AC POWER SUPPLY

CUSTOM MAINTENANCE MANUAL

AC POWER SUPPLY (OPTIONS 1901-1904)

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



SPECIFICATIONS *

OUTPUT VOLTAGE

Standby Receive Transmit

INPUT VOLTAGE

Option 1901 Option 1902

DIMENSIONS (HXWXD)

WEIGHT

16.4 VDC @ 0.5 Ampere 16.0 VDC @ 1.0 Ampere 13.3 VDC @ 6.0 Ampere

121 VAC, 60 Hertz only 100-247 VAC, 50 or 60 Hertz

3.5"X8.4"X10.6"

13 lbs.

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

LBI30156

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--- 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

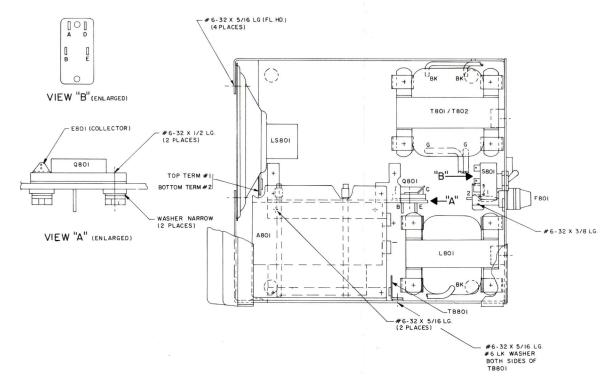
When the ON-OFF switch S801 (on the rear of the power supply), is in the ON position, 121 VAC is connected to the primary of T801 (Power Supply 19D423793G1) or T802 (Power Supply 19D423793G2). The secondary of the transformer applies the stepped-down voltage to the bridge rectifier (CR1-CR4) located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

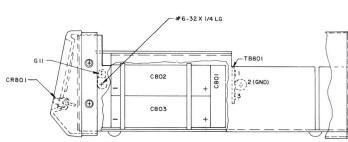
The rectifier output is applied to the collectors of Q2 (on the component board A801) and Q801. In the transmit mode, Q2 and Q801 operate as a filter for the voltage applied to the transmitter PA. In this condition, the pass transistor Q801 is switched on to saturation. If line transients occur which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



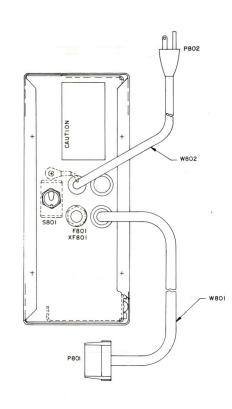


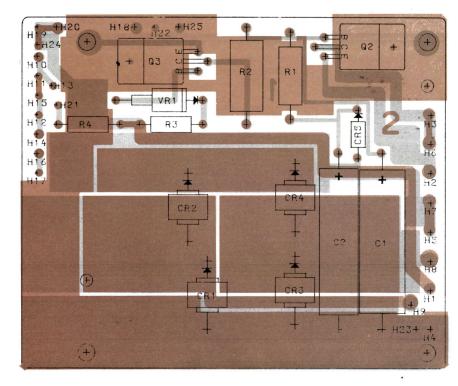
(19D424113, Rev. 1)

OUTLINE DIAGRAM

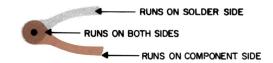
AC POWER SUPPLY

2 Issue 3



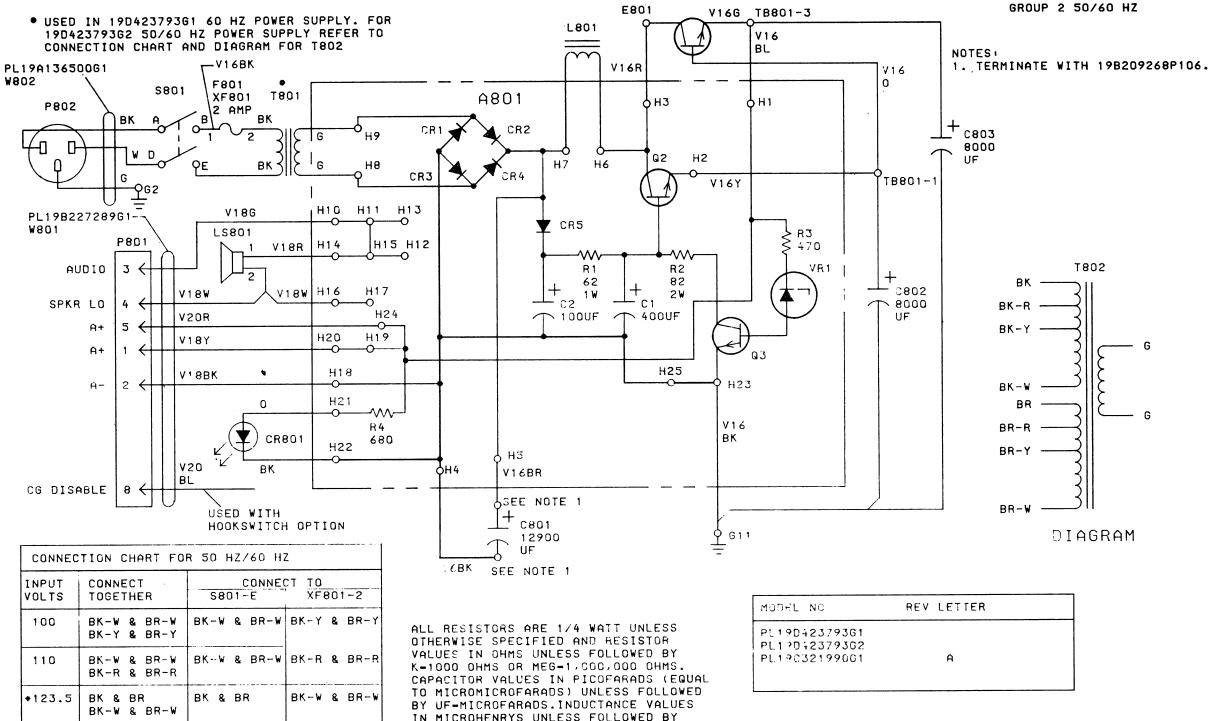


(19C327059, Rev. 1) (19B227257, Sh. 1, Rev. 2) (19B227257, Sh. 2, Rev. 1)



GROUP 1 60 HZ

CHANGES TO THIS DIAGRAM MAY AFFECT 19D430218 & 19D430241



0801

+ CONNECTED AT FACTORY FOR 123.5 VAC INPUT. INDIVIDUALLY SLEEVE ALL UNUSED WIRES.

вк

BK-Y

BK-R

BR-W

BR-W

BR-W

BK-W & BR-Y

BK-W & BR-R

BK-W & BR

200

220

247

IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

(19C327013, Rev. 3)

SCHEMATIC DIAGRAM

AC POWER SUPPLY

Issue 3

LBI30166

PARTS LIST

LBI30171B

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

SYMBOL	GE PART NO.	DESCRIPTION
A801		POWER SUPPLY BOARD 19C321990G1
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	4037822Pl	Silicon, 1000 mA, 400 PIV.
Q2 and Q3	19A116118P1	Silicon, NPN.
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.
	ĺ	VOLTAGE REGULATORS
VR1	19A115528P6	Zener: 1 w, 16.0 v.
C801	5496520P21	Electrolytic: 12,900 $_{\mu}f$ +100% -10%, 40 VDCW; sim to GE Type 86F159M.
C802 and C803	5493132P17	Electrolytic: 8000 µf +150%, -10%, 20 VDCW.
	:	
CR801	19B219800G5	Diode, red light emitting.
E801	4036994Pl	Terminal, solder: sim to Zierick Mfg Corp 505.
F801	1R16P5	Quick blowing, cartridge: 2 amp 250 v; sim to Littelfuse 312002 or Bussmann AGC -2.
L801	19A134314P2	Reactor: 4.5 mh min, 0.1 ohm DC res max.
	1	
LS801	19C307094P1	Permanent magnet: 3.2 ohms ±10% voice coil imp, 3 x 5 inch speaker; sim to Oaktron S7473.
1		
P801	1	(Part of W801).
P802		(Part of W802).
	i	
Q801	19A116753P1	Silicon, NPN; sim to Type 2N5302.
		,
S801	5491899P2	Toggle: DPST, 6 amps at 125 VAC, 3 amps at 250 VAC; sim to Cutler-Hammer 8370K8.

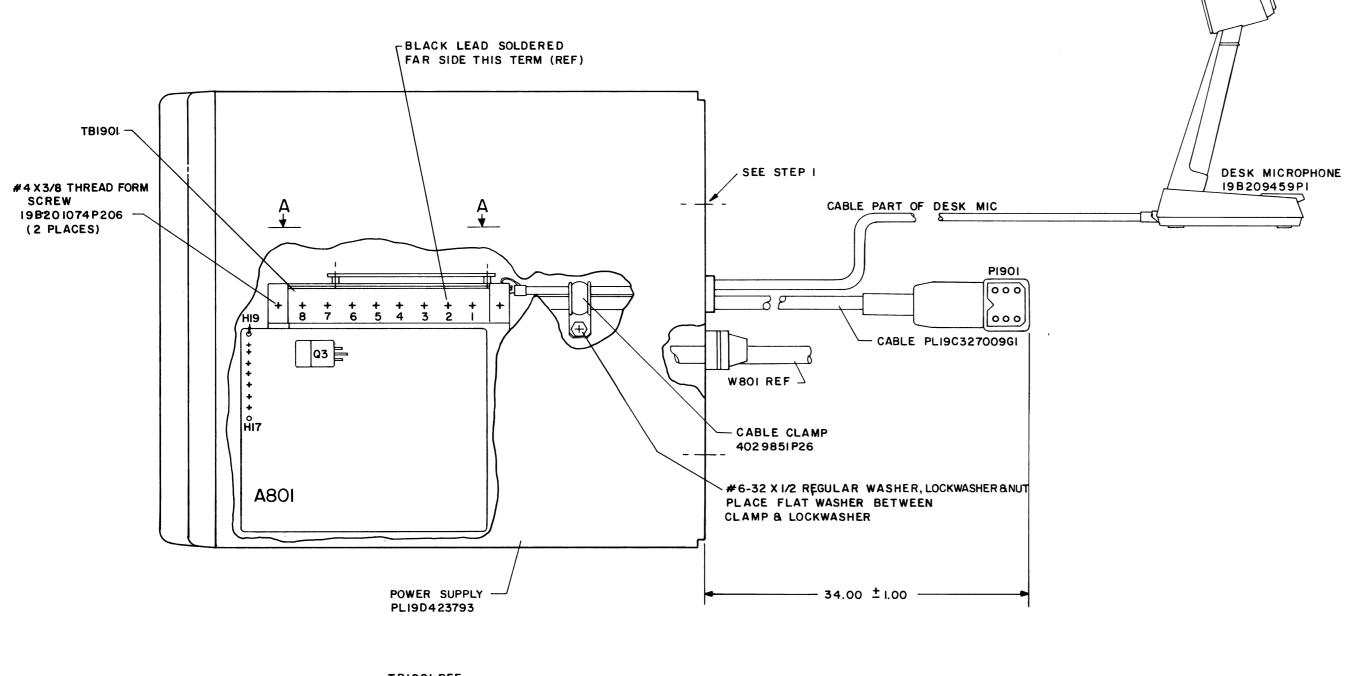
	SYMBOL	GE PART NO.	DESCRIPTION
	T801	19A134324P1	Power, step-down: Pri: 121 VDC, 60 Hz, Sec: 14.5 ±0.5 VDC at 6.3 amps, 60 Hz, Refer to schmatic for primary connections.
7	Т802	19A134324P2	Power, step-down: Pri: 100/110/123.5/200/220/247 VDC, 50/60 Hz, Sec: 14.5 ±0.5 VDC at 6.3 amps, 60 Hz, Refer to schmatic for primary connections.
1	TB801	7775500P7	
-	W801		
	P801		
		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.
	XF801	19B209005P1	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342012.
			CAPACITOR ASSEMBLY 19D423793G6 (Includes C801-C803, E801, Q801)
			MISCELLANEOUS
	1	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 Gll).
		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).
		4029974Pl	Insulator, plate. (Used with Q801).
		19A121882P1 7115130P11	Washer, shield. (Used with Q801). Lockwasher: No. 15/32; sim to Shakeproof 1222-1. (Used with S801).
		19Al16768P9	Bushing, strain relief. (Used with W802).
		NP280158A	Nameplate, aluminum foil. (60 Hz GE identification).
		NP280158B	Nameplate, aluminum foil. (50 Hz GE identification).
ĺ		NP280161	Nameplate. (Caution).
		NP280156	Nameplate, etched aluminum. (GE monogram).
		19A116417P1 19A116023P1	Rubber feet. Insulator, plate. (Used with Q2 & Q3 on A801).
		19A116023P1 19A116022P1	Insulator, bushing. (Used with Q2 & Q3 on A801).
		N84P9005C6	Machine screw: No. 4-40 x 5/16. (Secures Q2, Q3).
		7165075P3	Hex nut, brass: thd. size No. 15/32-32. (Secures 8801).
		19A121882P1	washer, shield. (Used with Q801).
			1

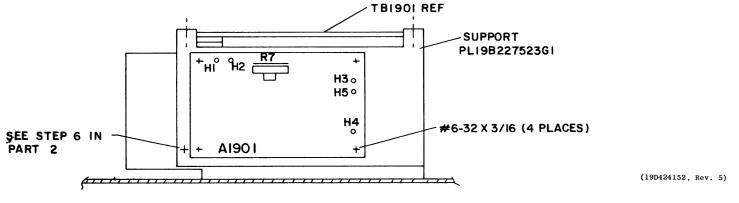
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

 $\frac{19C321990G1\ Board}{REV.\ A\ -\ Added\ H25\ to\ allow\ incorporating\ board\ into\ new\ design.}$





VIEW A-A (ROTATED 180°)

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

- 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, TBI901, AND COMPONENT BOARD SUPPORT AS SHOWN IN VIEW A-A, AND ATTACH WITH TWO (2) 94 X 3/8 THREAD FORMING SCREWS SUPPLIED.
- 4. MAKE THE FOLLOWING CONNECTIONS:

RES
,

- 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.

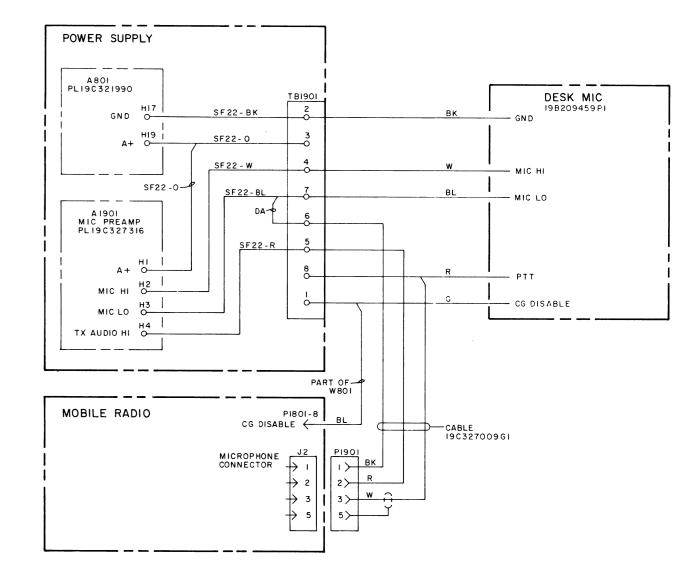
- REMOVE COVER OF CUSTOM MVP POWER SUPPLY BY REMOVING FOUR (4) SCREWS AT REAR OF UNIT. (SAVE COVER AND SCREWS)
- 2. INSTALL PREAMP BOARD FOLLOWING STEPS 2 THRU 5 IN PART I.
- PASS MIC CABLE THRU COVER THEN ROUTE DESK MIC AND P1901 CABLES THROUGH EYELET IN REAR OF POWER SUPPLY.
- 4. MAKE THE FOLLOWING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

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

- INSERT DESK MIC CABLE STRAIN RELIEF HOOK IN HOLE ON COMPONENT BOARD SUPPORT AND PINCH CLOSED.
- ROUTE BOTH MIKE CABLE AND PISOI CABLE THROUGH CABLE CLAMP AND SECURE TO POWER SUPPLY WITH HARDWARE SUPPLIED.
- 8. REPLACE COVER AND SCREWS SAVED FROM STEP I.
- CONNECT PI901 TO J2 (MICROPHONE JACK) ON MOBILE RADIO.



(19C327324, Rev. 1)

INSTALLATION INSTRUCTIONS

DESK MICROPHONE PRE-AMP KIT 19A136766

Issue 4

4

PARTS LIST

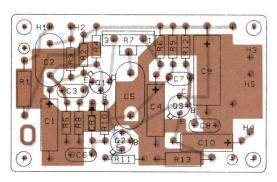
LBI-30374

DESK MICROPHONE PRE-AMP KIT 19A136766G1

SYMBOL	GE PART NO.	DESCRIPTION
A1901		PRE-AMP BOARD 19C327316G1
C1	5496267P14	Tantalum: 15 μf $\pm 20\%,$ 20 VDCW; sim to Sprague Type 150D.
C2	19A116080P9	Polyester: 0.22 μf ±20%, 50 VDCW.
C3	5494481P111	Ceramic disc: 1000 pf $\pm 20\%$, 1000 VDCW; sim to RMC Type JF Discap.
C4	5496267P14	Tantalum: 15 μf $\pm 20\%$, 20 VDCW; sim to Sprague Type 150D.
C5	19A116080P10	Polyester: 0.33 μf ±20%, 50 VDCW.
C6	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C7	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C8	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C9	5496267P11	Tantalum: 68 μ f $\pm 20\%$, 15 VDCW; sim to Sprague Type 150D.
C10	5496267P10	Tantalum: 22 μf $\pm 20\%$, 15 VDCW; sim to Sprague Type 150D.
CR1	19A115250P1	DIODES AND RECTIFIERS Silicon.
Q1 thru Q3	19A115889P1	
		RESISTORS
R1	3R77P101J	Composition: 100 ohms ±5%, 1/2 w.
R2	3R152P102J	Composition: 1000 ohms ±5%, 1/4 w.
R3	3R152P621J	Composition: 620 ohms ±5%, 1/4 w.
R4	3R152P224J	Composition: 220,000 ohms ±5%, 1/4 w. Composition: 22,000 ohms ±5%, 1/4 w.
R5	3R152P223J 3R152P102J	Composition: 1000 ohms ±5%, 1/4 w.
R6 R7	19B209358P104	Variable, carbon film: approx 100 to 2500 ohms ±10%, 0.2 w; sim to CTS Type X-201.
R8	3R152P751J	Composition: 750 ohms ±5%, 1/4 w.
R9	3R152P154J	Composition: 150,000 ohms ±5%, 1/4 w.
R10	3R152P103J	Composition: 10,000 ohms ±5%, 1/4 w.
R11	3R152P102J	Composition: 1000 ohms ±5%, 1/4 w.
R12	3R152P682J	Composition: 6800 ohms ±5%, 1/4 w.
R13	3R77P102J	Composition: 1000 ohms ±5%, 1/2 w.
TB1901	19B227521G1	TERMINAL BOARDS Terminal board: 8 terminals.
	19B209260P103	MISCELLANEOUS
	19B227523G1	Support. (Al901).
	19B201074P206	Tap screw, Phillips POZIDRIV*: No. 4-40 x 3/8. (Secures TB1901).
	N80P13003C6	Machine screw: No. 6-32 x 3/16. (Secures A1901)
	N80P13008C6	Machine screw: No. 6-32 x 1/2. (Secures clip loop).
	N404P13C6	Lockwasher, internal tooth: No. 6. (Used with clip loop and A1901).
	N402P7C6	Flatwasher, steel: No. 2. (Used with clip loop)
	7141225P3	Hex nut: No. 6-32. (Secures clip loop).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

OUTLINE DIAGRAM

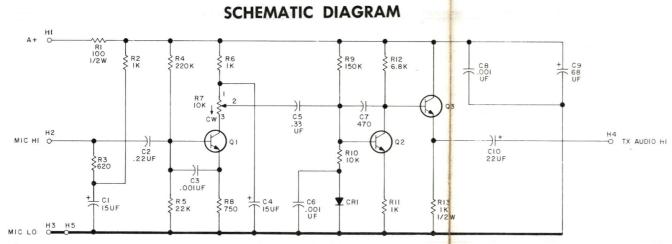


(19C327399, Rev. 0) (19B227517, Sh. 1, Rev. (19B227517, Sh. 2, Rev.

LEAD IDENTIFICATION
FOR Q1.02 & Q3

OR
IN-LINE TRIANGULAR
TOP VIEW
LEAD ARRANGEMENT, AND NO

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.



THIS ELEM DIAG APPLES TO MODEL NO HEVETTER PLIGC327316

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE TOLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART

(19D424129, Rev. 1)

ALL RESISTORS ARE IV4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS CAPLICITY VALUES IN PICOFARADS (EQUAL TO INCROMICROFARADS) UNILESS FOLLOWE BY LF= MICROFARADS. INDUCTANCE VALUES IN MICROMICROFARADS. INDUCTANCE VALUES IN MICROFILEMYS UNLESS FOLLOWED BY

RUNS ON SOLDER SIDE

RUNS ON BOTH SIDES

RUNS ON COMPONENT SIDE

SERVICE SHEET

DESK MICROPHONE PRE-AMP KIT 19A136766G1

Issue 1

PARTS LIST

LBI-4473

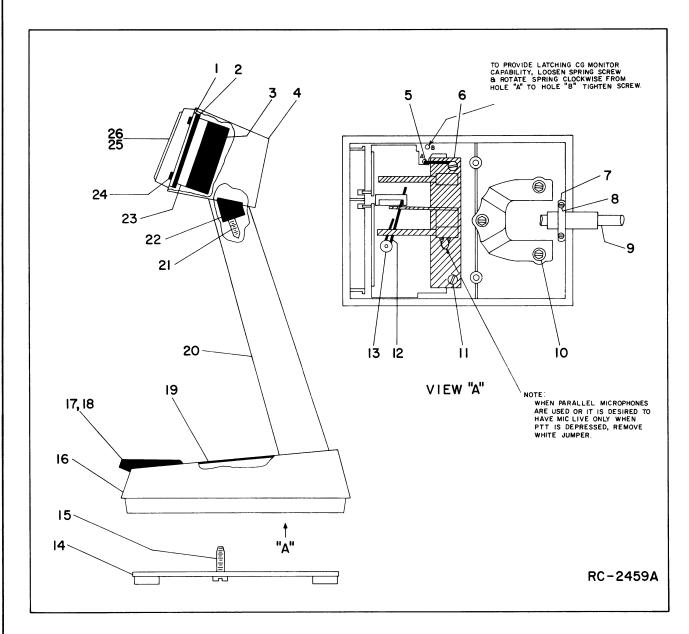
DESK MICROPHONES 19B20945xP1 (STANDARD) 19B20945yP1 (CHANNEL GUARD) (SEE RC-2459)

SYMBOL	GE PART NO.	DESCRIPTION
		STANDARD DESK MICROPHONE 19B209458P1
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).
0		Screw, thread forming, slotted: No. 8 x 3/4, (Part of item 20).
1		Screw, thread forming, slotted: No. 4 x 5/8.
2		(Part of item 6). (Not Used).
3		(Not Used).
4		Base plate. (Part of item 16).
15		Screw, thread forming, slotted: No. 8 x 3/4.
۱6		(Secures Base Plate- Part of item 16). Base Assembly. RP125. (Includes items 14, 15,
.7		19). Pushbutton, Transmit. (Part of item 6).
8		(Not Used).
9		Nameplate. (Part of item 16).
0		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).
9		Cable Kit. RP118. (Includes items 7, 8).
		•

SYMBOL	GE PART NO.	DESCRIPTION
10		Screw, thread forming, slotted: No. 8 x 3/4. (Part of item 20).
11		Screw, thread forming, slotted; No. 4 x 5/8.
12		(Part of item 6). Spring. (Part of item 6).
13		Retainer. (Part of item 1).
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, 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 21		Stem Assembly. RP121. Screw, thread forming, slotted: No. 8 x 1/2.
		(Part of item 20).
22 23		Clamp. (Secures Head Assembly to Stem Assembly-Part of item 20).
23		Transistorized Cartridge. RP117. Screw, thread forming, slotted: No. 4 x 1/2.
0.5		(Part of item 4).
25 26		Grille. (Part of item 4). Dust cloth. (Part of item 4).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

LBI30166



SERVICE SHEET

DESK MICROPHONES 19B209458P1 AND 19B209459P1

Issue 2

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