LIGHTING CONTROLS MODULE ASSEMBLY (P3-4)

33-10-04

BOEING P/N 69-37351-1

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

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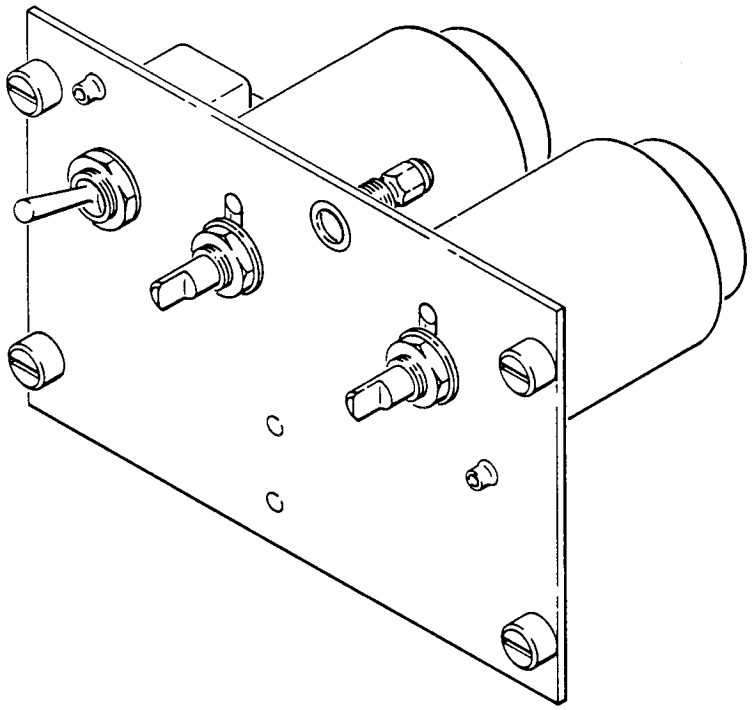


Lighting Controls Module Assembly (P3-4)
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

(1) The lighting controls module assembly consists of a baseplate assembly and a receptacle support which provides mounting arrangements for two variable autotransformers, a switch, and a wire bundle assembly. The lighting controls module assembly is equipped with quick release fasteners for easy removal and installation.

B. Operation

(1) The lighting control module provides crewmembers with a means of varying the intensity of the instrument lighting and control and intensity variation of the map light.

C. Functional Description

(1) Map light switch S1, when in the "ON" position, supplies 28 volts ac through map light control T2 to illuminate the map light.

(2) Map light control T2, is an autotransformer, and functions to vary the ac voltage input to instrument lighting transformer.

(3) Lighting control T1, is an autotransformer, and functions to vary the ac voltage input to instrument lighting transformer.

D. Leading Particulars

Height -- 3.7 inches (approximately)
Width -- 5.8 inches (approximately)
Length -- 4.0 inches (approximately)
Weight -- 2.0 pounds (approximately)
Operating Voltage -- 28 volts ac

2. DISASSEMBLY

A. General

(1) Disassemble only as necessary for cleaning, inspection, repair, and replacement of components.

(2) Unsolder wiring connections and remove connector pins only when replacement of wire or component is required. Tag disconnected wires to facilitate reassembly. Refer to "Repair of Electrical Connectors," Subject 20-11-02, and to "Soldering Electrical Connections," Subject 20-12-01.

B. Disassemble Unit (See figure 3.)

(1) Remove screws (1) and clip-on nuts (4) to free connector (3).

(2) Disconnect and remove wire bundle assembly (2).

(3) Remove toggle switch (5), transformers (6), and power connector (7).

NOTE: Do not disassemble items (8) through (15) unless repair or replacement is necessary.

3. CLEANING

CAUTION: USE ONLY CLEANING MATERIAL SPECIFIED HEREIN. USE OF UNAPPROVED MATERIALS MAY DAMAGE THE ASSEMBLY OR CAUSE CIRCUIT FAILURE.

A. Remove dust or foreign matter from assembly using low pressure air suction.

B. Clean interior surfaces and electrical contacts with aliphatic naphtha or isopropyl alcohol. Dry thoroughly with low pressure air.

WARNING: WHEN USING ISOPROPYL ALCOHOL OR ALIPHATIC NAPHTHA, AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. KEEP AWAY FROM HEAT, SPARKS, OR OPEN FLAME.

C. For cleaning information related to soldering, refer to "Preparation for Soldering" in "Soldering Electrical Connections," Subject 20-12-01.

D. Clean terminal lugs and other bonding areas per "Repair of Electrical Terminations and Electrical Bonding Areas," Subject 20-11-03.

4. INSPECTION/CHECK

A. Check wiring, electrical components, and solder connections with a minimum of 5-power magnification.

(1) Check components for security of mounting.

(2) Check components and wire for damage.

(3) Check wire terminals and connections for proper installation.

(4) Check wire insulation for charring, cracking, and brittleness.

(5) Check connectors for bent, corroded, or cracked pins.

B. Check nameplates, metal labels, and Metal-Cals for proper installation and legibility.

C. Check components for legibility of reference designations and terminal identification.

D. Check finished surfaces for damage.

E. Check chassis assembly for damage.

F. Check insulating sleeving for proper installation and evidence of damage.

5. REPAIR

A. Repair

(1) Repair electrical connectors per "Repair of Electrical Connectors," Subject 20-11-02.

(2) Repair soldered connections per "Soldering Electrical Connections," Subject 20-12-01.

(3) Repair wire terminations and bonding areas per "Repair of Electrical Terminations and Electrical Bonding Areas," Subject 20-11-03.

(4) Where required straighten box assembly components and connector pins and tighten component mounting hardware.

(5) Restore reference designations, terminal numbers, or component identification markings to a legible condition. Refer to "Application of Stencils, Insignia, Silk Screen, Part Numbering, and Identification Markings," Subject 20-50-10.

B. Refinish

NOTE: Refer to Subject 20-30-02 for stripping of protective finishes and Subject 20-41-01 for decoding of F and SRF finish symbols and their BAC equivalents.

(1) If protective finishes are worn or damaged, refinish as indicated:

(a) All Structural Parts -- Apply F-2.21, F-2.30, or SRF-2.30 all over.

(b) Front Plate or Baseplate -- Apply F-12.75 or SRF-14.9031 to front surface and edges.

(c) Screws (with heads exposed on front of front plate or baseplate) -- Apply F-14.91 to heads.

C. Replacement

(1) Replace damaged wire with wire type and size as noted on the schematic diagram.

(2) Apply Metal-Cals per "Application of Metal-Cals," Subject 20-50-05.

(3) Replace damaged heat shrinkable sleeving per "Repair of Electrical Terminations and Electrical Bonding Areas," Subject 20-11-03.

(4) Replace damaged grommets per "Installation of Protective Grommets," Subject 20-50-09.

(5) If rivets or nutplates require replacement, apply a coat of primer, Specification BMS 10-11, type 1, to faying surfaces and install while primer is wet.

(6) Replace damaged pads with BAC5010, type 60 adhesive per "Application of Adhesives," Subject 20-50-12.

(7) If press nuts (14) require replacement, use punch press or equivalent utilizing a single impact stroke to install. Drive fastener from back of panel (10) until top of fastener is flush with rear surface of panel. Appendage of fastener shall protrude from front of panel.

(8) If studs (11) require replacement, use Deutsch tools (or equivalent) R1405-6 for removal and H1403-6 for installation.

6. ASSEMBLY

A. General

(1) Complete required REPAIR procedures.

(2) Connect electrical wires per schematic diagram.

B. Reassembly (See figure 3.)

(1) Install power connector (7), transformers (6), and switch (5) on baseplate (8).

(2) Install wire bundle assembly (2), connect wiring, and secure connector (3), to receptacle support (12) using clip-on nuts (4) and screws (1).

7. TESTING

A. Test Equipment

(1) Multimeter -- Simpson 260 or equivalent

(2) Power Supply -- 28 volts ac, 400 Hz

(3) Mating Connector -- BACC45FT18-14S (with pigtail leads)

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

(1) Check for continuity between pin 2 and center contact of power connector.

NOTE: When test calls for continuity, resistance measured should be less than 1 ohm; when test calls for no continuity, resistance should be infinite.

(2) Check for continuity between pin 1 and baseplate assembly.

(3) Check for no continuity between pin 1 and pin 2.

(4) Connect 28 volts ac to pin 8 and power supply ground return to pin 10.

(5) Set right hand light control T2 fully counter-clockwise. Place switch S1 in the "ON" (toggle lever up) position.

(6) Connect meter leads (50 volt scale) between pin 9 and pin 10. Check that voltage is less than 1.0 volt RMS.

(7) Slowly rotate light control T2 to fully clockwise position and observe a linear voltage increase up to a maximum of 28 (±1) volts RMS.

(8) Connect 28 volts ac to pin 4 and power supply ground return to pin 7.

(9) Set left hand light control T1 fully counter-clockwise.

(10) Connect meter leads (50 volt scale) between pin 3 and pin 7. Check that voltage is less than 1.0 volt RMS.

(11) Slowly rotate light control T1 to fully clockwise position and observe a linear voltage increase up to a maximum of 28 (±1) volts RMS.

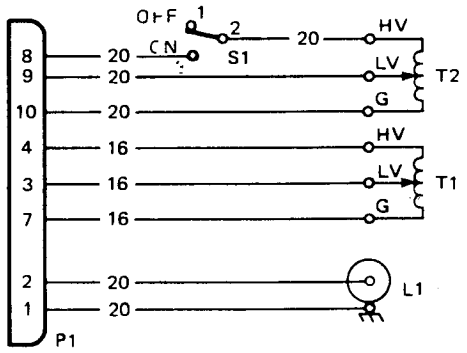
(12) Disconnect test equipment.

8. 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
(1)	Para. C.(1), C.(2) and C.(3)	L1
(2)	Para. C.(6) and C.(7)	T2
(3)	Para. C.(10) and C.(11)	T1



NOTE: ALL WIRE, BMS 13-16, TYPE 1 CLASS 1, SIZE AWG 16 AND 20 AS NOTED.

Schematic Diagram
Figure 2

9. STORAGE INSTRUCTIONS

A. Protect assembly from dust, moisture, and rough handling. Place assembly in plastic bag and insert in protective carton, padded sufficiently to ensure against damage during storage and handling. Close, tape, and mark carton with assembly identity and date of overhaul.

B. For further information, refer to "Protection, Storage, and Handling of Airplane Components," Subject 20-70-01.

10. SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

A. Tools used for repair of electrical connectors are listed in "Repair of Electrical Connectors," Subject 20-11-02.

B. Tools used for repair of electrical terminations and for replacement of insulating sleeving are listed in "Repair of Electrical Terminations and Electrical Bonding Areas," Subject 20-11-03.

C. Tools used for soldering electrical connections are listed in "Soldering Electrical Connections," Subject 20-12-01.

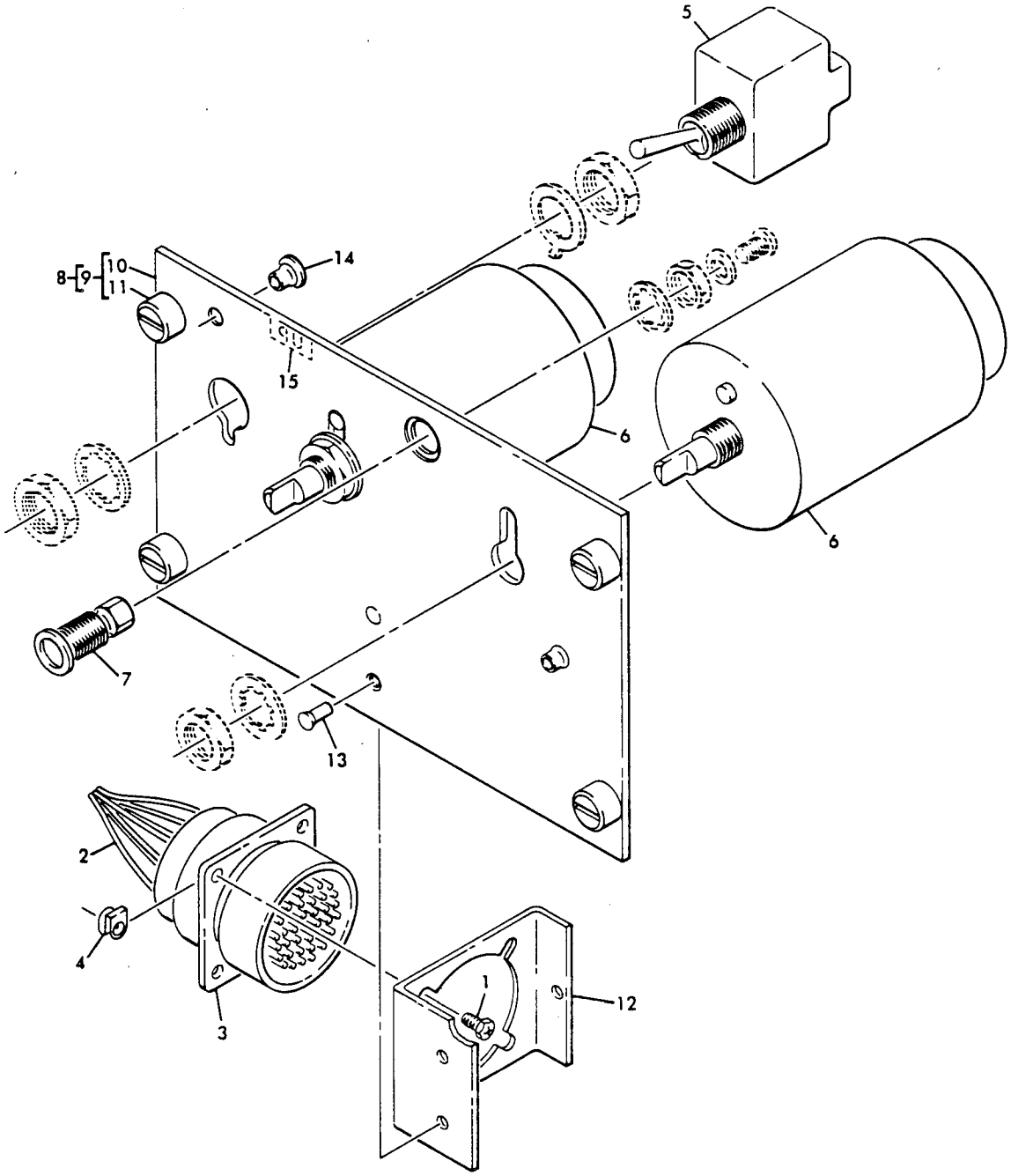
D. R1405-6 -- Deutsch removal tool for stud assembly (11, figure 3).

E. H1403-6 -- Deutsch installation tool for stud assembly (11, figure 3).

NOTE: For additional equipment required for testing, refer to TESTING.

11. ILLUSTRATED PARTS LIST

A. Exploded View



Lighting Controls Module Assembly (P3-4)
Figure 3

B. Group Assembly Parts List

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-	69-37351-1		LIGHTING CONTROLS MODULE ASSEMBLY (P3-4)		
1	BACS12CB04-5		. SCREW		2
2	69-37351-3		. WIRE BUNDLE ASSEMBLY.		1
3	BACC45FN18 -14P		. CONNECTOR		1
4	BACN10NW1		. NUT, Clip-on.		2
5	MS24523-23		. SWITCH, Toggle.		1
6	6430A		. TRANSFORMER, V95266		2
7	SCN001		. POWER CONNECTOR, V95354		1
8	69-37351-2		. BASEPLATE		1
9	BACP10U0375G		. . PANEL ASSEMBLY.		1
10	BACP10U0375AG		. . . PANEL		1
11	BACS21DD1		. . . STUD.		4
12	69-43875-1		. BRACKET		1
13	BACR15BA4D6		. RIVET (replaces MS20426D4-6). . .		2
14	BACN10PA06-6		. NUT, Press.		2
15	BACM10L00-1CU		. METAL-CAL		1

Reference Designation Index (See Schematic Diagram)		
Reference Designation	Part Number	Item No.
P1	BACC45FN18-14P	3
L1	SCN001	7
S1	MS24523-23	5
T1, T2	6430A	6

VENDOR CODE

Code	Name and Address
V95266	OECO Corp. 712 South East Hawthorne Boulevard Portland, Oregon, 97214
V95354	Methode Manufacturing Corp. 1700 South Hicks Road Rolling Meadows, Illinois 60008