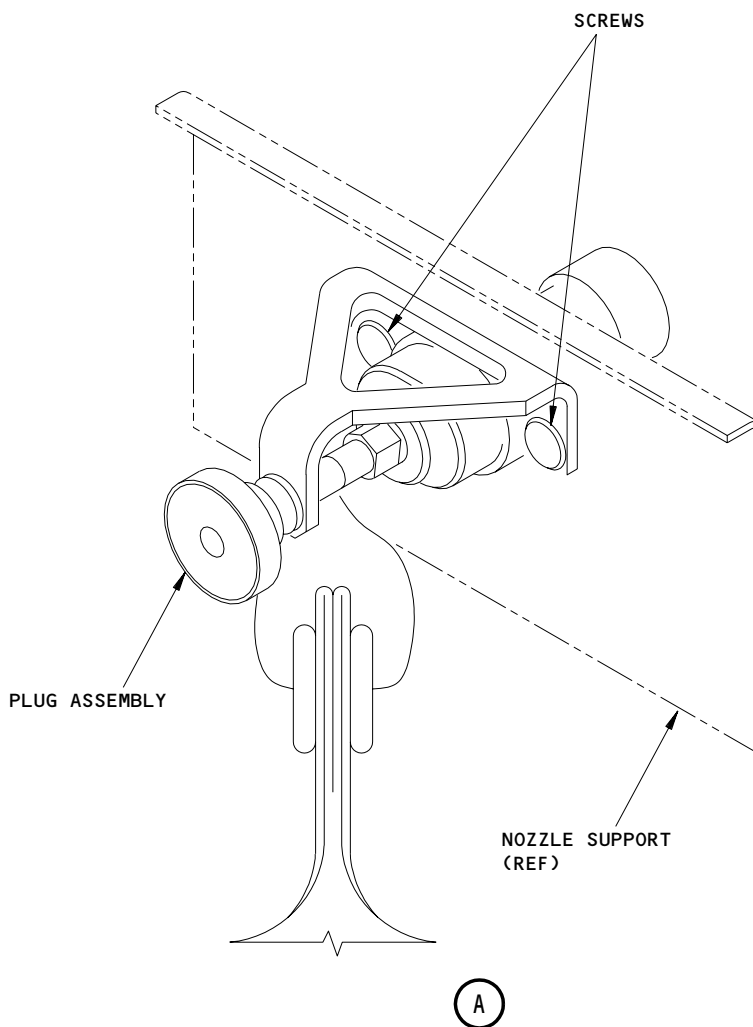
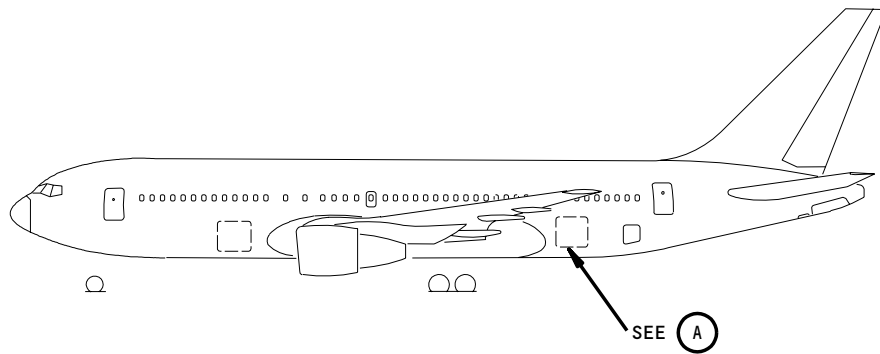
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Nozzle Plug Assembly  
Figure 503

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S 035-576

- (2) Disconnect the forward discharge hose at the FWD discharge port of bottle 1 (B19).

NOTE: Only disconnect the hose from the bottle discharge outlet. Do not disconnect or loosen the connection between the hose and the tube fittings.

S 435-577

- (3) Install a protective cap on the FWD discharge port of bottle 1 (B19).

S 435-578

CAUTION: APPLY PRESSURE TO THE TUBES. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO THE DISCHARGE PORTS CAN OCCUR.

- (4) Connect the dry air source to the forward discharge hose of bottle 1 (B19). Use an applicable connector.

S 785-871

CAUTION: DO NOT APPLY MORE THAN 50 PSIG TO THE DISCHARGE LINE. DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Apply pressure to the distribution line.

S 825-580

- (6) Adjust the pressure to measure from 30 to 50 psig.  
(a) Make sure the air flows freely from the nozzles in the sidewalls of the forward cargo compartment adjacent to the ceiling.

NOTE: There are three non-metered (dump) nozzles found in the left hand top sidewall of the cargo compartment. Note the locations of each of these nozzles for later installation of nozzle plugs.

- (b) Make sure no air flows through the nozzles in the aft cargo compartment.

S 785-581

- (7) Decrease the pressure to zero.

S 865-582

- (8) Loosen the two screws that attach the nozzle assembly to give sufficient access to install the plug assembly.

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S 435-879

- (9) Install the plug assembly on the nozzle.

S 435-880

- (10) Tighten the screws to seal the plug assembly on the nozzle.

S 435-583

- (11) Install the nozzle plugs on the nozzles in the sidewalls of the forward cargo compartment, adjacent to the ceiling.

S 785-873

**CAUTION:** DO NOT APPLY MORE THAN 50 PSIG TO THE DISCHARGE LINE. DAMAGE TO EQUIPMENT CAN OCCUR.

- (12) Apply pressure to the distribution line.

- (a) Increase the pressure until the BTL DISCH light on the CARGO FIRE panel (P8), comes on.
- (b) Make sure CARGO BTL 1 shows on the top EICAS display.
- (c) Make sure CARGO BTL 2 does not show on the EICAS display.
- (d) Make sure the pressure applied to the tubing is less than 35 psig.

S 785-584

- (13) Increase the pressure on the tubing to 50 psig.

S 785-585

- (14) Stop the dry air source.

- (a) After two minutes, make sure the pressure is not less than 40 psig.

S 785-586

- (15) Release the pressure from the tubing to the forward cargo compartment.

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- S 875-587  
(16) Bleed the remaining pressure.
- S 035-588  
(17) Remove the nozzle plugs from the distribution nozzles.
- S 035-590  
(18) Remove the dry air source from the forward discharge hose of bottle 1 (B19).
- S 865-591  
(19) Make sure the red reset button on the pressure switch (S633) of the discharge line is extended.
- S 865-592  
(20) Push the red reset button on the pressure switch (S633) of the discharge line.  
(a) Make sure these indications occur:  
1) The BTL DISCH light on the CARGO FIRE panel (P8) goes off.  
2) The CARGO BTL 1 does not show on the top EICAS display.
- S 035-593  
(21) Remove the protective cap from the FWD discharge port of bottle 1 (B19).
- S 435-594  
(22) Connect the discharge hose to the FWD discharge port of bottle 1 (B19). Tighten to 280 pound-inches.
- E. Do a Test of the Aft Nonmetered Discharge Line (Fig. 502)
- S 035-595  
(1) Disconnect the discharge hose at the AFT discharge port of bottle 1 (B19).
- NOTE:** Disconnect the hose from the bottle discharge outlet. Do not disconnect or loosen the connection between the hose and the tube fittings.

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S 395-596

- (2) Install a protective cap on the AFT discharge port of bottle 1 (B19).

S 435-597

**CAUTION:** APPLY PRESSURE ONLY TO THE TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO THE DISCHARGE PORTS CAN OCCUR.

- (3) Connect the dry air source to the aft discharge hose. Use an applicable connector.

S 785-598

- (4) Apply pressure to the distribution line.

S 865-599

- (5) Apply pressure of 50 psig to the tubing.
- (a) Make sure CARGO BTL 1 does not show on the top EICAS display.
  - (b) Make sure CARGO BTL 2 does not show on the top EICAS display.
  - (c) Make sure the air flows freely from the distribution nozzles in the sidewall of the aft cargo compartment adjacent to the ceiling.

**NOTE:** There are three non-metered (dump) nozzles found in the left hand top sidewall of the cargo compartment. There is one non-metered (dump) nozzle on the right hand top sidewall in the bulk cargo compartment. Note the locations of each of these nozzles for later installation of nozzle plugs.

- (d) Make sure no air flows through the nozzles in the forward cargo compartment.

S 785-600

- (6) Decrease the pressure to zero.

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- S 865-881
- (7) Loosen the two screws that attach the nozzle assembly to give sufficient access to install the plug assembly.
- S 435-882
- (8) Install the plug assembly on the nozzle.
- S 435-883
- (9) Tighten the screws to seal the plug assembly on the nozzle.
- S 435-601
- (10) Install the nozzle plugs on the nozzles in the sidewall of the cargo compartment, adjacent to the ceiling.
- S 785-602
- (11) Apply 50 psig of pressure to the tubing.
- S 785-603
- (12) Stop the dry air source.
- (a) After two minutes, make sure the pressure is not less than 40 psig.
- S 785-604
- (13) Release the pressure from the tubing for the aft cargo compartment.
- S 395-605
- (14) Bleed the remaining pressure.
- S 035-606
- (15) Remove the nozzle plugs from the distribution nozzles.
- S 035-608
- (16) Remove the dry air source from the aft discharge hose of bottle 1 (B19).

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S 035-609

- (17) Remove the protective cap from the AFT discharge port of bottle 1 (B19).

S 435-610

- (18) Connect the discharge hose to the AFT discharge port of bottle 1 (B19). Tighten to 280 pound-inches.

S 865-611

- (19) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-23-00-735-612

6. System Test - Metered Fire Extinguisher Discharge Lines

A. Equipment

- (1) Torque Wrench - commercially available with a range of 130-400 pound-inches  
(2) Pressure Seal Cap (2) - MS21914-10  
(3) Gage 0-200 psig (certified) divided by 1 psig minimum with precision of 0.25% (commercially available).  
Gage is part of Regulator Test Equipment  
A26003-7  
(4) Gage 0-400 psig (certified, commercially available).  
(5) Regulated source of dry nitrogen - (approximately 400 psi)  
(6) Regulator Test Equipment - A26003-7 or A26003-10  
(7) Nozzle pressure caps (3)  
(a) Flared fitting - AN929-4  
(b) Flareless fitting - AS5233V04

B. References

- (1) AMM 24-22-00/201, Electrical Power - Control  
(2) AMM 31-41-00/501, EICAS

C. Access

- (1) Location Zones  
121/122 Forward Cargo Compartment  
211/212 Flight Compartment  
820 Lower Half of Fuselage (Right)

D. Test of the Forward Metered Discharge Line (Fig. 502)

S 865-613

- (1) Supply electrical power (AMM 24-22-00/201).

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S 015-614

- (2) Get access to the rear of the first nozzle in the forward cargo compartment.
- (a) Remove the cargo lining. (You will find the nozzle in the center of the ceiling, 10 feet forward of the forward cargo door.)

NOTE: There are two metered nozzles in the forward cargo compartment. The metered nozzles are both along the ceiling centerline. The forward nozzle is at Station 423, approximately 10 feet forward of the forward cargo door.

- (b) Hold the rear of the nozzle to make sure the B-nut does not come loose.
- (c) Remove the jam nut from the front of the halon distribution panel.
- (d) Seal the nozzle with a nozzle pressure cap.

S 015-615

- (3) Get access to the rear of the next nozzle in the forward cargo compartment.
- (a) Remove the cargo lining. (You will find the nozzle 18 feet aft of the first nozzle).

NOTE: There are two metered nozzles in the forward cargo compartment. The metered nozzles are both along the ceiling centerline. The aft nozzle is at Station 643, approximately 18 feet aft of the forward nozzle.

- (b) Hold the rear of the nozzle to make sure the B-nut does not come loose.
- (c) Remove the jam nut from the front of the halon distribution panel.
- (d) Remove the nozzle.

S 485-616

- (4) Install the nozzle on the end of the regulator test fixture.

S 485-617

- (5) Install the regulator test fixture and the gage.

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S 025-787

- (6) Disconnect the forward metered discharge hoses.

**NOTE:** Disconnect the hose from the bottle discharge outlet. Do not disconnect or loosen the connection between the hose and the tube fittings.

- (a) Disconnect the forward discharge hose from the FWD discharge port of bottle 2 (B20).  
(b) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Disconnect the forward discharge hose from the FWD discharge port of bottle 2A (B231).

S 435-768

- (7) Install protective caps on the FWD discharge ports of bottle 2 (B20) and bottle 2A (B231) as applicable.

S 435-620

- (8) Connect the dry nitrogen source to the forward metered discharge hose of bottle 2 (B20). Use an applicable connector.

**NOTE:** If there is not a pressure gage on the source, you must install the 0-400 psi pressure gage between the source and the discharge line.

S 785-773

- (9) AIRPLANES WITH THREE CARGO FIRE EXTINGUISHER BOTTLES INSTALLED;  
Make sure the forward discharge lines for bottle 2 and 2A are connected together.

**CAUTION:** APPLY PRESSURE ONLY TO THE TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO THE DISCHARGE PORTS CAN OCCUR.

- (a) Apply 50 psig of pressure to the distribution line of the forward cargo compartment.

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- (b) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Make sure the nitrogen flows from the forward metered discharge hose of bottle 2A (B231).
- (c) Stop the pressurization.
- (d) Install a pressure seal cap on the forward metered discharge hose of bottle 2A (B231). Use an applicable cap.

S 785-624

**CAUTION:** APPLY PRESSURE ONLY TO TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO DISCHARGE PORTS MAY OCCUR.

- (10) Apply 280  $\pm$ 20 psig of pressure to the tubing that goes to the forward cargo compartment.
  - (a) Make sure there are no leaks in the connections.

S 785-625

- (11) Make sure the downstream pressure on the test gage is 102  $\pm$ 6 psig.

S 785-626

- (12) Stop the pressurization.

S 035-627

- (13) Remove the regulator test fixture and the gage.

S 435-628

- (14) Install the nozzle.

S 395-629

- (15) Seal the nozzle with a nozzle pressure cap.

**NOTE:** Always hold the rear of the nozzle to make sure the B-nut does not come loose. Torque and seal the joint after you install nozzles, caps, or jam nuts.

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S 725-759

- (16) Make sure the discharge switches in the forward metered discharge lines operate correctly.
- (a) Make sure the red reset button on the pressure switch (S661) on the discharge line is not extended.
  - (b) If the button is extended, reset it.
  - (c) Apply pressure to the tubing that goes to the forward cargo compartment.
  - (d) Increase the pressure until the BTL DISCH light on the CARGO FIRE panel (P8) comes on.
    - 1) Make sure these indications occur:
      - a) The EICAS message, CARGO BTL 1, does not show on the top EICAS display.
      - b) The EICAS message, CARGO BTL 2, shows on the top EICAS display.
  - (e) Make sure the pressure that comes into the tubing measures less than 350 psig.

S 795-760

- (17) Make sure the forward metered discharge line does not leak.
- (a) Adjust the pressure to 350 psig.
  - (b) Close the nitrogen supply valve to keep the air in the tubing.
  - (c) After 10 minutes, make sure the pressure is not less than 348 psig.

S 875-761

- (18) Remove the pressure from the tubing of the forward metered discharge line.

S 875-762

- (19) Bleed the remaining pressure.

S 035-775

- (20) Remove all the pressure caps from the nozzles.

**NOTE:** Make sure that the nozzle pressure caps are removed from the airplane. These parts are small and are easily left on the airplane before flight.

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S 415-776

- (21) Install the jam nuts.

**NOTE:** Always hold the rear of the nozzle to make sure the B-nut does not come loose. Torque and jam nut to 150 inch-pound. Torque stripe (torque seal) the jam nut.

S 785-777

- (22) Adjust the pressure to 350 psig.
- (a) Make sure nitrogen flows freely from each of the distribution nozzles (2) in the forward cargo compartment ceiling.
  - (b) Make sure no nitrogen flows through the nozzles in the aft cargo compartment.

S 785-641

- (23) Stop the pressurization.

S 035-642

- (24) Remove the dry nitrogen source from the forward discharge hose.

S 865-643

- (25) Make sure the red reset button on the discharge line pressure switch (S661) is extended.

S 865-644

- (26) Push the red reset button on the pressure switch (S661) on the discharge line.
- (a) Make sure these indications occur:
    - 1) The BTL DISCH light, on the APU/CARGO FIRE control panel (P8) goes off.
    - 2) The EICAS message, CARGO BTL 2, does not show on the top display.

S 435-701

- (27) Connect bottle 2 to the forward discharge hose.
- (a) Remove the protective cap from the FWD discharge port of bottle 2 (B20).

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- (b) Connect the forward discharge hose to the FWD discharge port of bottle 2 (B20). Tighten to 280 pound-inches.

S 435-704

(28) AIRPLANES WITH BOTTLE 2A INSTALLED;

Connect bottle 2A to the forward discharge hose.

- (a) Remove the protective cap from the FWD discharge port of bottle 2A (B231).
- (b) Remove the pressure seal cap from the forward metered discharge hose of bottle 2A (B231).
- (c) Connect the forward discharge hose to the FWD discharge port of bottle 2A (B231). Tighten to 280 pound-inches.

E. Do a Test of the Aft Metered Discharge Line (Fig. 502)

S 015-650

(1) Get access to the rear of the metered nozzle in the aft cargo compartment.

- (a) Remove the cargo lining. (You will find the nozzle in the center of the ceiling, 11 feet forward of the aft cargo door.)

NOTE: There are three metered nozzles in the aft cargo compartment. The metered nozzles are all along the ceiling centerline. The forwardmost nozzle is at Station 1142, approximately 11 feet forward of the aft cargo door.

- (b) Hold the rear of the nozzle to make sure the B-nut will not come loose.
- (c) Remove the jam nut from the front of the halon distribution panel.

S 395-651

(2) Seal the nozzle with a nozzle pressure cap.

S 015-652

(3) Get access to the rear of the metered nozzle in the bulk cargo compartment.

- (a) Remove the cargo lining. (You will find the nozzle in the center of the ceiling, 9 feet aft of the aft cargo door.)

NOTE: There are three metered nozzles in the aft cargo compartment. The metered nozzles are all along the ceiling centerline. The aftmost nozzle is in the bulk cargo compartment at Station 1440, approximately 9 feet aft of the aft cargo door.

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(b) Hold the rear of the nozzle to make sure the B-nut does not come loose.

S 035-653

(4) Remove the jam nut from the front of the halon distribution panel.

S 395-654

(5) Seal the nozzle with a nozzle pressure cap.

S 015-655

(6) Get access to the rear of the metered nozzle in the aft cargo compartment.

(a) Remove the cargo lining. (You will find the nozzle in the center of the ceiling, 2 feet forward of the aft cargo door.)

NOTE: There are three metered nozzles in the aft cargo compartment. The metered nozzles are all along the ceiling centerline. The middle nozzle at Station 1251, approximately 2 feet forward of the aft cargo door.

(b) Hold the rear of the nozzle to make sure the B-nut does not come loose.

S 035-656

(7) Remove the jam nut from the front of the halon distribution panel.

S 435-657

(8) Remove the nozzle.

S 435-658

(9) Install the nozzle on the end of the regulator test fixture.

S 435-659

(10) Install the regulator test fixture and the gage.

S 035-660

(11) Disconnect the aft discharge hose from the AFT discharge port of bottle 2 (B20).

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S 035-706

- (12) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Disconnect the aft discharge hose from the AFT discharge port of bottle 2A (B231).

S 395-662

- (13) Install protective caps on the AFT discharge ports of bottle 2 and bottle 2A.

S 435-663

- (14) Connect the dry nitrogen source to the discharge hose of bottle 2 that goes to the aft cargo compartment.

S 735-752

- (15) AIRPLANES WITH THREE BOTTLES INSTALLED;  
Make sure that the bottle 2 and bottle 2A aft discharge lines are connected together.

**CAUTION:** APPLY PRESSURE ONLY TO TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO DISCHARGE PORTS MAY OCCUR.

- (a) Apply 50 psig of pressure.  
1) Make sure the air flows from the flex hose of bottle 2A.  
(b) Stop the nitrogen flow.  
(c) Seal the flex hose with a pressure seal cap.

S 785-667

**CAUTION:** APPLY PRESSURE ONLY TO TUBING. DO NOT PRESSURIZE THE FIRE BOTTLES. DAMAGE TO DISCHARGE PORTS MAY OCCUR.

- (16) Apply 280  $\pm$ 20 psig of pressure to the tubing that goes to the aft cargo compartment.  
(a) Make sure there are no leaks in the connections.

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(b) Make sure the downstream pressure on the test gage is  $102 \pm 6$  psig.

S 785-669

(17) Stop the pressurization.

S 035-670

(18) Remove the regulator test fixture and the gage.

S 435-671

(19) Install the nozzle on the nozzle tubing outlet.

S 395-672

(20) Seal the nozzle with a nozzle pressure cap.

**NOTE:** Always support the rear of the nozzle to make sure the B-nut not come loose. Torque and seal the joint after you install any nozzle, caps, or jam nuts.

S 725-758

(21) Make sure the discharge switches in the aft metered discharge lines operate correctly.

(a) Make sure the red reset button on the pressure switch (S662) on the discharge line is not extended.

**NOTE:** If the button is extended, reset it.

(b) Apply pressure to the tubing that goes to the aft cargo compartment.

(c) Increase the pressure until the BTL DISCH light on the CARGO FIRE panel (P8) comes on.

1) Make sure these indications occur:

a) The EICAS message, CARGO BTL 1, does not show on the top EICAS display.

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- b) The EICAS message, CARGO BTL 2, shows on the top EICAS display.
- 2) Make sure the pressure that goes into the tubing is less than 350 psig.

S 795-755

- (22) Make sure the aft metered discharge line does not leak.
  - (a) Adjust the pressure to 350 psig.
  - (b) Close the nitrogen supply valve to keep the air in the tubing.
  - (c) After 10 minutes, make sure the pressure is not less than 348 psig.

S 945-756

- (23) Remove the pressure in the tubing of the aft metered discharge line.

S 025-788

- (24) Bleed the remaining pressure.

S 025-789

- (25) Remove all the pressure caps from the nozzles.

**NOTE:** Make sure that the nozzle pressure caps are removed from the airplane. These parts are small and are easily left on the airplane before flight.

S 425-790

- (26) Install the jam nuts.

**NOTE:** Always hold the rear of the nozzle to make sure the B-nut does not come loose. Torque the jam nut to 150 inch-pound. Torque stripe (torque seal) the jam nut.

S 785-683

- (27) Adjust the pressure to 350 psig.
  - (a) Make sure the nitrogen flows freely from each of the distribution nozzles (3) in the aft cargo compartment ceiling panels.
  - (b) Make sure there is no nitrogen flow through the nozzles in the forward cargo compartment.

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- S 785-686  
(28) Stop the pressurization.
- S 035-687  
(29) Remove the dry nitrogen source from the aft metered discharge hose.
- S 865-688  
(30) Make sure the red reset button on the discharge line pressure switch (S662) is extended.
- S 865-689  
(31) Push the red reset button on the pressure switch (S662) on the discharge line.  
(a) Make sure the BTL DISCH light on the CARGO FIRE panel goes off.  
(b) Make sure CARGO BTL 2 does not show on the top EICAS display.
- S 435-778  
(32) Connect bottle 2 to the aft discharge hose.  
(a) Remove the protective cap from the discharge port on bottle 2 (B20).  
(b) Connect the aft discharge hose to the AFT discharge port of bottle 2 (B20). Tighten to 280 pound-inches.
- S 435-781  
(33) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Connect bottle 2A to the aft discharge hose.  
(a) Remove the protective cap from the aft discharge port of bottle 2A (B231).  
(b) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Do the steps that follow:  
1) Remove the nozzle pressure cap from the aft metered discharge hose of bottle 2A (B231).  
2) Connect the aft discharge hose to the AFT discharge port of bottle 2A (B231). Tighten to 280 pound-inches.

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S 865-694  
(34) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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CARGO FIRE EXTINGUISHING ARMED SWITCHES – INSPECTION/CHECK

1. General

- A. This procedure contains a task which tests to make sure the cargo fire armed switches and the firing circuit work correctly.

TASK 26-23-01-706-038

2. Cargo Fire Extinguishing Armed Switch Activation Check (Fig. 601)

A. Equipment

- (1) Electrical Test Equipment – Bottle Squib, Fire Extinguisher System – A26001-174 (Alternative) or A26001-187 (Recommended)
- (2) Electrical test equipment – bottle squib, fire extinguisher system – A26001-165 (Alternative)
- (3) Squib Protective Caps  
M83723/60-208-AN or AC  
M83723/60-210-AN or AC
- (4) Resistor -- 10 kohms or greater
- (5) Multimeter 0-1000 VDC  $\pm$  1%, 0-750 VAC 0-2 AMPS, 0-2, Meg Ohms (Commercially available).

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power – Control
- (3) AMM 27-51-00/201, Flaps
- (4) AMM 25-52-01/401, Sidewall Lining
- (5) AMM 31-41-00/201, EICAS
- (6) AMM 32-09-02/201, Air/Ground Relays

C. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 211/212 Flight Compartment
- (2) Access Panels
  - 821 Forward Cargo Door
  - 831 Forward Entry Door
  - 193NL Environmental Control System (ECS) Bay
  - 194LR Environmental Control System (ECS) Bay

D. Prepare for the Test

S 866-181

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

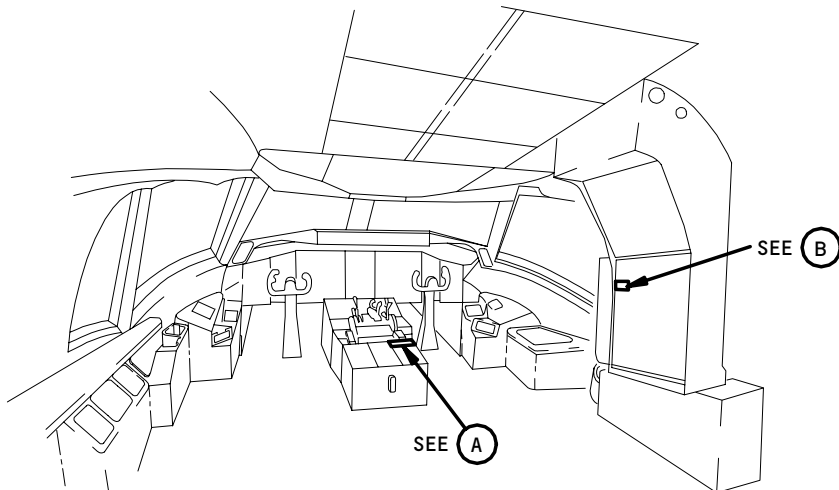
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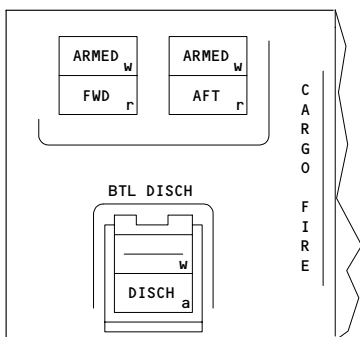
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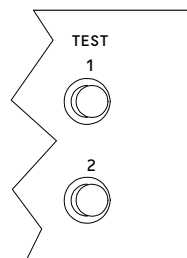
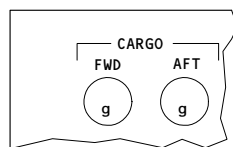


FLIGHT COMPARTMENT



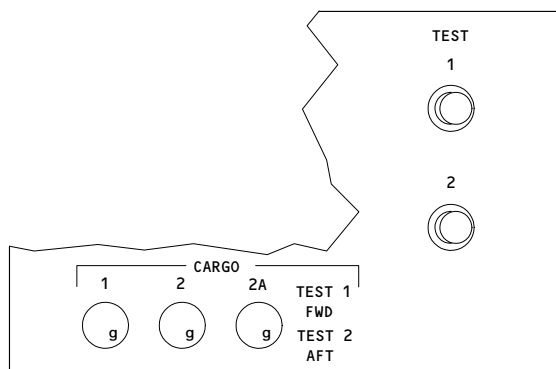
APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

(B) 2

- 1 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHER BOTTLES
- 2 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHER BOTTLES

Cargo Fire Extinguishing Armed Switches - Inspection/Check  
Figure 601 (Sheet 1)

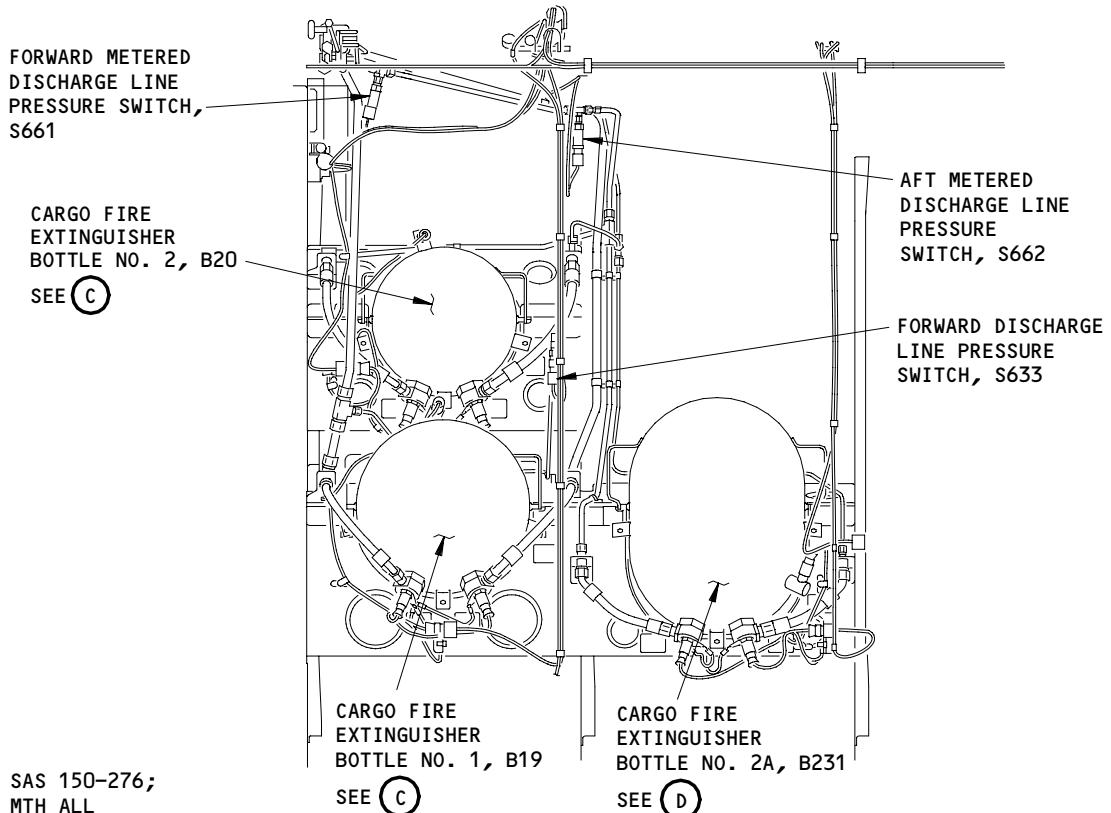
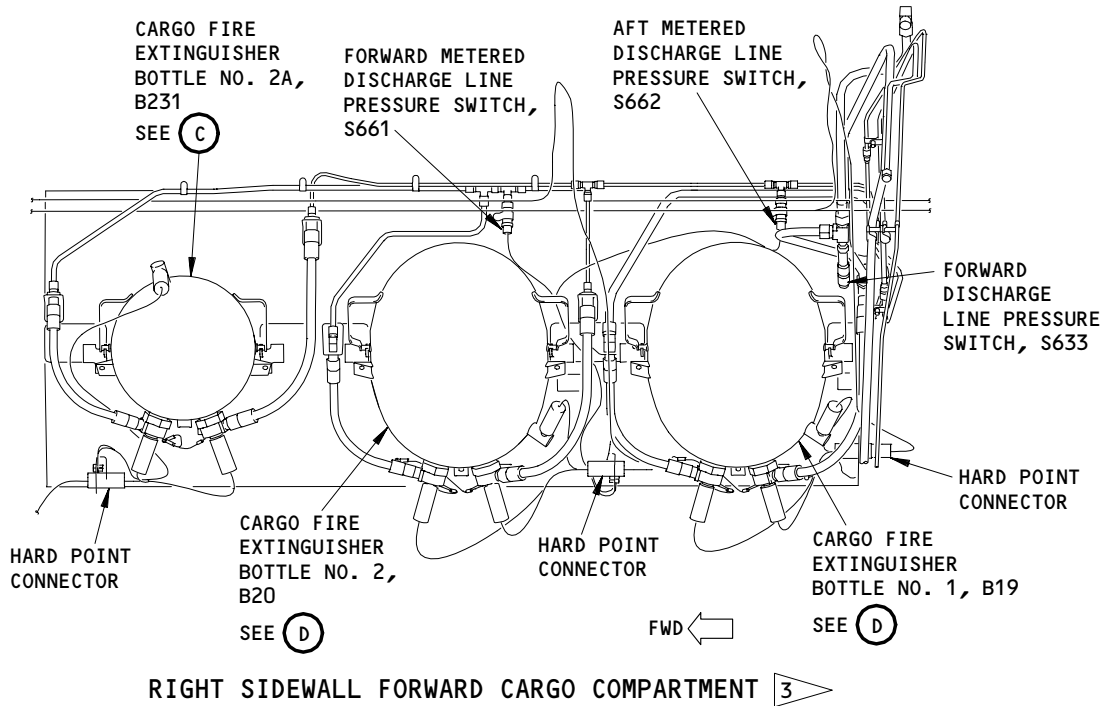
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▶ 3 SAS 150-276;  
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▶ 4 SAS 050-149

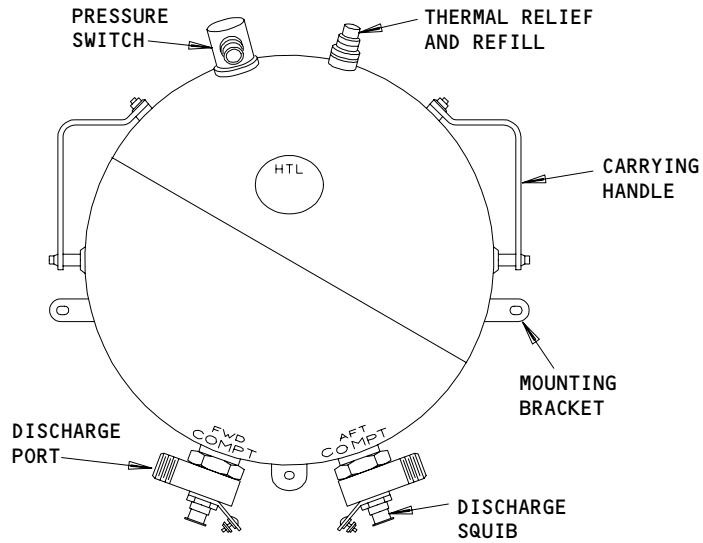
**Cargo Fire Extinguishing Armed Switches - Inspection/Check  
Figure 601 (Sheet 2)**

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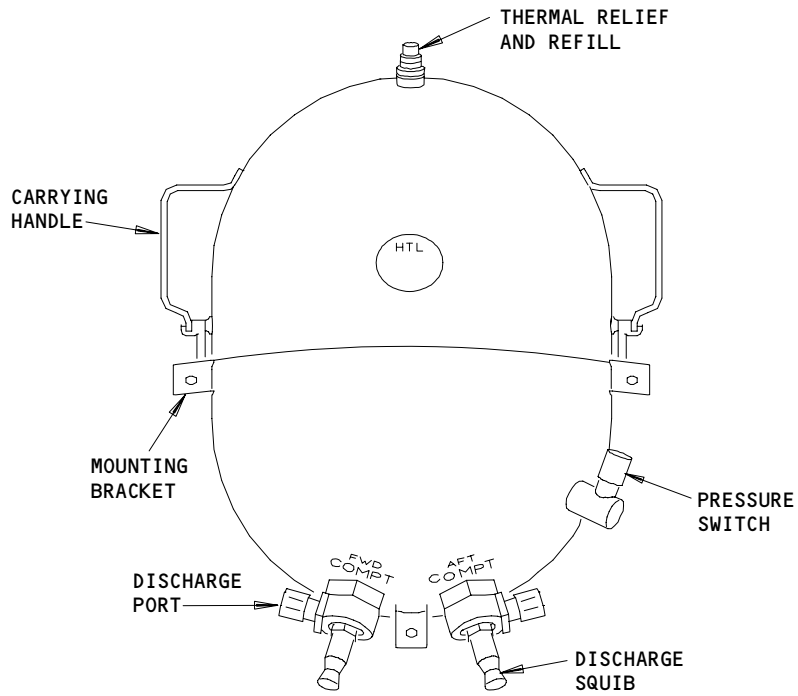
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CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(C)



CARGO COMPARTMENT  
FIRE EXTINGUISHER/DISCHARGE  
CARTRIDGE BOTTLE

(D)

Cargo Fire Extinguishing Armed Switches - Inspection/Check  
Figure 601 (Sheet 3)

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- S 866-039
- (2) Supply electrical power (AMM 24-22-00/201).
- S 866-040
- (3) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 036-041
- (4) At the lower cargo compartment, disconnect these electrical connectors per Table 601 from the cargo fire extinguisher bottles:

Table 601 - Cargo Fire Bottle Connection	
Connector	Bottle Connected to:
D1440 (Yellow)	B19, Bottle 1 - Fwd Cargo Discharge Squib
D1442 (Blue)	B19, Bottle 1 - Aft Cargo Discharge Squib
D1450 (Yellow)	B20, Bottle 2 - Fwd Cargo Discharge Squib
D1452 (Blue)	B20, Bottle 2 - Aft Cargo Discharge Squib
D10680(Yellow)	B231, Bottle 2A - Fwd Cargo Discharge Squib *[*1]
D10682(Blue)	B231, Bottle 2A - Aft Cargo Discharge Squib *[*1]

\*[\*1] AIRPLANES WITH BOTTLE 2A INSTALLED

S 436-042

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE THEIR CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (5) Put the protective caps on all the fire bottle squibs.
- E. Cargo Fire Extinguisher Squib Discharge Circuit Test

S 716-044

- (1) Do the Bottle 1 Discharge Circuit Test as follows:
- (a) Make sure these light-switches on the cargo fire control panel (P8) are off:
    - 1) FWD ARMED

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- 2) AFT ARMED
- 3) BTL DISCH
- (b) Put the LOAD CHECK switch, on the squib circuit test box, to the OFF position.
- (c) Attach the adapter cable to the connector of the squib circuit test box.

**WARNING:** DO NOT INSTALL ELECTRICAL CONNECTORS TO THE BOTTLE SQUIBS DURING TEST. INJURY TO PERSONS MAY OCCUR IF THE SQUIB CARTRIDGE IS ACCIDENTALLY FIRED.

- (d) Connect the bottle 1 FWD squib connector D1440 (yellow) to the squib circuit test box.
- (e) Connect a multimeter to the squib circuit test box.
- (f) Remove DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (g) Push the FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (h) Push and hold the BTL DISCH switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- (i) Write the voltage shown on the multimeter (V1).
- (j) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (k) Write the voltage shown on the multimeter (V2).

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- (l) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

NOTE: For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

- (m) Release the bottle discharge switch.
- 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
  - 2) Make sure the multimeter shows 0 volts.
- (n) Push and hold the BTL DISCH switch.
- 1) Make sure the multimeter shows a minimum of 15 volts.

NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.

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- (o) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
- 1) Open the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) Disconnect connector D1448 from B19 (Bottle 1).
  - 3) Open the following circuit breakers:
    - a) 11J2, LEFT EICAS COMPUTER
    - b) 11J29, RIGHT EICAS COMPUTER
  - 4) Push and hold the squib test button 1.
  - 5) Temporarily ground pin 2 on the pressure switch disconnect on the airplane side.
  - 6) Release the LOAD CHECK switch on the squib circuit test box to the off position.
    - a) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
    - b) Measure the voltage on the test box (pin 2 must be grounded).
    - c) Verify that the voltage is 0 volt.
  - 7) Reconnect connector D1448 to Bottle 1.
  - 8) Open the following circuit breaker:
    - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
  - 9) Release the squib test button 1 on the squib test panel.
  - 10) Make sure the multimeter shows 0 volt.
  - 11) Release the bottle discharge switch.
  - 12) Close the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
    - b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (p) AIRPLANES WITH THREE OR MORE CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
- 1) Open the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) Make sure the multimeter shows 0 volt.
  - 3) Release the bottle discharge switch.
  - 4) Close the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- (q) Push the FWD ARMED switch to off.  
1) Make sure ARMED goes off.
- (r) Push the AFT ARMED switch to on.  
1) Make sure ARMED is shown.
- (s) Push and hold the BTL DISCH switch.  
1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.  
2) Make sure the multimeter shows 0 volts.
- (t) Release the bottle discharge switch.
- (u) Push the AFT ARMED switch to off.  
1) Make sure ARMED goes off.
- (v) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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- (w) Disconnect the bottle 1 FWD squib connector D1440 from the squib circuit test box.
- (x) Connect the bottle 1 AFT squib connector D1442 (blue) to the squib circuit test box adapter cable.
- (y) Remove DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (z) Push the AFT ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (aa) Put the LOAD CHECK switch on the squib circuit test box to the OFF position.
- (ab) Push and hold the BTL DISCH switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- (ac) Write the voltage shown on the multimeter (V1).
- (ad) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (ae) Write the voltage shown on the multimeter (V2).
- (af) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

**NOTE:** For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

- (ag) Release the bottle discharge switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
  - 2) Make sure the multimeter shows 0 volts.

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- (ah) Push and hold the BTL DISCH switch.
- 1) Make sure the multimeter shows a minimum of 15 volts.
- NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.
- (ai) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
- 1) Open the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) Disconnect connector D1448 from B19 (Bottle 1).
  - 3) Open the following circuit breakers:
    - a) 11J2, LEFT EICAS COMPUTER
    - b) 11J29, RIGHT EICAS COMPUTER
  - 4) Push and hold the squib test button 1.
  - 5) Temporarily ground pin 2 on the pressure switch disconnect on the airplane side.
  - 6) Release the LOAD CHECK switch on the squib circuit test box to the off position.
    - a) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
    - b) Measure the voltage on the test box (pin 2 must be grounded).
    - c) Verify that the voltage is 0 volt.
  - 7) Reconnect connector D1448 to Bottle 1.
  - 8) Open the following circuit breaker:
    - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
  - 9) Release the squib test button 1 on the squib test panel.
  - 10) Make sure the multimeter shows 0 volt.
  - 11) Release the bottle discharge switch.
  - 12) Close the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
    - b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (aj) AIRPLANES WITH THREE OR MORE CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
- 1) Open the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) Make sure the multimeter shows 0 volt.
  - 3) Release the bottle discharge switch.
  - 4) Close the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- (ak) Push the AFT ARMED switch to off.
- 1) Make sure ARMED goes off.
- (al) Push the FWD ARMED switch to on.
- 1) Make sure ARMED is shown.
- (am) Push and hold the BTL DISCH switch.
- 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - 2) Make sure the multimeter shows 0 volts.
- (an) Release the bottle discharge switch.

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- (ao) Push the FWD ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (ap) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (aq) Disconnect the bottle 1 AFT squib connector D1442 from the squib circuit test box.

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- (2) Do the Bottle 2 Discharge Circuit Test as follows:
  - (a) 767-300 AIRPLANES;  
Make sure the system No. 2 air/ground relays are in the ground mode (AMM 32-09-02/201).

NOTE: These airplanes have a 30 minute time delay between the firing of bottle 1 and bottle 2/2A. We bypass this time delay by the simulation of on ground mode.

WARNING: DO NOT INSTALL ELECTRICAL CONNECTORS TO THE BOTTLE SQUIBS DURING TEST. INJURY TO PERSONS MAY OCCUR IF THE SQUIB CARTRIDGE IS FIRED.

- (b) Make sure these light-switches on the CARGO FIRE panel (P8) are off.
  - 1) FWD ARMED
  - 2) AFT ARMED
  - 3) BTL DISCH
- (c) Put the LOAD CHECK switch, on the squib circuit test box, to the OFF position.
- (d) Attach the adapter cable to the connector of the squib circuit test box.
- (e) Connect the bottle 2 FWD squib connector D1450 (yellow) to the squib circuit test box adapter cable.
- (f) Remove DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (g) Push the FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
  - 2) Push and hold the BTL DISCH switch.

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- 3) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- (h) Write the voltage shown on the multimeter (V1).
- (i) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (j) Write the voltage shown on the multimeter (V2).
- (k) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

NOTE: For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

- (l) 767-200 AIRPLANES;  
Release the bottle discharge switch.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- (m) 767-300 AIRPLANES;  
Push the FWD ARMED switch to off.  
1) Make sure ARMED goes off.

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- (n) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.
- (o) 767-300 AIRPLANES;  
Push FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (p) Make sure the LOAD CHECK switch, on the squib test box, is set to the ON position.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.
  - 2) Make sure the multimeter shows a minimum of 15 volts.

NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.

- (q) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
  - 1) Open the following circuit breaker:
    - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
  - 2) Disconnect connector D1454 from B20 (Bottle 2).
  - 3) Push and hold the squib test button 2.
  - 4) Temporarily ground pin 2 on the pressure switch disconnect on the airplane side.
  - 5) Release the LOAD CHECK switch on the squib circuit test box to the off position.
    - a) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
    - b) Measure the voltage on the test box (pin 2 must be grounded).
    - c) Verify that the voltage is 0 Volt.
  - 6) Reconnect connector D1454 to Bottle 2.
  - 7) Open the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 8) Release the squib test button 2 on the squib test panel.
  - 9) Make sure the multimeter shows 0 volt.
  - 10) 767-200 AIRPLANES;  
Release the bottle discharge switch.
  - 11) Close the following circuit breaker:
    - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
    - b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (r) AIRPLANES WITH THREE OR MORE CARGO FIRE EXTINGUISHING BOTTLES;  
Do these steps:
  - 1) Open the following circuit breaker:
    - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
  - 2) Make sure the multimeter shows 0 volt.
  - 3) Close the following circuit breaker:
    - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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- (s) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (t) Push the FWD ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (u) Push the AFT ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (v) Push and hold the BTL DISCH switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - 2) Make sure the multimeter shows 0 volts.
- (w) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (x) Push the AFT ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (y) Open these circuit breakers on the P6 panel and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (z) Disconnect the bottle 2 FWD squib connector D1450 from the squib circuit test box.
- (aa) Connect the bottle 2 AFT squib connector D1452 (blue) to the squib circuit test box adapter cable.
- (ab) Remove DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (ac) Push the AFT ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (ad) Put the LOAD CHECK switch on the squib circuit test box to the OFF position.
  - 1) Push and hold the BTL DISCH switch.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- 2) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- (ae) Write the voltage shown on the multimeter (V1).
- (af) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (ag) Write the voltage shown on the multimeter (V2).

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(ah) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

NOTE: For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

(ai) 767-200 AIRPLANES;  
Release the bottle discharge switch.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

(aj) 767-300 AIRPLANES;  
Push the AFT ARMED switch to off.  
1) Make sure ARMED goes off.

(ak) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.

(al) 767-300 AIRPLANES;  
Push AFT ARMED switch to on.  
1) Make sure ARMED is shown.

(am) Make sure the LOAD CHECK switch, on squib test box, is set to the ON position.  
1) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.

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2) Make sure the multimeter shows a minimum of 15 volts.

NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.

(an) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;

Do these steps:

- 1) Open the following circuit breaker:
  - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- 2) Disconnect connector D1454 from B20 (Bottle 2).
- 3) Push and hold the squib test button 2.
- 4) Temporarily ground pin 2 on the pressure switch disconnect on the airplane side.
- 5) Release the LOAD CHECK switch on the squib circuit test box to the off position.
  - a) Make sure the BOTTLE DISCHARGE light on the squib circuit test box goes off.
  - b) Measure the voltage on the test box with the multimeter (pin 2 must be grounded).
  - c) Verify that the voltage is 0 Volt.
- 6) Reconnect connector D1454 to Bottle 2.
- 7) Open the following circuit breaker:
  - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- 8) Release the squib test button 2 on the squib test panel.
- 9) Make sure the multimeter shows 0 volt.
- 10) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- 11) Close the following circuit breaker:
  - a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

(ao) AIRPLANES WITH THREE OR MORE CARGO FIRE EXTINGUISHING BOTTLES;

Do these steps:

- 1) Open the following circuit breaker:
  - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- 2) Make sure the multimeter shows 0 volt.
- 3) Close the following circuit breaker:
  - a) 6H6, FIRE EXTINGUISHING CARGO BTL 2

(ap) Push the AFT ARMED switch to off.

- 1) Make sure ARMED goes off.

(aq) Push the FWD ARMED switch to on.

- 1) Make sure ARMED is shown.

(ar) Push and hold the BTL DISCH switch.

- 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.
- 2) Make sure the multimeter shows 0 volts.

(as) 767-200 AIRPLANES;

Release the bottle discharge switch.

(at) Push the FWD ARMED switch to off.

- 1) Make sure ARMED goes off.

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- (au) Open these P6 panel circuit breakers and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (av) Disconnect the bottle 2 AFT squib connector D1452 from the squib circuit test box adapter cable.

S 726-106

- (3) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Do the Bottle 2A Discharge Circuit Test as follows:

**WARNING:** DO NOT INSTALL ELECTRICAL CONNECTORS TO THE BOTTLE SQUIBS DURING TEST. INJURY TO PERSONS MAY OCCUR IF THE SQUIB CARTRIDGE IS ACCIDENTALLY FIRED.

- (a) 767-300 AIRPLANES;  
Make sure the system No. 2 air/ground relays are in the ground mode (AMM 32-09-02/201).

**NOTE:** These airplanes have a 30 minute time delay which is bypassed while on the ground mode.

- (b) Make sure these light-switches, on the CARGO FIRE panel (P8), are off:
  - 1) FWD ARMED
  - 2) AFT ARMED
  - 3) BTL DISCH
- (c) Put the LOAD CHECK switch, on the squib circuit test box, to the OFF position.
- (d) Attach the adapter cable to the connector of the squib circuit test box.
- (e) Connect the bottle 2A FWD squib connector D10680 (yellow) to the squib circuit test box.
- (f) Remove DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (g) Push the FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
  - 2) Push and hold the BTL DISCH switch.

**NOTE:** The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

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- 3) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- (h) Write the voltage shown on the multimeter (V1).
- (i) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (j) Write the voltage shown on the multimeter (V2).
- (k) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

NOTE: For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

- (l) 767-200 AIRPLANES;  
Release the bottle discharge switch.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- (m) 767-300 AIRPLANES;  
Push the FWD ARMED switch to off.
  - 1) Make sure ARMED goes off.

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- (n) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.
- (o) 767-300 AIRPLANES;  
Push FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (p) Make sure the LOAD CHECK switch, on the squib circuit test box, is set to the ON position.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.
  - 2) Make sure the multimeter shows a minimum of 15 volts.

NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.

- (q) Make sure the following circuit breaker is open:
  - 1) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (r) Make sure the multimeter shows 0 volt.
- (s) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (t) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Close the following circuit breaker:
  - 1) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (u) Push the FWD ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (v) Push the AFT ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (w) Push and hold the BTL DISCH switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - 2) Make sure the multimeter shows 0 volts.
- (x) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (y) Push the AFT ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (z) Open these P6 panel circuit breakers and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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- (aa) Disconnect the bottle 2A FWD squib connector D10680 from the squib circuit test box.
- (ab) Connect the bottle 2A AFT squib connector D10682 (blue) to the squib circuit test box.
- (ac) Remove DO-NOT-CLOSE tags and close these P6 panel circuit breakers:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (ad) Push the AFT ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (ae) Put the LOAD CHECK switch, on the squib circuit test box, to the OFF position.
  - 1) Push and hold the BTL DISCH switch.

**NOTE:** The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- 2) Make sure the BOTTLE DISCHARGE light on the squib circuit test box comes on.
- (af) Write the voltage shown on the multimeter (V1).
- (ag) Put the LOAD CHECK switch on the squib circuit test box to the ON position.
- (ah) Write the voltage shown on the multimeter (V2).
- (ai) Make sure the recorded voltage V1 does not exceed the value in the following table corresponding to the minimum recorded voltage V2.

**NOTE:** For example, the maximum allowable V1 voltage is between 33 volts and 35 volts corresponding to a V2 voltage of 20.76.

MINIMUM V2 (ON) VOLTAGE	MAXIMUM V1 (OFF) VOLTAGE
22	36
21	35
20	33
19	32
18	30
17	28
16	27

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- (aj) 767-200 AIRPLANES;  
Release the bottle discharge switch.

NOTE: The BTL DISCH switch does not need to be held when the test for bottles 2 or 2A is performed on 767-300 airplanes. On subsequent steps wherever we say to push and hold the BTL DISCH switch, the BTL DISCH switch will not need to be held on the 767-300 airplanes.

- (ak) 767-300 AIRPLANES;  
Push the AFT ARMED switch to off.  
1) Make sure ARMED goes off.
- (al) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.
- (am) 767-300 AIRPLANES;  
Push AFT ARMED switch to on.  
1) Make sure ARMED is shown.
- (an) Make sure the LOAD CHECK switch, on the squib circuit test box, is set to the ON position.  
1) Make sure the BOTTLE DISCHARGE light on the squib test box stays on.  
2) Make sure the multimeter shows a minimum of 15 volts.

NOTE: If the voltage is less than 15 volts, the circuit may not supply sufficient current to fire the squib.

- (ao) Make sure the following circuit breaker is open:  
1) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (ap) Make sure the multimeter shows 0 volt.
- (aq) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (ar) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Close the following circuit breaker:  
  
1) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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- (as) Push the AFT ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (at) Push the FWD ARMED switch to on.
  - 1) Make sure ARMED is shown.
- (au) Push and hold the BTL DISCH switch.
  - 1) Make sure the BOTTLE DISCHARGE light on the squib circuit test box stays off.
  - 2) Make sure the multimeter shows 0 volts.
- (av) 767-200 AIRPLANES;  
Release the bottle discharge switch.
- (aw) Push the FWD ARMED switch to off.
  - 1) Make sure ARMED goes off.
- (ax) Open these P6 panel circuit breakers and attach DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (ay) Disconnect the bottle 2A AFT squib connector D10682 from the squib circuit test box.
  - 1) AIRPLANES WITH TWO CARGO FIRE EXTINGUISHING BOTTLES;  
Close the following circuit breakers:
    - a) 11J2, LEFT EICAS COMPUTER
    - b) 11J29, RIGHT EICAS COMPUTER

F. Squib Electrical Connection Procedure

**NOTE:** Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 826-047

- (1) Do the steps that follow to connect an electrical connector to a fire bottle squib.

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).
- (b) Open and attach a DO-NOT-CLOSE tag to these circuit breakers, on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (c) Remove the protective cap from the fire bottle squib.

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**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

- (d) Make sure there is no voltage between pins 1 and 2 of the electrical connector.
- (e) If there is voltage between pins 1 and 2, do these steps:
  - 1) Connect the multimeter across pins 1 and 2.
  - 2) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - 3) Disconnect the multimeter.
- (f) Connect the electrical connector to the fire bottle squib.
- (g) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2

G. Do a Test of the Squib Test Panel

S 036-065

- (1) Do the Squib Electrical Connection procedure to connect the electrical connector D1440 (yellow) to the forward squib of bottle 1.

S 866-067

- (2) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.

S 216-068

- (3) AIRPLANES WITH TWO FIRE EXTINGUISHER BOTTLES INSTALLED;  
Make sure the following occurs:
  - (a) Make sure the CARGO FWD squib light, on the SQUIB TEST panel, comes on (green).
  - (b) Make sure the CARGO AFT light stays off.

S 216-069

- (4) AIRPLANES WITH THREE FIRE EXTINGUISHER BOTTLES INSTALLED;  
Make sure the following occurs:
  - (a) Make sure the CARGO 1 squib light, on the SQUIB TEST panel, comes on (green).

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(b) Make sure the CARGO 2 and CARGO 2A lights stay off.

S 866-070

(5) Release the TEST 1 switch.

(a) Make sure the CARGO squib light goes off.

S 436-071

(6) Do the Squib Electrical Connection procedure to connect the electrical connector D1450 (yellow) to the forward squib of bottle 2.

S 726-075

(7) AIRPLANES WITH TWO FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.

(a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.

- 1) Make sure the CARGO FWD light comes on (green).
- 2) Make sure the CARGO AFT light stays off.

(b) Release the TEST 2 switch.

- 1) Make sure the CARGO FWD light goes off.

S 716-111

(8) AIRPLANES WITH THREE FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.

(a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.

- 1) Make sure the CARGO 1 and CARGO 2 squib lights, on the SQUIB TEST panel, come on (green):
- 2) Make sure the CARGO 2A squib light stays off.

(b) Release the TEST 1 switch.

- 1) Make sure the CARGO squib lights go off.

S 426-117

(9) AIRPLANES WITH BOTTLE 2A INSTALLED;

Do the Squib Electrical Connection procedure to connect the electrical connector D10680 (yellow) to the forward squib of bottle 2A.

S 726-112

(10) Check the squib circuit.

(a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.

- 1) Make sure the CARGO 1, CARGO 2, and CARGO 2A squib lights, on the SQUIB TEST panel, come on (green).

(b) Release the TEST 1 switch.

- 1) Make sure the CARGO squib lights go off.

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S 036-084

- (11) Do the Squib Electrical Connection procedure to connect the electrical connector D1442 (blue) to the aft squib of bottle 1.

S 726-087

- (12) AIRPLANES WITH TWO FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
    - 1) Make sure the CARGO FWD and CARGO AFT squib lights, on the SQUIB TEST panel, come on (green).
  - (b) Release the TEST 1 switch.
    - 1) Make sure the CARGO lights go off.

S 726-089

- (13) AIRPLANES WITH THREE FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO 1 squib light, on the SQUIB TEST panel, comes on (green).
    - 2) Make sure the CARGO 2 and CARGO 2A squib lights stay off.
  - (b) Release the TEST 2 switch.
    - 1) Make sure the CARGO squib light goes off.

S 436-091

- (14) Do the Squib Electrical Connection procedure to connect the electrical connector D1452 (blue) to the aft squib of bottle 2.

S 726-095

- (15) AIRPLANES WITH TWO FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO AFT and CARGO FWD lights come on (green).
  - (b) Release the TEST 2 switch.
    - 1) Make sure the CARGO lights go off.

S 726-114

- (16) AIRPLANES WITH THREE FIRE EXTINGUISHER BOTTLES INSTALLED;  
Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO 1 and CARGO 2 squib lights, on the SQUIB TEST panel, come on (green).
    - 2) Make sure the CARGO 2A squib light stays off.
  - (b) Release the TEST 2 switch.
    - 1) Make sure the cargo squib lights go off.

S 916-119

- (17) AIRPLANES WITH BOTTLE 2A INSTALLED;  
Do the Squib Electrical Connection procedure to connect the electrical connector D10682 (blue) to the aft squib of bottle 2A.

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S 726-103

- (18) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO 1, CARGO 2, and CARGO 2A squib lights, on the SQUIB TEST panel, come on (green).
  - (b) Release the TEST 2 switch.
    - 1) Make sure the CARGO squib lights go off.
- H. Check Forward Cargo Heat inhibit after FWD ARMED switch activation.

S 716-049

- (1) Do the check that follows to make sure the Forward Cargo Heat is stopped after the FWD ARMED switch is set:
- (a) Make sure this P11 panel circuit breaker is closed:
    - 1) 11R21, FWD CARGO HEAT OVERRIDE
  - (b) Make sure the EICAS operates correctly (AMM 31-41-00/201).
  - (c) Supply a cooling source to the forward cargo temperature switch surface if the cargo compartment is above 40 DegF (5 DegC).

NOTE: If a test is done when temperature in the cargo compartment is more than 80 DegF (32 DegC), it is necessary to supply a cooling source to the forward cargo overheat temperature switch surface. Temperature switches are installed in the middle of the cargo compartment below the floor.

- (d) Push the FWD CARGO HEAT switch-light on the pilots' overhead panel P5 to ON.
    - 1) Make sure ON is shown.
  - (e) Push the ECS-MSG push-button on the P61 panel.
  - (f) Make sure the FWD CARGO HEAT maintenance message is shown on the EICAS display.
  - (g) Push the FWD ARMED switch-light on the aft pilots' control stand P8.
    - 1) Make sure ARMED is shown.
  - (h) Make sure the FWD CARGO HEAT maintenance message go out of view from the EICAS display.
  - (i) Push the FWD ARMED switch-light on the P8 panel to the disarmed position.
    - 1) Make sure ARMED is not shown.
  - (j) Push the FWD CARGO HEAT switch-light on the P5 panel to OFF.
    - 1) Make sure ON is not shown.
- I. Check Left and Right Air Conditioning Recirculation Fans inhibit after ARMED switch activation.

S 716-050

- (1) Do the check that follows to make sure the Left and the Right Air Conditioning Recirculation Fans are stopped after either ARMED switch is set:
- (a) Make sure these P11 panel circuit breakers are closed:
    - 1) 11R14, L RECIRC FAN

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- 2) 11R23, R RECIRC FAN
  - (b) Make sure this P36 panel circuit breaker is closed:
    - 1) 36F2, L RECIRC FAN or RECIRC FAN L or  
36F4, L RECIRC FAN or RECIRC FAN L
  - (c) Make sure this P37 panel circuit breaker is closed:
    - 1) 37G4, R RECIRC FAN or RECIRC FAN R or  
37C4, R RECIRC FAN or RECIRC FAN R
  - (d) Push the RECIRC FAN switch-lights (L and R) on the P5 panel to ON.
    - 1) Make sure ON is shown.
  - (e) Listen for fan noise, or feel for air flow at any passenger cabin conditioned air outlet to make sure the fan operates.
  - (f) Push the FWD ARMED switch-light on the aft pilots' control stand P8.
    - 1) Make sure ARMED is shown.
  - (g) Make sure the recirculation fans (L and R) are stopped (no fan noise, or air at outlet) when the FWD ARMED switch is pushed.
  - (h) Push the FWD ARMED switch-light to the disarmed position.
    - 1) Make sure ARMED is not shown.
  - (i) Listen for fan noise, or feel for air flow at any passenger cabin conditioned air outlet to make sure the fan operates.
  - (j) Push the AFT ARMED switch-light on the aft pilots' control stand P8.
    - 1) Make sure ARMED is shown.
  - (k) Make sure the recirculation fans (L and R) are stopped (no fan noise, or air at outlet) when the AFT ARMED switch is pushed.
  - (l) Push the AFT ARMED switch-light to the disarmed position.
    - 1) Make sure ARMED is not shown.
  - (m) Push the RECIRC FAN switch-lights (L and R) to OFF.
    - 1) Make sure ON is not shown.
- J. Do a check of the automatic galley chiller shutdown circuit.

S 716-051

- (1) Do the check that follows to make sure the galley chillers are stopped after the FWD ARMED switch is set:
  - (a) Make sure the applicable galley circuit breakers on the overhead circuit breaker panel, P11, are closed.

NOTE: The galley circuit breakers are at location 11U7, 11U8, 11U33.

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- (b) AIRPLANES WITH CIRCUIT BREAKER: 6B7 (C749),  
CHILLER SHUTDOWN CONT;  
Make sure this circuit breaker on the main power distribution panel, P6, is closed:
  - 1) 6B7, CHILLER SHUTDOWN CONT
  - 2) Make sure the CHILLER circuit breakers on the forward galley are closed.
  - 3) Set the galley chiller ON-OFF switch to the ON position.
  - 4) Make sure the chiller supplies cold air.
- (c) Push the FWD ARMED switch-light on the aft pilot's control stand (P8).
  - 1) Make sure ARMED is shown.
  - 2) Make sure the airflow through the forward galley chiller stops.
- (d) Push the FWD ARMED switch-light to the disarmed position.
- (e) Make sure ARMED is not shown.

S 716-170

- (2) ALL SAS AIRPLANES EXCEPT SAS 150-152 AND 275-276;  
Do the check that follows to make sure the galley chillers are stopped after the AFT ARMED switch is set:
  - (a) AIRPLANES WITH CIRCUIT BREAKER 6B7 (C749),  
CHILLER SHUTDOWN CONT;  
Make sure this circuit breaker on the main power distribution Panel, P6, is closed:
    - 1) 6B7, CHILLER SHUTDOWN CONT
  - (b) Make sure the forward galley chiller operates.
    - 1) Make sure the CHILLER circuit breakers on the forward galley are closed.
    - 2) Set the galley chiller ON-OFF switch to the ON position.
    - 3) Make sure the chiller supplies cold air.
  - (c) Push the AFT ARMED switch-light on the aft pilot's control stand (P8).
    - 1) Make sure ARMED is shown.
  - (d) Push the AFT ARMED switch-light to the disarmed position.
  - (e) Make sure ARMED is not shown.

K. Check AFT CARGO HEAT inhibit after AFT ARMED switch activation.

S 716-053

- (1) Do the check that follows to make sure the AFT CARGO HEAT is stopped after the AFT ARMED switch is set:
  - (a) Make sure this circuit breaker on the P11 panel is closed:
    - 1) 11R22, AFT CARGO HEAT OVERRIDE

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- (b) Supply a cooling source to the aft cargo temperature switch surface if the cargo compartment temperature is above 40°F (5°C).

NOTE: If a test is done when the temperature in the cargo compartment is more than 80°F (32°C), it is necessary to supply a cooling source to the aft cargo overheat temperature switch surface. Temperature switches are installed in the middle of the cargo compartment below the floor.

- (c) Push the AFT CARGO HEAT switch-light on the pilots' overhead panel P5 to ON.
  - 1) Make sure ON is shown.
- (d) Push the ECS/MSG pushbutton on the P61 panel.
- (e) Make sure the AFT CARGO HEAT EICAS maintenance message shows up on the EICAS display.
- (f) Push the AFT ARMED switch-light on the aft pilots' control stand P8.
  - 1) Make sure ARMED is shown.
- (g) Make sure the AFT CARGO HEAT EICAS message go out of view from the EICAS display.
- (h) Push the AFT ARMED switch-light to the disarmed position.
  - 1) Make sure ARMED is not shown.
- (i) Push the AFT CARGO HEAT switch-light on the P5 panel to off.

S 866-054

- (2) Make sure ON is not shown.
- L. Check BULK CARGO HEAT inhibit after AFT ARMED switch activation.

NOTE: This procedure applies to airplanes with Bulk Cargo Heat installed.

S 716-055

- (1) Do the check that follows to make sure the BULK CARGO HEAT is stopped after the AFT ARMED switch is set:
  - (a) Make sure these circuit breaker on the P11 panel are closed:
    - 1) 11N26, BULK CARGO HEAT CONTROL
    - 2) 11N27, BULK CARGO HEAT OVERRIDE

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- (b) Make sure this circuit breaker on the P36 Panel is closed:
  - 1) 36K4, BULK CARGO HEAT VALVE
- (c) Supply a cooling source to the bulk cargo temperature switch surface if the cargo compartment temperature is above 40°F (5°C).

NOTE: If a test is done when the temperature in the cargo compartment is more than 80°F (32°C), it is necessary to supply a cooling source to the bulk cargo overheat temperature switch surface. Temperature switches are installed on the right aft sidewall of the bulk cargo compartment.

- (d) Push the BULK CARGO HEAT switch-light on the pilots' overhead panel P5 to ON.
  - 1) Make sure ON is shown.

NOTE: Make sure the bulk cargo heat selector on deck is in the NORM position.

- (e) Push the ECS/MSG pushbutton on the P61 panel.
- (f) Make sure the BULK CARGO HEAT EICAS maintenance message shows up on the EICAS display.
- (g) Push the AFT ARMED switch-light on the aft pilots' control stand P8.
  - 1) Make sure ARMED is shown.
- (h) Make sure the BULK CARGO HEAT EICAS message go out of view from the EICAS display.
- (i) Push the AFT ARMED switch-light to the disarmed position.
  - 1) Make sure ARMED is not shown.
- (j) Push the BULK CARGO HEAT switch-light on the P5 panel to off.

S 866-056

- (2) Make sure ON is not shown.
- M. Check Bulk Cargo Vent Fan inhibit after AFT ARMED switch activation.

NOTE: This procedure applies only to airplanes with the Bulk Cargo Vent Fan option installed.

S 716-059

- (1) Do the check that follows to make sure the Bulk Cargo Vent Fan stops after the AFT ARMED switch is set:
  - (a) Make sure this circuit breaker on the P11 panel is closed:
    - 1) 11N26, BULK CARGO HEAT CONTROL
  - (b) Make sure this circuit breaker on the P37 panel is closed:
    - 1) 37E6, BULK CARGO VENT FAN or 37F7
  - (c) Push the BULK CARGO HEAT switch-light on the overhead panel P5 to ON.
    - 1) Make sure ON is shown.

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- (d) Set the BULK CARGO HEAT switch, on right side panel P61, to VENT.
  - (e) Feel for airflow at the fan air outlet in the bulk cargo ceiling to make sure the bulk cargo ventilation fan is on.
  - (f) Push the AFT ARMED switch-light on the aft pilots' control stand P8.
    - 1) Make sure ARMED is shown.
  - (g) Make sure the BULK CARGO VENT FAN is stopped (no airflow at fan air outlet).
  - (h) Push the AFT ARMED switch-light to the disarmed position.
    - 1) Make sure ARMED is not shown.
  - (i) Set the BULK CARGO HEAT switch, on P61, to NORM.
  - (j) Push the BULK CARGO HEAT switch-light on the P5 panel to OFF.
    - 1) Make sure ON is not shown.
- N. Test AFT lavatory/galley vent fan inhibit after AFT ARMED switch activation.

S 716-060

- (1) Do the test that follows to make sure the AFT lavatory-galley vent fan stops after the AFT ARMED switch is set:
  - (a) Make sure these circuit breakers on the P11 panel are closed:
    - 1) 11P10, EQUIP COOLING AFT FAN EXH 2
    - 2) 11P19, EQUIP COOLING AFT FAN EXH 1
  - (b) Make sure this circuit breaker on the P33 panel is closed:
    - 1) 33B1, EQUIP COOLING AFT FAN 1
    - 2) 33D6, AFT EXH FAN 1 AC AVAIL
  - (c) Make sure this circuit breaker on the P34 panel is closed:
    - 1) 34L8, EQUIP COOLING AFT FAN 1
  - (d) Make sure this circuit breaker on the P36 panel is closed:
    - 1) 36G4, EQUIP COOLING AFT FAN 2
  - (e) Set the EQUIP COOLING mode selector on the pilot's overhead panel P5 to STBY.
  - (f) Make sure the AFT fan 2 (B16) operates.
  - (g) Push the AFT ARMED switch-light on the APU-CARGO FIRE CONTROL panel, M10444, to ARMED.
  - (h) Make sure the AFT fan 2 (B16) stops operation and AFT fan 1 (B15) does not operate.
  - (i) Release the AFT ARMED switch.
  - (j) Make sure the AFT fan 2 (B16) operates.
  - (k) Set the EQUIP COOLING mode selector on the pilot's overhead panel P5 to AUTO.
  - (l) Make sure the AFT fan 2 (B16) stops operation and AFT fan 1 (B15) operates.
  - (m) Push the AFT ARMED switch-light on the APU-CARGO FIRE CONTROL panel, M10444, to ARMED.
  - (n) Make sure the AFT fan 1 (B15) stops operation and AFT fan 2 (B16) does not operate.
  - (o) Release the AFT ARMED switch.
  - (p) Make sure the AFT fan 1 (B15) operates.

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0. Air Conditioning Packs High Flow Mode After the AFT ARMED Switch Is Pushed

S 866-122

- (1) Make sure these circuit breakers on the P11 panel are closed.
- (a) 11A13, LEFT PACK FLOW CONT
  - (b) 11A26, RIGHT PACK FLOW CONT
  - (c) 11N10, LEFT PACK AUTO PWR
  - (d) 11N19, RIGHT PACK AUTO PWR
  - (e) 11N15, RIGHT PACK STANDBY PWR
  - (f) 11N16, RIGHT PACK STANDBY CONT
  - (g) 11N24, LEFT PACK STANDBY PWR
  - (h) 11N25, LEFT PACK STANDBY CONT
  - (i) EICAS circuit breakers (6 locations)
  - (j) 11C14, FLAP/STAB POS SENSING - C
  - (k) 11D15, ENG SPEED SENSE L2
  - (l) 11D16, ENG SPEED SENSE R2
  - (m) 11D23, ENG SPEED SENSE L1
  - (n) 11D24, ENG SPEED SENSE R1
  - (o) 11J26, FLAP/STAB POS SENSING - R
  - (p) 11S10, AIR SUPPLY L PRIM CONT
  - (q) 11S11, AIR SUPPLY R ALTN CONT
  - (r) 11S19, RIGHT ENG BLEED IND
  - (s) 11S20, RIGHT ENG BLEED CONT

S 866-162

- (2) Use an external power source or use two or more internal power sources (L IDG, R IDG, and APU) to supply the electrical power (AMM 24-22-00/201).

**NOTE:** If only one internal power source is used, the utility busses will shed when flight mode is simulated. Thus, the recirculation fans will be shut down.

S 866-124

- (3) Supply pneumatic power (AMM 36-00-00/201).
- (a) If you use the APU or ground source air to supply pneumatic power, open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:

**NOTE:** This is done to simulate that one of the engine bleed PRSOVs is open. This will enable the packs to be in the normal low flow mode.

- 1) 11S10, AIR SUPPLY L PRIM CONT
- 2) 11S11, AIR SUPPLY R ALT CONT

S 866-133

- (4) Make sure the flaps are retracted (AMM 27-51-00/201).

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S 866-125

- (5) Push the L and R RECIRC FAN switches, on the P5 panel, to ON.

S 866-126

- (6) Move the L and R PACK selectors, on the P5 panel, to AUTO.

S 716-129

- (7) Push the ECS/MSG switch on the EICAS maintenance panel, P61, to view the ECS maintenance page.

S 716-200

- (8) SAS 050-154, 275, 276;  
Make sure the EICAS message HI FLOW ON does not show.

S 716-131

- (9) Do these steps on the flight management computer (FMC) to show the ANALOG DISCR 1/3 page.

**NOTE:** The FMC will be used during this procedure to view the ECS PACK H/L indication which shows the pack flow mode (high flow/low flow).

- (a) Push the function mode key INIT REF, just below the FMC.
- (b) Push the line select key next to the INDEX prompt on the FMC.
- (c) Push the line select key next to the MAINT prompt on the FMC.
- (d) Push the line select key next to the DISCRETES prompt on the FMC.
- (e) Use the ECS PACK H/L (High flow, Low flow) line entry on the ANALOG DISCR page to show the indicated position of the flow control and shutoff valve.
- (f) Make sure the LEFT and RIGHT ECS PACK H/L entries on the ANALOG DISCR page show LO (Low flow).

S 866-163

**WARNING:** DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILER PANELS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (10) Do the deactivation procedure for the spoilers (AMM 27-61-00/201) or move all persons and equipment away from the spoiler panels.

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S 866-164

**WARNING:** MAKE SURE THAT THE FLIGHT MODE SIMULATION PROCEDURE IS DONE CORRECTLY. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR IF THE PROCEDURE IS NOT DONE CORRECTLY.

- (11) Do the Flight Mode Simulation procedure for the No. 2 air/ground systems (AMM 32-09-02/201).

S 866-165

- (12) Move and hold the channel 2 test switches on the left and right Engine Speed Cards, in the electrical systems cardfile panel, P50, to the TEST positions.

S 016-166

- (13) Open the ECS bay panels 193NL and 194LR to get access to the visual position indicator on the flow control and shutoff valve for each pack (AMM 06-41-00/201).
- (a) Make a temporary mark on the visual position indicator to show the current position of the flow control and shutoff valve (Low flow).

S 866-144

- (14) 767-200 AIRPLANES;  
Do the steps that follow:

**CAUTION:** IF THE CIRCUIT BREAKERS IN THE SUBSEQUENT STEP ARE NOT OPENED, THE CARGO FIRE EXTINGUISHER BOTTLES MAY DISCHARGE WHEN YOU DO THE STEPS THAT FOLLOW.

- (a) Open these circuit breakers on the main distribution panel, P6, and attach a DO-NOT-CLOSE tags:
- 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (b) Push the CARGO FIRE AFT switch-light, on the pilot's control stand panel P8, to ARMED (ARMED light comes on).
- 1) Make sure the L and R RECIRC FAN INOP lights come on.
  - 2) Make sure the LEFT and RIGHT ECS PACK H/L entries on the ANALOG DISCR page show HI (High flow).
  - 3) Make sure the visual position indicators on the left and right flow control and shutoff valves move counterclockwise away from the temporary mark towards OPEN (High flow).
- (c) Push the CARGO FIRE AFT switch-light, on the P8 panel, to off (ARMED light not on).
- 1) Make sure the L and R RECIRC FAN INOP lights go out.
  - 2) Make sure the LEFT and RIGHT ECS PACK H/L entries on the ANALOG DISCR page show LO (Low flow).
  - 3) Make sure the visual position indicator on the left and right pack flow control and shutoff valves move clockwise to the temporary mark (Low flow).

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- (d) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 866-157

(15) 767-300 AIRPLANES;

Do the steps that follow:

- (a) Turn the R (L) PACK selector, on the P5 panel, to the OFF position.
  - 1) Make sure the R (L) PACK OFF light comes on.
  - 2) Make sure the LEFT (RIGHT) ECS PACK H/L entry on the ANALOG DISCR page shows HI (high flow).
  - 3) Make sure the visual position indicator on the left (right) pack flow control and shutoff valve moves counterclockwise away from the temporary mark towards OPEN (high flow).

**CAUTION:** IF THE CIRCUIT BREAKERS IN THE SUBSEQUENT STEP ARE NOT OPENED, THE CARGO FIRE EXTINGUISHER BOTTLES MAY DISCHARGE WHEN YOU DO THE STEPS THAT FOLLOW.

- (b) Open these circuit breakers, on the main power distribution panel P6, and attach a DO-NOT-CLOSE tags:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (c) Push the CARGO FIRE AFT switch-light, on the pilot's control stand panel P8, to ARMED (ARMED light comes on).
  - 1) Make sure the L and R RECIRC FAN INOP lights come on.
  - 2) Make sure the EICAS message HI FLOW INHIBIT shows on the display.
  - 3) Make sure the LEFT and RIGHT ECS PACK H/L entries on the ANALOG DISCR page show LO (Low flow).
  - 4) Make sure the visual position indicator on the left pack flow control and shutoff valve moves clockwise to the temporary mark (Low flow).
- (d) Push the CARGO FIRE AFT switch-light, on the P8 panel, to off (ARMED light not on).
- (e) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (f) Turn the L (R) PACK selector, on the P5 panel, to the OFF position and then to the AUTO position.
  - 1) Make sure the L and R RECIRC FAN INOP lights go out.
  - 2) Make sure the EICAS message HI FLOW INHIBIT does not show on the display.
  - 3) Make sure the LEFT (RIGHT) ECS PACK H/L entry on the ANALOG DISCR page shows HI (high flow).
  - 4) Make sure the visual position indicator on the left (right) pack flow control and shutoff valve moves counterclockwise away from the temporary mark towards OPEN (High flow).

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- (g) Set the L PACK and the R PACK selector to OFF.
  - (h) Push the L RECIRC FAN and the R RECIRC FAN switch-light to off.
    - 1) Make sure ON is not shown.
  - (i) Remove pneumatic power if it is not necessary.
- P. Return the Airplane to Its Usual Condition

S 846-063

- (1) Do the steps that follow to put the airplane back to its' usual condition:
  - (a) Do the EICAS STATUS/MAINTENANCE MESSAGE ERASE procedure (AMM 31-41-00/201).
  - (b) Close the forward door 821.
  - (c) Close the bulk cargo door 811.

S 866-064

- (2) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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CARGO COMPARTMENT FIRE EXTINGUISHER BOTTLE/DISCHARGE CARTRIDGE -  
REMOVAL/INSTALLATION

1. General

- A. This procedure has four tasks. Two are the removal and installation of a fire extinguisher bottle. The other two are the removal and installation of a discharge cartridge.
- B. The cargo fire extinguisher bottles are in the lower cargo compartment, aft of the forward cargo door on the right side of the airplane. Each fire extinguisher bottle has two discharge cartridges (squibs). The removal/installation procedure is the same for all the bottles and squibs.

TASK 26-23-02-004-100

2. Remove the Discharge Cartridge (Squib) (Fig. 401)

A. Equipment

- (1) Squib Protective Cap (Provided with squibs):

M83723/60-208-AN or AC (forward cap, preferred)

M83723/60-28-AN or AC (forward cap, alternate)

M83723/60-210-AN or AC (aft cap)

B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control.

C. Access

- (1) Location Zones

121/122 Forward Cargo Compartment

153/154 Aft Cargo Compartment

- (2) Access Panels

821 Forward Cargo Compartment Door

822 Aft Cargo Compartment Door

D. Procedure

S 864-101

- (1) Open these circuit breakers on the main power distribution panel, P6 and attach DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

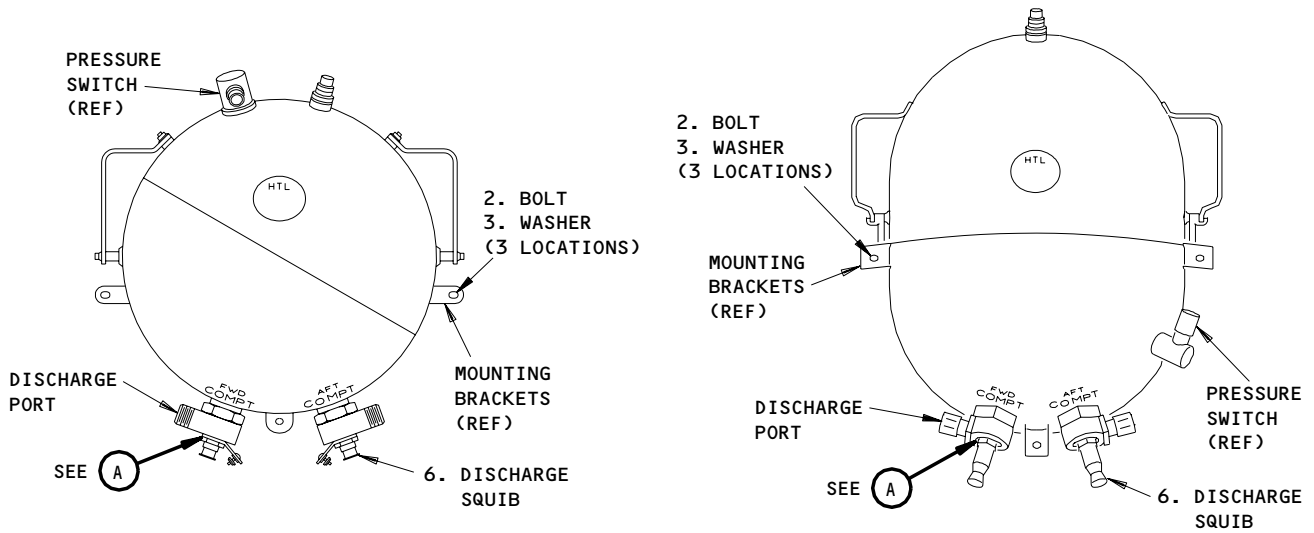
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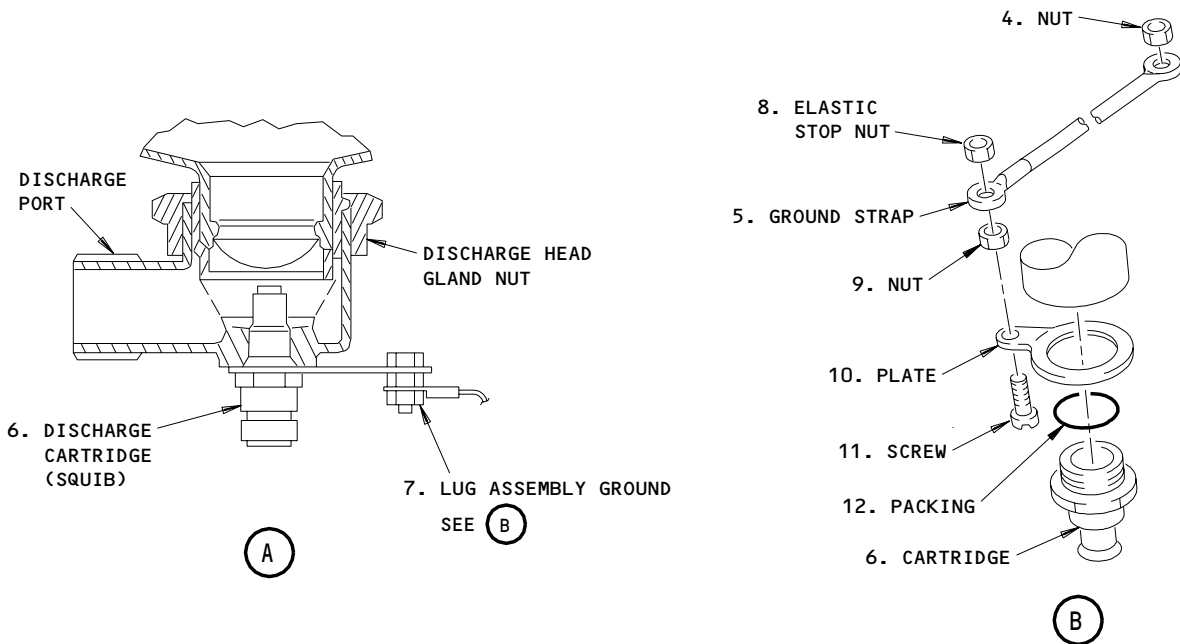
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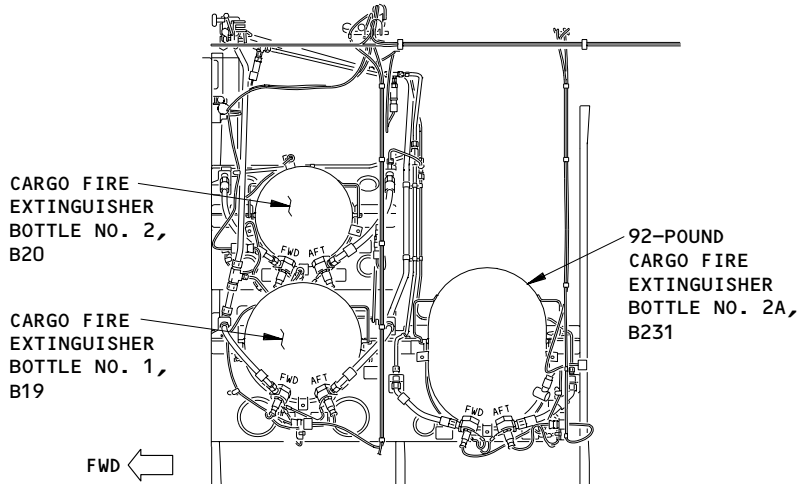
1. CARGO FIRE BOTTLE  
(EXAMPLE)



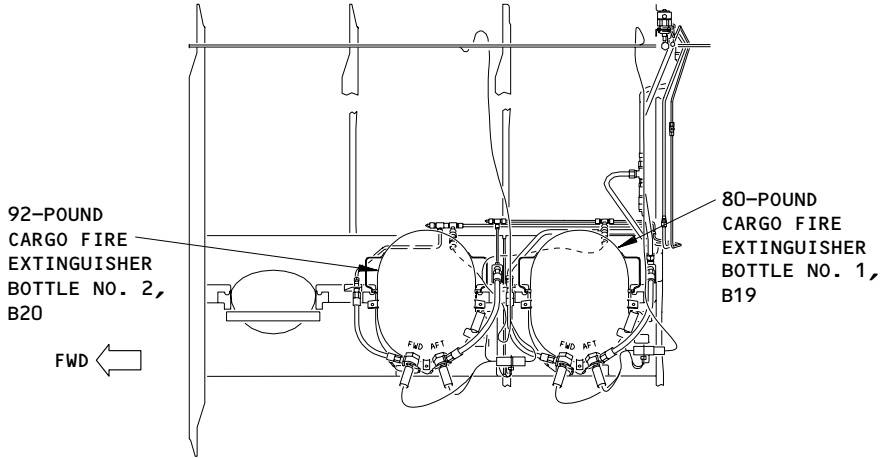
Cargo Fire Extinguisher Bottle/Discharge Cartridge Installation  
Figure 401

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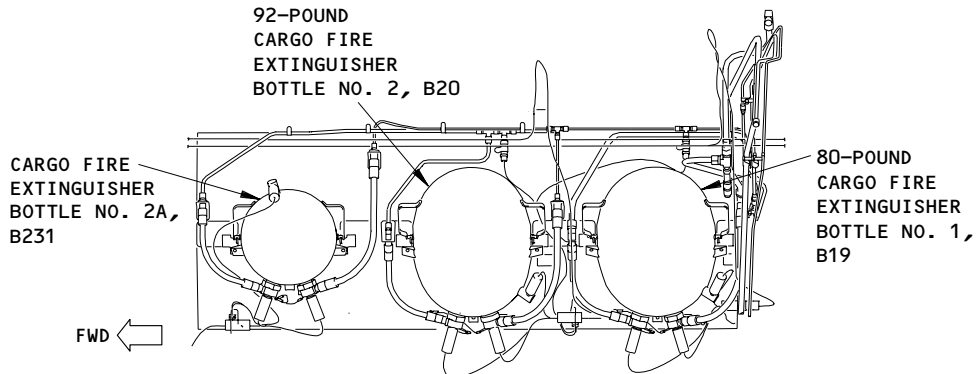
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**RIGHT SIDEWALL FORWARD CARGO COMPARTMENT  
(767-200, 195-MINUTES FIRE PROTECTION SYSTEM)**



**RIGHT SIDEWALL FORWARD CARGO COMPARTMENT  
(767-300, 120-MINUTES FIRE PROTECTION SYSTEM)**



**RIGHT SIDEWALL FORWARD CARGO COMPARTMENT  
(767-300, 195-MINUTES FIRE PROTECTION SYSTEM)**

**Cargo Compartment Fire Extinguishing System Installation  
Figure 402**

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S 864-182

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 034-102

- (3) Disconnect the electrical connector from the discharge squib as applicable (Ref Table 401).

S 864-103

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE THEIR CONTENT SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (4) Install the squib protective cap on the squib.

S 014-104

- (5) Turn and remove the squib and the ground lug assembly.

S 014-105

- (6) Keep the ground lug for when you install the squib.

TASK 26-23-02-404-106

3. Install the Discharge Cartridge (Squib) (Fig. 401)

A. Equipment

- (1) Squib Protective Cap (Provided with squibs):

M83723/60-208-AN or AC (forward cap, preferred)

M83723/60-28-AN or AC (forward cap, alternate)

M83723/60-210-AN or AC (aft squib cap)

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B. Parts

(1) SAS 050-149;

Refer to the table that follows:

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Bottle and Valve Assy	26-23-02	08	115
	1	Bottle and Valve Assy		08	116
	1	Bottle and Valve Assy		08	117
	1	Bottle and Valve Assy		08	118
	1	Bottle and Valve Assy		08	119
	1	Bottle and Valve Assy		08	120
	1	Bottle and Valve Assy		08	121
	1	Bottle and Valve Assy		08	122
	1	Bottle and Valve Assy		08	123
	1	Bottle and Valve Assy		08	124
	1	Bottle and Valve Assy		08	125
	1	Bottle and Valve Assy		08	126
	1	Bottle and Valve Assy		08	127
	1	Bottle and Valve Assy		08	123
	6	Cartridge		51	TBD
	6	Cartridge		52	TBD
	6	Cartridge		54	TBD

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(2) SAS 155-276;  
Refer to the table that follows:

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Bottle and Valve Assy	26-23-02	09	125
	1	Bottle and Valve Assy			126
	1	Bottle and Valve Assy			127
	1	Bottle and Valve Assy			128
	1	Bottle and Valve Assy			129
	1	Bottle and Valve Assy			130
	1	Bottle and Valve Assy			131
	1	Bottle and Valve Assy			132
	1	Bottle and Valve Assy			133
	1	Bottle and Valve Assy			134
	1	Bottle and Valve Assy			135
	1	Bottle and Valve Assy			136
	1	Bottle and Valve Assy			137
	1	Bottle and Valve Assy			138
	1	Bottle and Valve Assy			139
	1	Bottle and Valve Assy			140
	1	Bottle and Valve Assy			141
	1	Bottle and Valve Assy			142
	1	Bottle and Valve Assy			143
	1	Bottle and Valve Assy		144	
1	Bottle and Valve Assy	145			
6	Cartridge		51	TBD	
6	Cartridge		54	TBD	

(3) SAS 150-154;  
Refer to the table that follows:

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Bottle and Valve Assy	26-23-02	11	110
	1	Bottle and Valve Assy		11	115
	6	Cartridge		54	30
	6	Cartridge		54	40
	6	Cartridge		54	50

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C. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control.

D. Access

(1) Location Zones

- 121/122 Forward Cargo Compartment
- 153/154 Aft Cargo Compartment

(2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

E. Procedure

S 864-183

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 424-292

- (2) Replace the packing if it is necessary.

S 434-107

- (3) Install the ground lug assembly and squib on the fire bottle.

S 434-108

- (4) Tighten the squib to 90-100 pound-inches.

S 434-293

- (5) Install lockwire from the squib to the discharge port.

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F. Do the Squib Electrical Connection Procedure

S 864-184

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 034-109

- (2) Remove the squib protective cap from the fire bottle squib (6).

S 764-110

**WARNING:** MAKES SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN ACCIDENTALLY DISCHARGE AND CAUSE INJURY TO PERSONS.

- (3) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

S 754-301

- (4) If there is voltage between pins 1 and 2, do these steps:
  - (a) Connect a multimeter across pins 1 and 2.
  - (b) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - (c) Disconnect the multimeter.

S 214-111

- (5) Make sure the squib electrical pins are not bent or damaged.

S 214-112

- (6) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 434-113

- (7) Connect the electrical connector to the applicable fire bottle squib (6) (Ref Table 401).

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S 214-296

- (8) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- (a) Disconnect the electrical connector from the fire bottle squib.
- (b) Make sure the squib electrical pins are not bent or damaged.
- (c) Make sure the electrical connector is not damaged.
- (d) Connect the electrical connector to the fire bottle squib.

S 864-115

- (9) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

G. Squib Test

S 864-116

- (1) Supply electrical power (AMM 24-22-00/201).

S 744-117

- (2) Push and hold the TEST 1 switch on the SQUIB TEST control panel at the right side panel, P61.
- (a) AIRPLANES WITH TWO BOTTLES INSTALLED;  
Make sure the squib CARGO FWD and CARGO AFT lights come on.
  - (b) AIRPLANES WITH THREE BOTTLES INSTALLED;  
Make sure the CARGO 1, 2 and 2A lights come on.

S 864-118

- (3) Push and hold the TEST 2 switch on the SQUIB TEST control panel.
- (a) AIRPLANES WITH TWO BOTTLES INSTALLED;  
Make sure the CARGO FWD and CARGO AFT lights come on.
  - (b) AIRPLANES WITH THREE BOTTLES INSTALLED;  
Make sure the CARGO 1, 2, and 2A lights come on.

S 864-119

- (4) Put the Airplane Back to Its Usual Condition

S 864-120

- (5) Remove electrical power if it is not necessary (AMM 24-22-00/201).

TASK 26-23-02-004-121

4. Remove the Cargo Fire Extinguisher Bottle (Fig. 401)

A. Equipment

- (1) Discharge Port Cap - (Supplied with the fire extinguisher bottles)

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B. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 26-23-04/401, Filter/Dryer - Removal/Installation

C. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
  - 153/154 Aft Cargo Compartment

- (2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

D. General

- (1) When the fire bottles 2 or 2A are discharged, the filter/dryer in the applicable forward or aft discharge line must also be replaced. Look at the airplane log book or the squibs to find if the fire bottles were discharged. Replace the applicable filter/dryer (AMM 26-23-04/401).

E. Procedure

S 864-122

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 864-185

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

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- S 034-123
- (3) Disconnect the electrical connectors and the pressure switch from the applicable fire extinguisher bottle squib. Refer to Table 401:

TABLE 401 - CARGO FIRE BOTTLE CONNECTION	
Connector	Bottle Connected to:
D1440 (Yellow)	B19, Bottle 1 - Fwd Cargo Discharge Squib
D1442 (Blue)	B19, Bottle 1 - Aft Cargo Discharge Squib
D1450 (Yellow)	B20, Bottle 2 - Fwd Cargo Discharge Squib
D1452 (Blue)	B20, Bottle 2 - Aft Cargo Discharge Squib
D10680(Yellow)	B231, Bottle 2A - Fwd Cargo Discharge Squib *[*1]
D10682(Blue)	B231, Bottle 2A - Aft Cargo Discharge Squib *[*1]

\*[\*1] AIRPLANES WITH BOTTLE 2A INSTALLED

S 434-295

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE THEIR CONTENT SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

- (4) Install a squib protective cap on the squib receptacles.

S 034-125

- (5) Remove the ground strap from the bottle ground lug.

S 934-126

- (6) Make a mark on the discharge hoses to identify the FWD and AFT discharge lines.

S 034-127

- (7) Disconnect the discharge hoses from the bottle discharge ports.

S 434-128

- (8) Install discharge port caps on the bottle discharge ports.

S 034-129

- (9) Remove the bolts and washers from the mounting lugs.

S 024-130

- (10) Use the service handler to remove the extinguishing bottle.

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TASK 26-23-02-404-131

5. Install the Cargo Fire Extinguisher Bottle (Fig. 401)

A. Equipment

(1) Squib Protective Cap (Provided with squibs):

M83723/60-208-AN or AC (forward cap, preferred)

M83723/60-28-AN or AC (foward cap, alternate)

M83723/60-210-AN or AC (aft cap)

(2) Discharge Port Cap - (Supplied with the fire extinguisher bottles)

B. Parts

(1) SAS 050-149;

Refer to the table that follows:

AMM		NOMENCLATURE	AIPC			
FIG	ITEM		SUBJECT	FIG	ITEM	
401	1	Bottle and Valve Assy	26-23-02	08	115	
	1	Bottle and Valve Assy			116	
	1	Bottle and Valve Assy			117	
	1	Bottle and Valve Assy			118	
	1	Bottle and Valve Assy			119	
	1	Bottle and Valve Assy			120	
	1	Bottle and Valve Assy			121	
	1	Bottle and Valve Assy			122	
	1	Bottle and Valve Assy			123	
	1	Bottle and Valve Assy			124	
	1	Bottle and Valve Assy			125	
	1	Bottle and Valve Assy			126	
	1	Bottle and Valve Assy			127	
	6	Cartridge			51	TBD
	6	Cartridge			52	TBD
	6	Cartridge			54	TBD

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**26-23-02**

(2) SAS 155-276;  
Refer to the table that follows:

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Bottle and Valve Assy	26-23-02	09	125
	1	Bottle and Valve Assy			126
	1	Bottle and Valve Assy			127
	1	Bottle and Valve Assy			128
	1	Bottle and Valve Assy			129
	1	Bottle and Valve Assy			130
	1	Bottle and Valve Assy			131
	1	Bottle and Valve Assy			132
	1	Bottle and Valve Assy			133
	1	Bottle and Valve Assy			134
	1	Bottle and Valve Assy			135
	1	Bottle and Valve Assy			136
	1	Bottle and Valve Assy			137
	1	Bottle and Valve Assy			138
	1	Bottle and Valve Assy			139
	1	Bottle and Valve Assy			140
	1	Bottle and Valve Assy			141
	1	Bottle and Valve Assy			142
	1	Bottle and Valve Assy			143
	1	Bottle and Valve Assy		144	
1	Bottle and Valve Assy	145			
6	Cartridge		51	TBD	
6	Cartridge		54	TBD	

(3) SAS 150-154;  
Refer to the table that follows:

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Bottle and Valve Assy	26-23-02	11	110
	1	Bottle and Valve Assy			115
	6	Cartridge		54	30
	6	Cartridge			40
	6	Cartridge			50

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C. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power - Control
- (3) AMM 26-23-00/501, Cargo Fire Extinguishing System
- (4) AMM 26-23-01/601, Cargo Fire Extinguishing Armed Switches

D. Access

(1) Location Zones

- 121 Forward Cargo Compartment (Left)
- 122 Forward Cargo Compartment (Right)
- 153 Aft Cargo Compartment (Left)
- 154 Aft Cargo Compartment (Right)

(2) Access Panels

- 821 Forward Cargo Compartment Door
- 822 Aft Cargo Compartment Door

E. Procedure

S 864-186

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 214-132

**WARNING:** DO NOT MOVE THE BOTTLE WITHOUT A COVER ON THE PORTS. DO NOT LET THE BOTTLE HIT THE AIRPLANE. BE CAREFUL NOT TO DAMAGE THE BOTTLE. IF THE BOTTLE IS ACCIDENTALLY DISCHARGED, IT CAN CAUSE INJURY TO PERSONS.

- (2) Do a weight check of the fire extinguisher bottle.
  - (a) Before the bottle is installed, weigh the bottle per manufacturers instructions and make sure its weight not more than 0.1 pound than the weight listed on the data plate.

**NOTE:** Depending on the bottle manufacturer and/or bottle part number, the measured weight marked on the bottle may or may not include some of the protective caps.

**NOTE:** Do not remove the fill/safety protective cap when weighing the bottle.

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S 434-289

**CAUTION:** AIRPLANES WITH THE 92-LB FIRE BOTTLE INSTALLED (767-200ER WITH 195MIN CARGO FIRE PROTECTION SYSTEM AND FWD CARGO A/C, OR 767-300 WITH 120MIN CARGO FIRE PROTECTION SYSTEM, OR 767-300ER WITH 195-MIN CARGO FIRE PROTECTION SYSTEM AND FWD CARGO A/C); MAKE SURE THE 92-LB FIRE BOTTLE IS INSTALLED IN THE METERED POSITION (SEE FIGURE 402 FOR LOCATION).

- (3) Lift the bottle by the service handles and install the bottle mounting lugs on the support bracket.

S 434-134

- (4) Install the mounting washers and bolts.

S 824-135

- (5) Loosen the discharge head gland nuts and adjust the discharge heads to give the best possible access to the hose connections.

S 434-136

- (6) Tighten the gland nuts to 45-55 pound-feet (61.0 to 74.6 newton-meters).

S 434-137

- (7) Attach a lockwire from the gland nuts to the other discharge port on the bottle.

S 434-138

- (8) Remove the discharge port caps and connect the discharge hoses to the ports. Refer to the outlet identification above each discharge outlet.

S 824-299

- (9) Tighten the discharge hoses to 280 pound-inches for 1/2 inch diameters and 360 pound-inches for 5/8 inch diameters .

**NOTE:** The diameter is the outer diameter of the hose.

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S 434-140

- (10) Install the ground straps to the ground lugs.

S 434-141

- (11) Remove the squib protective covers from the squibs.

S 434-142

- (12) Install the electrical connector to the pressure switch (Ref Table 401).

S 434-283

- (13) Remove the discharge port cap from the thermal relief and refill port if it is installed.

F. Squib Electrical Connection Procedure

**NOTE:** Do this procedure to connect an electrical connector to a fire bottle squib.

S 864-187

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 034-143

- (2) Remove the squib protective cap from the fire bottle squib (6).

S 764-144

**WARNING:** MAKES SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN ACCIDENTALLY DISCHARGE AND CAUSE INJURY TO PERSONS.

- (3) Make sure there is no voltage between pins 1 and 2 of the electrical connector.

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S 754-302

- (4) If there is voltage between pins 1 and 2, do these steps:
- (a) Connect a multimeter across pins 1 and 2.
  - (b) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - (c) Disconnect the multimeter.

S 214-145

- (5) Make sure the squib pins are not bent or damaged.

S 864-146

- (6) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the electrical connector if the pins do not enter the connector receptacles.

S 434-147

- (7) Connect the electrical connector to the applicable fire bottle squib (6).
- (a) Disconnect the electrical connector from the fire bottle squib.
  - (b) Make sure the squib electrical pins are not bent or damaged.
  - (c) Make sure the electrical connector is not damaged.
  - (d) Connect the electrical connector to the fire bottle squib.

S 864-189

- (8) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

G. AIRPLANES WITH TWO FIRE EXTINGUISHER BOTTLES;  
Do a Test of the Squib Test Panel

S 024-291

- (1) Disconnect the electrical connector from the discharge squib as applicable (Ref Table 401).

S 034-259

- (2) Do the Squib Electrical Connection procedure to connect the electrical connector D1440 (yellow) to the forward squib of bottle 1.

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- S 724-279
- (3) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
- 1) Make sure the CARGO FWD squib light, on the SQUIB TEST panel, comes on (green).
  - 2) Make sure the CARGO AFT light stays off.
- (b) Release the TEST 1 switch.
- 1) Make sure the CARGO squib light goes off.
- S 434-263
- (4) Do the Squib Electrical Connection procedure to connect the electrical connector D1450 (yellow) to the forward squib of bottle 2.
- S 204-266
- (5) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
- 1) Make sure the CARGO FWD light, on the SQUIB TEST panel, comes on (green).
  - 2) Make sure the CARGO AFT light stays off.
- (b) Release the TEST 2 switch.
- 1) Make sure the CARGO FWD light goes off.
- S 034-270
- (6) Do the Squib Electrical Connection procedure to connect the electrical connector D1442 (blue) to the aft squib of bottle 1.
- S 724-271
- (7) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
- 1) Make sure the CARGO FWD and CARGO AFT squib lights, on the SQUIB TEST panel, come on (green).
- (b) Release the TEST 1 switch.
- 1) Make sure the CARGO lights go off.

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- S 434-272
- (8) Do the Squib Electrical Connection procedure to connect the electrical connector D1452 (blue) to the aft squib of bottle 2.
- S 724-274
- (9) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
- 1) Make sure the CARGO AFT and CARGO FWD lights come on (green).
- (b) Release the TEST 2 switch.
- 1) Make sure the CARGO lights go off.
- H. AIRPLANES WITH THREE FIRE EXTINGUISHER BOTTLES;  
Do a Test of the Squib Test Panel
- S 024-290
- (1) Disconnect the electrical connector from the discharge squib as applicable (Ref Table 401).
- S 034-160
- (2) Do the Squib Electrical Connection procedure to connect the electrical connector D1440 (yellow) to the forward squib of bottle 1.
- S 724-280
- (3) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
- 1) Make sure the CARGO 1 squib light, on the SQUIB TEST panel, comes on (green).
- 2) Make sure the CARGO 2 and CARGO 2A lights stay off.
- (b) Release the TEST 1 switch.
- 1) Make sure the CARGO squib light goes off.
- S 434-166
- (4) Do the Squib Electrical Connection procedure to connect the electrical connector D1450 (yellow) to the forward squib of bottle 2.
- S 864-206
- (5) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
- 1) Make sure the CARGO 1 and CARGO 2 squib lights, on the SQUIB TEST panel, come on (green):

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- 2) Make sure the CARGO 2A squib light stays off.
- (b) Release the TEST 1 switch.
  - 1) Make sure the CARGO squib lights go off.

S 434-173

- (6) Do the Squib Electrical Connection procedure to connect the electrical connector D10680 (yellow) to the forward squib of bottle 2A.

S 864-207

- (7) Check the squib circuit.
  - (a) At the SQUIB TEST panel (P61), push and hold the TEST 1 switch.
    - 1) Make sure the CARGO 1, CARGO 2, and CARGO 2A squib lights, on the SQUIB TEST panel, come on (green).
  - (b) Release the TEST 1 switch.
    - 1) Make sure the CARGO squib lights go off.

S 034-179

- (8) Do the Squib Electrical Connection procedure to connect the electrical connector D1442 (blue) to the aft squib of bottle 1.

S 724-183

- (9) Check the squib circuit.
  - (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO 1 squib light, on the SQUIB TEST panel, comes on (green).
    - 2) Make sure the CARGO 2 and CARGO 2A squib lights stay off.
  - (b) Release the TEST 2 switch.
    - 1) Make sure the CARGO squib light goes off.

S 434-186

- (10) Do the Squib Electrical Connection procedure to connect the electrical connector D1452 (blue) to the aft squib of bottle 2.

S 864-208

- (11) Check the squib circuit.
  - (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
    - 1) Make sure the CARGO 1 and CARGO 2 squib lights, on the SQUIB TEST panel, come on (green).
    - 2) Make sure the CARGO 2A squib light stays off.
  - (b) Release the TEST 2 switch.
    - 1) Make sure the cargo squib lights go off.

S 434-193

- (12) Do the Squib Electrical Connection procedure to connect the electrical connector D10682 (blue) to the aft squib of bottle 2A.

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- S 724-198
- (13) Check the squib circuit.
- (a) At the SQUIB TEST panel (P61), push and hold the TEST 2 switch.
- 1) Make sure the CARGO 1, CARGO 2, and CARGO 2A squib lights, on the SQUIB TEST panel, come on (green).
- (b) Release the TEST 2 switch.
- 1) Make sure the CARGO squib lights go off.
- I. Fire Extinguisher Bottle Installation Test
- S 864-152
- (1) Supply electrical power (AMM 24-22-00/201).
- S 744-153
- (2) Push the TEST 1 or TEST 2 switch on the SQUIB TEST control panel.
- S 864-179
- (3) AIRPLANES WITH THREE BOTTLES INSTALLED;  
Make sure the CARGO 1, 2, 2A squib test lights come on.
- S 864-180
- (4) AIRPLANES WITH TWO BOTTLES INSTALLED;  
Make sure the CARGO FWD and AFT squib test lights come on.
- S 744-155
- (5) Push the manual override test switch installed on the pressure switch.
- S 754-156
- (6) Make sure the BTL DISCH light on the CARGO FIRE CONTROL panel, P8 comes on.
- S 744-157
- (7) Release the manual override switch.
- S 754-158
- (8) Make sure the BTL DISCH light goes off.
- J. Put the Airplane Back to Its Usual Condition
- S 864-159
- (1) Remove electrical power if it is not necessary (AMM 24-22-00/201).

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CARGO COMPARTMENT FIRE EXTINGUISHER BOTTLE - INSPECTION/CHECK

1. General

- A. This procedure will make sure that the forward cargo compartment 32-pound (14.5 kg), the 80-pound (36.4 kg) and if installed, the 92-pound (41.8 kg) fire bottles are installed in the correct position.
- B. The cargo fire extinguisher bottles are in the lower cargo compartment, aft of the forward cargo door on the right side of the airplane. Each fire extinguisher bottle has two discharge cartridges (squibs). The removal/installation procedure is the same for all the bottles and squibs.

TASK 26-23-02-756-130

2. Fire Extinguisher Bottle Check

A. References

- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 26-23-02/401, Fire Extinguisher Bottle Removal/Installation.

B. Access

- (1) Location Zones
  - 121/122 Forward Cargo Compartment
- (2) Access Panels
  - 821 Forward Cargo Compartment Door

C. Procedure

S 756-136

- (1) Make sure that the 32-pound (14.5 kg) fire bottle is in the forward position.

S 756-133

- (2) AIRPLANES WITH A 92-POUND FIRE BOTTLE INSTALLED;  
make sure that the 80-pound (36.4 kg) fire bottle is not switched with the 92-pound (41.8 kg) fire bottle. The 80-pound (36.4 kg) fire bottle should be located aft of the 92-pound (41.8 kg) bottle. If the bottles are switched, install the bottles correctly (AMM 26-23-02/401).

S 756-134

- (3) AIRPLANES WITH AN AIR CONDITIONED LOWER LOBE CARGO COMPARTMENT;  
If both bottles are 80 pounds (36.4 kg), replace the center bottle with a 92-pound (41.8 kg) bottle.

S 756-135

- (4) Do the fire bottle replacement functional test (AMM 26-23-02/401).

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REGULATOR - REMOVAL/INSTALLATION

1. General

- A. The regulators are installed in the left side of the ceiling in the forward cargo compartment and the aft cargo compartment.
- B. The removal/installation procedure is the same for each regulator.

TASK 26-23-03-004-001

2. Remove the Regulator (Fig. 401)

A. References

- (1) IPC 26-23-51
- (2) AMM 25-52-02/401, Containerized Cargo Compartment Ceiling Lining

B. Access

- (1) Location Zones
  - 121 Forward Cargo Compartment
  - 153 Aft Cargo Compartment

C. Procedure

S 864-002

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 014-003

- (2) Remove the ceiling lining to get access to the regulator (AMM 25-52-02/401).

S 034-004

- (3) Loosen the connectors to disconnect the tubing from the regulator.

S 034-005

- (4) Loosen the jam nut.

S 034-006

- (5) Remove the two bolts and washers which connect the top support bracket to the regulator.

S 034-007

- (6) Remove the two bolts, nuts, and washers which connect the bottom support bracket to the regulator.

S 024-008

- (7) Remove the regulator from the bottom U-shaped support bracket.

S 934-009

- (8) If you will use the regulator again, make a mark (arrow) that shows the flow direction on the regulator unless the regulator shows a flow direction arrow.

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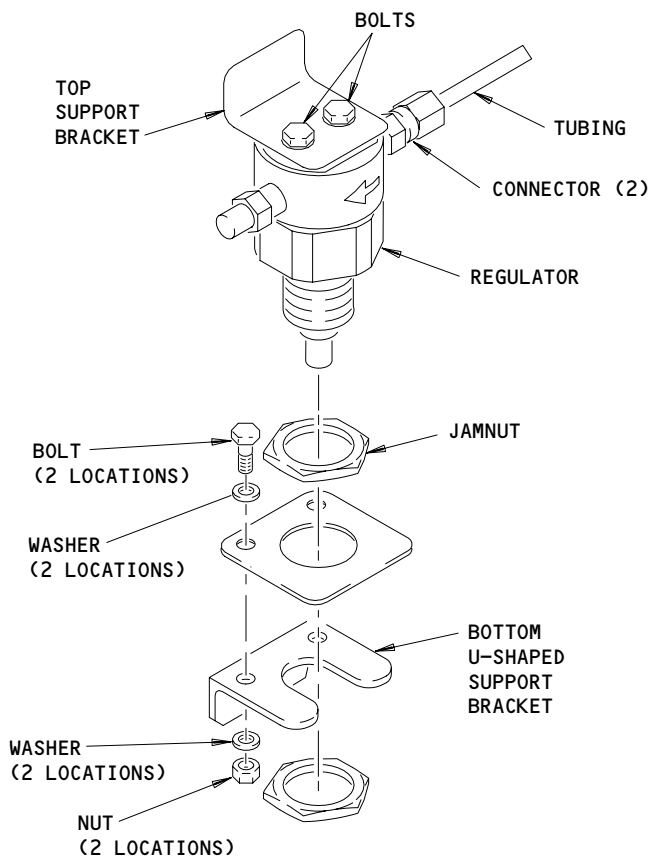
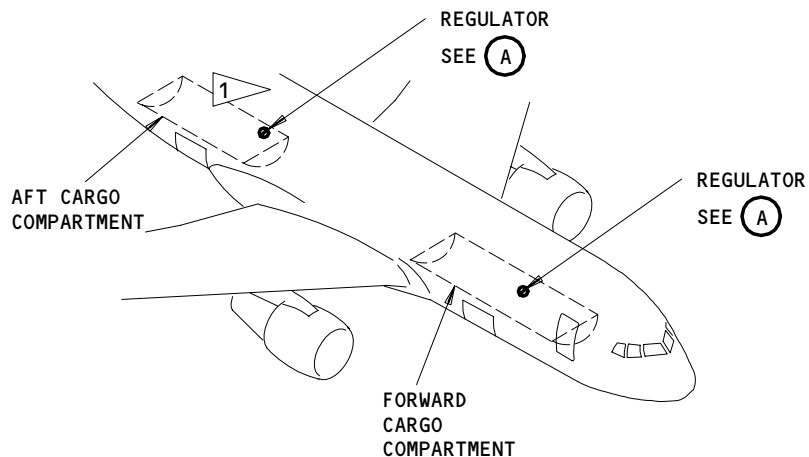
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1 THE AFT REGULATOR ASSEMBLY IS TURNED 180 DEGREES AROUND THE HORIZONTAL AXIS

Regulator Installation  
Figure 401

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TASK 26-23-03-404-010

3. Install the Regulator (Fig. 401)

A. References

- (1) AMM 26-23-00/501, Cargo Fire Extinguishing System - Adjustment/Test

B. Access

- (1) Location Zones

121	Forward Cargo Compartment
153	Aft Cargo Compartment

C. Procedure

S 414-011

- (1) Get access to the applicable cargo area to install the regulator.

S 434-012

**CAUTION:** YOU MUST INSTALL THE REGULATOR IN THE CORRECT POSITION AND FLOW DIRECTION. IF IT IS INSTALLED INCORRECTLY THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (2) Put the regulator in the correct position in the bottom U-shaped support bracket.

S 434-013

- (3) Tighten the jam nut.

S 434-014

- (4) Install the two bolts and washers which connect the top support bracket to the regulator.

S 434-015

- (5) Install the two bolts, nuts, and washers which connect the bottom support bracket to the regulator.

S 434-016

- (6) Install the connectors to attach the tubing to the regulator.

S 864-017

- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:

- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1  
(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 734-018

- (8) Do the System Test for the Metered Fire Extinguisher Discharge Lines (AMM 26-23-00/501).

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- S 434-030  
(9) Install the ceiling lining (AMM 25-52-02/401).

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CARGO FIRE EXTINGUISHER BOTTLE RELAYS – INSPECTION/CHECK

1. General

- A. This procedure will make sure these systems operate correctly:  
Forward and aft lock-in relays  
30 minute time delay relay  
Air/ground bypass relay in the cargo fire extinguishing system

TASK 26-23-03-716-230

2. Operational Test – Cargo Fire Extinguisher Bottle Relays

A. Equipment

- (1) Multimeter 0-1000 VDC  $\pm$  1%, 0-750 VAC, 0-2 amps, 0-2 meg ohms – commercially available
- (2) Resistor – 10 kohms or greater
- (3) Squib Protective Caps (Provided with squibs)  
M83723/60-28-AN or AC  
M83723/60-210-AN or AC
- (4) Test Box – Time Delay, Cargo Fire Extinguisher Bottle – A26002-54
- (5) Adapter Cable Assembly – A26002-36 (2 each)– Optional.  
Cable is used to adapt between test box and forward squib airplane wiring (cross wire protection)).
- (6) 28V dc power source.

B. References

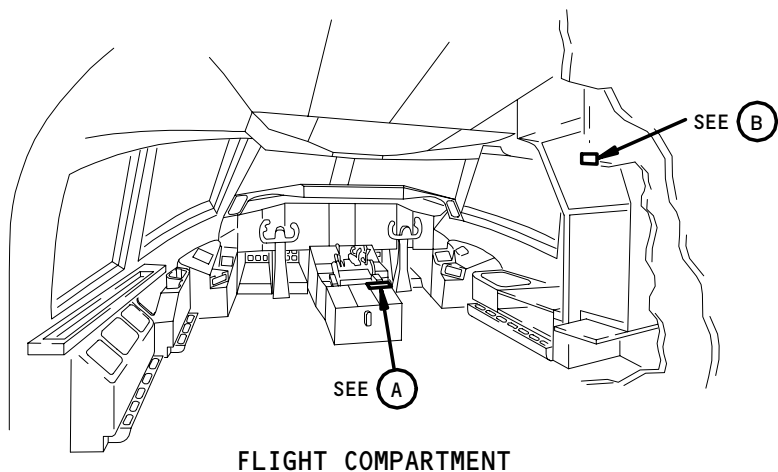
- (1) AMM 20-10-33/401, Power Device Cartridge
- (2) AMM 24-22-00/201, Electrical Power
- (3) AMM 32-09-02/201, Air Ground System

C. Squib Electrical Connection Procedure

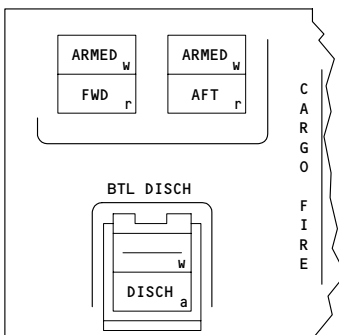
NOTE: Do this procedure whenever you connect an electrical connector to a fire bottle squib.

S 866-275

- (1) Do the steps that follow to connect an electrical connector to a fire bottle squib.

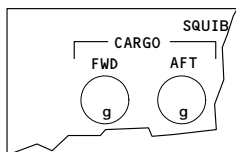


FLIGHT COMPARTMENT



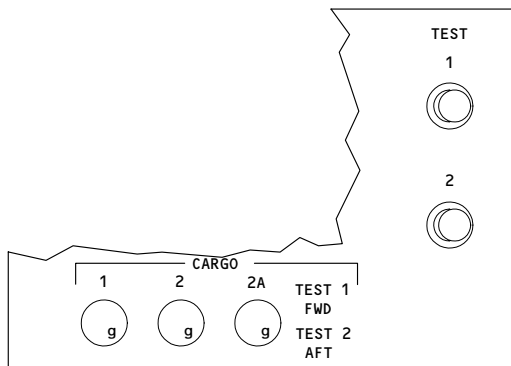
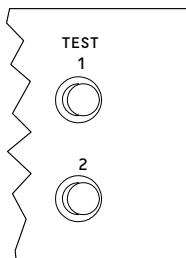
APU/CARGO FIRE CONTROL PANEL

(A)



SQUIB TEST PANEL

(B) 1



SQUIB TEST PANEL

(B) 2

- 1 AIRPLANES WITH 2 CARGO FIRE EXTINGUISHING BOTTLES
- 2 AIRPLANES WITH 3 CARGO FIRE EXTINGUISHING BOTTLES

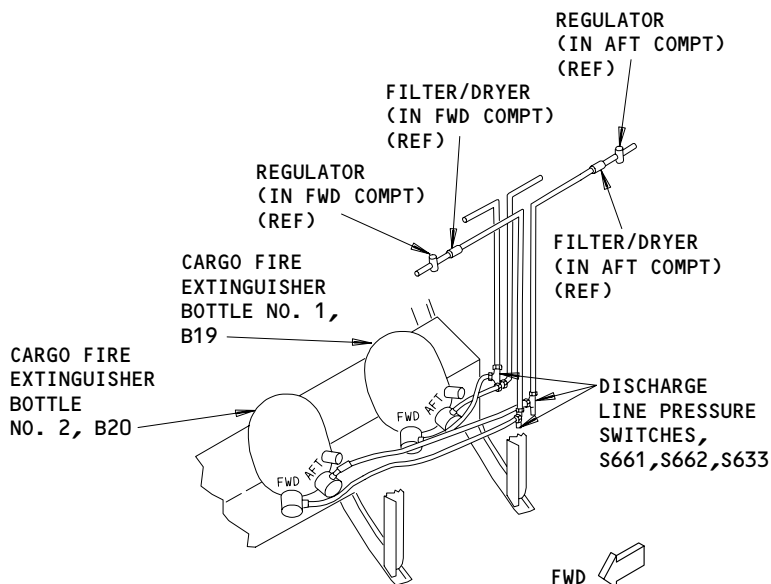
Cargo Compartment Fire Extinguishing System Inspection  
Figure 601 (Sheet 1)

EFFECTIVITY  
767-300 AIRPLANES AND ALL MTH AIRPLANES

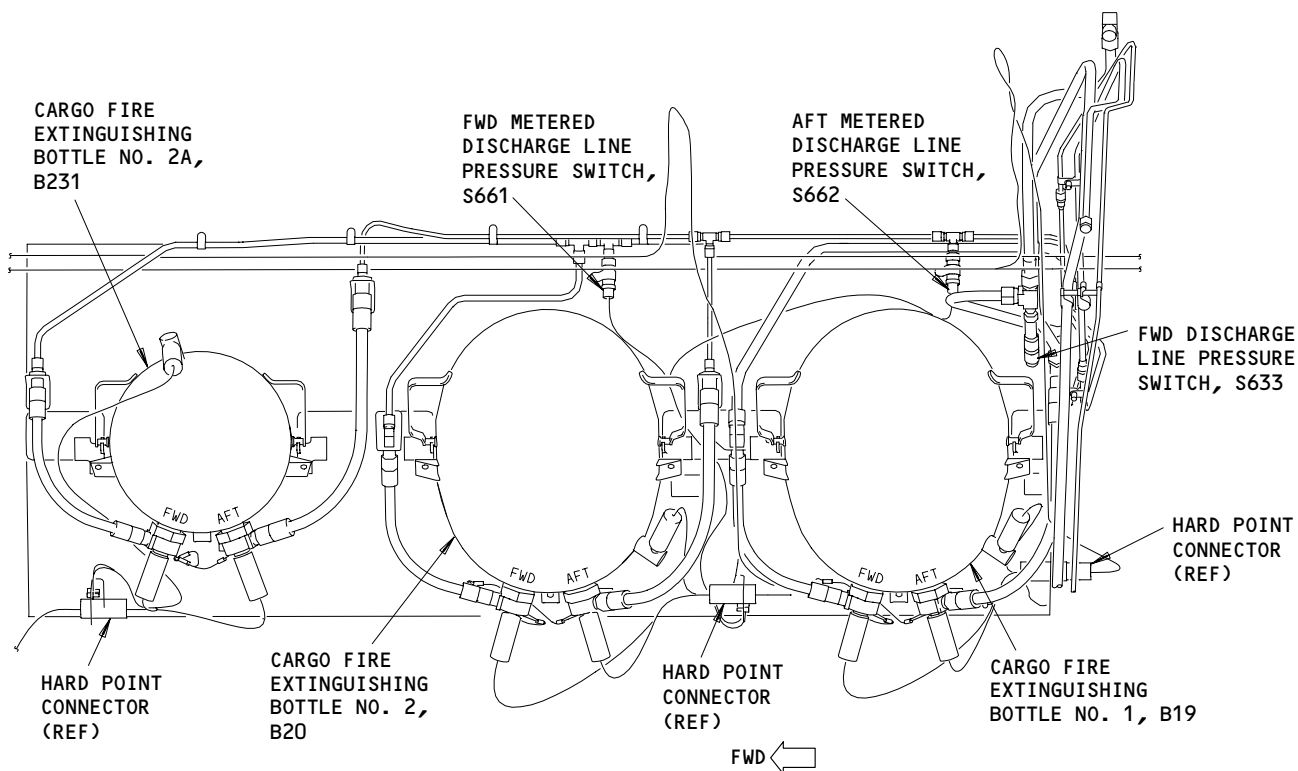
26-23-03

# BOEING

## 767 MAINTENANCE MANUAL



RIGHT SIDEWALL FWD CARGO COMPARTMENT 2



RIGHT SIDEWALL FWD CARGO COMPARTMENT 1 3  
(LOOKING OUTBD)

Cargo Compartment Fire Extinguishing System Component Location  
Figure 601 (Sheet 2)

EFFECTIVITY  
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S 866-276

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).
- (a) Open and attach a D0-NOT-CLOSE tag to these circuit breakers, on the P6 panel:
- 1) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - 2) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- (b) Remove the protective cap from the fire bottle squib.

**WARNING:** MAKE SURE THERE IS NO VOLTAGE AT THE ELECTRICAL CONNECTOR. IF THERE IS A VOLTAGE AT THE ELECTRICAL CONNECTOR, THE SQUIB CAN DISCHARGE ACCIDENTALLY AND CAUSE INJURY TO PERSONS.

- (c) Make sure there is no voltage between pins 1 and 2 of the electrical connector.
- (d) If there is voltage between pins 1 and 2, do these steps:
- 1) Connect the multimeter across pins 1 and 2.
  - 2) Connect a 10 kohm resistor across the multimeter to remove any stray voltage from the electrical connector.
  - 3) Disconnect the multimeter.
- (e) Do the steps that follow to make sure you did not bend or damage the squib pins.

**NOTE:** This step is necessary because the pins are most likely to be damaged the first time an electrical connector is connected to the squib.

- 1) Disconnect the electrical connector from the fire bottle squib.
- 2) Make sure the squib pins are not bent or damaged.
- 3) Make sure the electrical connector is not damaged.

**NOTE:** The squib pins can cause damage to the connector if the pins do not enter the electrical connector receptacles.

- (f) Connect the electrical connector to the fire bottle squib.

D. Prepare for the Test

S 866-264

**WARNING:** DO NOT TOUCH THE SQUIB BEFORE YOU DO THE PROCEDURES FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE THE FIRE BOTTLE TO RELEASE ITS CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Before you touch the squib, do the procedure for devices that are sensitive to electrostatic discharge (AMM 20-10-33/401).

S 866-002

- (2) Supply electrical power (AMM 24-22-00/201).

S 866-003

- (3) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 216-244

- (4) Make sure the system No. 2 air/ground relays are in the ground mode (AMM 32-09-02/201).

S 016-004

- (5) Get access to the lower cargo compartment.

S 036-005

- (6) Disconnect the electrical connectors from the fire extinguisher bottles as shown in Table 601:

FIRE BOTTLE CONNECTIONS TABLE 601	
Connector	Bottle Connections Table 601
D1440	B19, Bottle 1, FWD Cargo Discharge Squib
D1442	B19, Bottle 1, AFT Cargo Discharge Squib
D1450	B20, Bottle 2, FWD Cargo Discharge Squib
D1452	B20, Bottle 2, AFT Cargo Discharge Squib
D10680 *[1]	B231, Bottle 2A, FWD Cargo Discharge Squib
D10682 *[1]	B231, Bottle 2A, AFT Cargo Discharge Squib

\*[1] SAS 155-999;  
ALL MTH AIRPLANES

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S 436-263

**WARNING:** PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS. IF YOU DO NOT PUT THE PROTECTIVE CAPS ON THE FIRE BOTTLE SQUIBS, THE FIRE BOTTLES CAN RELEASE THEIR CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

**CAUTION:** DO NOT PUT SHUNT PLUGS ON THE FIRE BOTTLE SQUIBS. THE SHUNT PLUGS CAN CAUSE DAMAGE TO THE SQUIB PINS.

(7) Put the protective caps on all the fire bottle squibs.

S 866-007

**WARNING:** DO NOT INSTALL THE ELECTRICAL CONNECTORS TO THE SQUIBS IF THERE IS VOLTAGE AT THE CONNECTOR PINS. IF THE SQUIB FIRES, THE BOTTLES CAN RELEASE THEIR CONTENTS SUDDENLY AND CAUSE INJURY TO PERSONS.

(8) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:

(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1

(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

E. Do a Test of the Relays for the Extinguisher Bottle 2

**NOTE:** The Test of the Relays for the Extinguisher Bottle will check at first the FWD connections, the test will then be repeated to check the AFT connections. While the check of the AFT connections is done refer to the data enclosed in parenthesis.

S 866-030

**CAUTION:** OPEN THE CIRCUIT BREAKERS AND DO THE DEACTIVATION PROCEDURE IN AMM 32-09-02/201. DAMAGE TO THE EQUIPMENT CAN OCCUR WHEN YOU OPEN THE AIR/GND SYS CIRCUIT BREAKER AND POWER IS APPLIED TO THE AIRPLANE.

(1) Put the No. 2 air/ground relays into the flight operation mode (AMM 32-09-02/201).

- S 436-048
- (2) Connect the electrical connector, D1450 (D1452), of bottle 2 (B20), to the connector, J1, on the test box for the time delay relay.
- S 436-237
- (3) Connect the electrical connector, D1440 (D1442), of bottle 1 (B19), to the connector, J2, on the test box for the time delay relay.
- S 866-051
- (4) Connect the 28V dc power source to the test box.
- S 866-052
- (5) Turn the POWER switch, on the test box, to the ON position.  
(a) Make sure the power lamp, on the test box, is on.
- S 866-053
- (6) Push and release the TEST RELAY RESET switch on the test box.
- S 866-054
- (7) Push and release the timer reset switch on the test box.
- S 866-055
- (8) Push the FWD (AFT) ARMED switch on the CARGO FIRE panel.  
(a) Make sure that ARMED is shown.
- S 866-056
- (9) Push and release the BTL DISCH switch, on the CARGO FIRE panel, to start the operation of the time delay relay.  
(a) Make sure the elapsed time indicator, on the test box, operates.  
(b) Make sure the elapsed time indicator stops after 30 ±3 minutes.  
(c) Make sure the power lamps stay on.
- S 866-060
- (10) Push the FWD (AFT) ARMED switch on the CARGO FIRE panel.  
(a) Make sure that ARMED is not shown.

- S 866-267
- (11) Open then close the following circuit breaker:  
(a) 6H6, Fire Extinguishing Cargo Btl 2
- S 036-061
- (12) Disconnect the electrical connectors, D1450 (D1452) and D1440 (D1442), from the test box.
- S 866-268
- (13) Do the Test of the Relays for the Extinguisher Bottle AFT connection. Use the data shown in parenthesis to do the AFT connection test.
- S 866-273
- (14) Put the system No. 2 air/ground relays into the ground mode (AMM 32-09-02/201).
- F. SAS 150-169;  
Do the Squib Connection Test
- S 916-252
- (1) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1440, to the forward discharge squib of bottle 1.
- S 866-101
- (2) Close this circuit breaker on the P6 panel and remove the DO-NOT-CLOSE tag:  
(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- S 866-102
- (3) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).  
(a) Make sure these indications occur on the SQUIB TEST panel:  
1) The CARGO FWD squib light come on.

2) The CARGO AFT squib light stays off.

S 866-104

- (4) Release the TEST 1 switch.  
(a) Make sure the CARGO FWD squib light goes off.

S 436-106

- (5) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1442, to the aft discharge squib of bottle 1.

S 866-107

- (6) Close this circuit breaker on the P6 panel and remove the DO-NOT-CLOSE tag:  
(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1

S 866-108

- (7) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).  
(a) Make sure these indications occur on the SQUIB TEST panel:  
1) The CARGO FWD lights come on.  
2) The CARGO AFT squib lights come on.

S 866-216

- (8) Release the TEST 1 switch.  
(a) Make sure these indications occur:  
1) The CARGO FWD lights go off.  
2) The CARGO AFT lights go off.

S 916-253

- (9) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1450, to the forward discharge squib of bottle 2.

S 866-111

- (10) Close this circuit breaker on the P6 panel and remove the DO-NOT-CLOSE tag:  
(a) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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S 866-112

- (11) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).  
(a) Make sure these indications occur:  
1) The CARGO FWD light comes on.  
2) The CARGO AFT light stays off.

S 866-113

- (12) Release the TEST 2 switch.  
(a) Make sure the CARGO FWD light goes off.

S 436-115

- (13) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1452, to the aft discharge squib of bottle 2.

S 866-116

- (14) Close this circuit breaker on the P6 panel and remove the DO-NOT-CLOSE tag:  
(a) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 866-117

- (15) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).  
(a) Make sure these indications occur:  
1) The CARGO FWD light come on.  
2) The CARGO AFT light comes on.

S 866-118

- (16) Release the TEST 2 switch.  
(a) Make sure these indications occur:  
1) The CARGO FWD light goes off.  
2) The CARGO AFT light goes off.

- G. SAS 155-999;  
ALL MTH AIRPLANES;  
Do the Squib Connection Test

S 916-256

- (1) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1440, to the forward discharge squib of bottle 1.

- S 866-121
- (2) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 866-122
- (3) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.
    - 2) The CARGO 2 light stays off.
    - 3) The CARGO 2A light stays off.
- S 866-123
- (4) Release the TEST 1 switch.
- (a) Make sure the CARGO 1 light goes off.
- S 436-125
- (5) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1442, to the aft discharge squib of bottle 1.
- S 866-126
- (6) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 866-127
- (7) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.
    - 2) The CARGO 2 light stays off.
    - 3) The CARGO 2A light stays off.
- S 866-128
- (8) Release the TEST 2 switch.
- (a) Make sure the CARGO 1 light goes off.

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- S 916-257
- (9) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1450, to the forward discharge squib of bottle 2.
- S 866-131
- (10) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 866-132
- (11) Push and hold the TEST 1 switch on the SQUIB TEST panel.
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.
    - 2) The CARGO 2 light comes on.
    - 3) The CARGO 2A light stays off.
- S 866-133
- (12) Release the TEST 1 switch.
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light goes off.
    - 2) The CARGO 2 light goes off.
- S 436-135
- (13) Do the Squib Electrical Connection Procedure to connect the electrical connector, D1452, to the aft discharge squib of bottle 2.
- S 866-136
- (14) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- S 866-137
- (15) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.

- 2) The CARGO 2 light comes on.
- 3) The CARGO 2A light stays off.

S 866-138

- (16) Release the TEST 2 switch.
  - (a) Make sure these indications occur:
    - 1) The CARGO 1 light goes off.
    - 2) The CARGO 2 light goes off.

S 916-259

- (17) Do the Squib Electrical Connection Procedure to connect the electrical connector, D10680, to the forward discharge squib of bottle 2A.

S 866-141

- (18) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 866-142

- (19) Push and hold the TEST 1 switch on the SQUIB TEST panel (P61).
  - (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.
    - 2) The CARGO 2 light comes on.
    - 3) The CARGO 2A light comes on.

S 866-143

- (20) Release the TEST 1 switch.
  - (a) Make sure these indications occur:
    - 1) The CARGO 1 light goes off.
    - 2) The CARGO 2 light goes off.
    - 3) The CARGO 2A light goes off.

S 436-217

- (21) Do the Squib Electrical Connection Procedure to connect the electrical connector, D10682, to the aft discharge squib of bottle 2A.

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S 866-145

- (22) Close these circuit breakers on the P6 panel and remove the DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 866-146

- (23) Push and hold the TEST 2 switch on the SQUIB TEST panel (P61).
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light comes on.
    - 2) The CARGO 2 light comes on.
    - 3) The CARGO 2A light comes on.

S 866-147

- (24) Release the TEST 2 switch.
- (a) Make sure these indications occur:
    - 1) The CARGO 1 light goes off.
    - 2) The CARGO 2 light goes off.
    - 3) The CARGO 2A light goes off.

S 866-148

- (25) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2
- H. Put the Airplane back to Its Usual Condition.

S 866-169

- (1) Put the system No. 2 air/ground relays into the ground mode (Ref 32-09-02).

S 866-170

- (2) Remove electrical power if it is not necessary (AMM 24-22-00/201).

FILTER/DRYER – REMOVAL/INSTALLATION

1. General

- A. The filter/dryers are installed in the left side of the ceiling in the forward cargo compartment and the aft cargo compartment.
- B. The removal/installation procedure is the same for each filter/dryer.

TASK 26-23-04-004-001

2. Remove the Filter/Dryer (Fig. 401)

A. Reference

- (1) AMM 25-52-02/401, Containerized Cargo Compartment Ceiling Lining

B. Access

- (1) Location Zones
  - 121 Forward Cargo Compartment
  - 153 Aft Cargo Compartment

C. Procedure

S 864-002

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 014-003

- (2) Remove the ceiling lining to get access to the filter/dryer (AMM 25-52-02/401).

S 034-004

- (3) Loosen the nuts that connect the tubing to the filter/dryer.

S 024-005

- (4) Remove the filter/dryer.

NOTE: If the fire bottle was discharged through the filter/dryer, you must replace the filter/dryer with a new one. The filter/dryer will only work one time.

TASK 26-23-04-404-006

3. Install the Filter/Dryer (Fig. 401)

A. References

- (1) AMM 25-52-02/401, Containerized Cargo Compartment Ceiling Lining
- (2) AMM 26-23-00/501, Cargo Fire Extinguishing System – Adjustment/Test

B. Access

- (1) Location Zones
  - 121 Forward Cargo Compartment
  - 153 Aft Cargo Compartment

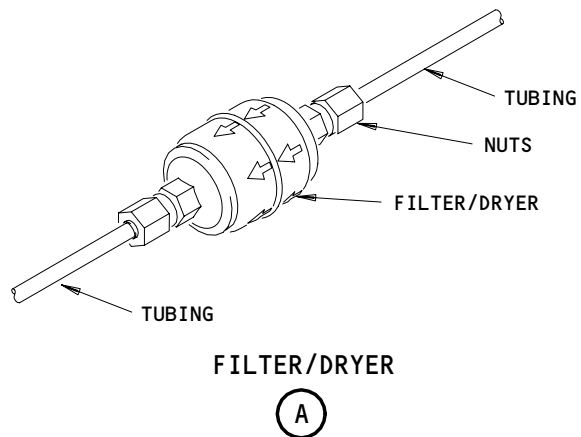
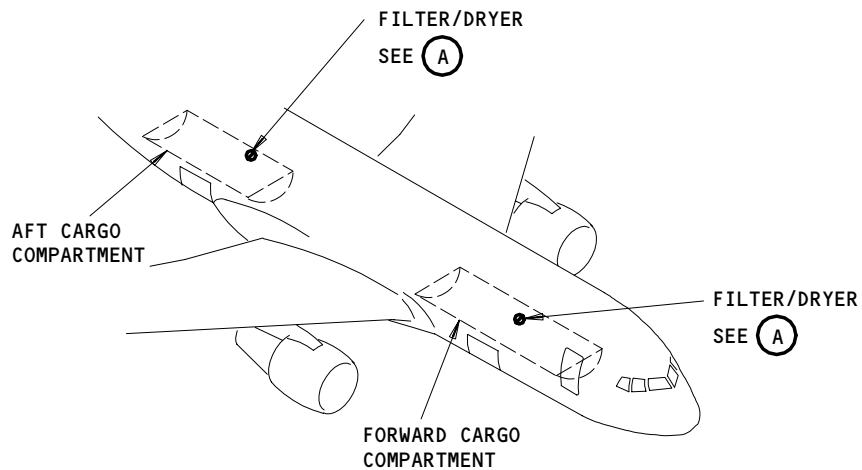
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Filter/Dryer Installation  
Figure 401

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C. Procedure

S 864-012

- (1) Make sure the inner part of the filter/dryer is not broken.

S 434-007

- (2) Put the filter/dryer in position between the ends of the tubing.

S 424-008

**CAUTION:** YOU MUST INSTALL THE FILTER/DRYER IN THE CORRECT POSITION AND AND FLOW DIRECTION. IF IT IS INSTALLED INCORRECTLY, THE SYSTEM WILL NOT OPERATE CORRECTLY.

- (3) Connect the filter/dryer to the tubing with the nuts.  
(a) Make sure that the filter/dryer is installed tightly on the tubing.

S 864-010

- (4) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:  
(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1  
(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 734-011

- (5) Do the System Test for the Metered Fire Extinguisher Discharge Lines (AMM 26-23-00/501).

S 434-018

- (6) Install the ceiling lining (AMM 25-52-02/401).

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IN-LINE PRESSURE SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the in-line pressure switch for the lower cargo fire extinguishing system.

(2) An installation of the in-line pressure switch.

The in-line pressure switches are installed in the right sidewall area of the forward cargo compartment, near the cargo fire extinguisher bottles.

B. The removal/installation procedure is the same for each in-line pressure switch.

TASK 26-23-05-004-001

2. Remove the In-Line Pressure Switch (Fig. 401)

A. References

(1) IPC 26-23-51 FIG 11

(2) AMM 25-52-01/401, Containerized Cargo Compartment Sidewall Lining

B. Access

(1) Location Zones

121 Forward Cargo Compartment

C. Procedure

S 864-002

(1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:

(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1

(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 014-019

(2) Remove the sidewall lining to get access to the pressure switch (AMM 25-52-01/401).

S 034-004

(3) Disconnect the electrical connector from the pressure switch.

S 034-005

(4) Remove the screw, washer and clamp that hold the pressure switch to the airplane structure.

S 024-008

(5) Remove the pressure switch.

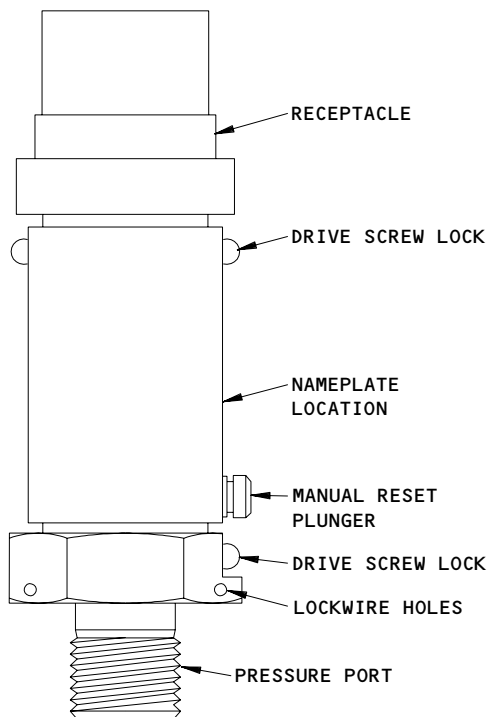
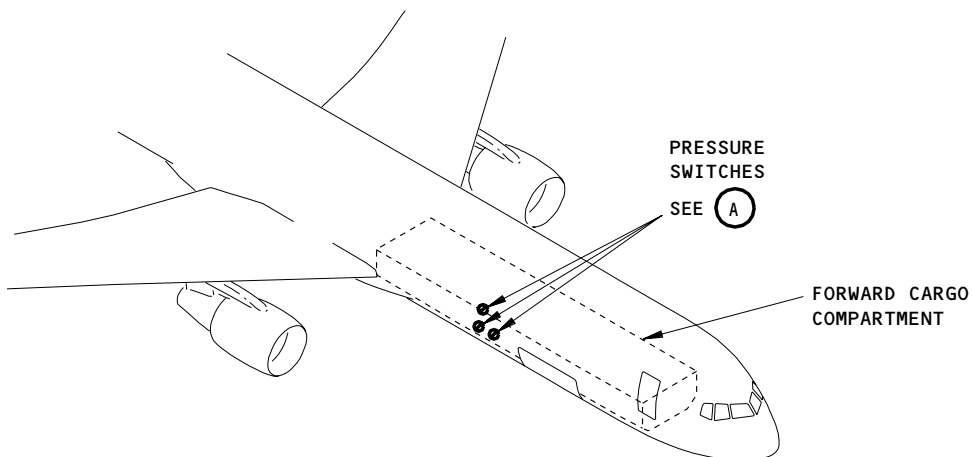
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PRESSURE SWITCH  
(EXAMPLE)

(A)

Pressure Switch Installation  
Figure 401

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TASK 26-23-05-404-010

3. Install the In-Line Pressure Switch (Fig. 401)

A. References

- (1) AMM 25-52-01/401, Containerized Cargo Compartment Sidewall Lining
- (2) AMM 26-23-00/501, Cargo Fire Extinguishing System - Adjustment/Test

B. Access

- (1) Location Zones  
121 Forward Cargo Compartment

C. Procedure

S 424-020

- (1) Put the pressure switch in its position on the airplane structure.

S 434-013

- (2) Install the screw, washer and clamp that hold the pressure switch to the airplane structure.

S 434-014

- (3) Connect the inlet tube to the pressure switch.

S 434-015

- (4) Tighten the connector on the inlet tube.

S 434-016

- (5) Connect the electrical connector to the pressure switch.

S 864-021

- (6) Push the reset button on the pressure switch.

S 864-017

- (7) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:
  - (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
  - (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 734-018

- (8) Do the System Test for the Metered or Non-Metered Fire Extinguisher Discharge Lines (AMM 26-23-00/501).

D. Put the Airplane Back to Its Usual Condition

S 434-021

- (1) Install the sidewall lining adjacent to the pressure switch (AMM 25-52-01/401).

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AFT CARGO COMPARTMENT FIRE EXTINGUISHER TUBE INSULATION – APPROVED REPAIRS

1. General

- A. This procedure has instructions to repair the aft cargo compartment fire extinguisher tube insulation.

TASK 26-23-11-308-001

2. Repair the Fire Extinguisher Tube Insulation (Fig. 801)

A. Consumable Materials

- (1) G02470 – Insulation, Polyimide Foam (BMS 8-300, Type II, Grade 5)

NOTE: Use of BMS 8-39 polyurethane foam insulation for repairs is 'not' permitted due to the degradation in flammability properties over time.

- (2) G50327, Tape – Advanced Insulation Blanket, 2-inch, 3-inch, or 12-inch wide (BMS 5-157, Type I, Class 1, Grade B, Form 1, Composition MPVF) (AMM 20-30-07/201)
- (a) E and H 743-MT  
E and H Laminating, 138 Grand Street, Paterson, NJ 07501
- (b) SF65003100  
Bekaert Speciality Films LLC, 4540 Viewridge Ave., San Diego, CA 92123
- (c) Orcotape OT-157  
Orcon Corporation, 1570 Atlantic Street, Union City, CA 94587
- (3) B01011, Solvent – Series 91, commercially available (AMM 20-30-91/201)
- (4) Wiping cloth, lint free – commercially available
- (5) Insulation part no. 529381800.

B. References

- (1) AMM 06-46-00/201, Entry, Service, and Cargo Doors
- (2) AMM 25-55-01/401, Sidewall Lining Panels

C. Access

- (1) Location Zone  
822 Aft Cargo Door

D. Procedure

S 868-012

- (1) Open these circuit breakers on the main power distribution panel, P6, and attach DO-NOT-CLOSE tags:
- (a) 6H5, FIRE EXTINGUISHING CARGO BTL 1
- (b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

S 018-003

- (2) Open the aft cargo door (AMM 06-46-00/201).

S 018-004

- (3) Remove the applicable sidewall panels in the cargo bay (AMM 25-55-01/401).

EFFECTIVITY

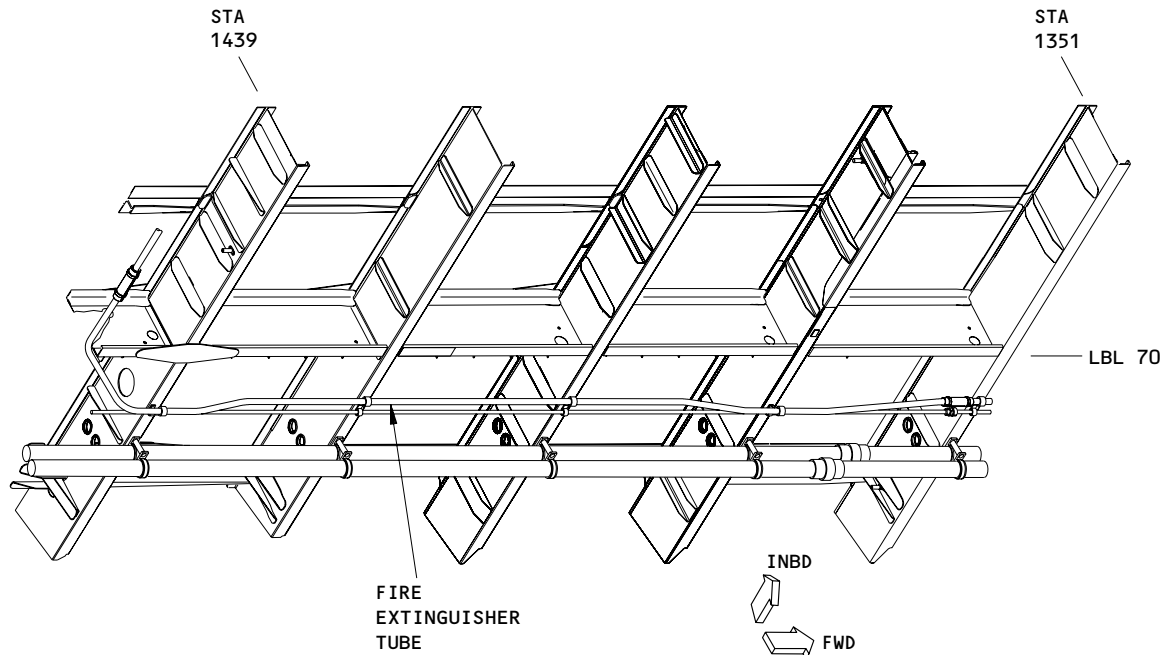
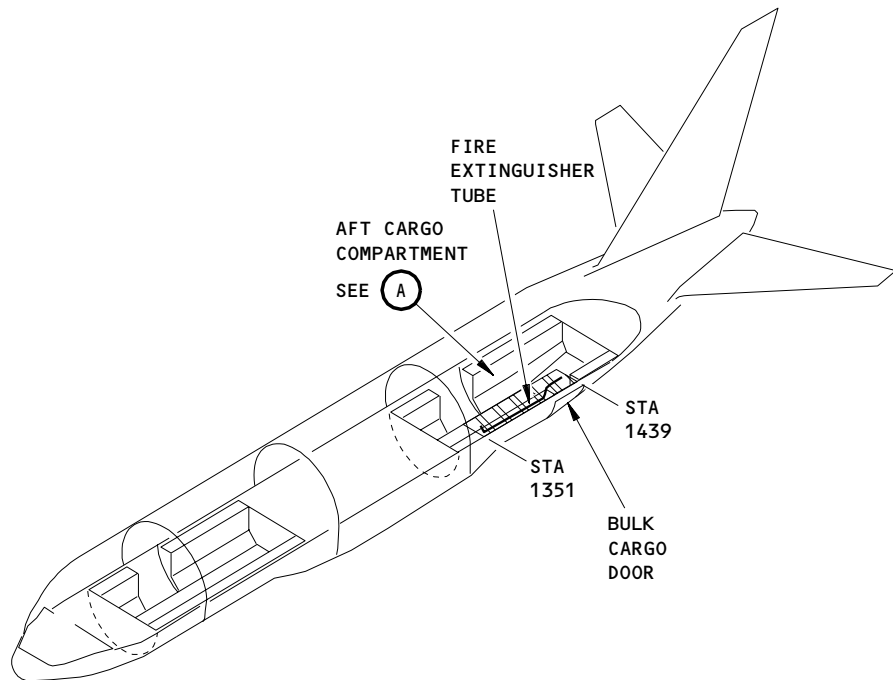
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AFT CARGO COMPARTMENT

(A)

Aft Cargo Compartment Fire Extinguisher Tube Insulation Approved Repairs  
Figure 801

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S 428-006

- (4) If the fire extinguisher tube insulation is damaged then replace it with Polyimide Foam Insulation (BMS 8-300).  
(a) Remove the old insulation from the fire extinguisher tube.

**WARNING:** DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE 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) Use the solvent and a wiping cloth to clean the outer surface of the insulation.  
(c) Wrap the insulation around the fire extinguisher tube.  
(d) Install strips of 2-inch wide insulation tape to the edges and seams of the foam insulation to hold it to the tube.  
(e) Make sure the insulation tape overlaps all the edges and seams of the foam insulation by a minimum of 1-inch.
- E. Put the Airplane Back to Its Usual Condition

S 418-009

- (1) Install the sidewall panels in the cargo bay (AMM 25-55-01/401).

S 418-010

- (2) Close the aft cargo door (AMM 06-46-00/201).

S 868-013

- (3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P6 panel:  
(a) 6H5, FIRE EXTINGUISHING CARGO BTL 1  
(b) 6H6, FIRE EXTINGUISHING CARGO BTL 2

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LAVATORY WASTE COMPARTMENT AUTOMATIC FIRE EXTINGUISHING -  
DESCRIPTION AND OPERATION

1. General

- A. The lavatory waste compartment automatic fire extinguishing system provides fire extinguishing capability to the lavatory waste compartment. Extinguishing occurs by flooding the lavatory waste compartment with an inert gas.
- B. The fire extinguishing system includes a heat activated extinguisher bottle and a temperature indicator.

2. Component Details (Fig. 1)

A. Fire Extinguisher Bottle

- (1) The fire extinguisher bottle includes an elongated spherical steel container with discharge tubes (fusible tips) and mounting bracket. The container is about 2.5 inches in diameter with volume of approximately 10 cubic inches. The container is filled with an extinguishing agent which leaves no residue when discharged.
- (2) The fire extinguisher bottle is mounted inside the lavatory cabinet assembly on the waste disposal chute. The two discharge tubes extend into the waste container.

B. Temperature Indicator

- (1) The temperature indicator is a thin vinyl plate containing four heat sensitive patches. Each patch will change color from grey to black when exposed to temperatures from 170 to 200°F (77 to 93 °C).
- (2) The temperature indicator, with self-adhesive backing, is located inside the lavatory cabinet assembly below the extinguisher bottle discharge tubes.

3. Operation

A. Functional Description

- (1) The lavatory waste compartment fire extinguishing system is completely self-contained and automatic. The extinguisher bottle contains two fusible tips which have a melting temperature of 174°F. When a fire or overheat condition occurs in the lavatory waste compartment raising the ambient temperature above 174°F, the tips will melt causing the bottle to discharge.

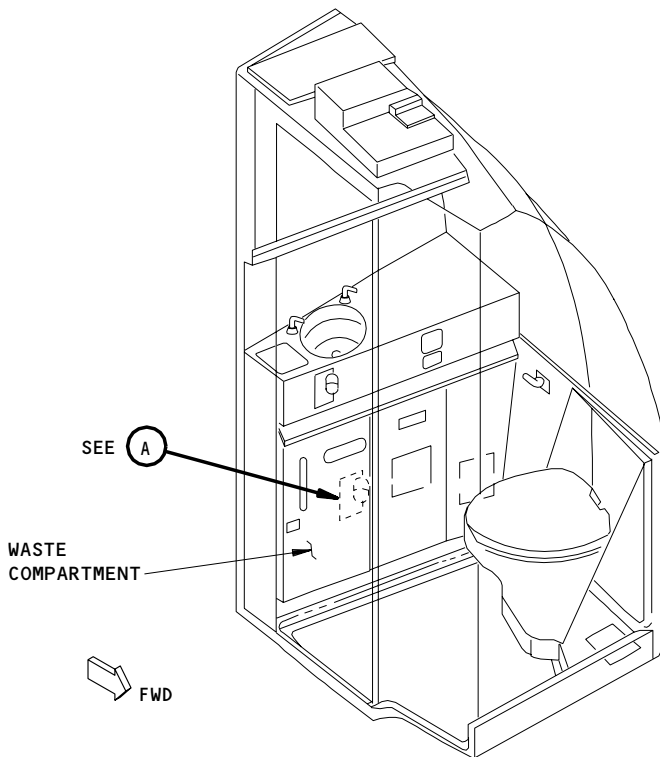
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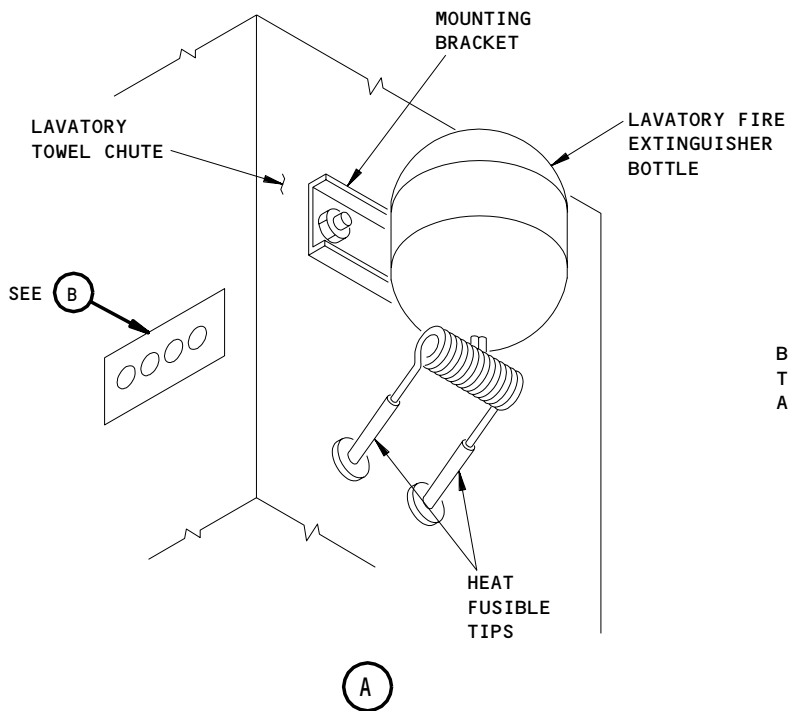
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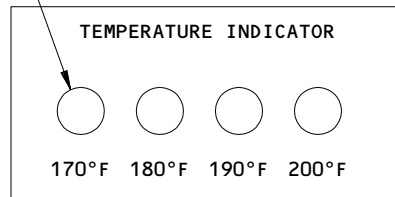
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LAVATORY



BLACK WHEN EXPOSED  
TO TEMPERATURE  
ABOVE 170°F/77°C



Waste Compartment Automatic Fire Extinguishing - Component Location  
Figure 1

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26-24-00

AUTOMATIC FIRE EXTINGUISHER – MAINTENANCE PRACTICES

1. General

- A. This procedure gives the steps for the removal/installation of the lavatory waste compartment automatic fire extinguisher (par. 2). It also gives an inspection/check of the waste compartment fire extinguishing system.

TASK 26-24-01-012-001

2. Automatic Fire Extinguisher Removal/Installation (Fig. 201)

A. Access

- (1) Location Zone  
200 Passenger Cabin

B. Remove the Extinguisher

S 012-021

- (1) Open the sink cabinet waste compartment door.

S 032-020

- (2) Remove the waste container.

S 032-019

- (3) Release and remove the top cover.

S 032-018

- (4) Remove the mounting screws and nuts (2 locations).

S 022-017

- (5) Hold the extinguisher bottle and carefully remove the extinguisher nozzles through the holes in the seal.

C. Install the Extinguisher

S 422-016

- (1) From the sink side of the waste chute, insert the extinguisher nozzles through the holes in the seal and put the extinguisher over the mounting holes.

S 282-015

- (2) Make sure the extinguisher nozzles point into the waste chute.

S 432-014

- (3) Attach the mounting screws and nuts (2 locations).

S 432-013

- (4) Install the top cover.

S 432-012

- (5) Install the waste container.

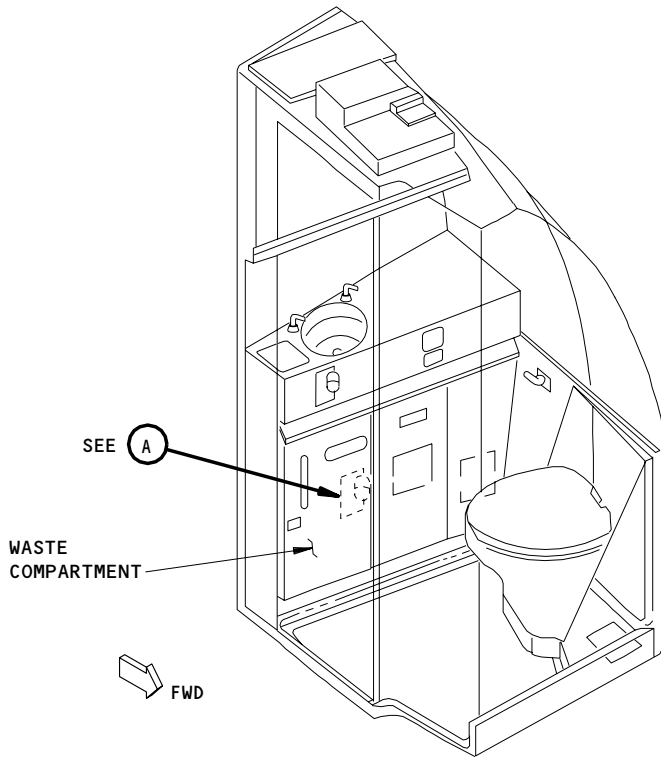
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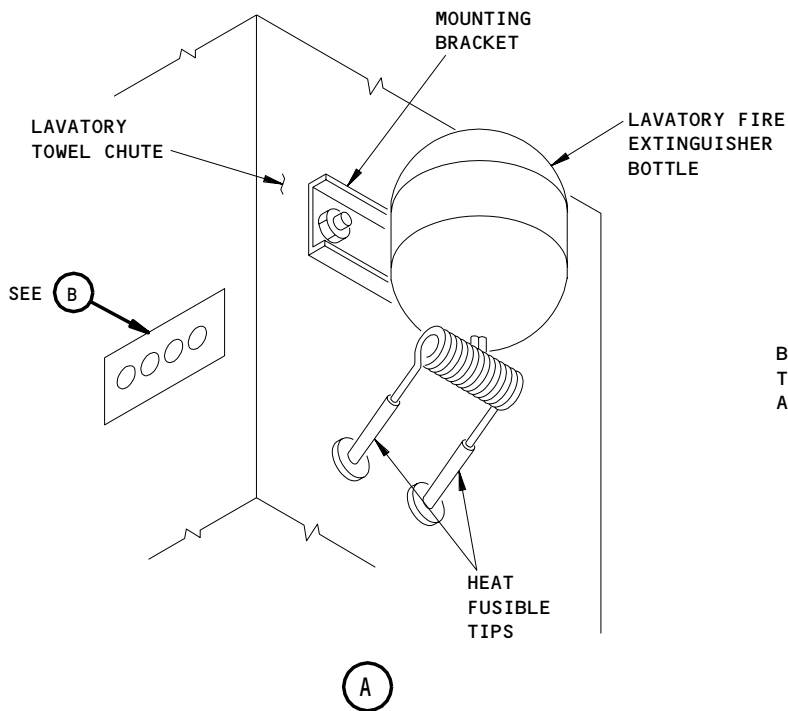
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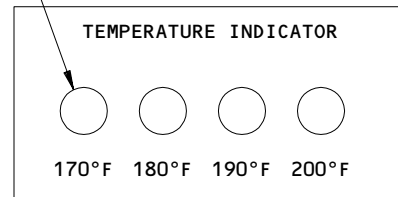
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LAVATORY  
(EXAMPLE)



BLACK WHEN EXPOSED  
TO TEMPERATURE  
ABOVE 170°F/77°C



Automatic Fire Extinguisher Installation  
Figure 201

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26-24-01

S 412-011

- (6) Close the sink cabinet waste compartment door.

TASK 26-24-01-282-010

3. Automatic Fire Extinguisher Inspection/Check (Fig. 201)

A. Access

- (1) Location Zone  
200 Passenger Cabin

B. Procedure

S 282-008

- (1) Open the sink cabinet compartment door and get access to the temperature indicator on the inside of the waste disposal chute.

S 962-009

- (2) Replace the temperature indicator if the color of any of the indicators has changed from grey to black.

S 282-006

- (3) Make sure the fusible tips on the extinguisher discharge tubes do not touch the sidewall of the waste compartment.

S 962-007

- (4) Replace the extinguisher and the temperature indicator if the tips are melted.

TASK 26-24-01-262-033

4. Automatic Fire Extinguisher Bottle Weight Check (Fig. 201)

A. Access

- (1) Location Zone  
200 Passenger Cabin

B. Procedure

S 282-005

- (1) Weigh the bottle to measure for leakage. The total weight of the extinguishing agent and the bottle is given on the label of each bottle.

S 962-004

- (2) Replace the bottle if the weight is 10 grams less than the weight marked on the bottle.

S 282-003

- (3) Examine the bottle for corrosion, scratches, or dents.

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- S 962-002
- (4) Replace the bottle if any dents are deeper than 1/16 inch per inch of average dent diameter or if any scratches are deeper than 0.004 inch.

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PORTABLE FIRE EXTINGUISHING – DESCRIPTION AND OPERATION

1. General

- A. Portable fire extinguishers are installed in several general locations in the passenger compartment. If the extinguisher is not easy to see, the location will be identified with a placard. The extinguishers are usually installed in one or more of these areas: galley or lavatory stowage areas, closets, doghouses, or near attendant seats. A fire extinguisher is also installed in the flight compartment.
- B. The portable extinguishers are attached to wall-mounted brackets by quick-release mounting straps.

2. Component Details (Fig. 1)

A. Halon Extinguishers

- (1) Halon extinguishers are used to extinguish electrical and flammable liquid fires.
- (2) The halon extinguisher is rechargeable. A pressure gage shows when you must recharge or replace the fire extinguisher.
- (3) To operate the extinguisher, pull the handle locking pin. Hold the extinguisher upright and squeeze the handle and lever together. Point the nozzle flow at the base of the fire. The halon extinguishing agent leaves no residue after discharge.

B. Pressurized Water Extinguishers

- (1) Pressurized water extinguishers are used to extinguish nonelectrical fires.
- (2) The water extinguisher is rechargeable. An antifreeze is added to the water to prevent freezing.
- (3) A carbon dioxide cartridge is mounted on the handle of the extinguisher. To operate the extinguisher, turn the cartridge. This punctures the cartridge and pressurizes the water container. Push the trigger and aim the nozzle flow at the base of the fire.

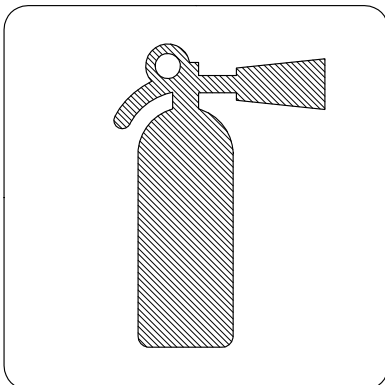
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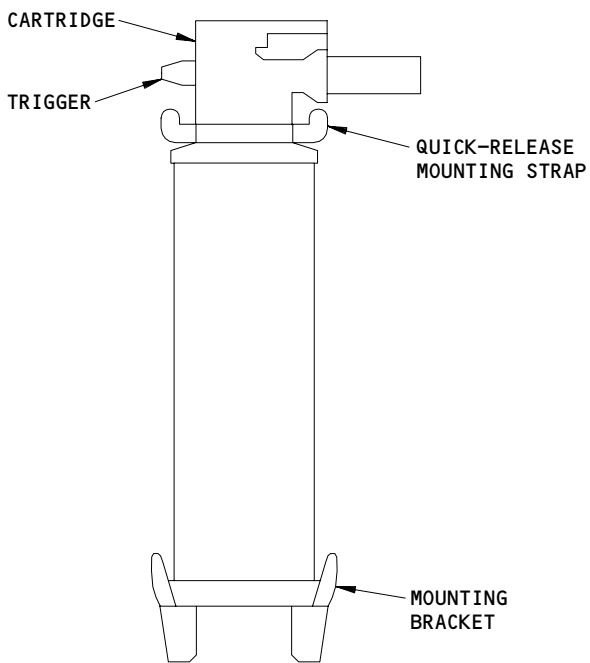
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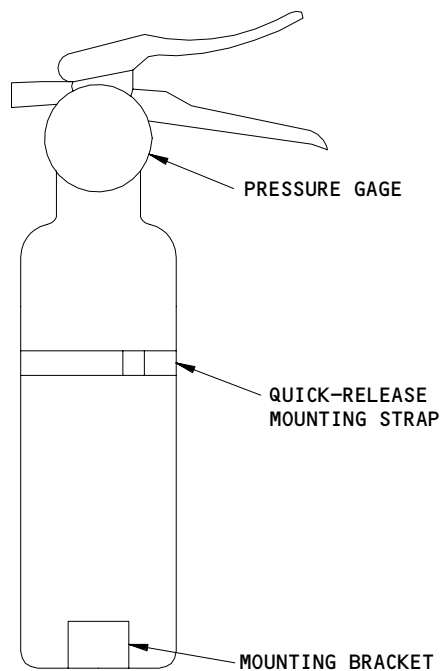
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FIRE EXTINGUISHER PLACARD



PRESSURIZED WATER  
FIRE EXTINGUISHER  
(EXAMPLE)



BCF FIRE EXTINGUISHER  
(EXAMPLE)

Portable Fire Extinguishers  
Figure 1

EFFECTIVITY	ALL
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26-26-00

HALON FIRE EXTINGUISHERS – REMOVAL/INSTALLATION

1. General

A. The extinguisher is mounted on a bracket which has a quick-release strap.

TASK 26-26-02-024-015

2. Remove the Extinguisher

A. Procedure

S 024-016

(1) Unfasten the quick-release strap.

S 024-003

(2) Remove the extinguisher from the bracket.

TASK 26-26-02-434-020

3. Install the Extinguisher (Fig. 401)

A. Equipment

(1) Scale – Spring, 0-150 Pounds, With Hook and Pad Adapter Kit DG-200 or equivalent.

B. Procedure

S 284-017

(1) Before you install the fire extinguishing bottle, make sure its weight is not more than 0.1 pounds from the weight shown on the fire extinguishing bottle. Use the scale.

NOTE: The bottle assembly consists of the charged bottle, discharge heads, squib cartridge with the cartridge covers installed, and bonding tab with stud wire. Remove all other protective covers from the bottle assembly before you weigh the bottle.

S 434-018

(2) Make sure that the extinguisher is correctly installed in its mounting bracket.

S 434-019

(3) Fasten the quick-release strap.

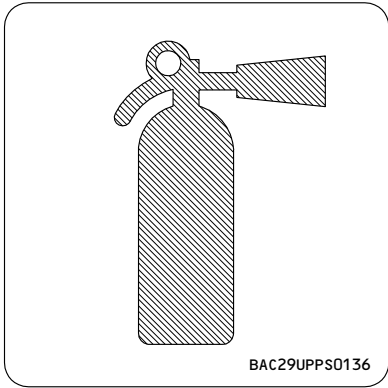
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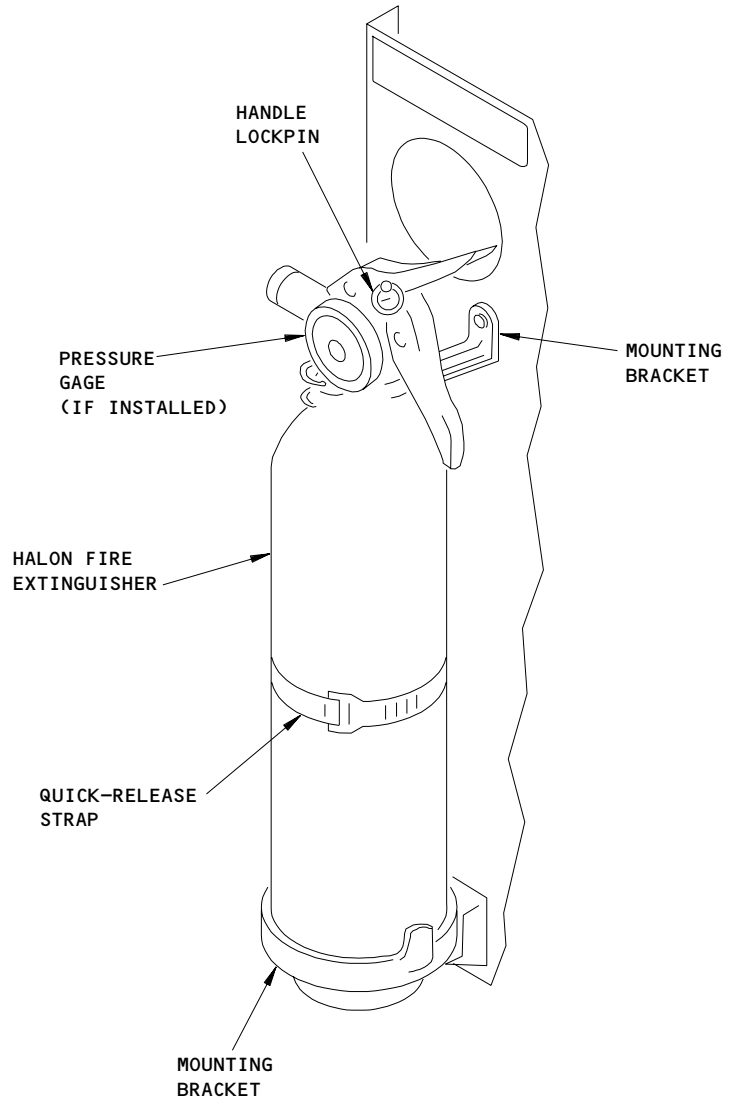
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PORTABLE FIRE EXTINGUISHER  
PLACARD



HALON FIRE EXTINGUISHER  
(EXAMPLE)

Halon Fire Extinguishers Installation  
Figure 401

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HALON FIRE EXTINGUISHER – INSPECTION/CHECK

1. General

- A. This procedure has a task to inspect the portable halon fire extinguishers.
- B. The portable fire extinguishers are installed in several general locations in the passenger compartment and flight compartment. If the extinguisher is not easy to see, the location will be identified with a placard. The extinguishers are usually installed in one or more of these areas: galley or lavatory stowage areas, closets, doghouses, or near attendant seats. There is one halon extinguisher installed in the flight compartment.
- C. To service or recharge the fire extinguisher, refer to the applicable vendor manuals.

TASK 26-26-02-216-012

2. Halon Fire Extinguishers – Inspection/Check

- A. References
  - (1) IPC 26-23-00
- B. Access
  - (1) Location Zones  
200 Upper Half of Fuselage
- C. Procedure
  - S 216-013
    - (1) Make sure the instruction decal and the nameplate are in good condition.
  - S 216-014
    - (2) Make sure the mounting bracket is attached correctly to the airplane.
  - S 216-015
    - (3) Make sure the extinguisher is installed tightly to the mounting bracket.
  - S 216-016
    - (4) Make sure the lock-pin or lock-wire is correctly installed on the handle.
  - S 216-017
    - (5) Examine the pressure gage and make sure the extinguisher has the correct pressure.
  - S 216-018
    - (6) Make sure there is no physical damage to the extinguisher.
  - S 216-019
    - (7) Make sure the weight of the extinguisher is not less than the weight shown on the extinguisher nameplate.

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- S 216-022
- (8) If there are other manufacturer inspection or maintenance procedures that show on the extinguisher, do these procedures.

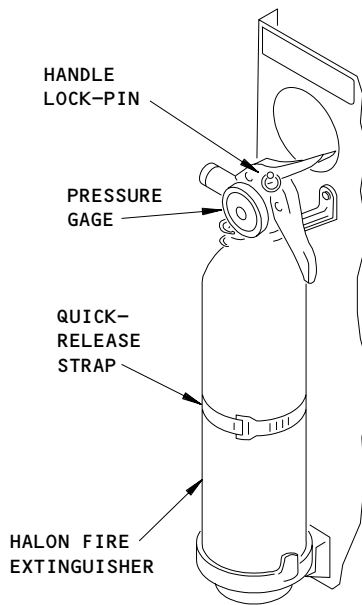
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Halon Fire Extinguisher Inspection  
Figure 601

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WATER FIRE EXTINGUISHERS-REMOVAL/INSTALLATION

1. General

A. The extinguisher is mounted on a bracket which has a quick-release strap.

TASK 26-26-03-024-009

2. Remove the Extinguisher

A. Procedure

S 024-002

(1) Unfasten the quick-release strap.

S 024-010

(2) Remove the extinguisher from the bracket.

TASK 26-26-03-434-011

3. Install the Extinguisher (Fig. 401)

A. Equipment

(1) Scale - Spring, 0-150 Pounds, With Hook and Pad Adapter Kit DG-200 or equivalent.

B. Procedure

S 284-012

(1) Before you install the fire extinguishing bottle, make sure its weight is not more than 0.1 pounds from the weight shown on the fire extinguishing bottle. Use the spring scale (0-150 Pounds, With Hook and Pad Adapter Kit, DG-200).

NOTE: The bottle assembly consists of the charged bottle, discharge heads, squib cartridge with the cartridge covers installed, and bonding tab with stud wire. Remove all other protective covers from the bottle assembly before you weigh the bottle.

S 434-013

(2) Make sure that the extinguisher is correctly installed in its mounting bracket.

S 434-015

(3) Fasten the quick-release strap.

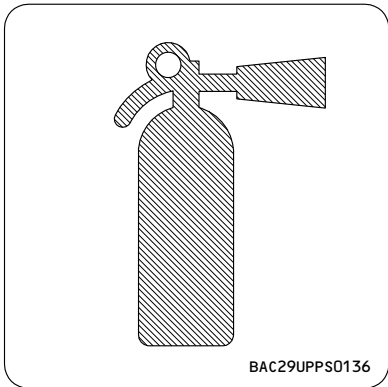
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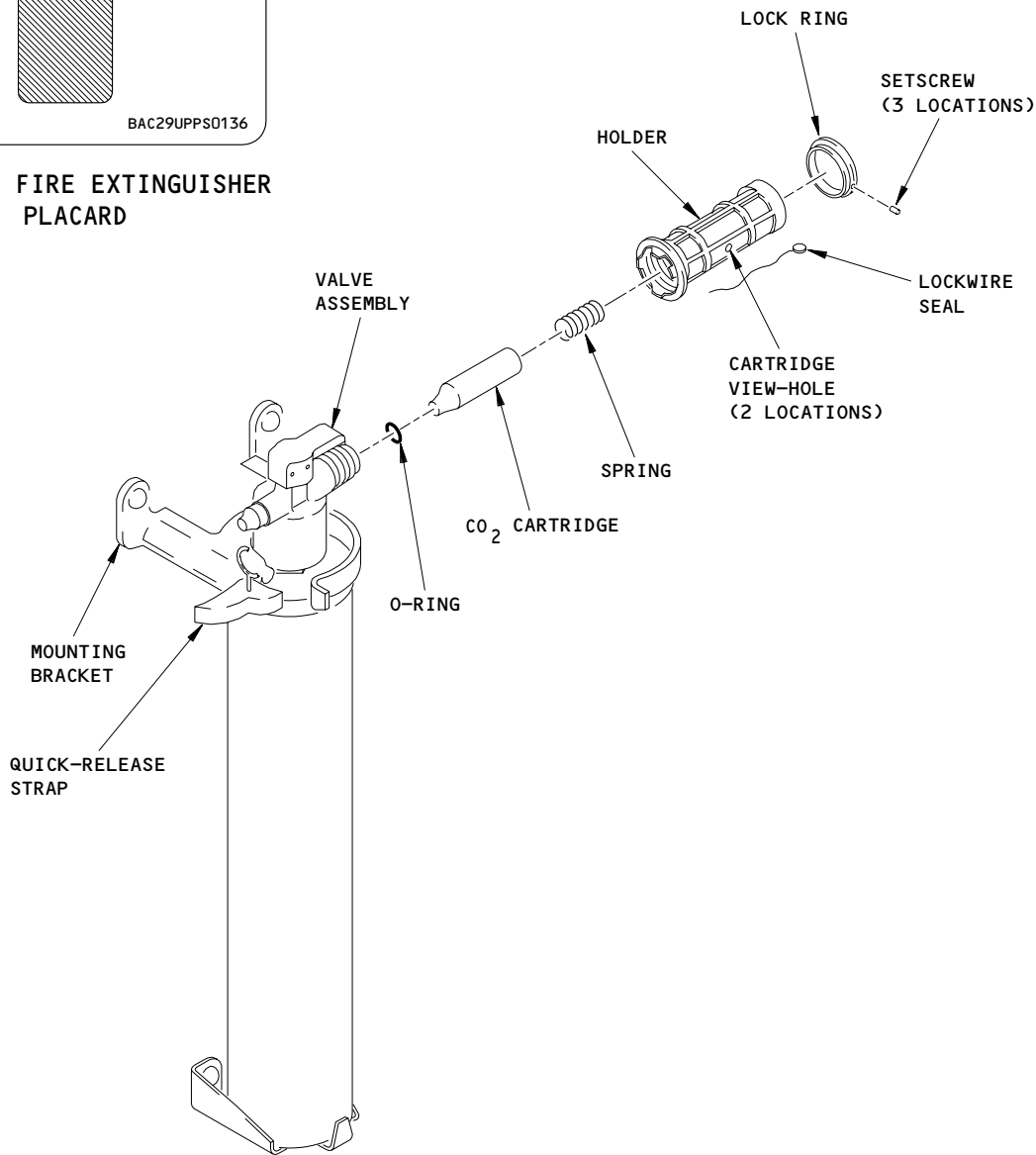
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PORTABLE FIRE EXTINGUISHER  
PLACARD



WATER FIRE EXTINGUISHER  
(EXAMPLE)

Water-Type Fire Extinguishers Installation  
Figure 401

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PASSENGER AIRPLANES

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WATER-TYPE FIRE EXTINGUISHERS - INSPECTION/CHECK

1. General

- A. This procedure has a task to inspect the portable water fire extinguishers.
- B. The portable fire extinguishers are installed in several general locations in the passenger compartment and flight compartment. If the extinguisher is not easy to see, the location will be identified with a placard. The extinguishers are usually installed in one or more of these areas: galley or lavatory stowage areas, closets, doghouses, or near attendant seats.
- C. To service or recharge the fire extinguisher, refer to the applicable vendor manuals.

TASK 26-26-03-216-010

2. Water Fire Extinguishers - Inspection/Check

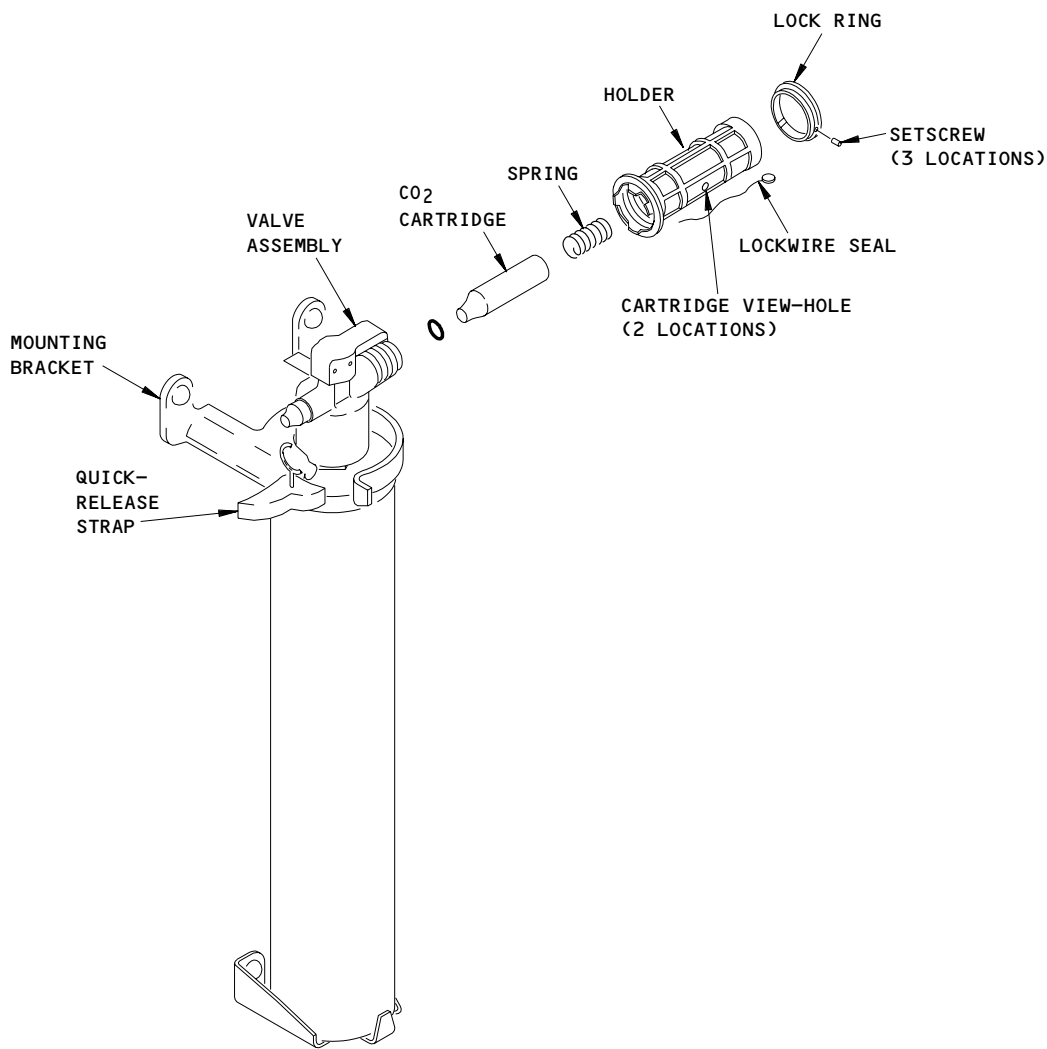
- A. Reference
  - (1) IPC 26-23-00
- B. Access
  - (1) Location Zone  
200 Upper Half of Fuselage
- C. Procedure
  - S 216-011
    - (1) Make sure the instruction decal and the nameplate are in good condition.
  - S 216-013
    - (2) Make sure the mounting bracket is attached correctly to the airplane.
  - S 216-014
    - (3) Make sure the extinguisher is installed tightly to the mounting bracket.
  - S 216-015
    - (4) Make sure the lockpin or lockwire is correctly installed on the handle.

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PASSENGER AIRPLANES

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FIRE EXTINGUISHER (EXAMPLE)

Water-Type Fire Extinguisher Inspection  
Figure 601

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PASSENGER AIRPLANES

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- S 216-017
- (5) Make sure there is no physical damage to the extinguisher.
- S 216-018
- (6) Make sure there are no leaks in the extinguisher.
- S 216-019
- (7) If there are other manufacturer inspection or maintenance procedures that show on the extinguisher, do these procedures.

EFFECTIVITY  
PASSENGER AIRPLANES

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