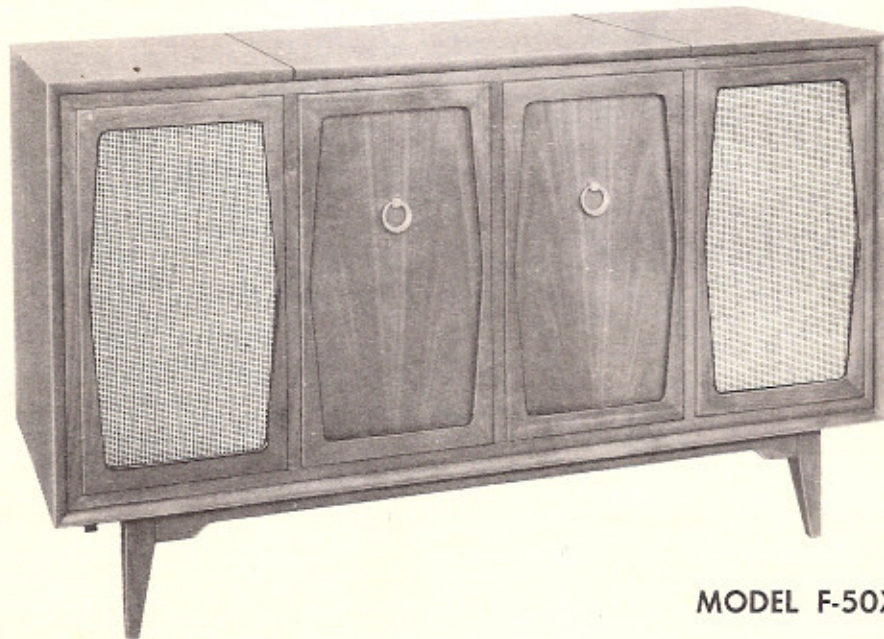




Stereophonic

**THE FISHER
FUTURA III
SERVICE
MANUAL**



MODEL F-50X

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

(c) www.fisherconsoles.com



THE FISHER F-50X



PARTS DESCRIPTION LIST • AMPLIFIER

CAPACITORS

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

Symbol	Description	Part No.
C91, 92	Ceramic, 47, N750, 1000V	C50070-4
C93	Electrolytic, 3 section: A— 100uf, 100V B— 60uf, 250V C— 60uf, 250V	C50180-17
C94, 95, 96, 97	Mylar, .047uf, 400V	C50197-30
C98	Electrolytic, 3 section: A— 40uf, 450V B— 40uf, 450V C— 100uf, 250V	C50180-23
C100, 102	Ceramic, 330, 1000V	C50072-1
C103	Electrolytic, 100uf, 250V	C50180-15
C106	Molded, .01uf, 20 %, 600V	C2747
C110, 111, 112, 113	Ceramic, 18, N470, 1000V	C50070-13
C114	Molded, .01uf, 20 %, 600V	C2747

RESISTORS AND POTENTIOMETERS

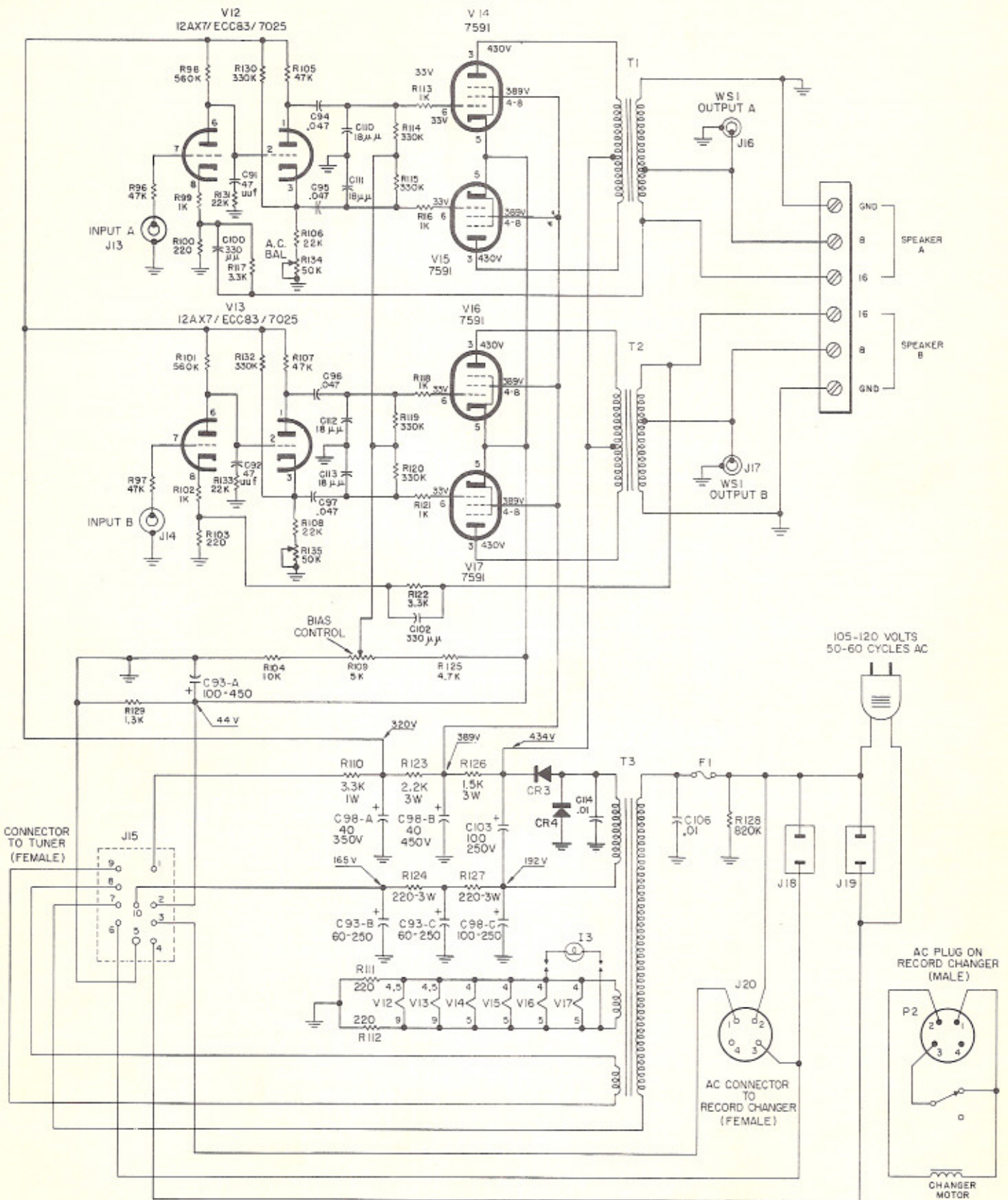
In ohms, 10 % tolerance, 1/2 watt, unless otherwise noted. K=Kilohm, M=Megohm.

Symbol	Description	Part No.
R96, 97	Dep. Carbon, 47K, 5 %, 1/2 W	R33DC473J
R98	Composition, 560K, 5 %	RC20BF564J
R99	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R100	Dep. Carbon, 220, 5 %, 1/2 W	R33DC221J
R101	Composition, 560K, 5 %	RC20BF564J
R102	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R103	Dep. Carbon, 220, 5 %, 1/2 W	R33DC221J
R104	Composition, 10K	RC20BF103K
R105	Dep. Carbon, 47K, 5 %, 1/2 W	R33DC473J
R106	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
R107	Dep. Carbon, 47K, 5 %, 1/2 W	R33DC473J
R108	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
R109	Potentiometer, 5K, Bias Control	R50103-4
R110	Composition, 3.3K, 1W	RC30BF332K
R111, 112	Composition, 220	RC20BF221K
R113	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R114, 115	Dep. Carbon, 330K, 5 %	R33DC334J
R116	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R117	Composition, 3.3K, 5 %	RC20BF332J
R118	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R119, 120	Dep. Carbon, 330K, 5 %, 1/2 W	R33DC334J
R121	Dep. Carbon, 1K, 5 %, 1/2 W	R33DC102J
R122	Composition, 3.3K, 5 %	RC20BF332J
R123	Glass, 2.2K, 3W	RPG3W222K
R124	Glass, 220, 3W	RPG3W221K
R125	Composition, 4.7K	RC20BF472K
R126	Glass, 1.5K, 3W	RPG3W152K
R127	Glass, 220, 3W	RPG3W221K
R128	Composition, 820K	RC20BF824K
R129	Glass, 1.3K, 5W	RPG5W132K
R130	Dep. Carbon, 330K, 5 %, 1/2 W	R33DC334J
R131	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
R132	Dep. Carbon, 330K, 5 %, 1/2 W	R33DC334J
R133	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
R134, 135	Potentiometer, 50K, AC, Balance	R50103-3

MISCELLANEOUS

Symbol	Description	Part No.
CR3, 4	Silicon Diode	SR806-126
F1	Fuse, 3.2 Amp., Slo-Blow	F3319
I3	Pilot Light #47	E50009-1
T1	Transformer, Output	T849-116-1
T2	Transformer, Output	T849-116-2
T3	Transformer, Power	T906-115

SCHEMATIC DIAGRAM • AMPLIFIER



AW * 1913
P906 SCHEMATIC

PARTS DESCRIPTION LIST

CAPACITORS

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

Symbol	Description	Part No.
C3	Ceramic, 21, 5%, N750, 1000V	C50070-32
C4	Ceramic, 3, NPO, 1000V	C50070-28
C5	AM Variable	C812-118
C6	Ceramic, 1000, GMV, 1000V	C50071-2
C7	Ceramic, Feedthru, 1000, GMV	C592-187
C9	Ceramic, 100, GMV, N1500, 1000V	C50070-5
C10, 11	Ceramic, .01uf, 20%, 500V	C50089-3
C12	Ceramic, Feedthru, 1000, GMV	C592-187
C13, 14	Ceramic, .02uf, +80 — 20%, 500V	C50089-4
C15, 16	Mylar, .022uf, 400V	C50197-28
C17	Ceramic Trimmer	C662-123
C18	FM Variable	C818-116
C19	Ceramic, 2.2, 500V	C3039
C20	Ceramic, 1000, GMV, 1000V	C50071-2
C21	Ceramic, 8, ±.5, NPO, 500V	CC20CJ080D5
C22	Ceramic, 5, NPO, 1000V	C50070-24
C23	Ceramic, 33, 5%, N750, 1000V	C50070-25
C24	Ceramic, 100, GMV, N1500, 1000V	C50070-5
C25	Ceramic, 24, 5%, N150, 1000V	C50070-8
C26	Ceramic, 47, 5%, N150, 1000V	C50070-29
C27	Ceramic, 8, ±.5, NPO, 500V	CC20CJ080D5
C28	Ceramic, 100, 5%, N1500, 1000V	C50070-19
C29	Ceramic, 10, ±.5, N150, 500V	CC20PJ100D5
C30	Ceramic, 1000, 1000V	C50072-3
C31	Ceramic, Feedthru, 1000, GMV	C592-187
C32	Ceramic, 5000, 20%, 500V	C50089-1
C35	Ceramic, 100, GMV, N1500, 1000V	C50070-5
C36	Ceramic, 10, NPO, 1000V	C50070-11
C37, 38	Ceramic, 33, N750, 1000V	C50070-15
C39	Ceramic, 5000, 20%, 500V	C50089-1
C40	Ceramic, .68, 500V	C50077-6N
C41	Ceramic, .02uf, +80 — 20%, 500V	C50089-4
C42, 43	Ceramic, 5000, 20%, 500V	C50089-1
C44	Ceramic, 2700, 1000V	C50072-17
C45	Ceramic, 5000, 20%, 500V	C50089-1
C46	Ceramic, .68, 500V	C50077-6N
C47	Ceramic, .02uf, +80 — 20%, 500V	C50089-4
C48, 49, 50, 51	Ceramic, 5000, 20%, 500V	C50089-1
C52	Ceramic, 2700, 1000V	C50072-17
C53	Ceramic, 5000, 20%, 500V	C50089-1
C54	Ceramic, 100, N1500, 1000V	C50070-6
C55	Mylar, .047uf, 250V	C50197-52
C56	Ceramic, .02uf, 20%, 500V	C50089-5
C57	Ceramic, 470, 1000V	C50072-13
C58	Ceramic, 68, N2200, 1000V	C50070-12
C59	Ceramic, .02uf, 20%, 500V	C50089-5
C60	Ceramic, 470, 1000V	C50072-13
C61	Ceramic, 68, N2200, 1000V	C50070-18
C62, 63	Ceramic, 470, 1000V	C50072-13
C68	Ceramic, 2700, 1000V	C50072-17
C69	Ceramic, 5000, 20%, 500V	C50089-1
C70	Ceramic, 330, 1000V	C50072-1
C71	Ceramic, 1800, 1000V	C50072-8
C72	Electrolytic, 2 Section: A — 20uf, 300V B — 40uf, 400V	C50180-22

C73, 74	Ceramic, 330, 1000V
C75	Ceramic, .05uf, +80 — 20%, 100V
C77	Ceramic, 5000, 20%, 500V
C78	Ceramic, .01uf, 20%, 500V
C79	Ceramic, 5000, 20%, 500V
C80	Ceramic, Feedthru, 1000, GMV
C81	Electrolytic, 8uf, 50V
C82	Ceramic, 5000, 20%, 500V
C83	Ceramic, .01uf, 20%, 500V
C84	Ceramic, 5000, 20%, 500V
C86	Ceramic Trimmer

RESISTORS

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

Symbol	Description	Part No.
R1	Composition, 270	RC20BF271K
R4, 5	Dep. Carbon, 5%, 1/3 W	R33DC104J
R6	Dep. Carbon, 47K, 5%, 1/2 W	R33DC473J
R7	Composition, 10	RC20BF100K
R8	Dep. Carbon, 47K, 5%, 1/2 W	R33DC473J
R9	Composition, 10	RC20BF100K
R10	Dep. Carbon, 10K, 5%, 1/2 W	R33DC103J
R11	Dep. Carbon, 2.7K, 5%, 1/2 W	R33DC272J
R12	Dep. Carbon, 10K, 5%, 1/2 W	R33DC103J
R13	Dep. Carbon, 2.7K, 5%, 1/2 W	R33DC272J
R14	Composition, 100K	RC20BF104K
R16	Composition, 820K	RC20BF824K
R17, 18	Dep. Carbon, 330K, 5%, 1/2 W	R33DC334J
R19	Composition, 100	RC20BF101K
R20, 21	Composition, 4.7M	RC20BF475K
R22	Composition, 470	RC20BF471K
R23, 24	Dep. Carbon, 220K, 5%, 1/2 W	R33DC224J
R25	Composition, 27K	RC20BF473K
R26, 27	Dep. Carbon, 100K, 5%, 1/2 W	R33DC104J
R28	Composition, 820	RC20BF821K
R29	Composition, 820K	RC20BF824K
R30	Composition, 150K	RC20BF154K
R31	Dep. Carbon, 22K, 5%, 1/2 W	R33DC223J
R32, 33	Composition, 1K	RC20BF102K
R34	Composition, 18K, 1W	RC30BF183K
R35	Composition, 100	RC20BF101K
R36	Dep. Carbon, 470K, 5%, 1/2 W	R33DC474J
R37	Composition, 5.6M	RC20BF565K
R38	Dep. Carbon, 470K, 5%, 1/2 W	R33DC474J
R39	Composition, 5.6M	RC20BF565K
R40, 41	Dep. Carbon, 2.2M, 5%, 1/2 W	R33DC225J
R42	Composition, 100K	RC20BF104K
R43	Composition, 560	RC20BF561K
R44	Composition, 100K	RC20BF104K
R45	Composition, 560	RC20BF561K
R46	Composition, 150	RC20BF151K
R47, 48	Composition, 220K	RC20BF224K
R49	Composition, 47K	RC20BF473K
R50	Composition, 1K	RC20BF102K
R51	Composition, 180	RC20BF181K
R52, 53	Potentiometer, 1M, Treble & Bass	R50160-55
R54, 55	Composition, 39K	RC20BF393K
R56	Composition, 150	RC20BF151K
R57	Composition, 27K	RC20BF273K
R58	Composition, 1K	RC20BF102K
R59	Composition, 180K	RC20BF184K

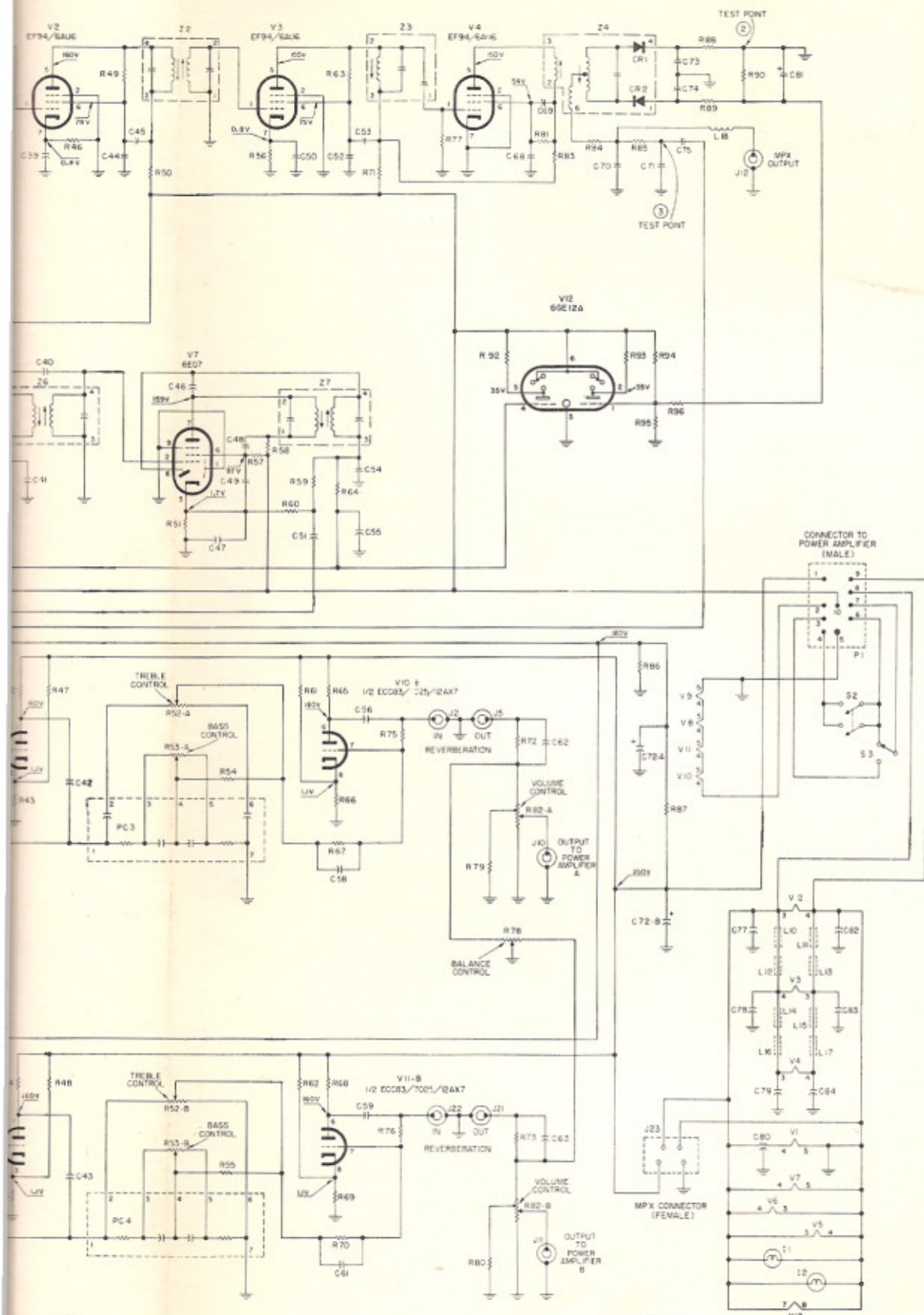
R60	Composition, 82K	RC20BF823K
R61, 62	Composition, 220K	RC20BF224K
R63	Composition, 47K	RC20BF473K
R64	Composition, 2.2M	RC20BF225K
R65	Composition, 100K	RC20BF104K
R66	Composition, 560	RC20BF561K
R67	Composition, 390K, 5%	RC20BF394J
R68	Composition, 100K	RC20BF104K
R69	Composition, 560	RC20BF561K
R70	Composition, 390K, 5%	RC20BF394J
R71	Composition, 1K	RC20BF102K
R72, 73	Dep. Carbon, 47K, 5%, 1/2 W	R33DC473J
R75, 76	Composition, 8.2M, 5%	RC20BF825J
R77	Dep. Carbon, 47K, 5%, 1/2 W	R33DC473K
R78	Potentiometer, 500K, Balance Control	R50160-97
R79, 80	Dep. Carbon, 22K, 5%, 1/2 W	R33DC223J
R81	Composition, 68K	RC20BF683K
R82	Potentiometer, 500K, Volume Control	R50160-54
R83	Composition, 1K	RC20BF102K
R84	Composition, 270	RC20BF271K
R85	Dep. Carbon, 47K, 5%, 1/2 W	R33DC473J
R86	Composition, 100K	RC20BF104K
R87	Composition, 22K	RC20BF223K
R88	Composition, 1.5K	RC20BF152K
R89	Composition, 1K	RC20BF102K
R90	Composition, 15K	RC20BF153K
R92, 93	Composition, 1M	RC20BF105K
R94	Composition, 3.9M	RC20BF395K
R95	Composition, 39K	RC20BF393K
R96	Composition, 270K	RC20BF274K

CHOKES, COILS & TRANSFORMERS

Symbol	Description	Part No.
L1	AM Loop Antenna	L50210-26
L2	FM Antenna Coil	L818-113
L3	Choke, 1.5 Microhenries	L50066-4
L4	Choke, RF	L629-180
L5	FM RF Coil	L818-114
L6	FM Oscillator Coil Ass'y	A5818-118
L7	Choke, .68 Microhenries	L50066-1
L8	Choke, .2 Microhenries	L50066-21
L9	AM Oscillator Coil	L50210-22
L10, 11, 12, 13, 14, 15, 16, 17	Choke, Filament, Ferrite Bead	L592-189
L18	Choke, 3.3 Microhenries	L50066-8
Z1	FM IF Transformer	ZZ662-117
Z2	FM IF Transformer	ZZ2987
Z3	FM Limiter Coil Ass'y	L670-145
Z4	FM Ratio Detector Transformer	ZZ50210-9
Z5	AM IF Transformer	L50210-23
Z6, 7	AM IF Transformer	ZZ2984

MISCELLANEOUS

Symbol	Description	Part No.
I1, 2	Dial Lamp	I50082-8
PC1, 2	Printed Circuit, Phono Equalization	PC50187-3
PC3, 4	Printed Circuit, Tone Control	PC50187-4
S1	Switch, Selector	S904-120
S2	Switch, Power	Part of R82
S3	Switch, Automatic Shutoff	Part of R78



NOTE
ALL VOLTAGES TAKEN WITH S1 SELECTOR SWITCH
IN THE PHONO-MONO POSITION, NO SIGNAL AT
ANTENNA TERMINAL.

S1
SELECTOR SWITCH
POSITIONS
SHOWN IN — PHONO-MONO
PHONO-STEREO
FM
FM-AM
AUX (TV) MONO
MPX STEREO

AW# 1916
P934-SCHEMATIC

R42	R46	R49	R50	R54	R56	R59	R63	R71	R75	R81	R83	R84	R85	R87	R88	R90
TO	R47	TO	TO	R55	R57	TO	TO	TO	R76	R78	R82-A	R83	R85	R87	R88	R90
R45	R48	R53	R53	R55	R57	C51	C52	C58	R76	R78	R82-B	R83	R85	R87	R88	R90
C39	C42	C44	C45	C46	C47	C48	C50	C52	C58	C68	C69	C70	C71	C73	C77	C79
C40	C43			C44	C47	C49	C51	C53	C59	C62	C62	C70	C72-A	C74	C78	C80
C41								C56	C61	C65	C65	C70	C72-B	C75		C84

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 Volume Control to minimum [CCW.]

When using an oscilloscope for alignment, set the output level controls for no overload, as shown by the proper waveform shape.

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;

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

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 screwdriver for all trimming capacitors; a K-Tran tool for Z1, Z2, Z5, Z6 and Z7; a hex tool for Z3, Z4, L2, L5, L6 and L9. For AM alignment, short junction of C55 and R64 to ground.

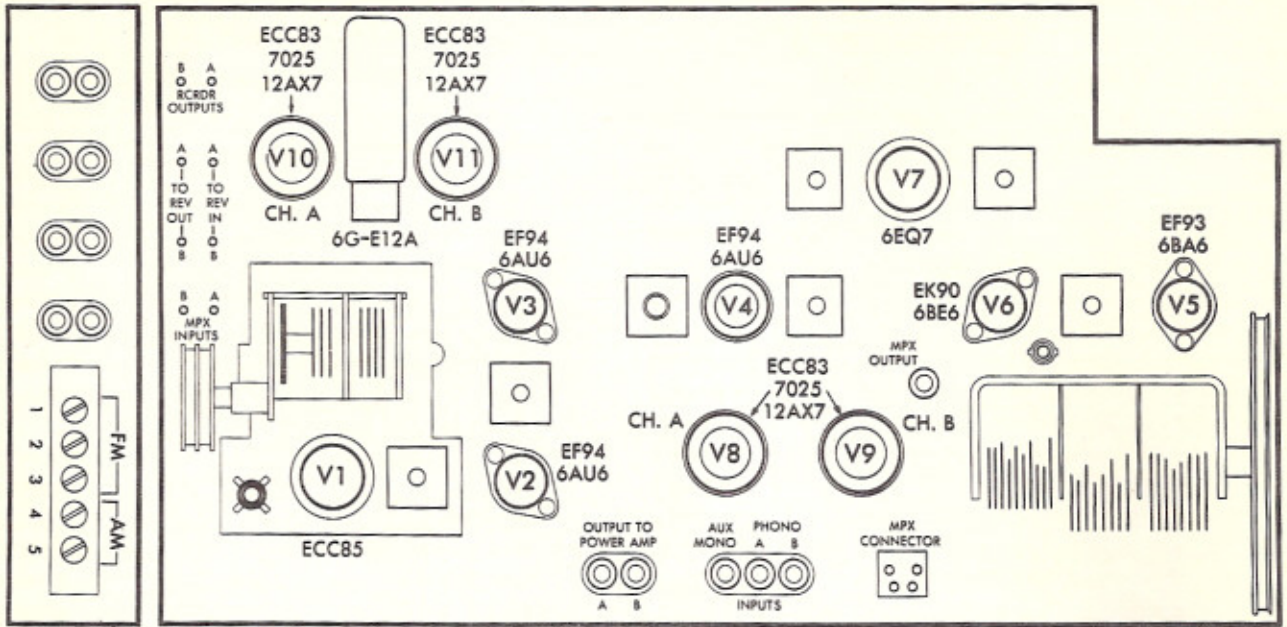
AM ALIGNMENT

STEPS	CHASSIS		SIGNAL GENERATOR			INDICATOR		ALIGNMENT	
	SELECTOR	STATION SELECTOR	COUPLING	FREQ.	MOD.	TYPE	CONNECTION	ADJUST	INDICATION
1	AM	Point of no signal and no interference	AM Gen. connected thru .01-uf cap. to V6, Pin 7	455 KC	30% AM at 400 cps	AC VTVM to Ch. B RCRDR Output		Z6, Z7 top and bottom	Maximum voltage
2	AM	600 KC	AM Gen. connected thru 220-uf cap. to antenna terminal 4 Disconnect link between 4 & 5	600 KC	30% AM at 400 cps	AC VTVM to Ch. B RCRDR Output		L9, Z5 L1	Maximum voltage
3	AM	1400 KC	AM Gen. connected thru 220-uf cap. to antenna terminal 4 Disconnect link between 4 & 5	1400 KC	30% AM at 400 cps	AC VTVM to Ch. B RCRDR Output		C5E, C5C C5A	Maximum voltage
4	Repeat steps 2 and 3 for proper dial calibration and maximum output.								
5	FM	Point of no signal and no interference	FM Gen. connected thru 2.2-uf cap. to test point 1	10.7 MC	None	DC VTVM to test point 2		Z1, Z2, Z3 and Z4, top & bottom	Maximum positive voltage
6	FM	Point of no signal and no interference	FM Gen. connected thru 2.2-uf cap. to test point 1	10.7 MC	None	Connect two 47K ohm resistors in series across C81. Connect a VTVM between the junction of the two 47K ohm resistors and test point 3		Z4 top	Zero reading on zero center scale
7	FM	90 MC	FM Gen. connected thru two 120-ohm carbon resistors to antenna terminals 2 and 3	90 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM to test point 2 and scope to Ch. A RCRDR Output		L6, L5, L2	Check for sine waveform and adjust for maximum positive voltage
8	FM	106 MC	FM Gen. connected thru two 120-ohm carbon resistors to antenna terminals 2 and 3	106 MC	30% FM (22.5 KC Dev.) at 400 cps	DC VTVM to test point 2 and scope to Ch. A RCRDR Output		C86 and C17	Check for sine waveform and adjust for maximum positive voltage
9	Repeat steps 7 and 8 at least once for proper dial calibration and maximum output.								
NOTE: For calibrating both the AM and FM, use as low an output voltage as possible from your signal generator.									

FM ALIGNMENT

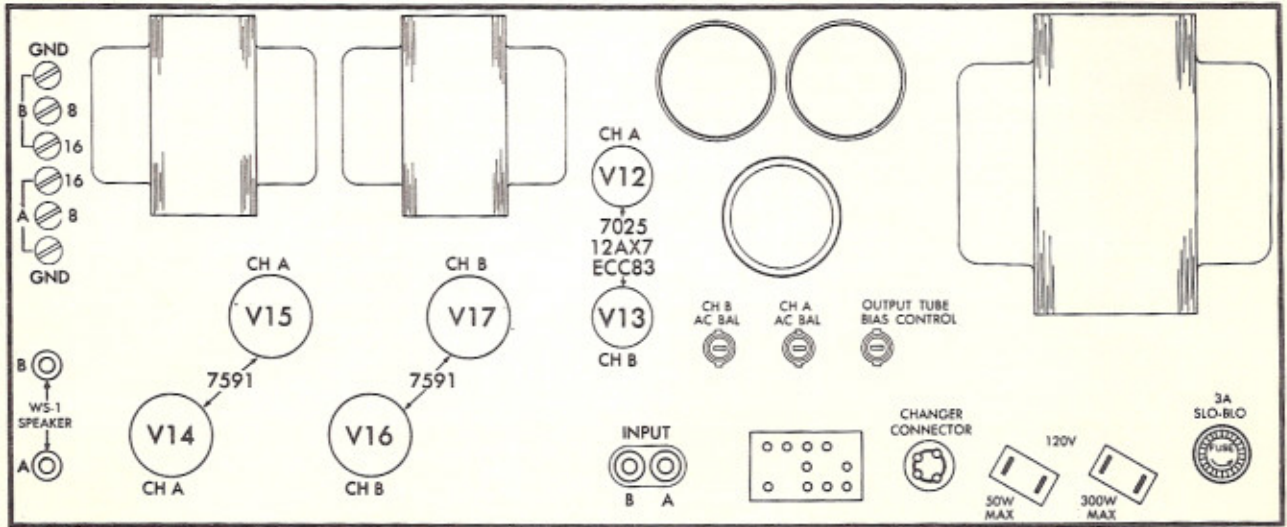
TUBE LAYOUT

480-T
TUNER
AND
PREAMPLIFIER



AW #1905

660-A
AMPLIFIER



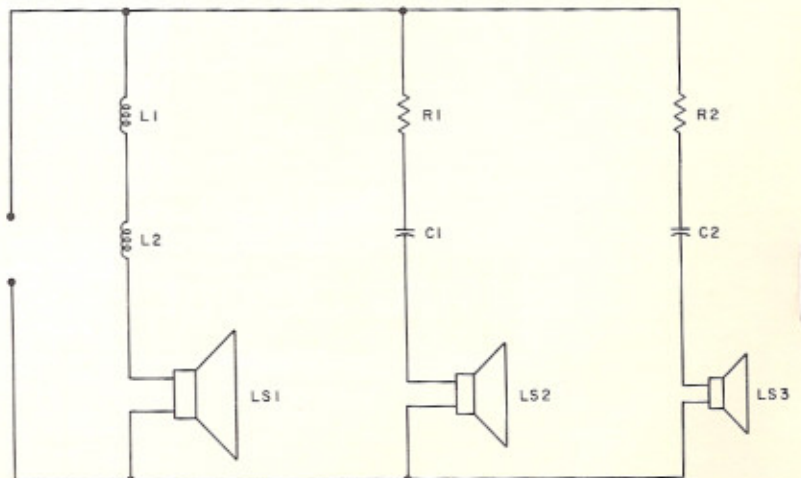
AW 1912

SCHEMATIC DIAGRAM • SPEAKER SYSTEMS

PARTS DESCRIPTION LIST

SPEAKER SYSTEMS

Symbol	Description	Part No.
C1	Capacitor, 2uf, 50V	C547-118
C2	Capacitor, .47uf, 10%, 200V	C68P474K2
L1, 2	Coil, 3 Microhenries	L547-120
LS1	Speaker Woofer, 12 inches, 16 ohms	LS831-105
LS2	Speaker Midrange, 8 inches, 16 ohms	LS831-106
LS3	Speaker Tweeter, 16 ohms	LS831-107



PARTS DESCRIPTION LIST • 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	Mica, 470, 5 %, 300V	C50332-4
C205	Ceramic, 82, N1500, 1000V	C50070-7
C206	Ceramic, 1000, GMV, 500V	C50089-2
C207	Electrolytic, 1uf, 350V	C50283-3
*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, 218	Ceramic, 5000, 20 %, 500V	C50089-1
C219	Ceramic, 330, 1000V	C50072-1
C220	Ceramic, 5000, 20 %, 500V	C50089-1
C221, 222	Ceramic, .02uf, +80 —20 %, 500V	C50089-4
C223, 224	Ceramic, 1000, 1000V	C50072-3
C225, 226	Ceramic, 2200, 1000V	C50072-5

RESISTORS

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

Symbol	Description	Part No.
R200	Composition, 22M	RC20BF226K
R201	Composition, 4.7K, 5 %	RC20BF472J
R202	Composition, 15K, 5 %	RC20BF153J
R203	Composition, 10M	RC20BF106K
R204	Composition, 15K, 5 %	RC20BF153J
R205	Dep. Carbon, 330K, 5 %, 1/2 W	R33DC334J
R206	Dep. Carbon, 1M, 5 %, 1/2 W	R33DC105J
R208	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
R209, 210, 211, 212	Composition, 33K, 5 %	RC20BF333J
R213, 214	Dep. Carbon, 100K, 5 %, 1/2 W	R33DC104J
R215	Potentiometer, 50K, MPX Sep't'n Control	R50150-4
R216	Composition, 22M	RC20BF226K
R217, 218	Dep. Carbon, 18K, 5 %, 1/2 W	R33DC183J
*R219, 220	Dep. Carbon, 15K, 5 %, 1/2 W	R33DC153J
R221	Composition, 22M	RC20BF226K
R222, 223, 224, 225	Dep. Carbon, 22K, 5 %, 1/2 W	R33DC223J
*R226, 227, 228, 229, 230	Dep. Carbon, 1M, 5 %, 1/2 W	R12DC105J

MISCELLANEOUS

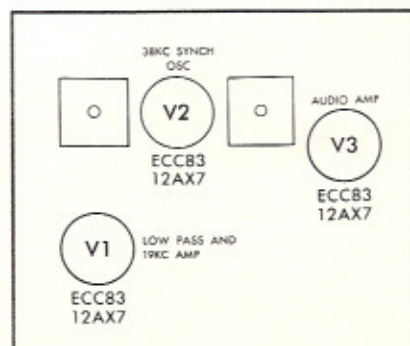
Symbol	Description	Part No.
*CR102, 103	Diodes, Type 1112	V-1112
L100	Coil, Low Pass	L50210-30
L102, 103	Coil, 20 Microhensies, 5 %	L50334-2
*Z100	Transformer, 19Kc	ZZ50210-34
*Z101	Coil, 38Kc	ZZ50210-33

***NOTE:** On some units C204 may be a 220 pF capacitor, if so there is an additional 220 pF capacitor from Pin 1 of V100 to chassis.
 Z100 may use the Part #ZZ50210-13 or ZZ50210-13X, if so C208 and 209 may be a 5100 pF or 3900 pF Mica Capacitor.
 Z101 may use the Part #ZZ50210-14, if so C215 will be a 5100 pF or 4700 pF Mica Capacitor.
 CR102, 103 on some models may use Diode Type 1N294A.
 R226 through 230 may be omitted on some units.
 R219 and 220 may be 12K on some units.

Note: If replacement of any of the above parts is required, use the part as found in unit.

TUBE LAYOUT

MPX-70





N911-103

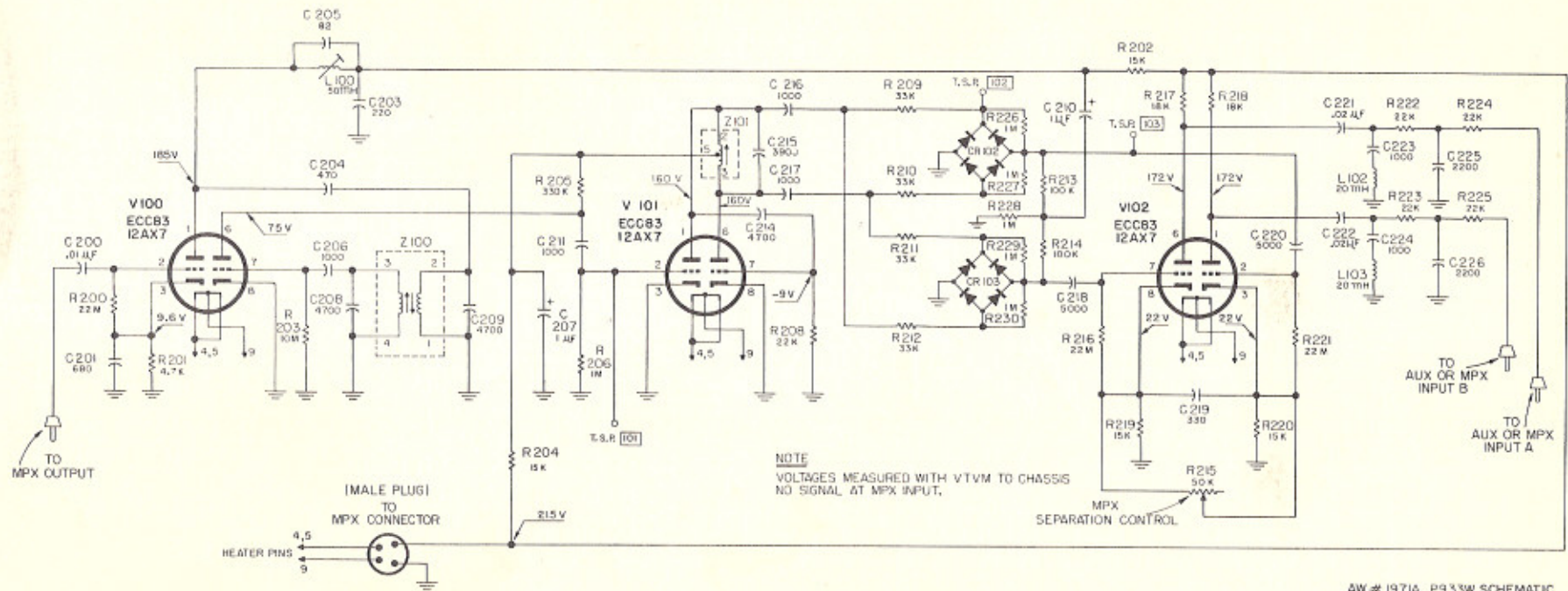
© 1962 FISHER RADIO CORPORATION

PRINTED IN U.S.A.

396-W12C-12

FISHER RADIO CORPORATION • NEW YORK

SCHEMATIC DIAGRAM • MULTIPLEX SECTION



AW # 1971A P933W SCHEMATIC

LAST
R230 C226