



Stereophonic

THE FISHER 500-S

SERVICE

MANUAL



MODEL 500-S

CHASSIS SERIAL NUMBERS
FROM 10001 TO 19999 INCLUSIVE

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

PARTS DESCRIPTION LIST

CAPACITORS

10 % tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value).

Symbol	Description	Part No.
C1	Ceramic, 21uuf, 5 %, N750, 1000V	C50070-32
C2	Ceramic, 3uuf, NPO, 1000V	C50070-28
C3	AM, variable	C799-119
C4	Ceramic, .02uf, +80 — 20 %, 500V	C50089-4
C5	Ceramic, 100uuf, GMV, N1500, 1000V	C50070-5
C6	Ceramic, .001uf, GMV, 1000V	C50071-2
C7	Ceramic, feedthru, .001uf, GMV	C592-187
C8	Ceramic, .02uf, +80 — 20 %, 500V	C50089-4
C9	Ceramic, feedthru, .001uf, GMV	C592-187
C10, 11	Ceramic, .02uf, +80 — 20 %, 500V	C50089-4
C12	Ceramic, trimmer	C662-123
C13	Mylar, .047uf, 250V	C50197-52
C14	FM, variable	C818-116
C15	Ceramic, 2.2uuf, 500V	C3039
C16	Ceramic, .001uf, GMV, 1000V	C50071-2
C17	Ceramic, 8uuf, ±.5uuf, NPO, 500V	CC20CJ080D5
C18	Ceramic, 5uuf, ±.5uuf, NPO, 500V	CC20CJ050D5
C19	Ceramic, 100uuf, GMV, N1500, 1000V	C50070-5
C20	Molded, .01uf, 20 %, 600V	C2747
C21	Ceramic, trimmer, N150	C662-123
C22	Ceramic, 24uuf, 5 %, 1000V	C50070-8
C23	Ceramic, 47uuf, 5 %, N750, 1000V	C50070-29
C24	Ceramic, 100uuf, 5 %, N1500, 1000V	C50070-19
C25	Ceramic, .005uf, 20 %, 500V	C50089-1
C26	Ceramic, 8uuf, ±.5uuf, NPO, 500V	CC20CJ050D5
C27	Ceramic, .001uf, 1000V	C50072-3
C28	Ceramic, .005uf, 20 %, 500V	C50089-1
C29	Ceramic, feedthru, .001uf, GMV	C592-187
C30	Ceramic, 100uf, GMV, N1500, 1000V	C50070-5
C31	Ceramic, 10uuf, ±.5uuf, NPO, 500V	CC20CH100D5
C32	Ceramic, .005uf, 20 %, 500V	C50089-1
C33	Electrolytic, 100uf, 250V	C50180-15
C34	Ceramic, 10uuf, ±.5uuf, N150, 500V	CC20PJ100D5
C35	Ceramic, .01uf, 20 %, 500V	C50089-3
C36	Electrolytic, two section A — 40uf 450V B — 100uf 250V	C50180-16
C37	Ceramic, 33uuf, 5 %, N750, 1000V	C50070-25
C38	Ceramic, .005uf, 20 %, 500V	C50089-1
C39	Electrolytic, three section A — 40uf 450V B — 40uf 400V C — 20uf 300V	C50180-18
C40	Electrolytic, three section A — 60uf 250V B — 60uf 250V C — 100uf 100V	C50180-17
C41, 42, 43	Ceramic, .005uf, 20 %, 500V	C50089-1
C44	Ceramic, .01uf, 20 %, 500V	C50089-3
C45	Ceramic, .0027uf, 1000V	C50072-17
C47	Ceramic, .005uf, 20 %, 500V	C50089-1
C49	Ceramic, feedthru, .001uf, GMV	C592-187
C51	Ceramic, .02uf, +80 — 20 %, 500V	C50089-4
C52, 53, 54, 55	Ceramic, .005uf, 20 %, 500V	C50089-1
C56	Ceramic, .02uf, +80 — 20 %, 500V	C50089-4
C59	Ceramic, .005uf, 20 %, 500V	C50089-1
C60	Ceramic, .0027uf, 1000V	C50072-17
C61, 63	Ceramic, 220uuf, 1000V	C50072-20
C64	Mylar, .047uf, 250V	C50197-52
C65	Ceramic, .005uf, 20 %, 500V	C50089-1

C68	Ceramic, .0027uf, 1000V	C50072-17
C70	Ceramic, 330uuf, 1000V	C50072-1
C71	Ceramic, .0033uf, 1000V	C50072-11
C72, 73	Ceramic, 330uuf, 1000V	C50072-1
C74	Ceramic, .05uf, +80 — 20 %, 100V	C50073-2
C75	Ceramic, .005uf, 20 %, 500V	C50089-1
C76	Ceramic, .05uf, +80 — 20 %, 100V	C50073-2
C77	Electrolytic, 8uf, 50V	C629-138
C78	Mylar, .047uf, 250V	C50197-52
C79	Ceramic, 47uuf, N750, 1000V	C50070-4
C80	Ceramic, .68uuf, 20 %, 500V	C50077-6N
C81, 82	Ceramic, 100uuf, GMV, N1500, 1000V	C50070-5
C83, 84	Ceramic, .01uf, 20 %, 500V	C50089-3
C85, 86	Mylar, .022uf, 400V	C50197-28
C87	Ceramic, .05uf, +80 — 20 %, 100V	C50073-2
C88, 89	Ceramic, 39uuf, N1500, 1000V	C50070-17
C90, 91	Ceramic, .02uf, 20 %, 500V	C50089-5
C92, 93	Ceramic, .05uf, +80 — 20 %, 100V	C50073-2
C94, 95	Ceramic, 82uuf, 5 %, N1500, 1000V	C50070-33
C96, 97	Ceramic, .001uf, 1000V	C50072-3
C98, 99	Ceramic, .0039uf, 1000V	C50072-34
C100, 101	Ceramic, .02uf, 20 %, 500V	C50089-5
C102, 103	Ceramic, 68uuf, N2200, 1000V	C50070-12
C104	Ceramic, 3uuf, NPO, 1000V	C50070-28
C105, 106	Ceramic, .02uf, 20 %, 500V	C50089-5
C107	Ceramic, 3uuf, NPO, 1000V	C50070-28
C108, 109	Electrolytic, 25uf, 6V	C639-114
C110, 111	Ceramic, 150uuf, 1000V	C50072-18
C112, 113, 114, 115	Mylar, .047uf, 400V	C50197-30
C116, 117	Ceramic, 18uuf, N470, 1000V	C50070-13
C118, 119	Ceramic, 330uuf, 1000V	C50072-1
C120	Molded, .01uf, 20 %, 600V	C2747

RESISTORS AND POTENTIOMETERS

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

Symbol	Description	Part No.
R1	Composition, 100K	RC20BF104K
R2	Composition, 1.5M	RC20BF155K
R3	Composition, 820K	RC20BF824K
R4	Composition, 100	RC20BF101K
R5	Composition, 47K	RC20BF473K
R7	Composition, 470	RC20BF471K
R8	Composition, 820	RC20BF821K
R9	Composition, 820K	RC20BF824K
R10	Composition, 150K	RC20BF154K
R11	Composition, 22K	RC20BF223K
R12	Composition, 18K, 1W	RC30BF183K
R13	Composition, 1K	RC20BF102K
R14	Composition, 470	RC20BF471K
R15	Composition, 100	RC20BF101K
R16	Glass, 1.5K, 5W	RPG5W 152K
R17	Wirewound, 220, 5W	R551-137
R18	Composition, 2.7K, 1W	RC30BF272K
R19	Wirewound, 220, 5W	R551-137
R20	Composition, 270	RC20BF271K
R21	Composition, 150	RC20BF151K
R22	Composition, 270	RC20BF271K
R23	Composition, 2.7K, 1W	RC30BF272K
R24	Composition, 22K	RC20BF223K
R25	Composition, 47K	RC20BF473K
R26	Composition, 1K	RC20BF102K
R27	Composition, 180	RC20BF181K
R28	Composition, 100K	RC20BF104K
R29	Composition, 27K	RC20BF273K
R30	Composition, 150	RC20BF151K

PARTS DESCRIPTION LIST

R31 Composition, 1K
 R32 Composition, 68K
 R33, 34 Composition, 220
 R35 Dep. Carbon, 47K, 5%, 1/3 W
 R36 Dep. Carbon, 100K, 5%, 1/3 W
 R37 Dep. Carbon, 47K, 5%, 1/3 W
 R39 Composition, 68K
 R38 Composition, 47K
 R40 Composition, 1K
 R41 Composition, 2.2M
 R42 Composition, 47K
 R43 Composition, 22M
 R44, 45 Composition, 470K
 R46 Composition, 68K
 R47 Composition, 1K
 R48 Composition, 270
 R49 Dep. Carbon, 22K, 5%, 1/3 W
 R50 Composition, 1.5K
 R51 Composition, 1K
 R52, 53 Composition, 6.8K
 R54 Composition, 330K
 R55 Composition, 100K
 R56 Composition, 820K
 R57 Composition, 1.2M
 R58 Composition, 1M
 R59, 60, 61 Dep. Carbon, 100K, 5%, 1/3 W
 R62 Composition, 10
 R63 Dep. Carbon, 100K, 5%, 1/3 W
 R64 Composition, 10
 R65 Dep. Carbon, 10K, 5%, 1/3 W
 R66 Dep. Carbon, 2.7K, 5%, 1/3 W
 R67 Dep. Carbon, 10K, 5%, 1/3 W
 R68 Dep. Carbon, 2.7K, 5%, 1/3 W
 R69, 70 Dep. Carbon, 330K, 5%, 1/3 W
 R71, 72 Composition, 4.7M
 R73, 74 Dep. Carbon, 220K, 5%, 1/3 W
 R75, 76 Potentiometer, 250K, Phono level
 R77, 78 Dep. Carbon, 470K, 5%, 1/3 W
 R79, 80 Composition, 5.6M, 5%
 R81 Dep. Carbon, 220K, 5%, 1/3 W
 R82 Potentiometer, dual, 1M, bass
 R83 Dep. Carbon, 220K, 5%, 1/3 W
 R85, 86 Composition, 560
 R87, 88 Dep. Carbon, 100K, 5%, 1/3 W
 R89, 90 Composition, 39K
 R91 Potentiometer, dual, 1M, treble
 R93, 94 Dep. Carbon, 220K, 5%, 1/3 W
 R95, 96 Composition, 10M
 R97, 98 Composition, 3.3M, 5%
 R99, 100 Composition, 2.2M
 R101, 102 Dep. Carbon, 100K, 5%, 1/3 W
 R103 Composition, 560
 R104 Potentiometer, dual, 300K, balance
 R106 Composition, 560
 R107, 108 Dep. Carbon, 220K, 5%, 1/3 W
 R109 Dep. Carbon, 47K, 5%, 1/3 W
 R110 Potentiometer, dual, 500K, volume
 R111, 112 Dep. Carbon, 22K, 5%, 1/3 W
 R114 Dep. Carbon, 47K, 5%, 1/3 W
 R115 Dep. Carbon, 3.9K, 5%, 1/3 W
 R116 Dep. Carbon, 220, 5%, 1/3 W
 R117 Dep. Carbon, 3.9K, 5%, 1/3 W
 R118 Dep. Carbon, 220, 5%, 1/3 W
 R119, 120 Composition, 680K
 R121, 122 Dep. Carbon, 3.9K, 5%, 1/3 W

RC20BF102K
 RC20BF683K
 RC20BF221K
 R33DC473J
 R33DC104J
 R33DC473J
 RC20BF683K
 RC20BF473K
 RC20BF102K
 RC20BF225K
 RC20BF473K
 RC20BF226K
 RC20BF474K
 RC20BF683K
 RC20BF102K
 RC20BF271K
 R33DC223J
 RC20BF152K
 RC20BF102K
 RC20BF682K
 RC20BF334K
 RC20BF104K
 RC20BF824K
 RC20BF125K
 RC20BF105K
 R33DC104J
 RC20BF100K
 R33DC104J
 RC20BF100K
 R33DC103J
 R33DC272J
 R33DC103J
 R33DC272J
 R33DC334J
 RC20BF475K
 R33DC224J
 R50160-3
 R33DC474J
 RC20BF565J
 R33DC224J
 R50160-51-1
 R33DC224J
 RC20BF561K
 R33DC104J
 RC20BF393K
 R50160-51-2
 R33DC224J
 RC20BF106K
 RC20BF335J
 RC20BF225K
 R33DC104J
 RC20BF561K
 R50160-53
 RC20BF561K
 R33DC224J
 R33DC473J
 R50160-52
 R33DC223J
 R33DC473J
 R33DC392J
 R33DC221J
 R33DC392J
 R33DC221J
 RC20BF684K
 R33DC392J

R123, 124 Dep. Carbon, 47K, 5%, 1/3 W
 R125 Composition, 27K
 R126 Potentiometer, 25K
 R127 Composition, 27K
 R128 Potentiometer, 25K
 R129 Composition, 18K
 R130 Potentiometer, 5K
 R131 Composition, 4.7K
 R132, 133,
 134, 135 Dep. Carbon, 330K, 5%, 1/3 W
 R136, 137,
 138, 139 Dep. Carbon, 2.7K, 5%, 1/3 W
 R140, 141 Dep. Carbon, 47K, 5%, 1/3 W
 R142, 143 Dep. Carbon, 120K, 5%, 1/3 W
 R144 Dep. Carbon, 100K, 5%, 1/3 W
 R145, 146 Dep. Carbon, 270K, 5%, 1/3 W
 R147, 148 Composition, 2.2M

R33DC473J
 RC20BF273K
 R806-125
 RC20BF273K
 R806-125
 RC20BF183K
 R50103-4
 RC20BF472K
 R33DC334J
 R33DC272J
 R33DC473J
 R33DC124J
 R33DC104J
 R33DC274J
 RC20BF225K

COILS, CHOKES AND TRANSFORMERS

Symbol	Description	Part No.
L1	Choke, 3.3 micro-henry	L50066-8
L2	AM, ferrite loop	L50210-25
L3	FM, ant. coil	L818-113
L4	Choke, 1.5 micro-henry	L50066-4
L5	Choke, R.F.	L629-180
L6	FM, R.F., Coil	L818-114
L7	FM, osc. coil assembly	AS818-118
L8	Choke, .68 micro-henry	L50066-1
L9	Choke, .2 micro-henry	L50066-21
L10	AM, osc. coil	L50210-22
L11, 12, 13, 14, 15, 16, 17	Choke, ferrite bead	L592-189
T1	Transformer, power	T799-115
T2, 3	Transformer, output	T799-116
Z1	Transformer, FM, I.F.	ZZ662-117
Z2	Transformer, FM, I.F.	ZZ2987
Z3	Coil, FM, limiter assembly	L670-145
Z4	Transformer, FM, det.	ZZ592-170
Z5	Transformer, AM, R.F.	L50210-23
Z6	Transformer, AM, I.F.	ZZ50210-1
Z7	Transformer, AM, I.F.	ZZ2984

MISCELLANEOUS

Symbol	Description	Part No.
CR1, 2	Silicon diode, SD95A	SR806-126
CR3, 4	Diode, matched pair, 1N542	V-1N542
CR5	Diode, 1N38	V-1N38
F1	Fuse, 3.2A, Slo-blo	F3319
I1, 2	Dial lamp	I50082-6
PC1, 2	Printed circuit, phon. equ.	PC50187-3
PC3, 4	Printed circuit, tone control	PC50187-4
PC5, 6	Printed circuit, high freq. filter	PC50187-2
S1	Switch, selector	S799-125
S2, 3, 4, 5, 6, 7, 8, 9, 10	Switch, slide	S50200-2
S11	Switch, power	part of R110
—	FM, dipole assembly	A50227-1
—	Dress panel	AS799-130-1
—	Knob, dual, bottom	E50221
—	Knob, dual, top	E50220
—	Knob, tuning	E50224-2
—	Knob, dummy, dual	E50222-1
—	Dial glass	N799-107

ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Turn the station selectors completely counterclockwise, without forcing. Dial pointers should be at zero index mark on logging scale. If not, reset the dial pointers. 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 leads 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 swetp for AM bandwidth edjusement.

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

ALIGNMENT: 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: a small screw-driver for all trimming capacitors; a K-Tran tool for Z1, Z2, Z5, Z6 and Z7; a hex tool for Z3, Z4, L3, L6, L7 and L10. For AM alignment, short AVC to ground.

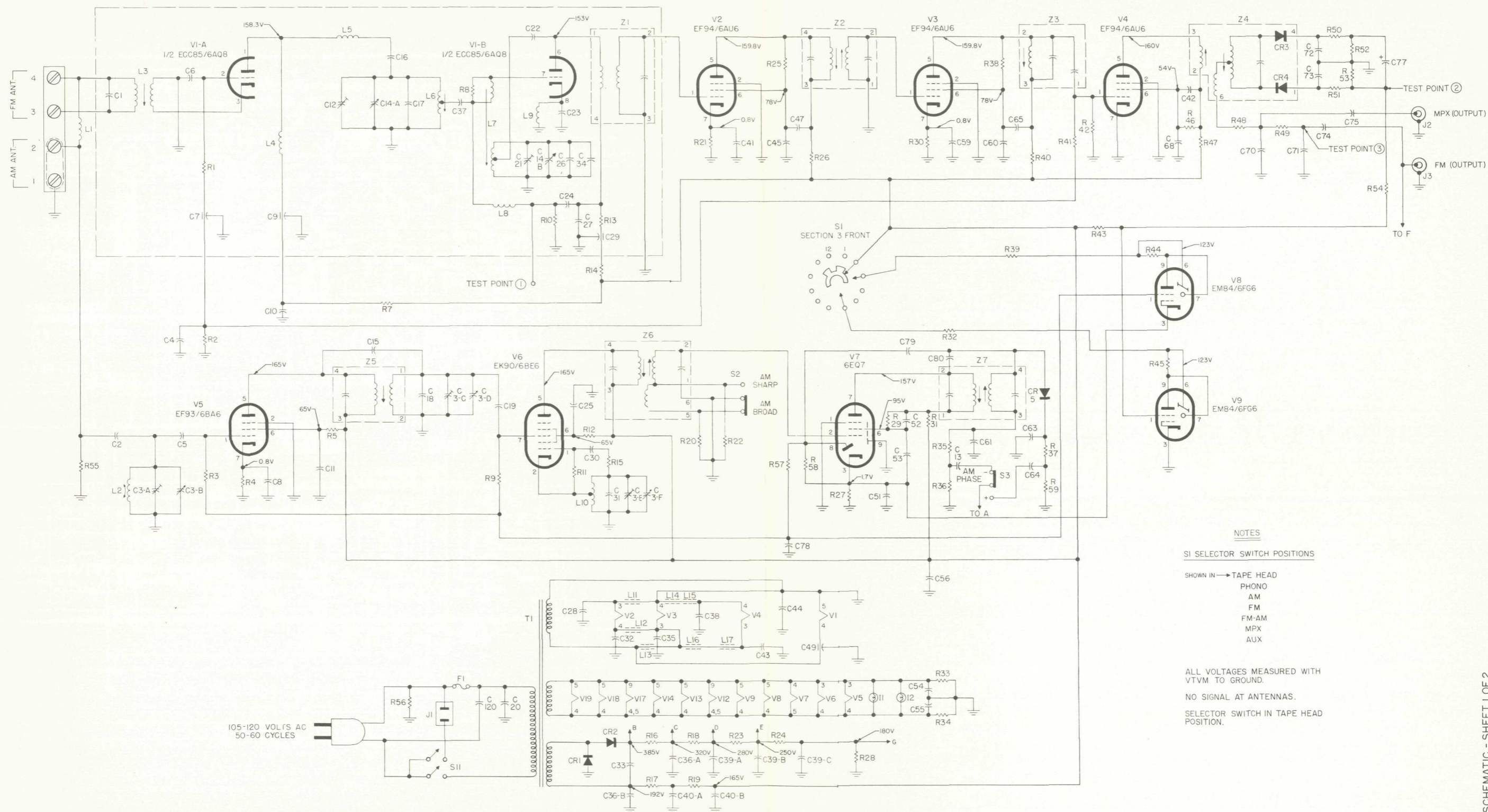
NOTE: For calibrating both the AM and FM, use as low an output voltage as possible from your signal generator.

STEPS	CHASSIS			SIGNAL GENERATOR			INDICATOR		ALIGNMENT	
	AM BANDWIDTH	SELECTOR	STATION SELECTOR	COUPLING	FREQ.	MOD.	TYPE	CONNECTION	ADJUST	INDICATION
1	SHARP	AM	Point of no signal and no interference	AM Gen. connected thru .01-uf cap. in series with hot lead to V6, Pin 7	455 KC	30% AM at 400 cps	AC VTVM	to Ch. B Rec. Output	Z6, Z7 top and bottom	Maximum voltage
2	BROAD	AM	Point of no signal and no interference	AM Gen. connected thru .01-uf cap. in series with hot lead to V6, Pin 7	455 KC	30 KC sweep	Scope	to Ch. B Rec. Output	Z6 Bottom	Adjust slightly for symmetrical curve
3	SHARP	AM	600 KC	AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2 Disconnect link between 2 & 1	600 KC	30% AM at 400 cps	AC VTVM	to Ch. B Rec. Output	L10, Z5, L2	Maximum voltage
4	SHARP	AM	1400 KC	AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2 Disconnect link between 2 & 1	1400 KC	30% AM at 400 cps	AC VTVM	to Ch. B Rec. Output	C3E, C3C, C34	Maximum voltage
5	Repeat steps 3 and 4 for proper dial calibration and maximum output.									
6		FM	Point of no signal and no interference	FM Gen. connected to ungrounded tube shield of V2	10.7 MC	None	DC VTVM	to test point 2	Z1, Z2, Z3 and Z4, top & bottom	Maximum negative voltage
7		FM	Point of no signal and no interference	FM Gen. connected to ungrounded tube shield of V2	10.7 MC	None	Connect VT VM	to test point 3	Z4, top	Zero reading on zero center scale
8		FM	90 MC	FM Gen. connected thru two 120-ohm carbon resistors in series with lead to antenna terminals 3 and 4	90 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM	to the junction of R32 and R25 and scope to Ch. A. Rec. Output	L7, L6 and L3	Check for sine waveform and adjust for maximum negative voltage
9		FM	106 MC	FM Gen. connected thru two 120-ohm carbon resistors in series with lead to antenna terminals 3 and 4	106 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM	to the junction of R32 and R25 and scope to Ch. A. Rec. Output	C21, C12	Check for sine waveform and adjust for maximum negative voltage
10	Repeat steps 8 and 9 for proper dial calibration and maximum output.									

AM ALIGNMENT

FM ALIGNMENT

SCHEMATIC DIAGRAM • TUNER SECTION



NOTES

S1 SELECTOR SWITCH POSITIONS

- SHOWN IN → TAPE HEAD
- PHONO
- AM
- FM
- FM-AM
- MPX
- AUX

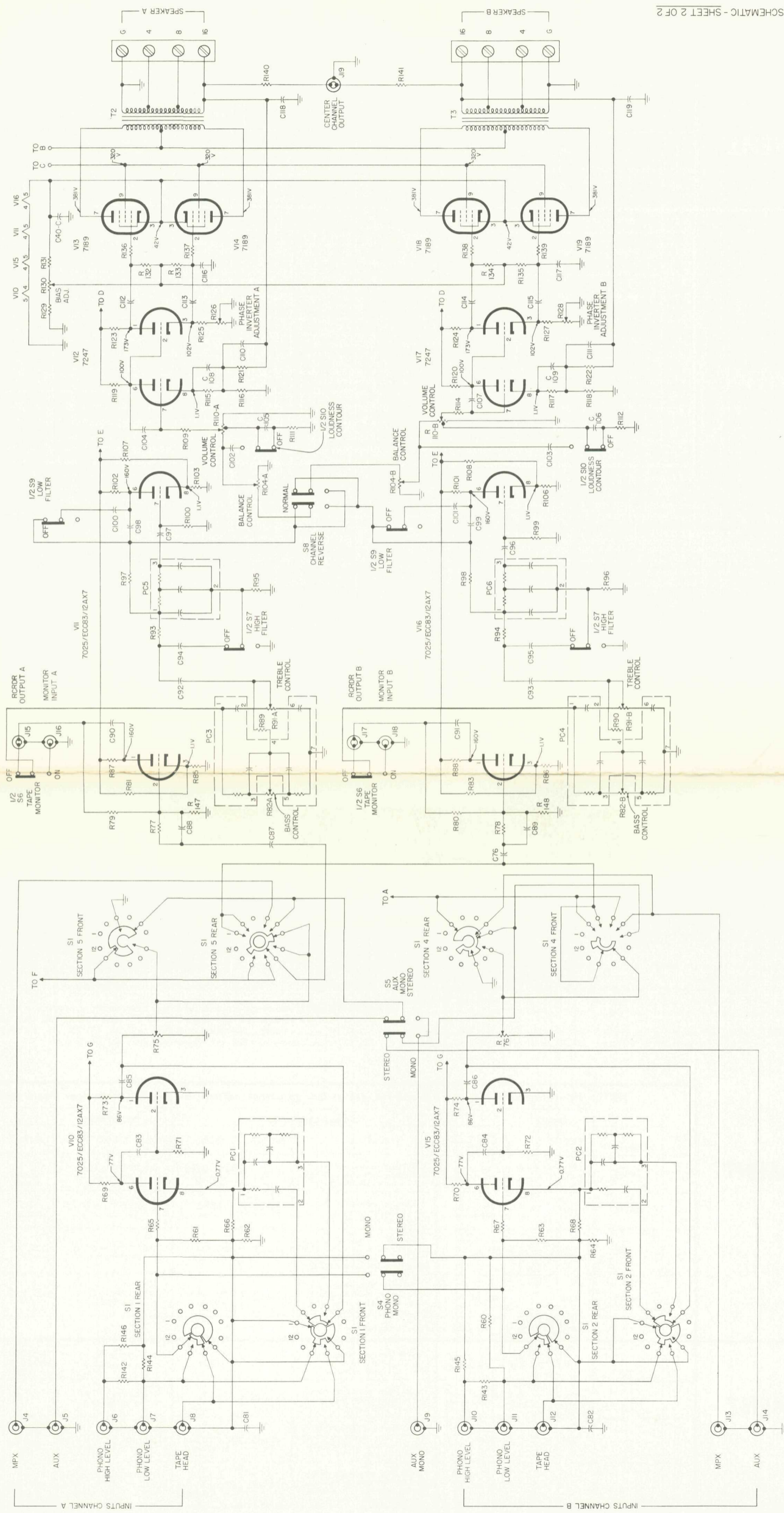
ALL VOLTAGES MEASURED WITH VTVM TO GROUND.

NO SIGNAL AT ANTENNAS.

SELECTOR SWITCH IN TAPE HEAD POSITION.

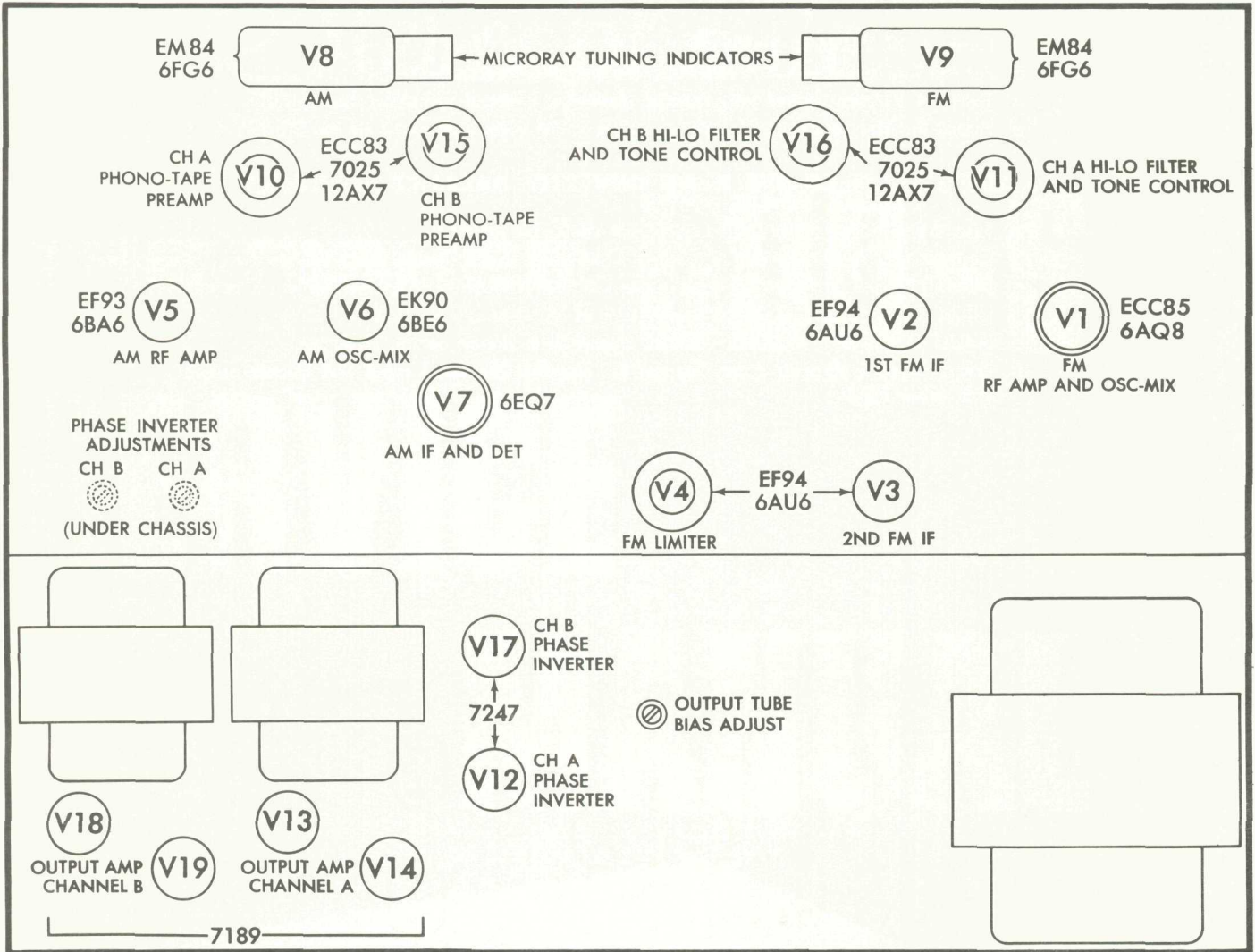
RESISTORS	R55	R1 R2 R3	R4	R5 R6	R7 R56	R8	R9	R10 R11 R12	R13 R14 R15	R16 R17	R18 R20 R23	R24 R25 R57	R26 R58	R27 R28	R29 R30 R32	R35 R36 R37	R38 R39 R40	R59	R41	R42 R43	R44 R45	R46 R47	R48	R49	R50 R52 R54	R51 R53
CAPACITORS	C1 C2	C3-A C5 C3-B	C4 C6 C7	C8 C9 C10	C12	C14-A C16 C17 C15 C18	C3-C C37 C3-D C20	C21 C22	C23 C26 C29 C3-E C34 C24 C27 C30 C33 C3-F C35	C36	C38 C39 C40	C41	C44 C45 C78 C49	C47	C51 C52 C54 C79 C53 C55 C56	C80 C13	C60 C61	C63 C58 C64 C65	C68 C42	C70	C71 C72 C75 C73 C74	C77				

SCHEMATIC DIAGRAM • AMPLIFIER SECTION



RESISTORS	CAPACITORS
R142 R144 R146 R60	C81 C82
R143 R145	
R61 R65	C83 C84
R62 R66	
R63 R67	
R64 R68	
R75	
R76	
R73	
R74	
R71	
R72	
R69	
R70	
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TUBE LAYOUT



AUDIO ADJUSTMENTS

TEST EQUIPMENT: Variable transformer for line voltage, DC VTVM, IM distortion analyzer, and 16-ohm, 25-watt resistor.

1 ADJUSTMENT OF OUTPUT TUBE BIAS

- a Connect DC VTVM to Pin 3 (cathode) of any output tube.
- b Set the line voltage to 117 volts with the variable transformer.
- c Turn the Volume control fully counter clockwise (without switching the set OFF).
- d Adjust the Bias control, R131, until a reading of 44 volts is obtained on the DC VTVM.

2 ADJUSTMENT OF THE PHASE INVERTER BALANCE CONTROLS

- a Turn the Volume control to the maximum clockwise position.
- b Connect the 16-ohm resistor across the Channel A 16-ohm output on the amplifier.
- c Connect the IM distortion analyzer to the Channel A AUX input, and to the amplifier output.
- d Adjust the analyzer output until an output of 15 watts is indicated.
- e Adjust R126 until a minimum value of distortion is shown on the analyzer.
- f Repeat steps b through d for Channel B. Use the Channel B input and 16-ohm output and adjust R128.



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