TO: ALL HOLDERS OF WINDSHIELD WIPER RESISTOR BOX ASSEMBLY OVERHAUL MANUAL, 30-46-03

REVISION NO. 4, DATED MAR 1/05

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
Edited without technical change									X				

WINDSHIELD WIPER RESISTOR BOX ASSEMBLY

30-46-03

BOEING P/N 69-44628-1
69-56500-1, -3

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
30-22		PRR 23029	Feb 10/70

LIST OF EFFECTIVE PAGES

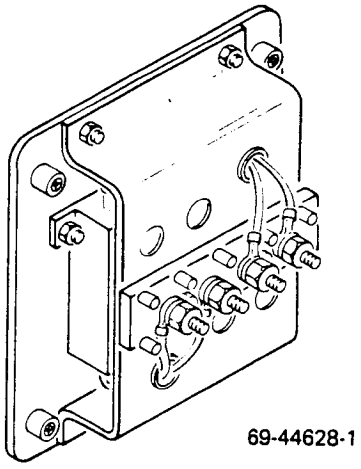
* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

	PAGE	DATE	PAGE	DATE	PAGE	DATE
	30-46-03					
	T-1	Feb 10/70				
	T-2	BLANK				
*	LEP-1	Mar 1/05				
	LEP-2	BLANK				
	T/C-1	Feb 10/70				
	T/C-2	BLANK				
	1	Feb 10/70				
	2	Feb 10/70				
	3	Feb 10/70				
	4	Feb 10/70				
	5	Feb 10/70				
	6	BLANK				
	7	Feb 10/70				
*	8	Mar 1/05				
	9	BLANK				
	10	Feb 10/70				
	11	Jul 1/98				
	12	Feb 10/70				
	13	Jul 1/98				
	14	BLANK				

TABLE OF CONTENTS

WINDSHIELD WIPER RESISTOR BOX ASSEMBLY

Boeing Part Numbers: 69-44628-1 (M23, M24)
and 69-56500-1 and -3 (M23, M24)



Windshield Wiper Resistor Box Assembly
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

(1) The windshield wiper resistor box assembly consists of resistors mounted on a baseplate and connected in series to a terminal strip. The box is covered by a removable cover assembly.

B. Operation

(1) The windshield wiper resistor box assembly functions as a variable line load to allow the windshield wiper motor to operate at different speeds.

2. DISASSEMBLY

A. General

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

(2) Unsolder wiring connections only when replacement of wire or component is required. Tag disconnected wires to facilitate reassembly. Refer to Subject 20-12-01 for unsoldering procedures.

B. Disassembly (See figures 4 and 5.)

(1) Remove nuts (1) and washers (2) and disconnect terminals (15) from terminal strip (3).

(2) Remove nuts (4), screws (5), and cover assembly (6).

CAUTION: USE CARE WHEN REMOVING COVER ASSEMBLY TO AVOID DAMAGE TO WIRES, GROMMETS, AND TERMINALS.

(3) Remove nuts (9), screws (10), and terminal strip (3) from cover assembly (6).

(4) Remove nuts (11), screws (12), and resistors (13) from baseplate (14). On 69-56500-1 and -3, remove resistors (16 and 17) also.

CAUTION: USE CARE TO AVOID DAMAGE TO ELECTRICAL CONNECTIONS.

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 IMPREGNABLE 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: Use five-power magnification for checking component, wiring, and soldering.

(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 wire for proper routing.

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

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

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

(9) Check finished surfaces for damage.

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

(11) 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) 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 BMS 13-16, type 1, class 1, AWG #18.

(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.

6. ASSEMBLY

A. General

(1) Complete required REPAIR procedures.

(2) Connect electrical wires per schematic diagram.

B. Reassembly (See figure 5.)

(1) Position resistors (13) on baseplate (14) and install screws (12) and nuts (11). On assemblies 69-56500-1 and -3, install resistors (15 and 16) also.

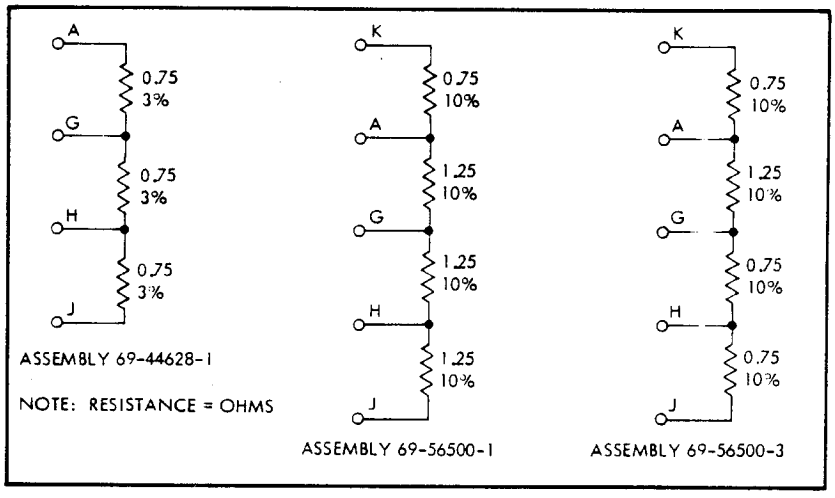
(2) Position terminal strip (3) on cover assembly (6) and install screws (10) and nuts (9). Clean faying surfaces and cover exposed nuts and screw tips with BMS 5-37.

(3) Position cover assembly (6) on baseplate (14), insert wires through grommets (8), connect terminals (15) to terminal strip (3), and install washers (2), nuts (1), screws (5), and nuts (4).

CAUTION: USE CAUTION TO AVOID DAMAGE TO ELECTRICAL CONNECTIONS.

7. FITS AND CLEARANCES

A. None



Schematic Diagram
Figure 2

8. TESTING

A. Test Equipment

(1) Ohmmeter capable of measuring 0.67 to 4.12 ohms

B. Functional Test

(1) Measure the resistance between terminals listed in figure 3. Verify that measurements are within tolerances specified in the column for the assembly under test. Values given are for unit temperature range of 68 to 95°F.

Measure Between Terminals	Resistance Tolerances in Ohms		
	69-44628-1	69-56500-1	69-56500-3
A and G	0.72-0.78	1.13-1.37	1.13-1.37
A and H	1.44-1.56	2.25-2.75	1.80-2.20
A and J	2.16-2.34	3.38-4.12	2.50-3.00
A and K	---	0.67-0.83	0.67-0.83
G and H	0.72-0.78	1.13-1.37	0.67-0.83
H and J	0.72-0.78	1.13-1.37	0.67-0.83

Functional Test Values
Figure 3

9. TROUBLE SHOOTING

A. Replace resistors not meeting tolerance requirements. Prior to replacing resistors, verify that terminal connections are providing minimum resistance contact.

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.

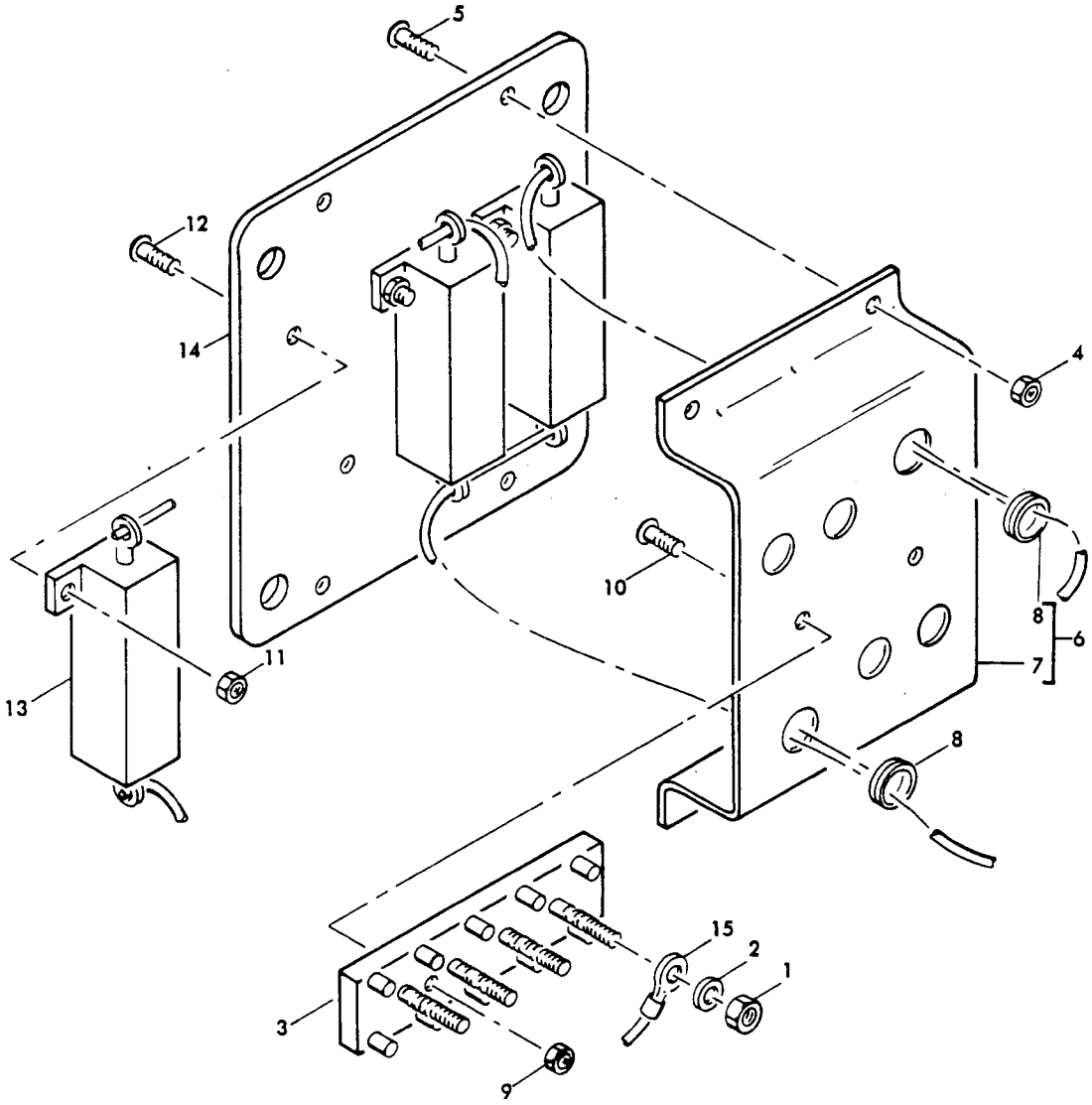
B. Tools used for repair of electrical terminations and for replacement of insulating sleeving are listed in Subject 20-11-03.

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

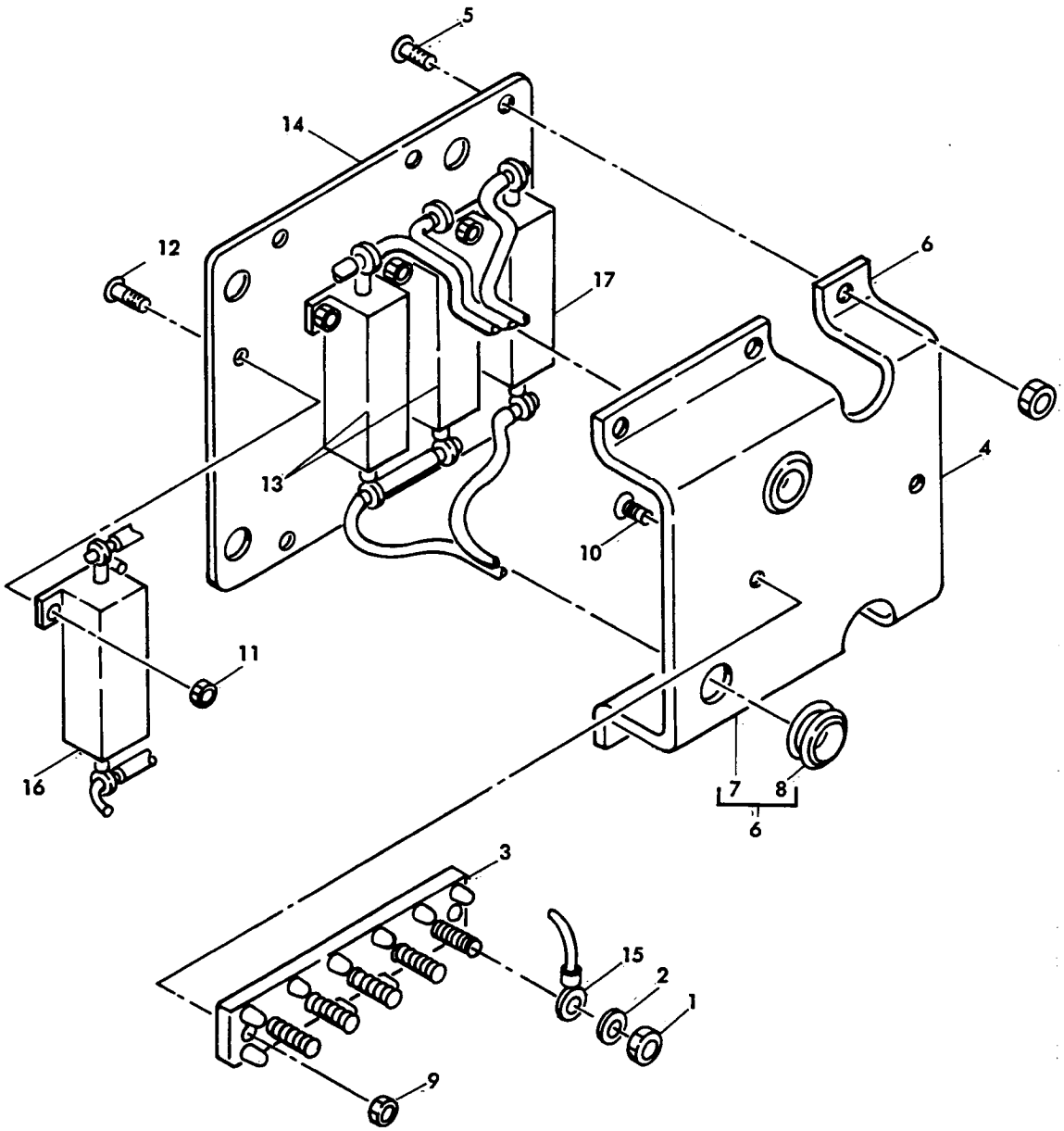


Windshield Wiper Resistor Box Assembly 69-44628-1
Figure 4

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
4-	69-44628-1		WINDSHIELD WIPER RESISTOR BOX ASSEMBLY (M23, M24)		
1	NAS679A06W		. NUT		4
2	AN960-6L		. WASHER		4
3	MS27212-1-4		. TERMINAL STRIP		1
4	NAS679A04W		. NUT		4
5	NAS514P440-6		. SCREW		4
6	69-44627-1		. COVER ASSEMBLY		1
7	69-44627-2		. . COVER		1
8	NAS557-6B		. . GROMMET		2
9	NAS679A04W		. NUT		2
10	BACS12CB04-6		. SCREW		2
11	BACN10DN40		. NUT		6
12	NAS514P440-6		. SCREW		6
13	RH50-.75		. RESISTOR 0.75 OHM (± 3%), 50 W, V91637 (PREFERRED)		3
13	3550M-.75		. RESISTOR, 0.75 OHM (± 3%), 50 W, V00213 (OPTIONAL)		3
14	69-44628-2		. BASEPLATE		1
15	BACT12AC2		. TERMINAL.		4

C. Exploded View



D. 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
5-	69-56500-1		WINDSHIELD WIPER RESISTOR BOX ASSEMBLY (M23, M24)(SB 30-22)	A	RF
	69-56500-3		WINDSHIELD WIPER RESISTOR BOX ASSEMBLY (M23, M24)(SB 30-22)	B	RF
1	NAS679A06W		. NUT		5
2	AN960-6L		. WASHER		5
3	MS27212-1-5		. TERMINAL STRIP		1
4	NAS679A04W		. NUT		6
5	NAS514P440-6		. SCREW		6
6	69-56501-1		. COVER ASSEMBLY		1
7	69-56501-2		. . COVER		1
8	NAS557-6B		. . GROMMET		2
9	NAS679A04W		. NUT		2
10	BACS12CB04-4		. SCREW		2
11	BACN10DN40		. NUT		8
12	NAS514P440-6		. SCREW		8
13	RH50-1.25		. RESISTOR, 1.25 OHMS (± 10% MINIMUM), 50 W, V91637	A	2
13	RH50-.75		. RESISTOR, 0.75 OHMS (± 10% MINIMUM), 50 W, V91637	B	2
14	69-56502-1		. BASEPLATE		1
15	BACT12AC2		. TERMINAL LUG		5
16	RH50-1.25		. RESISTOR, 1.25 OHMS (± 10% MINIMUM), 50 W, V91637		1
17	RH50-0.75		. RESISTOR, 0.75 OHMS (± 10% MINIMUM), 50 W, V91637		1

VENDOR CODE

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