

FUEL HEAT PANEL ASSEMBLY, M1094

PART NUMBERS 233T3231-1,-5,-6

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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TITLE PAGE

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REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY



TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRRC12526	OCT 01/90

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TR & SB RECORD

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*[1] Use applicable procedures in 20-11-04 and standard industry practices.
 *[2] Special instructions not required.



INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions including test, fault isolation, and replacement of defective components.

This manual is divided into separate sections:

- | | |
|--|------------------------------|
| 1. Title Page | 4. List of Effective Pages |
| 2. Record of Revisions | 5. Table of Contents |
| 3. Temporary Revision &
Service Bulletin Record | 6. Introduction |
| | 7. Procedures & IPL Sections |

Refer to the Table of Contents for the page location of applicable sections.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

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INTRODUCTION

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FUEL HEAT PANEL ASSEMBLY M1094
DESCRIPTION AND OPERATION

 1. Description

A. The fuel heat panel assembly contains 2 switches, 4 indicator lights and a lightplate connector. A wire bundle connects the components, through 2 connectors, to the aircraft wiring.

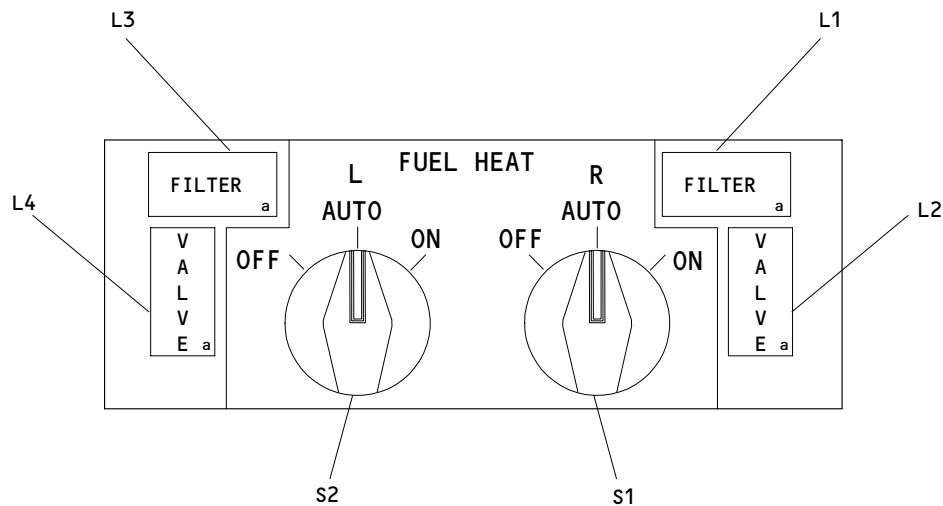
 2. Operation

A. The two switches are single-pole, three-position rotary switches that control the left and right fuel heat system. The switches, S1 controls the right and S2 controls the left, put the fuel heat system in either the ON, OFF or AUTO position.

B. The 4 indicator lights monitor the fuel heat system.

(1) The two lights, that monitor the engine fuel filter, are L1 and L3.

(2) The two lights, that monitor the engine fuel heat valve, are L2 and L4.



233T3231
 Component Identification
 Figure 1

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DESCRIPTION & OPERATION

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TESTING AND TROUBLE SHOOTING1. Test Equipment

- A. Power Supply: 0-28 VDC, 0.5 amperes
- B. Multimeter: Simpson 260P, or equivalent
- C. Connector: BACC45FT12-12S (P1)
- D. Connector: BACC45FT12-12S6 (P2)

2. Functional Test (Component Location - Fig. 1)

- A. Connect the test connectors to the assembly.
- B. Do the continuity test in Fig. 101.

NOTE: Continuity (Con) is less than 3 ohms. Open is more than 15K ohms.

- C. Do the indicator light test in Fig. 102.

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TEST STEP	PROCEDURE	REQUIRED RESULTS	COMPONENT TESTED
	Measure the resistance between the pins below:	Switch Position	
1.	P2-8 to P2-10	S1 <u>OFF</u> <u>AUTO</u> <u>ON</u> open con open	S1
2.	P2-8 to P2-9	open open con	
3.	P1-8 to P1-10	S2 open con open	S2
4.	P1-8 to P1-9	open open con	
5.	P2-4 to L1-3(FILTER)	con	wiring
6.	P2-4 to L2-3(VALVE)	con	
7.	P1-4 to L3-3(FILTER)	con	
8.	P1-4 to L4-3(VALVE)	con	
9.	P1-2 to BASEPLATE	con	
10.	P1-1 to CENTER OF LIGHTPLATE CONNECTOR	con	
11.	P1-1 to P1-2	open	
	End of continuity test		

Continuity Test
Figure 101

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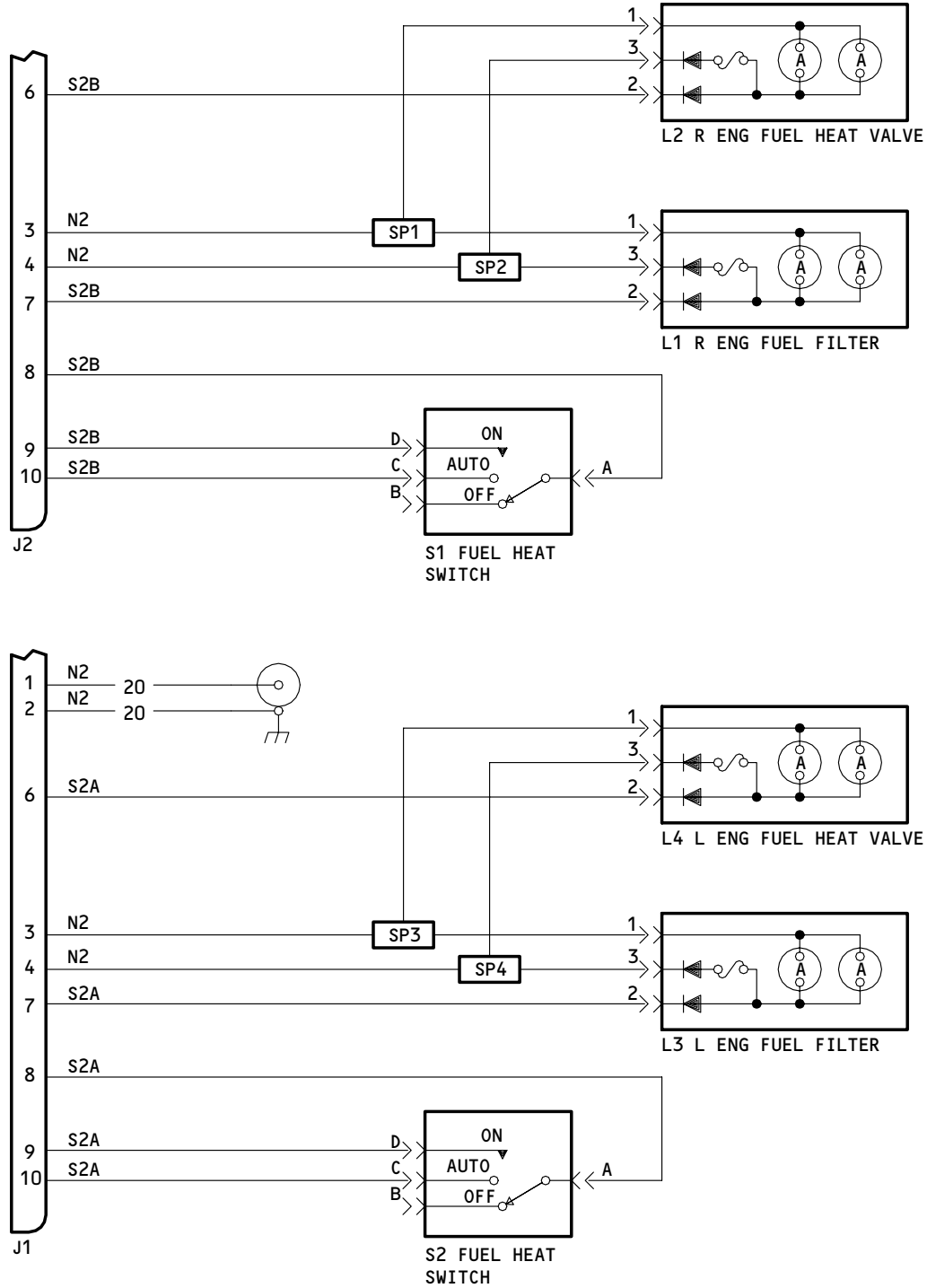

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TEST STEP	PROCEDURE	REQUIRED RESULTS	COMPONENT TESTED
	Apply 28 VDC to the pins given below:		
1.	$\frac{+}{P2-3}$ $\frac{-}{P2-4}$	Make sure the lights L1(FILTER) and L2(VALUE) come on	L1,L2
2.	P2-4 P2-3	Make sure L1 and L2 are off	
3.	P2-3 P2-7	Make sure L1 comes on	L1
4.	P2-7 P2-3	Make sure L1 is off	
5.	P2-3 P2-6	Make sure L2 comes on	L2
6.	P2-6 P2-3	Make sure L2 is off	
7.	P1-3 P1-4	Make sure the lights L3(FILTER) and L4(VALUE) come on	L3,L4
8.	P1-4 P1-3	Make sure L3 and L4 are off	
9.	P1-3 P1-7	Make sure L3 comes on	L3
10.	P1-7 P1-3	Make sure L3 is off	
11.	P1-3 P1-6	Make sure L4 comes on	L4
12.	P1-6 P1-3	Make sure L4 is off	
	End of indicator test		

Indicator Test
Figure 102

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233T3231
 Schematic Diagram
 Figure 103

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REPAIR

1. All repairs can be done with standard industry practices and procedures contained in 31-10-01 except as given below:
 - A. Install heat shrinkable tubing BACT63B03 over switch terminals as referred to in 20-11-03.
 - B. Replace all of the wire with BMS 13-48, type I, class I, size 22 AWG except as follows:
 - (1) The wire between pin J1-1 and the center of the lightplate(J3) and pin J1-2 and the rim of the lightplate is BMS 13-48, type I, class I, size 20 AWG.
 - C. Apply Loctite Sealant to all of the threaded parts.

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ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

Assembly

Detailed Parts for Assembly

Subassembly

Attaching Parts for Subassembly

Detail Parts for Subassembly

Detail Installation Parts (Included only if installation parts may be returned to shop as part of assembly.

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are listed on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional
(OPT)

The parts are optional to and interchangeable with other parts having the same item number.

Supersedes, Superseded by
(SUPSDS, SUPSD BY)

The part supersedes and is not interchangeable with the original part.

Replaces, Replaced by
(REPLS, REPLD BY)

The part replaces and is interchangeable with, or is an alternate to, the original part.

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VENDORS

02660 AMPHENOL CORP INDUSTRIAL TECHNOLOGY DIV
850 SHERMAN AVENUE
HAMDEN, CONNECTICUT 06514

05617 BELL INDUSTRIES INC ILLUMINATED DISPLAYS DIV
18225 NORTHEAST 76TH STREET
REDMOND, WASHINGTON 98052-5021

08524 DEUTSCH FASTENER CORP SEE CODE V97928

12324 DUPREE INC STAKE FASTENER CO
14395 RAMONA PO BOX 1797
CHINO, CALIFORNIA 91708

13556 CINCH CYLINDRICAL DIV OF LABINAL COMPONENTS AND SYSTEM
8821 SCIENCE CENTER DRIVE
MINNEAPOLIS, MINNESOTA 55428-3619

15653 KAYNAR MICRODOT AEROSPACE FASTENING SYSTEM
800 SOUTH COLLEGE BLVD PO BOX 3001
FULLERTON, CALIFORNIA 92634-3001

49367 PYLE-NATIONAL CO DIV OF BRAND-REX CO
1334 NORTH KOSTNER AVENUE
CHICAGO, ILLINOIS 60651-1605

60119 MONADNOCK CO THE
18301 ARENTH AVENUE PO BOX 1222
CITY OF INDUSTRY, CALIFORNIA 91749

72962 ELASTIC STOP NUT A DIV OF HARTFORD INDUSTRIES INC
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083-5038

81590 KORRY ELECTRONIC INC SUB OF CRITON CORP
901 DEXTER AVENUE NORTH
SEATTLE, WASHINGTON 98109-3515

91812 JANCO CORPORATION
3111 WINONA AVENUE,PO BOX 3038
BURBANK, CALIFORNIA 91504-2543

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REFERENCE DESIGNATOR INDEX (SEE SCHEMATIC DIAGRAM)		
REFERENCE DESIGNATOR	PART NUMBER	FIG-ITEM
J1	ZZWAC1712-12P	1-15
J2	ZZWAC1712-12P6	30
J3	800000121-1	60
L1	BCREF6251	65
L1	BCREF8533	65A
L2	BCREF6323	70
L2	BCREF8557	70A
L3	BCREF6251	65
L3	BCREF8533	65A
L4	BCREF6323	70
L4	BCREF8557	70A
S1	AC45-0017-2	75
S1	AC45-0017-3	75A
S1	AC45-0017-4	75B
S2	AC45-0017-2	75
S2	AC45-0017-3	75A
S2	AC45-0017-4	75B

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AC45-0017-2		1	75	2
BACC45FN12-12P		1	15	1
BACC45FN12-12P6		1	30	1
BACN10NW1		1	10	2
		1	25	2
BACN10PA06-6		1	90	2
BACP10U0225N		1	95	1
BACS21DD1B		1	85	4
BCREF6251		1	65	2
BCREF6323		1	70	2
BCREF8533		1	65A	2
BCREF8557		1	70A	2
C48-10R12-12P10		1	15	1
C48-10R12-12P6-		1	30	1
DBMB1400-6A1		1	85	4
K19798-04		1	10	2
		1	25	2
MS35338-41		1	40	3
M39029-1-16-20		1	105	18
NAS1801-04-5		1	20	2
		1	35	3
NAS1801-06-5		1	5	2
NAS514P632-5P		1	50	3
RMA4812-160-40		1	10	2
		1	25	2
SF6G6CBB5D		1	90	2
S231T300-1038		1	65	2
S231T300-1189		1	70	2
S231T300-2038		1	65A	2
S231T300-2189		1	70A	2
ZZWAC1712-12P		1	15	1
ZZWAC1712-12P6		1	30	1
233T3231-1		1	1	RF
233T3231-2		1	80	1
233T3231-3		1	100	1
233T3231-5		1	1A	RF
233T3231-6		1	1B	RF
233T6200-65		1	45	1
293162		1	10	2
		1	25	2
434-674-1005-10		1	65	2

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
434-674-1005-11		1	70	2
434-674-1031-20		1	65A	2
434-674-1031-21		1	70A	2
48-10R12-12P300		1	15	1
48-10R12-12P6-3		1	30	1
69B46200-9		1	55	3
800000121-1		1	60	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE	EFF CODE	QTY PER ASSY
01-			1234567		

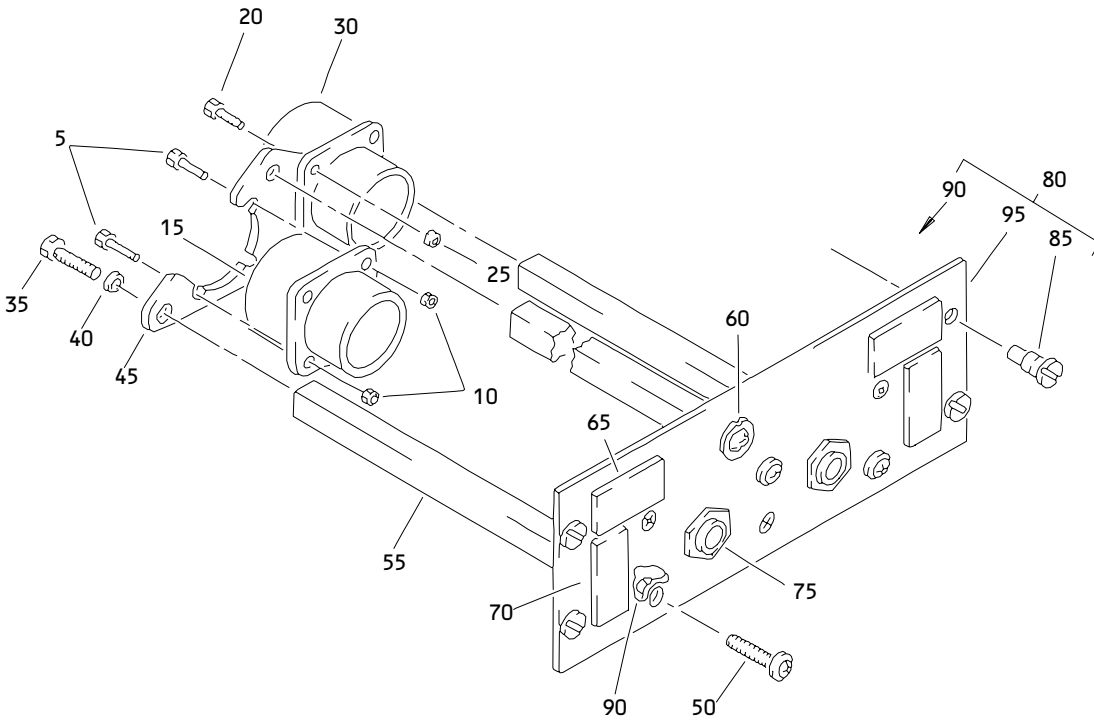
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Fuel Heat Panel Assembly M1094
Figure 1

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	233T3231-1		PANEL ASSY-FUEL HEAT, M1094	A	RF
-1A	233T3231-5		PANEL ASSY-FUEL HEAT, M1094	B	RF
-1B	233T3231-6		PANEL ASSY-FUEL HEAT, M1094	C	RF
5	NAS1801-06-5		.SCREW		2
10	K19798-04		.NUT- (V15653) (SPEC BACN10NW1) (OPT RMA4812-160-40 (V72962)) (OPT 293162 (V60119))		2
15	ZZWAC1712-12P		.CONNECTOR- (V49367) (SPEC BACC45FN12-12P) (OPT C48-10R12-12P102 (V13556)) (OPT 48-10R12-12P300 (V02660)) (J1)		1
20	NAS1801-04-5		.SCREW		2
25	K19798-04		.NUT- (V15653) (SPEC BACN10NW1) (OPT RMA4812-160-40 (V72962)) (OPT 293162 (V60119))		2
30	ZZWAC1712-12P6		.CONNECTOR- (V49367) (SPEC BACC45FN12-12P6) (OPT C48-10R12-12P6-10 (V13556)) (OPT 48-10R12-12P6-300 (V02660)) (J2)		1
35	NAS1801-04-5		.SCREW		3
40	MS35338-41		.WASHER		3
45	233T6200-65		.BRACKET-SPRT		1
50	NAS514P632-5P		.SCREW		3
55	69B46200-9		.STANDOFF		3

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-60	800000121-1		.CONNECTOR- (V05617) (J3)		1
65	BCREF6251		.LIGHT ASSY- (V81590) (434-674-1005-1038) (L1, L3) (SPEC S231T300-1038) (OPT ITEM 65A)		2
-65A	BCREF8533		.LIGHT ASSY- (V81590) (434-674-1031-2038) (L1, L3) (SPEC S231T300-2038) (OPT ITEM 65)		2
70	BCREF6323		.LIGHT ASSY- (V81590) (434-674-1005-1189) (L2, L4) (SPEC S231T300-1189) (OPT ITEM 70A)		2
-70A	BCREF8557		.LIGHT ASSY- (V81590) (434-674-1031-2189) (L2, L4) (SPEC S231T300-2189) (OPT ITEM 70)		2
75	AC45-0017-2		.SWITCH- (V91812) (S1, S2)	A	2
-75A	AC45-0017-3		.SWITCH- (V91812) (S1, S2) (OPT ITEM 75B)	B,C	2
-75B	AC45-0017-4		.SWITCH- (V91812) (S1, S2) (OPT ITEM 75A)	B,C	2

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FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- 80	233T3231-2		.BASEPLATE ASSY		1
85	DBMB1400-6A1		..STUD ASSY- (V08524) (SPEC BACS21DD1B)		4
90	SF6G6CBB5D		..NUT- (V12324) (SPEC BACN10PA06-6)		2
95	BACP10U0225N		..PANEL		1
-100	233T3231-3		.WIRE BUNDLE ASSY		1
-105	M39029-1-16-20		..CONTACT		18

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