



Stereophonic

THE FISHER 202-R

SERVICE

MANUAL



MODEL 202-R

CHASSIS SERIAL NUMBERS
FROM 10001 TO 19999 INCLUSIVE

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

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CHASSIS SERIAL NUMBERS
FROM 10001 TO 19999 INCLUSIVE

THE FISHER 202-R

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, 24uuf, 5 %, N150, 1000V | C50070-8 |
| C2 | Molded, .01uf, 20 %, 600V | C2747 |
| C3 | Variable, AM | C799-119 |
| C4 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C5 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C6 | Molded, .01uf, 20 %, 600V | C2747 |
| C7 | Ceramic, 10uuf, \pm .5uuf, NPO, 500V | CC20CJ100D5 |
| C8 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C9 | Electrolytic, 25uf, 6V | C639-114 |
| C10 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C11 | Ceramic, trimmer | C662-123 |
| C12 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C13 | Variable, FM | C726-116 |
| C14 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C15 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C16 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C17 | Ceramic, 3uuf, NPO, 1000V | C50070-28 |
| C18 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C19 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C20 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C21, 22 | Ceramic, trimmer | C662-123 |
| C23 | Ceramic, 10uuf, \pm .5uuf, NPO, 500V | CC20CJ100D5 |
| C24 | Ceramic, 8uuf, \pm .5uuf, N220, 500V | CC20RJ080D5 |
| C25 | Ceramic, .68uuf, 500V | C50077-6N |
| C26 | Electrolytic, three section A — 40uf 300V B — 40uf 300V C — 40uf 300V | C50180-24 |
| C27 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C28 | Ceramic, .001uf, 1000V | C50072-3 |
| C29 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C30 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C31 | Mylar, .047uf, 250V | C50197-52 |
| C32 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C33 | Ceramic, 68uuf, N750, 500V | CC20UJ680K5 |
| C34 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C35 | Mica, 470uuf, 5 %, 300V | C3334 |
| C36 | Ceramic, 47uuf, N750, 1000V | C50070-4 |
| C37 | Ceramic, 24uuf, 5 %, N150, 1000V | C50070-8 |
| C38 | Ceramic, 100uuf, 5 %, N1500, 1000V | C50070-19 |
| C39 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C40 | Ceramic, 10uuf, \pm .5uuf, NPO, 500V | CC20CJ100D5 |
| C41 | Ceramic, .001uf, 1000V | C50072-3 |
| C42, 43 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C44 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C45 | Mica, 470uuf, 5 %, 300V | C3334 |
| C46 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C47 | Ceramic, feedthru, .001uf, GMV | C592-187 |
| C48, 49 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C50, 51 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C52 | Mylar, .1uf, 250V | C50197-54 |
| C53 | Ceramic, .0027uf, 1000V | C50072-17 |
| C54 | Mica, 470uuf, 5 %, 300V | C3334 |
| C55, 56 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C57 | Mylar, .047uf, 250V | C50197-52 |
| C58 | Mylar, .1uf, 250V | C50197-54 |
| C59 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C60 | Ceramic, 10uuf, \pm .5uuf, NPO, 500V | CC20CJ100D5 |
| C61 | Mica, 470uuf, 5 %, 300V | C3334 |
| C62 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C63 | Ceramic, .0027uf, 1000V | C50072-17 |
| C64, 65, 66, 67 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C68 | Ceramic, 5uuf, \pm .5uuf, NPO, 500V | CC20CJ050D5 |
| C69 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C70 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C71 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C72 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |

| | | |
|-----------|----------------------------------|------------|
| C73 | Ceramic, 24uuf, 5 %, N150, 1000V | C50070-8 |
| C74 | Ceramic, 560uuf, 1000V | C50072-14 |
| C75 | Mica, trimmer | C629-151-5 |
| C76 | Mylar, .047uf, 250V | C50197-52 |
| C77 | Ceramic, 100uuf, N1500, 1000V | C50070-6 |
| C78 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C79 | Ceramic, .0027uf, 1000V | C50072-17 |
| C80 | Ceramic, .01uf, 20 %, 500V | C50089-3 |
| C81 | Ceramic, .02uf, 20 %, 500V | C50089-5 |
| C82 | Ceramic, 24uuf, 5 %, N150, 1000V | C50070-8 |
| C83 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C84 | Ceramic, .02uf, +80 -20 %, 500V | C50089-4 |
| C85 | Ceramic, 150uuf, 1000V | C50072-18 |
| C86 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C87 | Ceramic, .0027uf, 1000V | C50072-17 |
| C88 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C89 | Mylar, .1uf, 250V | C50197-54 |
| C90 | Ceramic, 15uuf, N75, 1000V | C50070-18 |
| C91, 92 | Electrolytic, 20uf, 250V | C746-145 |
| C93, 94 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C95, 96 | Mylar, .1uf, 250V | C50197-54 |
| C97 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C98 | Ceramic, .0027uf, 1000V | C50072-17 |
| C99, 100 | Mylar, .1uf, 250V | C50197-54 |
| C101 | Ceramic, 12uuf, NPO, 1000V | C50070-2 |
| C102 | Ceramic, .0027uf, 1000V | C50072-17 |
| C103 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C104 | Ceramic, 330uuf, 1000V | C50072-1 |
| C105 | Molded, .0033uf, 5 %, 200V | C68P332J2 |
| C106 | Ceramic, .005uf, 20 %, 500V | C50089-1 |
| C107, 108 | Ceramic, 330uuf, 1000V | C50072-1 |
| C109 | Electrolytic, 8uf, 50V | C629-138 |
| C110 | 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 | Part No. |
|---------|--------------------------------|------------|
| R1 | Composition, 1K, 10 %, 1/2 W | RC20BF102K |
| R2 | Composition, 330, 10 %, 1/2 W | RC20BF331K |
| R3 | Composition, 270, 10 %, 1/2 W | RC20BF271K |
| R4 | Composition, 2.7K, 10 %, 1/2 W | RC20BF272K |
| R5 | Composition, 820K, 10 %, 1/2 W | RC20BF824K |
| R6 | Composition, 4.7, 10 %, 1/2 W | RC20BF47K |
| R7 | Composition, 8.2K, 5 %, 1/2 W | RC20BF822J |
| R8 | Composition, 820K, 10 %, 1/2 W | RC20BF824K |
| R9 | Composition, 100K, 10 %, 1/2 W | RC20BF104K |
| R10 | Composition, 100, 10 %, 1/2 W | RC20BF101K |
| R11 | Composition, 120, 10 %, 1/2 W | RC20BF121K |
| R12, 13 | Composition, 220, 10 %, 1/2 W | RC20BF221K |
| R14 | Composition, 47K, 10 %, 1/2 W | RC20BF473K |
| R15 | Composition, 1K, 10 %, 1/2 W | RC20BF102K |
| R16, 17 | Composition, 330K, 10 %, 1/2 W | RC20BF334K |
| R18 | Composition, 4.7, 10 %, 1/2 W | RC20BF47K |
| R19 | not used | |
| R20 | Wirewound, 270, 10 %, 5W | R684-141 |
| R21 | Composition, 820K, 10 %, 1/2 W | RC20BF824K |
| R22 | Wirewound, 270, 10 %, 5W | R684-141 |
| R23 | Composition, 100, 10 %, 1/2 W | RC20BF101K |
| R24 | Composition, 2.2K, 10 %, 1/2 W | RC20BF222K |
| R25 | Composition, 470K, 10 %, 1/2 W | RC20BF474K |
| R26 | Composition, 22K, 10 %, 1/2 W | RC20BF223K |
| R27 | Composition, 470, 10 %, 1/2 W | RC20BF471K |
| R28 | Composition, 100, 10 %, 1/2 W | RC20BF101K |
| R29 | Composition, 1K, 10 %, 1/2 W | RC20BF102K |
| R30 | Composition, 18K, 10 %, 1W | RC20BF183K |
| R31 | Composition, 82K, 10 %, 1/2 W | RC20BF823K |
| R32 | Composition, 150, 10 %, 1/2 W | RC20BF151K |
| R33 | Composition, 1M, 10 %, 1/2 W | RC20BF105K |
| R34 | Composition, 470, 10 %, 1/2 W | RC20BF471K |
| R35 | Composition, 100, 10 %, 1/2 W | RC20BF101K |
| R36 | Composition, 22M, 10 %, 1/2 W | RC20BF226K |

PARTS DESCRIPTION LIST

R37 Composition, 47K, 10%, 1/2 W
R38 Composition, 470K, 10%, 1/2 W
R39 Composition, 33K, 10%, 1/2 W
R40 Composition, 1K, 10%, 1/2 W
R41 Composition, 470, 10%, 1/2 W
R42 Composition, 1K, 10%, 1/2 W
R43 Composition, 1M, 10%, 1/2 W
R44 Composition, 820K, 10%, 1/2 W
R45 Composition, 470K, 10%, 1/2 W
R46 Composition, 150, 10%, 1/2 W
R47 Composition, 180, 10%, 1/2 W
R48 Composition, 47K, 10%, 1/2 W
R49 Composition, 1K, 10%, 1/2 W
R50 Composition, 27K, 10%, 1/2 W
R51 Composition, 1K, 10%, 1/2 W
R52 Composition, 68K, 10%, 1/2 W
R53 Composition, 470K, 10%, 1/2 W
R54, 55 Composition, 47K, 10%, 1/2 W
R56 Composition, 22M, 10%, 1/2 W
R57 Composition, 27K, 10%, 1/2 W
R58 Composition, 3.9K, 10%, 1/2 W
R59 Composition, 47K, 10%, 1/2 W
R60 Composition, 390K, 10%, 1/2 W
R61 Composition, 100K, 10%, 1/2 W
R62 Potentiometer, 500K, AM level
R63 Composition, 82K, 10%, 1/2 W
R64 Composition, 1K, 10%, 1/2 W
R65 Composition, 2.7K, 10%, 1/2 W
R66 Composition, 220K, 10%, 1/2 W
R67 Composition, 100K, 10%, 1/2 W
R68 Composition, 6.8K, 10%, 1/2 W
R69 Composition, 27K, 10%, 1W
R70 Potentiometer, 25K
R71 Composition, 1K, 10%, 1/2 W
R72 Composition, 10M, 10%, 1/2 W
R73 Dep. Carbon, 470K, 5%, 1/3 W
R74 Composition, 10M, 10%, 1/2 W
R75, 76 Composition, 220K, 10%, 1/2 W
R77 Composition, 1M, 10%, 1/2 W
R78 Composition, 47K, 10%, 1/2 W
R79 Composition, 560, 10%, 1/2 W
R80 Composition, 470K, 10%, 1/2 W
R81 Composition, 390K, 10%, 1/2 W
R82 Potentiometer, 100K, muting
R83 Composition, 100K, 10%, 1/2 W
R84 Composition, 4.7K, 10%, 1/2 W
R85 Composition, 56K, 10%, 1/2 W
R86 Composition, 68K, 5%, 1/2 W
R87 Potentiometer, 250K, FM level
R88 Dep. Carbon, 470K, 5%, 1/3 W
R89 Composition, 2.2M, 10%, 1/2 W
R90 Composition, 1K, 10%, 1/2 W
R91 Composition, 1.8M, 10%, 1/2 W
R92 Composition, 2.2M, 10%, 1/2 W
R93, 94 Composition, 560, 10%, 1/2 W
R95 Dep. Carbon, 470K, 5%, 1/3 W
R96, 97 Dep. Carbon, 100K, 5%, 1/3 W
R98 Composition, 330, 10%, 1/2 W
R99, 100 Composition, 150K, 10%, 1/2 W
R101 Composition, 22M, 10%, 1/2 W
R102 Composition, 820K, 5%, 1/2 W
R103 Composition, 4.7K, 10%, 1/2 W
R104 Composition, 820K, 5%, 1/2 W
R105 Composition, 100K, 10%, 1/2 W
R106 Composition, 560, 10%, 1/2 W
R107 Composition, 1M, 10%, 1/2 W
R108 Composition, 5.6K, 10%, 1/2 W
R109, 110 Composition, 4.7K, 10%, 1/2 W
R111 Composition, 47K, 10%, 1/2 W
R112 Composition, 100, 10%, 1/2 W
R113 Composition, 1K, 10%, 1/2 W
R114 Composition, 15K, 10%, 1/2 W

RC20BF473K
RC20BF474K
RC20BF333K
RC20BF102K
RC20BF471K
RC20BF102K
RC20BF105K
RC20BF824K
RC20BF474K
RC20BF151K
RC20BF181K
RC20BF473K
RC20BF102K
RC20BF273K
RC20BF102K
RC20BF683K
RC20BF474K
RC20BF473K
RC20BF226K
RC20BF273K
RC20BF392K
RC20BF473K
RC20BF394K
RC20BF104K
R50103-6
RC20BF823K
RC20BF102K
RC20BF272K
RC20BF224K
RC20BF104K
RC20BF682K
RC30BF273K
R50103-2
RC20BF102K
RC20BF106K
R33DC474J
RC20BF106K
RC20BF224K
RC20BF105K
RC20BF473K
RC20BF561K
RC20BF474K
RC20BF394K
R50160-63
RC20BF104K
RC20BF472K
RC20BF563K
RC20BF683J
R50103-1
R33DC474J
RC20BF225K
RC20BF102K
RC20BF185K
RC20BF225K
RC20BF561K
R33DC474J
R33DC104J
RC20BF331K
RC20BF154K
RC20BF226K
RC20BF824J
RC20BR472K
RC20BF824J
RC20BF104K
RC20BF561K
RC20BF105K
RC20BF562K
RC20BF472K
RC20BF473K
RC20BF101K
RC20BF102K
RC20BF153K

R115 Composition, 1K, 10%, 1/2 W
R116 Composition, 270, 5%, 1/2 W
R117 Dep. Carbon, 22K, 5%, 1/3 W
R118 Composition, 1.5K, 10%, 1/2 W
R119 Composition, 1K, 10%, 1/2 W
R120, 121 Composition, 6.8K, 5%, 1/2 W
R122 Composition, 470K, 10%, 1/2 W
R123 Composition, 3.3, 10%, 1/2 W
R124 Composition, 150K, 10%, 1/2 W
R125 Composition, 1M, 10%, 1/2 W
R126 Composition, 100K, 10%, 1/2 W

RC20BF102K
RC20BF271J
R33DC223J
RC20BF152K
RC20BF102K
RC20BF682J
RC20BF474K
RC20BF3R3K
RC20BF154K
RC20BF105K
RC20BF104K

COILS, CHOKES AND TRANSFORMERS

| Symbol | Description | Part No. |
|------------|-------------------------------|-----------|
| L1, 2 | FM antenna, matching coils | L509-139 |
| L3, 4 | Choke, filament, ferrite bead | L592-189 |
| L5 | AM ferrite loop | L50210-24 |
| L6 | AM ant., transformer | L670-151 |
| L7 | FM ant., coil | L726-129 |
| L8 | Choke, 1 Micro-henry | L50066-2 |
| L9, 10 | Choke, .56 Micro-henry | L50066-19 |
| L11 | FM, RF coil | L726-126 |
| L12 | FM, osc. coil assembly | A5726-123 |
| L13 | Choke, R.F. | L629-180 |
| L14 | Choke, .56 Micro-henry | L50066-19 |
| L15 | Choke, 1 Micro-henry | L50066-2 |
| L16 | AM osc. coil | L50210-22 |
| L17, 18 | Choke, 1 Micro-henry | L50066-2 |
| L19 | Muting osc. coil | L50210-22 |
| L20 | 10Kc filter coil | L644-120 |
| L21 | Choke, 3.3 Micro-henries | L50066-8 |
| L22 | Choke, 1 Micro-henry | L50066-2 |
| L23, 24, | | |
| 25, 26, 27 | Choke, filament, ferrite bead | L592-189 |
| T1 | Transformer, power | T766-115 |
| Z1 | FM, I.F. Transformer | ZZ662-117 |
| Z2, 3 | FM, I.F. Transformer | ZZ50210-2 |
| Z4 | FM, I.F. Transformer | ZZ50210-4 |
| Z5, 6 | FM, limiter coil assembly | L670-145 |
| Z7 | FM, Ratio detector | ZZ592-170 |
| Z8 | AM, R.F. Transformer | L670-151 |
| Z9, 10 | AM, I.F. Transformer | ZZ629-135 |
| Z11 | AM, I.F. Transformer | ZZ2984 |

MISCELLANEOUS

| Symbol | Description | Part No. |
|----------|---------------------------------|-------------|
| CR1 | Varicap, type 6.8SC20 | V-726-130 |
| CR2, 3 | Silicon diode, type 2E4 | SR782-117 |
| CR4, 5 | Diode, matched pair, type 1N542 | V-1N542 |
| F1 | Fuse, 1.5 amp. | F766-141 |
| I1, 4 | Lamp, dial | 1-50082-61 |
| I2, 3 | Lamp, meter, #470F | 150009-4 |
| I5, 6, 7 | Lamp, #47 | 150009-1 |
| K1 | Relay | K50276-1 |
| M1 | Meter, FM | M766-136 |
| M2 | Meter, AM | M766-137 |
| S1, 2 | Switch, slide | S50200-2 |
| S3 | Switch, AM, antenna | S766-133 |
| S4 | Switch, power | S766-133 |
| S5 | Switch, AM, bandwidth | S766-132 |
| S6 | Switch, FM, AFC | S766-134 |
| S7 | Switch, selector | S766-135 |
| S8 | Switch, muting | part of R82 |
| SR-1 | Selenium rectifier bridge | SR740-137 |
| — | FM dipole assembly | A550227-1 |
| — | Knob, tuning | E50224-2 |
| — | Knob | E50224-1 |
| — | Jewel, red | I50162-1 |
| — | Jewel, yellow | I50162-2 |
| — | Jewel, green | I50162-4 |
| — | Dial, glass | N766-107 |
| — | Fuse holder | X1036 |

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. Set FM antenna switches to "Distant" and 300 ohms.

SIGNAL GENERATORS: The signal generator equipment must be able to supply the following: FM RF ± 22.5 KC deviation at 400 cps; FM-IF deviation ± 250 KC at 50-100 cps; AM RF modu-

lated 30% at 400cps; AM IF with 30 KC sweep for AM bandwidth adjustment; audio oscillator accurately calibrated for 1 and 10 KC audio output for testing the 10 KC AM whistle filter.

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 screwdriver for all trimming capacitors; a K-Tran tool for Z1, Z2, Z3, Z4, Z8, Z9, Z10 and Z11; a hex tool for Z7, Z5, Z6, L7, L12, L11, L19 and L16.

NOTES: 1—For AM Alignment connect lead between the junction of R21, R8 & C31 and ground.

2—For calibrating both the AM and FM-RF, use as low an output voltage as possible from your signal generator.

3—Decrease FM Signal Generator output while adjusting FM-IF transformers so that DC VTVM shows noted voltage.

4—The center frequency should be kept constant for FM-IF, limiter and ratio detector alignment. The use of a sweep generator with marker is recommended.

5—If adjustment of muting oscillator is necessary, adjust it for 3 MC with a Grid-dip Meter.

AM ALIGNMENT

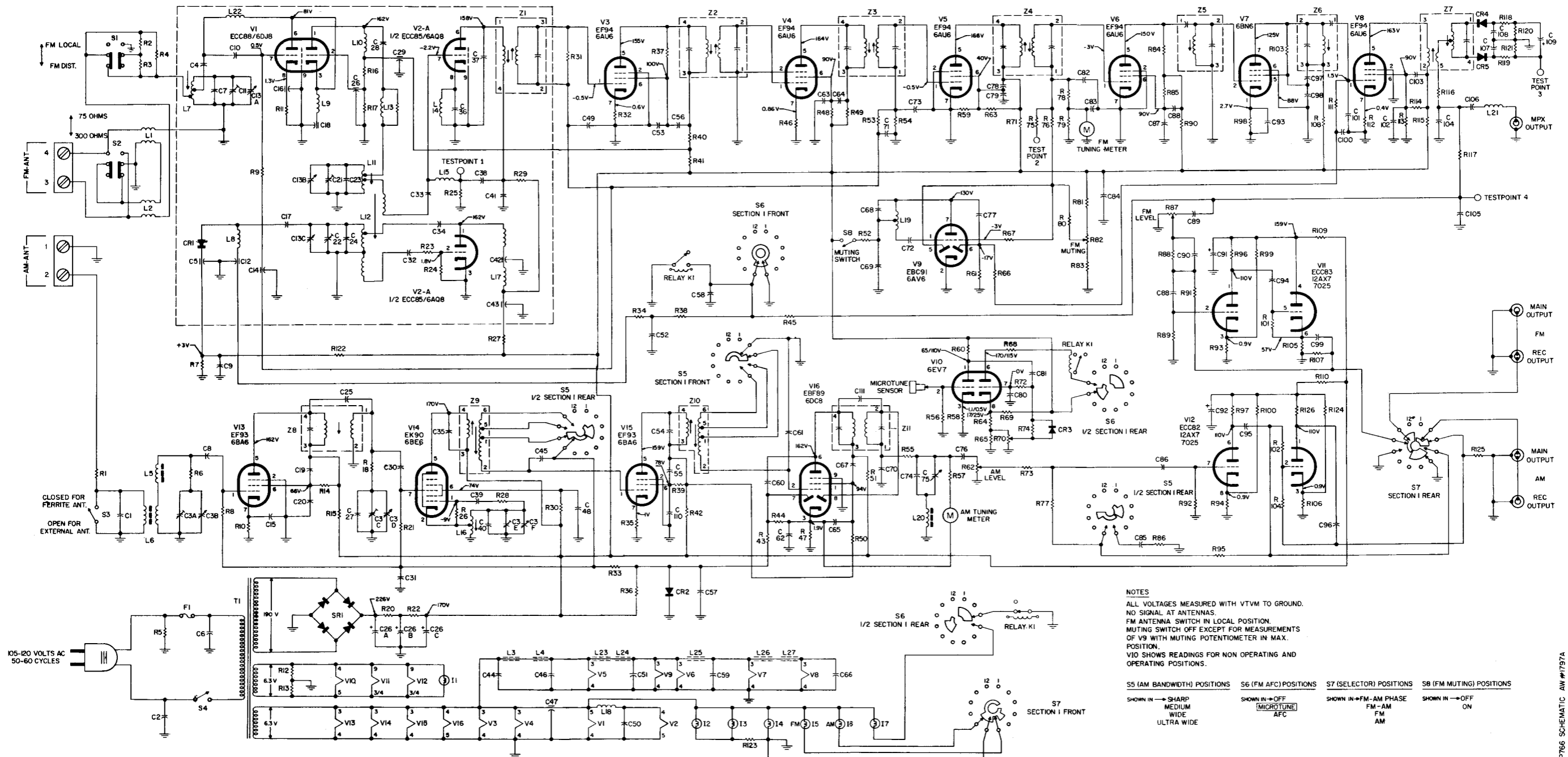
| STEPS | CHASSIS | | | SIGNAL GENERATOR | | | INDICATOR | | ALIGNMENT | |
|-------|--|----------|--|---|---------|-------------------|-----------|---|----------------------------|--|
| | AM BANDWIDTH | SELECTOR | STATION SELECTOR | COUPLING | FREQ. | MOD. | TYPE | CONNECTION | ADJUST | INDICATION |
| 1 | SHARP | AM | Point of no signal and no interference | Audio Gen. with 1V Output connected to Pin 7 of V16 | 10 KC | None | AC VTVM | to AM Main Output | C75 | Minimum Output |
| 2 | SHARP | AM | Point of no signal and no interference | AM RF Gen. connected thru .01-uf cap. in series with hot lead to V14, Pin 7 | 455 KC | 30% AM at 400 cps | DC VTVM | to the Junction of R55 & C70 | Z9, Z10, Z11, top & bottom | Maximum negative voltage |
| 3 | WIDE | AM | Point of no signal and no interference | AM Sweep Gen. connected thru .01-uf cap. in series with hot lead to V14, Pin 7 | 455 KC | 30 KC sweep | Scope | to AM Main Output | Z11 | Adjust slightly for symmetrical curve |
| 4 | SHARP | AM | 600 KC | AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2 | 600 KC | 30% AM at 400 cps | Scope | to AM Main output. DC VTVM to the Junction of R55 & C70 | L16, Z8, L5 | Check for sine waveform Maximum negative voltage |
| 5 | SHARP | AM | 1400 KC | AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2 | 1400 KC | 30% AM at 400 cps | Scope | to AM Main output. DC VTVM to the Junction of R55 & C70 | C3E, C3C, C3A | Check for sine waveform Maximum negative voltage |
| 6 | Repeat steps 4 and 5 for proper dial calibration and maximum output. | | | | | | | | | |

NOTE: For steps 1 to 6 remove Tube V1.

FM ALIGNMENT

| | | | | | | | | | | |
|---|--|----|--|--|---------|-----------------------------------|-------------------|---|-----------------------------|---|
| 1 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to Pin 1 of V6 | 10.7 MC | None | Connect VTVM | to test point 3 | Z5, Z6 top, Z7 bottom & top | Noted Volt. between +5 and +9 Volt, See Note 2 |
| 2 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to Pin 1 of V6 | 10.7 MC | None | DC VTVM | to test point 4 | Z7 top | Zero reading on zero center scale |
| 3 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to Pin 1 of V5 | 10.7 MC | ± 250 K deviation | DC VTVM and Scope | to test point 2 | Z4 top & bottom | With DC voltage between -2 and -4 volts, adjust for symmetrical curve |
| 4 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to Pin 1 of V4 | 10.7 MC | ± 250 K deviation | DC VTVM and Scope | to test point 2 | Z3 top & bottom | With DC voltage between -2 and -4 volts, adjust for symmetrical curve |
| 5 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to Pin 1 of V3 | 10.7 MC | ± 250 K deviation | DC VTVM and Scope | to test point 2 | Z2 | With DC voltage between -2 and -4 volts, adjust for symmetrical curve |
| 6 | FM Muting & AFC Switch Off | FM | Point of no signal and no interference | FM Generator connected to ungrounded tube shield of V2 | 10.7 MC | ± 250 K deviation | DC VTVM and Scope | to test point 2 | Z1 | With DC voltage between -2 and -4 volts, adjust for symmetrical curve |
| 7 | FM Muting & AFC Switch Off | 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 test point 2 and scope to FM Main Output | L12, L11, L7 | Check for sine waveform and adjust for maximum negative voltage |
| 8 | FM Muting & AFC Switch Off | 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 test point 2 and scope to FM Main Output | C22, C21, C11 | Check for sine waveform and adjust for maximum negative voltage |
| 9 | Repeat steps 7 and 8 for proper dial calibration and maximum output. | | | | | | | | | |

SCHEMATIC DIAGRAM



NOTES
 ALL VOLTAGES MEASURED WITH VTVM TO GROUND.
 NO SIGNAL AT ANTENNAS.
 FM ANTENNA SWITCH IN LOCAL POSITION.
 MUTING SWITCH OFF EXCEPT FOR MEASUREMENTS
 OF V9 WITH MUTING POTENTIOMETER IN MAX.
 POSITION.
 V10 SHOWS READINGS FOR NON OPERATING AND
 OPERATING POSITIONS.

S5 (AM BANDWIDTH) POSITIONS
 SHOWN IN → SHARP
 MEDIUM
 WIDE
 ULTRA WIDE

S6 (FM AFC) POSITIONS
 SHOWN IN → OFF
 MICROTUNE
 AFC

S7 (SELECTOR) POSITIONS
 SHOWN IN → FM-AM PHASE
 FM-AM
 FM
 AM

S8 (FM MUTING) POSITIONS
 SHOWN IN → OFF
 ON

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|----|----------|-------------------|----------------------------------|-------------------|----------------------|-------------------|------------|------------|---------------------------------|---|---|------------|-------------------|-------------------|---------------------------------|------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|-------------------|------------|---------------------------------|------------|-------------------|--------------------------|--------------|----------------------|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| RESISTORS | R1 | R2 R3 | R4 R5 | R6 R7 | R8 | R9 R10 | R11 R12 | R14 R15 | R16 R17 | R21 R22 | R23 R24 | R25 R26 | R27 R28 | R29 | R30 R31 | R32 R33 | R34 R35 | R37 R38 | R40 R41 | R43 R44 | R45 R46 | R47 R48 | R49 R50 | R51 R52 | R54 R55 | R56 R57 | R58 R59 | R61 R62 | R63 R64 | R66 R67 | R69 R70 | R72 R73 | R75 R76 | R78 R79 | R81 R82 | R84 R85 | R87 R88 | R90 R91 | R93 R94 | R96 R97 | R98 R99 | R101 R102 | R103 R104 | R105 R106 | R108 R109 | R111 R112 | R113 R114 | R115 R116 | R117 R118 | R120 R121 |
| CAPACITORS | C1 | C2 | C3A C3B C3C | C4 C5 C6 C7 C8 C9 | C10 C11 C12 | C13A C13B C13C | C15 C16 C18 | C21 C22 | C23 C24 | C25 C26 C27 C28 C29 | C31 C32 C33 C34 C35 C36 C37 C38 C39 | 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 C69 C70 | C71 C72 C73 C74 | C75 C76 C77 | C78 C79 C80 | C81 C82 C83 | C84 C85 | C86 C87 C88 C89 C90 | C91 C92 | C93 C94 C95 | C96 C97 C98 C99 | C100 C101 | C102 C103 C104 | C105 C106 C107 C108 | C109 | | | | | | | | | | | | | | | | | | |

