

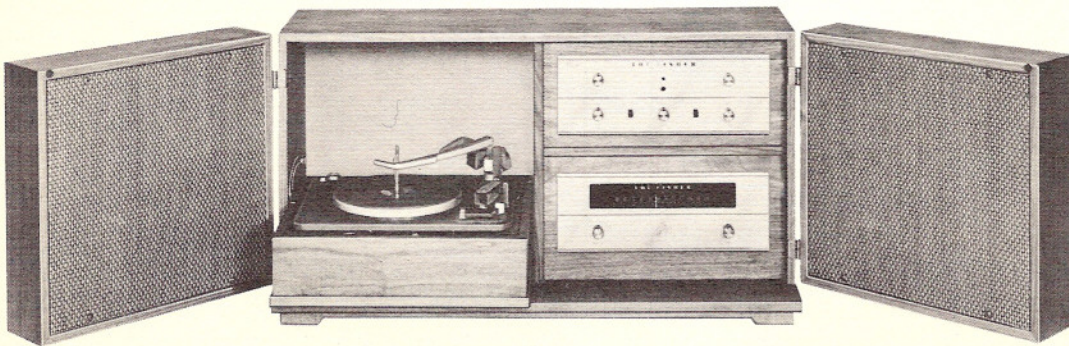
Stereophonic

THE FISHER

ALLEGRO

SERVICE

MANUAL



MODEL A-9 and A-19

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK



THE FISHER A-9 and A-19



PARTS DESCRIPTION LIST

AMPLIFIER X-19

R49, 50 Wirewound, 50, 10%, 5W

R556-142

CAPACITORS

10% tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value). All capacitors not marked uf are pf (uuf).

Symbol	Description	Part No.
C1	Molded, .01uf, 20%, 600V	C2747
C2	Electrolytic, 100uf, 250V	C50180-15
C3	Electrolytic, 4 Section	C50180-58
	A — 100 uf, 250V	
	B — 40uf, 350V	
	C — 200uf, 350V	
	D — 20uf, 350V	
C4	Electrolytic, 8uf, 50v	C629-138
C5	Mylar, .047uf, 250V	C50197-52
C6, 7	Ceramic, 33, N750, 1000V	C50070-15
C8, 9	Ceramic, 3900, 1000V	C50072-34
C10, 11	Ceramic, 2200, 1000V	C50072-5
C12, 13	Ceramic, 1800, 1000V	C50072-8
C14, 15	Ceramic, 68, N2200, 1000V	C50070-12
C16, 17	Ceramic, .02uf, 20%, 500V	C50089-5
C18, 19	Ceramic, 39, N1500, 1000V	C50070-17
C20	Mylar, .022uf, 400V	C50197-28
C21	Mylar, .022uf, 250V	C50197-49
C22	Mylar, .022uf, 400V	C50197-28
C23	Mylar, .022uf, 250V	C50197-49

RESISTORS

In ohms, 5% tolerance, 1/2 W unless otherwise noted. K=Kilohms, M=Megohms.

Symbol	Description	Part No.
R1	Composition, 820K, 10%, 1/2 W	RC20BF824K
R2	Potentiometer Wirewound, 500, HUM ADJ.	R516-128
R3	Composition, 1.5K, 10%, 1W	RC30BF152K
R4	Composition, 270K, 1/2 W	RC20BF274J
R5	Composition, 470K, 1/2 W	RC20BF474J
R6, 7	Composition, 2.2K, 10%, 1/2 W	RC20BF222K
R8, 9	Dep. Carbon, 820K	R33DC824J
R10, 11	Dep. Carbon, 8.2M	R33DC825J
R12, 13	Composition, 18M, 10%, 1/2 W	RC20BF186K
R14, 15	Dep. Carbon, 1K	R33DC102J
R16, 17	Dep. Carbon, 100K	R33DC104J
R18, 19	Potentiometer, 500K, Dual; Bass, Treble Control	R50160-138
R20	Potentiometer, 500K, Balance Control	R50160-137
R21	Potentiometer, 500K, Dual, Volume Control	R50160-139
R22, 23	Dep. Carbon, 22K	R33DC223J
R24, 25	Dep. Carbon, 47K	R33DC473J
R26, 27	Dep. Carbon, 390K	R33DC394J
R28, 29	Dep. Carbon, 1K	R33DC102J
R30, 31	Dep. Carbon, 220	R33DC221J
R32, 33	Dep. Carbon, 47K	R33DC474J
R34, 35	Composition, 150K, 10%, 1/2 W	RC20BF154K
R36	Potentiometer, Twin, 100K, A.C. Balance	R1078-116
R37, 38, 39, 40	Dep. Carbon, 1M	R33DC105J
R41, 42, 43, 44	Dep. Carbon, 1K	R33DC102J
R45, 46	Dep. Carbon, 6.8K	R33DC682J
R47, 48	Composition, 100, 10%, 1W	RC30BF101K

MISCELLANEOUS

Symbol	Description	Part No.
I1	Pilot Bulb, #47	150009-1
CR1, 2	Silicon Rectifier	SR50472
CR3	Silicon Rectifier	V-1112
J11	Phone Jack	J846-120-1
PC1, 2	Printed Circuit, Tone Control	PC50187-9
S1	Switch, Selector	S1078-117
S2, 3	Switch, Slide	S509200-5
T1	Transformer, Power	T1078-115
T2	Transformer, Output	T1078-117-2
T3	Transformer, Output	T1078-117-1
—	Dress Panel	AS1078-107
—	Knobs	E50325-1
—	Tube Shield	E3287
—	Speaker Cable	AS50470-3
—	Cartridge	G50504
—	Record Changer	RC1082-106
—	Line Cord, Interlock	W50519
—	45 RPM Spindle	A50412-5

SPEAKER SYSTEMS

Symbol	Description	Part No.
C1	Capacitor, 4uf	C-304
L1	Coil, Crossover	L-208
LS1	Speaker, Woofer, 8", 8 Ohms	W-118
LS2	Speaker, Tweeter, 4", 8 Ohms	T-122

FM TUNER FM-19 (ONLY IN MODEL A-19)

CAPACITORS

NOTE: The tuner is included in Model A-19. Model A-9 contains only the amplifier chassis.

10% tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value). All capacitors not marked uf are pf (uuf).

Symbol	Description	Part No.
C1	Ceramic, 21, 5%, N750, 1000V	C50070-32
C2	Ceramic, .02uf, +80 —20%, 500V	C50089-5
C3	Ceramic, 1000, GMV, 1000V	C50071-2
C4, 5	Ceramic, Feedthru, 1000, GMV	C592-187
C6	Ceramic, 8, ±.5, NPO, 500V	CC20CJ080D5
C7	Ceramic Trimmer	C662-123
C8	Ceramic, 1000, GMV, 1000V	C50071-2
C9	FM Tuning	C818-116
C10	Ceramic, 33, 5%, N750, 1000V	C50070-25
C11	Ceramic, 24, 5%, N150, 1000V	C50070-8
C12	Ceramic, 47, 5%, N750, 1000V	C50070-29
C13	Ceramic Trimmer	C662-123
C14	Ceramic, 100, 5%, N1500, 1000V	C50070-19
C15	Ceramic, 8, ±.5, NPO, 1000V	CC20CJ080D5
C16	Ceramic, 1000, 1000V	C50072-3
C17	Ceramic, 10, ±.5, N150, 1000V	CC20PJ100D5
C18	Ceramic, Feedthru, 1000, GMV	C592-187
C19	Ceramic, 5000, +80 —20%, 500V	C50089-6
C20	Ceramic, 2700, 1000V	C50072-17
C21	Ceramic, 5000, +80 —20%, 500V	C50089-6
C22	Ceramic, .02uf, GMV, 1000V	C50071-6

PARTS DESCRIPTION LIST

C23, 24,		
25, 26	Ceramic, 5000, +80 —20%, 500V	C50089-6
C27	Ceramic, 2700, 1000V	C50072-17
C28	Electrolytic, 40uf, 350V	C50475-1
C29	Ceramic, 5000, +80 —20%, 500V	C50089-6
C30	Ceramic, 2700, 1000V	C50072-17
C31	Ceramic, 5000, +80 —20%, 500V	C50089-6
C32	Ceramic, 560, 1000V	C50072-14
C33, 34		
35	Ceramic, 330, 1000V	C50072-1
C36	Mylar, .1uf, 250V	C50197-54
C37	Ceramic, 1500, 1000V	C50072-10
C38	Electrolytic, 8uf, 50V	C629-138

RESISTORS AND POTENTIOMETERS

In ohms, 10% tolerance, 1/2 Watt unless otherwise noted. K=Kilohm, M= Megohm.
noted. K=Kilohms, M=Megohms.

Symbol	Description	Part No.
R1, 2	Composition, 100K	RC20BF104K
R3	Composition, 1.5M	RC20BF155K
R4	Composition, 470	RC20BF471K
R6	Composition, 820	RC20BF821K
R7	Composition, 150K	RC20BF154K
R8, 9	Composition, 1K	RC20BF102K
R10	Composition, 150	RC20BF151K
R11	Composition, 27K	RC20BF272K
R12	Composition, 1K	RC20BF102K
R13	Composition, 150	RC20BF151K
R14	Composition, 27K	RC20BF272K
R15, 16	Glass, 7.8K, 5W	RPG5W782K
R17	Composition, 47K	RC20BF473K
R18	Composition, 1K	RC20BF102K
R19	Composition, 2.2M	RC20BF225K
R20	Composition, 47K	RC20BF473K
R21	Composition, 1K	RC20BF102K
R22	Composition, 56K	RC20BF563K
R23	Composition, 270	RC20BF271K
R24	Dep. Carbon, 47K, 5%, 1/3 W	R33DC473J
R25	Composition, 1.5K	RC20BF152K
R26	Composition, 1K	RC20BF102K
R27	Composition, 15K	RC20BF153K

MISCELLANEOUS

Symbol	Description	Part No.
I1, 2	Bulb, #47	I50009-1
L1	FM Antenna Coil	L818-113
L2	Choke, 1.5 Microhenry	L50066-2
L3	Choke, R.F.	L629-180
L4	FM R.F. Coil	L818-114
L5	FM Oscillator Coil Assembly	AS818-118
L6	Choke, .68 Microhenry	L50066-1
L7	Choke, .2 Microhenry	L50066-21
L8	Choke, 3.3 Microhenry	L50066-8
S1	Switch, Selector	S1076-113
Z1	FM I.F. Transformer	ZZ662-117
Z2	FM I.F. Transformer	ZZ2987
Z3	FM Limiter Coil	ZZ50210-6
Z4	FM Ratio Detector Transformer Assembly	ZZ50210-9
—	Dress Panel	AS1076-108
—	Knob Selector Switch	E50325-1
—	Knob, Tuning	E50325-2
—	Tube Shield	E3330
—	Dial Glass	N1076-111
—	FM Dipole Assembly	AS50227-2

MULTIPLEX SECTION

CAPACITORS

10% tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value). All capacitors not marked uf are pF (uuf).

Symbol	Description	Part No.
C200	Ceramic, .01uf, +80 —20%, 500V	C50089-7
C201	Ceramic, 680, 1000V	C50072-2
C203	Ceramic, 220, 1000V	C50183-3
C204	Polystyrene, 470, 5%, 500V	C50394-1
C205	Ceramic, 82, 1000V	C50070-7
C206	Ceramic, 1000, GMV, 500V	C50089-2
C208, 209	Mica, 4700, 5%, 500V	C50332-5
C210	Electrolytic, 1uf, 350V	C50283-3
C211	Ceramic, 1000, GMV, 500V	C50089-2
C214	Mylar, 4700, 400V	C50197-25
C215	Mica, 3900, 5%, 500V	C50332-6
C216, 217	Ceramic, 1000, GMV, 500V	C50089-2
C218	Ceramic, .02uf, 20%, 500V	C50089-5
C219	Ceramic, 330, 1000V	C50183-5
C220	Ceramic, .02uf, 20%, 500V	C50089-5
C221, 222	Mylar, .047uf, 250V	C50197-52
C223, 224	Ceramic, 1000, 1000V	C50072-3
C225, 226	Ceramic, 2200, 1000V	C50072-5

RESISTORS

Symbol	Description	Part No.
	In ohms, 5% tolerance, 1/3 W unless otherwise noted. K=Kilohms, M=Megohms.	
R200	Composition, 22M, 10%, 1/2 W	RC20BF226K
R201	Composition, 4.7K, 1/2 W	RC20BF472J
R202	Composition, 15K, 1/2 W	RC20BF153J
R203	Composition, 10M, 10%, 1/2 W	RC20BF106K
R205	Dep. Carbon, 220K, 1/3 W	R33DC224J
R206	Dep. Carbon, 1M	R12DC105J
R208	Dep. Carbon, 22K	R12DC223J
R209, 210,		
211, 212	Dep. Carbon, 33K	R12DC333J
R213, 214	Dep. Carbon, 100K	R12DC104J
R215	Potentiometer, 50K, MPX Separation	R50150-4
R216	Composition, 22M, 10%, 1/2 W	RC20BF226K
R217, 218	Dep. Carbon, 18K, 1/3 W	R33DC183J
R219, 220	Dep. Carbon, 15K, 1/3 W	R33DC153J
R221	Composition, 22M, 10%, 1/2 W	RC20BF226K
R222, 223	Dep. Carbon, 27K	R12DC273J
R224, 225	Dep. Carbon, 22K	R12DC223J
R226, 227,		
228, 229,		
230	Dep. Carbon, 1M	R12DC105J

MISCELLANEOUS

Symbol	Description	Part No.
CR102, 103	Diode, Type 1112	V-1112
L100	Coil, Low Pass	L50210-30
L102, 103	Coil, 20 MH	L50334-2
Z100	Transformer, 19Kc	ZZ50210-34
Z101	Coil, 38Kc	ZZ50210-33

ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Turn the station selector completely counterclockwise, without forcing. Dial pointer should be at zero index mark on logging scale. If not, reset the dial pointer. Disconnect the external antennas and the antenna link. Set Ferrite Loop to normal position, parallel to rear panel. When using an oscilloscope for alignment, set the output level controls for no overload, as shown by the proper waveform shape. Connect loads to main output and turn volume control to minimum.

SIGNAL GENERATORS: The signal generator equipment must be able to supply the following: FM RF modulated 30% (± 22.5 KC deviation) at 400 cps; AM RF modulated 30% at 400 cps;

AM IF with 30KC sweep for AM bandwidth adjustment.

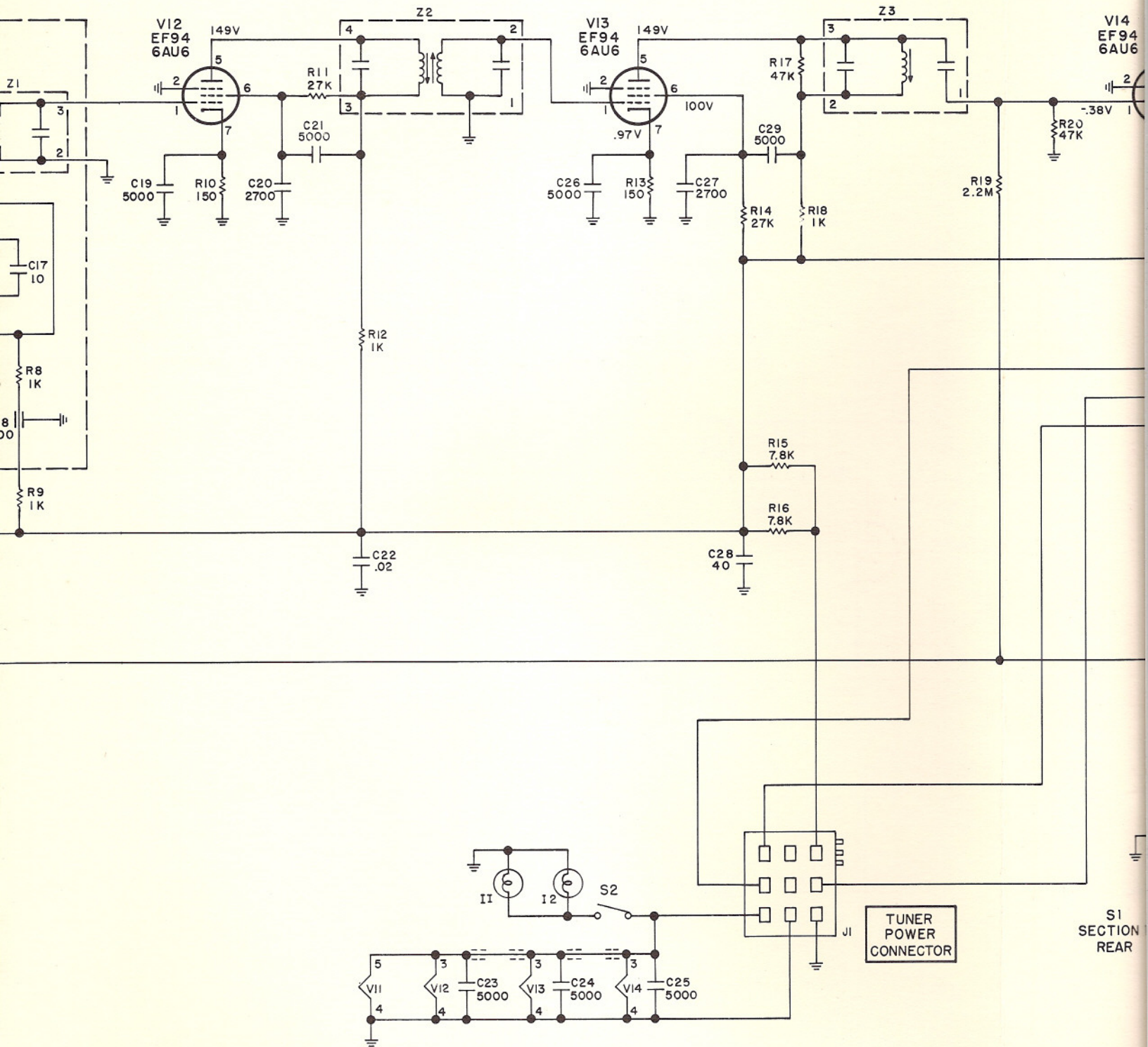
INDICATOR: DC VTVM, AC VTVM, and scope for alignment.

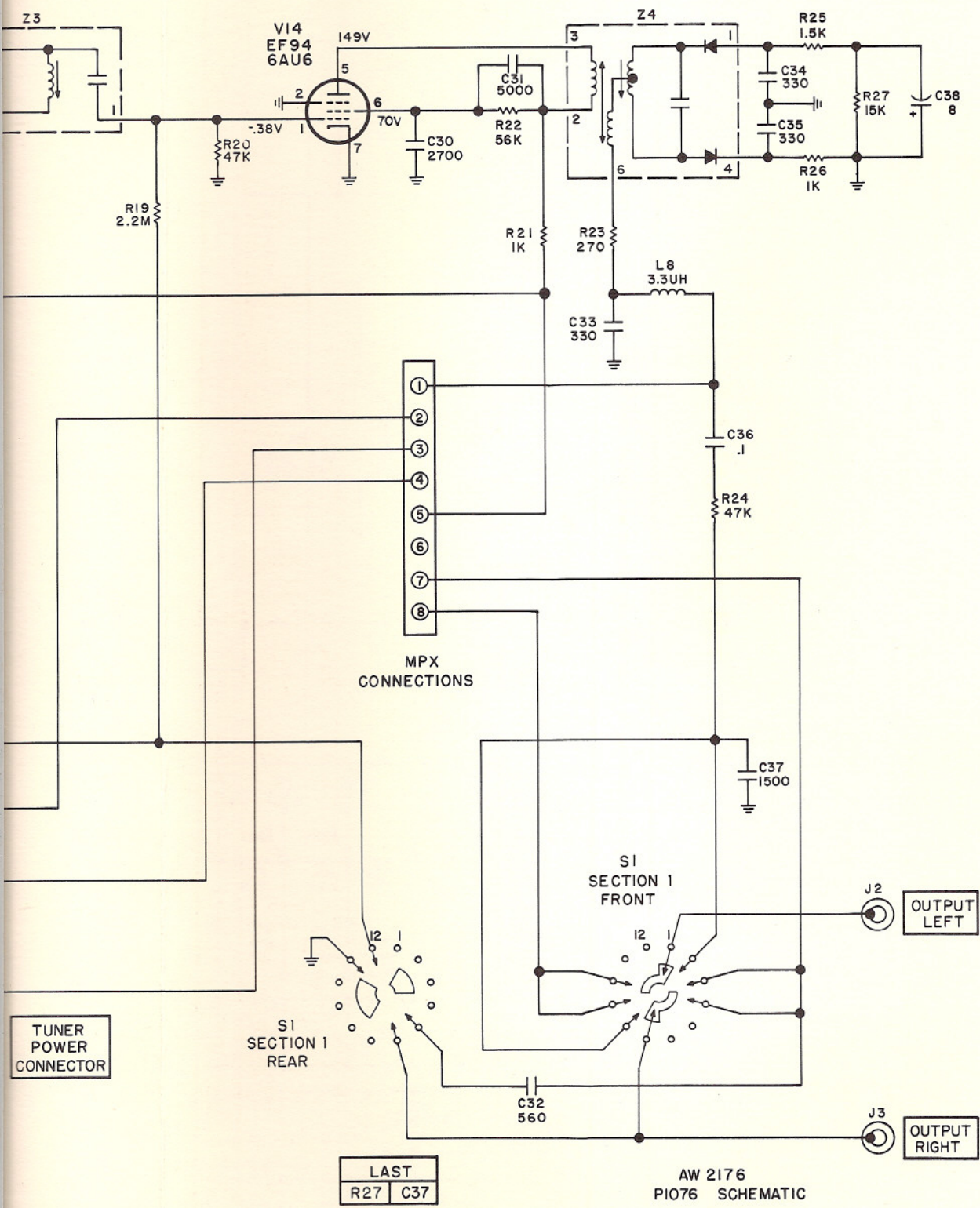
ALIGNMENT: Turn the amplifier and tuner on, turning the selector switch on the amplifier to the FM position. Allow the chassis and test instruments to warm up for at least fifteen minutes. Adjust the line voltage for 117 volts AC, 50-60 cycles. Use fully insulated tools, and a small screwdriver for all trimming capacitors. Do not attempt to service the tuner with the amplifier off, since tuner power is obtained from the amplifier through J1.

FM ALIGNMENT

NOTE: For calibrating both the AM and FM, use as low an output voltage as possible from your signal generator.

STEPS	CHASSIS		SIGNAL GENERATOR			INDICATOR		ALIGNMENT	
	SELECTOR	STATION SELECTOR	COUPLING	FREQ.	MOD.	TYPE	CONNECTION	ADJUST	INDICATION
1	FM	Point of no signal and no interference	FM Gen connected to ungrounded tube shield of V11	10.7 MC	None	DC VTVM	to junction of R3 and R19	Z1, Z2, Z3, and Z4, top and bottom	Maximum negative voltage
2	FM	Point of no signal and no interference	FM Gen connected to ungrounded tube shield of V11	10.7 MC	None	Connect hot lead of DC VTVM	to junction of L8 and C36	Z4, top	Zero reading on zero center scale
3	FM	90 MC	FM Gen. connected thru two 120 ohm carbon resistors in series with lead to antenna terminals	90 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM	to junction of R3 and R19	L1, L4, and L6	Check for sine waveform and adjust for maximum negative voltage
4	FM	106 MC	FM Gen. connected thru two 120 ohm carbon resistors in series with lead to antenna terminals	106 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM	to junction of R3 and R19	C7, C13	Check for sine waveform and adjust for maximum negative voltage
5	Repeat steps 3 and 4 for proper dial calibration and maximum output.								





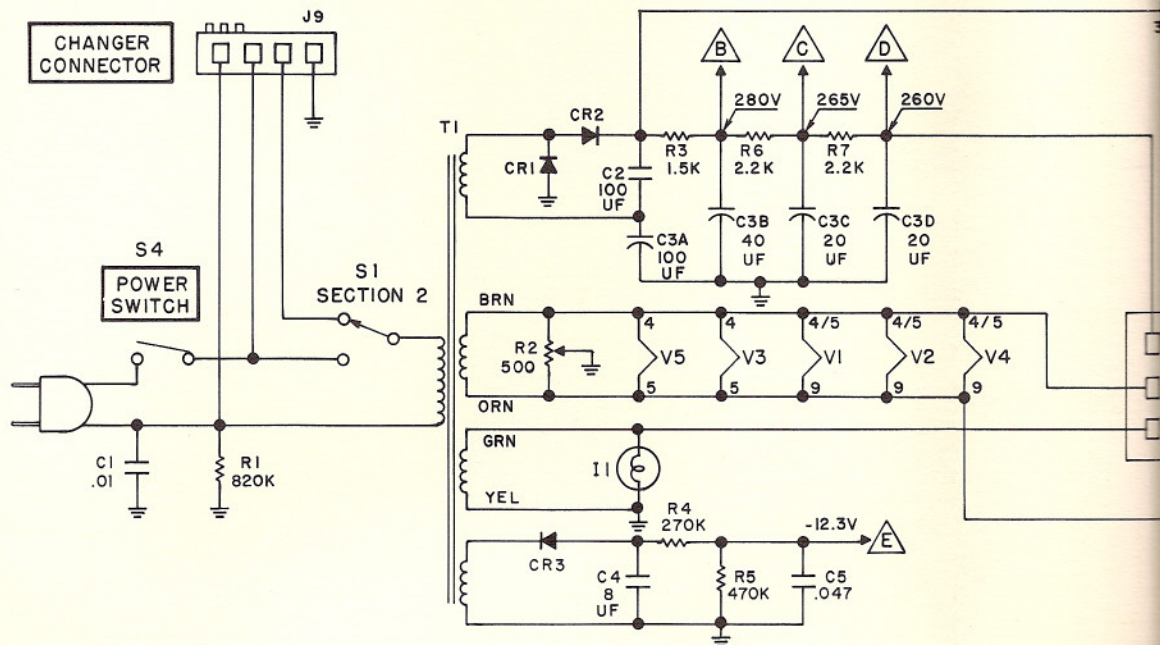
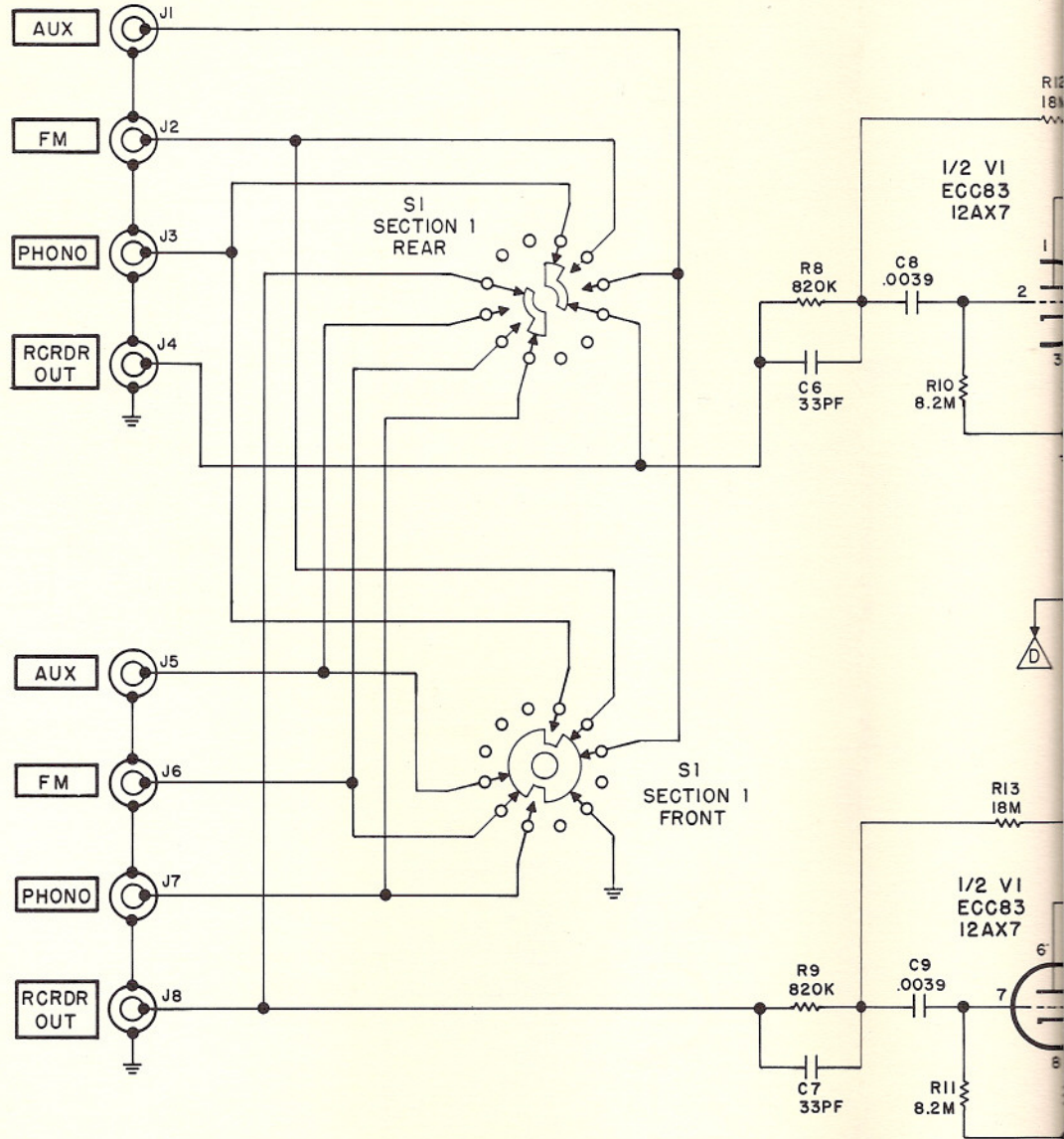
LAST
 R27 C37

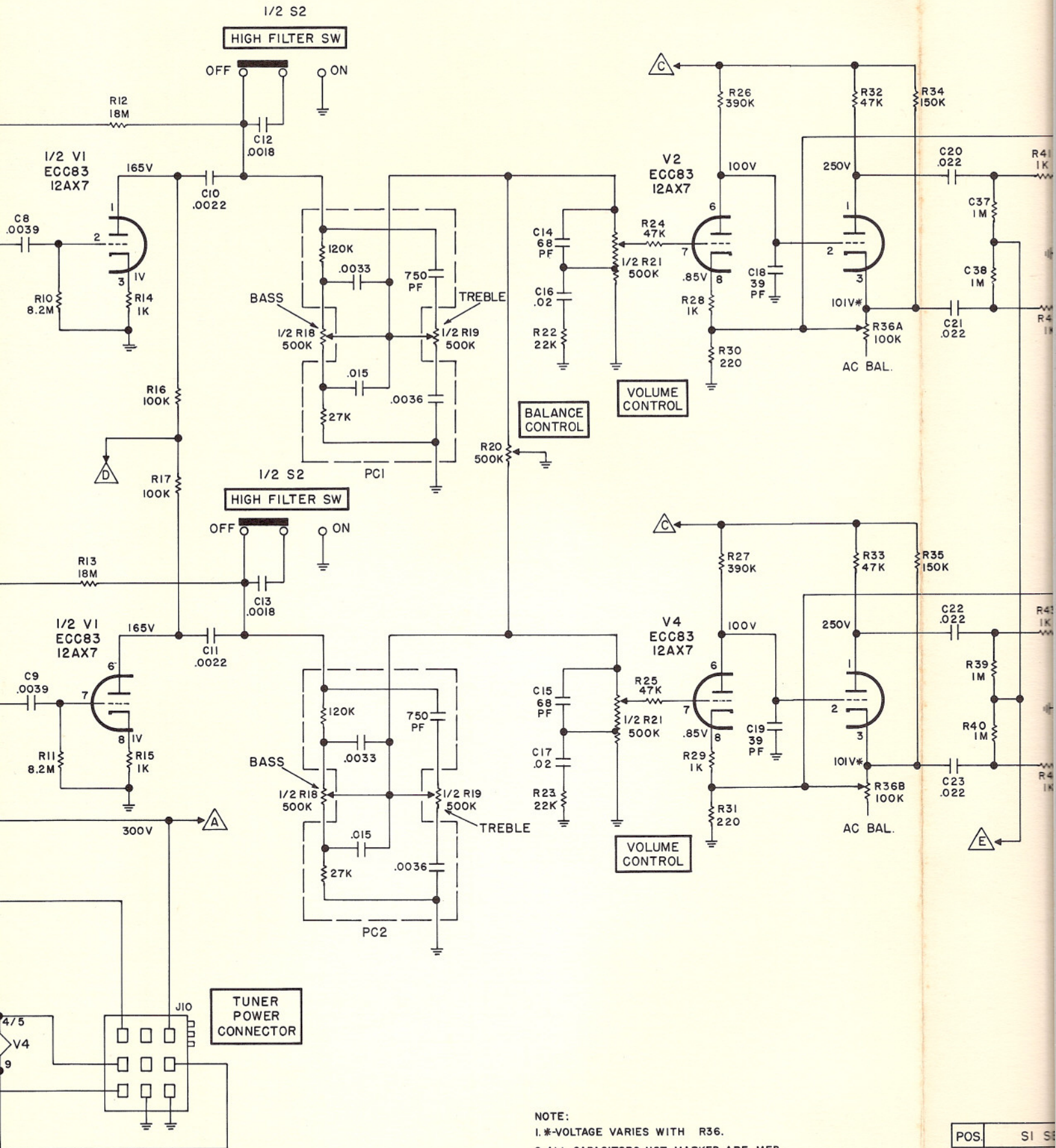
AW 2176
 PI076 SCHEMATIC

TUNER
 POWER
 CONNECTOR

OUTPUT
 LEFT

OUTPUT
 RIGHT

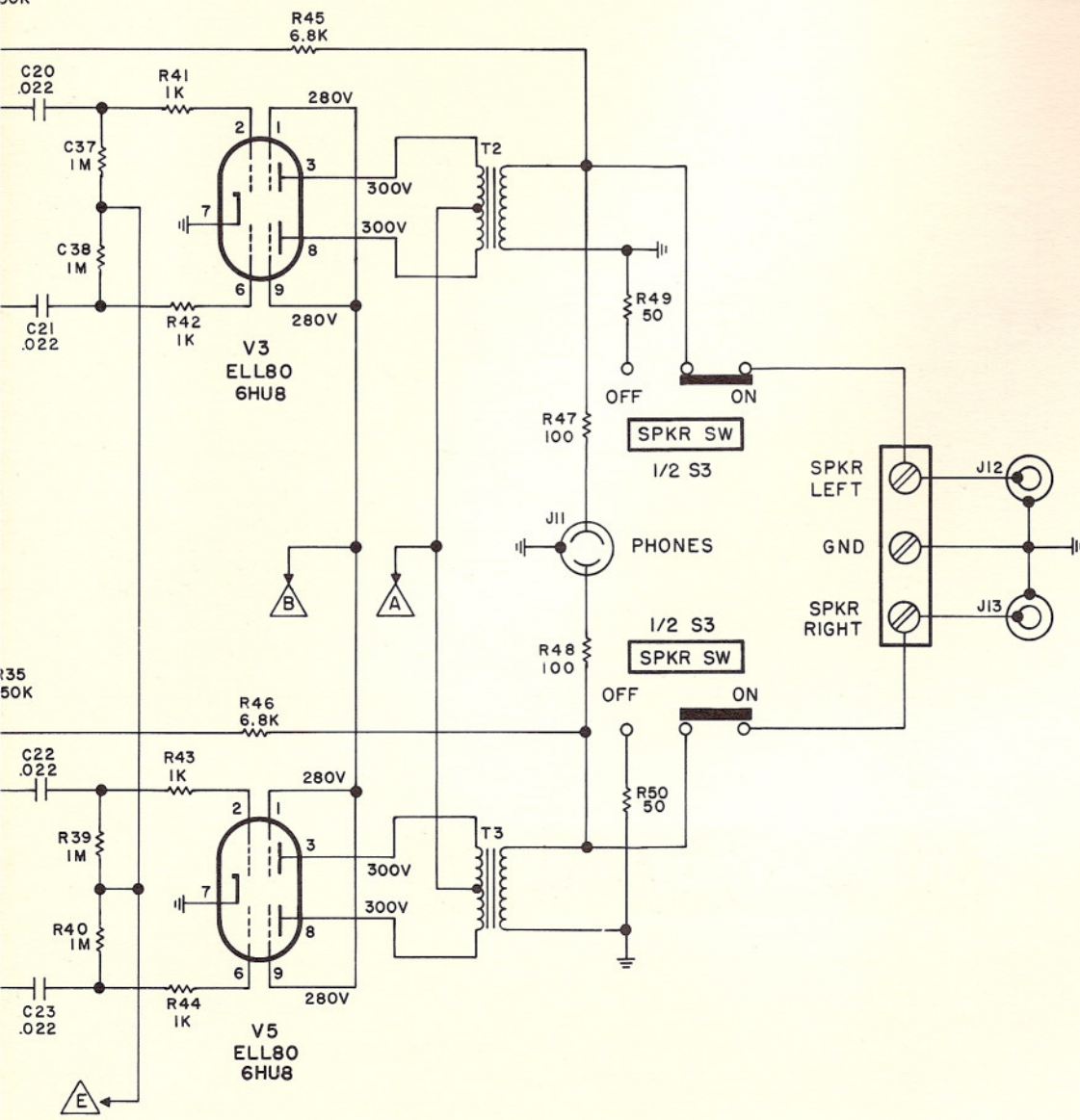




NOTE:
 1.*-VOLTAGE VARIES WITH R36.
 2.ALL CAPACITORS NOT MARKED ARE MFD.

POS.	SI	SE
1	PHONO	
2	FM	
3	AUX	

R34
50K



R35
50K

SCHEMATIC DIAGRAM • AMPLIFIER SECTION

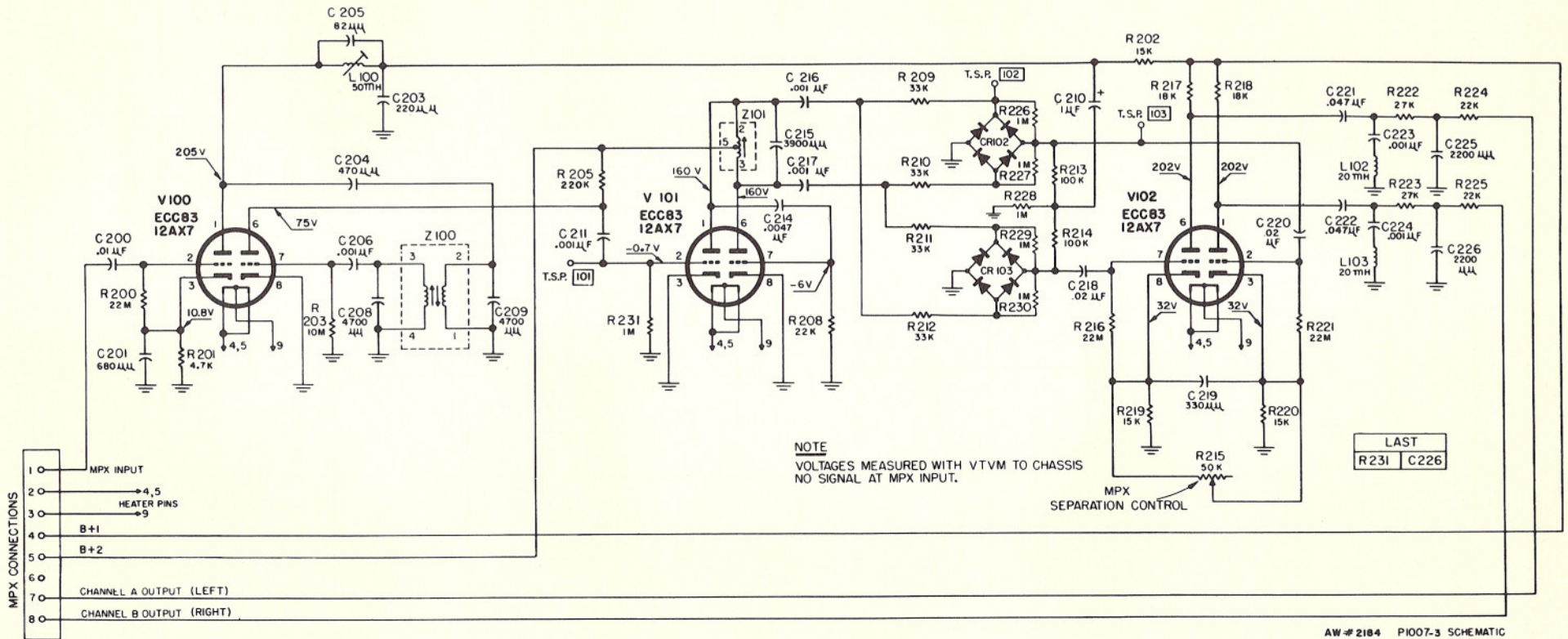
POS.	SI SELECTOR SW
1	PHONO ← SHOWN IN
2	FM
3	AUX

LAST	
R50	G23

AW 2171
PI078 SCHEMATIC

VI4
EF94
6AU6

SCHEMATIC DIAGRAM • MULTIPLEX SECTION



ALIGNMENT INSTRUCTIONS • MULTIPLEX SECTION

STEPS	GENERATOR			INDICATOR	ALIGNMENT		
	CONNECTION	AUDIO FREQUENCY	RF MODULATION	TYPE & CONNECTION	ADJUST	INDICATION	NOTES
1	Audio oscillator connected to lug 1	80 KC—1 volt	None	AC VTVM to junction of C210 and R228	L100 (Use hex alignment tool)	Minimum voltage	
2	Multiplex generator audio output to lug 1 (See Note 1)	19 KC (± 5 cps) pilot tone, 100 mv	None	DC VTVM to T.S.P. 101	Z100 top and bottom (Use hex alignment tool)	Maximum voltage	1
3	Same as Step 2	19 KC pilot tone, 50 mv	None	Scope horiz. input to 19 KC output of gen.; vert. input to junction of C216 and R209. External sweep	Z101 (Use K-tran alignment tool)	Stable 2:1 Lissajous pattern. Disregard phase of pattern	1
4	Same as Step 2	19 KC	None	Same as Step 3	Vary generator 19 KC output from 50 to 200 mv	Lissajous pattern should remain stationary over the entire 150 mv range	1, 2
5	Same as Step 2	1000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	AC VTVM and scope vert. input to channel A output lug. Internal sweep. DC VTVM to T.S.P. 101	Z100 top (Use hex tool)	Maximum indication on AC VTVM. Clean 1000 cps waveform on scope	1, 3
6	Same as Step 2	1000 cps on right (B) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 5	MPX separation R215	Minimum reading on AC VTVM should be at least 33 db below reading obtained in Step 5	1
7	Same as Step 2	Same as Step 6	None	Move scope input and AC VTVM to channel B output lug	-----	Note and record voltage reading on AC VTVM	1
8	Same as Step 2	1000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	-----	AC VTVM reading should be at least 33 db below reading observed in Step 7	1
9	Same as Step 2	8000 cps on right (B) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	-----	AC VTVM reading should be the same as observed in Step 7	1
10	Same as Step 2	8000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	-----	AC VTVM reading should be at least 18 db below reading observed in Step 9	1
11	Repeat Steps 9 and 10 with scope and AC VTVM connected to channel A output lug, but start with 8000 cps applied to left channel for first reading, then switch to right channel for second reading.						
12	Multiplex generator RF output to 300-ohm antenna terminals	1000 cps on left (A) channel only	100% (75 KC Dev.) No pre-emphasis	Move scope input and AC VTVM to channel A output lug	-----	Note and record voltage reading on AC VTVM	4
13	Same as Step 12	1000 cps on right (B) channel only	Same as Step 12	Same as Step 12	R215	Minimum reading on AC VTVM should be at least 33 db below reading observed in Step 12	4
14	Same as Step 12	8000 cps on left (A) channel only	Same as Step 12	Same as Step 12	-----	AC VTVM reading should be 10 db below reading observed in Step 12	4
15	Same as Step 12	8000 cps on right (B) channel only	Same as Step 12	Same as Step 12	-----	AC VTVM reading should be 28 db below reading observed in Step 12	4

NOTE: The above procedure is based on the use of the FISHER Model 300 Multiplex Generator.

1 — In steps 2 through 11, the audio output of the Multiplex Generator should be connected to lug 1 of the multiplex sub-chassis through a 12,000 ohm, 1/2-watt, carbon resistor, and a 180 uuf capacitor should be connected between lug 1 and ground. The wiring from the MPX TEST jack on the main chassis to lug 1 must be disconnected during Steps 2 through 11.

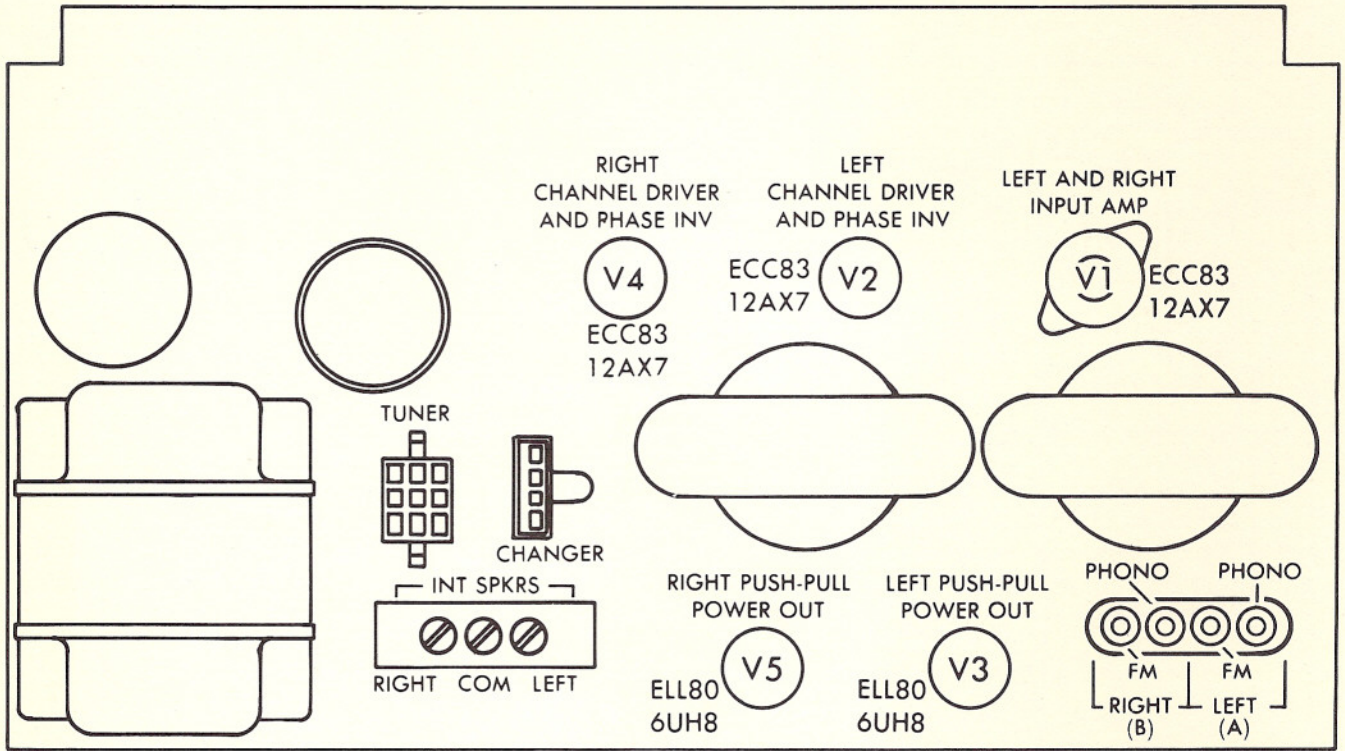
2 — The vertical amplitude of the Lissajous pattern will increase slightly

as the generator output is increased. This is a normal occurrence.

3 — If DC VTVM reading falls below -9 volts when maximum reading is obtained on the AC VTVM, readjust bottom of Z100, then repeat Step 5. Repeat this procedure until maximum AC VTVM reading is obtained with DC VTVM reading greater than -9 volts.

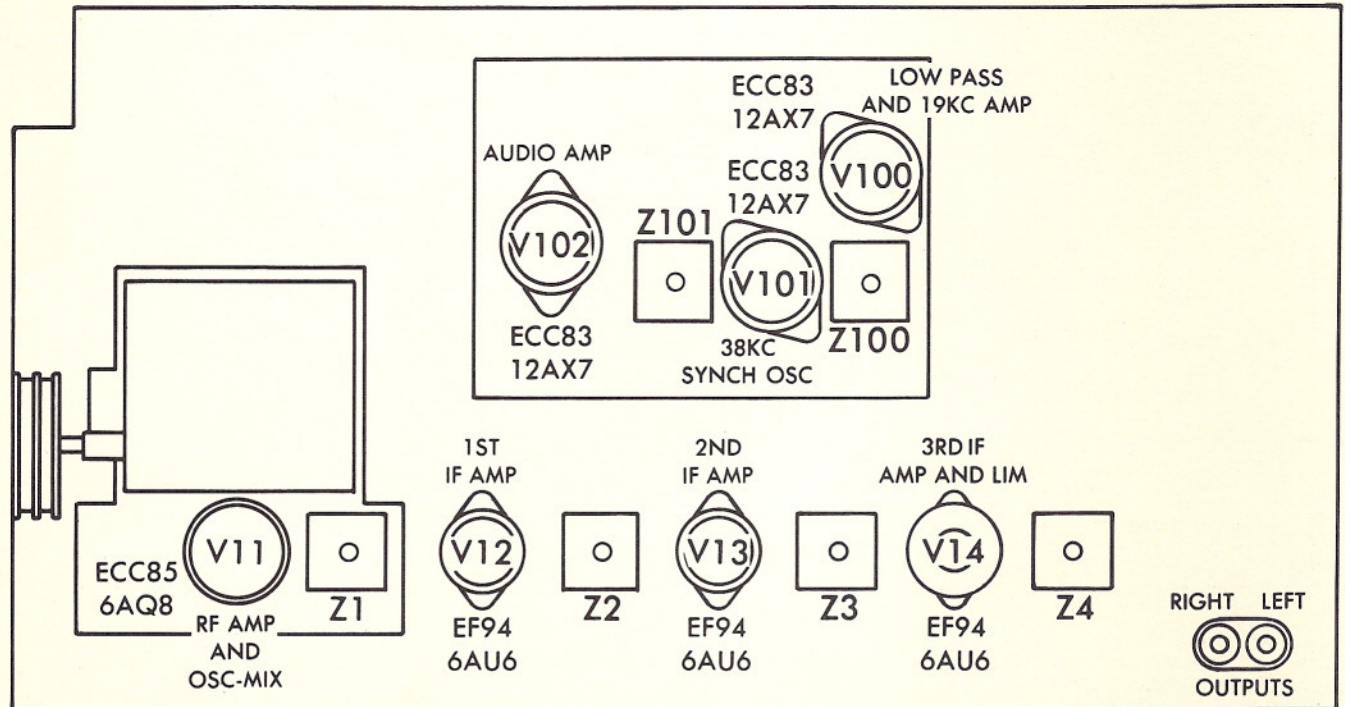
4 — Tune the FISHER to the RF output frequency of the Multiplex Generator.

TUBE LAYOUT • TUNER



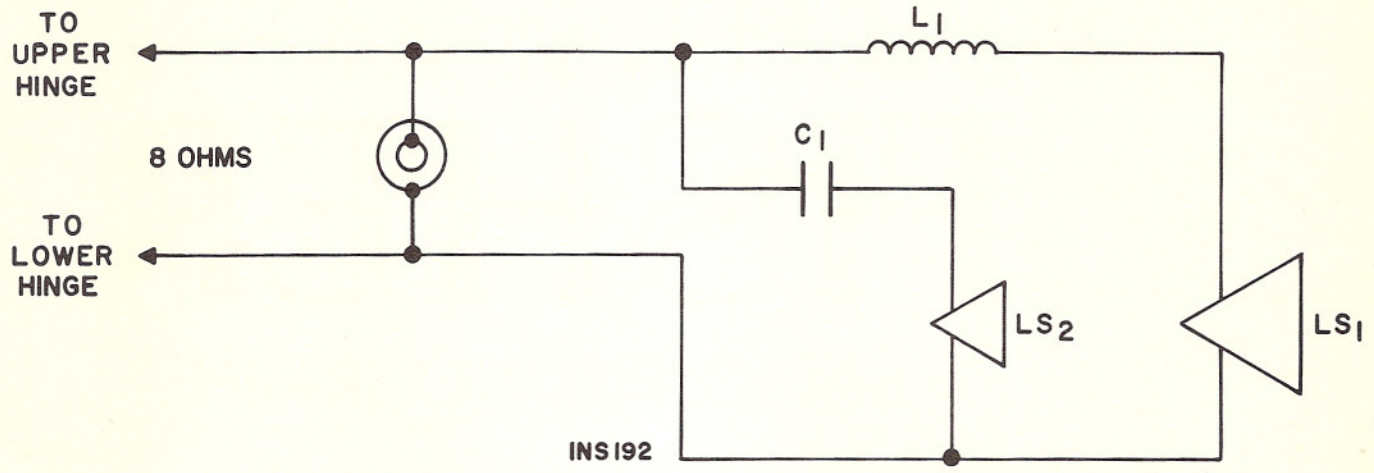
INS190

TUBE LAYOUT • AMPLIFIER



INS189

SCHEMATIC DIAGRAM · SPEAKER SYSTEMS



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