



THE FISHER **FM-100**

SERVICE

MANUAL



MODEL FM-100

CHASSIS SERIAL NUMBERS
FROM 20001 TO 29999 INCLUSIVE

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

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PARTS DESCRIPTION LIST

CAPACITORS

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

| Symbol | Description | Order No. |
|---------|--|-------------|
| C1 | Ceramic, 8uuf ± .5uuf, NPO, 500V | CC20CJ080D5 |
| C2 | Molded, .01uf 20%, 600V | C2747 |
| C3 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C4 | Ceramic, Trimmer | C662-123 |
| C5 | FM Variable | C726-116 |
| C6 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C7, 8 | Ceramic, Feedthru, .001uf GMV | C592-187 |
| C9, 10 | Electrolytic, three section: | C670-125 |
| C11 | A — 40uf, 300V B — 40uf, 250V C — 40uf, 250V | |
| C12 | Ceramic, Feedthru, .001uf GMV | C592-187 |
| C13 | Ceramic, .001uf, 1000V | C50072-3 |
| C14 | Ceramic, Feedthru, .001uf GMV | C592-187 |
| C15 | Ceramic, 8uuf ± .5uuf NPO, 500V | CC20CJ080D5 |
| C16 | Ceramic, Trimmer | C662-123 |
| C17 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C18 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C19 | Ceramic, 68uf N750, 500V | CC20UJ680K5 |
| C20 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C21 | Ceramic, 5uuf ± .5uuf N150, 500V | CC20PJ050D5 |
| C22 | Ceramic, 5uuf ± .5uuf N220, 500V | CC20RH050D5 |
| C23 | Ceramic, 47uf N750, 1000V | C50070-4 |
| C24 | Ceramic, Trimmer | C662-123 |
| C25 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C26 | Ceramic, 24uf 5% N150, 1000V | C50070-8 |
| C27 | Ceramic, Feedthru, .001uf GMV | C592-187 |
| C28 | Ceramic, 100uuf 5% N1500, 1000V | C50072-3 |
| C29 | Ceramic, .001uf, 1000V | C50072-3 |
| C30 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C31 | Ceramic, Feedthru, .001uf GMV | C592-187 |
| C32 | Ceramic, .0027uf, 1000V | C50072-17 |
| C33 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C34 | Ceramic, .02uf +80—20%, 500V | C50089-4 |
| C35 | Ceramic, .0027uf, 1000V | C50072-17 |
| C36 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C37 | Ceramic, 47uf N750, 1000V | C50070-4 |
| C38 | Ceramic, .001uf GMV, 500V | C50089-2 |
| C39 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C40 | Molded, .1uf, 250V | C50074-28 |
| C41 | Ceramic, .0027uf, 1000V | C50072-17 |
| C42 | Ceramic, 100uuf N1500, 1000V | C50070-6 |
| C43 | Electrolytic, 20uf, 250V | C746-145 |
| C44 | Molded, .1uf, 250V | C50074-28 |
| C45 | Ceramic, .02uf +80—20%, 500V | C50089-4 |
| C46 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C47 | Ceramic, 5uuf NPO, 500V | C50089-2 |
| C48 | Ceramic, .001uf GMV, 500V | C50089-1 |
| C49 | Ceramic, .001uf GMV, 500V | CC20CJ050D5 |
| C50 | Electrolytic, 2uf, 70V | C50089-2 |
| C51, 52 | Ceramic, 12uuf NPO, 1000V | C721-142 |
| C53 | Ceramic, .02uf +80—20%, 500V | C50070-2 |
| C54 | Molded, .1uf, 250V | C50089-4 |
| C55 | Ceramic, .02uf +80—20%, 500V | C50074-28 |
| C56 | Ceramic, 18uuf N470, 1000V | C50089-4 |

| Symbol | Description | Order No. |
|---------|------------------------------|-----------|
| C57 | Ceramic, .0027uf, 1000V | C50072-17 |
| C58 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C59 | Ceramic, .02uf +80—20%, 500V | C50089-4 |
| C60 | Ceramic, 330uf, 1000V | C50072-1 |
| C61 | Ceramic, .0033uf, 1000V | C50072-11 |
| C62 | Molded, .1uf, 250V | C50074-28 |
| C63 | Ceramic, .005uf 20%, 500V | C50089-1 |
| C64, 65 | Ceramic, 330uf, 1000V | C50072-1 |
| C66 | Electrolytic, 8uf, 50V | C629-138 |
| C67 | Ceramic, 18uuf N470, 1000V | C50070-13 |
| C68 | Ceramic, .005uf, 20%, 500V | C50089-1 |

RESISTORS AND POTENTIOMETERS

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

| Symbol | Description | Order No. |
|---------|---|------------|
| R1, 2 | Composition, 330 | RC20BF31K |
| R3 | Composition, 2.7K | RC20BF22K |
| R4 | Composition, 100K | RC20BF10K |
| R5 | Composition, 120 | RC20BF121K |
| R6 | Wirewound, 330 5W | R746-146 |
| R7, 8 | Composition, 2.2M | RC20BF225K |
| R9 | Wirewound, 330 5W | R746-146 |
| R10 | Composition, 22 | RC20BF220K |
| R11 | Composition, 2.2K | RC20BF222K |
| R12 | Composition, 470K | RC20BF474K |
| R13, 14 | Composition, 1K | RC20BF121K |
| R15 | Composition, 120 | RC20BF121K |
| R16 | Composition, 470 | RC20BF474K |
| R17 | Composition, 47K | RC20BF473K |
| R18 | Composition, 82K | RC20BF823K |
| R19 | Composition, 1K | RC20BF102K |
| R20 | Composition, 120 | RC20BF121K |
| R21 | Composition, 82K | RC20BF823K |
| R22 | Composition, 270K | RC20BF274K |
| R23 | Potentiometer, Dual, 100K Muting Control and 100K | |
| R24 | Channel Separation | R50160-10 |
| R25 | Composition, 100K | RC20BF104K |
| R26 | Composition, 1K | RC20BF102K |
| R27 | Composition, 220K | RC20BF224K |
| R28 | Composition, 1.8M | RC20BF185K |
| R29 | Composition, 100K | RC20BF104K |
| R30 | Composition, 220K | RC20BF224K |
| R31 | Composition, 47K | RC20BF473K |
| R32 | Composition, 4.7K | RC20BF472K |
| R33 | Composition, 1.80K | RC20BF184K |
| R34 | Composition, 1.8M | RC20BF185K |
| R35 | Composition, 82K | RC20BF823K |
| R36 | Composition, 1K | RC20BF102K |
| R37 | Composition, 220K | RC20BF224K |
| R38 | Composition, 100K | RC20BF104K |
| R39 | Composition, 22M | RC20BF226K |
| R40 | Composition, 330K | RC20BF334K |
| R41 | Potentiometer, 500K Level Set | R50103-6 |
| R42 | Composition, 100K | RC20BF104K |
| R43, 44 | Composition, 15K | RC20BF153K |
| R45 | Composition, 220K | RC20BF224K |
| R46 | Composition, 15M | RC20BF156K |
| R47 | Composition, 68K | RC20BF683K |
| R48 | Composition, 100K | RC20BF104K |
| R49 | Composition, 22M | RC20BF226K |
| | Potentiometer, 500K Level Set | R50103-6 |

| Symbol | Description | Order No. |
|---------|----------------------|------------|
| R50, 54 | Composition, 2.2M | RC20BF225K |
| R51 | Composition, 220K | RC20BF224K |
| R52 | Composition, 330K | RC20BF334K |
| R53 | Composition, 100 | RC20BF101K |
| R54 | Composition, 470K | RC20BF474K |
| R55 | Composition, 1.8M | RC20BF185K |
| R56 | Composition, 1.8M | RC20BF183K |
| R57 | Composition, 18K | RC20BF183K |
| R58 | Composition, 27K, 1W | RC30BF273K |
| R59 | Composition, 1K | RC20BF102K |
| R60 | Composition, 1K | RC20BF271K |
| R61 | Composition, 33K | RC20BF333K |
| R62 | Composition, 1K | RC20BF102K |
| R63, 64 | Composition, 6.8K | RC20BF682K |
| R65 | Composition, 1.5K | RC20BF152K |
| R66 | Composition, 56K | RC20BF563K |
| R67 | Composition, 1.8M | RC20BF185K |

COILS, CHOKES AND TRANSFORMERS

| Symbol | Description | Order No. |
|---------|--------------------------------|-----------|
| L1 | Coil, FM Antenna | L726-124 |
| L2 | Choke, 1 Micro Henry | L50066-2 |
| L3, 4 | Choke, .56 Micro Henries | L50066-19 |
| L5 | Choke, RF | L629-180 |
| L6 | Coil, FM-RF | L726-126 |
| L7 | Coil, FM Oscillator | L726-125 |
| L8 | Choke, .56 Micro Henries | L50066-19 |
| L9, 10 | Choke, 1 Micro Henry | L50066-2 |
| L11 | Choke, 1.2 Micro Henries | L50066-3 |
| L12 | Coil, Muting Oscillator | L50210-21 |
| L13 | Choke, Filament | L520-156 |
| L14 | Choke, Filament | L520-156 |
| L15, 16 | Choke, 1.2 Micro Henries | L50066-3 |
| T1 | Choke, Filament Ferrite Bead | L592-189 |
| Z1 | Transformer, Power | T746-115 |
| Z2 | Transformer, FM-IF | ZZ662-117 |
| Z3 | Transformer, FM IF | ZZ629-142 |
| Z4 | Transformer, FM-IF | ZZ5020-12 |
| Z5 | Coil, FM Limiter | L551-121 |
| | Transformer, FM Ratio Detector | ZZ592-170 |

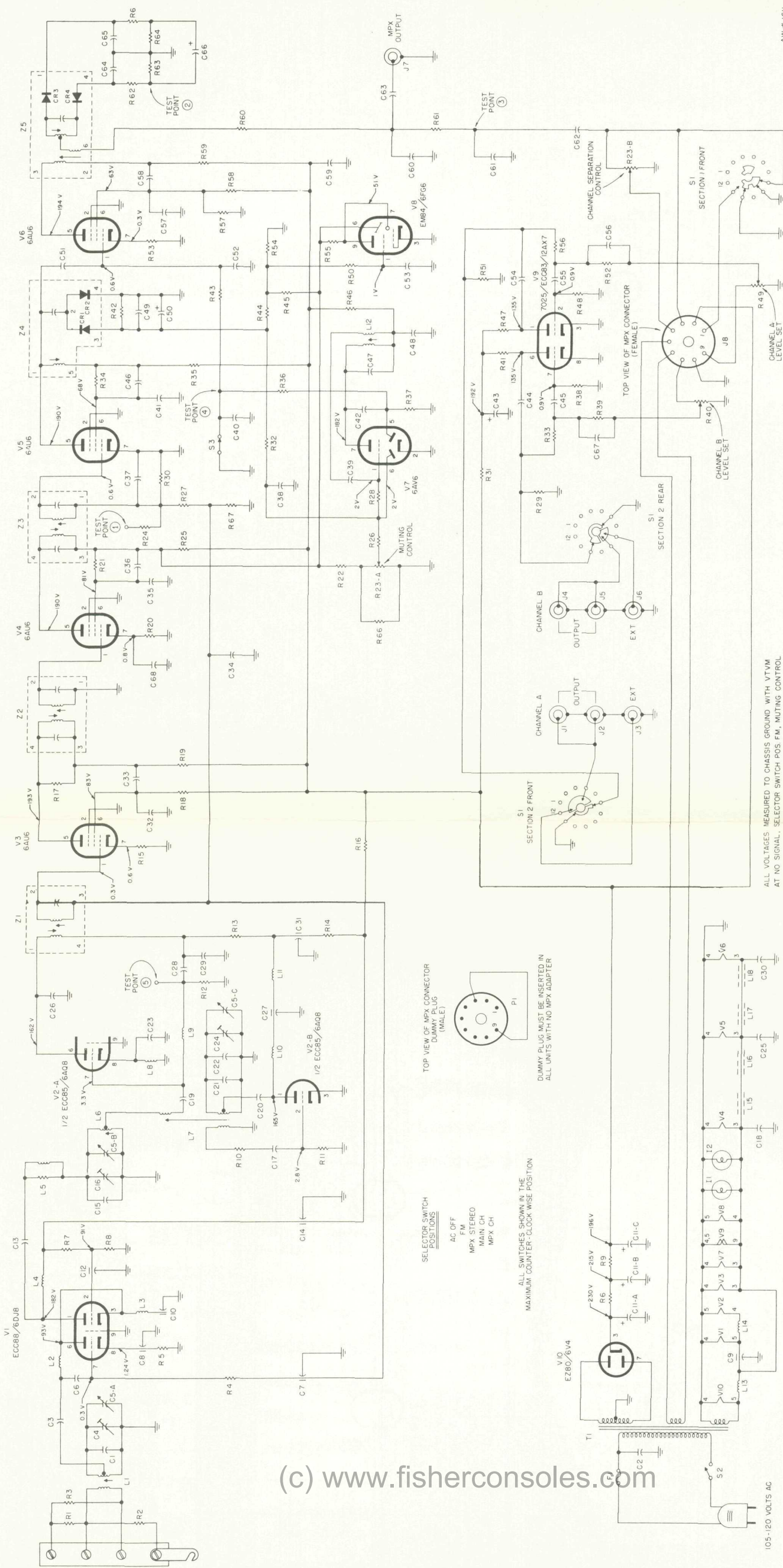
MISCELLANEOUS

| Symbol | Description | Part No. |
|--------|------------------------------|-------------|
| CR1, 2 | Crystal Diode, Type 1N295 | V-1N295 |
| CR3, 4 | Crystal Diodes, Matched Pair | V-1N542 |
| F1 | Fuse, 1.5 Ampere, Slo-Blo | F684-143 |
| I1, 2 | Lamp, Dial Panel | 150082-3 |
| P1 | Plug, 9 Pin | P50181 |
| S1 | Switch Selector | S746-118 |
| S2 | Switch, Power | Part of S1 |
| S3 | Switch, Muting | Part of R23 |

MECHANICAL PARTS

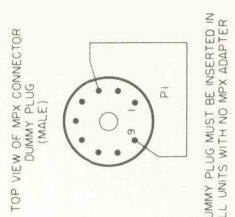
| Symbol | Description | Part No. |
|--------|----------------------------------|-----------|
| | Dress Panel Screened | AS746-114 |
| | Dial Pointer | A746-143 |
| | Shield, Tube, 7 Pin | E3387 |
| | Shield, Tube, 9 Pin | E3380 |
| | Knob Selector | E50154-1 |
| | Knob, Tuning | E50154-2 |
| | Knob, Dual Front | E50152 |
| | Knob, Dual Rear | E50153-1 |
| | Insulating Cap for Dummy Plug P1 | E50182 |
| | Plastic Leg | H657-145 |
| | Dial Glass | N746-113 |
| | Fuse Holder | X1036 |

SCHEMATIC DIAGRAM



AW# 1611
P746 SCHEMATIC FM-100

ALL VOLTAGES MEASURED TO CHASSIS GROUND WITH VTVM AT NO SIGNAL. SELECTOR SWITCH POS. FM, MUTING CONTROL POS. OFF, DUMMY PLUG IN PLACE OF MPX ADAPTOR. LINE 117V AC, TOLERANCE ±10%.



ALL SWITCHES SHOWN IN THE MAXIMUM COUNTER-CLOCK WISE POSITION.

SELECTOR SWITCH POSITIONS:
AC OFF
FM
MPX STEREO
MAIN CH
MPX CH

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|-----|-----|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RESISTORS | R1 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 | R16 | R17 | R18 | R19 | R20 | R21 | R22 | R23-A | R23-B | R24 | R25 | R26 | R27 | R28 | R29 | R30 | R31 | R32 | R33 | R34 | R35 | R36 | R37 | R38 | R39 | R40 | R41 | R42 | R43 | R44 | R45 | R46 | R47 | R48 | R49 | R50 | R51 | R52 | R53 | R54 | R55 | R56 | R57 | R58 | R59 | R60 | R61 | R62 | R63 | R64 | R65 | R66 | R67 | | | |
| CAPACITORS | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11-A | C11-B | C11-C | C12 | C13 | C14 | C15 | C16 | C17 | C18 | C19 | C20 | C21 | C22 | C23 | C24 | C25 | C26 | C27 | C28 | C29 | C30 | C31 | C32 | C33 | C34 | C35 | C36 | C37 | C38 | C39 | C40 | C41 | C42 | C43 | C44 | C45 | C46 | C47 | C48 | C49 | C50 | C51 | C52 | C53 | C54 | C55 | C56 | C57 | C58 | C59 | C60 | C61 | C62 | C63 | C64 | C65 | C66 | C67 | C68 |

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ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

TEST EQUIPMENT: FM Signal Generator, DC VTVM, Oscilloscope.

CHASSIS: 1 — For the entire alignment procedure, set the Selector Switch to FM position, the Muting Control to OFF position, the Channel A Level Set to MAXIMUM, and connect the oscilloscope to the Channel A output.

2 — Turn the Tuning knob maximum counterclockwise. (Dial pointer should line up with calibration mark at the beginning of the dial. Reset the dial pointer if necessary.)

3 — Allow the tuner and test equipment at least 15 minutes warm-up time. Adjust the line voltage for 117 volts AC 50-60 cps. Use fully insulated tools: a small screw-driver for trimmer capacitors C4, C16 and C24; a K-Tran tool for Z1, Z2 and Z3; a hex tool for all L1, L6, L7 and Z5.

| STEP | DIAL | SIGNAL GENERATOR | | | DC VTVM | ADJUST | INDICATION | |
|------|--------|---|---|---------|--------------------------------|--------------|---------------------------|--|
| | | GENERATOR COUPLING | FREQ. | MOD. | | | | |
| 1 | | Set dial pointer for extreme C.C.W. position. | Pin 1, V4 | 10.7 MC | None | Test Point 2 | Z4 Z5 top and bottom | Maximum negative voltage below 5 volts. |
| | | | Pin 1, V4 | 10.7 MC | None | Test Point 3 | Z5 top | |
| 2 | | | Ungrounded tube shield of V2 | 10.7 MC | None | Test Point 1 | Z1, Z2, Z3 top and bottom | Maximum negative voltage below 2 volts. |
| 3 | | | Two 120 ohm carbon resistors in series with generator leads to antenna terminals 2 and 3. | 90 MC | ±22.5 KC deviation at 400 cps. | Test Point 1 | L1, L6 and L7 | Adjust for maximum negative voltages and check for sine wave-form. |
| 4 | 90 MC | | | 106 MC | ±22.5 KC deviation at 400 cps. | Test Point 1 | C4, C16 and C24 | |
| 5 | 106 MC | | | | | | | |

NOTE: (Steps 1 and 2): Decrease signal generator output while aligning IF transformers so that the VTVM indicates not more than specified voltages. Repeat steps 4 and 5 to obtain proper dial calibration and maximum sensitivity.



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