BOEING
COMMERCIAL JET
OVERHAUL MANUAL

TO: ALL HOLDERS OF AUTO THROTTLE MODULE ASSEMBLY (P9-11) OVERHUAL MANUAL 31-36-21

REVISION NO. 1, DATED JUL 5/77

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D & O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Beginning with this revision separate consecutively numbered highlight sheets will be provided whenever this subject is revised.													
Deleted standard industry practices and information contained in standard subjects. Added reference in Table of Contents	X	X	X	X	X	X				X	X		
Added new parts, items 13 and 15, Fig. 3												X	
The following pages have been obsoleted by this revision and must be removed and destroyed: Pages 13 thru 20													

AUTO THROTTLE MODULE ASSEMBLY (P9-11)

31-36-21

BOEING P/N 69-37323-6, -9, -12, AND -13

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30834	Mar 10/70
		PRR 31568	Mar 10/70

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
	31-36-21					
	T-1	Mar 10/70				
	T-2	BLANK				
*	LEP-1	Jul 5/77				
	LEP-2	BLANK				
*	T/C-1	Jul 5/77				
	T/C-2	BLANK				
*	1	Jul 5/77				
*	2	Jul 5/77				
*	3	Jul 5/77				
*	4	Jul 5/77				
*	5	Jul 5/77				
*	6	BLANK				
*	7	Jul 5/77				
*	8	Jul 5/77				
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*	10	Jul 5/77				
*	11	Jul 5/77				
*	12	BLANK				
*	13 thru 20	DELETED				

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*[1] Use applicable procedures in 31-10-01 and standard industry pratices.

*[2] Special instructions not required.

AUTO THROTTLE MODULE ASSEMBLY (P9-11)

Figure 1 (DELETED)

1. DESCRIPTION AND OPERATION

A. Description

(1) The auto throttle module assembly consists of a baseplate assembly, spacers, and a backplate which provide support for a switch, power connector, and wire bundle assembly. Quick-release fasteners are provided for airplane installation.

B. Operation

(1) Power connector L1 provides power for illumination of the lightplate assembly.

(2) On assemblies 69-37323-6 and -12, switch S1 is a three-position, magnetically held toggle switch. It provides for engagement of the auto throttle system and allows selection of airspeed signal inputs from either the captain or first officer's Mach indicators.

(3) On assemblies 69-37323-9 and -13, switch S1 is a two-position, magnetically held toggle switch which provides for engagement of the auto throttle system and 26 volt ac excitation to the captain's Mach airspeed indicator.

2. TESTING

A. Test Equipment

(1) Power Supply -- 28 volts dc, 1 amp

(2) Multimeter -- Simpson 260,or equivalent

(3) Mating Connector With Pigtail Leads as Required --
BACC45FT14-15S (use with 69-37323-6 and -12)
BACC45FT12-12S (use with 69-37323-9 and -13)

B. Preparation for Test

(1) Check that all parts are properly installed and all wires are connected.

(2) Plug mating connector into receptacle on module assembly.

C. Functional Test

NOTE: In the following tests "continuity" means that continuity exists (resistance measures less than 1 ohm) and "no continuity" means that resistance is infinite (greater than 1 megohm).

(1) Test assemblies 69-37323-6 and -12 as follows:

(a) Actuate switch S1 first to the "CAPTAIN'S AIRSPEED" (left) position and then to the "F/O'S AIRSPEED" (right) position. Check that in both instances the toggle, when released, will not remain in the actuated position and automatically returns to the "OFF" (center) position.

(b) With switch S1 in the "OFF" (center) position, check for continuity between pins 6 and 11 and 3 and 11 of P1. Check for no continuity between pins 8 and 9, 8 and 10, and 4 and 7 of P1.

(c) Apply 28 volts dc to pin P1-7 and connect P1-5 to ground.

(d) Place switch S1 in the "CAPTAIN'S AIRSPEED" (left) position and check that switch remains actuated.

(e) Check for continuity between pins 6 and 11 and 8 and 10 of P1. Check for no continuity between pins 3 and 11 and 8 and 9 of P1.

(f) Check that voltage between pins P1-4 (+) and P1-5 (-) measures approximately 28 volts dc.

(g) Remove 28 volts dc from pin P1-7 and check that switch S1 automatically returns to "OFF" (center) position.

(h) Reapply 28 volts dc to pin P1-7, place switch S1 in the "F/O'S AIRSPEED" (right) position, and check that switch remains in the actuated position.

(j) Check for continuity between pins 8 and 9 and 3 and 11 of P1. Check for no continuity between pins 6 and 11 and 8 and 10 of P1.

(k) Check that voltage between pins P1-4 (+) and P1-5 (-) measures 28 volts dc.

(l) Remove 28 volts dc from pin P1-7 and check that switch S1 automatically returns to the "OFF" (center) position.

(m) Check that no continuity exists from pin P1-1 to pin P1-2, and that continuity exists from P1-1 to center conductor and from P1-2 to outer sleeve of power connector L1.

(n) Disconnect all test equipment.

(2) Test assemblies 69-37323-9 and -13 as follows:

(a) Actuate switch S1 to the "ENGAGED" (up) position and release toggle. Check that toggle automatically returns to the "DISENGAGED" (down) position.

(b) With switch S1 in the "DISENGAGED" (down) position, check for continuity between pins 4 and 5 and 7 and 8 of P1. Check for no continuity between pins 4 and 6 and 3 and 7 of P1.

(c) Connect multimeter to P1-5 (+) and P1-6 (-). Manually hold S1 in the "ENGAGED" (up) position and check that forward resistance of diode CR1 is less than 10 ohms.

(d) Reverse multimeter leads and check that resistance measures between 150 and 250 ohms. Release S1.

(e) Apply 28 volts dc to pin P1-6 and connect P1-5 to ground.

(f) Place switch S1 in the "ENGAGED" (up) position and check that switch remains actuated.

(g) Check that continuity exists between pins P1-7 and P1-3, and no continuity exists between pins P1-7 and P1-8.

(h) Check that voltage between pins P1-4 (+) and P1-5 (-) measures approximately 28 volts dc.

(j) Remove 28 volts dc from pin P1-6 and check that switch S1 automatically returns to "DISENGAGED" (down) position.

(k) Check that no continuity exists from pin P1-1 to pin P1-2 and that continuity exists from P1-2 to center conductor and P1-1 to outer sleeve of power connector L1.

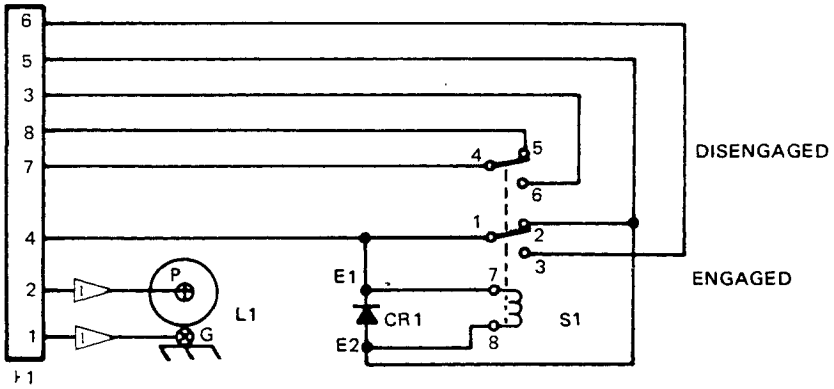
(l) Disconnect all test equipment.

3. TROUBLESHOOTING

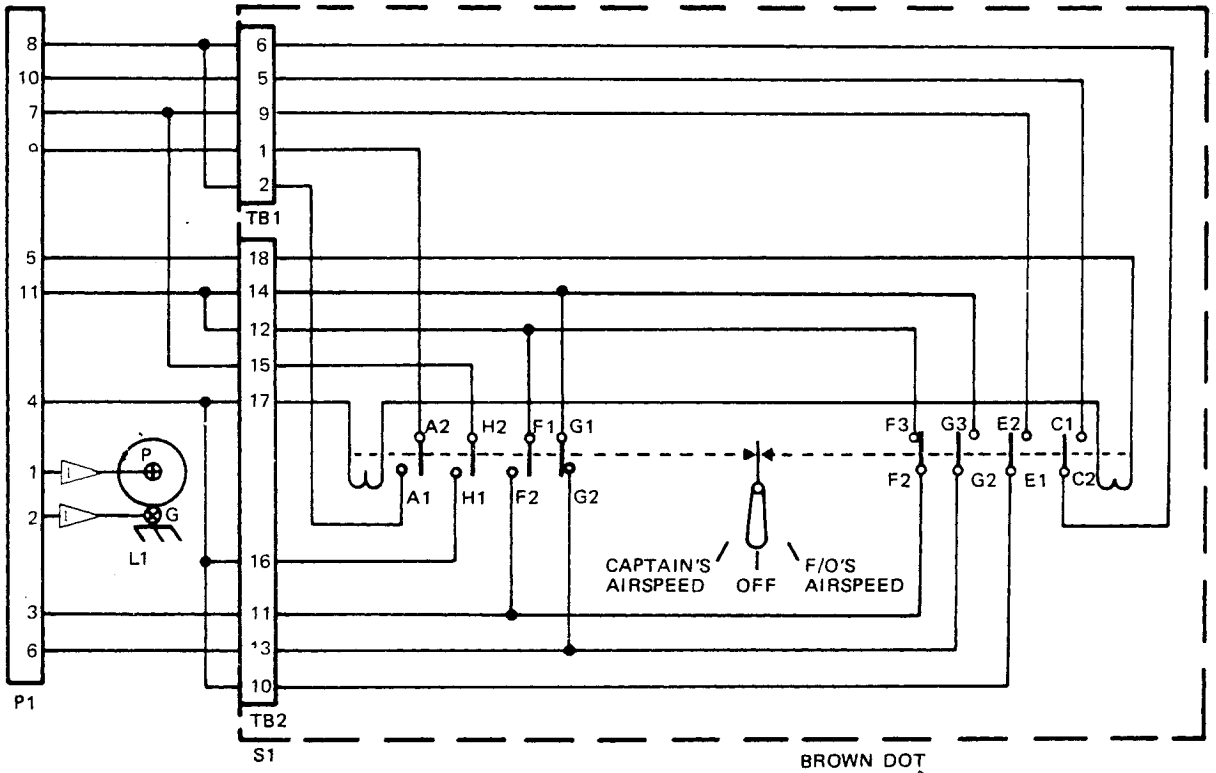
A. Troubleshooting is keyed to the steps of the test procedures. Paragraph and step references are to that portion of TESTING wherein the fault specified could occur. The presumption is made that when a fault indication is encountered, the results of all previous steps were normal.

B. If failure of a test occurs, check first for defective or incorrect wiring connections. (See schematic diagram.)

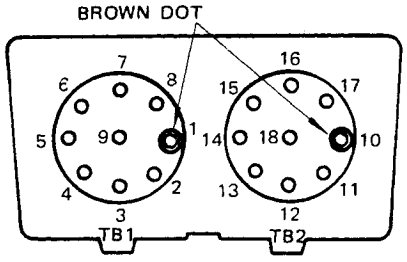
Trouble	Possible Cause and Corrective Action
A. Para. C.(1)(a) through (1) or C.(2)(a)(b) and (e) through (j)	S1
B. Para. C.(1)(m) or C.(2)(k)	L1
C. Para. C.(2)(c) or (d)	CR1



ASSEMBLIES 69-37323-9 AND -13



ASSEMBLIES 69-37323-6 AND -12

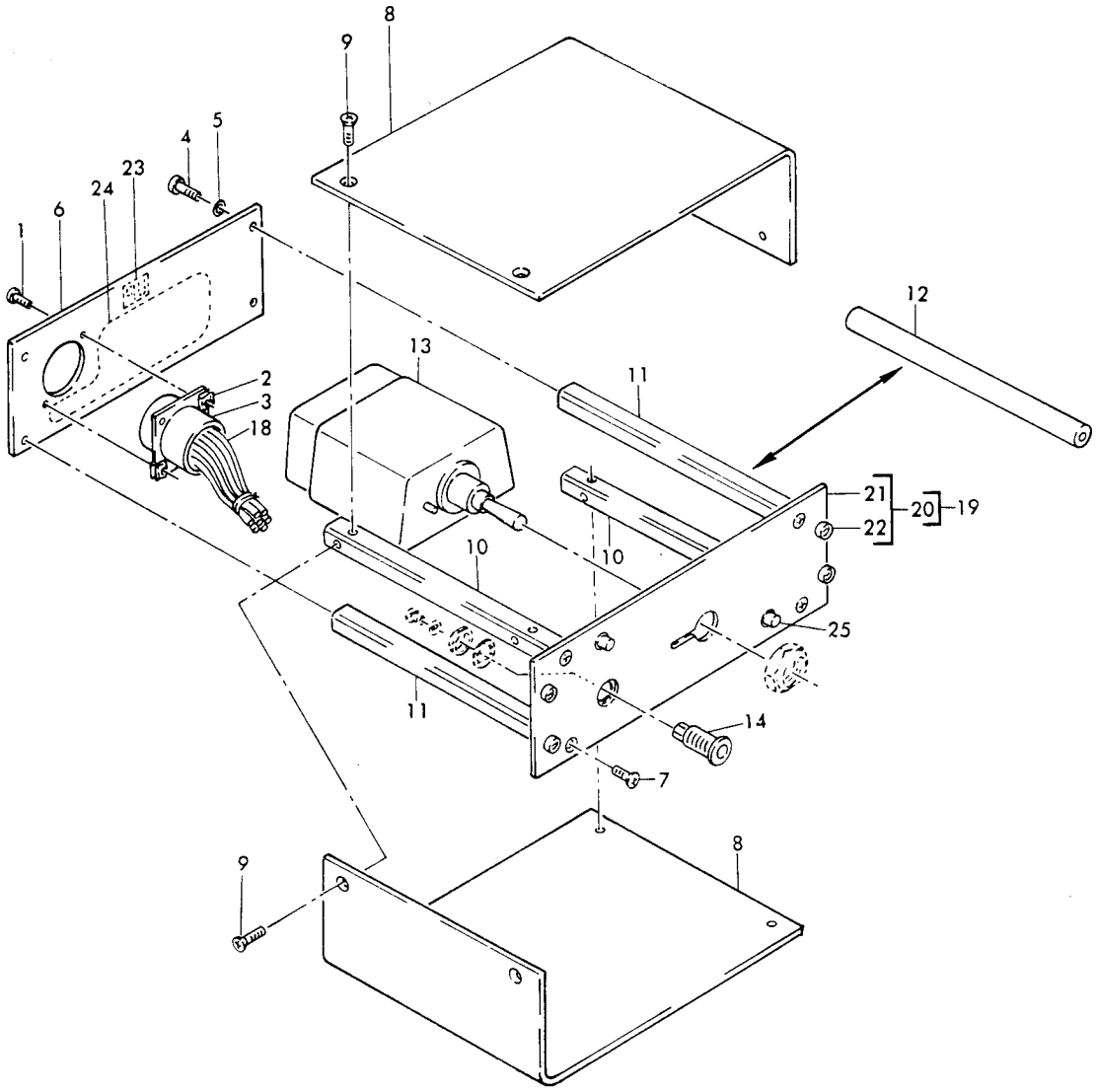


REAR VIEW OF S1

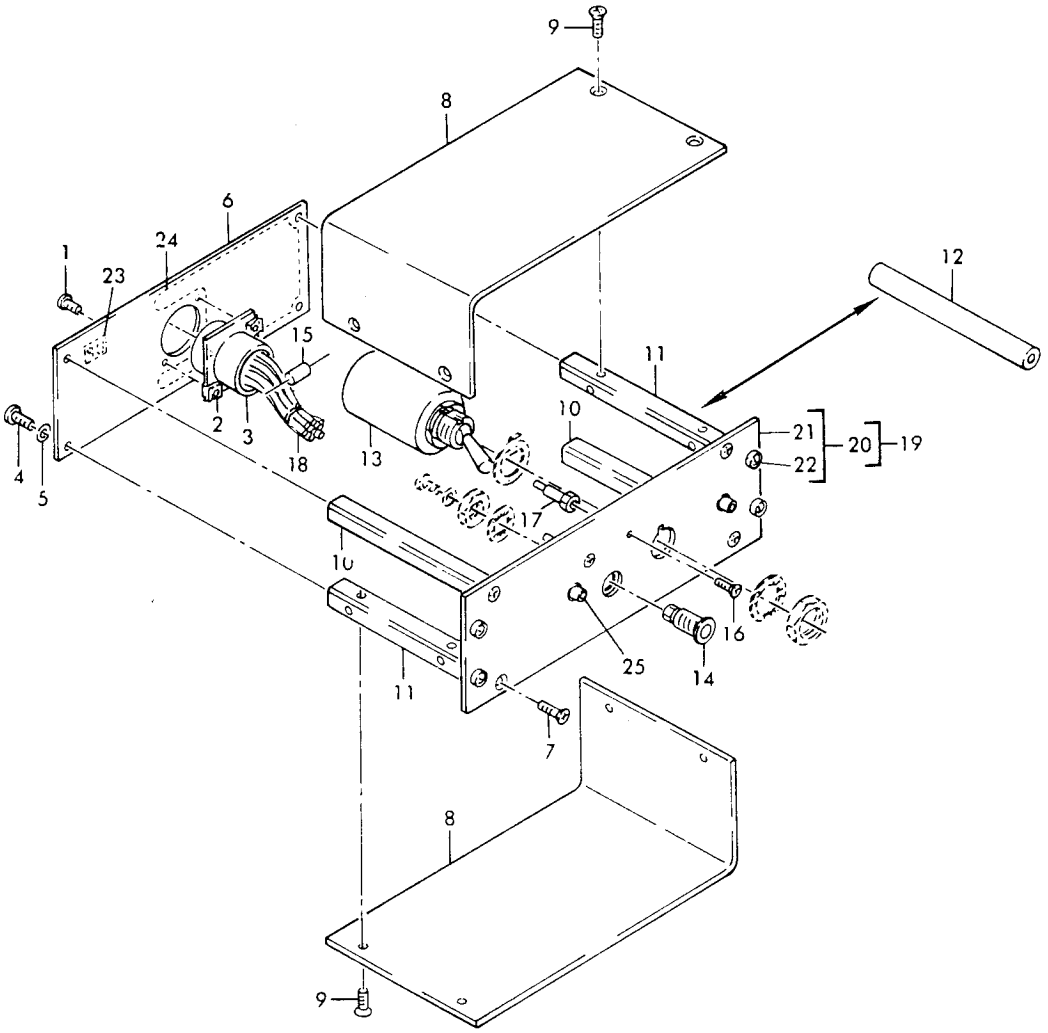
NOTE: ALL WIRE BMS 13-16, TYPE 1, CLASS 1, SIZE AWG 22 EXCEPT AS NOTED.

▷ WIRE SIZE AWG 20

4. ILLUSTRATED PARTS LIST



ASSEMBLIES 69-37323-6 AND -12



ASSEMBLIES 69-37323-9 AND -13

Auto Throttle Module Assembly (P9-11)
Figure 3 (Sheet 2)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-	69-37323-6		AUTO THROTTLE MODULE ASSEMBLY (P9-11)	A	
	69-37323-9		AUTO THROTTLE MODULE ASSEMBLY (P9-11)	B	
	69-37323-12		AUTO THROTTLE MODULE ASSEMBLY (P9-11)	C	
	69-37323-13		AUTO THROTTLE MODULE ASSEMBLY (P9-11)	D	
1	BACS12CB04-5		. SCREW		2
2	BACN10NW1		. NUT, CLIP-ON		2
3	BACC45FN14 -15P		. CONNECTOR	AC	1
3	BACC45FN12 -12P		. CONNECTOR	BD	1
4	BACS12CB06-5		. SCREW		4
5	MS35337-41		. WASHER		4
6	69-42973-3		. BACKPLATE	AC	1
6	69-42973-2		. BACKPLATE	BD	1
7	NAS514P632-5		. SCREW		4
8	69-47830-1		. COVER	A	2
8	69-42973-1		. COVER	B	2
9	NAS514P440-4		. SCREW	AB	8
10	69-37268-15		. STANDOFF	A	2
10	69-37268-6		. STANDOFF	B	2
11	69-37268-16		. STANDOFF	A	2
11	69-37268-5		. STANDOFF	B	2
12	66-13524-6		. SPACER	C	4
12	66-13524-2		. SPACER	D	4
13	CQ40B1		. SWITCH, TOGGLE, V19315	AC	1
13	26ET61T		. SWITCH, TOGGLE, V91929	BD	1
13	26ET1T		. SWITCH, TOGGLE, V91929 (OPT)	BD	1
13	6ET1T		. SWITCH, TOGGLE, V91929 (OPT)	BD	1
14	SCN001		. CONNECTOR, POWER, V95354		1
15	1N5061		. DIODE	BD	1
15	1N4384		. DIODE	BD	1
16	NAS514P632-3		. SCREW (OPT)	BD	2
17	1411A		. TERMINAL, V88245	BD	2
17	6028		TERMINAL, (OPT), V98278 ELECTRONICS INC., BURBANK, CALIFORNIA	BD	2
18	69-37323-8		. WIRE BUNDLE ASSEMBLY	AC	1
18	69-37323-10		. WIRE BUNDLE ASSEMBLY	BD	1
19	69-37323-7		. BASEPLATE ASSEMBLY	AC	1
19	69-37323-2		. BASEPLATE ASSEMBLY	BD	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-					
20	BACP10U0187G		. . PANEL ASSEMBLY		1
21	BACP10U0187AG		. . . PANEL		1
22	BACS21DD1		. . . STUD		4
23	BACM10L00-1CU		. METAL-CAL		1
24	BAC27DCC271		. METAL-CAL	AC	1
24	BAC27DCC272		. METAL-CAL	BD	1
25	BACN10PA06-6		. PRESS NUT		2

REFERENCE DESIGNATION INDEX (SEE SCHEMATIC DIAGRAM)

REFERENCE DESIGNATION	PART NUMBER	ITEM NO.
CR1	1N5061	15
CR1	1N4384	15
E1, E2	1411A	17
E1, E2	6028	17
L1	SCN001	14
P1	BACC45FN14-15P	3
P1	BACC45FN12-12P	3
S1	CQ40B1	13
S1	26ET61T	13
S1	26ET1T	13
S1	6ET1T	13

VENDORS

19315	BENDIX CORP., NAVIGATION AND CONTROL GROUP, TETERBORO, NEW JERSEY 07608
88245	LITTON INDUSTRIES, USECO DIVISION, 13536 SATICOY STREET, VAN NUYS, CALIFORNIA 91409
91929	HONEYWELL INC., MICRO SWITCH DIVISION, CHICAGO AND SPRING STREETS, FREEPORT, ILLINOIS 61032
95354	METHODE MANUFACTURING CORP., 1700 SOUTH HICKS ROAD, ROLLING MEADOWS, ILLINOIS 60008
V98278	MALCO A MICRODOT CO., CONNECTOR AND CABLE DIV., 220 PASADENA AVE., SOUTH PASADENA, CALIFORNIA 91030