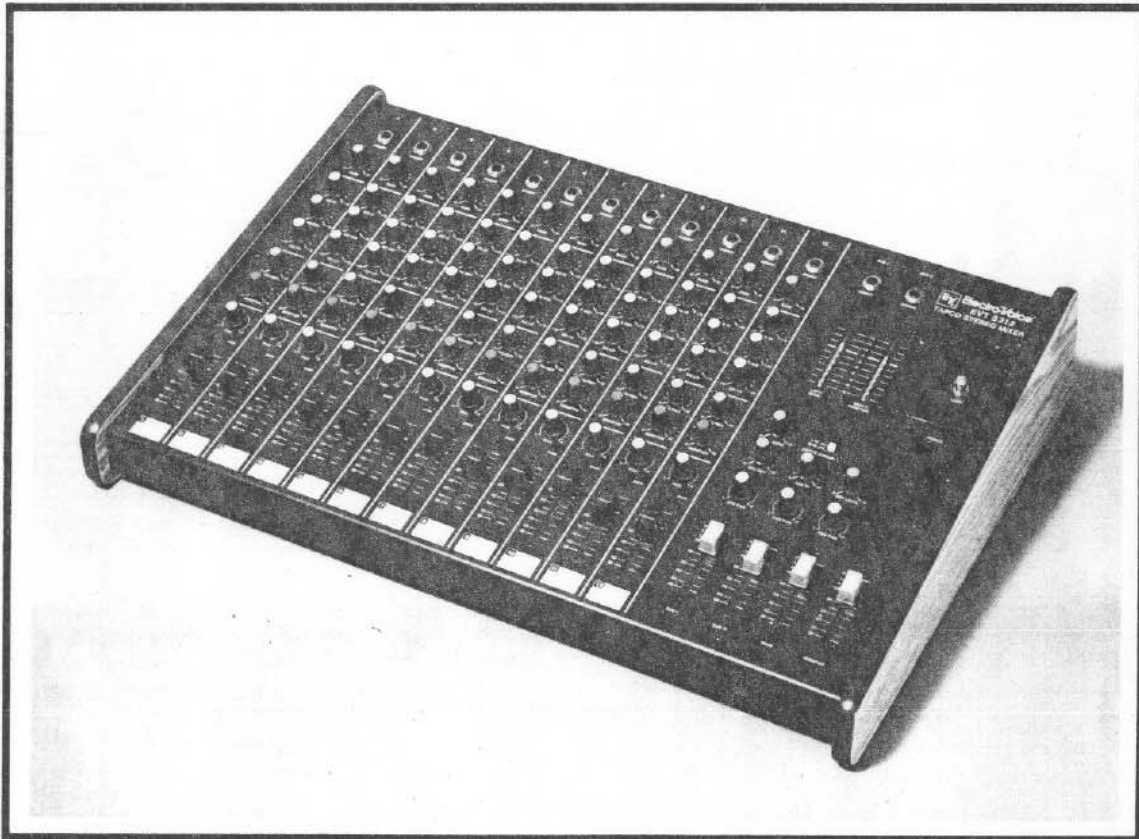




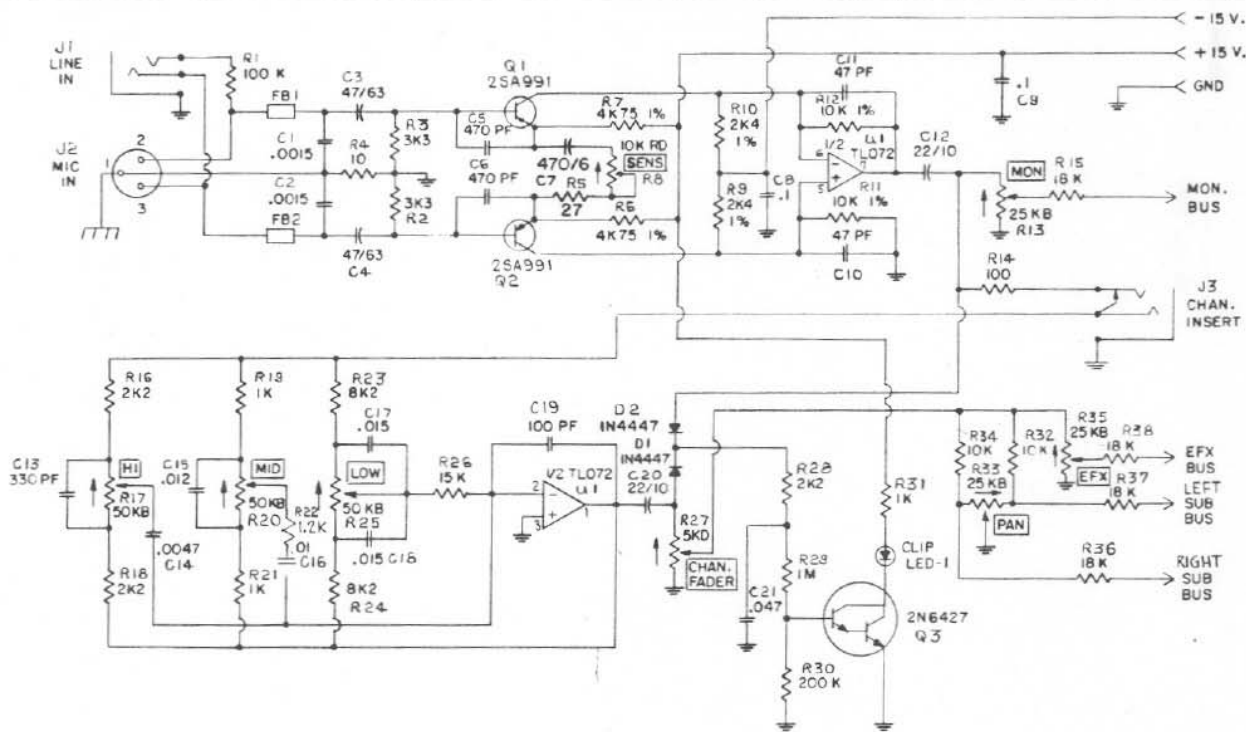
**Electro-Voice®**  
**SERIES 52**

**TAPCO STEREO MIXERS**

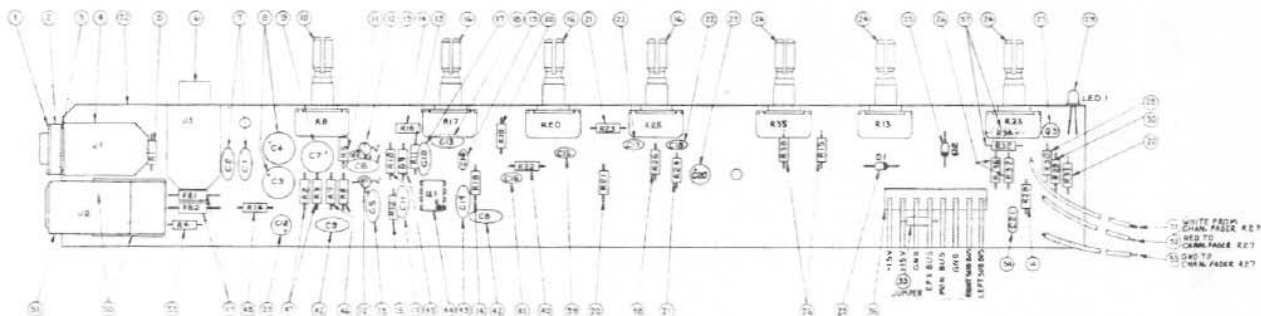


**EVT 5212**  
**STEREO MIXER**

# **SERVICE MANUAL**



**INPUT BOARD**



**PC BOARD  
800166**

R4-	53	005829	1	RESISTOR, 1/4 W., 5%, 10 Ω
J2	52	451130	1	P.C. BOARD, INPUT
	51	300113	1	CONNECTOR, XLR, ADC
	50	500074	2	SCREW, PHPS, #4, 40 1/4 THD CUT
FB1-FB2	49	009902	2	BEAD, FERRITE
R14	48	005853	1	RESISTOR, 1/4 W., 5%, 100 Ω
R2-R3	47	005889	2	RESISTOR, 1/4 W., 5%, 3.3 K
R6-R7	46	005602	2	RESISTOR, 1/4 W., 5%, 4.75 K
R9-R10	45	005792	2	RESISTOR, 1/4 W., 5%, 2.4 K
U1	44	007010	1	I.C., TL072
C19	43	004037	1	CAPACITOR, CER. DISC., 100 pf.
C8-C9	42	004091	2	CAPACITOR, CER. DISC., 0.1 mfd.
C16	41	003037	1	CAPACITOR, FILM, .01 mfd.
R22	40	005879	1	RESISTOR, 1/4 W., 5%, 1.2 K
C15	39	003040	1	CAPACITOR, FILM, .012 mfd, 50 V.
R26	38	005906	1	RESISTOR, 1/4 W., 5%, 15 K
R32-R33	37	005902	2	RESISTOR, 1/4 W., 5%, 10 K
	36	300050	1	CONNECTOR, MTS, MALE, 8 PIN
	35	452503-2	1	JUMPER, 0.4 LG.
C21	34	003061	1	CAPACITOR, FILM, .047 mfd.
	33	100048	1	WIRE, #22 GA., BLACK, 4.8" LG.
	32	122018	1	WIRE, #22 GA., RED, 1.8" LG.
	31	199053	1	WIRE, #22 GA., WHITE, 5.3" LG.
R29	30	005951	1	RESISTOR, 1/4 W., 5%, 1 M.
LED 1	29	008064	1	LED, T-1
R30	28	005933	1	RESISTOR, 1/4 W., 5%, 200 K
Q3	27	006021	1	TRANSISTOR, 2N6427

R5-R36-R37-R38	26	005908	4	RESISTOR, 1/4 W., 5%, 18 K
D1-D2	25	0000493	2	DIODE, IN4447
R15-R33-R35	24	003490	3	POT, ROTARY, 25 KB
C12-C20	23	007209	2	CAPACITOR, ELECT., 22 mfd, 10 V.
C17-C18	22	003042	2	CAPACITOR, FILM, .015 mfd.
R23-R24	21	005899	2	RESISTOR, 1/4 W., 5%, 8.2 K
R18-R21-R24	20	005877	3	RESISTOR, 1/4 W., 5%, 1 K
C14	19	003025	1	CAPACITOR, FILM, .0047 mfd.
C13	18	004046	1	CAPACITOR, CER. DISC., 330 pf.
C10-C11	17	004025	2	CAPACITOR, CER. DISC., 47 pf.
R17-R20-R25	16	005493	3	POT, ROTARY, 50 KB
R11-R12	15	005793	2	RESISTOR, 1/4 W., 1%, 10 K
R16-R18-R28	14	005885	3	RESISTOR, 1/4 W., 5%, 2.2 K
C5-C6	13	004050	2	CAPACITOR, CER. DISC., 470 pf.
Q1-Q2	12	006054	2	TRANSISTOR, 2SA991
R5	11	005839	1	RESISTOR, 1/4 W., 5%, 27 Ω
R8	10	005491	1	POT, ROTARY, 10 KRD
R7	9	001121	1	CAPACITOR, ELECT., 470 mfd, 6.3 V.
C3-C4	8	001711	2	CAPACITOR, ELECT., 47 mfd, 6.3 V.
C1-C2	7	004084	2	CAPACITOR, CER. DISC., .0015 mfd.
J3	6	300120	1	CONNECTOR, 1/4" PHONE, KN113 B-PC
R1	5	005976	1	RESISTOR, 1/4 W., 5%, 100 K
J1	4	300117	1	CONNECTOR, 1/4" PHONE, RN112
	3	452021	1	WASHER, FLAT, FISHPAPER
	2	300591	1	NUT, HET, 3/8 - 32
	1	460242	1	BRACKET, GROUND

**PARTS LIST**

REF. NO. ITEM PART NO. QTY. DESCRIPTION

BILL OF MATERIAL FOR ONE COMPLETE UNIT

**GENERAL SERVICING INFORMATION**

Most TAPCO 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 opamp 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**

To gain access to the internal boards, simply remove the six (6) phillips head sheet metal screws from the bottom panel.

**INPUT BOARDS**

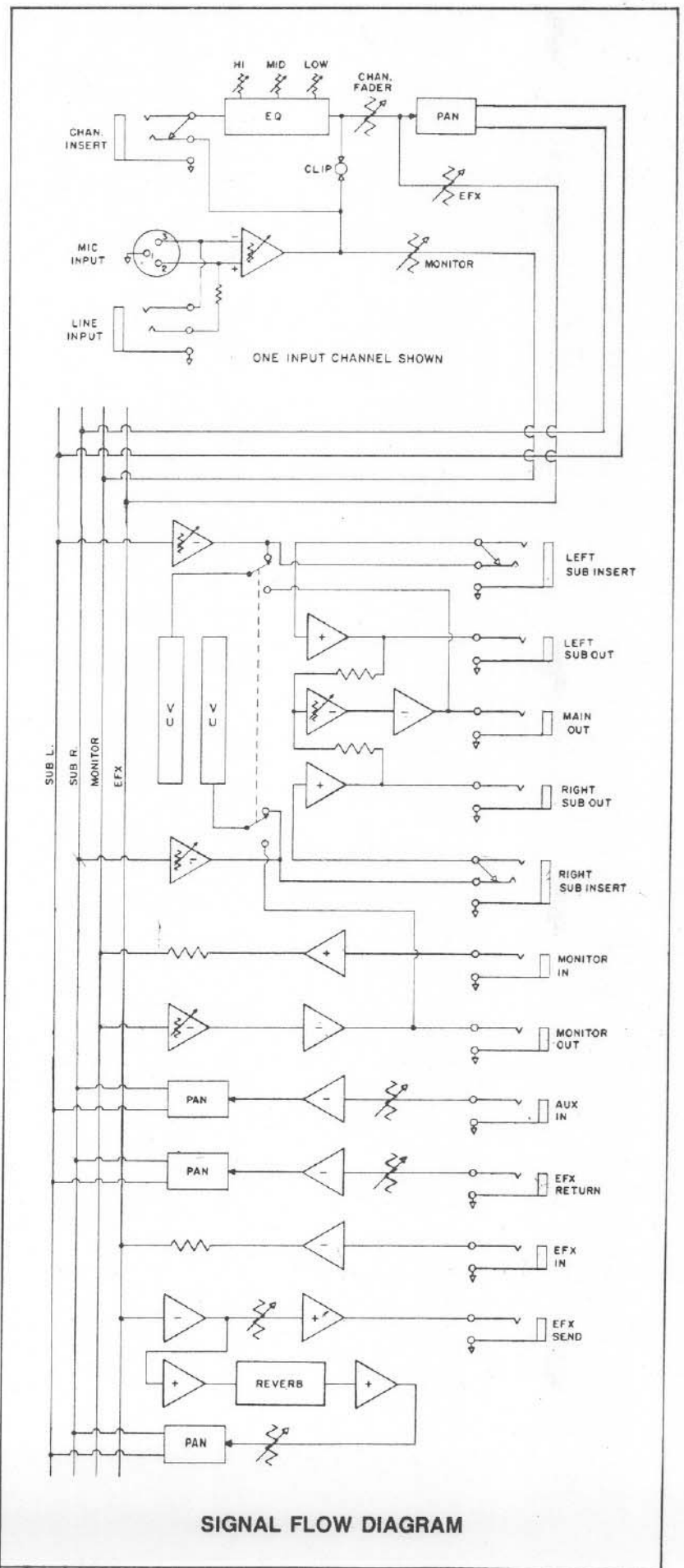
Any input board can be removed by removing the phillips head sheet metal screw adjacent to the 1/4" "line input" jack, all of the control knobs, the nuts securing the controls to the panel and the nut securing the "insert" jack. The fader can be disconnected by unsoldering or removed with the board by removing the two phillips head sheet metal screws securing the fader to the panel.

**LEFT & RIGHT SUB BOARDS**

The Left and Right Sub boards are disassembled from the panel by removing the control knobs and nuts from the controls, the nut from the insert jack and unsoldering the leads from the fader control and the appropriate jacks on the back panel.

**MAIN/MONITOR BOARD**

The Main/Monitor board is removed by removing the control knobs (Rev. Level and Rev. Pan) and the nuts from the controls, the phillips head screw and nut through the heat sink and unsoldering the leads from the Main/Monitor faders and the appropriate jacks on the back panel.



**SIGNAL FLOW DIAGRAM**

**SERIES 52 TAPCO STEREO MIXERS**
**GENERAL SPECIFICATIONS**

**FREQUENCY RESPONSE** ( $\pm 1$  dB)  
 Mic In to any output, 20 Hz — 20 kHz  
 EQ Flat, all faders  
 nominal

**DISTORTION**

**Total Harmonic Distortion**  
 THD 20 - 20 kHz at +4 dB less than 0.05%  
 THD 20 - 20 kHz at +20 dB less than 0.10%  
 I.M, SMPTE, 1 dB below clip less than 0.10%

**HUM and NOISE\***

(20 Hz - 20 kHz with 150 ohm input impedance)

EIN - equivalent input noise -128 dB  
 Residual at main out (all faders down) -90 dB  
 Residual at Monitor out -90 dB  
 Main out with Main, Subs and 1 fader at Nominal (44 dB total gain) -75 dB  
 Monitor out with Monitor Master and 1 Fader at Nominal (44 dB total gain) -80 dB

**INPUT CHANNEL EQUALIZATION**

LOW — Shelving at 100 Hz  $\pm 15$  dB  
 MID — Peak/notch at 3 kHz  $\pm 12$  dB  
 HIGH — Shelving at 10 kHz  $\pm 15$  dB

**MICROPHONE INPUTS\***

Low Impedance, Balanced, Pin 2 reference positive  
 EIN (20 Hz-20 kHz: 150 ohm source)\*\* -128 dB  
 Maximum Input Level +8 dB (2.0V)  
 Input Impedance at 1 kHz 6 K ohms  
 CMRR - Common Mode Rejection Ratio 65 dB typical  
 CMRR - Ratio (60 Hz-10 kHz) 50 dB min.  
 SLEW RATE (measured at Insert Jack) 15 V./ $\mu$ sec

**LINE INPUTS\***

High Impedance - Unbalanced tip positive  
 Maximum Input Level +34 dB (40.0 V)  
 Input Impedance 100 K ohms

**PEAK INDICATORS\***

Threshold  $\pm 2$  dB +15 dB

**MAXIMUM VOLTAGE GAIN  $\pm 3$  dB**

Mic In to Main Out 82 dB  
 Mic In to Monitor Out 73 dB  
 Mic In to Sub Out 65 dB  
 Mic In to Insert Jack 52 dB  
 Mic In to Efx send 82 dB  
 Line In to Main Out 49 dB  
 Line In to Monitor Out 39 dB  
 Line In to Sub Out 32 dB  
 Line In to Insert Jack 19 dB  
 Line In to Efx send 49 dB

**CROSSTALK**

Adjacent Inputs 1 kHz -75 dB typical  
 Input to Output 1 kHz -75 dB typical  
 All combinations 20 Hz - 20 kHz

**LAMP CONNECTOR**

BNC connector  
 12.6 V ac/0.20 amps Max.

**LEVEL DISPLAY\***

10 Segment LED in 3 dB steps -18 dB to +9 dB  
 Reference "0" +4 dB  
 Response Full wave, Average Responding

**DIMENSIONS**

	Model 5208		Model 5212		Model 5216	
	mm	in.	mm	in.	mm	in.
Height	143	5-5/8	143	5-5/8	143	5-5/8
Depth	480	18-7/8	480	18-7/8	480	19-7/8
Width	528	20-3/4	680	26-3/4	832	32-3/4
<b>Net Weight</b>	<b>kg</b>	<b>lb</b>	<b>kg</b>	<b>lb</b>	<b>kg</b>	<b>lb</b>
	10.7	23-1/2	13.8	30-1/2	16.8	37

**POWER REQUIREMENT**

25 Watts max.  
 Available for 95 — 130 Volts, 50/60 Hz or  
 190 — 260 Volts, 50/60 Hz as indicated on rear panel.

**HIGH LEVEL INPUTS**

	Max. Level*	Input Impedance, Ohms	Max. Source Impedance, Ohms
Left insert	+20 dB	100K	—
Right insert	+20	100K	—
Efx return	—	$\geq 25$ K	—
Efx input	+40	25 K	—
Monitor input	+29	10 K	—
Aux input	—	$\geq 16$ K	—
Input chan insert	+20	1.8 K flat EQ	100
	+5	1 K max boost EQ	

**OUTPUTS**

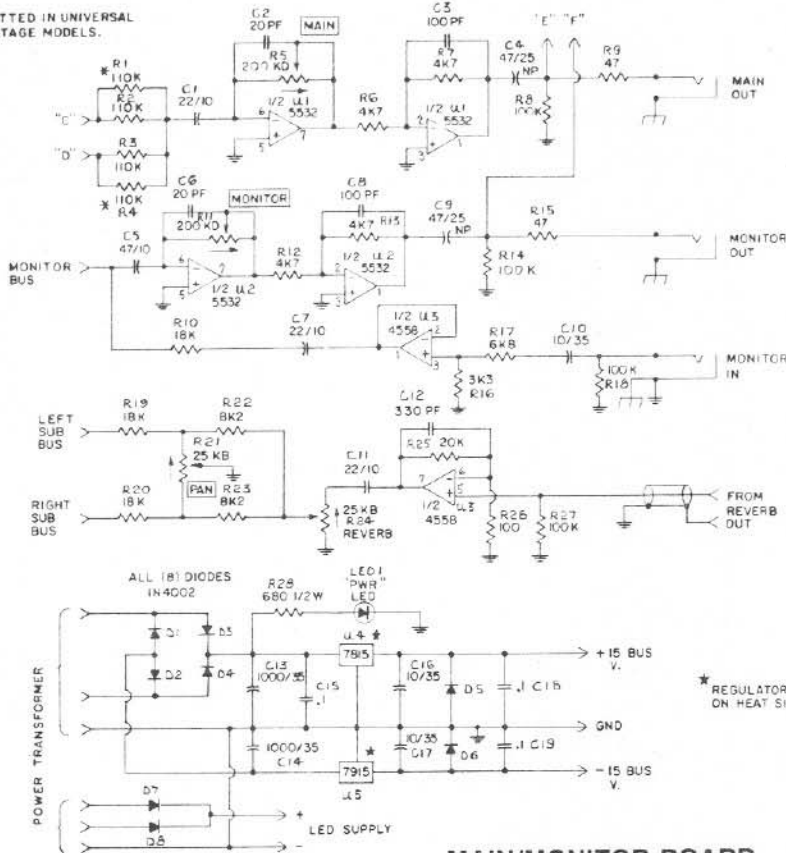
Max. level ( $\pm 1$  dB) into min. load impedance

	Max. Level	Min. Load	Internal Impedance
Main	+20 dB	600 $\Omega$	50 $\Omega$
Monitor	+20 dB	600 $\Omega$	50 $\Omega$
Left sub	+20 dB	600 $\Omega$	50 $\Omega$
Right sub	+20 dB	600 $\Omega$	50 $\Omega$
Left insert	+20 dB	600 $\Omega$	50 $\Omega$
Right insert	+20 dB	600 $\Omega$	50 $\Omega$
Efx send	+20 dB	600 $\Omega$	50 $\Omega$
Input chan insert	+20 dB	2000 $\Omega$	100 $\Omega$

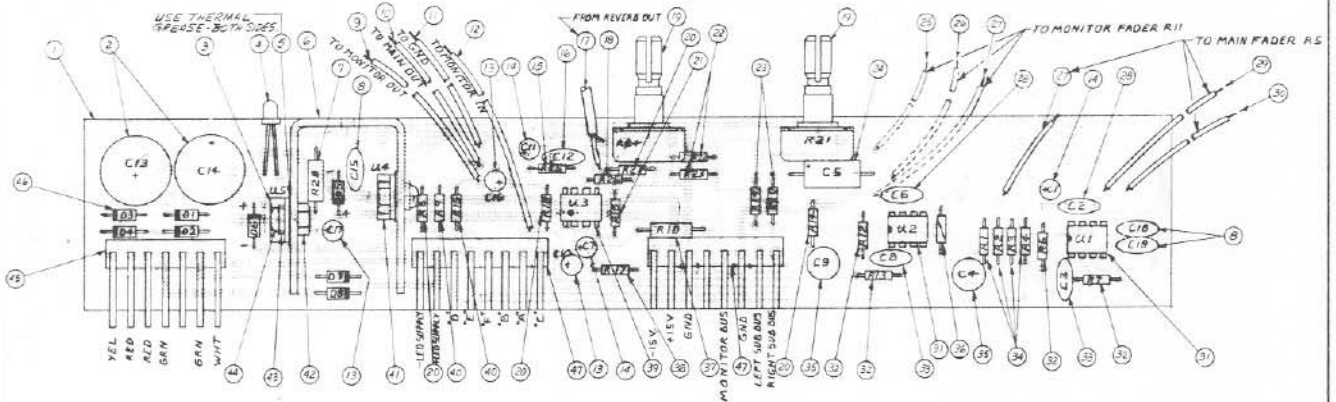
\* 0 dB is referenced to 0.775 Volt, RMS.

\*\* Theoretical minimum noise is -130.8 dB across 150 ohms.

\* OMITTED IN UNIVERSAL VOLTAGE MODELS.



MAIN/MONITOR BOARD



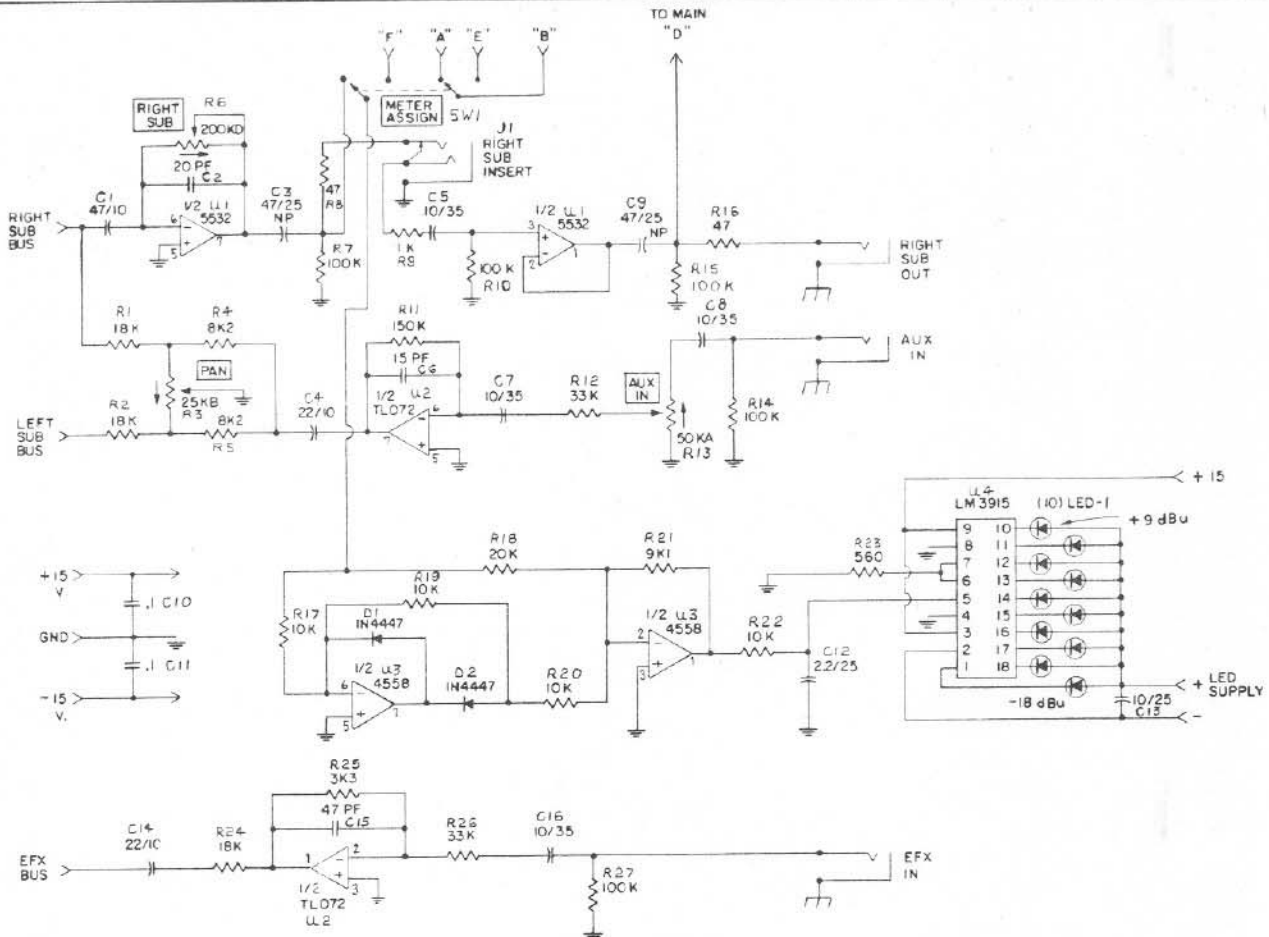
PC BOARD  
800169

D1 THRU D8	47	300050	2	CONNECTOR, MTS MALE, 8 PIN
	46	008022	8	DIODE, IN4002
	45	300049	1	HEADER, 7 PIN, SQ. POST., 0.045 Rq.
	44	500070	2	SCREW, #4-40x3/8, P.H. "X" REC.
	43	309300	2	WASHER, SHOULDER, INS., #4
	42	500593	2	NUT, #4-40, NYLOCK
U4	41	007103	1	I.C., 7815
R9-R15	40	005845	2	RESISTOR, 1/4W, 5%, 47Ω
U3	39	007006	1	I.C., RC4558
R17	38	005897	1	RESISTOR, 1/4W, 5%, 6.8K
R10	37	005098	1	RESISTOR, 1/2W, 5%, 18K
	36	452503-2	1	JUMPER, 0.4"
C4-C9	35	004216	2	CAPACITOR, ELECT, N.P., 47mfd. 25V
R1-R2-R3-R4	34	005927	4	RESISTOR, 1/4W, 5%, 110K
C3-C8	33	004037	2	CAPACITOR, CER. DISC, 100 PF.
R6-R7-R12-R13	32	005893	4	RESISTOR, 1/4W, 5%, 4.7K
U1-U2	31	007013	2	I.C., NE5532
	30	199030	1	WIRE, #22 GA., WHITE, 3.0 LG.
	29	100030	1	WIRE, #22 GA., BLACK, 3.0 LG.
C2-C6	28	004013	2	CAPACITOR, CER. DISC., 20 PF.
	27	122018	2	WIRE, #22 GA., RED, 1.8 LG.
	26	199053	1	WIRE, #22 GA., WHITE, 5.3 LG.
	25	100048	1	WIRE, #22 GA., BLACK, 4.8 LG.
C5	24	001211	1	CAPACITOR, ELECT., 47mfd 10V.

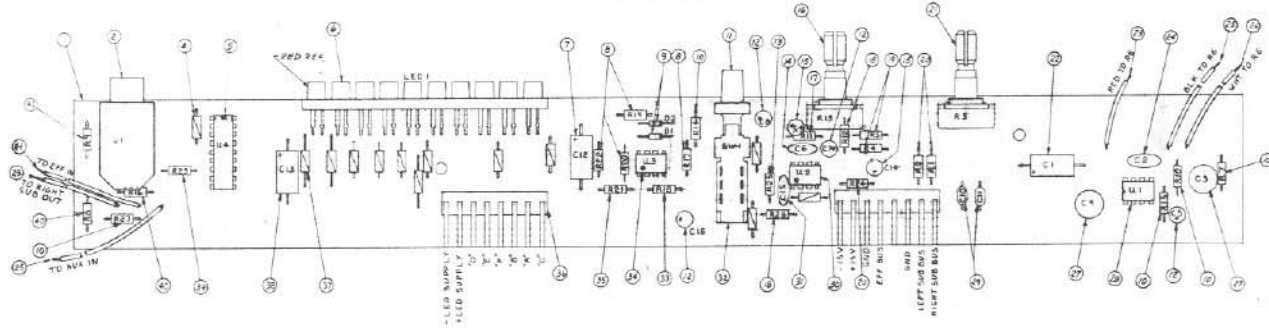
R19-R20	23	005908	2	RESISTOR, 1/4W, 5%, 18K
R22-R23	22	005899	2	RESISTOR, 1/4W, 5%, 8.2K
R16	21	005889	1	RESISTOR, 1/4W, 5%, 3.3K
RB-RM-R27-R18	20	005926	4	RESISTOR, 1/4W, 5%, 100K
R21-R24	19	005490	2	POT. ROTARY, 25KB
R25	18	005853	1	RESISTOR, 1/4W, 5%, 100Ω
	17	804258	1	CABLE 5/A
C11	16	004046	1	CAPACITOR, CER. DISK, 330 PF.
R25	15	005909	1	RESISTOR, 1/4W, 5%, 20K
C1-C7-C11	14	001209	3	CAPACITOR, ELECT., 22mfd 10V.
C10-C16-C17	13	001505	3	CAPACITOR, ELECT., 10mfd 35V.
	12	199180	1	WIRE, #22 GA., WHITE, 1.0 LG.
	11	100110	1	WIRE, #22 GA., BLACK, 11.0 LG.
	10	122120	1	WIRE, #22 GA., RED, 12.0 LG.
	9	166115	1	WIRE, #22 GA., BLUE, 11.5 LG.
C15-C18-C19	8	004091	3	CAPACITOR, CER. DISC., 0.1 mfd.
R28	7	005064	1	RESISTOR, 1/4W, 5%, 680Ω
	6	460237	1	HEAT-SINK, REGULATOR
	5	303213	2	WASHER, MICA, TO 220
LED-1	4	008064	1	LED, T-1
U5	3	007153	1	I.C., 7815
C13-C14	2	001529	2	CAPACITOR, ELECT., 1000mfd, 35V.
	1	451133	1	P.C. BOARD, MAIN-MONITOR

PARTS LIST





RIGHT SUB BOARD



PC BOARD  
800168

R9	42	005877	1	RESISTOR, 1/4 W., 5%, 1K, C.F.
	41	166030	1	WIRE, #22 GA., BLUE, 3.0" LG.
R18-R18	40	005845	2	RESISTOR, 1/4 W., 5%, C.F., 47Ω
R23	39	005871	1	RESISTOR, 1/4 W., 5%, 560 Ω
C13	38	001406	1	CAPACITOR, ELECT., AXIAL, 10MM, 25V.
	37	452503	3	JUMPER, 0.6" LG.
	36	300050	2	CONNECTOR, MTS, MALE, 8 PIN
R21	35	005900	1	RESISTOR, 1/4 W., 5%, 9.1K C.F.
U3	34	007006	1	I.C., RC 4558
R18	33	005909	1	RESISTOR, 1/4 W., 5%, 20K
SW-1	32	301023	1	SWITCH, PUSH-PUSH, DPDT
C15	31	004025	1	CAPACITOR, CER. DISC, 47 PF
U2	30	007010	1	I.C., TL072
C10-C11	29	004091	2	CAPACITOR, CER. DISC, 0.1 μF
U1	28	007013	1	I.C., NE 5532
C3-C3	27	004216	2	CAPACITOR, ELECT., 47 μF, 25V, NP.
	26	199030	2	WIRE, #22 GA., WHITE, 3.0" LG.
	25	100030	1	WIRE, #28 GA., BLACK, 3.0" LG.
C2	24	004013	1	CAPACITOR, CER. DISC, 20 PF
	23	122018	2	WIRE, #22 GA., RED 18" LG.
C1	22	001211	1	CAPACITOR, ELECT., 47 μF, 10V.
R3	21	005430	1	POT, ROTARY 25 KB

R1-R2-R24	20	005908	3	RESISTOR, 1/4 W., 5% C.F., 18K
R4-R5	19	005899	2	RESISTOR, 1/4 W., 5%, 8.2K
R12-R26	18	005914	2	RESISTOR, 1/4 W., 5%, 33K
R11	17	005930	1	RESISTOR, 1/4 W., 5%, 150K
R13	16	005432	1	POT, ROTARY, 50 KA
C4-C14	15	001209	2	CAPACITOR, ELECT., 22 μF, 10V.
C6	14	004010	1	CAPACITOR, CER. DISC, 15 PF
R25	13	005889	1	RESISTOR, 1/4 W., 5%, 3.3K
C5-C7-C8-C16	12	001505	4	CAPACITOR, ELECT., 10 μF, 35V.
	11	400051	1	KNOB, SQUARE-PUSH
R7-R10-R15-R27	10	005926	5	RESISTOR, 1/4 W., 5% C.F., 100K
D1-D2	9	008049	2	DIODE, 1N4447
R11-R14-R20-R23	8	005902	4	RESISTOR, 1/4 W., 5%, 10K
C12	7	001403	1	CAPACITOR, ELECTROLYTIC, 2.2 μF, 25V.
LED1	6	455008	1	L.E.D. ARRAY, 10 STA.
U4	5	007200	1	I.C. LM3915N
	4	452503-2	10	JUMPER, 0.4"
	3			
U1	2	300120	1	CONNECTOR, 1/4" PATCH JACK
	1	451132	1	P.C. BOARD, SUB RIGHT
REF. NO.	ITEM	PART NO.	QTY	DESCRIPTION
BILL OF MATERIAL FOR ONE COMPLETE UNIT				

PARTS LIST

**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 or 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 Products are guaranteed for one year 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 cover finish or appearance items or malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

59	300109	1	WIRE CONNECTOR
58	454463	1	WIRE, #22 AWG, TEW, BLACK, 7.5 IN
57	500107	8	SCREW, 6-20 x 1/2, PAN HD, CR, TYPE AB
56	500862	1	CABLE TIE BASE
55	500850	1	CABLE TIE
54	500593	1	NUT, #4-40, NYLOCK
53	500070	1	SCREW #4-40 x 3/8, C.R., P.H., BLK, STL
52	303008	1	LUG, SOLDER, #8 I.T.
51	300062	1	CONNECTOR, MTS, 7 PIN
50	301024	1	SWITCH, ROCKER, POWER
49	804260	1	CABLE S/A MTS 8 PIN (3)
48	804262	1	CABLE S/A MTS 8 PIN (11)
47	303015	1	LUG, SOLDER, 3/8 INT. TH.
46	500291	3	NUT, #8-32, KEP
45	300121	1	CONNECTOR, BNC
44	500125	37	SCREW, TYPE AB, #6-20 x 1/2 PAN HD, SCR. BLK. PHILL.
43	400082	4	KNOB, SLIDER, RED
42	005477	8	POTENTIOMETER, SLIDE, 60MM, 5KD
41	475007	1	END CAP, LEFT
40	500712	63	WASHER, LOCK, INT. TH., 7MM
39	460235	4	SIDE RAIL
38	450290	1	CHASSIS (PAINTED: 440196)
37	500081	24	WASHER, LOCK #4, EXT. TOOTH
36	452121	12	DUST BARRIER, FOAM
35	400075	8	KNOB, SLIDER, BLK.
34	500708	24	SCREW, M3 x 8MM LG. PAN HD, PHILL. BLK.
33	400078	11	INSERT, KNOB, YELLOW (REF. "Y")
32	400079	8	INSERT, KNOB, GREEN (REF. "G")
31	400077	9	INSERT, KNOB, BLUE (REF. "B")

30	400080	24	INSERT, KNOB, GRAY (REF. "GY")
29	400076	11	INSERT, KNOB, RED (REF. "R")
28	500702	63	NUT, HEX, 7MM
27	500703	63	WASHER, FLAT, 7MM
26	400074	63	KNOB, ROTARY
25	303081	1	REVERB
24	440195	1	PANEL, BOTTOM
23	452400	3	WIRE SOLID, #22 GA, BARE, 2 1/2 LG.
22	452021	20	WASHER, FISH PAPER 3/8
21	450063	1	LABEL, SERIAL NO.
20	800166	8	P.C. BOARD S/A, INPUT
19	500680	9	WASHER, LOCK, INT. TH. 3/8
18	500681	19	WASHER, FLAT, 3/8
17	500591	20	NUT, HEX, 3/8-32
16	300052	9	JACK, 1/4" PHONE HI-D
15	800167	1	P.C. BOARD S/A LEFT SUB
14	800168	1	P.C. BOARD S/A RIGHT SUB
13	303108	1	FUSE, 1/4 A. 3AG SLO-BLOW
12	303120	1	FUSE HOLDER
11	303028	1	STRAIN RELIEF, HEYCO
10	303066	1	LINE CORD, SJT
9	500685	2	WASHER, FLAT, #8, STL
8			
7	475008	1	END CAP, RIGHT
6	500212	1	SCREW, #8-32 x 1/2 P.H., CR, STL, BLK. PHILL.
5	500290	1	NUT, HEX, #8-32, BLK. STL.
4	500201	2	SCREW, #8-32 x 3/8 P.H. BLK. STL
3	302106	1	TRANSFORMER, POWER
2	800169	1	P.C. BOARD S/A M/M
1	005478	4	POTENTIOMETER, SLIDE, 60MM 382

**MISC. PARTS LIST**



**Electro-Voice**®  
a gulton company

600 Cecil Street, Buchanan, Michigan 49107