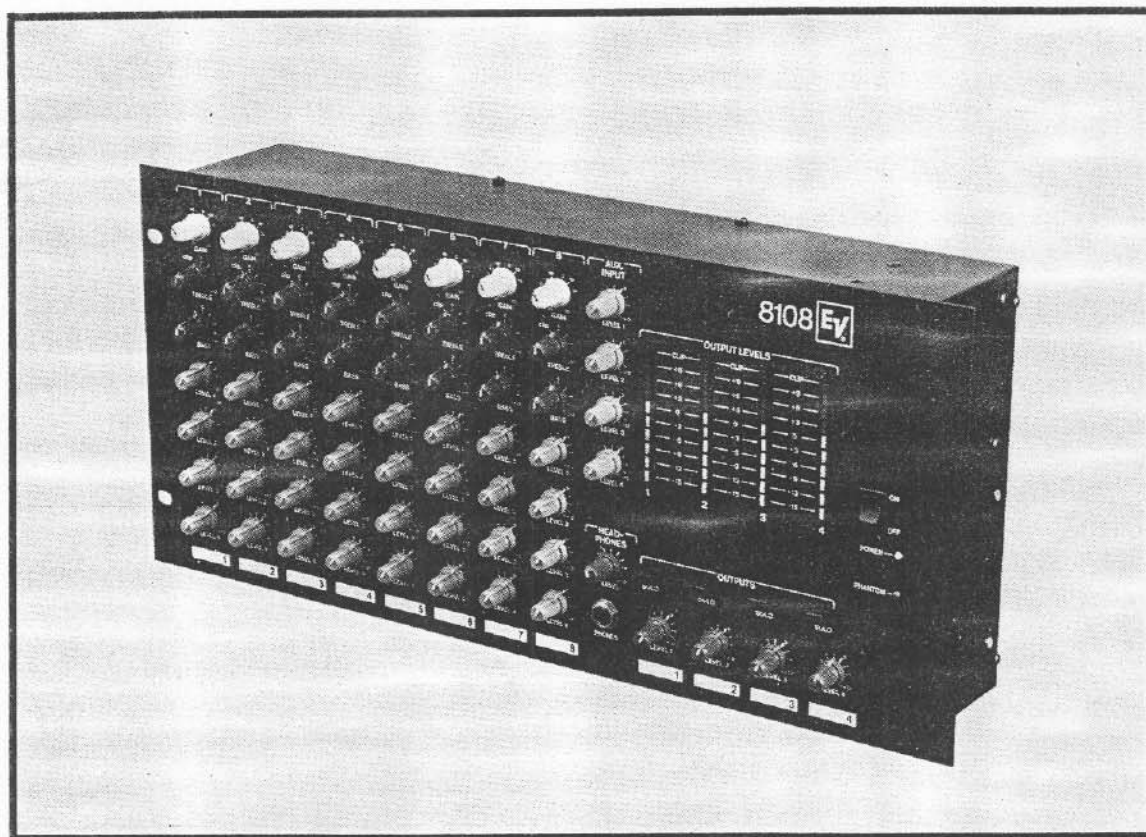


EV **Electro-Voice**[®]
MODEL 8108
RACK-MOUNT MONO MIXER

Master R



**8-Input/4-Output
Rack-Mount Mixer**

SERVICE MANUAL

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GENERAL SPECIFICATIONS

FREQUENCY RESPONSE —
Mic Input at Maximum Gain or Line Input at Unity Gain to Any Output

20-20,000 Hz ±2 dB
 50-20,000 Hz ±1 dB

TOTAL HARMONIC DISTORTION —

Transformer Isolated Outputs, 600-Ohm Load,

Less than 0.1% at +4 dBu,¹ 50-20,000 Hz
 Less than 0.1% at +18 dBu, 50-20,000 Hz

EQUIVALENT INPUT NOISE (150-ohm source)²

-128 dBu typical

OUTPUT NOISE AT TRANSFORMER ISOLATED OUTPUTS, ALL FADERS DOWN EXCEPT AS INDICATED —

Master at Nominal ("0")³

-80 dBu typical

One Input and Master at Nominal (67-dB gain)³

-61 dBu typical

MAXIMUM VOLTAGE GAIN —

Mic Input to Transformer Isolated Outputs

90 dB typical

FADER RESERVE GAIN

12 dB

ADJACENT CHANNEL CROSSTALK AT 1,000 Hz

-65 dB

POWER REQUIREMENTS

95-130 volts, 60 Hz,⁴ 25 watts maximum

COLORS, MATERIALS, AND FINISHES —

Chassis: black painted metal with light grey graphics

Knobs: grey (3 shades) and red

Switches: black

DIMENSIONS —

Height: 22.2 cm (8.75 in.)

Depth: 12.0 cm (4.7 in.)

Width: 48.3 cm (19.0 in.)

NET WEIGHT —

7.5 kg (16.5 lb)

SHIPPING WEIGHT —

8.9 kg (19.5 lb)

1. 0 dBu is 0.775 volts RMS sine wave. Since the load is specified at 600 ohms, dBu figures may also be read as dBm, a power measure where 0 dBm is 1 mW into 600 ohms.

2. 20-20,000-Hz bandwidth, input gain at "60."

3. Input gain at "60," 20-20,000-Hz bandwidth, 150-ohm source.

4. On special order, models for 100, 220/240 volts, 50-60 Hz, are available.

INPUT

	INPUT IMPEDANCE	NOMINAL LEVEL	MAXIMUM LEVEL
MIC — Midband 20-20,000 Hz Gain Control at "60" Gain Control at "20"	1500 ohms ≥800 ohms	-60 dBu -20 dBu	-40 dBu 0 dBu
LINE Gain Control Maximum Gain Control Minimum	12,000 ohms	-30 dBu +10 dBu	-10 dBu +30 dBu
STACKING	20,000 ohms 10,000	+4 dBu	+18 dBu
AUX	27,000 ohms	+4 dBu	+30 dBu

OUTPUT

	OUTPUT IMPEDANCE	LOAD IMPEDANCE	NOMINAL OUTPUT	MAXIMUM OUTPUT
Balanced Transformer Isolated Mains	27 ohms	≥600 ohms	+4 dBu (600-ohm load)	+18 dBu (600-ohm load)
Unbalanced Transformer Isolated 600-Ohm Out	600 ohms	≥10,000 ohms	+4 dBu (10 K load)	+18 dBu (10 K load)
Headphone	47 ohms	≥8 ohms	-10 dBu (8-ohm load) +4 dBu (600-ohm load)	0 dBu (8-ohm load) +18 dBu (600-ohm load)

GENERAL SERVICING INFORMATION

Most EV circuitry is built around commonly available IC operational amplifiers. A certain amount of familiarity with operational amplifier theory and operation will facilitate servicing this unit. Throughout this manual, the following convention will be used when discussing the various amplifier stages: U1 (1). This is to be interpreted as follows: Chip designation U1, output pin = 1.

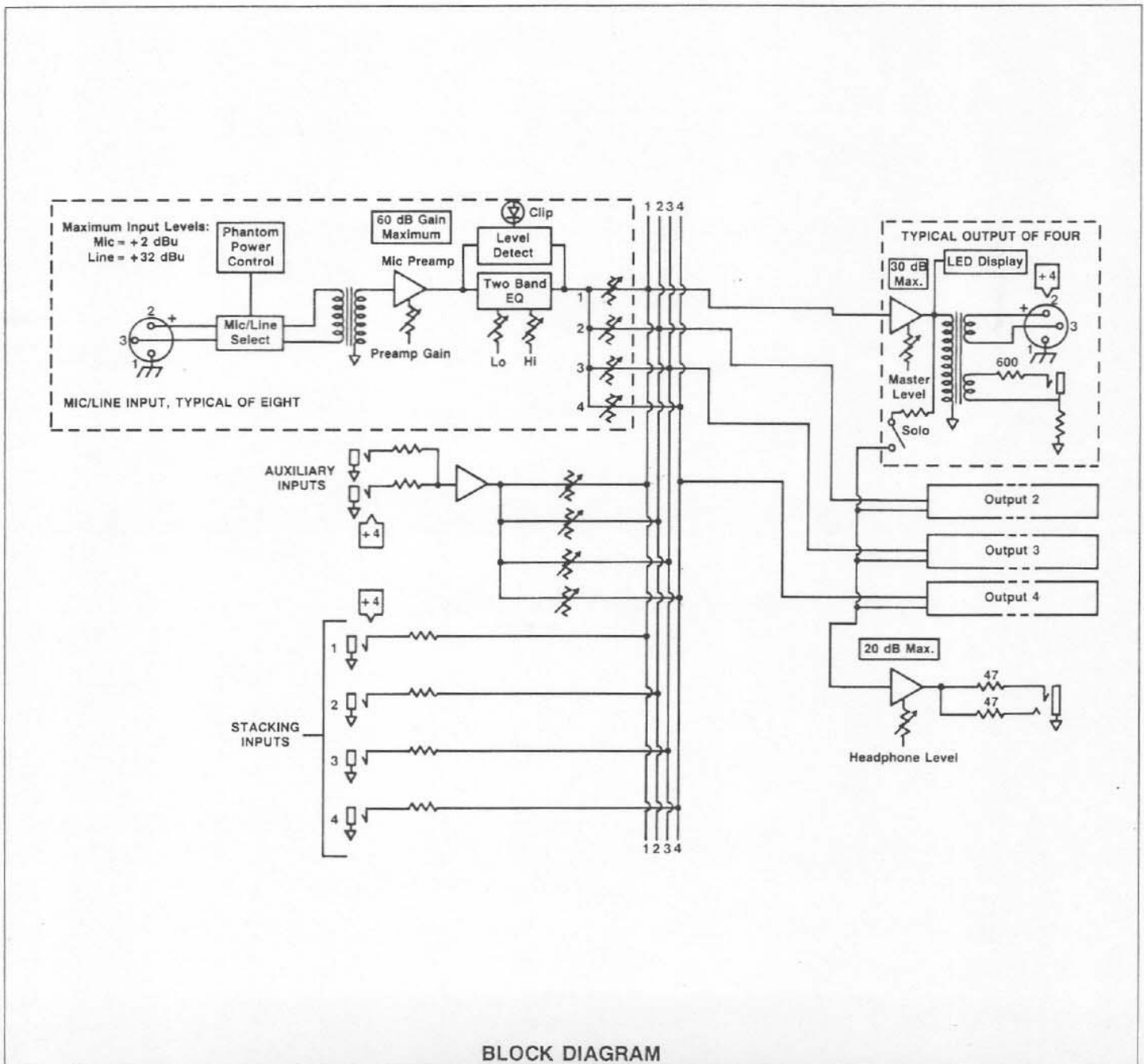
The output pin of the op-amp is particularly significant because all of the unit's stages are referenced to ground. Thus, the normal quiescent voltage at any op-amp output is 0 volts dc, give or take a few millivolts. Any op-amp output that is not at 0 volts dc is suspect, especially if it is at or near one of the direct supply rails. Beware, however, as much of the circuitry is direct coupled. Thus, it is important to look backward towards the input to localize the exact cause of trouble.

DISASSEMBLY INSTRUCTIONS

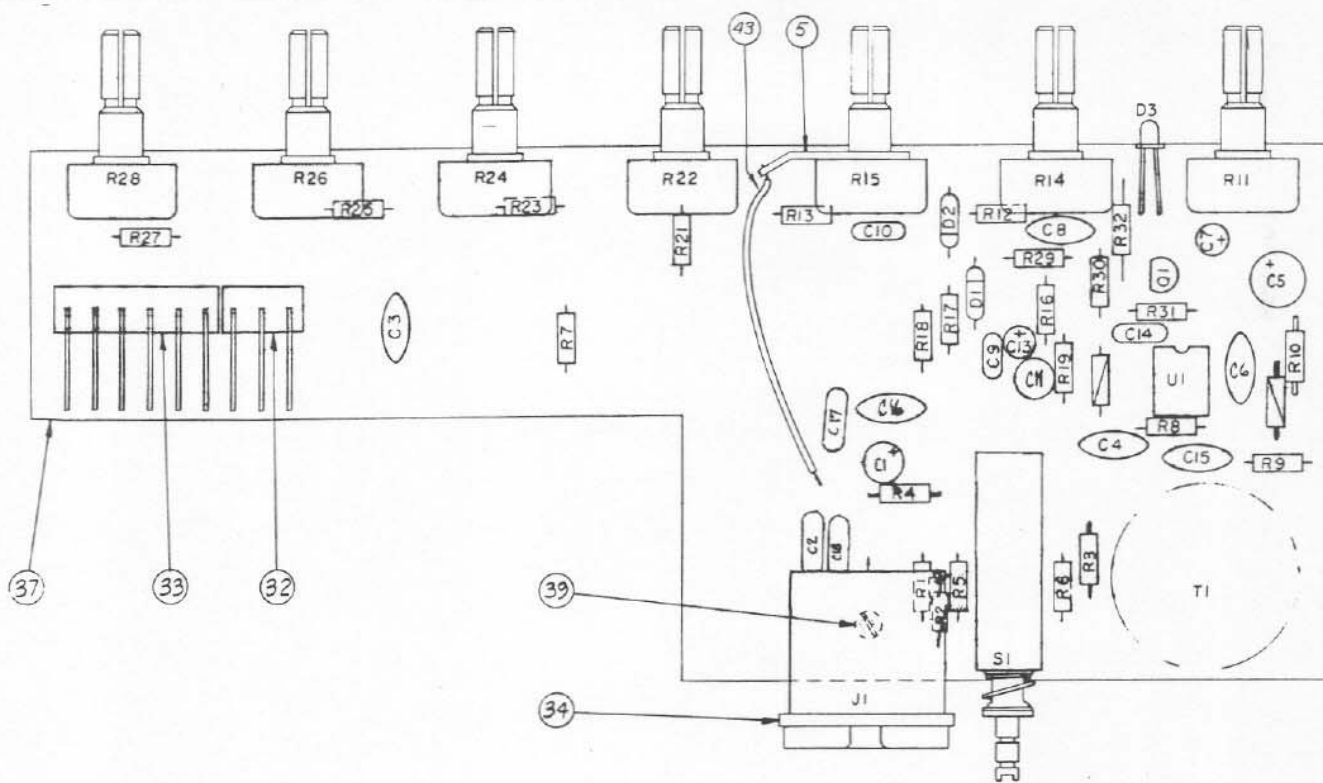
The 8108 is equipped with unique locking XLR-type input (female) and output (male) connectors that must be unlocked before the back cover can be removed. This is done by inserting a thin flat blade screwdriver in the hole located between the connector pins and rotating the locking tab approximately 1/8 turn counterclockwise.

Next, remove the 10 phillips head screws holding the back cover to the chassis. Remove the 6-1/2" nuts and washers securing the Stacking input and Aux input phone jacks to the back cover and remove the back cover.

To reassemble, reverse the procedure making sure all the insulators are in place including the insulating washers on the Stacking and Aux input jacks, and all XLR-type connectors are locked.

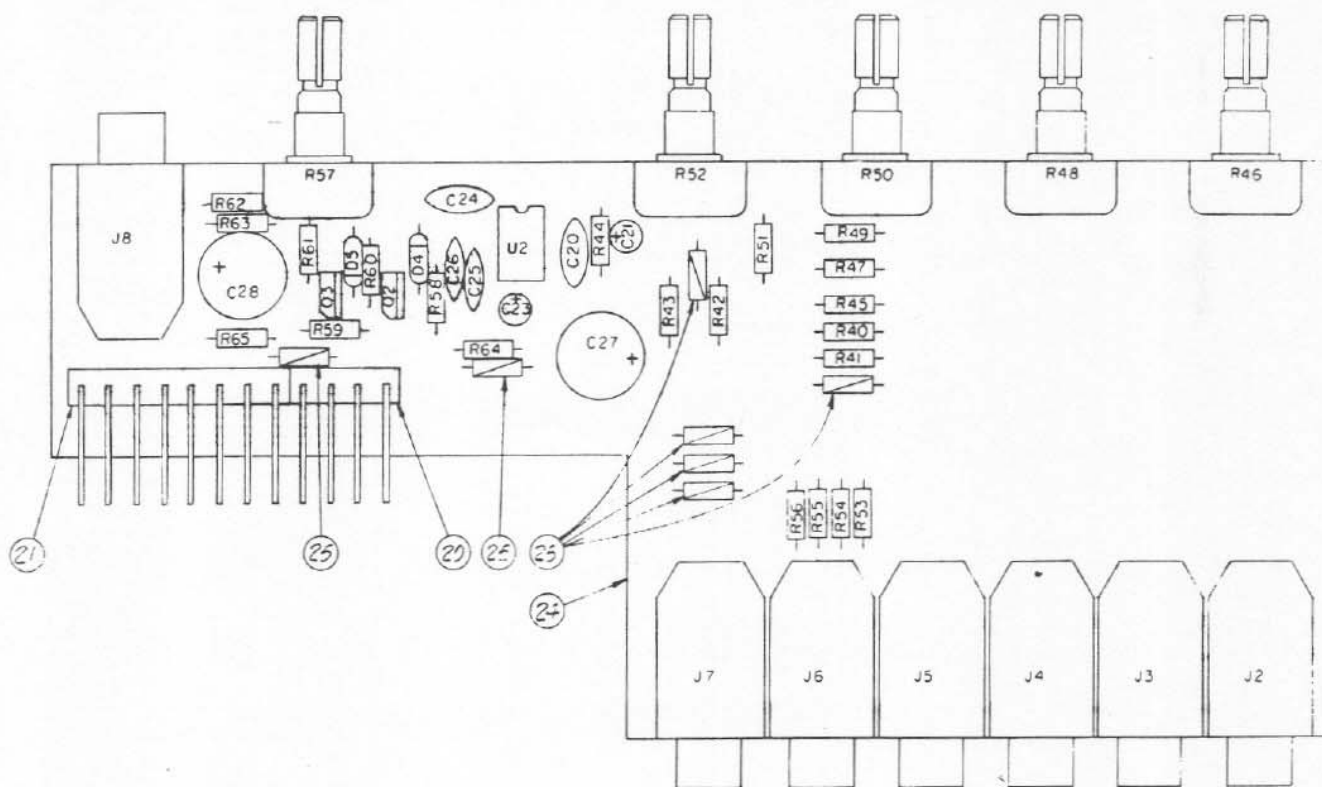


BLOCK DIAGRAM



22	005902	RESISTOR, 10K OHM, ±5%, 1/4 W, C.F.	R13, R17
21	005893	RESISTOR, 4K7 OHM, ±5%, 1/4 W, C.F.	R12, R16
20	005889	RESISTOR, 3K3 OHM, ±5%, 1/4 W, C.F.	R10, R21, R23, R25, R27
19	005885	RESISTOR, 2K2 OHM, ±5%, 1/4 W, C.F.	R29
18	005620	RESISTOR, 150 OHM, ±1%, 1/4 W, M.F.	R5, R6
17	005623	RESISTOR, 5K1 OHM, ±1%, 1/4 W, M.F.	R1, R2
16	005514	POTENTIOMETER, 500KΩ	R11
15	005493	POTENTIOMETER, 50K OHM, ±20%, LINEAR, TAM	R14, R15
14	005490	POTENTIOMETER, 25K OHM, ROTARY, TAM	R22, R24, R26, R28
13	005068	RESISTOR, 1K OHM, ±5%, 1/2 W, C.F.	R32
12	004091	CAPACITOR, .1 MF, 50V, 25V, CERAMIC	C15, C16
11	004090	CAPACITOR, .1 MF, ±10%, 50V, CERAMIC	C3
10	004080	CAPACITOR, 150 PF, ±10%, 100V, CERAMIC	C8
9	004042	CAPACITOR, 220 PF, ±10%, 50V, CERAMIC	C4
8	004005	CAPACITOR, 5.1 PF, ±10%, 50V, CERAMIC	C6
7	004084	CAPACITOR, 1500 PF, ±10%, 100V	C2, C18
6	001604	CAPACITOR, .22 MF, 50 V, ELECT, ALUM. RAD.	C1
5	303093	LUG, TERMINAL	
4	003061	CAPACITOR, .047 MF, ±10%, 50V, MYLAR	C10, C14
3	003201	CAPACITOR, .001 MF, ±10%, 50V, MYLAR	C9
2	001508	CAPACITOR, .47 MF, 35V, ELECT, ALUM. RADIAL	C5
1	001209	CAPACITOR, .22 MF, 10V, ELECT, ALUM. RAD.	C7, C11, C13
ITEM	PART NO.	DESCRIPTION	REF. DES.

44	004087	CAPACITOR, .01 MF, ±10%, 50V, CERAMIC	C17
43	454462	WIRE, #22, BLACK, 2 IN LG	
42	005883	RESISTOR, 1KΩ, ±5%, 1/4 W, C.F.	R7
41	005882	RESISTOR, 1KΩ, ±5%, 1/4 W, C.F.	R3
40	005924	RESISTOR, .82 K, ±5%, 1/4 W, C.F.	R9
39	500025	SCREW, 2-32 x 3/16, PAN HD, SLT, TYP BT	
38	452503-2	JUMPER, ZERO OHM, 0.4 LG.	
37	451160	BOARD, PRINTED CIRCUIT	
36	302064	TRANSFORMER, INPUT	T1
35	301035	SWITCH, PUSH ON-OFF, 4PDT	S1
34	300128	CONNECTOR, XLR, NEUTRIK NC3FD-H	J1
33	300067	HEADER, .045 SQ, RIGHT ANGLE, AMP, PIN 640385-10 AMP, PIN 640385-3	
32	300046	HEADER, .045 SQ, RIGHT ANGLE	
31	008064	DIODE, LED, ROUND, RED, T-1	D3
30	008049	DIODE, SIGNAL, IN4447	D1, D2
29	007013	CIRCUIT, INTEGRATED, DUAL, NE5532	U1
28	006021	TRANSISTOR, NPN, 2N6427	Q1
27	005951	RESISTOR, 1 MEG OHM, ±5%, 1/4 W, C.F.	R19, R30
26	005933	RESISTOR, 200K OHM, ±5%, 1/4 W, C.F.	R31
25	005926	RESISTOR, 100K OHM, ±5%, 1/4 W, C.F.	R4
24	005899	RESISTOR, 8K2 OHM, ±5%, 1/4 W, C.F.	R18
23	005923	RESISTOR, 75 K OHM, ±5%, 1/4 W, C.F.	R8
ITEM	PART NO.	DESCRIPTION	REF. DES.

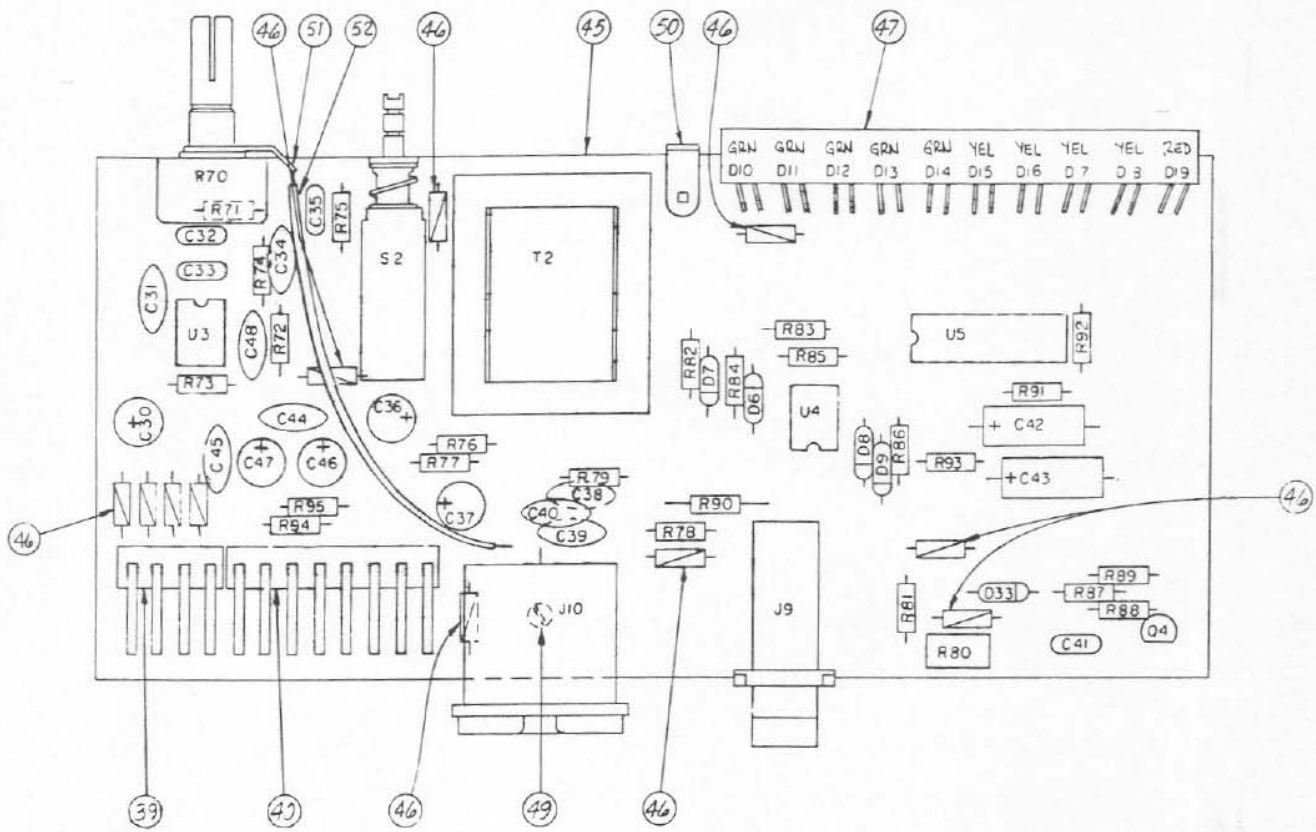


13	005893	RESISTOR, 4.7K OHM, ±5%, ¼ W, C.F.	R45, R47, R49, R51
12	005887	RESISTOR, 2.7K OHM, ±5%, ¼ W, C.F.	R58, R59
11	005845	RESISTOR, 47 OHM, ±5%, ¼ W, C.F.	R62, R63
10	005837	RESISTOR, 22 OHM, ±5%, ¼ W, C.F.	R60, R61
9	005829	RESISTOR, 10 OHM, ±5%, ¼ W, C.F.	R64, R65
8	005610	RESISTOR, 15K OHM, ±1%, ¼ W, M.F.	R40, R44, R43, R44
7	005492	POTENTIOMETER, 50KA OHM, VERT. PCB	R57
6	005490	POTENTIOMETER, 25 KB OHM, ROTARY	R46, R48, R50, R52
5	004091	CAPACITOR, .1MF, 25V, CERAMIC, 6MV	C25, C26
4	004080	CAPACITOR, 150PF, ±10%, 100V, CERAMIC	C20, C24
3	001519	CAPACITOR, 330 MF, 35V, ELECTROLYTIC	C27, C28
2	301505	CAPACITOR, 10 MF, 35V, ELECTROLYTIC	C23
1	001209	CAPACITOR, 22 MF, 10V, ELECTROLYTIC	C21
ITEM	PART NO.	DESCRIPTION	REF. DES.

26			
25	452503-2	JUMPER, ZERO OHM	
24	451162	BOARD, PRINTED CIRCUIT	
23	300120	CONNECTOR, ¼ PHONE JACK, MID	J2, J3, J4, J5, J6, J7
22	300119	CONNECTOR, ¼ PHONE JACK, MID	J8
21	300050	HEADER, .045 SQ, RIGHT ANGLE, AMP. PIN 440385-B	
20	300047	HEADER, .045 SQ, RIGHT ANGLE, AMP. PIN 640385-4	
19	008049	DIODE, SIGNAL, 1N4447	D4, D5
18	007013	CIRCUIT, INTEGRATED, DUAL, NE5532	U2
17	006023	TRANSISTOR, SILICON, NPN, 2N6551	Q2
16	006006	TRANSISTOR, SILICON, NPN, 2N6554	Q3
15	005926	RESISTOR, 100K, ±5%, ¼ W, C.F.	R42
14	005902	RESISTOR, 10K, ±5%, ¼ W, C.F.	R53, R54, R55, R56
ITEM	PART NO.	DESCRIPTION	REF. DES.

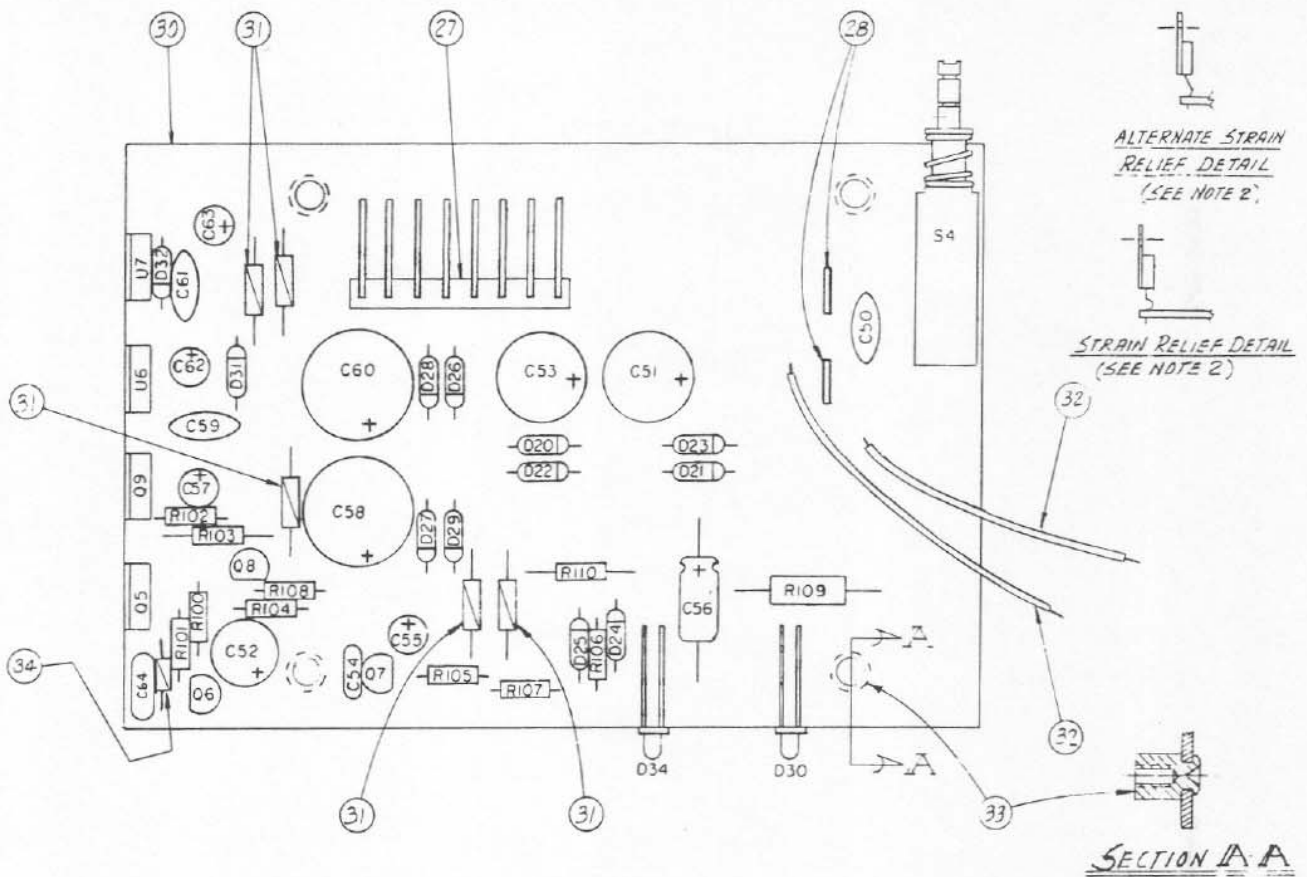
005909

20K



24	005907	RESISTOR, 16K, ±5%, 1/4 W, C.F.	R72
25	005902	RESISTOR, 10K, ±5%, 1/4 W, C.F.	R76, R82, R84
24	005900	RESISTOR, 9K1, ±5%, 1/4 W, C.F.	R81
23	005893	RESISTOR, 4K7, ±5%, 1/4 W, C.F.	R75, R93
22	005885	RESISTOR, 2K2, ±5%, 1/4 W, C.F.	R87
21	005877	RESISTOR, 1K, ±5%, 1/4 W, C.F.	R91
20	005871	RESISTOR, 560 OHM, ±5%, 1/4 W, C.F.	R78
19	005867	RESISTOR, 390 OHM, ±5%, 1/4 W, C.F.	R92
18	005853	RESISTOR, 100 OHM, ±5%, 1/4 W, C.F.	R77
17	005845	RESISTOR, 47 OHM, ±5%, 1/4 W, C.F.	R79
16	005829	RESISTOR, 10 OHM, ±5%, 1/4 W, C.F.	R94, R95
15	005492	POTENTIOMETER, 50K OHM, AUDIO TAPER, TBM	R70
14	005485	POTENTIOMETER, 2.5-50K OHM, TRIM PINER, PT10A	R80
13	005068	RESISTOR, 1K OHM, ±5%, 1/2 W, C.F.	R90
12	004216	CAPACITOR, .47MF, 25V, ELECT, NON-PAL, RADIAL	C37
11	004091	CAPACITOR, .1MF, 25V, CERAMIC, GMV	C44, C45
10	004087	CAPACITOR, .01MF, ±20%, 50V, CERAMIC	C38
9	004084	CAPACITOR, 1500 PF, ±20%, 100V, CERAMIC	C39, C40
8	004042	CAPACITOR, 220 PF, ±10%, 50V, CERAMIC	C34
7	004025	CAPACITOR, 47 PF, ±10%, 50V, CERAMIC	C31
6	004013	CAPACITOR, 20 PF, ±10%, 50V, CERAMIC	C48
5	003273	CAPACITOR, .1MF, ±5%, 50V, MYLAR	C32, C33, C35
4	003250	CAPACITOR, .047MF, ±5%, 50V, MYLAR	C41
3	001406	CAPACITOR, 10MF, 25V, ELECT, ALUM, AXIAL	C42
2	001403	CAPACITOR, 2.2MF, 25V, ELECT, ALUM, AXIAL	C43
1	001351	CAPACITOR, 100MF, 16V, ELECT, ALUM, RADIAL	C30, C36, C46, C47
ITEM	PART NO.	DESCRIPTION	REF. DES.

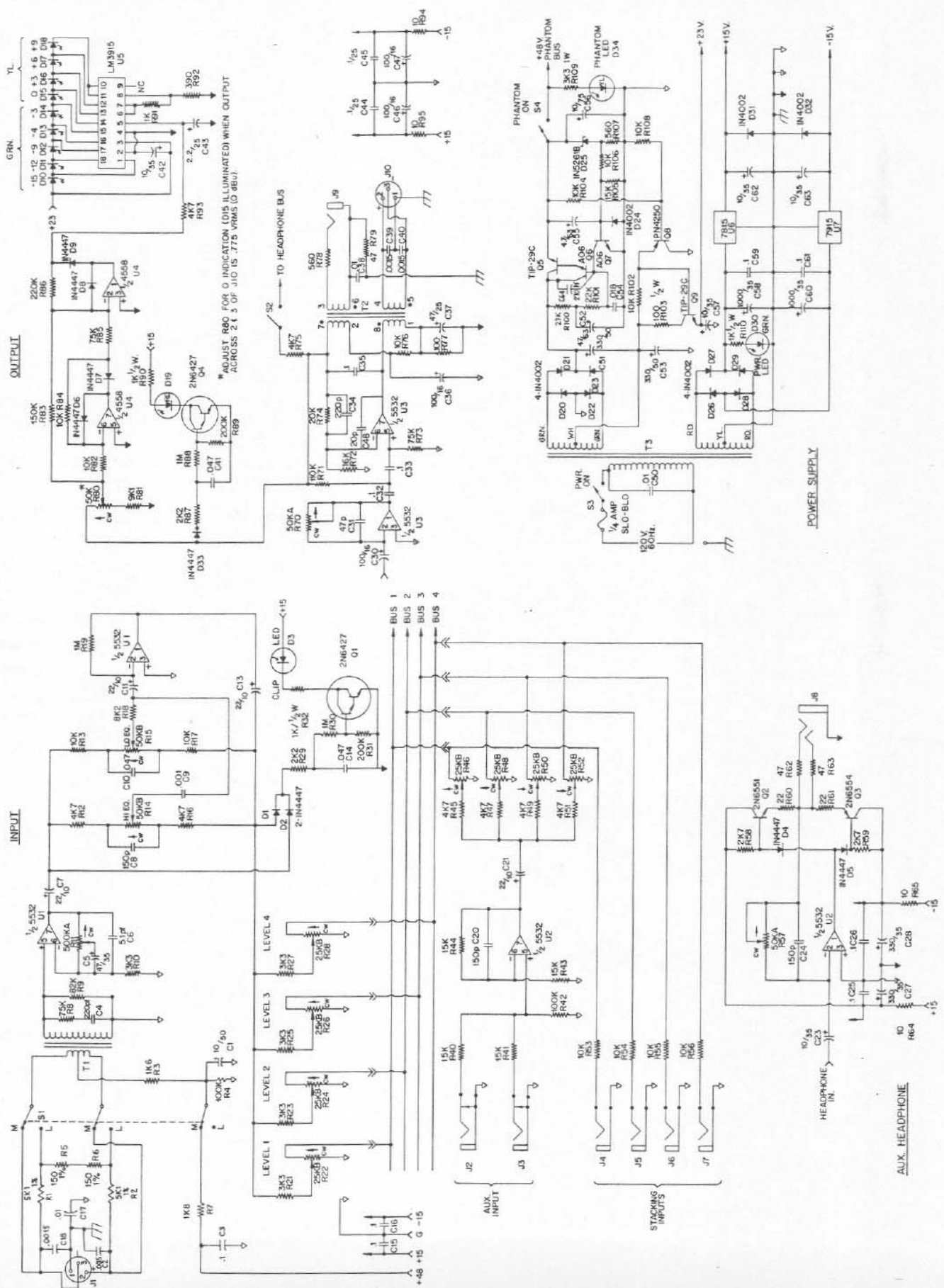
52	454479	WIRE, #22, GRN/YEL TRACE, 3 IN LG	
51	303099	LUG TERMINAL	
50	460320	BRACKET, ANGLE	
49	500025	SCREW, 2-32 x 3/16, PAN HD, SLT, TYPE BT	
48			
47	455011	DISPLAY, L.E.D., 10 STATION, MULTI-COLOR	
46	452503-2	JUMPER, ZERO OHM	
45	45161	BOARD, PRINTED CIRCUIT	
44	302090	TRANSFORMER, OUTPUT	T2
43	301023	SWITCH, PUSH ON-OFF, DPDT	S2
42	300130	CONNECTOR, 1/4 JACK, PCB, YKB21-5012	J9
41	300129	CONNECTOR, XLR, NEUTRIK, NC3.MD-H	J10
40	300050	HEADER, .145 SQ. RIGHT ANGLE, PMA PIN 240385-B	
39	300047	HEADER, .045 SQ. RIGHT ANGLE, AMP PIN 640385-4	
38	008049	DIODE, SIGNAL, 1N4447	D6, D7, D8, D9, D33
37	007200	CIRCUIT, INTEGRATED, DUAL, LM3915	U5
36	007013	CIRCUIT, INTEGRATED, DUAL, NE5532	U3
35	007006	CIRCUIT, INTEGRATED, DUAL, 455B	U4
34	006021	TRANSISTOR, NPN, DARLINGTON, 2N6427	Q4
33	005951	RESISTOR, 1MEG OHM, ±5%, 1/4 W, C.F.	R88
32	005934	RESISTOR, 220K, ±5%, 1/4 W, C.F.	R86
31	005933	RESISTOR, 200K, ±5%, 1/4 W, C.F.	R89
30	005930	RESISTOR, 150K, ±5%, 1/4 W, C.F.	R83
29	005927	RESISTOR, 110K, ±5%, 1/4 W, C.F.	R71
28	005923	RESISTOR, 75K, ±5%, 1/4 W, C.F.	R73, R85
27	005909	RESISTOR, 20K, ±5%, 1/4 W, C.F.	R74
ITEM	PART NO.	DESCRIPTION	REF. DES.



005044 Res 7.5 1/4w CF R102

ITEM	PART NO.	DESCRIPTION	REF. DES.
18	006002	TRANSISTOR, PNP, PN 4250	Q8
17	005912	RESISTOR, 27K OHM, ±5%, 1/4W C.F.	R100
16	005910	RESISTOR, 22K OHM, ±5%, 1/4W C.F.	R101
15	005906	RESISTOR, 15K OHM, ±5%, 1/4W C.F.	R105
14	005902	RESISTOR, 10K OHM, ±5%, 1/4W C.F.	R104, R106, R108
13	005871	RESISTOR, 560 OHM, ±5%, 1/4W C.F.	R107
12	005306	RESISTOR, 3K3 OHM, ±5%, 1 W C.F.	R109
11	005068	RESISTOR, 1K OHM, ±5%, 1/2 W C.F.	R110
10	005044	RESISTOR, 100 OHM, ±5%, 1/2 W C.F.	R103
9	004702	CAPACITOR, .01 MF, 250 V, 5 L	C50
8	004091	CAPACITOR, .1 MF, ±10%, 25 V, CERAMIC	C59, C61
7	003044	CAPACITOR, .018 MF, ±10%, 100V, MYLAR	C54
6	001750	CAPACITOR, 10 MF, 75 V, ELECTROLYTIC	C56
5	001711	CAPACITOR, 47 MF, 63V, ELECTROLYTIC	C52
4	001700	CAPACITOR, 4.7 MF, 63V, ELECTROLYTIC	C55
3	001617	CAPACITOR, 330 MF, 50V, ELECTROLYTIC	C51, C53
2	001529	CAPACITOR, 1000 MF, 35V, ELECTROLYTIC	C60, C58
1	001505	CAPACITOR, 10MF, 35V, ELECTROLYTIC	C57, C62, C63

ITEM	PART NO.	DESCRIPTION	REF. DES.
35	004044	CAPACITOR, 270 PF, 100V	C64
34	452503-2	JUMPER, ZERO OHM, 0.4 LG	
33	304511	STANDOFF	
32	454467	WIRE, TEW, #22 GA., BLACK, 5' LG.	
31	452503	JUMPER, ZERO OHM, 0.6 LG.	
30	451159	BOARD, PRINTED CIRCUIT	
29	301023	SWITCH, PUSH ON-OFF, DPDT	S4
28	300107	CONNECTOR, QUICK DISCONNECT, TAB	
27	300050	HEADER, .045 SQ. RIGHT ANGLE AMP PIN	
26	008073	DIODE, LIGHT EMITTING, GREEN	D30
25	008072	DIODE, LIGHT EMITTING, YELLOW	D34
24	008059	DIODE, ZENER, 47 V, IN5261B	D25
23	008022	DIODE, POWER, IN4002	D20, D21, D22, D23, D24, D26, D27, D28, D29, D31, D32
22	007153	CIRCUIT, INTEGRATED, 1 AMP, 7915	U7
21	007103	CIRCUIT, INTEGRATED, 1 AMP, 7815	U6
20	006038	TRANSISTOR, SILICON, NPN, MPS-A06	Q6, Q7
19	006029	TRANSISTOR, NPN POWER, TIP29C	Q5, Q9



MISCELLANEOUS PARTS LIST

PART NO.	DESCRIPTION
300106	Connector, quick connect
303008	Lug, solder #8
303028	Strain relief
303066	Cord, line, SJT.
303120	Fuse holder
400105	Plate, adapter
450412	Panel, rear, screened
500212	Screw #8-32 x 1/2" pan hd. stl. cross recess
500291	Nut #8-32, KEP, stl.
500685	Washer #8, flat, stl.
500801	Rivet, pop, black
454466	Wire, 22 gauge, TEW, 9" lg., black
500803	Rivet, pop, black
301025	Switch, SPST, black
450411	Panel, front, screened
500591	Nut, 3/8-32, hex, stl., brite nickel
500681	Washer, 3/8, flat, stl., thin
500683	Washer, 3/8, flat, fiber
500702	Nut, 7 mm, hex.
500712	Washer, 7 mm lock tooth, stl.
800208	Input amplifier P.C.B. S/A

PART NO.	DESCRIPTION
800206	Auxiliary P.C.B. S/A
800207	Output amplifier P.C.B. S/A
801117	Power supply - side panel S/A
500190	Nut #6-32, KEP, stl., CAD plate
452029	Fish paper
500592	Nut #4-40, hex. KEP
303108	Fuse, 1/4 amp., SLO-BLO, 3AG
400023	Knob, push switch, black
400087	Knob, rotary, mini, light grey
400088	Knob, rotary, mini, medium grey
400089	Knob, rotary, mini, dark grey
400115	Knob, rotary, mini, red
450063	Label, serial number
450381	Label, voltage/fuse
500117	Screw, 6-32 x 1/4, pan hd. cross recess stl., SEMS, type AB, black
500850	Cable tie
801115	Rear panel S/A
804295	Cue cable S/A, 6 station
804296	Summing cable S/A, 13 station
804297	Power cable S/A, 14 station
600145	Tape, foam

REPAIR PARTS

Service parts are available from the Redmond factory. Contact us by phone or mail.

Our address: Electro-Voice, Inc.
3810 148th Ave. NE
Redmond, WA 98052

206/881-9555
(8AM-4PM pacific time zone)

If you are ordering parts and do not have the six digit part number, please include the model and serial number of the unit, the assembly part number and revision. The assembly part number/revision is a six digit, one letter code beginning with 800 that is rubber stamped on the parts side of the PCB assembly. In lieu of this information, the two digit, one letter code etched into the foil side of the PCB is helpful. If you are ordering a control or switch, tell us the function name . . . power, frequency, input level, etc.

In any event, be sure to include the following information:

Your Name
Shipping address (no post office boxes, please)
City, State, Zip
Daytime phone number
Method of shipment (UPS ground if not specified)

If you call us for assistance on/with a problem, please have the EXACT model number, serial and assembly part numbers handy.

WARRANTY (Limited)

Electro-Voice Professional Sound Reinforcement Electronic Components are guaranteed for two years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized service centers is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052 (AC/206-881-9555); and/or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product:
Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, Washington 98052.

Specifications subject to change without notice.

PROPRIETARY NOTICE

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ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107

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a gulton company

Form 2548