



COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

FLIGHT RECORDER AND MACH AIRSPEED WARNING TEST MODULE ASSEMBLY, P5- 19

**PART NUMBER
69-37325-149, -151, -152, -153, -154**

BOEING PROPRIETARY, CONFIDENTIAL, AND/OR TRADE SECRET

Copyright © 1995 The Boeing Company
Unpublished Work - All Rights Reserved

Boeing claims copyright in each page of this document only to the extent that the page contains copyrightable subject matter. Boeing also claims copyright in this document as a compilation and/or collective work.

This document includes proprietary information owned by The Boeing Company and/or one or more third parties. Treatment of the document and the information it contains is governed by contract with Boeing. For more information, contact The Boeing Company, P.O. Box 3707, Seattle, Washington 98124.

Boeing, the Boeing signature, the Boeing symbol, 707, 717, 727, 737, 747, 757, 767, 777, 787, Dreamliner, BBJ, DC-8, DC-9, DC-10, KC-10, KDC-10, MD-10, MD-11, MD-80, MD-88, MD-90, P-8A, Poseidon and the Boeing livery are all trademarks owned by The Boeing Company; and no trademark license is granted in connection with this document unless provided in writing by Boeing.

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
A DIVISION OF THE BOEING COMPANY
PAGE DATE: Jul 01/2009

31-24-03

Page 1
Jul 01/2009



COMPONENT MAINTENANCE MANUAL

Revision No. 12
Jul 01/2009

To: All holders of FLIGHT RECORDER AND MACH AIRSPEED WARNING TEST MODULE ASSEMBLY, P5-19 31-24-03.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

Pages replaced or made obsolete by this revision should be removed and destroyed.

ATTENTION

IF YOU RECEIVE PRINTED REVISIONS, PLEASE VERIFY THAT YOU HAVE RECEIVED AND FILED THE PREVIOUS REVISION. BOEING MUST BE NOTIFIED WITHIN 30 DAYS IF YOU HAVE NOT RECEIVED THE PREVIOUS REVISION. REQUESTS FOR REVISIONS OTHER THAN THE PREVIOUS REVISION WILL REQUIRE A COMPLETE MANUAL REPRINT SUBJECT TO REPRINT CHARGES SHOWN IN THE DATA AND SERVICES CATALOG.

31-24-03

TRANSMITTAL LETTER

Page 1

Jul 01/2009



COMPONENT MAINTENANCE MANUAL

Location of Change

Description of Change

NO HIGHLIGHTS

31-24-03

HIGHLIGHTS

Page 1

Jul 01/2009



COMPONENT MAINTENANCE MANUAL

Subject/Page	Date	Subject/Page	Date	Subject/Page	Date
TITLE PAGE		31-24-03 TESTING AND FAULT ISOLATION (cont)			
O 1	Jul 01/2009	108	Mar 01/2006		
2	BLANK	109	Mar 01/2006		
31-24-03 TRANSMITTAL LETTER		110	BLANK		
O 1	Jul 01/2009	31-24-03 DISASSEMBLY			
2	BLANK	301	Mar 01/2006		
31-24-03 HIGHLIGHTS		302	BLANK		
O 1	Jul 01/2009	31-24-03 CLEANING			
2	BLANK	401	Mar 01/2006		
31-24-03 EFFECTIVE PAGES		402	BLANK		
1	Jul 01/2009	31-24-03 CHECK			
2	BLANK	501	Mar 01/2006		
31-24-03 CONTENTS		502	BLANK		
1	Mar 01/2006	31-24-03 REPAIR - GENERAL			
2	BLANK	601	Mar 01/2006		
31-24-03 TR AND SB RECORD		602	BLANK		
1	Mar 01/2006	31-24-03 ASSEMBLY			
2	BLANK	701	Mar 01/2006		
31-24-03 REVISION RECORD		702	BLANK		
1	Mar 01/2006	31-24-03 FITS AND CLEARANCES			
2	Mar 01/2006	801	Mar 01/2006		
31-24-03 RECORD OF TEMPORARY REVISIONS		802	BLANK		
1	Mar 01/2006	31-24-03 SPECIAL TOOLS, FIXTURES, AND EQUIPMENT			
2	Mar 01/2006	901	Mar 01/2006		
31-24-03 INTRODUCTION		902	BLANK		
1	Mar 01/2009	31-24-03 ILLUSTRATED PARTS LIST			
2	BLANK	1001	Nov 01/2008		
31-24-03 DESCRIPTION AND OPERATION		1002	Jul 01/2006		
1	Mar 01/2006	1003	Jul 01/2006		
2	Mar 01/2006	1004	Mar 01/2006		
31-24-03 TESTING AND FAULT ISOLATION		1005	Mar 01/2006		
101	Jul 01/2007	1006	Mar 01/2006		
102	Mar 01/2007	1007	Mar 01/2006		
103	Mar 01/2007	1008	Mar 01/2006		
104	Mar 01/2007	1009	Mar 01/2006		
105	Mar 01/2007	1010	Mar 01/2006		
106	Mar 01/2006	1011	Mar 01/2006		
107	Mar 01/2007	1012	Mar 01/2006		

A = Added, R = Revised, D = Deleted, O = Overflow

31-24-03

EFFECTIVE PAGES

Page 1

Jul 01/2009



COMPONENT MAINTENANCE MANUAL

TABLE OF CONTENTS

<u>Paragraph Title</u>		<u>Page</u>
FLIGHT RECORDER AND MACH AIRSPEED WARNING TEST MODULE ASSEMBLY P5-19 - DESCRIPTION AND OPERATION		1
TESTING AND FAULT ISOLATION		101
DISASSEMBLY	(Not Applicable)	
CLEANING	(Not Applicable)	
CHECK	(Not Applicable)	
REPAIR		601
ASSEMBLY	(Not Applicable)	
FITS AND CLEARANCES	(Not Applicable)	
SPECIAL TOOLS, FIXTURES, AND EQUIPMENT	(Not Applicable)	
ILLUSTRATED PARTS LIST		1001

31-24-03

CONTENTS

Page 1

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
69-37325-31-02		PRR 34766	MAR 05/92
		PRR 34766R	MAR 05/92

31-24-03

TR AND SB RECORD

Page 1

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

31-24-03

REVISION RECORD

Page 1

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing. When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed		Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials	Date	Initials	Number	Date	Date	Initials

31-24-03

RECORD OF TEMPORARY REVISION

Page 1

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

Temporary Revision		Inserted		Removed		Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials	Date	Initials	Number	Date	Date	Initials

31-24-03

RECORD OF TEMPORARY REVISION
Page 2
Mar 01/2006



COMPONENT MAINTENANCE MANUAL

INTRODUCTION

1. General

- A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.
- B. This manual is divided into different parts:
 - (1) Title Page
 - (2) Transmittal Letter
 - (3) Highlights
 - (4) List of Effective Pages
 - (5) Table of Contents
 - (6) Temporary Revision & Service Bulletin Record
 - (7) Record of Revisions
 - (8) Record of Temporary Revisions
 - (9) Introduction
 - (10) Procedures & IPL Sections
- C. Refer to the Table of Contents for the page location of the applicable procedures.
- D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.
- E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.
- F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.
- G. Verification:

31-24-03

INTRODUCTION

Page 1

Mar 01/2009



COMPONENT MAINTENANCE MANUAL

FLIGHT RECORDER AND MACH AIRSPEED WARNING TEST MODULE ASSEMBLY P5-19 - DESCRIPTION AND OPERATION

1. Description

A. The flight recorder and mach airspeed warning test module assembly is located in the P5 overhead panel. The module may be easily removed by loosening quick-release fasteners on the baseplate and disconnecting the rear-mounted receptacle from the airplane wire bundle. The module contains switches, indicator lamp, and electronic components in the flight recorder, mach airspeed warning, and master caution indicator systems.

B. Functional Description

CAUTION: OBEY THE PROCEDURE IN SUBJECT 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

- (1) Card A1 contains two circuits; transistor Q8 which is a simple transistor switch, and SCR Q2 in series with transistor Q4 which provided a ground path for the master caution indicator. The master caution triggering inputs are positive on some pins and ground on others. After triggering, SCR Q2 may be reset to extinguish the master caution indication, and retriggered to recall the indication if the original triggering input remains.
- (2) Circuit ground is connected to pin 23 (XA1-7). Circuit power for the master caution triggering circuitry is connected to pin 29 (XA1-22).
- (3) Refer to CMM 33-15-13 for theory of operation of printed circuit assembly A1.

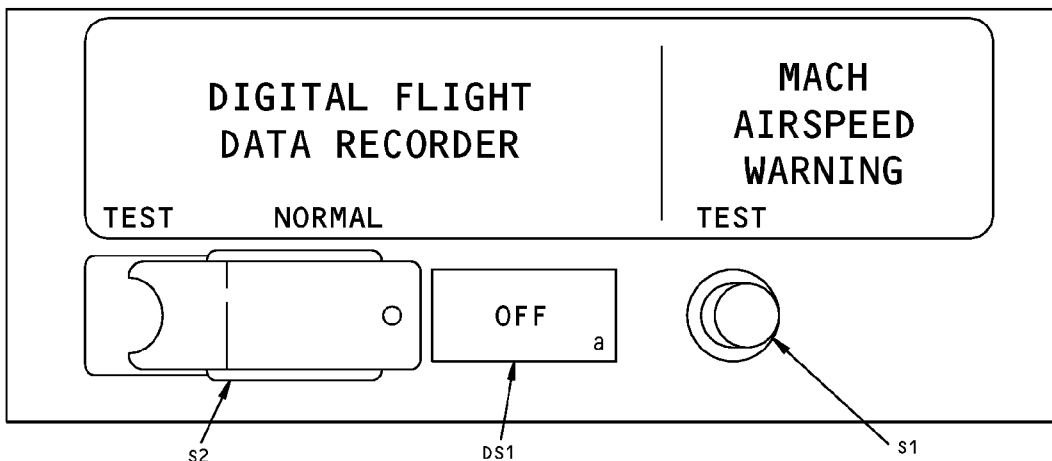
31-24-03

DESCRIPTION AND OPERATION

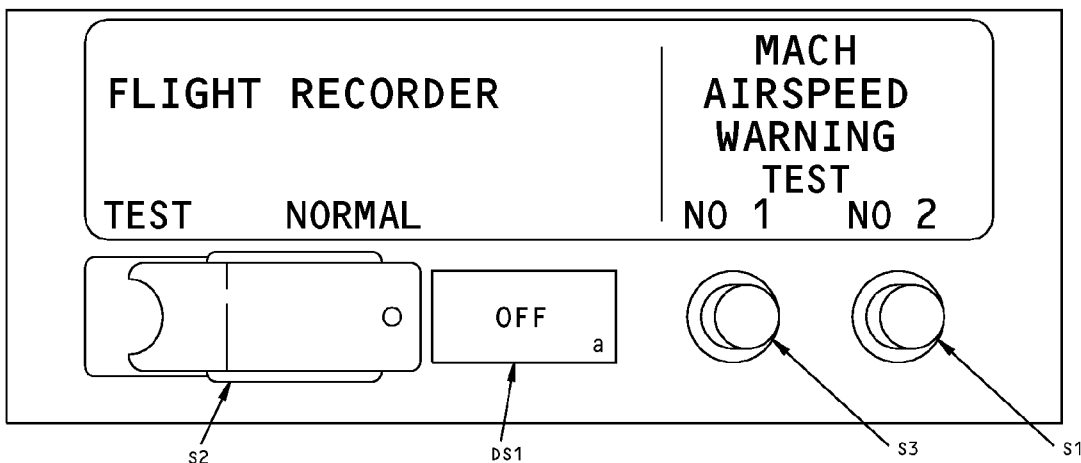
Page 1

Mar 01/2006

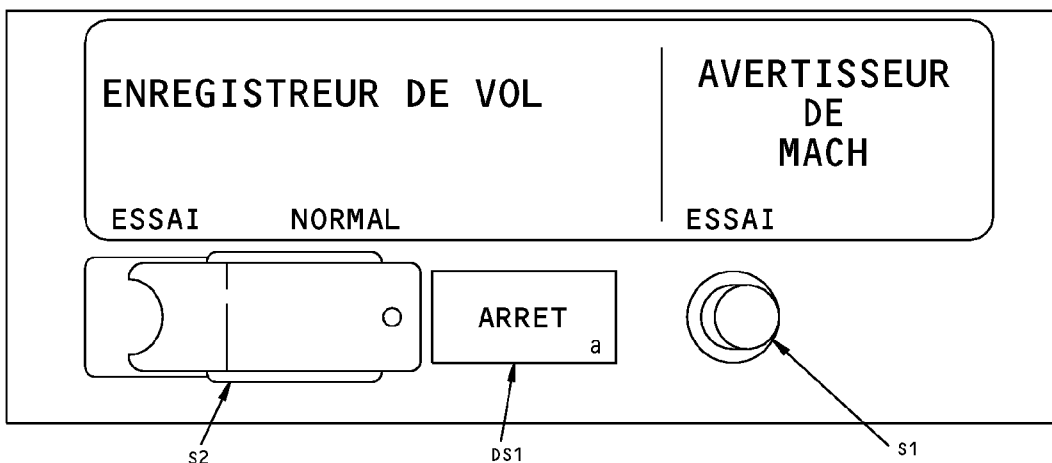
COMPONENT MAINTENANCE MANUAL



69-37325-151,-152



69-37325-153



69-37325-149,-154

Component Identification
Figure 1

31-24-03

DESCRIPTION AND OPERATION

Page 2

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

TESTING AND FAULT ISOLATION

1. Testing

CAUTION: OBEY THE PROCEDURES IN SOPM 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

A. Test Equipment

NOTE: Equivalent substitute may be used.

- (1) Multimeter: model 260 simpson voltmeter, STD-3946
- (2) Power Supply: 28 Vdc power supply, STD-4543
- (3) Connector (with pigtail leads): BACC45FT18-31S (J1)
- (4) Switch: SPDT
- (5) Switch: SPST switch, STD-4657
 - (a) 11 required, 69-37325-149, -152, -153, -154;
 - (b) 12 required, 69-37325-151.
- (6) Capacitor: 1 uf, 35 volts (C1)
- (7) Resistor: 330 ohms ($\pm 5\%$), 1.2 w (R1)
- (8) Diode: 1N4385 (CR1)
- (9) Lamp Load (L3): 420 to 460 mA (GE1819 and two 1873 lamps in parallel)
- (10) Lamp Load (L1) (69-37325-151 only): 80 mA (two GE387 lamps in parallel)

B. Prepare for test

- (1) Connect assembly to test connector.
- (2) Identify and tag pigtail leads.

C. Functional Test, 69-37325-149, -152, -153, -154

- (1) Remove screws (1) and cover (5). Measure forward resistance of CR1 diode across terminals E2(+) and E1(-). Verify less than 15 ohms. Replace cover (5) and secure with screws (1).
- (2) Verify continuity between pins 16 and 17 and no continuity between pins 15 and 16.
- (3) Press No. 1 MACH AIRSPEED WARNING TEST switch and verify continuity between pins 15 and 16 and no continuity between pins 16 and 17.
 - (a) (69-37325-153 only) Verify continuity between pins 3 and 6 and no continuity between pins 4 and 6.
 - (b) (69-37325-153 only) Press No. 2 MACH AIRSPEED WARNING TEST switch and verify continuity between pins 4 and 6 and no continuity between pins 3 and 6.
- (4) Verify continuity between pins 10 and 11 and between 13 and 14. Verify no continuity between pins 9 and 10 and between 12 and 13.
- (5) Set FLIGHT RECORDER TEST switch to OFF.
- (6) Connect assembly to test setup as shown in TESTING AND FAULT ISOLATION, Figure 101. Set all switches to OFF. Turn on power supply.
- (7) Set switch S1 and S2 to ON. Verify continuity between pins 9 and 10 and between 12 and 13. There shall be no continuity between pins 10 and 11 nor between 13 and 14.

31-24-03

TESTING AND FAULT ISOLATION

Page 101

Jul 01/2007



COMPONENT MAINTENANCE MANUAL

- (8) Set FLIGHT RECORDER TEST switch to ON. Verify continuity between pins 10 and 11 and between 13 and 14. There shall be no continuity between pins 9 and 10 nor between 12 and 13.
- (9) Set FLIGHT RECORDER TEST switch to OFF. Verify continuity between pins 9 and 10 and between 12 and 13. There shall be no continuity between pins 10 and 11 nor between 13 and 14.
- (10) Press and release FLIGHT RECORDER OFF indicator on assembly. Indicator shall illuminate when pressed and shall extinguish when released.
- (11) Set S3 to ON. FLIGHT RECORDER OFF indicator on module assembly and lamp L3 shall illuminate.
- (12) Set S3 to OFF. FLIGHT RECORDER OFF indicator and lamp L3 shall extinguish.
- (13) Set switches as listed and verify indications as specified in TESTING AND FAULT ISOLATION, Table 101. Any deviation constitutes a failure. Leave all switches in last specified position.

Table 101: Test Procedures - 69-37325-149, -152, -153, -154 Assemblies

TEST SWITCHES			TEST LAMP INDICATIONS		
STEP	NUMBER	POSITION	ILLUMINATED	NOT ILLUMINATED	V
A	1 and 2	ON			
B	4	ON	L3		
C	4	OFF		L3	
D	5	ON	L3		
E	5	OFF		L3	
F	6	ON	L3		
G	6	OFF		L3	
H	7	ON	L3		
I	7	OFF		L3	
J	8	ON	L3 ^{*[1]}		
K	8	OFF		L3 ^{*[1]}	
L	12	ON	L3		
M	12	OFF		L3	
N	13	ON	L3		
O	13	OFF		L3	
P	4 thru 7, 12, 13	ON	L3		
Q	2	OFF		L3	
R	2	ON		L3	
S	8	ON	L3 ^{*[1]}		
T	2	OFF	^{*[1]}	L3	
U	2	ON	^{*[1]}	L3	
V	4 thru 7, 12, 13	OFF	^{*[1]}	L3	
W	8	OFF		L3 ^{*[1]}	
X	15	ON		L3	18 ± 3V ^{*[2]}

31-24-03

TESTING AND FAULT ISOLATION

Page 102

Mar 01/2007



COMPONENT MAINTENANCE MANUAL

Table 101: Test Procedures - 69-37325-149, -152, -153, -154 Assemblies (Continued)

TEST SWITCHES			TEST LAMP INDICATIONS		
STEP	NUMBER	POSITION	ILLUMINATED	NOT ILLUMINATED	V
Y	14	ON	L3		18 ± 3V ^[2]
Z	15	OFF		L3	18 ± 3V ^[2]
AA	14	OFF		L3	18 ± 3V ^[2]

*[1] FLIGHT RECORDER OFF indicator on module

*[2] 69-37325-149, -152, -154 only

(14) Turn off power supply and disconnect assembly from test setup.

D. Functional Test, 69-37325-151

(1) Verify continuity or no continuity with switches set as indicated in TESTING AND FAULT ISOLATION, Table 102.

NOTE: "Con" means that continuity exists and that resistance must be less than 1 ohm. "No Con" means that circuit is open (infinite resistance).

Table 102: Switch Continuity Tests - 69-37325-151 Assembly

MODULE SWITCH	MEASURE BETWEEN PINS	REQUIRED RESULTS	
		Depressed	Released
S1	15 to 16	Con	No Con
S1	17 to 16	No Con	Con
S1	10 to 9	Normal	Test
		No Con	Con

(2) Test relay K1 per TESTING AND FAULT ISOLATION, Table 103.

Table 103: Relay Tests - 69-37-325-151 Assembly

STEP	PROCEDURE	MEASURE BETWEEN PINS:	REQUIRED RESULTS	
1	Connect pin 12 to ground			
2		14 to 23	No Con	
3		20 to 23	Con	
4	Connect pin 7 to 28v dc			
5		14 to 23	Con	
6		(K1/A1CR6 test)	23(+) to 20	50 ohms max
7		(K1/A1CR6 test)	20(+) to 23	50K min
8	Remove all connections			

(3) Connect test setup per TESTING AND FAULT ISOLATION, Figure 101. Set all switches to OFF. Turn on power supply.

31-24-03

TESTING AND FAULT ISOLATION

Page 103

Mar 01/2007



COMPONENT MAINTENANCE MANUAL

- (4) Depress and release DIGITAL FLIGHT DATA RECORDER indicator on module. Indicator must illuminate when pressed and extinguished when released.
- (5) Set switches and verify indications as specified in TESTING AND FAULT ISOLATION, Table 104. L1 will be illuminated at all steps where it is not listed.

Table 104: Test Procedures - 69-37325-151 Assembly

TEST SWITCHES			TEST LAMP INDICATIONS		
STEP	NUMBER	POSITION	ILLUMINATED	NOT ILLUMINATED	V
A	1 and 2	ON	L1		18 ± 3 V
B	3	ON	L3 ^{*[1]}		
C	3	OFF		L3 ^{*[1]}	
D	4	ON	L3		
E	4	OFF		L3	
F	5	ON	L3		
G	5	OFF		L3	
H	6	ON	L3		
I	6	OFF		L3	
J	7	ON	L3		
K	7	OFF		L3	
L	8	ON	L3 ^{*[1]}		
M	8	OFF		L3 ^{*[1]}	
N	12	ON	L3		
O	12	OFF		L3	
P	13	ON	L3		
Q	13	OFF		L3	
R	4	ON	L3		
S	2	OFF		L3	
T	2	ON		L3	
U	5	ON	L3		
V	2	OFF		L3	
W	2	ON		L3	
X	6	ON	L3		
Y	2	OFF		L3	
Z	2	ON		L3	
AA	7	ON	L3		
AB	2	OFF		L3	
AC	2	ON		L3	
AD	8	ON	L3 ^{*[1]}		

31-24-03

TESTING AND FAULT ISOLATION

Page 104

Mar 01/2007



COMPONENT MAINTENANCE MANUAL

Table 104: Test Procedures - 69-37325-151 Assembly (Continued)

TEST SWITCHES			TEST LAMP INDICATIONS		
STEP	NUMBER	POSITION	ILLUMINATED	NOT ILLUMINATED	V
AE	2	OFF	*[1]	L3	
AF	2	ON	*[1]	L3	
AG	12	ON	L3 *[1]		
AH	2	OFF	*[1]	L3	
AI	2	ON	*[1]	L3	
AJ	13	ON	L3 *[1]		
AK	2	OFF	*[1]	L3	
AL	2	ON	L3 *[1]	L3	
AM	14	ON	L3 *[1]		
AN	14	OFF			
AO	2 thru 8, 12, 13	OFF		L3 *[1]	
AP	14,15	ON	L3		18 ±3 V
AQ	14,15	OFF		L3	18 ±3 V
AR	16	ON		L1	
AS	16	OFF	L1		

*[1] DIGITAL FLIGHT DATA RECORDER INDICATOR ON MODULE MUST ILLUMINATE.

(6) Turn off power supply and disconnect assembly from test setup.

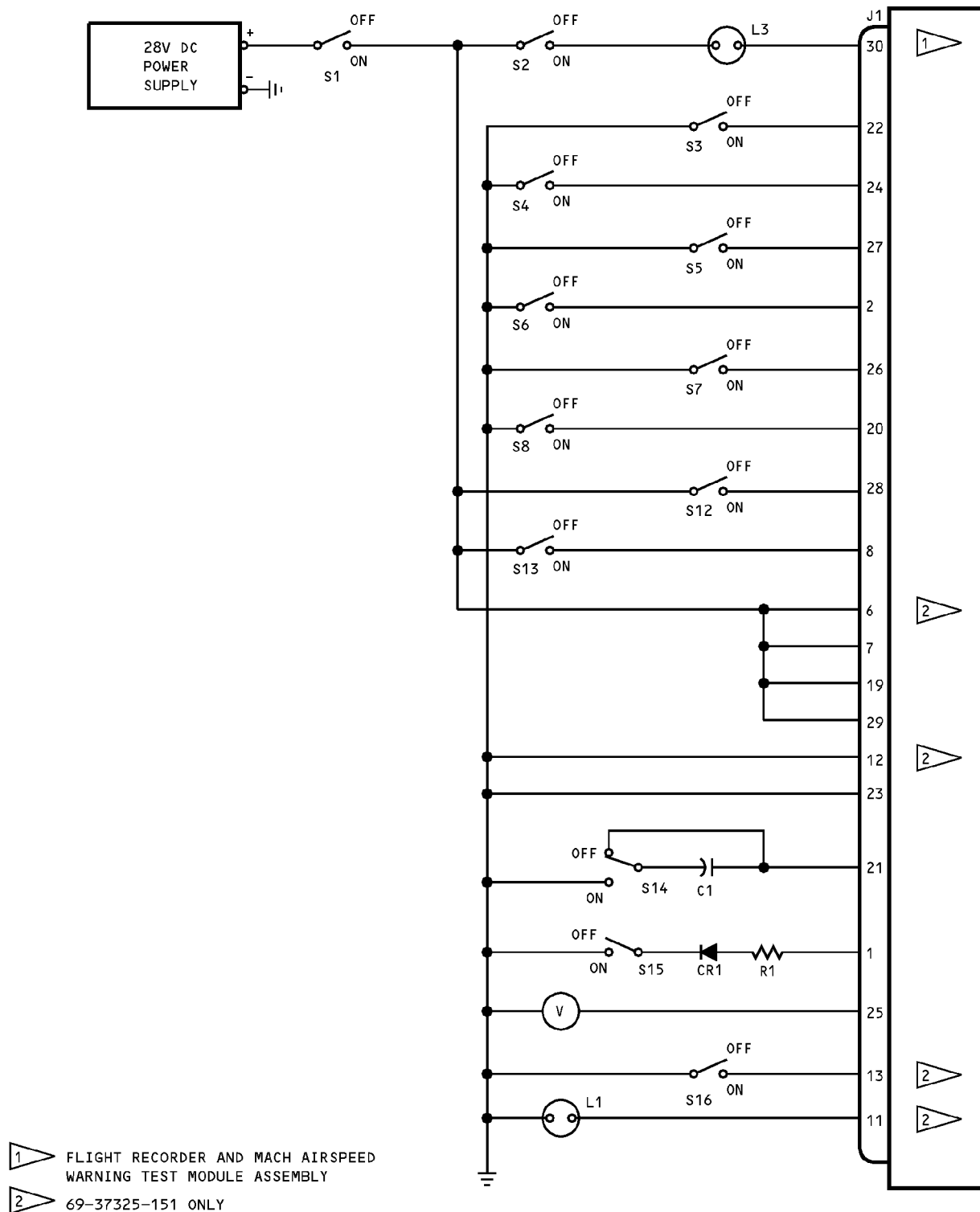
31-24-03

TESTING AND FAULT ISOLATION

Page 105

Mar 01/2007

COMPONENT MAINTENANCE MANUAL



- 1 FLIGHT RECORDER AND MACH AIRSPEED WARNING TEST MODULE ASSEMBLY
- 2 69-37325-151 ONLY

Test Setup
Figure 101

31-24-03

TESTING AND FAULT ISOLATION

Page 106

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

2. Trouble Shooting

- A. If failure of a test occurs, check for defective connections and incorrect wiring connections, prior to replacement of components.

NOTE: Trouble shooting is keyed to functional test procedures.

Table 105: Trouble Shooting

Trouble	Possible Cause and Correction
69-37325-149, -152 thru -154 Assemblies	
Step C.(1)	CR1
Steps C.(2), C.(3)	Switch
Step C.(4)	K1
Step C.(7)	K1 or A1
Steps C.(8), C.(9)	K1 or A1
Step C.(10)	DS1
Step C.(11)	A1, R1, or DS1
Step C.(12)	A1
TESTING AND FAULT ISOLATION, Table 101:	
Steps B thru H	A1
Step J - L3 extinguished	A1
Step J - Indicator DS1 extinguished	DS1
Steps L thru end	A1
69-37325-151 Assembly	
TESTING AND FAULT ISOLATION, Table 103	Component noted in the table
TESTING AND FAULT ISOLATION, Table 104	Component noted in the table
Step (4)	DS1
TESTING AND FAULT ISOLATION, Table 104:	
Step A	A1
Steps B and C	A1, R1 or DS1
Steps D thru AS	A1

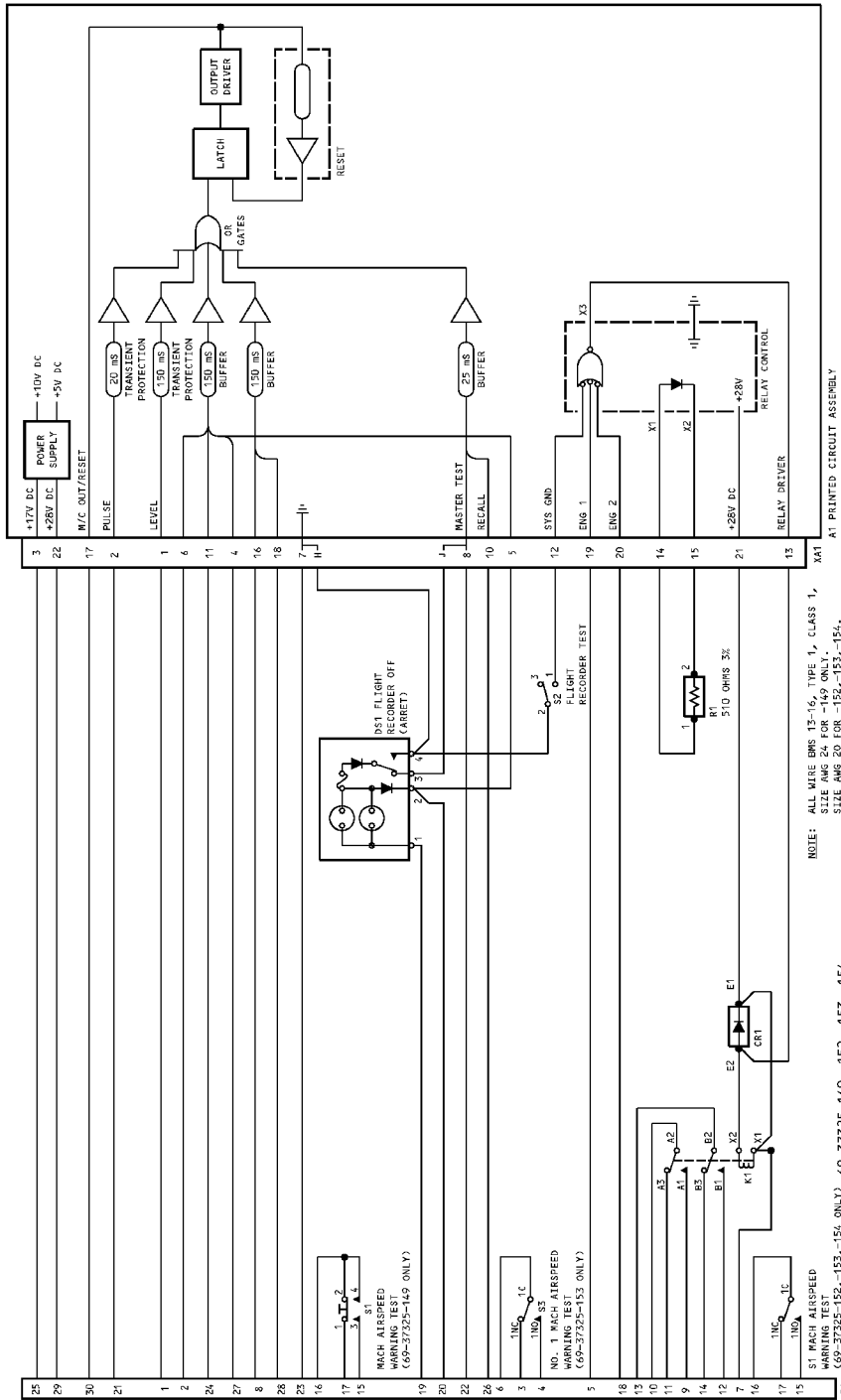
31-24-03

TESTING AND FAULT ISOLATION

Page 107

Mar 01/2007

COMPONENT MAINTENANCE MANUAL



Schematic Diagram
Figure 102

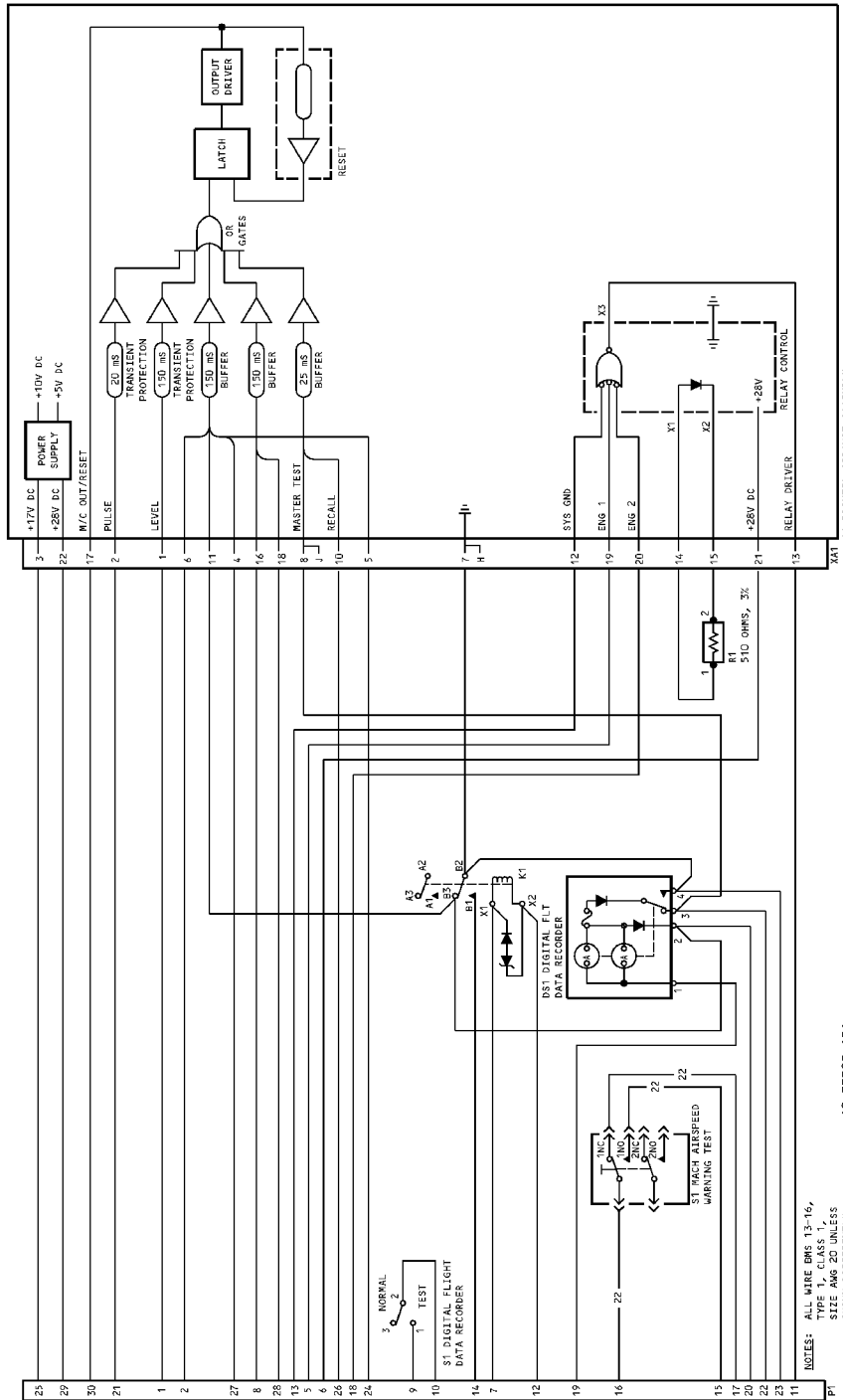
31-24-03

TESTING AND FAULT ISOLATION

Page 108

Mar 01/2006

COMPONENT MAINTENANCE MANUAL



Schematic Diagram
Figure 103

31-24-03

TESTING AND FAULT ISOLATION

Page 109

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

DISASSEMBLY

(NOT APPLICABLE)

31-24-03

DISASSEMBLY

Page 301

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

CLEANING

(NOT APPLICABLE)

31-24-03

CLEANING
Page 401

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

CHECK

(NOT APPLICABLE)

31-24-03

CHECK

Page 501

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

REPAIR

1. Procedures

CAUTION: OBEY THE PROCEDURES IN SOPM 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

- A. All repair can be accomplished with standard industry practices and instructions contained in SOPM 20-11-04 except as noted in paragraphs below:
- B. If keying plug (IPL Figure 1, Item 115) requires replacement, insert as follows:
 - (1) Install keying plug into contact position 9.
- C. Install connector (IPL Figure 1, Item 110) with contact position 1 adjacent to resistor R1.

31-24-03

REPAIR - GENERAL

Page 601

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

ASSEMBLY

(NOT APPLICABLE)

31-24-03

ASSEMBLY

Page 701

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

FITS AND CLEARANCES

(NOT APPLICABLE)

31-24-03

FITS AND CLEARANCES

Page 801

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

(NOT APPLICABLE)

31-24-03

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

Page 901

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

ILLUSTRATED PARTS LIST

1. Introduction

- A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.
- B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1	2	3	4	5	6	7
.	Assembly					
.	Attaching parts for assembly					
.	.	Detail parts for assembly				
.	.	Subassembly				
.	.	Attaching parts for subassembly				
.	.	.	Detail parts for subassembly			
.	.	.	Sub-subassembly			
.	.	.	Attaching parts for subassembly			
.	.	.	.	Details parts for sub-subassembly		
						Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

- C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.
- D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.
- E. Color-coded parts are identified with a single digit alpha following the dash number or with "SP" suffix. If the "SP" suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.
- F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a "~" at the end of the line and will be continued on the next line. The "~" denotes that the part number continues on the next line.
- G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.
- (1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.
- (2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.
- H. Interchangeable Parts

31-24-03

ILLUSTRATED PARTS LIST

Page 1001

Nov 01/2008



COMPONENT MAINTENANCE MANUAL

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
00213	MSD INC 700 ORANGE ST DARLINGTON, SOUTH CAROLINA 29532 FORMERLY V01350; FORMERLY 78290; FORMERLY NYTRONICS COMPONENTS GROUP
00779	TYCO ELECTRONICS CORP 2800 FULLING MILL ROAD PO BOX 3608 MIDDLETOWN, PENNSYLVANIA 17057 FORMERLY AMP INC; FORMERLY V04618 FORMERLY GENICOM COMP V01526
14936	GENERAL INSTRUMENT CORP POWER SEMICONDUCTOR DIV 600 WEST JOHN STREET HICKSVILLE, NEW YORK 11802 FORMERLY GENERAL INSTRUMENT CORP DISCRETE SEMICONDUCTOR DIV
35344	Replaced: [V35344] LEACH CORP RELAY DIV SEE LEACH CORP CONTROL PROD DIV V58657 by Code: Name and Address below 58657: LEACH INTERNATIONAL OF NORTH AMERICA 6900 ORANGETHORPE AVE PO BOX 5032 BUENA PARK, CALIFORNIA 90622-5032 FORMERLY LEACH CORP V35344 AND V00614 FORMERLY LEACH CORP

31-24-03

ILLUSTRATED PARTS LIST

Page 1002

Jul 01/2006



COMPONENT MAINTENANCE MANUAL

Code	Name
72914	HONEYWELL/GRIMES AEROSPACE 550 STATE RT 55 URBANA, OHIO 43078 FORMERLY AERO-FLOW V70128; MIDLAND-ROSS JANITROL AERO DIV; FORMERLY FL AEROSP CORP V89513; ALLIEDSIGNAL/GRIMES AEROSP FORMERLY GRIMES AEROSPACE V00672 AND HONEYWELL V60187
81590	KORRY ELECTRONIC INC SUB OF CRITON CORP 901 DEXTER AVENUE NORTH SEATTLE, WASHINGTON 98109-3515 FORMERLY KORRY, BORIS VB0021 AND KORRY MFG CO
81640	EATON CORP AEROSPACE AND COMMERCIAL CONTROLS DIV 2250 WHITFIELD AVENUE EAST SARASOTA, FLORIDA 34243-9703 FORMERLY SINGER CO CONTROLS DIV AND CONTROLS CO OF AMERICA AND CONTROL SWITCH A CUTLER-HAMMER CO AND EATON CORP CUTLER-HAMMER GROUP V97198, V81641 IN FOLCROFT, PENNSYLVANIA INFO FROMVDR THRU M2880 FEB 1987 SWITCHES
88245	WINCHESTER ELECTRONICS LITTON SYSTEMS INC USECO DIV 13536 SATICOY STREET VAN NUYS, CALIFORNIA 91409 FORMERLY U.S. ENGINEERING CO V88245 AND LITTON PRECISION PRODUCTS INC USECO DIV LITTON IND AND LITTON SYSTEMS INC USECO DIV
91637	VISHAY DALE ELECTRONICS VISHAY AMERICAS INC DBA VISHAY 1122 23RD STREET PO BOX 609 COLUMUS, NEBRASKA 68602-0609
91929	HONEYWELL INC MICRO SWITCH DIV 11 WEST SPRING STREET FREEPORT, ILLINOIS 61032 FORMERLY MICRO SWITCH A DIV OF HONEYWELL FORMERLY V74059 AND V40228

31-24-03

ILLUSTRATED PARTS LIST

Page 1003

Jul 01/2006



COMPONENT MAINTENANCE MANUAL

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
10-61803-12		1	185A	1
10-61803-251		1	185	1
11170-1		1	180	1
1491A		1	140	2
1625-4-12		1	140A	2
1N4384		1	145	1
2PB11H58		1	170A	1
		1	230	1
3105M-510-10-3PCT		1	160A	1
3105M510-10-3PCT		1	160A	1
318-630-1001-		1	185	1
		1	185A	1
582507-1		1	115	1
582557-1		1	110	1
66143-2		1	215	AR
69-37268-13		1	85	1
69-37268-14		1	90	2
69-37325-148		1	195A	1
69-37325-149		1	1	2
69-37325-151		1	1B	2
69-37325-152		1	1C	2
69-37325-153		1	1D	2
69-37325-154		1	1E	2
69-37325-18		1	195B	1
69-37325-21		1	195	1
69-37325-40		1	210	1
69-37325-5		1	75	1
69-37325-50		1	210A	1
69-37325-54		1	210C	1
69-37325-55		1	210D	1
69-37325-58		1	210B	1
69-37325-8		1	80	1
69-43948-12		1	60	1
69-43948-14		1	190	1

31-24-03

ILLUSTRATED PARTS LIST

Page 1004

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-43948-17		1	190A	1
69-43948-19		1	15	1
		1	25	1
69-43948-20		1	10	1
69-43948-21		1	20	1
69-78287-1		1	30	1
AN960PD6		1	125	6
BAC27DCC239		1	225	1
BAC27DCC571		1	165A	1
BAC27DCC666		1	165	1
BAC27DEX1875		1	165B	1
BAC27DEX572		1	165C	1
BAC27EEX510		1	235	1
BACC45FN18-31P		1	45	1
BACN10DN26		1	155	2
BACN10JC06		1	105A	2
		1	120A	2
BACN10NW1		1	40	2
BACP10U0225G		1	200	1
BACR13CF4		1	130	1
BACR13CF4A		1	130B	1
BACS12BE02-3		1	135	2
BACS12BE02-5		1	150	2
BACS12CB04-4		1	70	4
		1	70A	3
BACS12CB04-5		1	35	2
BACS12CB06-14		1	95	2
BACS12CB06-5		1	50	4
BACS21DD1G		1	205	4
BACT12S		1	220	AR
JAG2A		1	130A	1
MS24523-23		1	175	1
MS35338-41		1	55	4
NAS43DD1-17		1	100	2
NAS514P440-4		1	5	8

31-24-03

ILLUSTRATED PARTS LIST

Page 1005

Mar 01/2006

**COMPONENT MAINTENANCE MANUAL**

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
NAS514P632-5		1	65	4
NAS679A06W		1	105	2
		1	120	2
RH5-510-3PCT		1	160	2
V9954		1	30	1
W20161-03		1	170	1

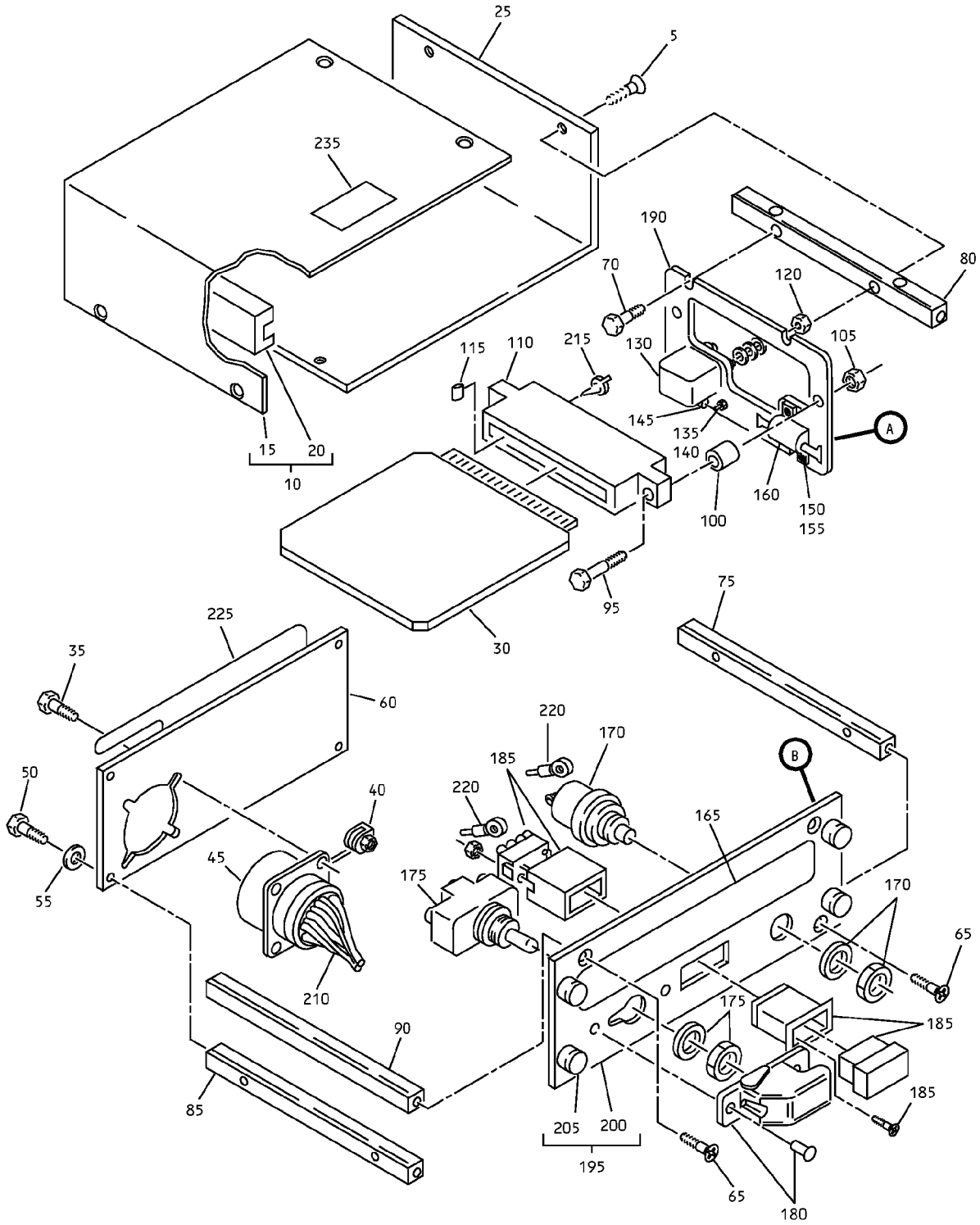
31-24-03

ILLUSTRATED PARTS LIST

Page 1006

Mar 01/2006

COMPONENT MAINTENANCE MANUAL



Flight Recorder and Mach Airspeed Warning Test Module Assembly, P5-19
 IPL Figure 1 (Sheet 1 of 2)

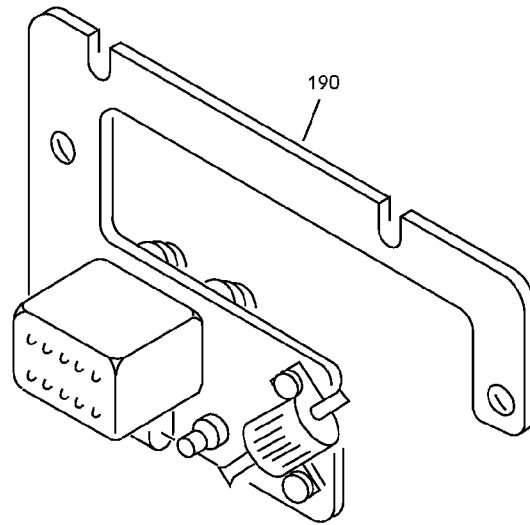
31-24-03

ILLUSTRATED PARTS LIST

Page 1007

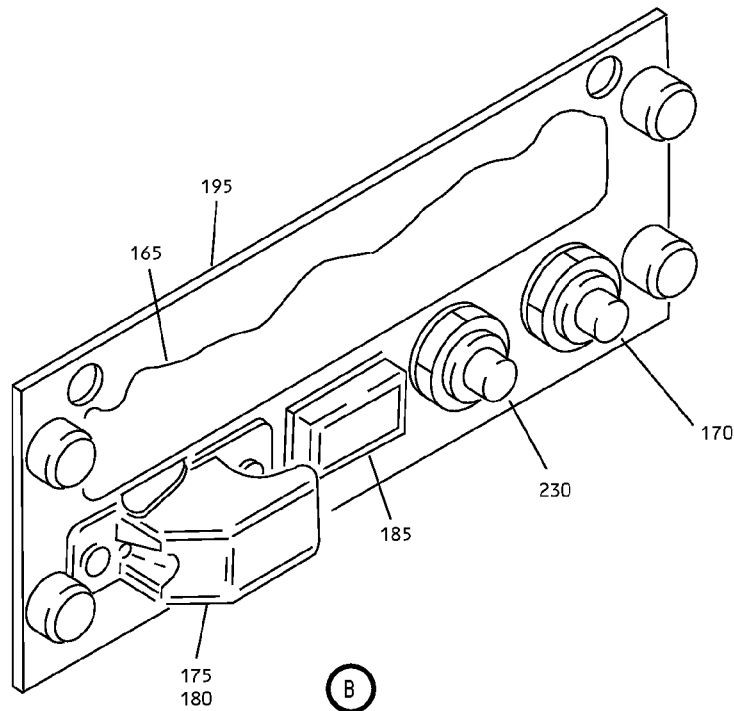
Mar 01/2006

COMPONENT MAINTENANCE MANUAL



(A)

69-37325-153



(B)

69-37325-153

Flight Recorder and Mach Airspeed Warning Test Module Assembly, P5-19
IPL Figure 1 (Sheet 2 of 2)

31-24-03

ILLUSTRATED PARTS LIST

Page 1008

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE							USAGE CODE	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-											
1	69-37325-149									A	
1B	69-37325-151									B	
1C	69-37325-152									C	
1D	69-37325-153									D	
1E	69-37325-154									E	
5	NAS514P440-4										8
10	69-43948-20										1
15	69-43948-19										1
20	69-43948-21										1
25	69-43948-19										1
30	69-78287-1										1
35	BACS12CB04-5										2
40	BACN10NW1										2
45	BACC45FN18-31P										1
50	BACS12CB06-5										4
55	MS35338-41										4
60	69-43948-12										1
65	NAS514P632-5										4
70	BACS12CB04-4									A-C, E	4
70A	BACS12CB04-4									D	3

-Item not illustrated

31-24-03

ILLUSTRATED PARTS LIST

Page 1009

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE							USAGE CODE	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-											
75	69-37325-5		.								1
80	69-37325-8		.								1
85	69-37268-13		.								1
90	69-37268-14		.								2
95	BACS12CB06-14		.								2
100	NAS43DD1-17		.								2
105	NAS679A06W		.								2
105A	BACN10JC06		.								2
110	582557-1		.								1
115	582507-1		.								1
120	NAS679A06W		.								2
120A	BACN10JC06		.								2
125	AN960PD6		.								6
130	BACR13CF4		.							A, C, D	1
130A	JAG2A		.							A	1
130B	BACR13CF4A		.							A, C, D	1
135	BACS12BE02-3		.							A, C-E	2
140	1491A		.							A, C-E	2
-140A	1625-4-12		.							A, C-E	2
145	1N4384		.							A, C-E	1
150	BACS12BE02-5		.							A, C-E	2
155	BACN10DN26		.							A, C-E	2
160	RH5-510-3PCT		.							A, C-E	2

-Item not Illustrated

31-24-03

ILLUSTRATED PARTS LIST

Page 1010

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE							USAGE CODE	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-											
160A	3105M510-10-3PCT		.	RESISTOR, 510 OHMS +/-3%, 5 W, (V91637) (OPT 3105M-510-10-3PCT (V00213))						A, C-E	1
165	BAC27DCC666		.	ALUMINUM FOIL MARKER						A, E	1
165A	BAC27DCC571		.	ALUMINUM FOIL MARKER						C	1
165B	BAC27DEX1875		.	ALUMINUM FOIL MARKER						B	1
165C	BAC27DEX572		.	ALUMINUM FOIL MARKER						D	1
170	W20161-03		.	SWITCH, (V81640)						A	1
170A	2PB11H58		.	PUSHBUTTON SWITCH (V91929)						B-E	1
175	MS24523-23		.	SWITCH						A-E	1
180	11170-1		.	SWITCH GUARD (V72914)						A-E	1
185	318-630-1001-		.	INDICATOR LIGHT ASSY (V81590) (SPEC 10-61803-251)						A, E	1
185A	318-630-1001-		.	INDICATOR LIGHT ASSY (V81590) (SPEC 10-61803-12)						B-D	1
190	69-43948-14		.	SUPPORT PLATE						A-C	1
190A	69-43948-17		.	SUPPORT PLATE						D	1
195	69-37325-21		.	BASEPLATE ASSY						A, C, E	1
195A	69-37325-148		.	BASEPLATE ASSY						B	1
195B	69-37325-18		.	BASEPLATE ASSY						D	1
200	BACP10U0225G		.	BASEPLATE							1
205	BACS21DD1G		.	STUD ASSY							4
210	69-37325-40		.	WIRE BUNDLE ASSY						A	1
210A	69-37325-50		.	WIRE BUNDLE						B	1
210B	69-37325-58		.	WIRE BUNDLE						E	1
210C	69-37325-54		.	WIRE BUNDLE						C	1
210D	69-37325-55		.	WIRE BUNDLE (POST SB 737-31-1030)						D	1
215	66143-2		.	TAB TERMINAL (V00779)							AR

-Item not Illustrated

31-24-03

ILLUSTRATED PARTS LIST

Page 1011

Mar 01/2006



COMPONENT MAINTENANCE MANUAL

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE							USAGE CODE	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-											
220	BACT12S									A-E	AR
225	BAC27DCC239									A, C-E	1
230	2PB11H58									D	1
235	BAC27EEX510										1

-Item not Illustrated