BOEING

COMPONENT
MAINTENANCE MANUAL

CONTROL STAND ENGINE START AND STABILIZER CUTOUT MODULE ASSEMBLY

PART NUMBER 254T3001-1

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

K99452

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

K99457

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL

PAGE	DATE	CODE
80-11-02		
TITLE PAGE		
1	MAR 01/00	01
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TR & SB RECORD		
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* = REVISED, ADDED OR DELETED

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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
2. Record of Revisions
3. Temporary Revision & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
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.

Verification:

Testing/FI

DESCRIPTION AND OPERATION

1. Description

   A. The control stand engine start and stab cutout module assembly contains two fuel control switches, two toggle switches, face plate assemblies, a lightplate connector and wire bundle assemblies.

2. Operation

   A. Stabilizer Cutout Switches

      (1) The two stabilizer cutout switches on the control stand stop the stabilizer movement when they are in the CUTOUT position. You can move these switches to the CUTOUT position seperately to control either the left or center stabilizer trim control module shutoff valves.

      (2) The stabilizer cutout switches are guarded with a safety cover. To move the switches to the CUTOUT position, the operator must raise the safety guards. The guards move the switches back to the NORM position when they are closed.

   B. Fuel Control Switches

      (1) The fuel control switches provide the manual control inputs to operate/start the engine.

TESTING AND FAULT ISOLATION

1. Functional Test

A. Test Equipment

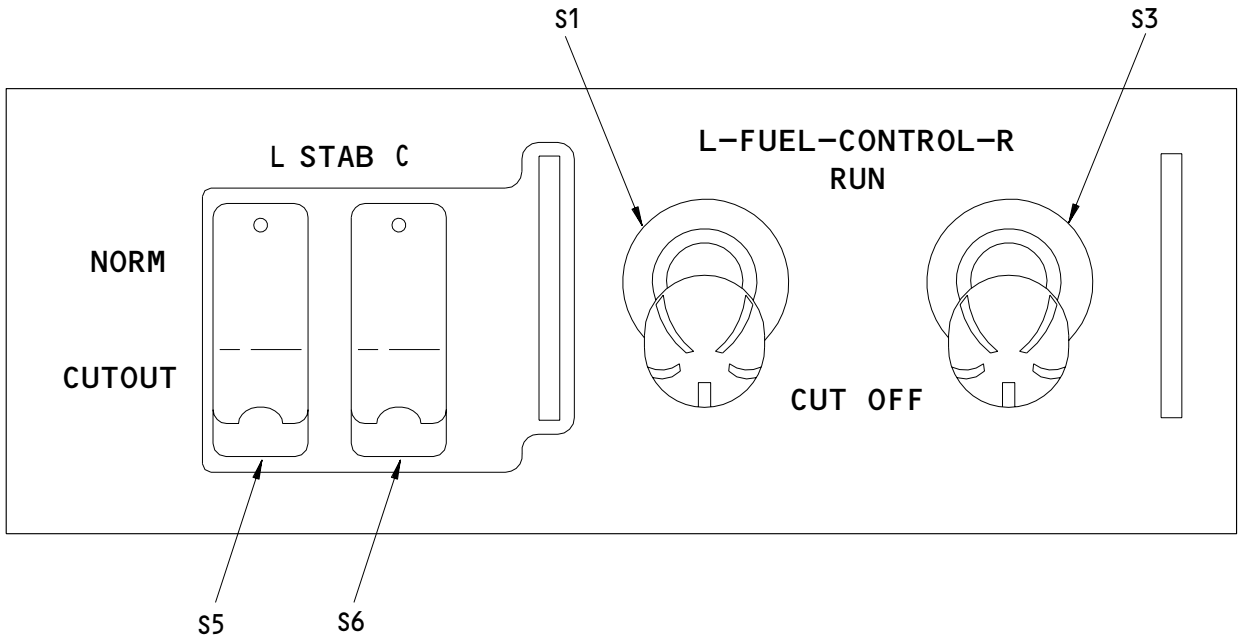
(1) Power Supply: 28 ±0.3V dc

(2) Multimeter: Fluke 8050A or equivalent

(3) Test Connector: Test connectors listed below with pigtail leads:

Test Connector	Mates with
BACC45FN10-5S7	D14048P
BACC45FN10-5S8	D14050P
BACC45FN12-12S	D14046P
BACC45FN12-12S6	D14052P

B. Connect the test connectors to the unit under test and do the functional test shown in Table 101. (See Fig. 101 for the location of components and Fig. 102 for the schematic diagram.) Continuity is defined as a resistance measurement of less than 3 ohms. Open is defined as a resistance measurement of greater than 900K ohms.



Control Stand Engine Start and Stabilizer Cutout Module Component Locations
Figure 101

K99462

Step No.	Procedure		Required Result		Component Tested
	Left Engine Fuel Control Switch Test				
	Measure ohms between the pins shown below with the left engine fuel control switch S1 set to the position specified in the required results column:				
	(+)	(-)	CUTOFF	RUN	
1	D14046P-2	D14046P-11	Open	Continuity	S1
2	D14046P-2	D14046P-1	Continuity	Open	S1
3	D14046P-4	D14046P-6	Open	Continuity	S1
4	D14046P-5	D14046P-6	Continuity	Open	S1
5	D14046P-3	D14046P-12	Open	Continuity	S1
6	D14046P-10	D14046P-3	Continuity	Open	S1
	Right Engine Fuel Control Switch Test				
	Measure ohms between the pins shown below with the right engine fuel control switch S3 set to the position specified in the required results column:				
	(+)	(-)	CUTOFF	RUN	
7	D14052P-2	D14052P-11	Open	Continuity	S3
8	D14052P-2	D14052P-1	Continuity	Open	S3
9	D14052P-4	D14052P-6	Open	Continuity	S3
10	D14052P-5	D14052P-6	Continuity	Open	S3
11	D14052P-3	D14052P-12	Open	Continuity	S3
12	D140452-10	D14052P-3	Continuity	Open	S3

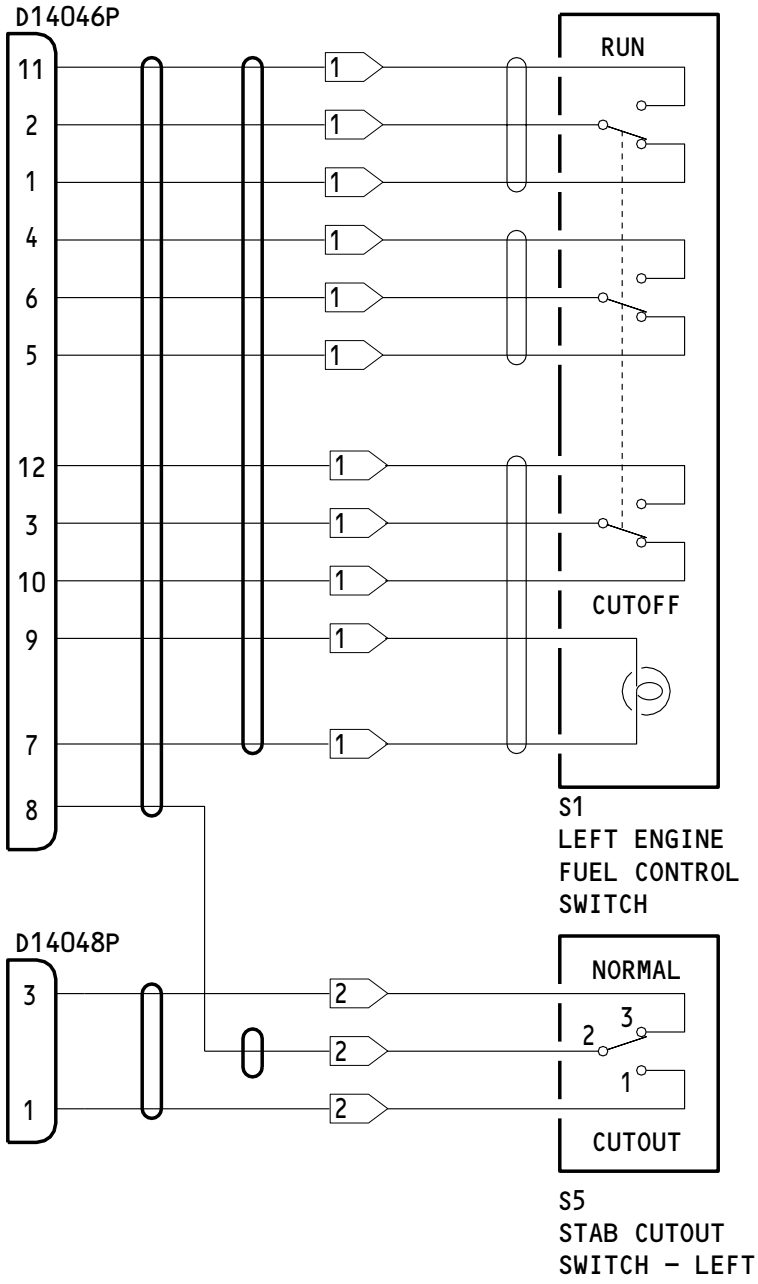
Functional Test
Table 101 (Sheet 1)

Step No.	Procedure	Required Result		Component Tested
	Left Stab Cutout Switch Test			
	Measure ohms between the pins shown below with the left stab cutout switch S5 set to the position specified in the required results column:			
	(+) (-)	NORMAL	CUTOUT	
13	D14046P-8 D14046P-3	Continuity	Open	S5
14	D14046P-8 D14046P-1	Open	Continuity	S5
	Center Stab Cutout Switch Test			
	Measure ohms between the pins shown below with the center stab cutout switch S6 set to the position specified in the required results column:			
	(+) (-)	NORMAL	CUTOUT	
15	D14052P-8 D14052P-3	Continuity	Open	S6
16	D14052P-8 D14052P-1	Open	Continuity	S6
	Lightplate Connector Test			
17	Measure ohms between D14050P-5 and terminal lug BACT12AR201 on lightplate connector L604.	Continuity		Wiring
18	Measure ohms between D14050P-4 and terminal lug BACT12AR207 on lightplate connector L604.	Continuity		Wiring

Functional Test
Table 101 (Sheet 2)

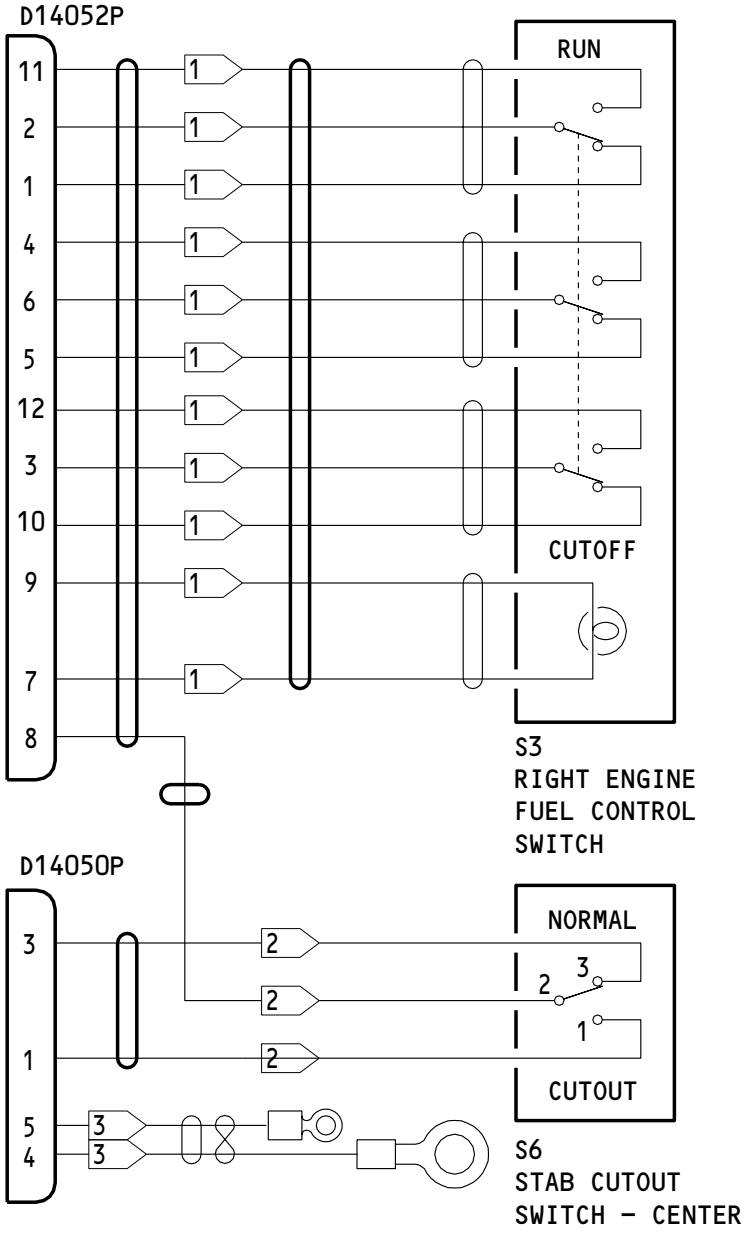
Step No.	Procedure	Required Result	Component Tested
	Fuel Control Switch Indicator Light Test		
19	Ground D14046P-9.		
20	Apply 28V dc to D14046P-7 and monitor the S1 switch.	S1 Illuminates	S1
21	Remove 28V dc and ground from D14046P-7 and -9, respectively.		
22	Ground D14052P-9.		
23	Apply 28V dc to D14052P-7 and monitor the S3 switch.	S3 Illuminates	S3
24	Remove 28V dc and ground from D14052P-7 and -9, respectively.		
25	Remove all connections.		

Functional Test
Table 101 (Sheet 3)



254T3001-1
Control Stand Engine Start and Stabilizer Cutout
Module Assembly Schematic Diagram
Figure 102 (Sheet 1)

K99506



254T3001-1
Control Stand Engine Start and Stabilizer Cutout
Module Assembly Schematic Diagram
Figure 102 (Sheet 2)

K99512

REPAIR - GENERAL

1. Material

   A. Varglas, non-fray type HO or HP (V79074: Varflex Corporation, 512 West Court Streeet PO BOX 551, Rome, New York 13440-4010).

   B. Tubing - Heat Shrinkable, Yellow: RT876 (Raychem Corp., 300 Constitution Drive, Menlo Park, California 94025).

2. All repair may be accomplished with standard industry practices and procedures contained in SOPM 20-11-04 except as follows:

   A. When you replace wires, make sure that the wires are installed per the following:

      (1) Separate wire bundles by air separation (by a neutral bundle) or by use of shielded wires (Varglas sleeving should be used in the pressurized area).

      (2) Maintain the wire separation color coding per Table 601. Wire bundles that are not sleeved or shielded or that are shielded for purpose other than separation are color-coded to identify the functional separation category:

Functional Separation Category	Wire Bundle Tying Material Color
L (Left Power System)	Red
R (Right Power System)	Green
C (Center Bus Power)	Yellow
A (APU Power and Ground)	Orange
S (Battery Power)	Blue
N (Non-Redundant, Non-Power)	White

Wire Separation Color Code
Table 601

      (3) Install wire bundles with 0.25 inch (0.635 cm) minimum spacing when air space is the means of separation between categories. Wire bundles may be kept separated by using spacers P/N BACS45A( ) or 63-9273-( ). Spacers must be tied to wire bundle(s) with lacing tape.

(4) Apply the following when wire bundles of different separation categories are routed and tied together:

(a) Two or more bundles, all sleeved: Use white lacing tape.

(b) One or more sleeved and one unsleeved bundle: Use lacing tape color of unsleeved bundle.

(c) One or more neutral bundles and one color-coded bundle: Use lacing tape color of color-coded bundle.

(5) Make sure to maintain wire bundle and wire segment sleeving and clamping following any repair.

B. When you replace terminals BACT12AR222 (Item 30, IPL Fig. 1), BACT12AR201 (Item 75, IPL Fig. 1) and/or BACT12AR206 (Item 80, IPL Fig. 1), do the procedure shown below:

(1) For the BACT12AR222 terminal only, bend the terminal 90 degrees.

(2) Install a heat-shrinkable tubing over the terminal per SOPM 20-11-03. Make sure to provide a maximum tubing coverage.

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
      Detail 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 used 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.

VENDORS

00779 AMP, INCORPORATED
2800 FULLING MILL
HARRISBURG, PA 17105-3608

06324 GLENAIR INC
1211 AIR WAY
GLENDALE, CALIFORNIA 91201-2497

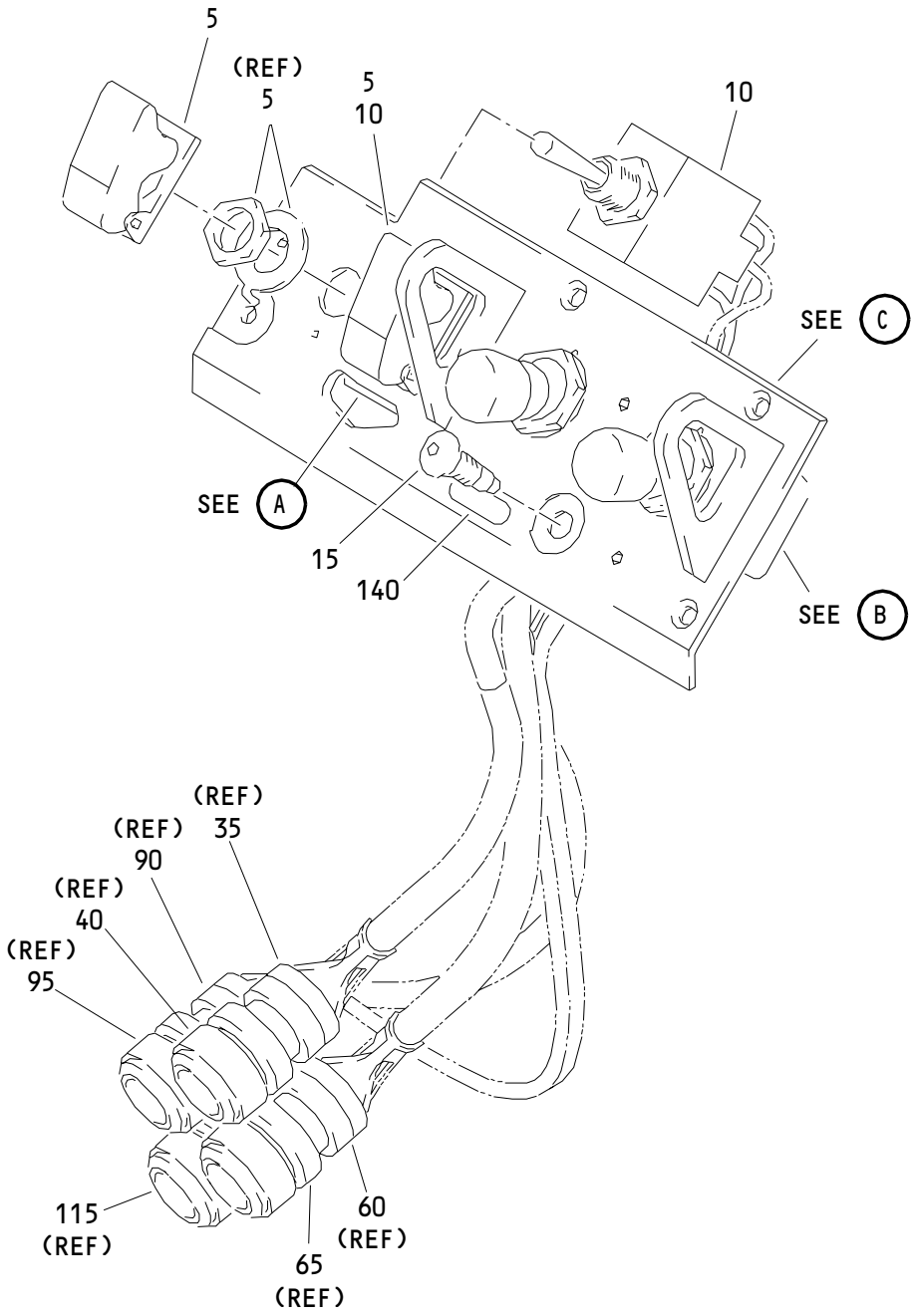
07418 SUNBANK ELECTRONICS, INCORPORATED
1740 COMMERCE WAY
PASO ROBLES, CALIFORNIA 93446-3620

51074 WEST COAST SPECIALTIES INC
8158 304TH AVE SE PO BOX 5010
PRESTON, WASHINGTON 98050

91929 HONEYWELL INC MICRO SWITCH DIV
11 WEST SPRING STREET
FREEPORT, ILLINOIS 61032

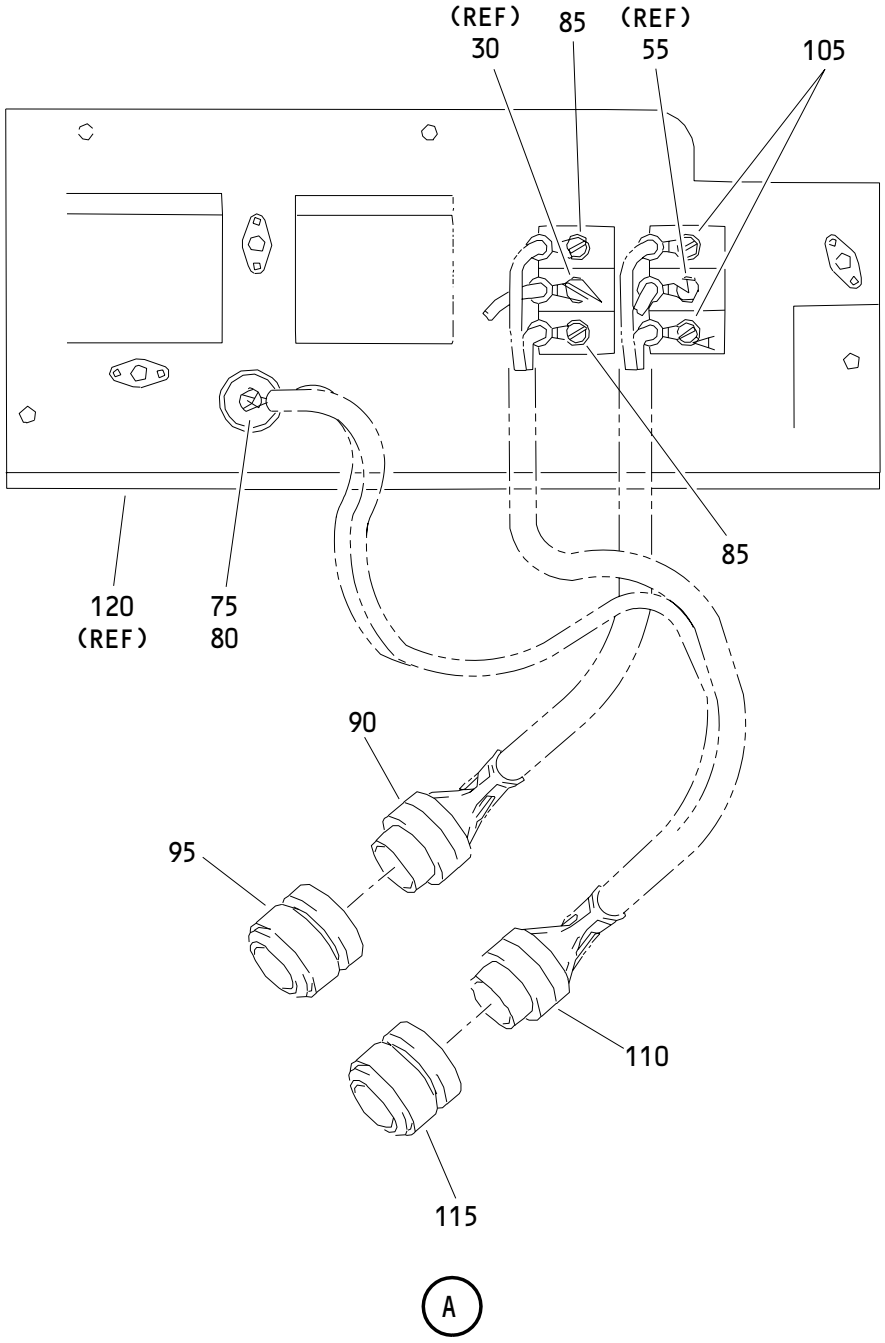
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACC10JC10		1	90	1
		1	110	1
BACC10JC12		1	35	1
		1	60	1
BACC45FT10-5P7		1	115	1
BACC45FT10-5P8		1	95	1
BACC45FT12-12P		1	65	1
BACC45FT12-12P6		1	40	1
BACR15BA3AD5		1	125	6
BACT12AR201		1	75	1
BACT12AR206		1	80	1
BACT12AR222		1	30	1
		1	55	1
		1	85	2
		1	105	2
BAC27TCT0012		1	150	1
BAC27TCT0014		1	145	1
BAC27TCT0016		1	165	1
BAC27TCT0017		1	160	1
BAC27TCT506		1	155	1
BAC27TCT513		1	140	1
GTR21-12CD		1	35	1
		1	60	1
MS24523-23		1	10	2
MS25224-3		1	5	2
S3642-12		1	35	1
		1	60	1
2-320572-3		1	80	1
254T3001-1		1	1A	RF
254T3001-2		1	20	1
254T3001-3		1	45	1
254T3001-4		1	70	1
254T3001-5		1	100	1
254T3002-1		1	120	1
254T3002-2		1	135	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
3TL32-3D		1	25	1
		1	50	1
457EA005C12		1	35	1
		1	60	1
51863-6		1	30	1
		1	55	1
		1	85	2
		1	105	2
52273-1		1	75	1
69B81931-1		1	130	3
90-42301-6		1	15	1



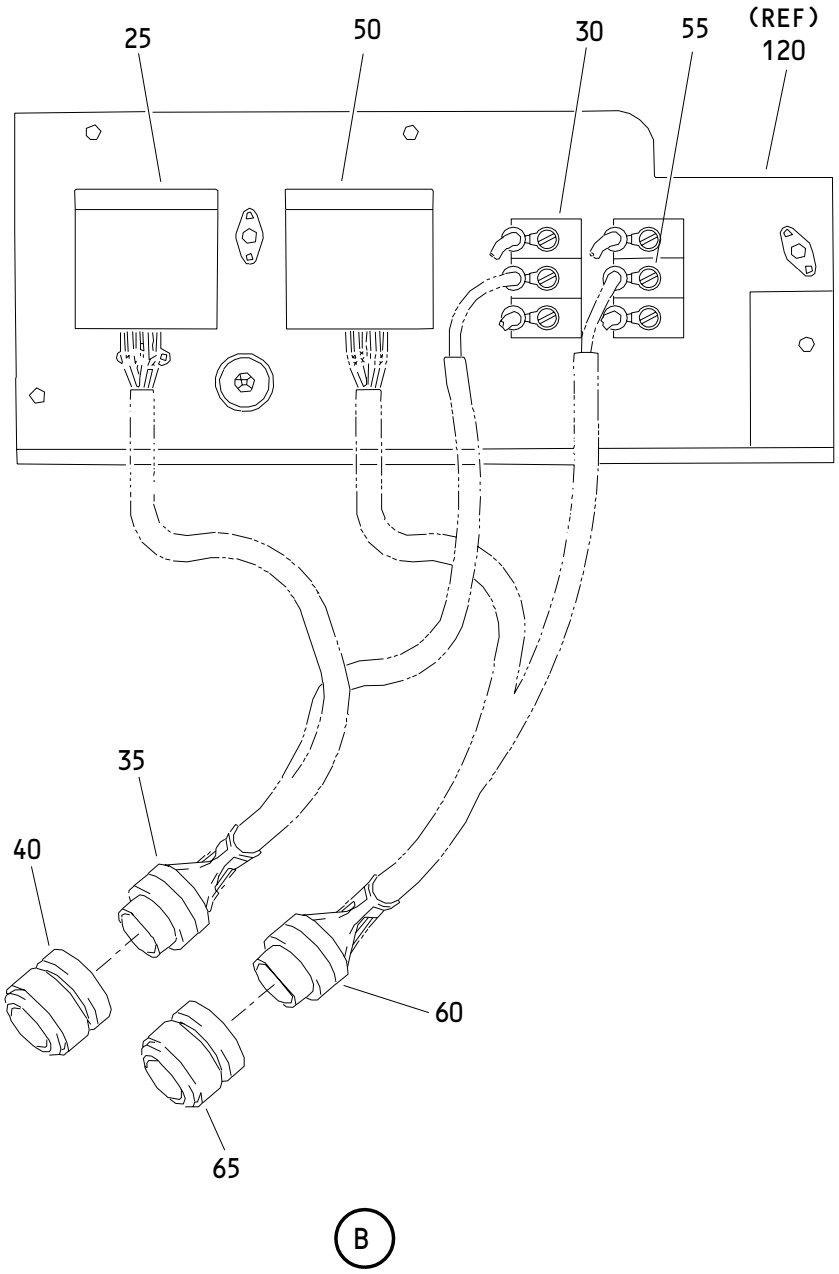
Control Stand Engine Start and Stabilizer Cutout Module Assembly
Figure 1 (Sheet 1)

K99524



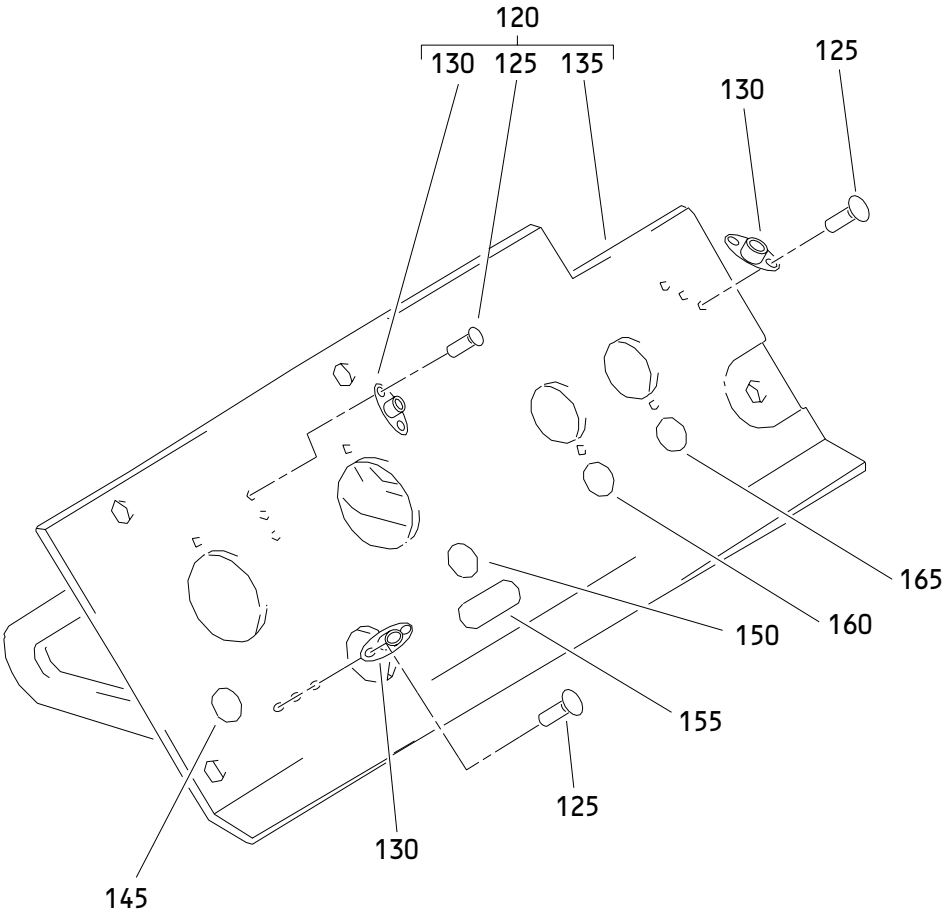
Control Stand Engine Start and Stabilizer Cutout Module Assembly
Figure 1 (Sheet 2)

K99529



Control Stand Engine Start and Stabilizer Cutout Module Assembly
Figure 1 (Sheet 3)

K99540



Control Stand Engine Start and Stabilizer Cutout Module Assembly
Figure 1 (Sheet 4)

K99562

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
1A	254T3001-1		MODULE ASSY-ENG START AND STAB CUTOUT CONT STAND		RF
5	MS25224-3		.GUARD		2
10	MS24523-23		.SWITCH		2
15	90-42301-6		.CONNECTOR-LIGHTPLATE (V51074)		1
-20	254T3001-2		.WIRE BUNDLE ASSY		1
25	3TL32-3D		..SWITCH-FUEL CONT (V91929)		1
30	51863-6		..TERMINAL- (V00779) (SPEC BACT12AR222)		1
35	457EA005C12		..CLAMP- (V06324) (SPEC BACC10JC12) (OPT GTR21-12CD (V06324)) (OPT S3642-12 (V07418))		1
40	BACC45FT12-12P6		..CONNECTOR		1
-45	254T3001-3		.WIRE BUNDLE ASSY		1
50	3TL32-3D		..SWITCH-FUEL CONT (V91929)		1
55	51863-6		..TERMINAL- (V00779) (SPEC BACT12AR222)		1
60	457EA005C12		..CLAMP- (V06324) (SPEC BACC10JC12) (OPT GTR21-12CD (V06324)) (OPT S3642-12 (V07418))		1
65	BACC45FT12-12P		..CONNECTOR		1
-70	254T3001-4		.WIRE BUNDLE ASSY		1
75	52273-1		..TERMINAL- (V00779) (SPEC BACT12AR201)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
80	2-320572-3		..TERMINAL- (V00779) (SPEC BACT12AR206)		1
85	51863-6		..TERMINAL- (V00779) (SPEC BACT12AR222)		2
90	BACC10JC10		..CLAMP		1
95	BACC45FT10-5P8		..CONNECTOR		1
-100	254T3001-5		.WIRE BUNDLE ASSY		1
105	51863-6		..TERMINAL- (V00779) (SPEC BACT12AR222)		2
110	BACC10JC10		..CLAMP		1
115	BACC45FT10-5P7		..CONNECTOR		1
120	254T3002-1		.FACEPLATE ASSY		1
125	BACR15BA3AD5		..RIVET		6
130	69B81931-1		..NUTPLATE		3
135	254T3002-2		..FACEPLATE		1
140	BAC27TCT513		.DECAL-L504		1
145	BAC27TCT0014		.DECAL-(S3)		1
150	BAC27TCT0012		.DECAL-(S1)		1
155	BAC27TCT506		.DECAL-H73		1
160	BAC27TCT0017		.DECAL-(S6)		1
165	BAC27TCT0016		.DECAL-(S5)		1

- Item Not Illustrated