MOBILE RADIO

CUSTOM MVP

MAINTENANCE MANUAL

AC POWER SUPPLY (OPTIONS 1901-1904)

AC POWER SUPPLY WITH DESK MICROPHONE (OPTIONS 1945,1946)

Maintenance Manual LBI30166D
DATAFILE FOLDER - DF0073

AC POWER SUPPLY

SPECIFICATIONS *

OUTPUT VOLTAGE	
Standby	16.4 VDC @ 0.5 Ampere
Receive	16.0 VDC @ 1.0 Ampere
Transmit	13.3 VDC @ 6.0 Ampere
INPUT VOLTAGE	
Option 1901	121 VAC, 60 Hertz only
Option 1902	100-247 VAC, 50 or 60 Hertz
DIMENSIONS (HXWXD)	3.5"X8.4"X10.6"
WEIGHT	13 lbs.

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

GENERAL ELECTRIC

TABLE OF CONTENTS

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage; or to connect any external apparatus to the units while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS!

DESCRIPTION

The AC Power Supply option is required when the Custom MVP radio is used as a base station. The supply is housed similar to the radio with a front cap attached to a mounting frame. The mounting frame slides into a box-type cover. Four screws at the rear of the unit hold the frame to the cover.

A speaker grille is molded into the front cap of the supply. A speaker and a green POWER ON Light Emitting Diode (LED) indicator are provided with the unit. The radio may be stacked on top of the supply or the two units may be located side-by-side. A 15-inch 6-conductor cable connects between the supply and the radio.

Options 1901 and 1903 provide a 19D423793G1 Power Supply for use with 121 VAC, 60 Hertz only. Option 1901 is a factory option which deletes the standard radio power cable, mounting bracket and speaker, replacing these items with the AC supply. Option 1903 provides the supply for field applications.

Options 1902 and 1904 provide a 19D423793G2 supply. This supply contains a multitap transformer which allows strapping for 100, 110, 123.5, 200, 220 or 247 VAC at either 50 or 60 Hertz. Option 1902 deletes the standard radio power cable, mounting bracket and speaker, replacing these items with the AC supply. Option 1904 provides the 19D423793G2 supply for field applications.

An ON-OFF power switch and an AC line fuse are located on the rear of the power supply. Normally the switch is left in the ON position and the power to the radio is controlled by the power ON-OFF switch on the radio front panel.

CIRCUIT ANALYSIS

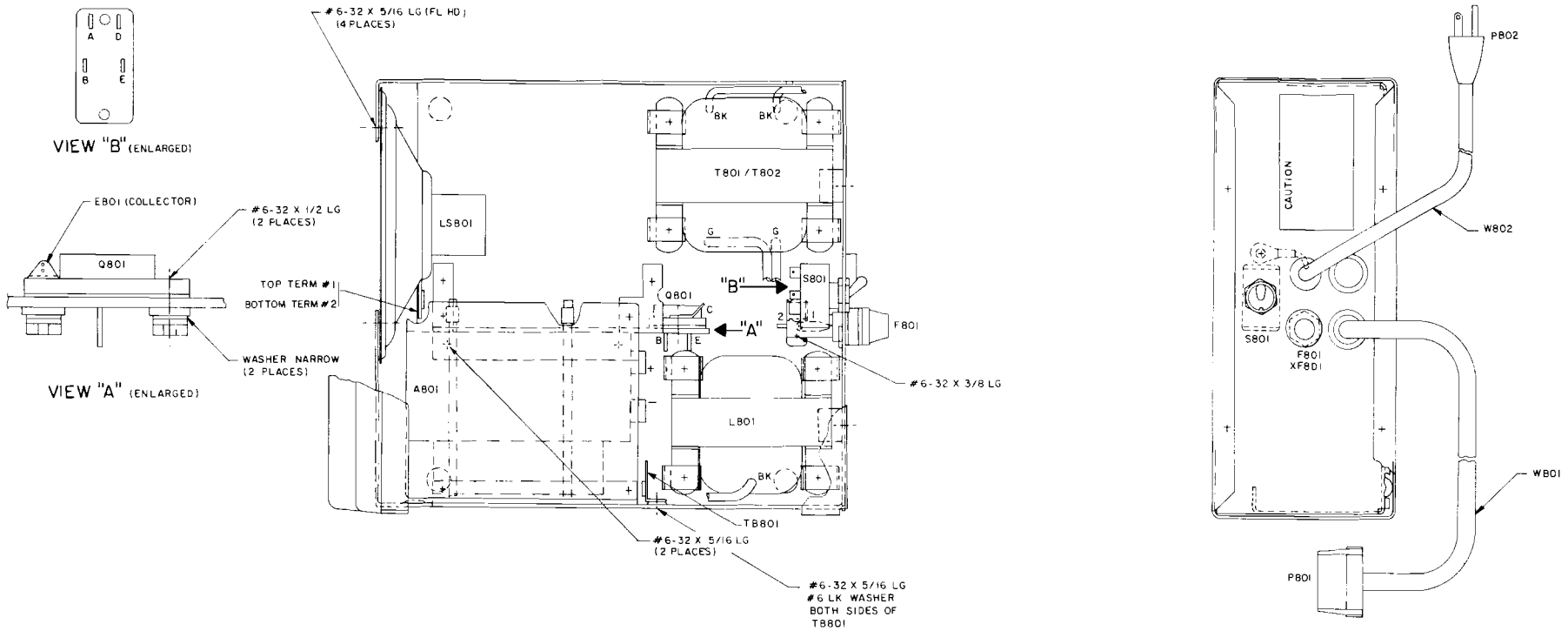
When the ON-OFF switch S801 (on the rear of the power supply), is in the ON position, 121 VAC is connected to the primary of T801 (Power Supply 19D423793G1) or T802 (Power Supply 19D423793G2). The secondary of the transformer applies the stepped-down voltage to the bridge rectifier (CR1-CR4) located on the component board A801. Some filtering of the rectified voltage is provided by L801 and C801.

The rectifier output is applied to the collectors of Q2 (on the component board A801) and Q801. In the transmit mode, Q2 and Q801 operate as a filter for the voltage applied to the transmitter PA. In this condition, the pass transistor Q801 is switched on to saturation. If line transients occur which may damage the transmitter transistors, Q801 will react to limit the transients to a safe level.

In the receive mode, the circuit acts as a limiter for the receiver supply voltage. If the output of Q801 starts to rise, Zener diode VR1 (in the base of Q3) breaks down and Q3 starts conducting. This causes Q801 and Q2 to conduct less, limiting the voltage to the receiver.

TROUBLESHOOTING PROCEDURE

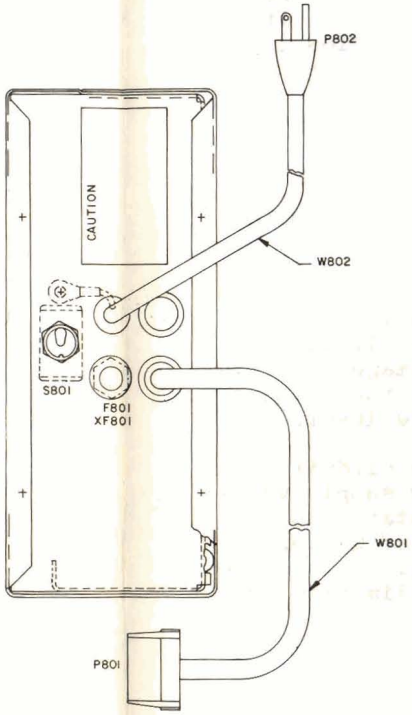
SYMPTOM	PROCEDURE
No output voltage or low voltage at P801-1 and P801-2	Check the following: 1. AC input voltage at S801. 2. Open F801. 3. Open T801 (T802), S801, CR1-CR4 or L801. 4. Open Q801 or Q2. If open, check for shorts between the transistor bases and A-, and for shorts between the emitters and A- before replacing. 5. Shorted VR1, Q3. 6. Shorts between positive voltage points and A-.
Voltage at P801-1 and P801-2 is too high (over 17 Volts with 0.5 Ampere load.	Check the following: 1. Open VR1, Q3 2. Shorted Q2 3. Open CR5

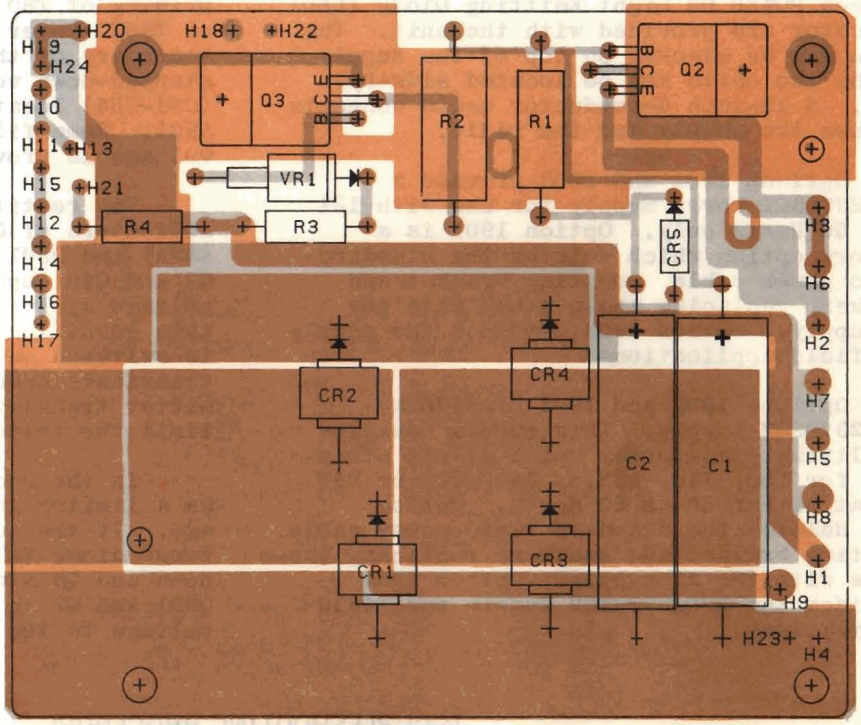


(19D424113, Rev. 1)

OUTLINE DIAGRAM

AC POWER SUPPLY





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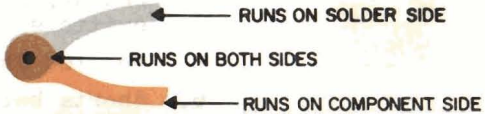
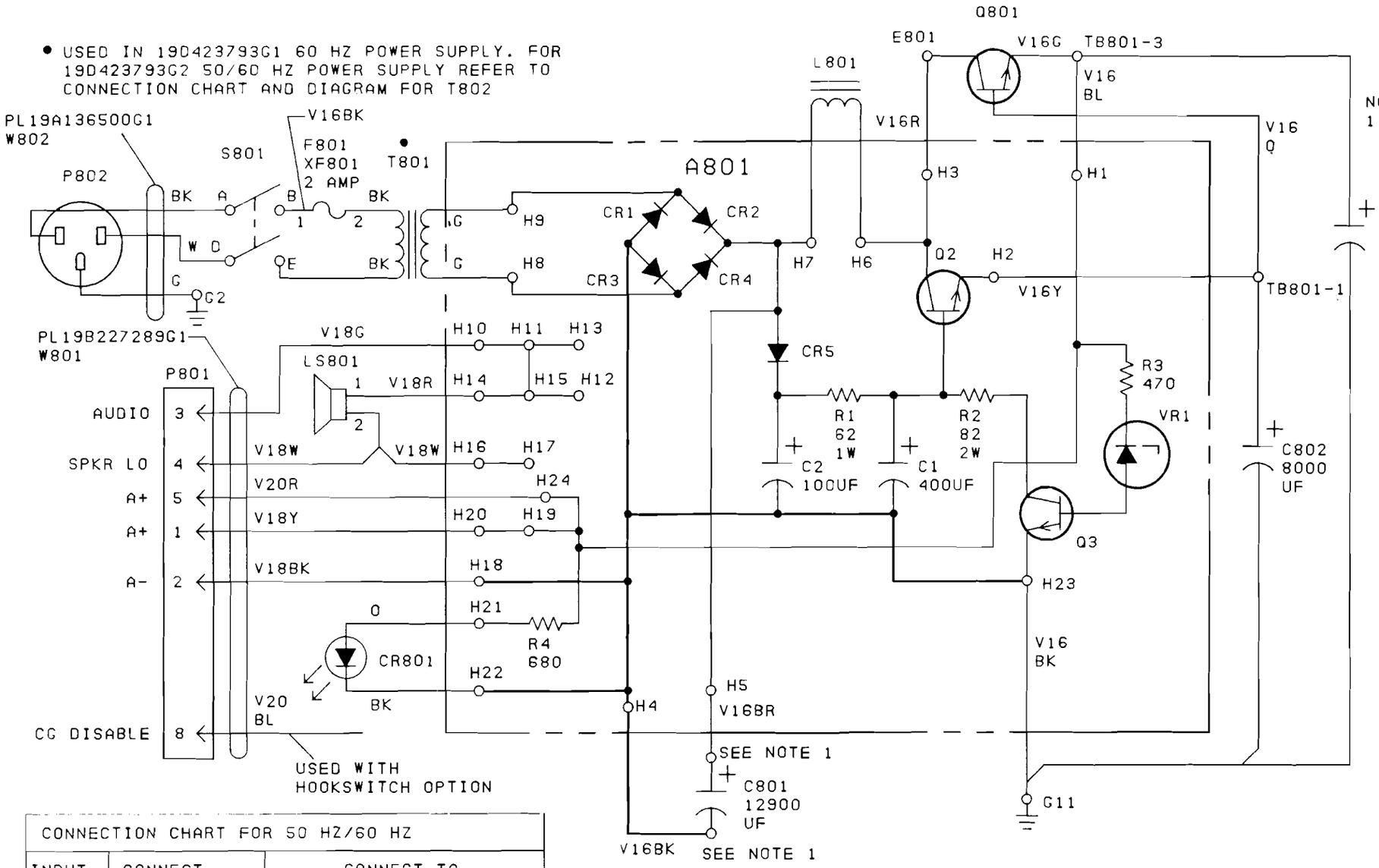
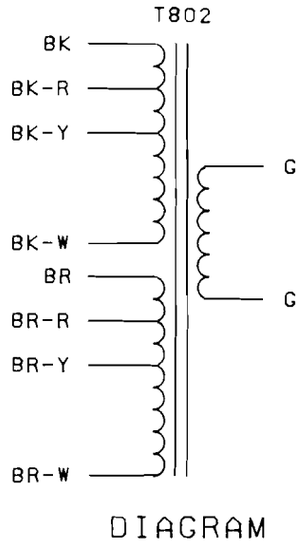


GROUP 1 60 HZ
GROUP 2 50/60 HZ

• USED IN 19D423793G1 60 HZ POWER SUPPLY. FOR 19D423793G2 50/60 HZ POWER SUPPLY REFER TO CONNECTION CHART AND DIAGRAM FOR T802

NOTES:
1. TERMINATE WITH 19B209268P106.





DIAGRAM

CONNECTION CHART FOR 50 HZ/60 HZ			
INPUT VOLTS	CONNECT TOGETHER	CONNECT TO S801-E	CONNECT TO XF801-2
100	BK-W & BR-W BK-Y & BR-Y	BK-W & BR-W	BK-Y & BR-Y
110	BK-W & BR-W BK-R & BR-R	BK-W & BR-W	BK-R & BR-R
*123.5	BK & BR BK-W & BR-W	BK & BR	BK-W & BR-W
200	BK-W & BR-Y	BK-Y	BR-W
220	BK-W & BR-R	BK-R	BR-W

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY

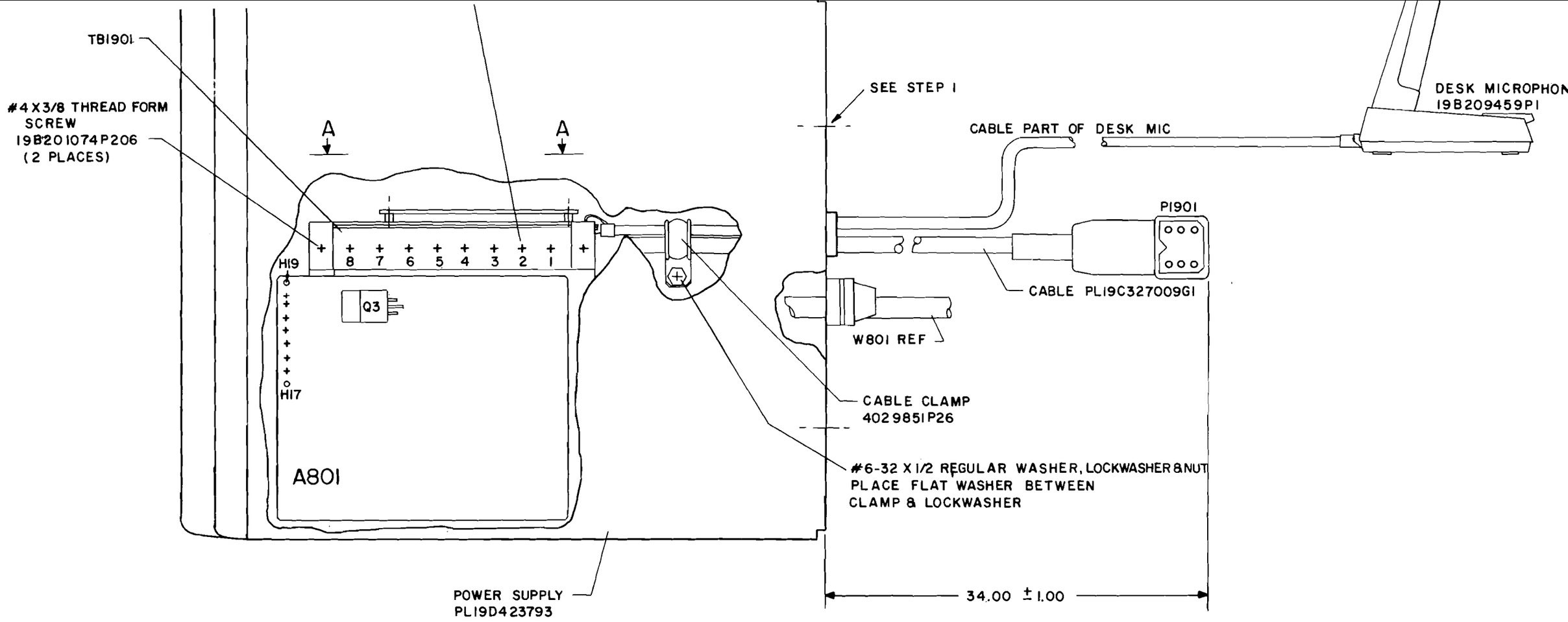
MODEL NO	REV LETTER
PL19D423793G1 PL19D423793G2	

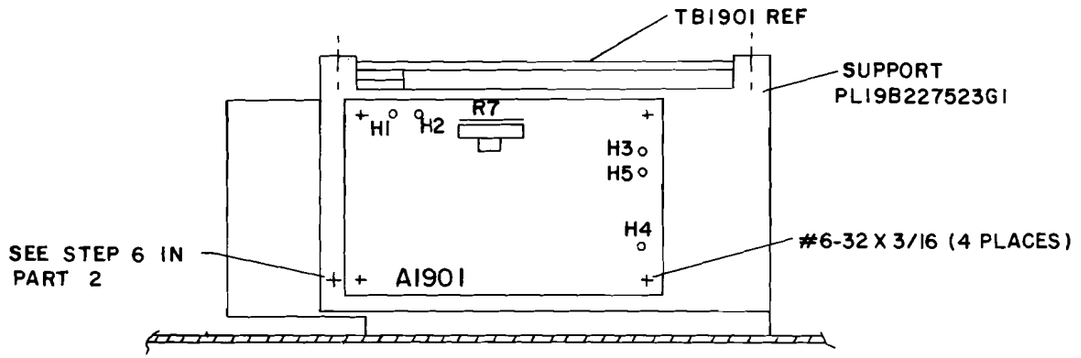
PARTS LIST

LBI30171B

CUSTOM MVP
AC POWER SUPPLY
19D423793G1 60 Hz
19D423793G2 50 Hz

SYMBOL	GE PART NO.	DESCRIPTION
A801		POWER SUPPLY BOARD 19C321990G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A115680P24	Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C2	19A115680P5	Electrolytic: 100 µf +150% -10%, 25 VDCW; sim to Mallory Type TTX.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR1 thru CR4	19A116783P1	Rectifier: 100 VDC Blocking, 6 amp.
CR5	4037822P1	Silicon, 1000 mA, 400 PIV.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q2 and Q3	19A116118P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	3R78P620J	Composition: 62 ohms ±5%, 1 w.
R2	3R79P820J	Composition: 82 ohms ±5%, 2 w.
R3	3R77P471J	Composition: 470 ohms ±5%, 1/2 w.
R4	3R77P681K	Composition: 680 ohms ±10%, 1/2 w.
		- - - - - - - - - VOLTAGE REGULATORS - - - - - - - - -
VR1	19A115528P6	Zener: 1 w, 16.0 v.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C801	5496520P21	Electrolytic: 12,900 µf +100% -10%, 40 VDCW; sim to GE Type 86F159M.
C802 and C803	5493132P17	Electrolytic: 8000 µf +150%, -10%, 20 VDCW.
		- - - - - - - - - DIODES AND RECTIFIERS - - - - - - - - -
CR801	19B219800G5	Diode, red light emitting.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E801	4036994P1	Terminal, solder: sim to Zierick Mfg Corp 505.
		- - - - - - - - - - - - FUSES - - - - - - - - - - - -
F801	1R16P5	Quick blowing, cartridge: 2 amp 250 v; sim to Littelfuse 312002 or Bussmann AGC -2.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L801	19A134314P2	Reactor: 4.5 mh min, 0.1 ohm DC res max.
		- - - - - - - - - - LOUDSPEAKERS - - - - - - - - - -
LS801	19C307094P1	Permanent magnet: 3.2 ohms ±10% voice coil imp, 3 x 5 inch speaker; sim to Oaktron S7473.
		- - - - - - - - - - - - PLUGS - - - - - - - - - - - -
P801		(Part of W801).
		- - - - - - - - - - TRANSFORMERS - - - - - - - - - -
T801	19A134324P1	Power, step-down: Pri: 121 VDC, 60 Hz, Sec: 14.5 ±0.5 VDC at 6.3 amps, 60 Hz, Refer to schmatic for primary connections.
T802	19A134324P2	Power, step-down: Pri: 100/110/123.5/200/220/247 VDC, 50/60 Hz, Sec: 14.5 ±0.5 VDC at 6.3 amps, 60 Hz, Refer to schmatic for primary connections.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB801	7775500P7	Phen: 2 insulated and 1 ground terminal.
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W801		CABLE ASSEMBLY 19B227289G1
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P801		Connector. Includes:
	19A115884P11	Shell.
	19A115884P4	Contact, electrical: sim to AMP 60510-1. (Quantity 6).
W802	19A136500G1	Power: 3 conductor, approx 8 feet long; sim to to Belden 17238.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XF801	19B209005P1	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342012.
		CAPACITOR ASSEMBLY 19D423793G6 (Includes C801-C803, E801, Q801)
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19D423788P2	Front cap.
	19B209209P304	Tap screw, Phillips Pozidriv: No. 6-32 x 1/4. (Secures front cap to chassis).
	19B201074P304	Tap screw, Phillips POZIDRIV: No. 6-32 x 1/4. (Secures covers to housing).
	4036994P1	Terminal, solderless: sim to Zierick Mfg Corp 505. (Located at G11).
	4035267P2	Button plug. (Located on base of power supply).
	19A115185P9	Retainer strap: sim to Dennison FT-7. (Secures wires behind A801).
	19A116677P2	Bushing. (Used with CR801).
	4029851P18	Clip loop. (Located at XF801).
	7160861P34	Nut, sheet spring: sim to Tinnerman C7159-8Z-24. (Used with L801, T801, T802).
	N193P1408C6	Tap screw: No. 8-18 x 1/2. (Secures L801, T801, T802).
	4029974P1	Insulator, plate. (Used with Q801).
	19A121882P1	Washer, shield. (Used with Q801).
	7115130P11	Lockwasher: No. 15/32; sim to Shakeproof 1222-1. (Used with S801).
	19A116768P9	Bushing, strain relief. (Used with W802).
	NP280158A	Nameplate, aluminum foil. (60 Hz GE identification).
	NP280158B	Nameplate, aluminum foil. (50 Hz GE identification).
	NP280161	Nameplate. (Caution).
	NP280156	Nameplate, etched aluminum. (GE monogram).
	19A116417P1	Rubber feet.
	19A116023P1	Insulator, plate. (Used with Q2 & Q3 on A801).





VIEW A-A
(ROTATED 180°)

(19D424152, Rev. 5)

THIS INSTRUCTION COVERS THE FACTORY INSTALLATION OF DESK MICROPHONE PREAMP OPTION TO THE CUSTOM MVP STATION.

1. REMOVE COVER OF CUSTOM MVP POWER SUPPLY BY REMOVING FOUR (4) SCREWS AT REAR OF UNIT. (SAVE COVER AND SCREWS).
2. MOUNT COMPONENT BOARD, A1901, TO SUPPORT, PL19B227523G1 USING FOUR (4) 6-32 X 3/16 SCREWS AND LOCKWASHERS SUPPLIED. (SEE VIEW A-A)
3. POSITION TERMINAL BOARD, TB1901, AND COMPONENT BOARD SUPPORT AS SHOWN IN VIEW A-A, AND ATTACH WITH TWO (2) #4 X 3/8 THREAD FORMING SCREWS SUPPLIED.
4. MAKE THE FOLLOWING CONNECTIONS:

FROM	COLOR	TO	
TB1901-2	BK	A801-H17	SOLDER } CONNECT WIRES
TB1901-3	O	A801-H19	SOLDER } TO SOLDER SIDE
A1901-H1	O	TB1901-3	
A1901-H2	W	TB1901-4	
A1901-H3	BL	TB1901-7	
A1901-H4	R	TB1901-5	

5. REMOVE INSULATING SLEEVING AND TERMINATE BLUE LEAD FROM W801 TO TB1901-1.
6. MOUNT CABLE CLAMP 4029851P26 IN PLACE.
7. REPLACE COVER AND SCREWS SAVED FROM STEP 1.

THIS INSTRUCTION COVERS THE FIELD INSTALLATION OF THE DESK MICROPHONE PREAMP TO THE CUSTOM MVP STATION.

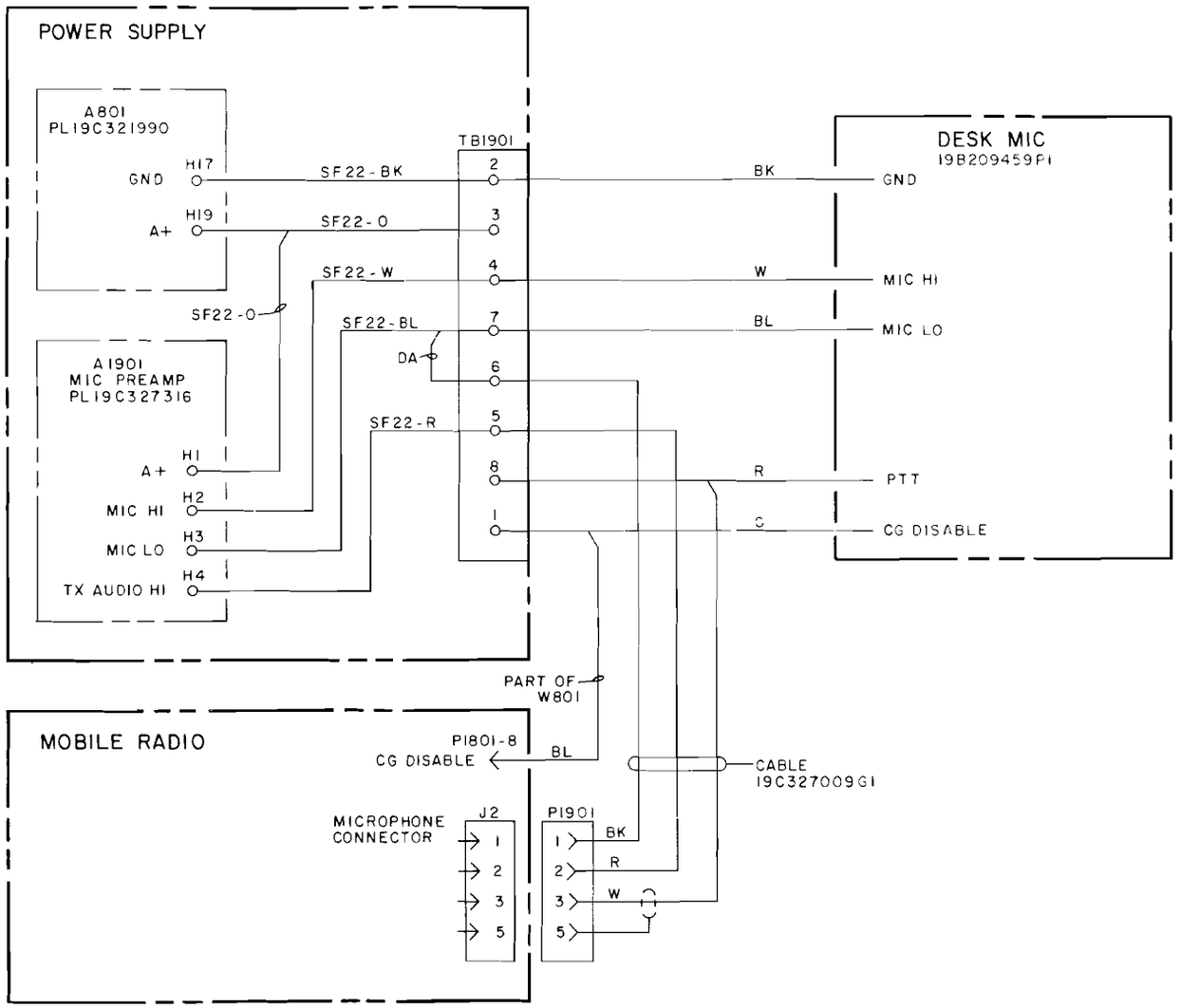
1. REMOVE COVER OF CUSTOM MVP POWER SUPPLY BY REMOVING FOUR (4) SCREWS AT REAR OF UNIT. (SAVE COVER AND SCREWS)
2. INSTALL PREAMP BOARD FOLLOWING STEPS 2 THRU 5 IN PART 1.
3. PASS MIC CABLE THRU COVER THEN ROUTE DESK MIC AND P1901 CABLES THROUGH EYELET IN REAR OF POWER SUPPLY.
4. MAKE THE FOLLOWING CONNECTIONS USING CABLE PL19C327009G1:

FROM	COLOR	TO
P1901-1	BK	TB1901-6
P1901-2	R	TB1901-5
P1901-3	W	TB1901-8

5. MAKE THE FOLLOWING CONNECTIONS USING DESK MIC CABLE:

COLOR	TO
BK	TB1901-2
W	TB1901-4
BL	TB1901-7
R	TB1901-8
G	TB1901-1

6. INSERT DESK MIC CABLE STRAIN RELIEF HOOK IN HOLE ON COMPONENT BOARD SUPPORT AND PINCH CLOSED.
7. ROUTE BOTH MIKE CABLE AND P1901 CABLE THROUGH CABLE CLAMP AND SECURE TO POWER SUPPLY WITH HARDWARE SUPPLIED.
8. REPLACE COVER AND SCREWS SAVED FROM STEP 1.
9. CONNECT P1901 TO J2 (MICROPHONE JACK) ON MOBILE RADIO.



INSTALLATION INSTRUCTIONS

STANDARD DESK MICROPHONE 19B209158P1

1 Locking plate. (Part of item 4).

2 Gasket. (Part of item 4).

3 "O" Ring. (Part of item 4).

4 Head Assembly. RP122. (Includes items 1-3, 24-26).

5 (Not Used).

6 Switch Kit. RP124. (Includes items 11, 17).

7 Retaining Bar. (Part of item 9).

8 Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 9).

9 Cable Kit. RP123. (Includes items 7, 8).

10 Screw, thread forming, slotted: No. 8 x 3/4. (Part of item 20).

11 Screw, thread forming, slotted: No. 4 x 5/8. (Part of item 6).

12 (Not Used).

13 (Not Used).

14 Base plate. (Part of item 16).

15 Screw, thread forming, slotted: No. 8 x 3/4. (Secures Base Plate- Part of item 16).

16 Base Assembly. RP125. (Includes items 14, 15, 19).

17 Pushbutton, Transmit. (Part of item 6).

18 (Not Used).

19 Nameplate. (Part of item 16).

20 Stem Assembly. RP121.

21 Screw, thread forming, slotted: No. 8 x 1/2. (Part of item 20).

22 Clamp. (Secures Head Assembly to Stem Assembly- Part of item 20).

23 Transistorized Cartridge. RP117.

24 Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 4).

25 Grille. (Part of item 4).

26 Dust cloth. (Part of item 4).

CHANNEL GUARD DESK MICROPHONE 19B209459P1

1 Locking plate. (Part of item 4).

2 Gasket. (Part of item 4).

3 "O" Ring. (Part of item 4).

4 Head Assembly. RP122. (Includes items 1-3, 24-26).

5 Lock spring. (Part of item 6).

6 Switch Kit. RP119. (Includes items 5, 11, 12, 13, 17, 18).

7 Retaining Bar. (Part of item 9).

8 Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 9).

9 Cable Kit. RP118. (Includes items 7, 8).

15 Screw, thread forming slotted: No. 8 x 3/4. (Secures Base Plate- Part of item 16).

16 Base Assembly. RP120. (Includes items 14, 15, 19).

17 Pushbutton, Monitor. (Part of item 6).

18 Pushbutton, Transmit. (Part of item 6).

19 Nameplate. (Part of item 16).

20 Stem Assembly. RP121.

21 Screw, thread forming, slotted: No. 8 x 1/2. (Part of item 20).

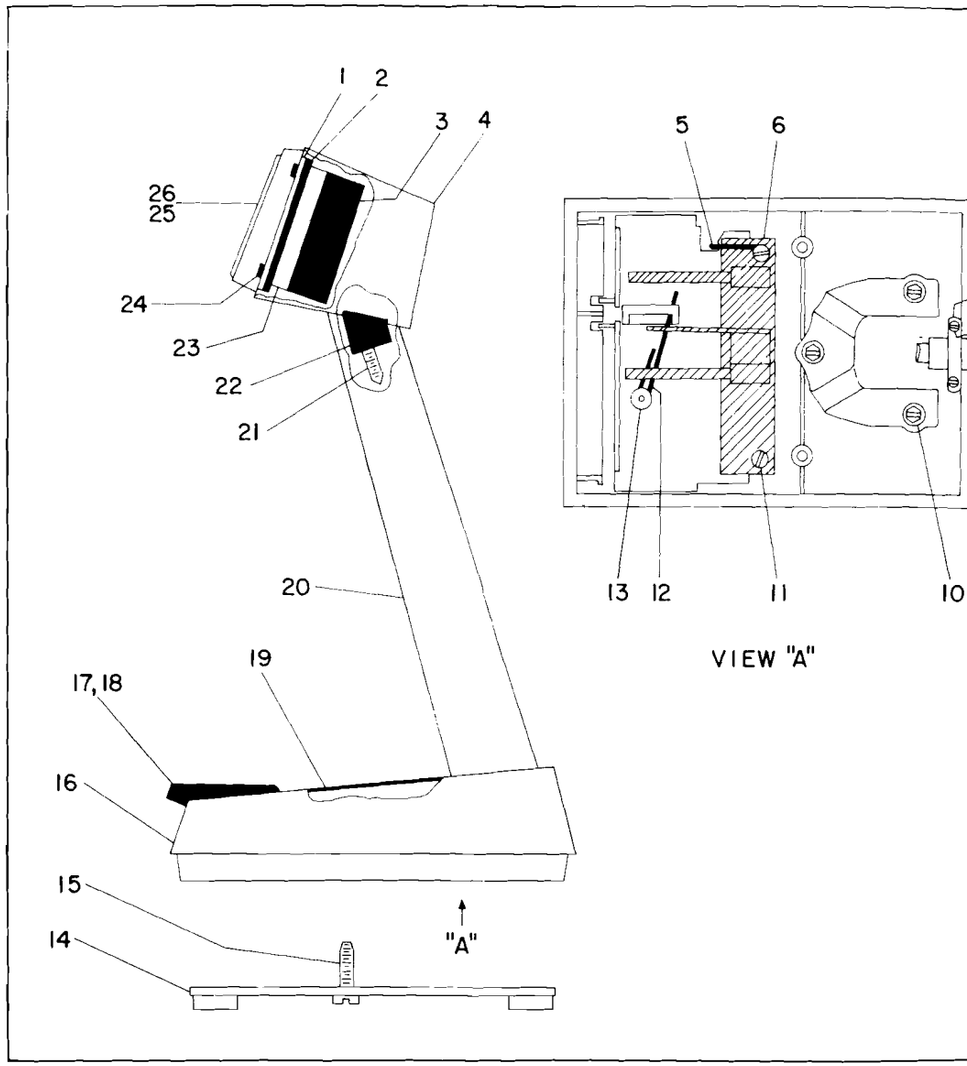
22 Clamp. (Secures Head Assembly to Stem Assembly- Part of item 20).

23 Transistorized Cartridge. RP117.

24 Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 4).

25 Grille. (Part of item 4).

26 Dust cloth. (Part of item 4).



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DESK MICROPHONES 19B209
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