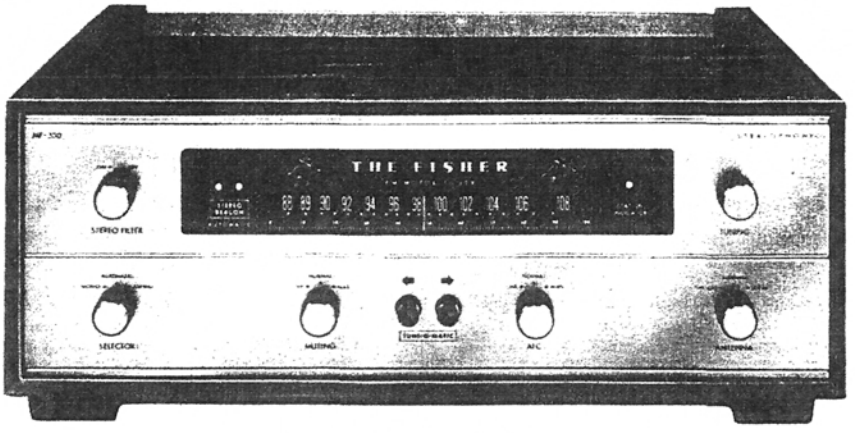
THE FISHER
MF-300
SERVICE MANUAL



MODEL MF-300

**CHASSIS SERIAL NUMBERS
FROM 10001 TO 19999 INCLUSIVE**

PRICE: $1.00

FISHER RADIO CORPORATION · NEW YORK

THE FISHER MF-300

CHASSIS SERIAL NUMBERS FROM 10001 TO 19999 INCLUSIVE

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 (uuf).

Symbol	Description	Part No.
C1, 2	Ceramic, 100, N1500, 1000V	C50070-6
C3	Ceramic Trimmer	C662-123
C4	Variable	C857-115-1
C5	Ceramic, 10, ±.5, NPO, 500V	CC20CJ100D5
C6, 7, 8	Ceramic Feedthru, 1000, GMV	C592-187
C9	Molded, .01uf, 20%, 600V	C2747
C10	Ceramic Feedthru, 1000, GMV	C592-187
C11	Ceramic, 1000, GMV, 500V	C50089-2
C12	Ceramic Trimmer	C662-123
C13	Ceramic, 10, ±.5, NPO, 500V	CC20CJ100D5
C14	Ceramic, 3, NPO, 1000V	C50070-28
C15	Ceramic Trimmer	C662-123
C16, 17, 18	Ceramic Feedthru, 1000, GMV	C592-187
C19	Electrolytic, 25uf, 6V	C639-114
C20	Mylar, .1uf, 125V	C50435-7
C21	Electrolytic, 50uf, 70V	C50283-2
C22	Electrolytic, 40uf, 250V	C581-133
C23	Electrolytic, 2 Section: A — 1000uf, 35V B — 1000uf, 35V	C50180-29
C25	Electrolytic, 50uf, 70V	C50283-2
C26	Ceramic Feedthru, 1000, GMV	C592-187
C27	Ceramic, 5000, 20%, 500V	C50089-1
C28	Ceramic, 8, ±.5, NPO, 500V	CC20CJ080D5
C29	Ceramic Trimmer	C662-123
C30	Ceramic, 68, 5%, N150, 500V	CC30PJ680J5
C32	Ceramic, 100, N1500, 1000V	C50070-6
C33	Ceramic, 6, ±.5, N470, 500V	CC20TJ060D5
C34	Ceramic, 100, N1500, 1000V	C50070-6
C35	Ceramic, .05uf, +80 —20%, 100V	C50073-2
C36	Mylar, .1uf, 250V	C50197-54
C37	Capacitor, Electrolytic, Non-polarized, 14uf, 15%, 50V	C882-252
C38	Electrolytic, 50uf, 70V	C50283-2
C39	Ceramic, 24, 5%, N150, 1000V	C50070-8
C40	Ceramic, 82, 5%, N1500, 1000V	C50070-33
C41	Ceramic Feedthru, 1000, GMV	C592-187
C42	Ceramic, 820, 1000V	C50072-7
C43, 44	Ceramic Feedthru, 1000, GMV	C592-187
C45	Ceramic, .02uf, +80 —20%, 500V	C50089-4
C46	Ceramic, 5000, 20%, 500V	C50089-1
C47, 48	Electrolytic, 1uf, 50V	C746-144
C49, 50	Ceramic, .05uf, +80 —20%, 100V	C50073-2
C51, 52, 53, 54, 55, 56, 57	Ceramic, 5000, +80 —20%, 500V	C50089-6
C58	Ceramic, 2700, 1000V	C50072-17
C59	Ceramic, 5000, +80 —20%, 500V	C50089-6
C60	Ceramic, 5000, 20%, 500V	C50089-1
C61	Ceramic, 1, 20%, P-100, 1000V	C50070-1
C62, 63	Mylar, .1uf, 125V	C50435-7
C64	Ceramic, .05uf, +80 —20%, 100V	C50073-2
C65	Electrolytic, 4 Section: A — 40uf, 300V B — 40uf, 300V C — 40uf, 250V D — 40uf, 250V	C670-125B
C71	Ceramic, 5000, +80 —20%, 500V	C50089-6
C72	Ceramic, 2700, 1000V	C50072-17
C73	Ceramic, 24, 5%, N150, 1000V	C50070-8
C74	Ceramic, .02uf, GMV, 1000V	C50071-6
C75	Ceramic, 5000, +80 —20%, 500V	C50089-6
C76	Ceramic, 100, N1500, 1000V	C50070-6
C77	Ceramic, 5000, +80 —20%, 500V	C50089-6
C78	Ceramic, 5000, 20%, 500V	C50089-1
C79	Ceramic, 56, N1500, 1000V	C50070-22
C80	Ceramic, 39, N1500, 1000V	C50070-17
C81	Ceramic, 5000, 20%, 500V	C50089-1
C82	Ceramic, 390, 1000V	C50072-6
C83	Mylar, .1uf, 125V	C50435-7
C84	Ceramic, 56, N1500, 1000V	C50070-22
C85	Ceramic, 5000, 20%, 500V	C50089-1
C86	Ceramic, 390, 1000V	C50072-6
C87	Ceramic, 39, N1500, 1000V	C50070-17
C88	Mylar, .1uf, 125V	C50435-7
C89	Ceramic, 12, NPO, 1000V	C50070-2
C90	Electrolytic, 4uf, 50V	C50283-5
C91	Ceramic, 5000, +80 —20%, 500V	C50089-6
C92	Ceramic, 2700, 1000V	C50072-17
C93	Ceramic, .02uf, GMV, 1000V	C50071-6
C94	Ceramic, 5000, +80 —20%, 500V	C50089-6
C95	Ceramic, 39, N1500, 1000V	C50070-17
C96	Ceramic, 2700, 1000V	C50072-17
C97	Ceramic, .01uf, +80 —20%, 500V	C50089-7
C98	Electrolytic, 4uf, 50V	C50283-5
C100	Ceramic, 5000, +80 —20%, 500V	C50089-6
C101, 102, 103	Ceramic, 330, 1000V	C50072-1
C104, 105	Electrolytic, 8uf, 50V	C629-138
C106	Ceramic, .02uf, GMV, 1000V	C50071-6
C107	Mylar, .1uf, 125V	C50435-7
C108	Polystyrene, 2500, 5%, 125V	CP50394-9
C109	Mylar, .1uf, 125V	C50435-7
C110	Electrolytic, 2uf, 70V	C721-142
C111	Electrolytic, .5uf, 350V	C50283-7
C112	Mylar, .1uf, 125V	C50435-7
C113	Ceramic, 5000, +80 —20%, 500V	C50089-6
C114	Ceramic, 560, 1000V	C50072-14

RESISTORS & POTENTIOMETERS

In ohms, 5% tolerance, 1/8 watt unless otherwise noted. K = Kilohms, M = Megohms.

Symbol	Description	Part No.
R1	Composition, 100K, 10%, 1/2 W	RC20BF104K
R2	Dep. Carbon, 2.7K	R12DC272J
R3, 4	Dep. Carbon, 270	R12DC271J
R5	Composition, 120, 10%, 1/2 W	RC20BF121K
R6	Composition, 100K, 10%, 1/2 W	RC20BF104K
R7	Dep. Carbon, 820K	R12DC824J
R8	Dep. Carbon, 1M	R12DC105J
R9, 10	Dep. Carbon, 330K, 1/3 W	R33DC334J
R11	Dep. Carbon, 2.7K	R12DC272J
R12	Dep. Carbon, 470K	R12DC474J
R13	Dep. Carbon, 470	R12DC471J
R14	Composition, 4.7K, 10%, 2W	RC40BF472K
R15	Composition, 10, 10%, 2W	RC40BF100K
R16	Dep. Carbon, 10K	R12DC103J
R17, 18	Composition, 220, 10%, 1/2 W	RC20BF221K
R19	Composition, 820K, 10%, 1/2 W	RC20BF824K
R20	Composition, 27, 10%, 1/2 W	RC20BF270K
R21	Dep. Carbon, 2.7K, 1/3 W	R33DC272J
R22	Dep. Carbon, 1M	R12DC105J
R23	Dep. Carbon, 4.7K	R12DC472J
R24	Dep. Carbon, 100K	R12DC104J
R25	Composition, 10K, 10%, 1/2 W	RC20BF103K
R26	Composition, 47, 10%, 1W	RC30BF470K
R27	Dep. Carbon, 56K	R12DC563J
R28	Composition, 150, 10%, 1/2 W	RC20BF151K
R29	Composition, 1K, 10%, 1/2 W	RC20BF102K

PARTS DESCRIPTION LIST

R30	Composition, 22K, 10%, ½W	RC20BF223K
R31	Composition, 330K, ½W	RC20BF334J
R32	Composition, 10K, 10%, 2W	RC40BF103K
R33	Dep. Carbon, 100K	R12DC104J
R34, 35	Dep. Carbon, 1K, ⅓W	R33DC102J
R36	Composition, 15, 10%, ½W	RC20BF150K
R37	Composition, 39K, 10%, ½W	RC20BF393K
R38, 39	Composition, 1K, 10%, ½W	RC20BF102K
R40	Dep. Carbon, 220K	R12DC224J
R41, 42	Glass, 270, 10%, 3W	RPG3W271K
R43	Composition, 3.3K, 10%, 1W	RC30BF332K
R44	Dep. Carbon, 39K	R12DC393J
R45	Composition, 27K, 10%, ½W	RC20BF273K
R46	Composition, 150, 10%, ½W	RC20BF151K
R47	Composition, 1K, 10%, ½W	RC20BF102K
R48	Dep. Carbon, 1M	R12DC105J
R49	Dep. Carbon, 10K	R12DC103J
R50	Dep. Carbon, 82K	R12DC823J
R51	Dep. Carbon, 1.8M, ⅓W	R33DC185J
R52	Dep. Carbon, 4.7K	R12DC472J
R53, 54	Dep. Carbon, 100K	R12DC104J
R55	Composition, 1K, 10%, ½W	RC20BF102K
R56	Dep. Carbon, 22K	R12DC223J
R57	Composition, 68K, 10%, ½W	RC20BF683K
R58, 59	Composition, 1K, 10%, ½W	RC20BF102K
R60	Dep. Carbon, 100K, ⅓W	R33DC104J
R61	Dep. Carbon, 150K, ⅓W	R33DC154J
R62	Dep. Carbon, 680, ⅓W	R33DC681J
R63	Dep. Carbon, 100K, ⅓W	R33DC104J
R64	Dep. Carbon, 150K, ⅓W	R33DC154J
R65	Dep. Carbon, 680, ⅓W	R33DC681J
R66	Dep. Carbon, 22	R12DC223J
R67	Dep. Carbon, 47K	R12DC473J
R68	Potentiometer, 50K, Tune-O-Matic Sensitivity	R50103-3
R69	Dep. Carbon, 22K	R12DC223J
R70	Dep. Carbon, 4.7K	R12DC472J
R71	Composition, 22M, 10%, ½W	RC20BF226K
R72	Dep. Carbon, 100K, ⅓W	R33DC104J
R73	Composition, 22M, 10%, ½W	RC20BF226K
R74	Dep. Carbon, 100K, ⅓W	R33DC104J
R75	Composition, 56K, 10%, ½W	RC20BF563K
R76	Dep. Carbon, 15K	R12DC153J
R77, 78	Composition, 1K, 10%, ½W	RC20BF102K
R79	Dep. Carbon, 100K	R12DC104J
R80	Composition, 68, 10%, ½W	RC20BF680K
R81	Dep. Carbon, 150K, ⅓W	R33DC154J
R82	Dep. Carbon, 470K	R12DC474J
R83	Potentiometer, 500K, Left Output Level	R50103-6
R84	Dep. Carbon, 1.8M, ⅓W	R33DC185J
R85	Dep. Carbon, 1M	R12DC105J
R86	Dep. Carbon, 470K	R12DC474J
R87	Potentiometer, 500K, Right Output Level	R50103-6
R88	Dep. Carbon, 1.8M, ⅓W	R33DC185J
R89	Dep. Carbon, 1M	R12DC105J
R90	Dep. Carbon, 100K	R12DC104J
R91	Composition, 6.8M, 10%, ½W	RC20BF685K
R92	Composition, 2.7M, 10%, ½W	RC20BF275K
R93	Dep. Carbon, 56K	R12DC563J
R94	Dep. Carbon, 100K	R12DC104J
R95	Composition, 18K, 10%, 1W	RC20BF183K
R96	Composition, 47K, 10%, ½W	RC20BF473K
R97	Composition, 270, ½W	RC20BF271J
R98	Composition, 1K, 10%, ½W	RC20BF102K
R99	Dep. Carbon, 47K	R12DC473J
R100	Dep. Carbon, 470K	R12DC474J
R101	Dep. Carbon, 150K	R12DC154J
R102	Composition, 15, 10%, ½W	RC20BF150K
R103	Dep. Carbon, 470K	R12DC474J
R104	Dep. Carbon, 56K	R12DC563J
R105	Dep. Carbon, 100K	R12DC104J
R106	Composition, 1.5K, ½W	RC20BF152J
R107	Composition, 1K, ½W	RC20BF102J
R108, 109	Composition, 6.8K, ½W	RC20BF682J
R110, 111, 112, 113	Dep. Carbon, 820K	R12DC824J
R114	Dep. Carbon, 1K, ⅓W	R33DC102J
R115	Dep. Carbon, 100	R12DC101J

COILS, CHOKES AND TRANSFORMERS

Symbol	Description	Part No.
L1	FM Antenna Coil	L726-124
L2	Choke, 1 Microhenry	L50066-2
L3	Choke, .68 Microhenry	L50066-1
L4	Choke, 1.2 Microhenries	L50066-3
L5	Choke, RF	L629-180
L6	Coil, FM RF	L857-122
L7	FM Oscillator Coil Assembly	AS857-125
L8	Choke, .68 Microhenry	L50066-1
L9, 10, 11, 12	Choke, 1.2 Microhenries	L50066-3
L13	Choke, 3.3 Microhenries	L50066-8
L14	Coil, FM Mixer	L857-123
T1	Transformer, Power	T998-115
Z1	FM IF Transformer	ZZ662-117
Z2	FM IF Transformer	ZZ2987
Z3	FM IF Transformer	ZZ50210-2
Z4	FM Limiter Coil	ZZ50210-6
Z5	FM Limiter Coil Assembly	L935-122
Z6	FM Ratio Detector Assembly	ZZ50210-9
Z7	FM IF Transformer	ZZ50210-19

MISCELLANEOUS

Symbol	Description	Part No.
CR1	Diode, Varicap	V726-130
CR2, 3	Diode, Silicon, Type 1112	V-1112
CR4	Diode, Silicon, 200 PIV, 750MA	SR851-122
CR5	Diode, Silicon, Type 1112	V-1112
CR6	Diode, Type IN541	V-IN541
CR7, 8, 9, 10, 11	Diode, Silicon, Type 1112	V-1112
F1	Fuse, 1.5 Amp., Slo-Blo	F684-143
I1, 2	Lamp, Dial	I50441-3
I3	Dial Pointer Assembly, incl. 2.5V bulb	AS50451-1
I4, 5	Lamp #47, Sta. Indicator, Stereo Beacon	I50009-1
K1, 2	Part of Motor & Gear Assembly	P-882
K3	Relay	K50446
K4	Relay	K50314
M1	Motor, part of Motor & Gear Assembly	P-882
S1	Switch, Antenna	S998-120
S2	Switch, Right Return	S882-244-1
S3	Switch, Left Return	S882-244-2
S4	Switch, AFC	S998-122
S5	Switch, Muting	S998-121
S6	Switch, Selector	S998-123
S7	Switch, Stereo Filter	S998-124
S8	Switch, Pushbutton	S998-114
SR1	Selenium Rectifier Bridge	SR50279-1
——	Dipole Assembly	AS50227-1
——	Dress Panel	AS998-108
——	Knob, Tuning	E50325-2
——	Knob	E50325-1
——	Knob, Pushbutton	E851-116
——	Dial Glass	N998-107
——	Fuse Holder	X563-151

ALIGNMENT INSTRUCTIONS • TUNER

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Disconnect the external antenna. When using an oscilloscope for alignment, set the AUDIO LEVEL control for no overload, as shown by the proper waveform shape. Set remaining controls as follows: Selector, MONO; Muting, OFF; AFC, OFF; Antenna, NORMAL; Stereo Filter, OFF; TUNE-O-MATIC Sensitivity, 0.

SIGNAL GENERATOR: The signal generator equipment must be able to supply RF ±22.5 KC deviation at 400 cps.

INDICATOR: DC VTVM, and scope for alignment.

ALIGNMENT: Allow the chassis and test instruments to warm up for at least 15 minutes. Adjust the line voltage for 117 volts AC, 50-60 cps. Use fully insulated tools: a small screwdriver for all trimming capacitors; a K-tran tool for Z1, Z2, Z3; a hex tool for Z4, Z5, Z6, Z7, L1, L6, L14 and L7.

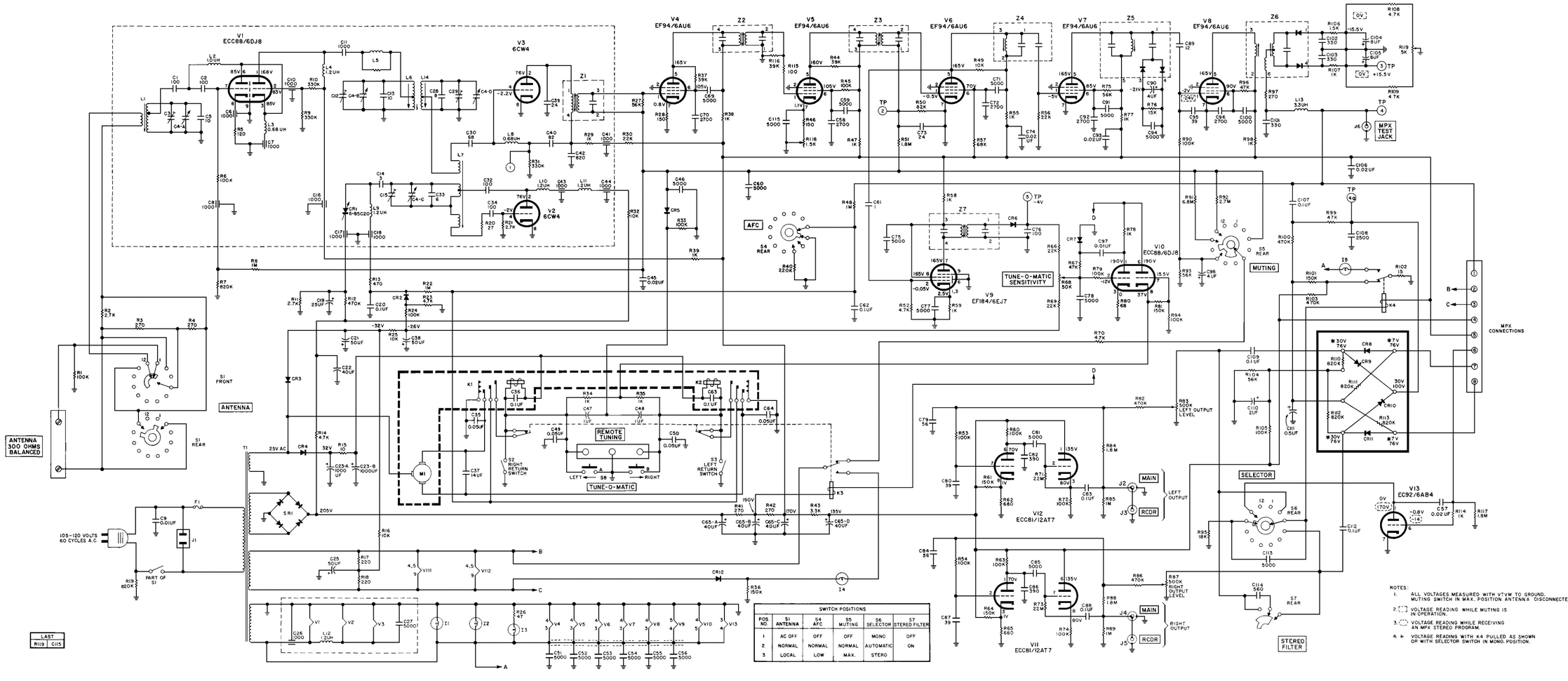
NOTES: **1—For accurate alignment, signal generator output voltage must be adjusted to produce meter readings within the range specified in the INDICATION column for each step.**

2—Signal generator frequency should be held constant for IF, limiter, center of channel detector and ratio detector alignment (Z1 through Z7).

FM ALIGNMENT (tuner only)

STEPS	CHASSIS	SIGNAL GENERATOR			INDICATOR	ALIGNMENT	
	TUNING	COUPLING	FREQ.	MOD.	TYPE CONNECTION	ADJUST	INDICATION
1	Point of no signal and no interference	FM generator connected to pin 1 of V6	10.7 MC	None	Connect DC VTVM to test point 3	Z4, Z5 top, Z6 bottom and top for max. indication	Between +5 and +9 volts
2	Point of no signal and no interference	FM generator connected to pin 1 of V6	10.7 MC	None	Connect DC VTVM to test point 4	Z6 top for min. indication	Zero reading on zero center scale
3	Point of no signal and no interference	FM generator connected to pin 1 of V5	10.7 MC	None	Connect DC VTVM to test point 2	Z3 top and bottom for max. indication	Between —0.5 and —1.0 volt
4	Point of no signal and no interference	FM generator connected to test point 1 through wire "gimmick" (less than 0.5 uuf)	10.7 MC	None	Connect DC VTVM to test point 2	Z1 and Z2 top and bottom for max. indication	Between —0.5 and —1.0 volt
5	Point of no signal and no interference	FM generator connected to test point 1 through wire "gimmick" (less than 0.5 uuf)	10.7 MC	None	Connect DC VTVM to test point 5	Z7 top and bottom	Between +10 and +15 volts
6	90 MC	FM generator connected to 300 ohm terminals through 120 ohm carbon resistors	90 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM to test point 2 and scope to RIGHT or LEFT OUTPUT jack	L7, L14, L6 and L1 for sine waveform and max. neg. voltage	Less than —3 volts
7	106 MC	FM generator connected to 300 ohm terminals through 120 ohm carbon resistors	106 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM to test point 2 and scope to RIGHT or LEFT OUTPUT jack	C15, C29, C12 and C3 for sine waveform and max. neg. voltage	Less than —3 volts
8	Repeat steps 6 and 7 for proper dial calibration and maximum output.						
9	98 MC	FM generator connected to antenna term. through 120-ohm carbon resistors	98 MC	30% FM (22.5 KC Dev.) at 400 cps, 8uV output	Connect DC VTVM to test point 5	TUNE-O-MATIC control to position where Station Indicator starts to light	More than +8 volts

SCHEMATIC DIAGRAM • TUNER



SWITCH POSITIONS					
POS NO.	S1 ANTENNA	S4 AFC	S5 MUTING	S6 SELECTOR	S7 STEREO FILTER
1	AC OFF	OFF	OFF	MONO	OFF
2	NORMAL	NORMAL	NORMAL	AUTOMATIC	ON
3	LOCAL	LOW	MAX.	STERO	

NOTES:

1. ALL VOLTAGES MEASURED WITH VTVM TO GROUND. MUTING SWITCH IN MAX. POSITION ANTENNA DISCONNECTED.
2. ( ) VOLTAGE READING WHILE MUTING IS IN OPERATION.
3. [ ] VOLTAGE READING WHILE RECEIVING AN MPX STEREO PROGRAM.
4. ✱ VOLTAGE READING WITH K4 PULLED AS SHOWN OR WITH SELECTOR SWITCH IN MONO POSITION.

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, ½-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.

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, .001uf, GMV, 500V	C50089-2
C207	Ceramic, .005uf, +80 —20%, 500V	C50089-6
C208, 209	Mica, 4700, 5%, 500V	C50332-5
C210	Electrolytic, 1uf, 350V	C50283-3
C211, 212	Ceramic, .001uf, GMV, 500V	C50089-2
C213	Ceramic, .05uf, +80 —20%, 100V	C50073-2
C214	Mylar, .0047uf, 400V	C50197-25
C215	Mica, 3900, 5%, 500V	C50332-6
C216, 217	Ceramic, .001uf, GMV, 500V	C50089-2
C218	Ceramic,.02uf, 20% 500V	C50089-5
C219	Ceramic, 330, 1000V	C50072-1
C220	Ceramic, .02uf,20%, 500V	C50089-5
C221, 222	Mylar, .047uf, 10%, 250V	C50197-52
C223, 224	Ceramic, .001uf, 1000V	C50072-3
C225, 226	Ceramic, 2200, 1000V	C50072-5

RESISTORS AND POTENTIOMETERS

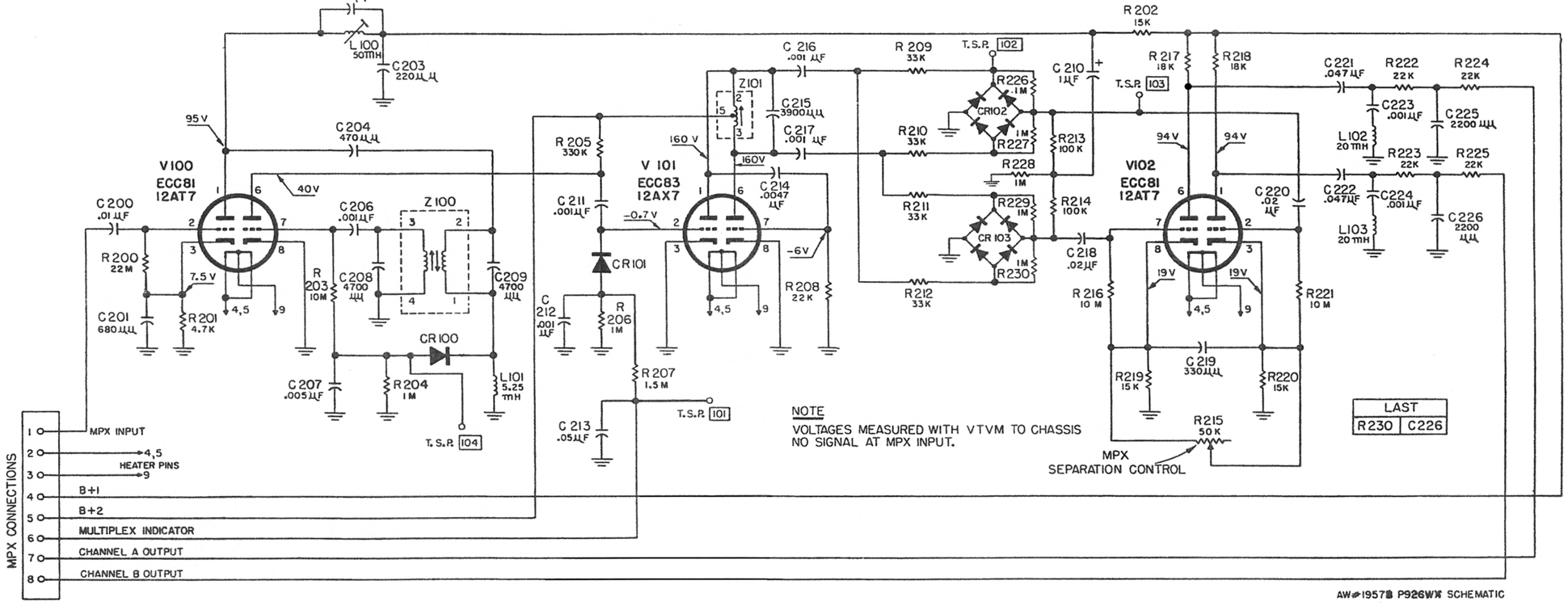
In ohms, 10% tolerance, ½ watt, unless otherwise noted. K=Kilohm, M=Megohm.

Symbol	Description	Part No.
R200	Composition, 22M	RC20BF226K
R201	Composition, 4.7K, 5%	RC20BF472J
R202	Composition, 15K, 5%	RC20BF153J
R203	Composition, 10M	RC20BF106K
R204	Dep. Carbon, 1M, 5%, ⅓ W	R33DC105J
R205	Dep. Carbon, 330K, 5%, ⅓ W	R33DC334J
R206	Dep. Carbon, 1M, 5%, ⅓ W	R33DC105J
R207	Dep. Carbon, 1.5M, 5%, ⅓ W	R33DC155J
R208	Dep. Carbon, 22K, 5%, ⅓ W	R33DC223J
R209, 210, 211, 212	Composition, 33K, 5%	RC20BF333J
R213, 214	Dep. Carbon, 100K, 5%, ⅓ W	R33DC104J
R215	Potentiometer, 50K, MPX-separation	R50150-4
R216	Composition, 10M	RC20BF106K
R217, 218	Dep. Carbon, 18K, 5%, ⅓ W	R33DC183J
R219, 220	Dep. Carbon, 15K, 5%, ⅓ W	R33DC153J
R221	Composition, 10M	RC20BF106K
R222, 223, 224, 225	Dep. Carbon, 22K, 5%, ⅓ W	R33DC223J
R226, 227, 228, 229, 230	Dep. Carbon, 1M, 5%, ¼ W	R12DC105J

MISCELLANEOUS

Symbol	Description	Part No.
CR100, 101, 102, 103	Diode, Type 1112	V-1112
L100	Coil, Low Pass	L50210-30
L101	Coil, 5.25 M.H., 5%	L50334-1
L102, 103	Coil, 20 M.H., 5%	L50334-2
Z100	Transformer, 19Kc	ZZ50210-34
Z101	Coil, 38Kc	ZZ50210-33

SCHEMATIC DIAGRAM • MULTIPLEX SECTION



ADJUSTMENTS • MOTOR DRIVE

pointer and limit switch adjustment

1 — Turn the Tuning knob completely counterclockwise without forcing. The white line on the dial pointer should be at the zero index mark on the logging scale.

2 — If the dial pointer is not at the zero mark, reset the dial pointer by moving it along the dial string.

3 — Check for proper operation by turning the set on, disconnecting the antenna, turning the Sensitivity switch to LOC and the Muting switch to MAX. Press one of the pushbuttons. The dial pointer should traverse the entire band, and reverse direction when it reaches each end of the scale.

4 — If the dial pointer fails to reverse direction at one end of the scale, turn the set off and remove the brass front panel. The limit switch is located directly behind the dial panel. (See Figure 1.) The pointer should contact the arm of the switch, causing it to make a contact (with an audible click) which reverses the direction of the pointer travel. As the pointer starts back in the reverse direction, the switch lever should spring back, breaking the contact.

5 — If the limit switch fails to operate in this manner, loosen the screw (A) and reposition the switch by sliding it along the slots on the panel. After adjustment, check for proper operation by bringing the dial pointer to the end of the band (with the Tuning knob). As the pointer contacts the limit switch a click should be heard (with very light pressure on the Tuning knob), and another click should be heard as the dial pointer is moved toward the center of the band. Continue adjustment until this operation is observed, then repeat step 3.

6 — If correct operation is still not observed, see Mechanical Check-List section under TUNE-O-MATIC ADJUSTMENT.

electrical check-list

1 — Perform the normal alignment of the tuner, steps 1 through 9.

2 — With the test instruments connected and supplying voltages as in step 9 of the Alignment Instructions, reduce the output voltage of the signal generator to 0. The Station Indicator should go off.

3 — Increase the deviation of the FM signal generator to ±75 KC. Make sure that the Muting Switch is OFF. Increase the generator output gradually until the Station Indicator goes on. At this point, the generator output should be less than or equal to 20 uV.

4 — Set the generator output to 0, the deviation to ±22.5 KC, and the Muting Switch to NORMAL. Increase the generator output gradually until the Station Indicator goes ON. The generator output at this point should be 10-20 uV.

5 — Repeat step 4 with the Muting Switch in the MAX position. The Station Indicator should go ON with the generator output between 200-2000 uV.

6 — Set the generator output to 100 uV. By using the Pushbuttons, approach the generator frequency (98 MC) from both directions. Observe the stopping point of the dial pointer in each case. The stopping points should be within one division of the logging scale. Follow the same procedure with several stations, after connecting the antenna. If proper operation is not observed, proceed with the MECHANICAL CHECK-LIST below.

mechanial check-list

1 — Turn the set OFF. Remove the center housing clip (see Figure 2) by pulling upward, and the two side brackets with two hex screws.

2 — The solenoid plungers (Figure 3) should both move inward easily under hand pressure. If they do not, remove the end clip (Figure 4) and switch lever (Figure 4). If the solenoid plunger now moves freely, the switch lever is not centered and should be rotated until it is centered on the plunger. Reposition the switch lever and end clip on the solenoid plunger.

3 — Press each solenoid plunger slowly and observe the operation of each stack switch (Figure 4). As the plunger is pressed inward, the contacts labeled 1 (in Figure 4) should make contact first, the contacts labeled 2 should make contact second, and the contacts labeled 3 should make contact third. If this is not the case, slight bending of the contact arms with a miniature set of long-nose pliers will restore the correct sequence.

4 — As shown in Figure 3 the take-off gear should be centered between the two sections of the clutch. If it is not, rotate the set screw (Figure 5) with an **allen wrench** until the gear is centered.

5 — If the two sets of gears do not mesh properly (if they either bind or slip) when engaged by pressing one of the solenoid plungers, the distance D (see Figure 3) must be adjusted by turning the brass hex post with a wrench. Rotate the hex post until the two gears turn together without slipping or binding.

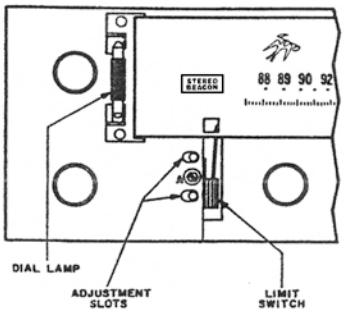
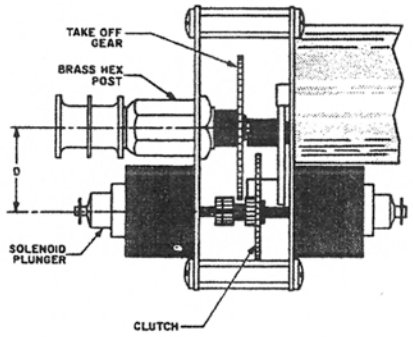


FIGURE 1 — Limit switch adjustment

FIGURE 2 — Removing the center and side covers

FIGURE 3 — Motor drive assembly, top view



NOTE: The take-off gear should be centered between the two sections of the clutch, as shown.

FIGURE 4 — Solenoid stack switches, rear view

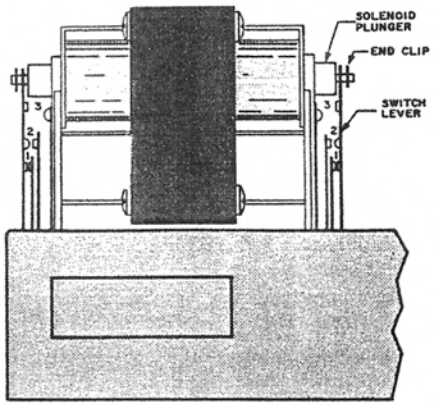
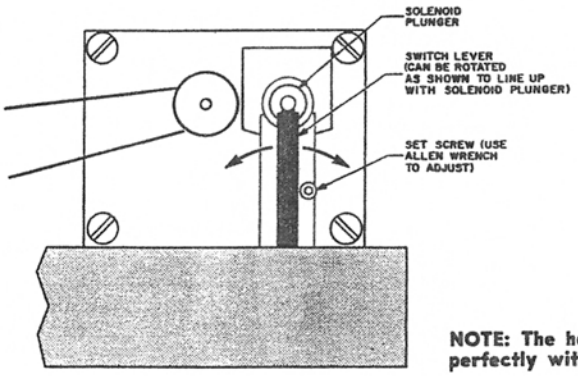
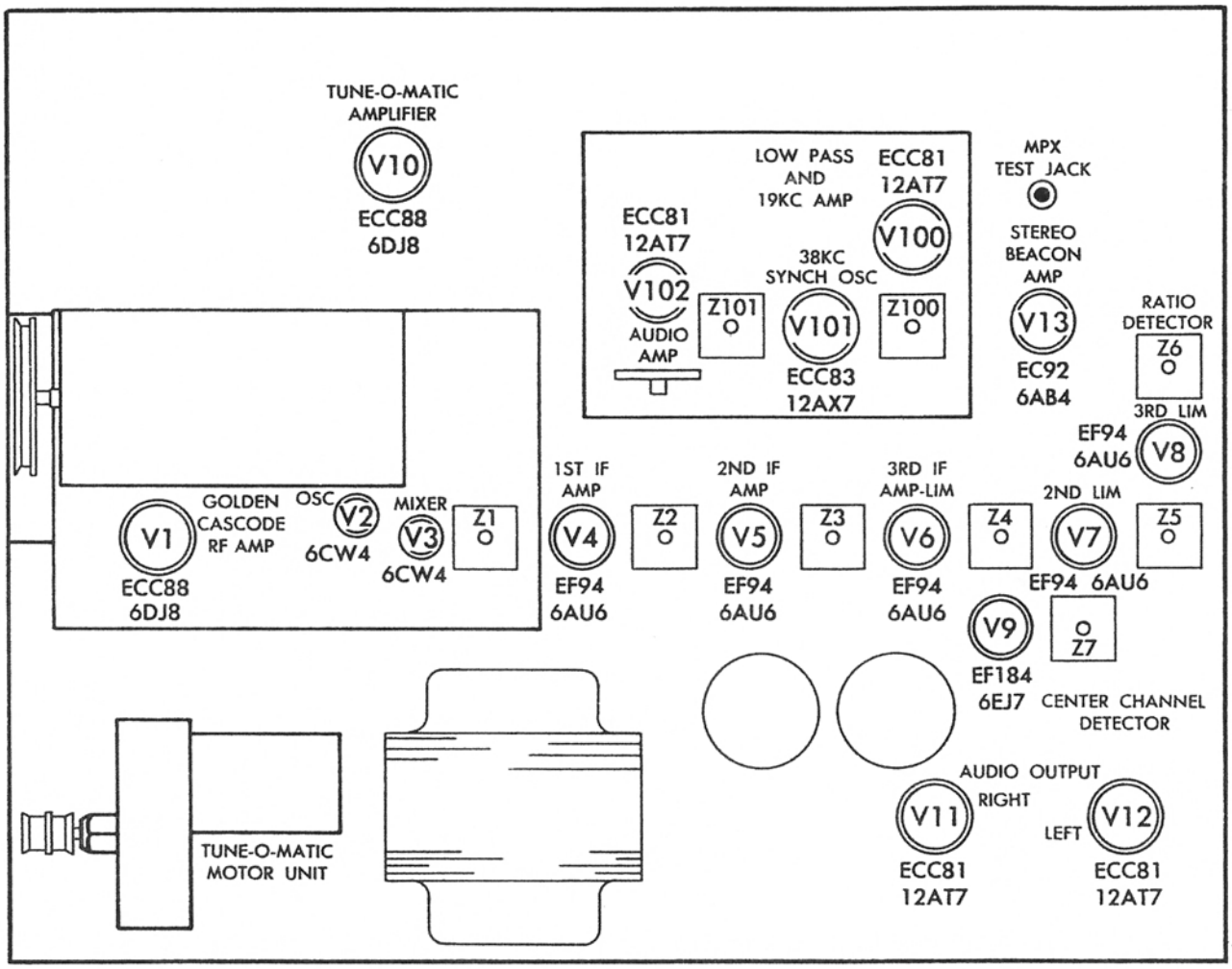


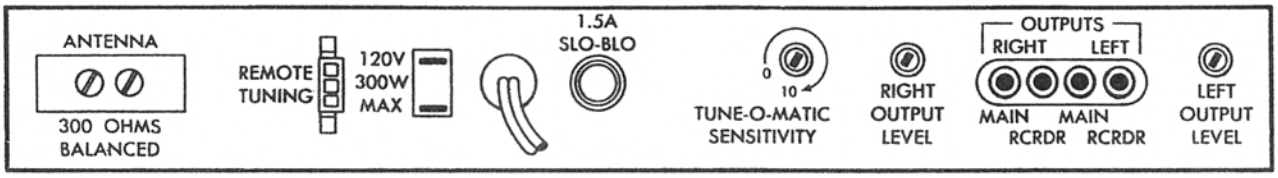
FIGURE 5 — Motor drive assembly, side view



NOTE: The hole in the switch lever must line up perfectly with the post on the solenoid plunger.

TUBE LAYOUT





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