

TO: ALL HOLDERS OF CENTER INSTRUMENT MODULE ASSEMBLY P2-2 OVERHAUL MANUAL,  
 31-36-88

REVISION NO. 17, DATED NOV 1/08

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D & O	D / Assy	Cleaning	Inspection / Check	Repair	Assy	F / C	Test	T / Shooting	S / Tools	Storage	IPL	L / Overhaul
Removed BAE Systems assemblies from manual	X				X			X				X	

# CENTER INSTRUMENT MODULE ASSEMBLY P2-2

## 31-36-88

BOEING P/N 69-73033-3, -4, -8, -13, -14, -33, -34

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 32285-3	Sep 25/74
		PRR 32976	Jan 5/81
		PRR 33046	Jan 5/82
		PRR 33140-2	Jan 5/82
		MC 3540-12	Jul 5/82
		MC 3540-11K	Jan 5/83
		MC 3500-10	Jan 5/83
		RR 97039-8	Jan 5/83
		RR 97047-4	Jan 5/83
		RR 97066-8	Jan 5/83
		PRR 33341	Sep 5/85
		PRR 33408	Sep 5/85
		PRR 33605-5	Sep 5/85
80-1006			Dec 5/85
80-1049			Dec 5/88
80-1054			Dec 5/89
80-1055			Dec 5/89
80-1052			Mar 5/93

Nov 1/08

31-36-88  
Page T-1

## LIST OF EFFECTIVE PAGES

\* Indicates pages revised, added or deleted in latest revision

F Indicates foldout pages - print one side only

PAGE	DATE	PAGE	DATE	PAGE	DATE
31-36-88		* 15	Nov 1/08		
* T-1	Nov 1/08	* 16	Nov 1/08		
T-2	BLANK	* 16A	DELETED		
* LEP-1	Nov 1/08	* 16B	DELETED		
LEP-2	BLANK	* 16C	DELETED		
* T/C-1	Nov 1/08	* 16D	DELETED		
T/C-2	BLANK	* 16E	DELETED		
* 1	Nov 1/08	* 16F	DELETED		
* 2	Nov 1/08	* 16G	DELETED		
* 3	Nov 1/08	* 16H	DELETED		
* 4	Nov 1/08	* 16I	DELETED		
* 5	Nov 1/08	* 16J	DELETED		
* 6	Nov 1/08	* 17	Nov 1/08		
* 6A	DELETED	* 18	Nov 1/08		
* 6B	DELETED	* 19	Nov 1/08		
* 6C	DELETED	* 20	Nov 1/08		
* 6D	DELETED	* 21	Nov 1/08		
* 6E	DELETED	* 22	Nov 1/08		
* 6F	DELETED	* 23	Nov 1/08		
* 6G	DELETED	* 24	Nov 1/08		
* 6H	DELETED	* 25	Nov 1/08		
* 6I	DELETED	* 26	DELETED		
* 6J	DELETED	* 27	DELETED		
* F 7	Nov 1/08	* 28	DELETED		
8	BLANK				
* F 8A	DELETED				
* 8B	DELETED				
* 9	Nov 1/08				
10	BLANK				
* 10A	DELETED				
* 10B	DELETED				
* 10C	DELETED				
* 10D	DELETED				
* 11	Nov 1/08				
12	BLANK				
* 12C	DELETED				
* F 12D	DELETED				
* 12E	DELETED				
* 12F	DELETED				
* 12G	DELETED				
* 12H	DELETED				
* 13	Nov 1/08				
* 14	Nov 1/08				

Nov 1/08

 31-36-88  
 Page LEP-1

TABLE OF CONTENTS

<u>Paragraph Title</u>	<u>Page</u>
Description and Operation .....	1
Disassembly.....*[1]	
Cleaning.....*[1]	
Inspection/Check .....	*[1]
Repair.....	1
Assembly.....*[2]	
Fits and Clearances (not applicable)	
Testing .....	1
Trouble Shooting.....*[2]	
Storage Instructions .....	*[1]
Special Tools, Fixtures, and Equipment .....	*[1]
Illustrated Parts List .....	13

█ \*[1] Use applicable procedures in OHM 31-10-01 and standard industry practices.

\*[2] Special instructions not required.

CENTER INSTRUMENT MODULE ASSEMBLY, P2-2

**NOTE:** For coverage of 69-37305-95, -98, -101, -104, -201, -213, -217, -229, -266, -270, -271, -275, -279, -283, -290, -293, -301, -305, -310, -422, -448, -452, -461, refer to BAE Systems Controls Inc., (V89954 BAE Systems Controls Inc., 600 Main St., Johnson City, NY 13790-1806) CMM 31-36-88.

1. Description and Operation

A. The P2-2 module assemblies contain switches, indicator lamps, auto brake relays (on some assemblies), and instrument clamps used in engine monitoring. The module is installed on the center instrument panel with four quick-disconnect studs.

2. Repair

A. All repair can be accomplished using standard industry practices and information contained in OHM 31-10-01 except as follows:

B. When replacing relay R290, insert with contrasting bead matching pin 2 of socket.

3. Testing

A. Test Equipment

(1) Multimeter: Simpson 260P, or equivalent

(2) Connectors (with pigtail leads):

- BACC45FT18-31S6 to mate with D4258J
- BACC45FT18-31S7 to mate with D4260J

(3) Power Supply: 28 volts dc

B. Functional Test

(1) Attach test connectors. Identify and tag pigtail leads. Label upper connector (D4258J) A, and label lower connector (D4260J) B. A and B will be used throughout testing for connector reference.

(2) Perform test steps listed in Fig. 1.

Component Tested	Procedure	Required Results
Indicators	Connect B-17 to 28 vdc Connect A-15 to GND	

Functional Tests  
Figure 1 (Sheet 1)

Component Tested	Procedure	Required Results
	Depress all module lamps in turn	Listed lamps illuminated while depressed: L358, L360, L362, L736, L550 (69-73033-8, -13, -34 only) L822 (69-73033-3, -4, -8, -13, -14, -33, -34 only)
	Disconnect B-17 from 28 vdc Connect A-17 to 28 vdc Depress all module lamps in turn	Listed lamps illuminated while depressed: L351, L352, L359, L361, L363, L556 (69-73033-8, -13, -34 only) L821 (69-73033-3, -4, -8, -13, -14, -33, -34 only)
	Disconnect A-17 from 28 vdc Connect A-24 to 28 vdc Depress all module lamps in turn	L356 illuminated while depressed
	Disconnect A-24 from 28 vdc Connect B-24 to 28 vdc. Depress all module lamps in turn	L354 illuminated while depressed
	Connect A-24, B-24, A-17, B-17 to 28 vdc	All module lamps illuminated (except L814 on 69-73033-34)
	Disconnect A-15 from GND Depress all module lamps in turn	Each extinguished while depressed
	Disconnect B-16 from GND Connect each listed pin in turn to ground:	All module lamps extinguished Listed lamps illuminated while ground connected:
	A-26	L351
	A-27	L352
	B-4	L354
	A-30	L356
	A-25	L358
	B-25	L359
	A-18	L360
	B-18	L361
	A-19	L362

 Functional Tests  
 Figure 1 (Sheet 2)

Component Tested	Procedure	Required Results																
	<p>B-19 A-10 A-12 B-5</p> <p>B-6</p>	<p>L363 L550 (69-73033-8, -13, -34 only) L556 (69-73033-8, -13, -34 only) L821 (69-73033-3, -4, -8, -13, -14, -34 only) L822 (69-73033-3, -4, -8, -13, -14, -33, -34 only)</p>																
S583	<p>(69-73033-3,-4,-8,-14,-34) Set S583 to OFF (left) Connect A-13 to ground Disconnect A-13 from ground</p>	<p>All module lamps extinguished</p>																
L736, S583	<p>(69-73033-13) Set S583 to OFF (left) Connect B-9 to ground *[1] Disconnect B-9 and A-34 from ground Rotate S583 thru MIN, MED, MAX and RTO *[2] positions with A-6 grounded</p>	<p>L736 illuminated  L736 illuminated at each position</p>																
S583, L736	<p>(69-73033-3,-4,-8,-14,-34) Rotate S583 thru MIN, MED, and MAX positions with A-13 grounded</p>	<p>L736 illuminated at each position</p>																
Indicators	<p>Remove all connections Connect pins A-24, B-24, A-17, B-17 to ground</p> <p>Connect each listed pin momentarily to 28 vdc:</p> <table border="0"> <tr> <td>A-10</td> <td>A-19</td> <td>A-30</td> <td>B-16</td> </tr> <tr> <td>A-12</td> <td>A-25</td> <td>B-4</td> <td>B-18</td> </tr> <tr> <td>A-13</td> <td>A-26</td> <td>B-5</td> <td>B-19</td> </tr> <tr> <td>A-18</td> <td>A-27</td> <td>B-6</td> <td>B-25</td> </tr> </table> <p>Remove all connections Set listed switch to position indicated in results column. Measure between listed pins: (No Con = 1 megohm minimum) (Con = 1 ohm maximum)</p>	A-10	A-19	A-30	B-16	A-12	A-25	B-4	B-18	A-13	A-26	B-5	B-19	A-18	A-27	B-6	B-25	<p>No lamps illuminated</p>
A-10	A-19	A-30	B-16															
A-12	A-25	B-4	B-18															
A-13	A-26	B-5	B-19															
A-18	A-27	B-6	B-25															
S256	<p>B-26 to B-27 B-26 to B-28</p>	<table border="0"> <tr> <td>Depressed</td> <td>Released</td> </tr> <tr> <td>Con</td> <td>No Con</td> </tr> <tr> <td>Con</td> <td>No Con</td> </tr> </table>	Depressed	Released	Con	No Con	Con	No Con										
Depressed	Released																	
Con	No Con																	
Con	No Con																	
S102	<p>(69-73033-8)</p> <p>B-20 to B-29</p>	<table border="0"> <tr> <td>Con</td> <td>No Con</td> </tr> </table>	Con	No Con														
Con	No Con																	

Functional Tests  
Figure 1 (Sheet 3)

Component Tested	Procedure	Required Results
S185	Set S185 to left	A-5 to A-3
		A-5 to A-4
	Set S185 to right	A-5 to A-4
		A-5 to A-3
	Set S185 to center	A-5 to A-3
		A-5 to A-4
S250	Set S250 to ON (up)	B-21 to B-22
	Set S250 to OFF (down)	B-21 to B-22
S251	Set S251 to ON (up)	A-21 to A-22
	Set S251 to OFF (down)	A-21 to A-22
S239	(69-73033-34)	
	Set S239 to INLET (left or down)	B-8 to B-30
	Set S239 to TURBINE (right or up)	B-8 to B-30
S583	69-73033-3,-4,-8,-14,-34)	
	Set S583 to MAX (full right)	A-14 to A-16
		A-20 to A-9
		A-20 to A-11
		A-8 to A-6
		A-8 to A-7
	Set S583 to MED (one step left)	A-14 to A-16
		A-20 to A-9
		A-20 to A-11
		A-8 to A-6
		A-8 to A-7
	Set S583 to MIN (one step left)	A-14 to A-16
		A-20 to A-11
		A-20 to A-9
		A-8 to A-7
		A-8 to A-6
	Set S583 to OFF (full left)	A-14 to A-16
		A-20 to A-11
		A-20 to A-9
		A-8 to A-7
		A-8 to A-6

 Functional Tests  
 Figure 1 (Sheet 4)



Component Tested	Procedure	Required Results
S583	(69-73033-13,-33) Set S583 to MAX (full left)	
	A-14 to A-9	Con
	A-14 to A-11	No Con
	A-14 to A-28	No Con
	A-14 to A-7	No Con
	*[2] A-14 to A-20	No Con
R290	A-14 to A-16	Con
R290	A-6 to A-13	No Con
	*[1] A-6 to B-9	No Con
	Set S583 to MED (one step right)	
	A-14 to A-9	No Con
	A-14 to A-11	Con
	A-14 to A-28	No Con
	A-14 to A-7	No Con
	*[2] A-14 to A-20	No Con
R290	A-14 to A-16	Con
R290	A-6 to A-13	No Con
	*[1] A-6 to B-9	No Con
	Set S583 to MIN (one step right)	
	A-14 to A-9	No Con
	A-14 to A-11	No Con
	A-14 to A-28	Con
	A-14 to A-7	No Con
	*[2] A-14 to A-20	No Con
R290	A-14 to A-16	Con
R290	A-6 to A-13	No Con
	*[1] A-6 to B-9	No Con
	Set S583 to OFF (one step right)	
	A-14 to A-9	No Con
	A-14 to A-11	No Con
	A-14 to A-28	No Con
	A-14 to A-7	Con
	*[2] A-14 to A-20	No Con
	*[1] A-6 to B-9	Con
	Set S583 to RTO *[2] (full right)	
	A-14 to A-9	No Con
	A-14 to A-11	No Con
	A-14 to A-28	No Con
	A-14 to A-20	Con
R290	A-14 to A-16	Con
R290	A-6 to A-13	No Con
	A-6 to B-9	No Con
L378	Measure pin B-2 to L378 centerpost	Con
	Measure pin B-1 to L378 rim	Con
	Measure pin B-1 to pin B-2	No Con

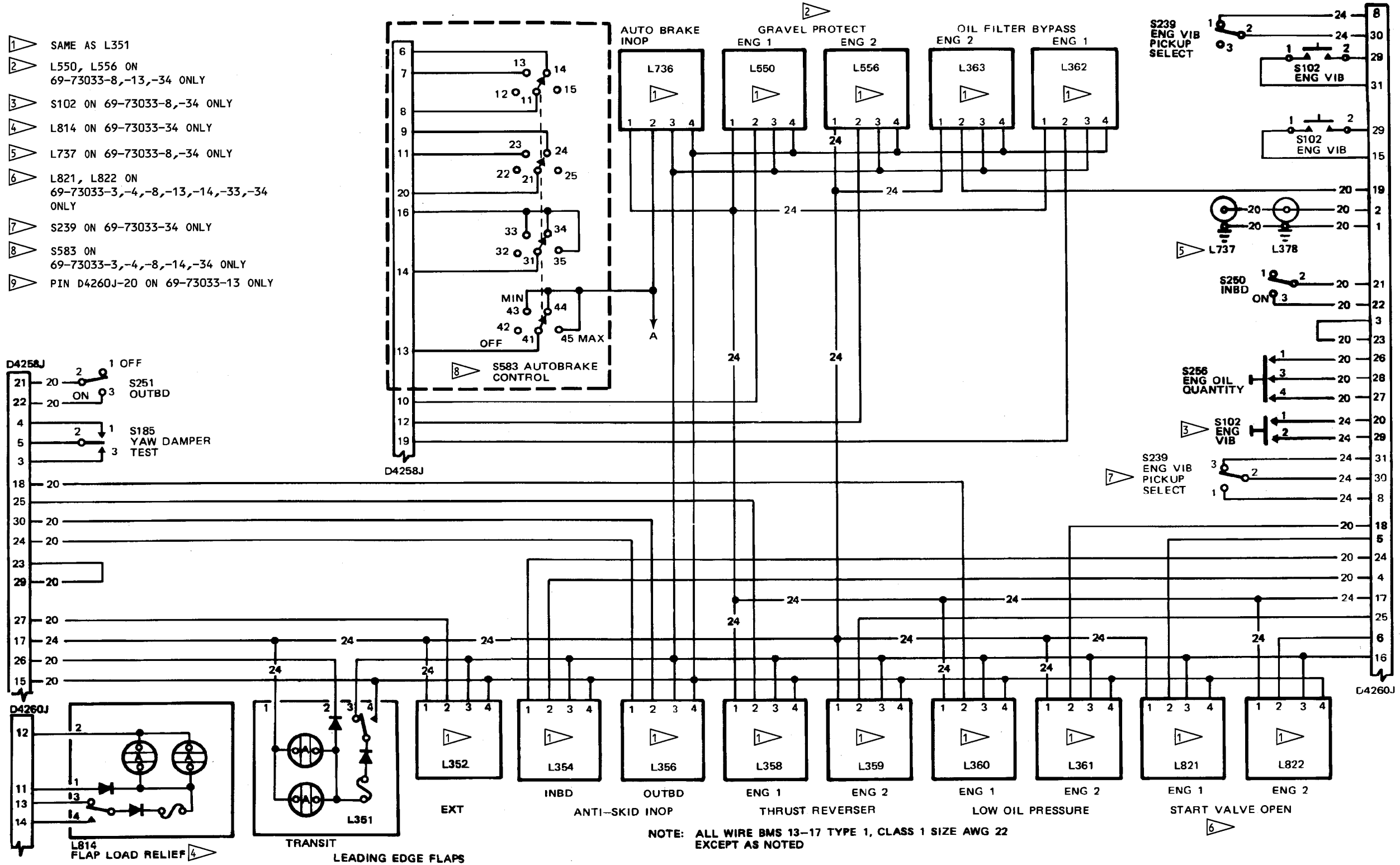
Functional Tests  
Figure 1 (Sheet 5)

Component Tested	Procedure	Required Results
L737	(69-73033-8,-34) Measure pin B-2 to L737 centerpost	Con
L814	Measure pin B-1 to L737 rim (69-73033-34) Connect pin B-12 to ground Connect pin B-14 to 28 vdc Depress L814, release Disconnect pin B-14 Connect pin B-13 to 28 vdc Depress L814, release Disconnect pin B-13 L814 extinguished Connect pin B-11 to 28 vdc Remove all connections Connect pins B-11 and B-13 to ground Connect pin B-12 momentarily to 28 vdc Remove all connections	Con Con  L814 extinguished Illuminated while depressed  L814 illuminated Extinguished while depressed  L814 illuminated  L814 extinguished
R289	<u>69-73033-13 only</u> Connect A-13 to ground Connect A-2 to 28 vdc Measure between pins A-13 and A-2(+) *[1] B-10 and A-2 *[1] B-20 to A-1 Disconnect A-2 from 28 v dc Measure between pins *[1] B-10 and A-2 A-13 and A-2	28 ±2 v dc Con Con  No Con No Con
R290	Remove all connections Set S583 to OFF Connect A-13 to ground Connect A-14 to 28 v dc Disconnect A-14 from 28 v dc Set S583 to MIN Measure resistance A-13 and A-6 A-16 and A-14 *[1] B-20 to A-1 Remove all connections Connect A-8 to ground Connect A-14 to 28 v dc Disconnect A-14 from 28 v dc Measure resistance A-6 and A-13 A-16 and A-14 Remove all connections	No Con Con No Con    Con No Con

\*[1] 69-73033-13, -33

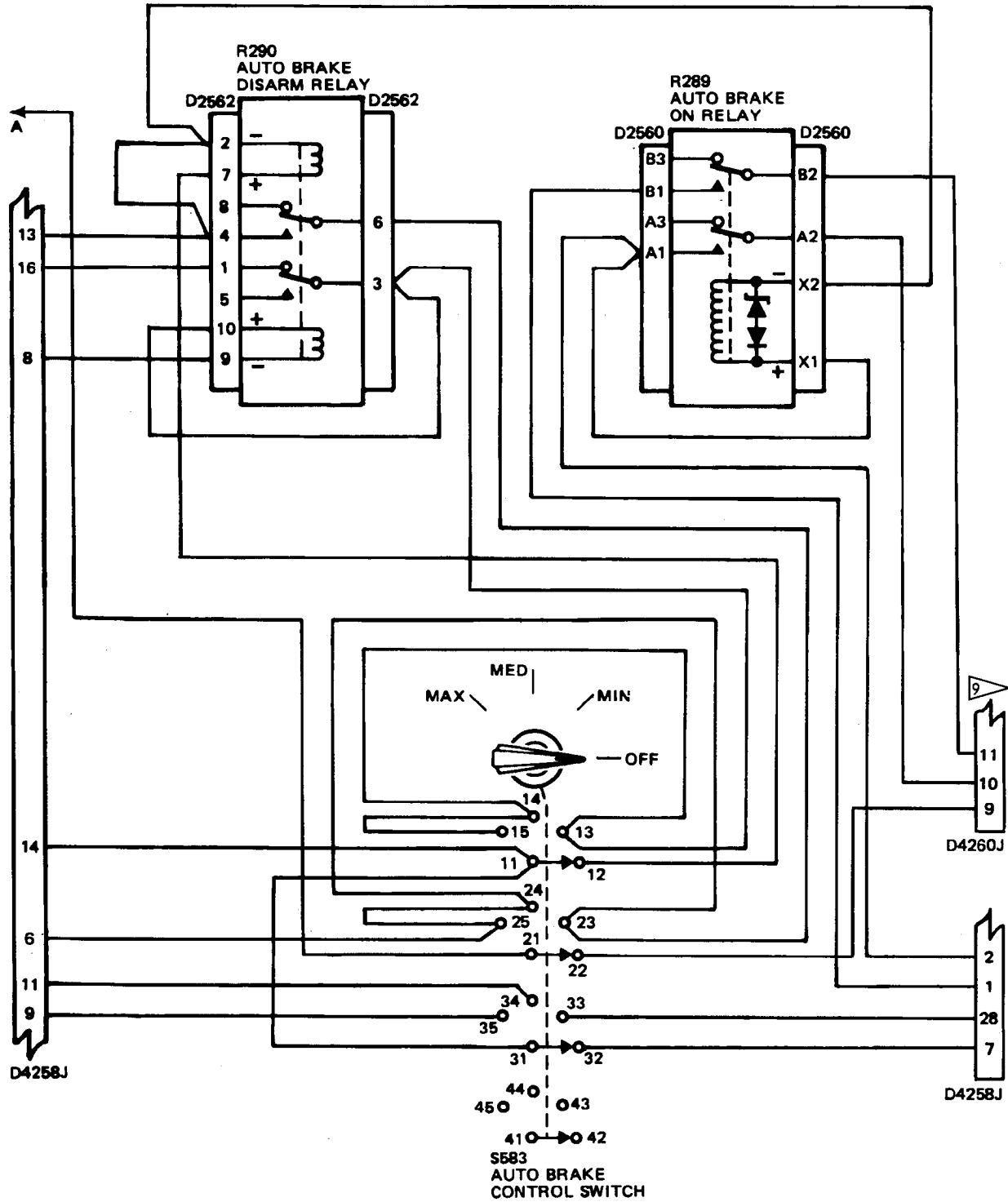
\*[2] 69-73033-33

 Functional Tests  
 Figure 1 (Sheet 6)



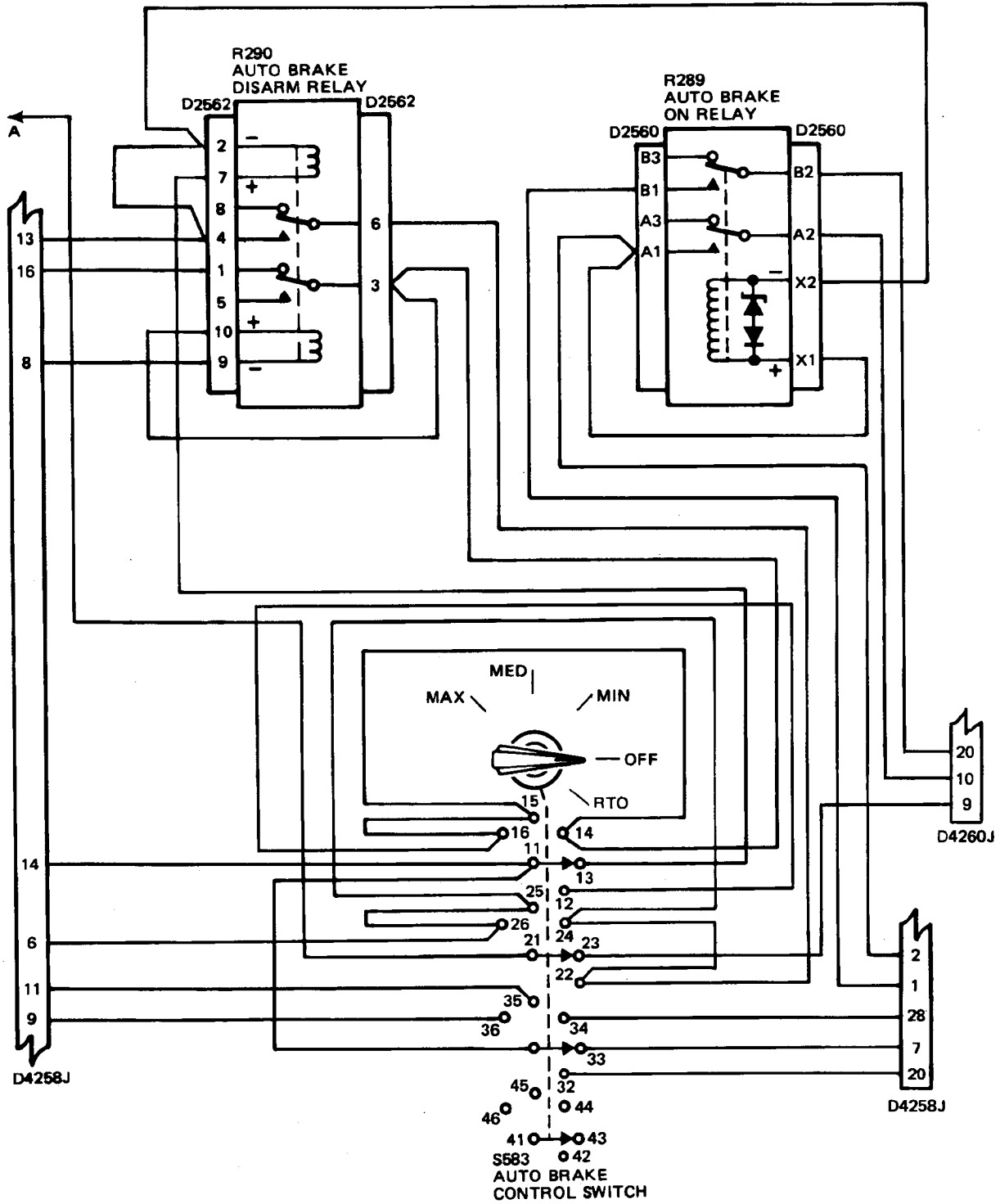
69-73033-3, -4, -8, -13, -14, -33, -34

Schematic Diagram  
Figure 2 (Sheet 1)



69-73033-13 ONLY

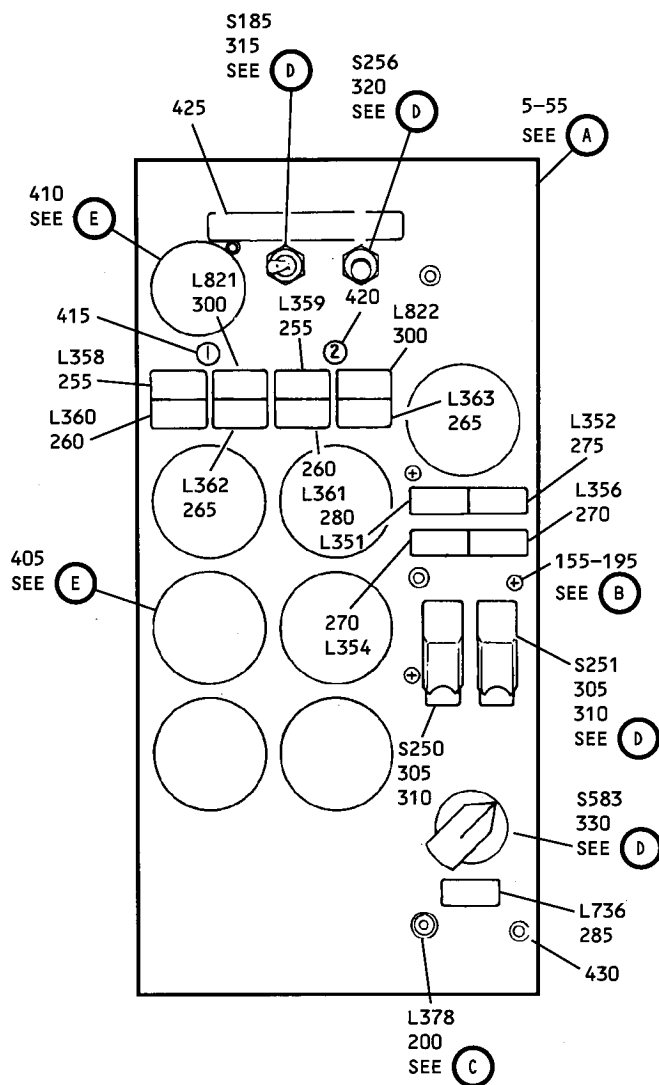
Schematic Diagram  
Figure 2 (Sheet 2)



69-73033-33 ONLY

Schematic Diagram  
Figure 2 (Sheet 3)

4. ILLUSTRATED PARTS LIST



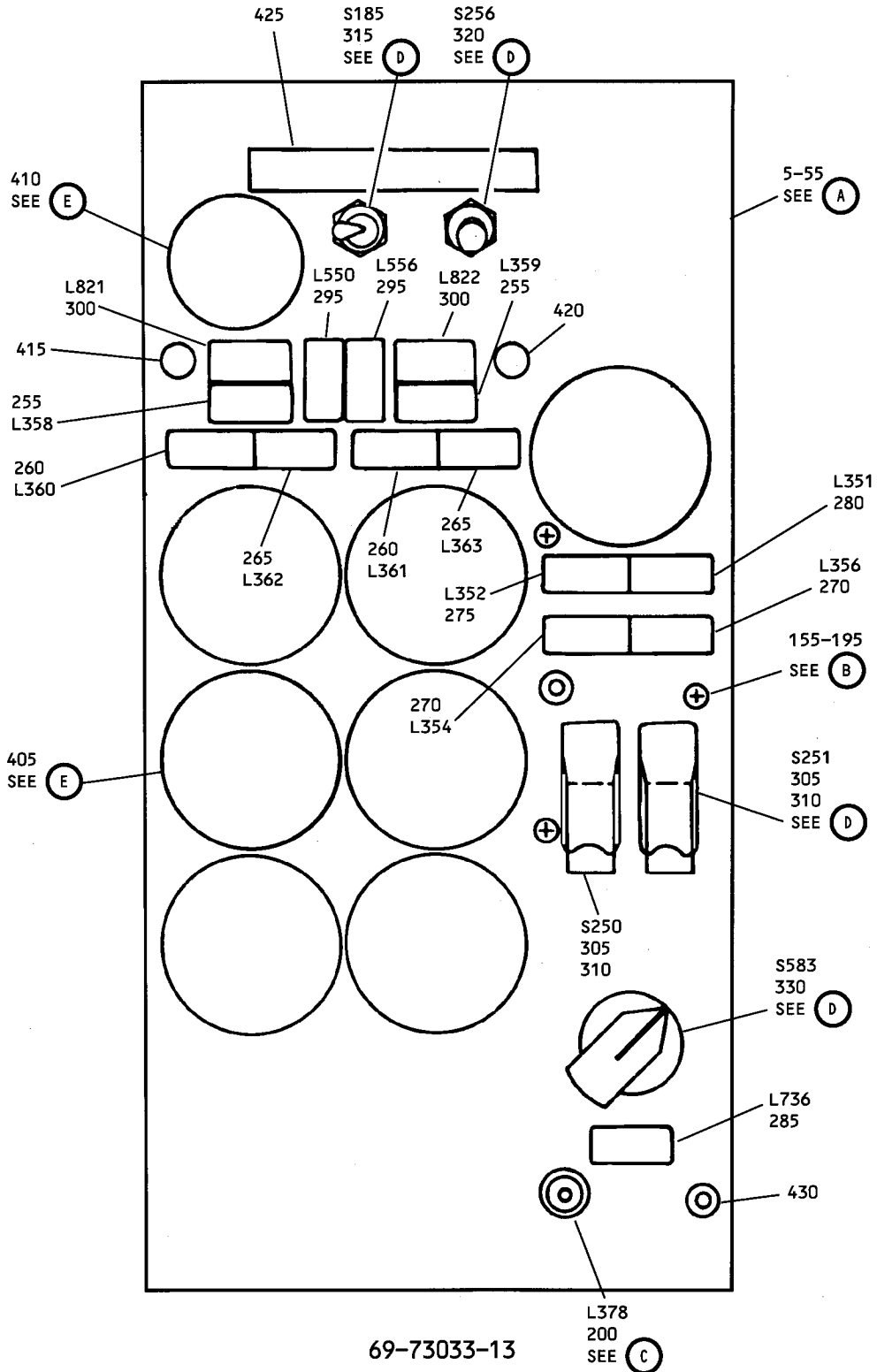
69-73033-14,-33

Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 1)

L95087

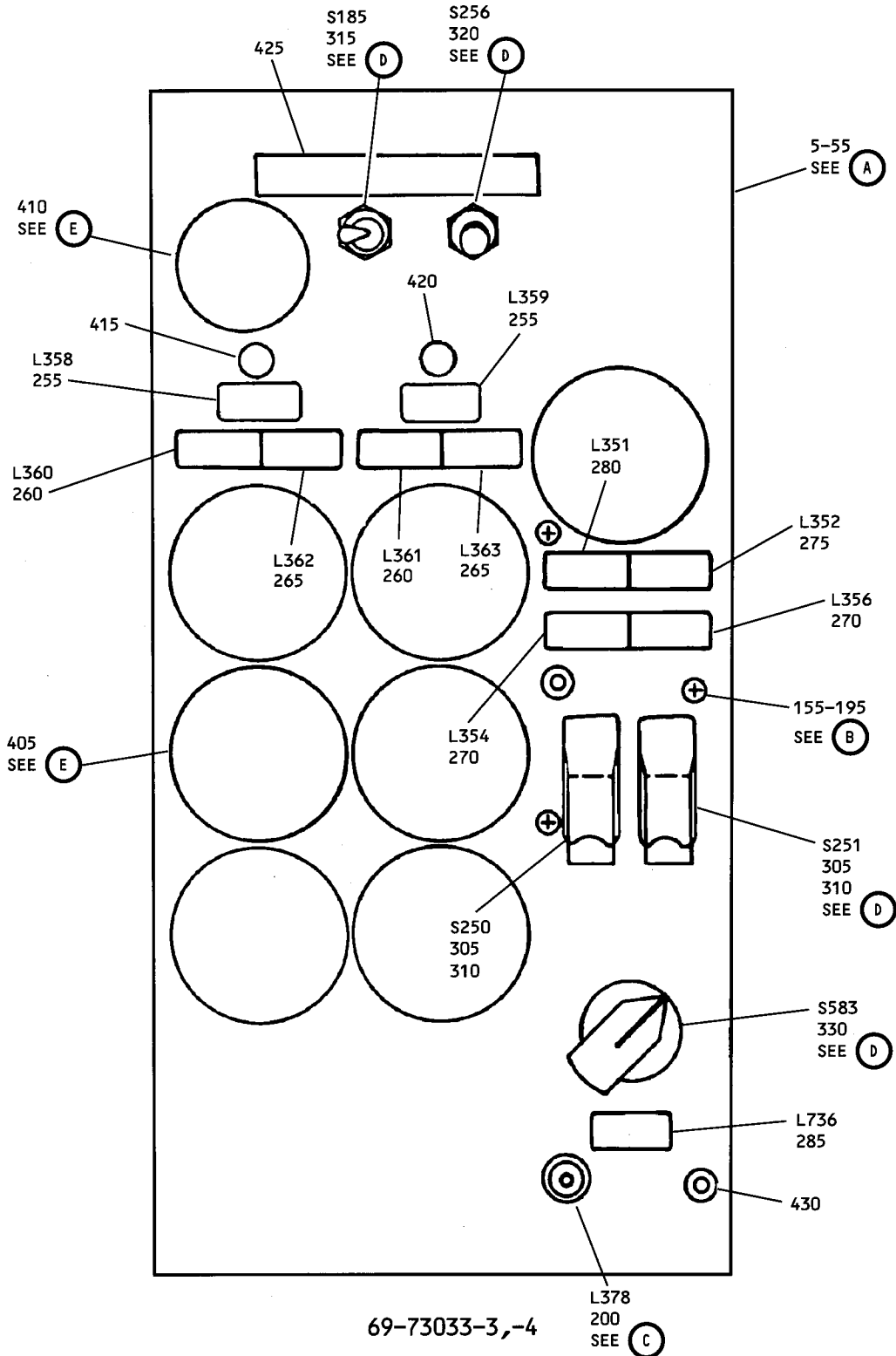
Nov 1/08

31-36-88  
Page 13



69-73033-13

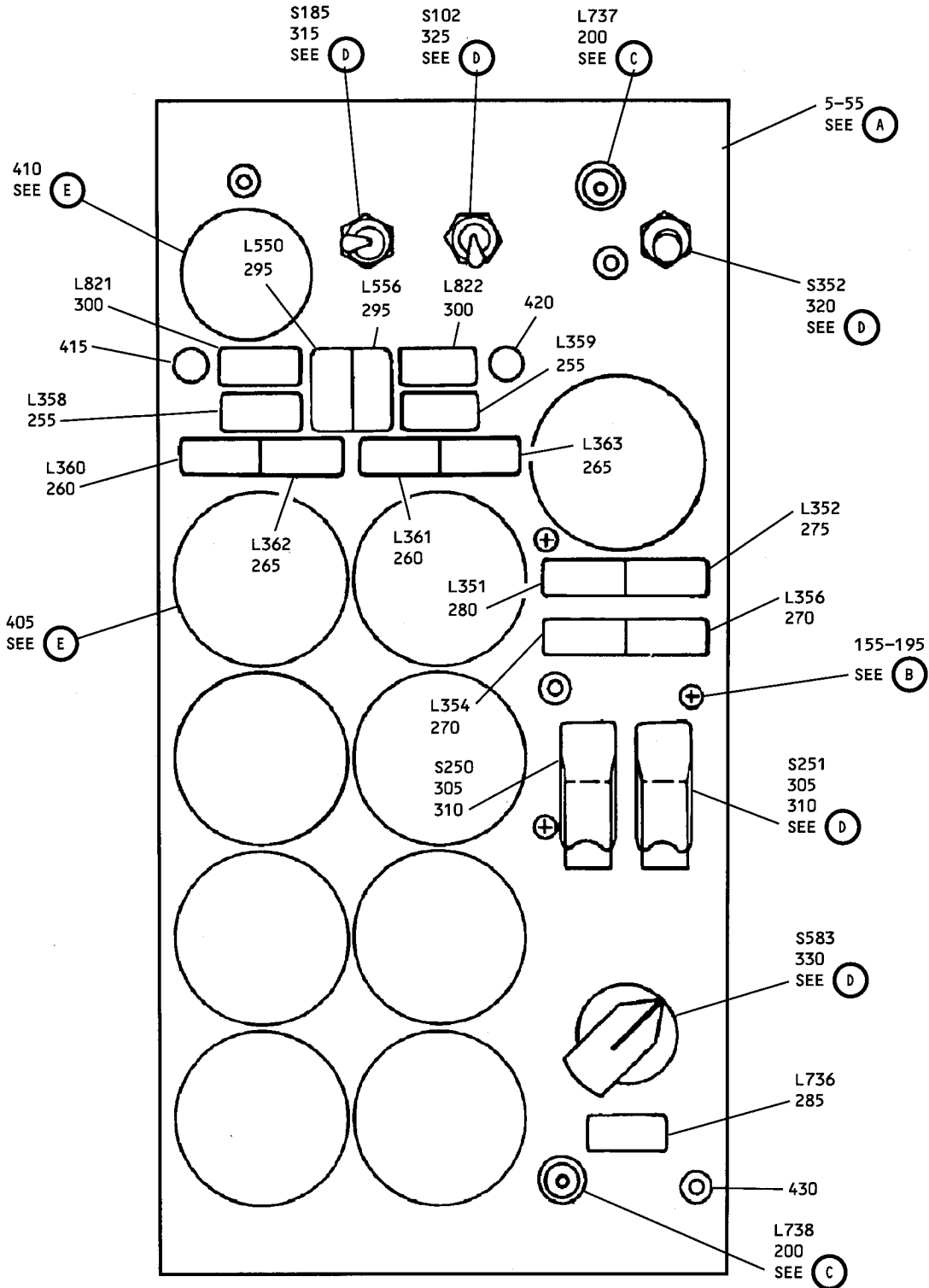
Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 2)



69-73033-3,-4

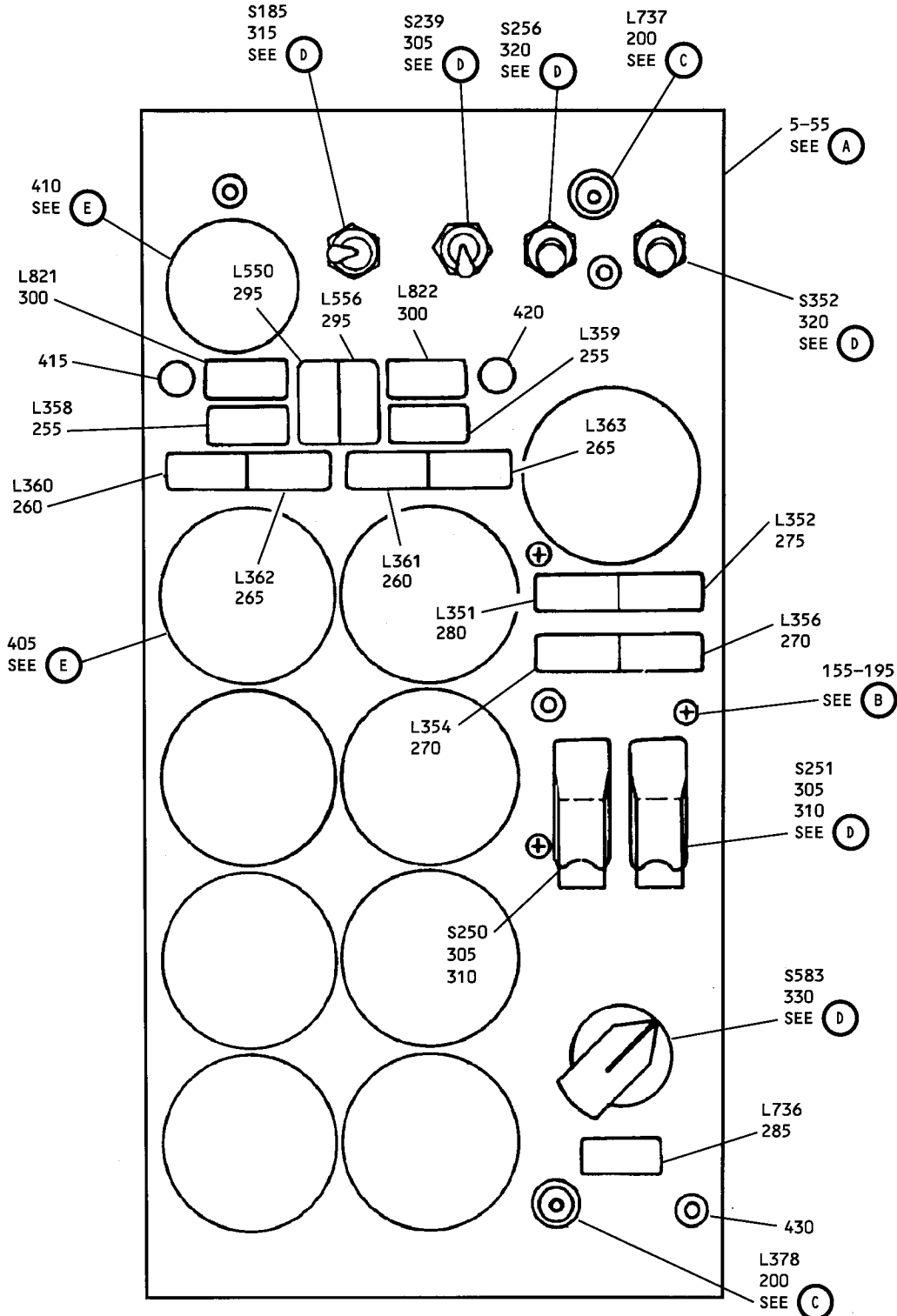
Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 3)





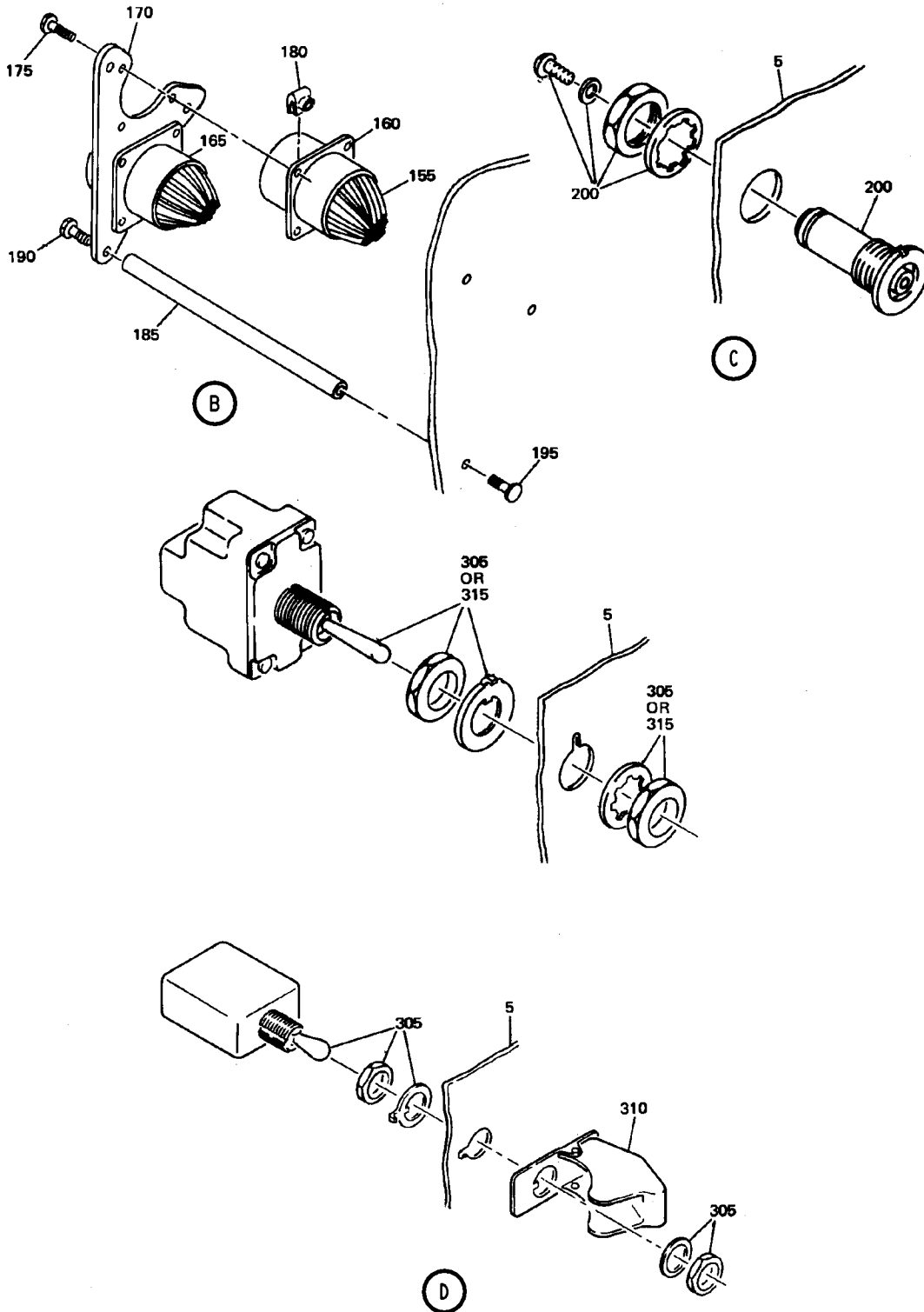
69-73033-8

Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 4)

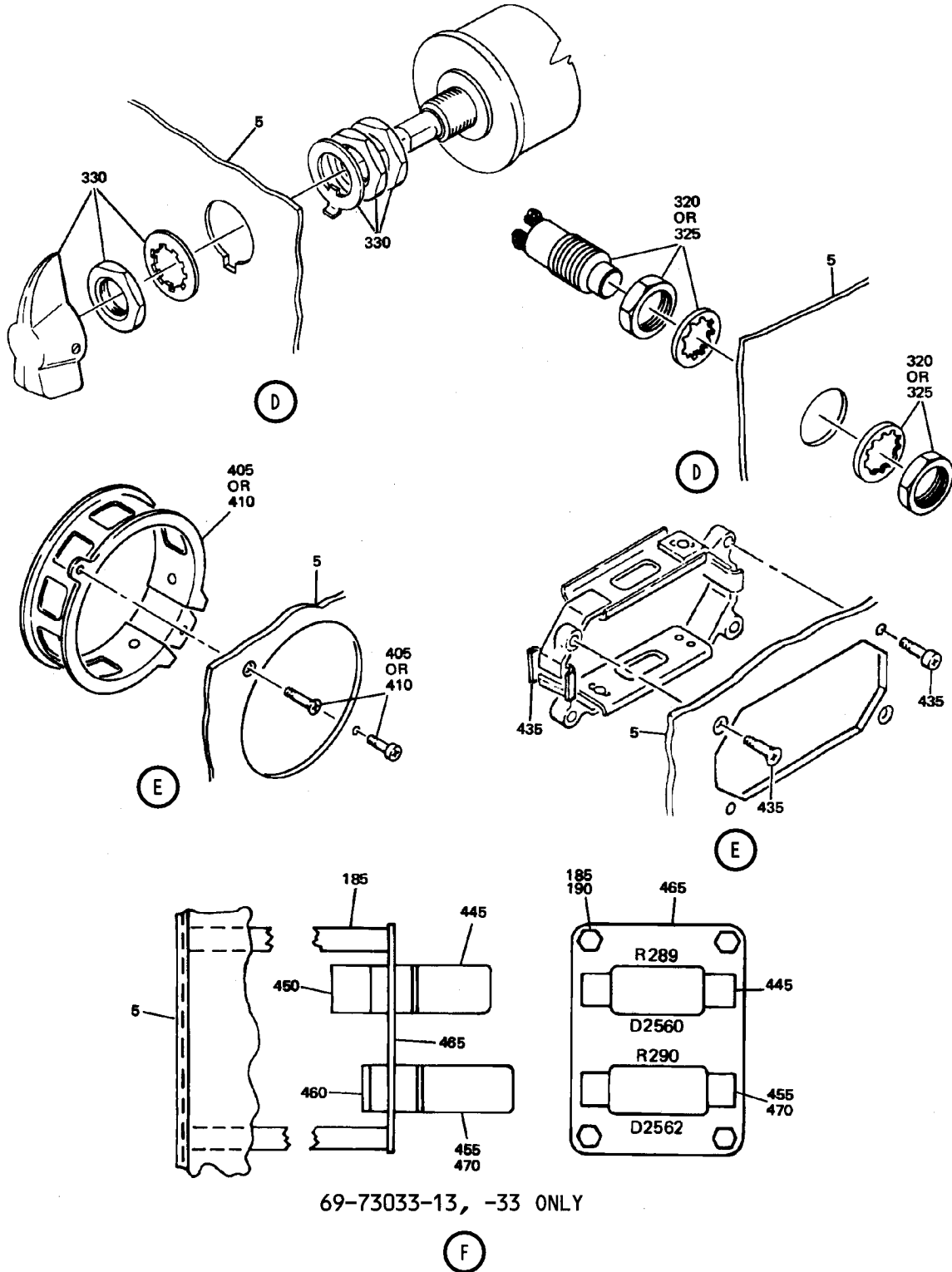


69-73033-34

Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 5)



Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 6)



69-73033-13, -33 ONLY

Center Instrument Module Assembly P2-2  
Figure 3 (Sheet 7)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
3-1	69-73033-3		MODULE ASSY, CENTER INSTR, P2-2							A	
1	69-73033-4		MODULE ASSY, CENTER INSTR, P2-2							B	
1	69-73033-13		MODULE ASSY, CENTER INSTR, P2-2							C	
1	69-73033-8		MODULE ASSY, CENTER INSTR, P2-2 (SB 80-1006)							D	
1	69-73033-33		MODULE ASSY, CENTER INSTR, P2-2 (POST SB 80-1049)							E	
1	69-73033-14		MODULE ASSY, CENTER INSTR, P2-2							F	
1	69-73033-34		MODULE ASSY, CENTER INSTR, P2-2 (POST SB 80-1052)							G	
5	69-37305-102		. BASEPLATE ASSY							B	1
5	69-37305-105		. BASEPLATE ASSY							F	1
5	69-37305-206		. BASEPLATE ASSY							C	1
5	69-37305-99		. BASEPLATE ASSY (MODIFIED BY SB 80-1006)							D	1
5	69-37305-248		. BASEPLATE ASSY (MODIFIED BY SB 80-1049)							E	1
5	69-37305-112		. BASEPLATE ASSY (MODIFIED BY SB 80-1052)							F	1
10	69-43831-1		. MODULE STOP								1
15	69-43831-2		. MODULE STOP								1
20	BACR15BA4D		. RIVET								4
25	69-42739-1		. INDEX PIN							A-DFG	2
30	NAS514P832-6		. SCREW							A-DFG	2
35	26S55-6AB		. STUD, V71286								2
45	BACS21Y5RB		. STUD							A-DFG	1
45	26S55-5AB		. STUD, V71286								1
50	BACW10X4		. WASHER								8
55											
THRU 150	NOT USED										
155	69-37305-261		. WIRE BUNDLE							AF	1
155	69-37305-296		. WIRE BUNDLE (POST SB 49-1049)							E	1
155	65C25366-8		. WIRE BUNDLE							C	1
155	69-37305-259		. WIRE BUNDLE (MODIFIED BY SB 80-1006)							D	1
155	69-37305-264		. WIRE BUNDLE (MODIFIED BY SB 80-1052)							G	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY		
			1	2	3	4	5	6	7				
3-160	BACC45FN18-31P6		.								CONNECTOR		1
165	BACC45FN18-31P7		.								CONNECTOR		1
170	69-43873-31		.								PLATE		1
175	BACS12CB04-6		.								SCREW		6
180	BACN10NW1		.								CLIPNUT		6
185	66-13524-6		.							ABFG	SPACER		3
185	66-13524-6		.							CE	SPACER		7
185	66-13524-6		.								SPACER		6
190	BACS12CB06-5		.							ABCFG	SCREW		3
190	BACS12CB06-5		.							CE	SCREW		7
190	BACS12CB06-5		.								SCREW		6
195	NAS514P632-6		.							ABCFG	SCREW		3
195	NAS514P632-6		.							CE	SCREW		7
195	NAS514P632-6		.								SCREW		6
200	SCN001		.							D	POWER CONNECTOR, V26742		2
200	SCN001		.							ABF	POWER CONNECTOR, V26742		1
200	SCN001		.							E	POWER CONNECTOR, V26742 (OPT)		1
200	800000121-1		.							G	POWER CONNECTOR, V05617		2
200	800000121-1		.							CE	POWER CONNECTOR, V05617		1
205													
THRU	NOT USED												
250													
255	318-630-1001-013		.							ABCEFG	INDICATOR LIGHT, V81590 (BOEING 10-61803-18)		2
260	318-630-1001-014		.								INDICATOR LIGHT, V81590 (BOEING 10-61803-20)		2
265	318-630-1001-015		.								INDICATOR LIGHT, V81590 (BOEING 10-61803-21)		2
270	318-630-1001-016		.							A-DFG	INDICATOR LIGHT, V81590 (BOEING 10-61803-22)		2
270	318-630-1001-016		.								INDICATOR LIGHT, V81590 (BOEING 10-61803-22)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
3-275	318-630-1001-045		.								1
280	318-630-1001-046		.								1
285	318-630-1001-145		.						ABDFG		1
285	318-630-1001-235		.						CE		1
295	318-630-1001-133		.						CDG		2
300	318-630-1001-229		.						A-CFG		2
300	318-630-1001-229		.						D		2
305	MS24523-23		.						G		3
305	MS24523-23		.						A-F		2
310	11170-1		.								2
315	MS24523-27		.								1
320	D20011-05		.								1
325	D20011-01		.						D		1
330	53304-4SC		.						A-DFG		1
330	69-1963JANCO		.								1
340											
THRU	NOT USED										
400											
405	BACC10EL3		.						G		9
405	BACC10EL3		.						A-F		7
410	BACC10EL2		.								1
415	BACM10N00-2S		.						A-DFG		1
415	BACM10N00-2S		.						D		1
420	BACM10N00-2T		.						A-DFG		1
420	BACM10N00-2T		.						D		1
425	BAC27DCC779		.						A-F		1
425	BAC27DCC1174		.								1
426	BAC27DCC1173		.						C		1
430	BACN10PA06-12		.						DG		4
430	BACN10PA06-12		.						A-CEF		2
435	123-21		.								1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
3-											
440	123-2		.								2
440	NH1004994-20		.								2
440	9962		.								2
445	BACR13CF2AB		.						DE		1
450	BACS16X1		.						DE		1
455	BR20AXH5V3		.						D		1
455	BR9AXH5V3		.						E		1
460	VB10-1PWC11-76		.						DE		1
460	VB10-1PWC11-43		.						DE		1
460	108-0022-000		.						D		1
460	118-0090-000		.						DE		1
460	990-0001-063		.						DE		1
460	990-0002-033		.						DE		1
460	990-0004-021		.						DE		1
465	69-71591-1		.						DE		1
470	AN960PD4		.						DE		2
485	BAC27DEX4234		.						DE		1



FIG. 3 REFERENCE DESIGNATION INDEX (SEE SCHEMATIC DIAGRAM)

REFERENCE DESIGNATION	PART NUMBER	ITEM NO.
D4258J	BACC45FN18-31P6	160
D4260J	BACC45FN18-31P7	165
D2560	BACS16X1	450
D2562	VB10-1PWC11-76	460
D2562	VB10-1PWC11-43	460
L351	318-630-1001-046	280
L352	318-630-1001-045	275
L354, L356	318-630-1001-016	270
L358, L359	318-630-1001-013	255
L360, L361	318-630-1001-014	260
L362, L363	318-630-1001-015	265
L378	SCN001	200
L378	800000121-1	200
L550, L556	318-630-1001-133	295
L736	318-630-1001-145	285
L736	318-630-1001-235	285
L737	SCN001	200
L378, L737	800000121-1	200
L821, L822	318-630-1001-229	300
R289	BACR13CF2AB	445
R290	BR20AXH5V3	455
R290	BR9AXH5V3	455
S102	D20011-01	325
S185	MS24523-27	315
S239	6AT116H58	305
S250, S251	MS24523-23	305
S256	D20011-05	320
S583	69-1963JANCO	330
S583	53304-4SC	330

VENDORS

V00624 EATON CORP., DBA AEROSPACE DIVISION, 300 SE AVE., JACKSON, MICHIGAN  
49203-1973

V05574 VIKING ELECTRONICS INC., 5455 ENDEAVOUR CT, MOORPARK, CALIFORNIA  
93021-1712

V05617 IDD AEROSPACE CORP., 18225 NE 76TH ST., REDMOND, WASHINGTON  
98052-5021

V12522 STACOSWITCH INC., 1139 BAKER ST., COSTA MESA, CALIFORNIA 92626-4114

V26742 METHODE ELECTRONICS INC., 7401 W. WILSON AVE., HARWOOD HEIGHTS,  
ILLINOIS 60706-4548

V28277 DEXTER-WILSON CORP., 4133 STONE WAY N., SEATTLE, WASHINGTON  
98103-8013

V56623 BABCOCK INC., 14930 E. ALONDRA BLVD, LA MIRADA, CALIFORNIA 90638-5752

V71286 ALCOA GLOBAL FASTENERS, INC., DBA CAMLOC PRODUCTS, SOUTHBAY  
OPERATIONS DIV., 3014 W. LOMITA AVE., TORRANCE, CALIFORNIA 90505-5103

V72914 GRIMES AEROSPACE CO., 550 STATE ROUTE 55, P. O. BOX 247, URBANA, OHIO  
43078-9482

V81590 KORRY ELECTRONIC CO., 901 DEXTER AVE. N., SEATTLE, WASHINGTON 98109-  
3515

V81640 EATON CORP., DBA FLUID POWER DIV., 2250 WHITFIELD AVENUE, SARASOTA,  
FLORIDA 34243-3926

V91812 JANCO CORPORATION, DBA ESTERLINE MASON, 13955 BALBOA BLVD., SYLMAR,  
CALIFORNIA 91342-1084

V91893 MARION SCREW PRODUCTS, INC., RT 4 BOX 383A, NASHVILLE, INDIANA  
47488-9804