BOEING COMMERCIAL JET

OVERHAUL MANUAL

APU FIRE WARNING HORN ASSEMBLY M277

26-10-33

BOEING P/N 65-62598-5

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30441	Nov 10/69

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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OVERHAUL MANUAL

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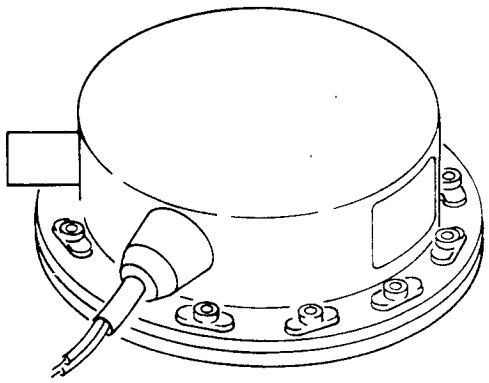
APU FIRE WARNING HORN ASSEMBLY (M277)

Boeing Part Number: 65-62598-5



APU Fire Warning Horn Assembly (M277)
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

(1) The auxiliary power unit (APU) fire warning horn assembly consists of a vendor supplied horn assembly modified to operate in the fire warning system.

B. Operation

(1) The horn assembly is part of the APU fire warning system and sounds to indicate a fire condition in the APU.

C. Leading Particulars

Height -- 2.0 inches (approximately)
Diameter -- 5.0 inches (approximately)
Weight -- 2.0 pounds (approximately)

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 Subject 20-12-01 for unsoldering procedures.

CAUTION: USE CARE WHEN HANDLING WIRING CONNECTIONS.

B. Disassembly (See figure 3.)

(1) Remove screws (5) and ring (4).

(2) Refer to manufacturer's instructions for disassembly of horn assembly (1).

(3) Do not remove items 2, 3, 6, or 7 unless repair or replacement is required.

3. CLEANING

WARNING: MAKE CERTAIN THAT ALL SOURCES OF FLASH OR FIRE ARE ELIMINATED FROM AREA OF POSSIBLE CONTACT WITH COMBUSTIBLE MATERIALS AND VAPORS DURING THE FOLLOWING PROCEDURE.

CAUTION: DO NOT APPLY ABRASIVE CLEANING MATERIALS OR BRUSHES TO ANY PART OF ASSEMBLY UNLESS OTHERWISE SPECIFIED. USE ONLY CLEANING METHODS AS OUTLINED HEREIN. DO NOT ALLOW SOLVENTS OR CLEANING FLUIDS (EXCEPT NAPHTHA AND ALCOHOL) TO CONTACT ELECTRICAL SURFACES. DO NOT ALLOW SOLVENTS OR CLEANING FLUIDS TO CONTACT PREGNABLE MATERIALS.

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

B. Clean exterior surfaces per "Alkaline Cleaning" in Subject 20-30-03.

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

D. For cleaning information related to soldering, refer to 'Preparation for Soldering, in Subject 20-12-01.

E. Clean terminal lugs and other bonding areas per Subject 20-11-03.

4. INSPECTION/CHECK

A. Visual Checks

NOTE: Visual inspection of wiring, electrical components, and solder connections shall be accomplished with a minimum of 5-power magnification unless otherwise specified.

(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.

(6) Check nameplates, metal labels, and Metal-Cals for proper installation and legibility.

(7) Check components for legibility of reference designations and terminal identification.

(8) Check finished surfaces for damage.

(9) Check assembly for warping, bending, or other damage.

(10) Check insulating sleeving for proper installation and evidence of damage.

B. Special Checks

(1) Check vendor components per manufacturer's instructions.

5. REPAIR

A. Repair

(1) Instructions for repair of electrical connectors (plugs, receptacles, sockets, and wire terminations) are contained in "Repair of Electrical Connectors," Subject 20-1102.

(2) Instructions for repair of soldered connections at terminals or solder cups are contained in Soldering Electrical Connections," Subject 20-12-01.

(3) Instructions for repair of wire terminations at terminal lugs and preparation of electrical bonding areas are contained in Repair of Electrical Terminations," Subject 20-11-03.

(4) Straighten assembly components and connector pins if bent.

(5) Silk screen, rubber stamp, or steel stamp as applicable, all damaged reference designations, terminal numbers, or component identification markings. Refer to Subject 20-50-10.

B. Refinish

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

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

(a) Horn assembly housing -- Apply SRF-12.205 and then SRF-12.63 all over.

C. Replacement (See figure 3.)

(1) Remove all bell cover fasteners, plate, bell cover, condenser, and breaker assembly (including breaker adjustment screw and nut) from horn assembly (1).

(2) Install nutplates (2) on horn assembly (1) housing with rivets (3).

(3) At one opening in horn assembly (1) housing, cut existing wire at terminal, leave terminal and rubber boot as installed and pot opening in boot with Stycast 2651 (Stycast-Coas ProSeal Manufacturing Company, P.O. Box 57248, Flint Station Vernon, Los Angeles, California) or BMS 8-40 sealant per BAC5550.

(4) At the other opening in the horn assembly (1) housing, remove existing wire terminal and rubber boot.

(5) Unsolder existing wires from coil terminals.

(6) Assemble two 3-foot BMS 13-13B, type 1 class B, size 18 AWG or BMS 13-5D, type 1 class B, size 18 AWG wires through opening in housing and grommet (6) then solder one wire to each coil terminal.

(7) Install grommet (6) in hole from inside housing, do not crimp grommet (6).

(8) Install thermofit polyolefin, BMS 141, type 5, semi-rigid sleeve on wiring through opening.

(9) Center wiring in a BACM27D12 potting cap (cap may be split and taped together before potting for easier removal) and pot opening with Stycast 2651 (Stycast-Coas ProSeal and Manufacturing Company, P.O. Box 57248, Flint Station Vernon, Los Angeles, California) or BMS 8-40 sealant per BAC5550.

(10) Remove potting cap.

(11) Assemble horn assembly (1) per manufacturer's instructions.

(12) Install ring (4) with screws (5).

(13) Refinish horn assembly (1) housing per paragraph 5.B.(1)(a).

(14) Apply Metal-Cal (7) per Subject 20-50-05.

6. ASSEMBLY

A. General

(1) Complete required REPAIR procedures.

(2) Connect electrical wires per schematic diagram.

B. Reassembly (See figure 3.)

(1) Assemble horn assembly (1) per manufacturer's instructions.

(2) Position ring (4) on horn assembly (1) and install screws (5).

7. FITS AND CLEARANCES

A. None

8. TESTING

A. Test Equipment

(1) DC Power Supply: 28 volts, 4 amperes

(2) Resistor: 124 ohms (± 5%), 10 watts (R1)

(3) Printed Circuit Assembly: 69-50252-9

(4) Connector: 582553-1 with 66143-2 terminals (AMP, Incorporated, Harrisburg, Pennsylvania) and pigtail leads

B. Functional Test

(1) Insert printed circuit assembly into connector so that component side matches numbered side of connector. Identify and tag pigtail leads.

(2) Remove screws (5) and ring (4) from horn assembly (1).

(3) Connect test set as shown in figure 2.

(4) Loosen locknut which holds adjustment slug in center of horn coil.

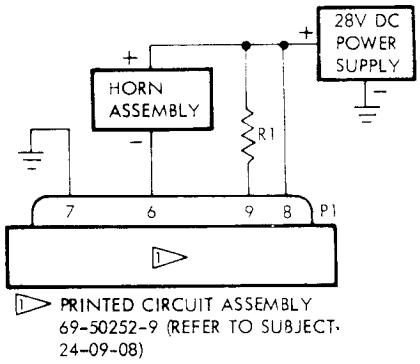
(5) Turn on power supply.

(6) Adjust slug with screwdriver until horn is the loudest.

(7) Turn off power supply, hold slug in place and tighten locknut.

(8) Disconnect test setup.

(9) Install ring (4) with screws (5).



Test Setup
Figure 2

9. 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.

Trouble	Possible Cause	Correction
Horn assembly is silent paragraph 8.B.(6)	Horn coil or diaphragm	Refer to manufacturer's instructions to replace defective components

10. STORAGE INSTRUCTIONS

A. Protect assembly from dust, moisture, and atmospheric conditions. 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.

11. SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

A. Tools used for repair of electrical connectors are listed in Subject 20-11-02.

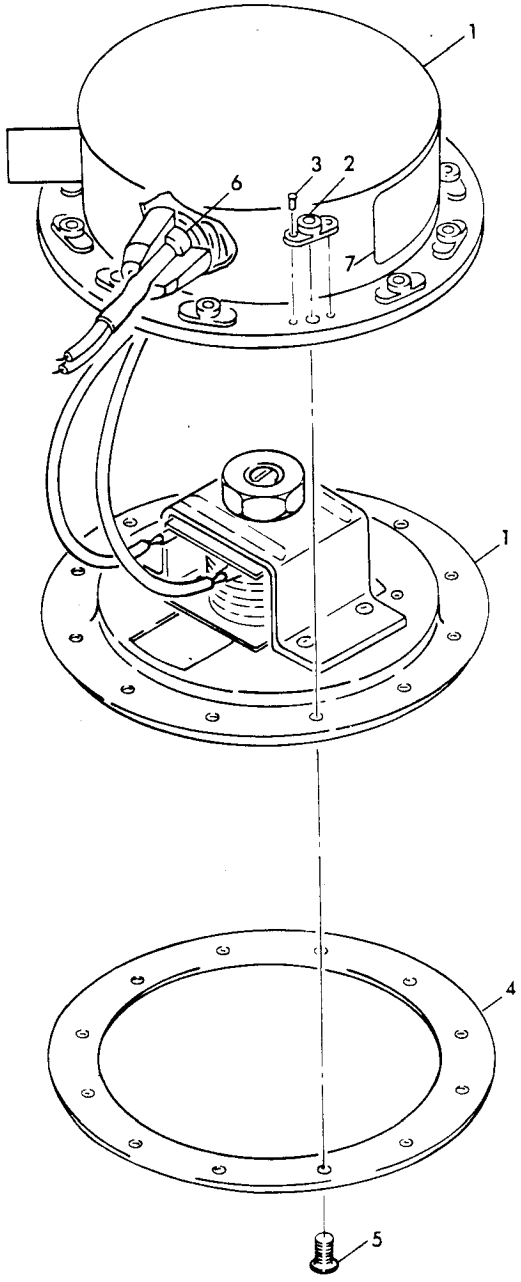
B. Tools used for repair of electrical terminations and for replacement of insulating sleeving are listed in Subject 20-11-03.

C. Tools used for soldering electrical connections are listed in Subject 20-12-01.

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

12. ILLUSTRATED PARTS LIST

A. Exploded View



APU Fire Warning Horn Assembly (M277)
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-	65-62598-5		APU FIRE WARNING HORN ASSEMBLY (M277)		
1	9630		. HORN ASSEMBLY, V21035 (preferred) .		1
1	23750		. HORN ASSEMBLY, V21035 (optional). .		1
2	NAS1068A3		. NUTPLATE.		12
3	MS20615-3M		. RIVET		24
4	65-62598-4		. RING.		1
5	NAS514P1032-10		. SCREW		8
6	NAS1368N3A		. GROMMET		1
7	BACM10H1P		. METAL-CAL		1

VENDOR CODE

Code	Name and Address
V21035	The Gray Manufacturing Company Faraday Division 805 South Maumee Street Tecumseh, Michigan 49286