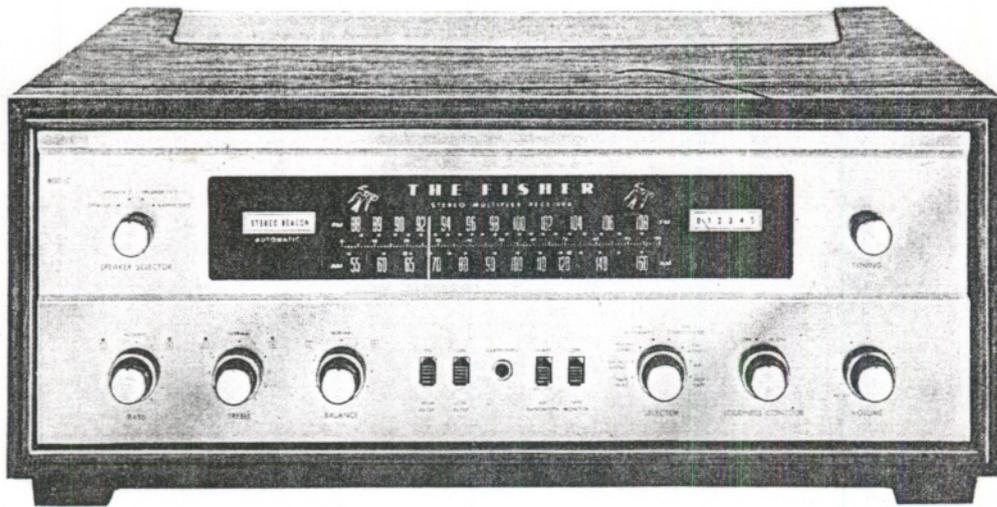


Service Manual

THE FISHER



800-C

CHASSIS SERIAL NUMBERS
FROM 30001 to 49999 INCLUSIVE

XXXXXXXXXX
XXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX

FISHER RADIO CORPORATION • LOS ANGELES, CALIF.

NEW YORK

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 | Ceramic, 47, 5%, N750, 1000V | C50070-29 |
| C2 | Ceramic, 3, NPO, 1000V | C50070-28 |
| C3 | Ceramic, 1000, GMV, 500V | C50089-2 |
| C4, 5, 6 | Ceramic, Feedthru, 1000, GMV | C592-187 |
| C7 | Ceramic, 10, 5%, NPO, 1000V | C50070-39 |
| C8 | Ceramic, .02uf, +80 — 20%, 100V | C50073-1 |
| C9 | Ceramic, 1000, GMV, 500V | C50089-2 |
| C10 | Ceramic, 7, ±.5, NPO, 500V | CC20CJ070D5 |
| C11 | Ceramic Trimmer | C662-123 |
| C12 | Variable, FM-AM | C965-115 |
| C13 | Ceramic, .02uf, +80 — 20%, 500V | C50089-4 |
| C14, 15 | Ceramic, 18, N470, 1000V | C50070-13 |
| C16 | Mylar, .047uf, 630V | C50197-101 |
| C17 | Mylar, .047uf, 250V | C50197-52 |
| C18 | Mylar, .047uf, 630V | C50197-101 |
| C19 | Mylar, .047uf, 250V | C50197-52 |
| C20 | Ceramic, .68, 500V | C50077-6N |
| C21, 22 | Ceramic, 1000, 1000V | C50072-3 |
| C23 | Ceramic Trimmer | C662-123 |
| C24 | Ceramic, 8, ±.5, NPO, 500V | CC20CJ080D5 |
| C27 | Ceramic, 68, N750, 500V | CC20UJ680K5 |
| C28 | Ceramic, .02uf, +80 — 20%, 500V | C50089-4 |
| C29 | Ceramic, 100, 5%, N1500, 1000V | C50070-19 |
| C30, 31 | Ceramic, 100, N1500, 1000V | C50070-6 |
| C32 | Ceramic Trimmer | C662-123 |
| C33 | Ceramic, 24, 5%, N150, 1000V | C50070-8 |
| C34 | Ceramic, 8, ±.5, N330, 500V | CC20SJ080D5 |
| C35 | Ceramic, 1000, 1000V | C50072-3 |
| C36 | Ceramic, 68, N2200, 1000V | C50070-12 |
| C37 | Ceramic, 6, 5%, NPO, 1000V | C50070-43 |
| C38 | Ceramic, .02uf, +80 — 20%, 100V | C50073-1 |
| C39 | Ceramic, 68, N2200, 1000V | C50070-12 |
| C40, 41 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C42, 43 | Ceramic, Feedthru, 1000, GMV | C592-187 |
| C44 | Mylar, .047uf, 400V | C50197-30 |
| C45 | Ceramic, 820, 1000V | C50072-7 |
| C46 | Mylar, .047, 400V | C50435-25 |
| C47 | Ceramic, 820, 1000V | C50072-7 |
| C48 | Ceramic, .02, +80 — 20%, 100V | C50073-1 |
| C49 | Mylar, .047uf, 250V | C50197-52 |
| C50 | Ceramic, 100, N1500, 1000V | C50070-6 |
| C51 | Ceramic, 2700, 1000V | C50072-17 |
| C52, 53 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C54, 55 | Ceramic, 100, 5%, N1500, 1000V | C50070-19 |
| C56 | Ceramic, 1, 20%, P100, 1000V | C50070-1 |
| C57 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C58 | Ceramic, 150, 1000V | C50072-18 |
| C59 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C60 | Mylar, .1uf, 125V | C50435-7 |
| C61 | Ceramic, 2700, 1000V | C50072-17 |
| C62 | Ceramic, .02uf, GMV, 1000V | C50071-6 |
| C63 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C64 | Mylar, .1uf, 125V | C50435-7 |
| C65 | Electrolytic, 2uf, 70V | C721-142 |
| C66 | Polystyrene, 1800, 5%, 125V | CP50394-11 |
| C67 | Electrolytic, .5uf, 350V | C50283-7 |
| C68 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C69 | Ceramic, 2200, 1000V | C50072-5 |
| C70 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C71 | Ceramic, 2200, 1000V | C50072-5 |
| C72 | Ceramic, 24, 5%, N150, 1000V | C50070-8 |
| C73 | Mylar, .1uf, 125V | C50435-7 |
| C74 | Ceramic, .02uf, +80 — 20%, 100V | C50073-1 |
| C75, 76 | Ceramic, 1000, 1000V | C50072-3 |
| C77, 78 | Ceramic, 120, N1500, 1000V | C50070-9 |
| C79, 80 | Ceramic, 24, 5%, N150, 1000V | C50070-8 |
| C81 | Ceramic, 2700, 1000V | C50072-17 |
| C82, 83, 84, 85, | | |
| 86 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C87 | Electrolytic, 4 Section: A — 20uf, 300V | C50180-49 |

B — 40uf, 400V
C — 40uf, 450V
D — 40uf, 500V

| | | |
|------------|---|-----------|
| C88, 89, | | |
| 90 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C91 | Electrolytic, 4 Section: A — 50uf, 250V B — 50uf, 250V C — 50uf, 250V D — 200uf, 250V | C50180-48 |
| C92 | Mylar, .1uf, 250V | C50197-54 |
| C93, 94 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C95 | Electrolytic, 2 Section: A — 1000 uf, 35V B — 1000 uf, 35V | C50180-38 |
| C96 | Ceramic, 560, 1000V | C50072-14 |
| C97 | Ceramic, 2700, 1000V | C50072-17 |
| C98 | Electrolytic, 200uf, 250V | C50180-20 |
| C99 | Mylar, .022uf, 250V | C50197-49 |
| C100 | Ceramic, 5000, +80 — 20%, 500V | C50089-6 |
| C101 | Mylar, .022uf, 250V | C50197-49 |
| C102 | Ceramic, .02uf, GMV, 1000V | C50071-6 |
| C103 | Ceramic, Feedthru, 1000, GMV | C592-187 |
| C104 | Molded, .01uf, 20%, 600V | C2747 |
| C105, 106 | Ceramic, .01uf, 20%, 500V | C50089-3 |
| C107, 108, | | |
| 109 | Ceramic, 330, 1000V | C50072-1 |
| C110 | Molded, .01uf, 20%, 600V | C2747 |
| C111 | Electrolytic, 8uf, 50V | C629-138 |
| C112, 113 | Ceramic, 100, GMV, N1500, 1000V | C50070-5 |
| C116, 117 | Electrolytic, 50uf, 10V | C50283-6 |
| C118 | Mylar, .1uf, 125V | C50435-7 |

RESISTORS & POTENTIOMETERS

In ohms, 5% tolerance, 1/4 Watt, unless otherwise noted. K=Kilohms, M=Megohms.

| Symbol | Description | Part No. |
|----------|---|------------|
| R1 | Wirewound, 25, 10%, 5W | R688-117 |
| R2 | Composition, 270, 10%, 1/2 W | RC20BF271K |
| R3 | Composition, 100K, 10%, 1/2 W | RC20BF104K |
| R4 | Composition, 330, 10%, 1W | RC20BF331K |
| R6 | Wirewound, 25, 10%, 5W | R688-117 |
| R8 | Composition, 330, 10%, 1W | RC30BF331K |
| R9 | Dep. Carbon, 47 | R12DC470J |
| R12 | Dep. Carbon, 100K | R12DC104J |
| R13 | Dep. Carbon, 1M, 1/2 W | R33DC105J |
| R14 | Composition, 100, 10%, 1/2 W | RC20BF101K |
| R15 | Dep. Carbon, 1.8M, 1/2 W | R33DC185J |
| R16 | Composition, 47K, 10%, 1/2 W | RC20BF473K |
| R17, 18, | | |
| 19, 20 | Dep. Carbon, 1K, 1/2 W | R33DC102J |
| R21, 22, | | |
| 23, 24, | | |
| 25 | Dep. Carbon, 330K | R12DC334J |
| R26 | Dep. Carbon, 180K, 1/2 W | R33DC184J |
| R27 | Dep. Carbon, 2.2K, 1/2 W | R33DC222J |
| R28 | Dep. Carbon, 180K, 1/2 W | R33DC184J |
| R29 | Dep. Carbon, 2.2K, 1/2 W | R33DC222J |
| R30, 31 | Dep. Carbon, 68K, 1/2 W | R33DC683J |
| R32 | Dep. Carbon, 22K | R12DC223J |
| R33, 34 | Dep. Carbon, 33K, 1/2 W | R33DC333J |
| R35 | Dep. Carbon, 2.2K, 1/2 W | R33DC222J |
| R36 | Dep. Carbon, 220, 1/2 W | R33DC221J |
| R37 | Dep. Carbon, 2.2K, 1/2 W | R33DC222J |
| R38 | Dep. Carbon, 220, 1/2 W | R33DC221J |
| R39, 40 | Potentiometer, 25K, Phase Inverter Adj. | R50103-2 |
| R41 | Composition, 18K, 10%, 1W | RC30BF183K |
| R42, 43 | Dep. Carbon, 470K, 1/2 W | R33DC474J |
| R44 | Dep. Carbon, 470K | R12DC474J |
| R45, 46 | Dep. Carbon, 47K | R12DC473J |
| R47 | Potentiometer, 500K, Dual Volume | R50160-104 |
| R48 | Dep. Carbon, 27 | R12DC270J |
| R49 | Dep. Carbon, 2.7K | R12DC272J |
| R50, 51 | Dep. Carbon, 270 | R12DC271J |

PARTS DESCRIPTION LIST

R52 Composition, 1K, 10%, 1/2 W
R53 Composition, 2.7, 10%, 1/2 W
R54, 55 Dep. Carbon, 22K
R56 Composition, 1K, 10%, 1/2 W
R57 Potentiometer, 300K, Dual Balance
R58 Dep. Carbon, 56K
R59, 60 Dep. Carbon, 2.7M, 1/2 W
R61, 62 Dep. Carbon, 120K, 1/2 W
R63, 64 Dep. Carbon, 1K, 1/2 W
R65 Composition, 180, 10%, 1/2 W
R66 Dep. Carbon, 3.3M, 1/2 W
R67 Dep. Carbon, 39K
R68 Dep. Carbon, 1K
R69 Composition, 27K, 10%, 1/2 W
R70 Composition, 1K, 10%, 1/2 W
R71 Dep. Carbon, 39K
R72 Composition, 10K, 10%, 1/2 W
R73 Composition, 100, 10%, 1/2 W
R74, 75 Dep. Carbon, 220K
R76 Dep. Carbon, 82K
R77, 78 Dep. Carbon, 680K
R79, 80 Potentiometer, 500K,
Dual Bass, Treble
R81 Dep. Carbon, 680K
R82 Dep. Carbon, 150K
R83 Dep. Carbon, 820K
R84 Composition, 150, 10%, 1/2 W
R85 Dep. Carbon, 470K
R86 Dep. Carbon, 270K
R87 Composition, 47K, 10%, 1/2 W
R88 Dep. Carbon, 47K
R89 Dep. Carbon, 820K
R90 Composition, 1K, 10%, 1/2 W
R91 Dep. Carbon, 820K
R92 Dep. Carbon, 56K
R93, 94 Dep. Carbon, 820K
R95 Dep. Carbon, 68K
R96 Dep. Carbon, 120K, 1/2 W
R97 Dep. Carbon, 1K, 1/2 W
R98 Dep. Carbon, 120K, 1/2 W
R99 Dep. Carbon, 1K, 1/2 W
R100 Dep. Carbon, 2.2M, 1/2 W
R101 Composition, 220, 10%, 1/2 W
R102 Dep. Carbon, 2.7M, 1/2 W
R103 Dep. Carbon, 1.5M, 1/2 W
R104 Dep. Carbon, 2.7M, 1/2 W
R105 Dep. Carbon, 1.5M, 1/2 W
R106 Composition, 220, 10%, 1/2 W
R107, 108 Dep. Carbon, 470K
R109, 110 Dep. Carbon, 330K
R111 Dep. Carbon, 22K
R112 Composition, 100, 10%, 1/2 W
R113 Composition, 82K, 10%, 1/2 W
R114 Composition, 1K, 10%, 1/2 W
R115 Composition, 82K, 10%, 1/2 W
R116 Dep. Carbon, 47K
R117 Composition, 22K, 10%, 1/2 W
R118 Dep. Carbon, 180
R119 Dep. Carbon, 5.6K, 1/2 W
R120 Composition, 2.7K, 10%, 1W
R121 Glass, 470, 10%, 3W
R122 Dep. Carbon, 15K, 1/2 W
R123 Composition, 1.2K, 10%, 1W
R125, 126 Dep. Carbon, 82K
R127 Wirewound, 15, 10%, 5W
R128 Glass, 1.2K, 10%, 7W
R129 Glass, 470, 10%, 3W
R130 Dep. Carbon, 330K
R131 Composition, 68K, 10%, 1/2 W
R132 Dep. Carbon, 330K
R135, 136 Dep. Carbon, 4.7M, 1/2 W
R137 Composition, 1K, 10%, 1/2 W
R138 Composition, 270, 1/2 W
R139, 140 Dep. Carbon, 220K, 1/2 W
R141, 142 Glass, 330K, 1W
R143 Dep. Carbon, 10K
R144 Glass, 2.7K, 1/2 W

RC20BF102K
RC20BF272K
R12DC223J
RC20BF102K
R50160-130
R12DC563J
R33DC275J
R33DC124J
R33DC102J
RC20BF181K
R33DC335J
R12DC393J
R12DC102J
RC20BF273K
RC20BF102K
R12DC393J
RC20BF103K
RC20BF101K
R12DC224J
R12DC823J
R12DC684J
R50160-101-2
R12DC684J
R12DC154J
R12DC824J
RC20BF151K
R12DC474J
R12DC274J
RC20BF473K
R12DC473J
R12DC824J
RC20BF102K
R12DC824J
R12DC563J
R12DC824J
R12DC824J
R12DC683J
R33DC124J
R33DC102J
R33DC124J
R33DC102J
R33DC225J
RC20BF221K
R33DC275J
R33DC155J
R33DC275J
R33DC155J
RC20BF221K
R12DC474J
R12DC334J
R12DC223J
RC20BF101K
RC20BF823K
RC20BF102K
RC20BF823K
R12DC473J
RC20BF223K
R12DC180J
R33DC562J
RC30BF272K
RPG3W471K
R33DC153J
RC30BF122K
R12DC823J
R719-106
RPG7W122K
RPG3W471K
R12DC334J
R33DC475J
RC20BF102K
RC20BF271J
R33DC224J
R30G334J
R12DC103J
R20G272J

R145 Dep. Carbon, 10K
R146 Glass, 2.7K, 1/2 W
R147 Composition, 820K, 10%, 1/2 W
R148 Dep. Carbon, 100K
R149 Dep. Carbon, 10
R150 Dep. Carbon, 100K
R151 Dep. Carbon, 10
R152 Composition, 1.5K, 1/2 W
R153 Composition, 1K, 1/2 W
R154 Dep. Carbon, 15K, 1/2 W
R155 Dep. Carbon, 150K
R156 Dep. Carbon, 68K
R157 Dep. Carbon, 150K
R158 Dep. Carbon, 68K
R159, 160 Dep. Carbon, 220K

R12DC103J
R20G272J
RC20BF824K
R12DC104J
R12DC100J
R12DC104J
R12DC100J
RC20BF152J
RC20BF102J
R33DC153J
R12DC154J
R12DC683J
R12DC154J
R12DC683J
R12DC224J

COILS, CHOKES & TRANSFORMERS

| Symbol | Description | Part No. |
|-------------|-------------------------------|------------|
| L1 | FM Antenna Coil | L965-119 |
| L2 | AM Ferrite Loop <i>L50695</i> | L990-132 |
| L3 | Choke, Ferrite Bead | L592-189 |
| L4 | Choke, 1.5 Microhenry | L50066-4 |
| L5 | AM-RF Transformer | L50210-35 |
| L6 | FM-RF Coil | L965-116 |
| L7 | FM Mixer Coil | L965-117 |
| L8 | Choke, 1 Microhenry | L50066-2 |
| L9 | AM Oscillator Coil | L50210-28 |
| L10 | Choke, 1 Microhenry | L50066-2 |
| L11 | FM Oscillator Coil Assembly | AS965-120 |
| L12, 13, 14 | Choke, 1 Microhenry | L50066-2 |
| L16 thru 27 | Choke, Filament, Ferrite Bead | L592-189 |
| L28 | Choke, 3.3 Microhenries | L50066-8 |
| T1 | Transformer, Power | T991-115 |
| T2 | Transformer, Output | T991-116-1 |
| T3 | Transformer, Output | T991-116-2 |
| Z1 | Transformer, AM, IF | ZZ50210-41 |
| Z2 | Transformer, FM, IF | ZZ50210-42 |
| Z3 | Transformer, FM, IF | ZZ50210-39 |
| Z4 | Transformer, AM, IF | ZZ2984 |
| Z5 | Transformer, FM, IF | ZZ50210-2 |
| Z6 | FM Limiter Coil | ZZ50210-6 |
| Z7 | FM Ratio Detector | ZZ50210-9 |

MISCELLANEOUS

| Symbol | Description | Part No. |
|--------------|-------------------------------|-------------|
| CR2, 3, 4, 5 | Diode, Silicon | V50260-10 |
| CR6, 7 | Diode, Silicon | SR50411-1 |
| F1 | Fuse, 3.2 Amp Slo-Blo | F3319 |
| I1 | Lamp, #47 OF | I50009-4 |
| I2, 3 | Lamp, Dial | I150441-4 |
| I4 | Lamp, #47 OF, Stereo Beacon | I50009-4 |
| J1 | Headphone Jack | J846-120-1 |
| M1 | Meter, Tuning | M990-124 |
| PC1 | Printed Circuit | PC50434 |
| PC2, 3 | Printed Circuit, High Filter | PC50187-2 |
| PC4, 5 | Printed Circuit, Tone Control | PC50187-9 |
| PC6, 7 | Printed Circuit, Equalization | PC50187-3 |
| RL1 | Relay | K50314 |
| S1 | Switch, Selector | S990-131BX |
| S2 | Switch, Slide, AM Bandwidth | S50200-5 |
| S3 | Switch, Speaker Selector | S990-130 |
| S4 | Switch, Loudness Contour | S990-129 |
| S5, 6, 7 | Switch, Slide | S50200-5 |
| S8 | Switch, Power | part of R47 |
| SR1 | Selenium Rectifier, Bridge | SR50253-1 |
| — | FM Dipole Assembly | AS50227-1 |
| — | Dress Panel | AS990-108 |
| — | Knob, Dummy Dual | E50324 |
| — | Knob, Dual, Rear | E50221 |
| — | Knob, Dual, Front | E50323 |
| — | Knob, Tuning | E50325-2 |
| — | Knob, Speaker Selector | E50325-2 |
| — | Dial Glass | N990-107 |
| — | Fuse Holder | X563-551 |

ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Turn the station selector completely counterclockwise, without forcing. Dial pointer should be at zero index mark on logging scale. If not, reset the dial pointer. 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 loads 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 sweep for AM bandwidth adjustment.

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, Z5; a hex tool for L1, L5, L6, L7, L9, L11, Z6 and Z7. For AM alignment, short AVC lead to ground.

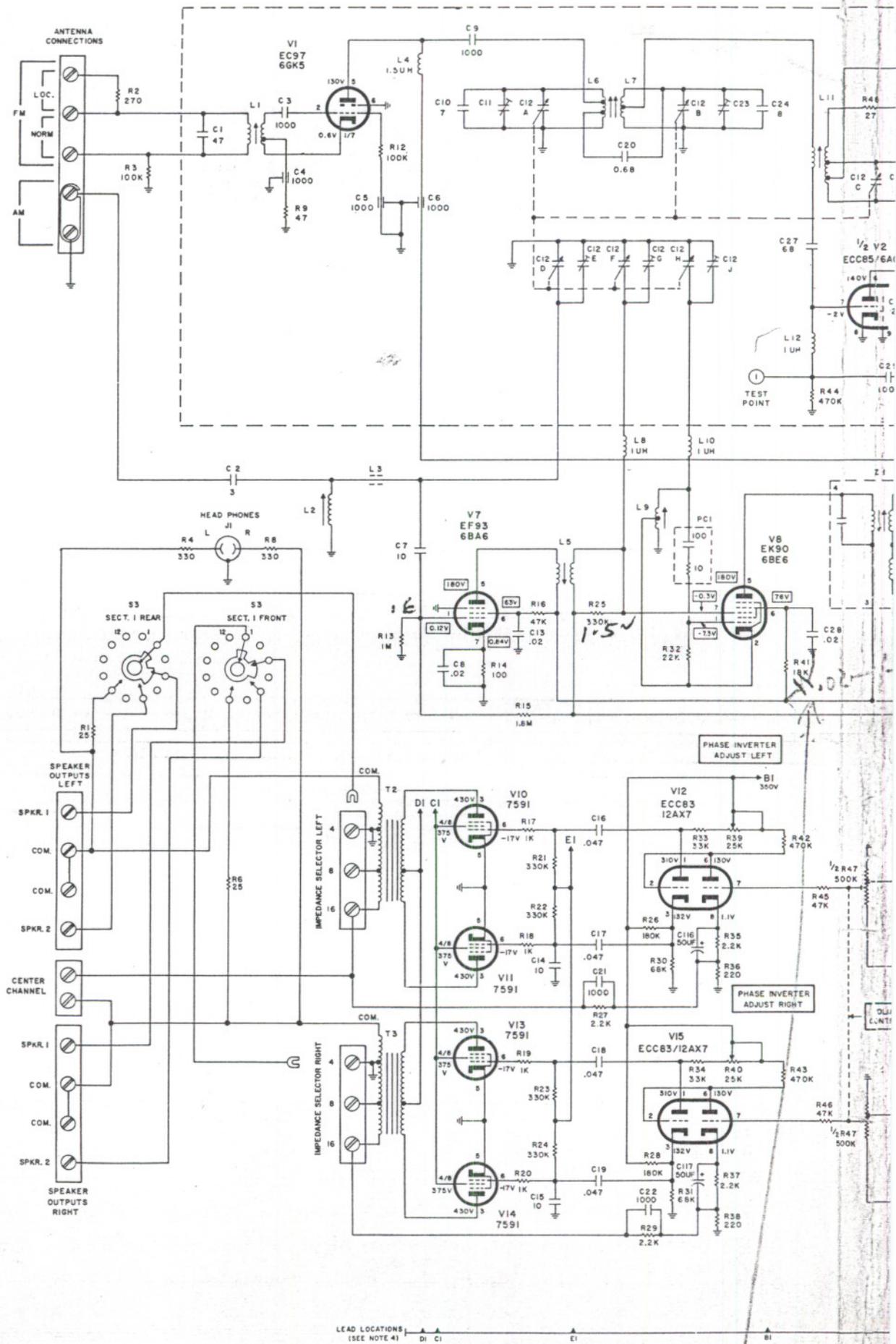
NOTE: For calibrating both the AM and FM, use as low an output voltage as possible from your signal generator.

AM ALIGNMENT

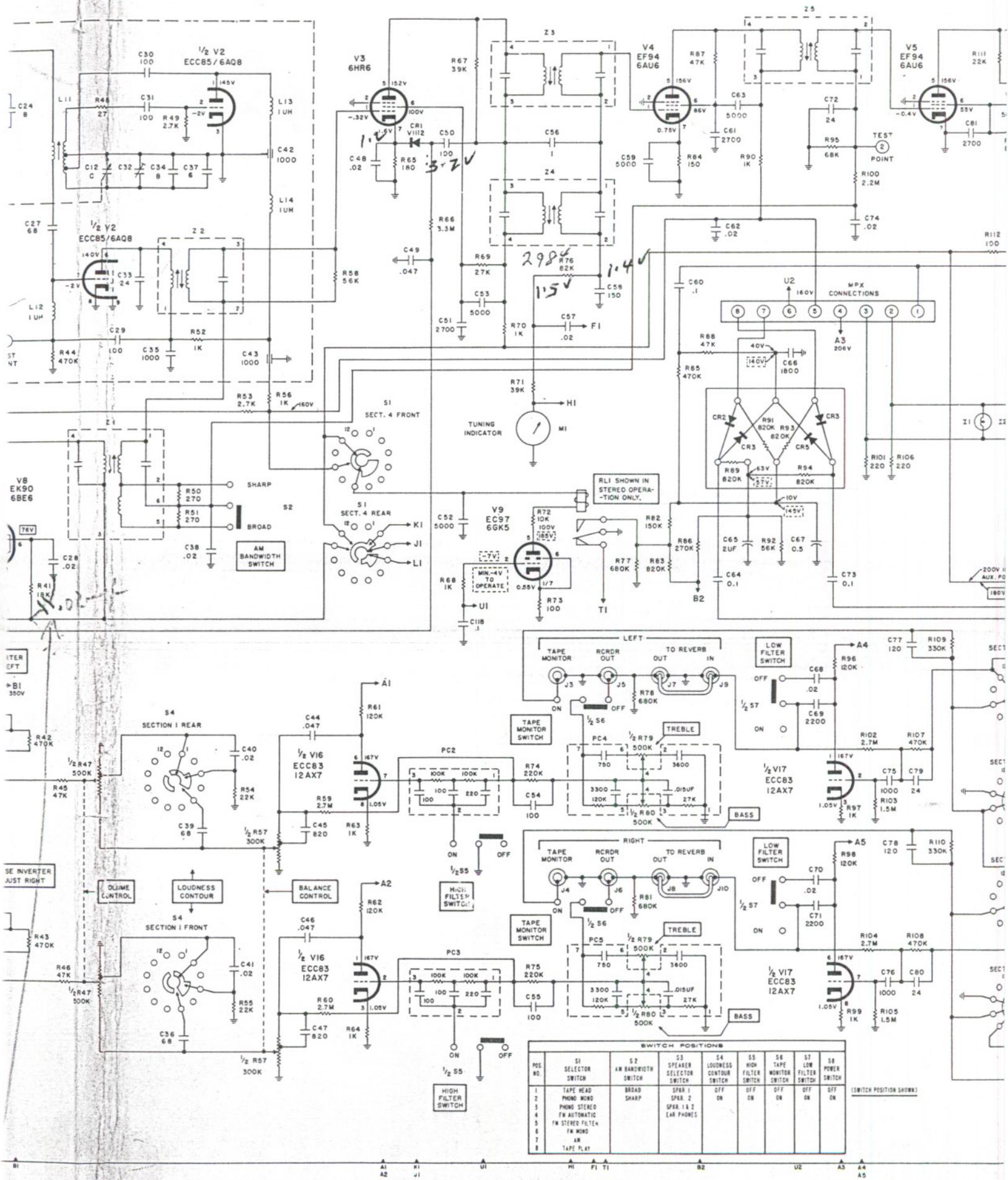
| STEPS | CHASSIS | | | SIGNAL GENERATOR | | | INDICATOR | | ALIGNMENT | |
|-------|--|----------|--|--|---------|----------------------------------|--|-------------|-----------------------------------|---|
| | AM BANDWIDTH | SELECTOR | STATION SELECTOR | COUPLING | FREQ. | MOD. | TYPE | CONNECTION | ADJUST | INDICATION |
| 1 | SHARP | AM | Point of no signal and no interference | AM Gen. connected thru .01-uF cap. in series with hot lead to V8, Pin 7 | 455 KC | 30% AM at 400 cps | AC VTVM to Left | Rec. Output | Z1, Z4 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 V8, Pin 7 | 455 KC | 30 KC sweep | Scope to Left | Rec. Output | Z4 bottom | Adjust slightly for symmetrical curve |
| 3 | SHARP | AM | 600 KC | AM Gen. connected thru 220-uF to the AM antenna terminal. Disconnect link between terminals. | 600 KC | 30% AM at 400 cps | AC VTVM to Left | Rec. Output | L9, L5, L2 | Maximum voltage |
| 4 | SHARP | AM | 1400 KC | AM Gen. connected thru 220-uF to the AM antenna terminal. Disconnect link between terminals. | 1400 KC | 30% AM at 400 cps | AC VTVM to Left | Rec. Output | C12J, C12G, C12E | 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 3 | | Z2, Z3, Z5, Z6 Z7, top and 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 hot lead of DC VTVM to TSP4, ground to junction of resistors (47K) connected in series from TSP3 to GND. | | Z7, 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 Normal. | 90 MC | 30% FM (22.5 KC Dev.) at 400 cps | DC VTVM to TSP3 and scope to Left | Rec. output | L11, L7, L6, L1 | 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 Normal. | 106 MC | 30% FM (22.5 KC Dev.) at 400 cps | DC VTVM to TSP3 and scope to Left | Rec. output | C32, C23, C11 | Check for sine waveform and adjust for maximum negative voltage |
| 10 | Repeat steps 8 and 9 for proper dial calibration and maximum output. | | | | | | | | | |

FM ALIGNMENT

SCHEMATIC DIAGRAM



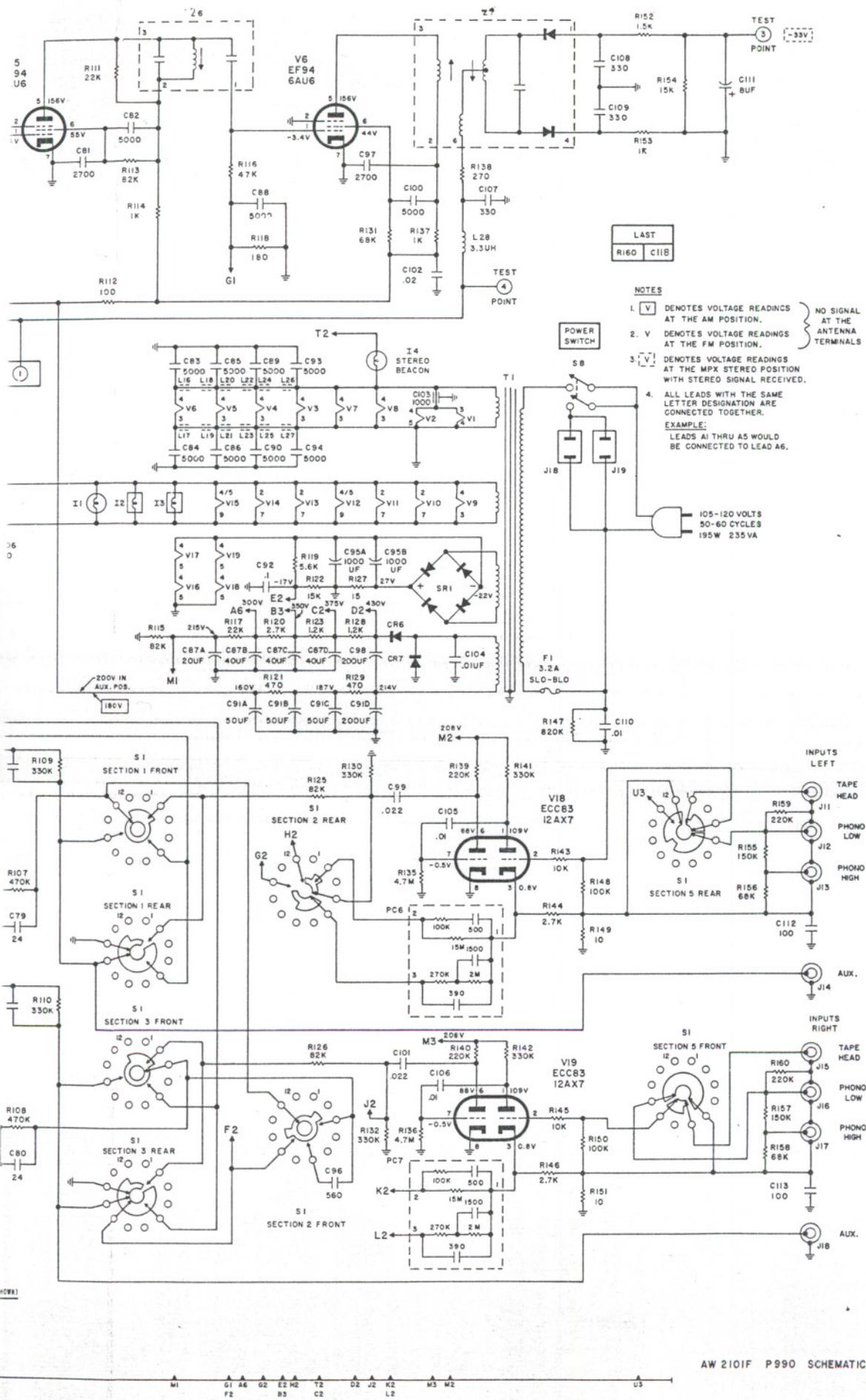
For AM etc.



SWITCH POSITIONS

| POS. NO. | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 |
|----------|------------------|-------|--------------|-----|-----|-----|-----|-----|
| 1 | TAPE HEAD | BROAD | SPEAK. 1 | OFF | OFF | OFF | OFF | OFF |
| 2 | PHONO WARD | SHARP | SPEAK. 2 | ON | ON | ON | ON | ON |
| 3 | PHONO STEREO | | SPEAK. 1 & 2 | | | | | |
| 4 | FM AUTOMATIC | | EAR PHONES | | | | | |
| 5 | FM STEREO FILTER | | | | | | | |
| 6 | FM WARD | | | | | | | |
| 7 | AM | | | | | | | |
| 8 | TAPE PLAY | | | | | | | |

(SWITCH POSITION SHOWN)



AW 2101F P990 SCHEMATIC

PARTS DESCRIPTION LIST • MU

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 | Polystyrene, 470, 5%, 500V | C50394-1 |
| C205 | Ceramic, 82, 1000V | C50070-1 |
| C206 | Ceramic, 1000, GMV, 500V | C50089-2 |
| C207 | Ceramic, 5000, +80 - 20%, 500V | C50089-6 |
| C208, 209 | Mica, 4700, 5%, 500V | C50332-5 |
| C210 | Electrolytic, 1uf, 350V | C50283-3 |
| C211 | Ceramic, 1000, GMV, 500V | C50089-2 |

| | | |
|-----------|---------------------------------|-----------|
| C212 | Ceramic, .05uf, +80 - 20%, 100V | C50073-2 |
| C214 | Mylar, 4700, 400V | C50197-25 |
| C215 | Mica, 3900, 5%, 500V | C50332-6 |
| C216, 217 | Ceramic, 1000, GMV, 500V | C50089-2 |
| C218 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C219 | Ceramic, 330, 1000V | C50183-5 |
| C220 | Ceramic, .02uf, 20%, 500V | C50089-5 |
| C221, 222 | Mylar, .047uf, 250V | C50197-52 |
| C223, 224 | Ceramic, 1000, 1000V | C50072-3 |
| C225, 226 | Ceramic, 2200, 1000V | C50072-5 |

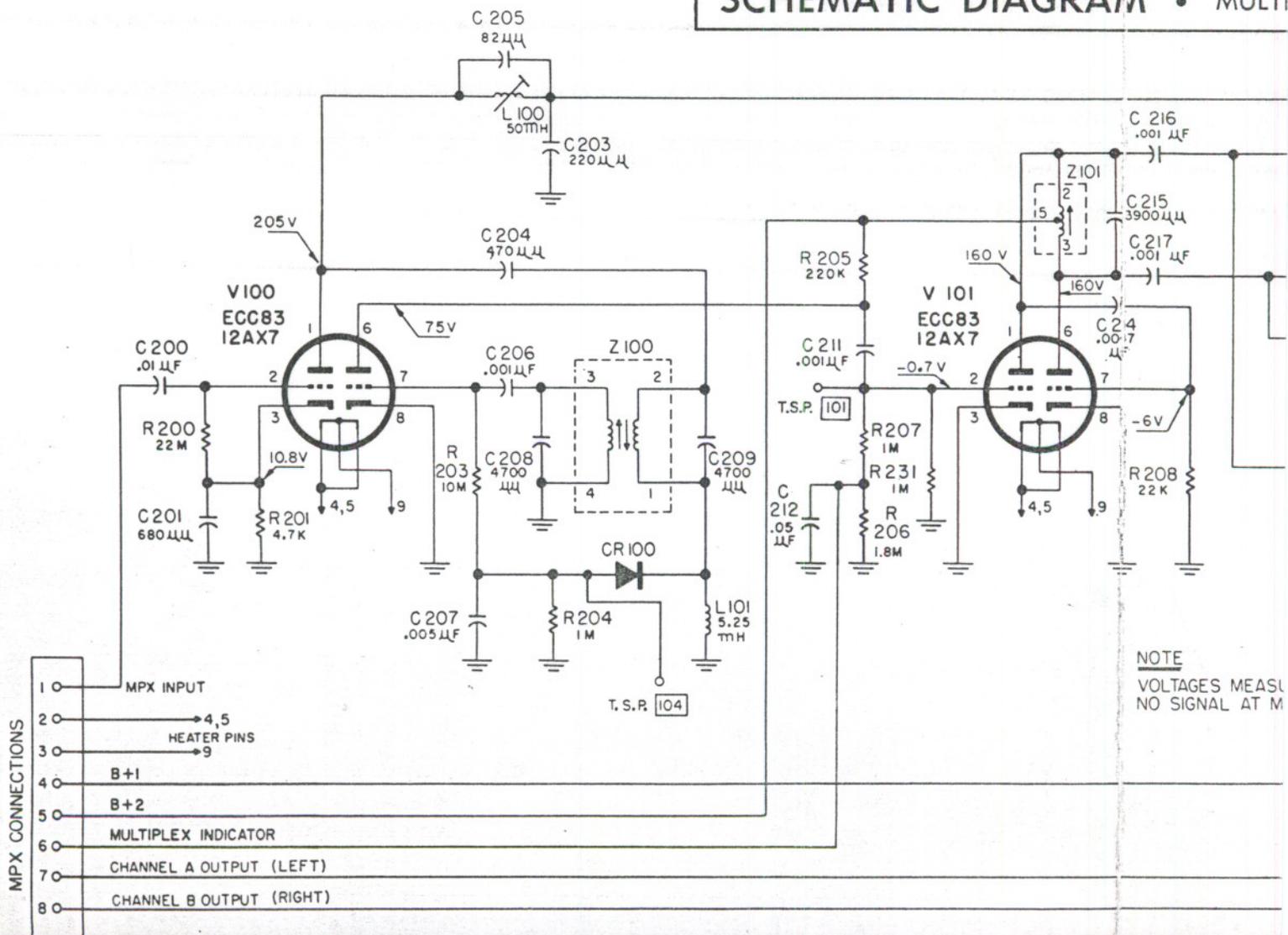
RESISTORS

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

| Symbol | Description | Part No. |
|--------|------------------------------|------------|
| R200 | Composition, 22M, 10%, 1/2 W | RC208F226K |

| | | |
|------------|----------|-----|
| R201 | Corr | |
| R202 | Corr | |
| R203 | Corr | |
| R204 | Dep | |
| R205 | Dep | |
| R207 | Dep | |
| R208 | Dep | |
| R209, 210, | 211, 212 | Dep |
| R213, 214 | Dep | |
| R215 | Pote | |
| R216 | Corr | |
| R217, 218 | Dep | |
| R219, 220 | Dep | |
| R221 | Corr | |
| R222, 223 | Dep | |

SCHEMATIC DIAGRAM • MULTI



ON LIST • MULTIPLEX SECTION

| | | |
|-----------|------------|------------------------------------|
| C50073-2 | R201 | Composition, 4.7K, 1/2 W |
| C50197-25 | R202 | Composition, 15K, 1/2 W |
| C50332-6 | R203 | Composition, 10M, 10%, 1/2 W |
| C50089-2 | R204 | Dep. Carbon, 1M |
| C50089-5 | R205 | Dep. Carbon, 220K, 1/2 W |
| C50183-5 | R207 | Dep. Carbon, 1M |
| C50089-5 | R208 | Dep. Carbon, 22K |
| C50197-52 | R209, 210, | |
| C50072-3 | 211, 212 | Dep. Carbon, 33K |
| C50072-5 | R213, 214 | Dep. Carbon, 100K |
| | R215 | Potentiometer, 50K, MPX Separation |
| | R216 | Composition, 22M, 10%, 1/2 W |
| | R217, 218 | Dep. Carbon, 18K, 1/2 W |
| | R219, 220 | Dep. Carbon, 15K, 1/2 W |
| | R221 | Composition, 22M, 10%, 1/2 W |
| | R222, 223 | Dep. Carbon, 27K |

| | | |
|------------|------------|------------------|
| RC20BF472J | R224, 225 | Dep. Carbon, 22K |
| RC20BF153J | R226, 227, | |
| RC20BF106K | 228, 229, | |
| R12DC105J | 230, 231 | Dep. Carbon, 1M |
| R33DC224J | | |
| R12DC105J | | |
| R12DC223J | | |
| | | |
| R12DC333J | | |
| R12DC104J | | |
| R50150-4 | | |
| RC20BF226K | | |
| R33DC183J | | |
| R33DC153J | | |
| RC20BF226K | | |
| R12DC273J | | |

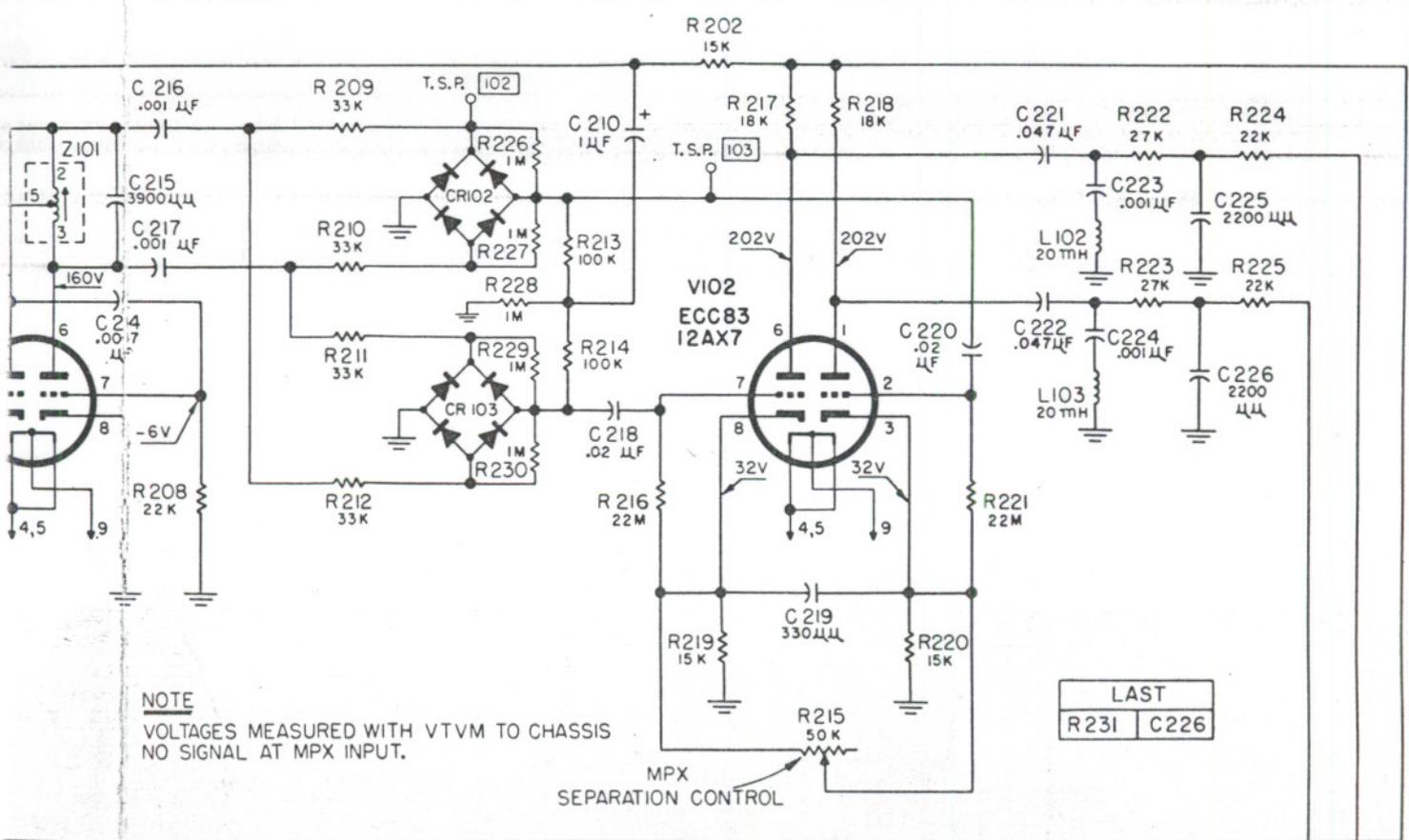
MISCELLANEOUS

| Symbol | Description | Part No. |
|------------|-------------------|------------|
| CR100 | Diodes, Type 1112 | V-1112 |
| CR102, 103 | Bridge | V50160-13 |
| L100 | Coil, low pass | L50210-30 |
| L101 | Coil, 5.25MH | L50334-1 |
| L102, 103 | Coil, 20MH | L50334-2 |
| Z100 | Transformer, 19Kc | ZZ50210-34 |
| Z101 | Coil, 38Kc | ZZ50210-33 |

wise noted.

Part No.
C20BF226K

GRAM • MULTIPLEX SECTION



NOTE
VOLTAGES MEASURED WITH VTVM TO CHASSIS
NO SIGNAL AT MPX INPUT.

| | |
|------|------|
| LAST | |
| R231 | C226 |

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.

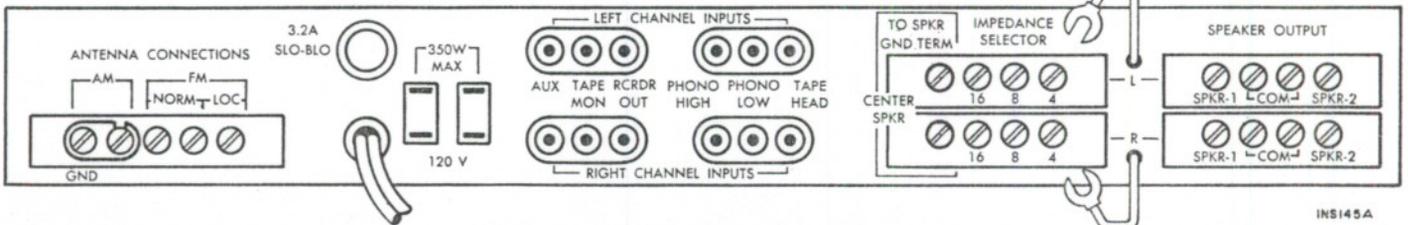
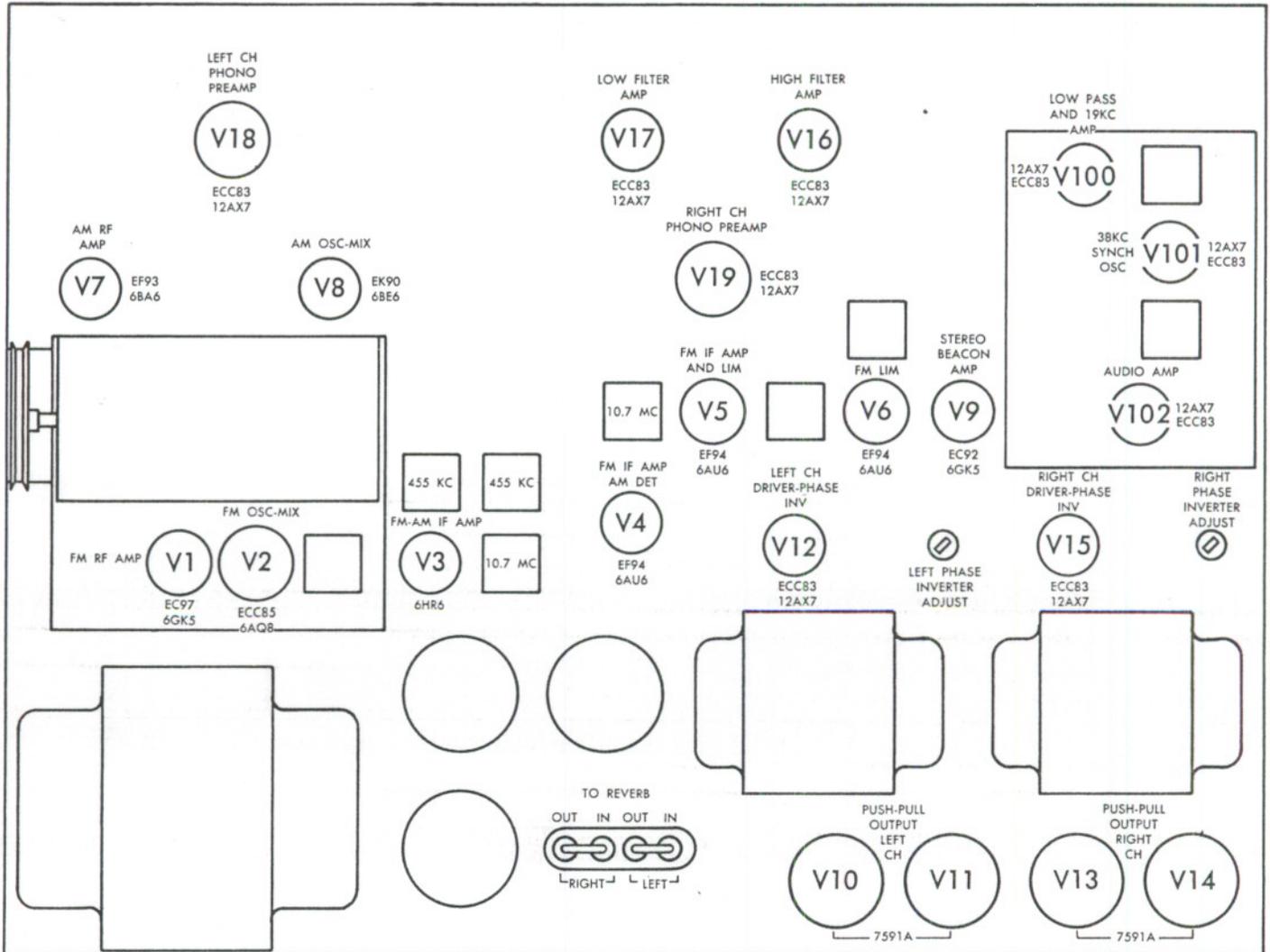
2 — The vertical amplitude of the Lissajous pattern will increase slightly

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.

TUBE LAYOUT



INS145A

SERVICE NOTES

Receiver Phase Inverter Adjustment

The following procedure is used to balance the phase inverter for minimum IM distortion. Two 4-ohm, 30-watt resistors and an IM distortion analyzer are required for this adjustment.

- 1 — Connect one of the two 4-ohm loads to the appropriate terminals of each channel.
- 2 — Turn the equipment on, allowing a few minutes for warmup.
- 3 — Connect the output of the IM distortion analyzer to the left channel AUX input. (First, remove the connector from the tape recorder, if present.)
- 4 — Connect the input of the IM distortion analyzer across the 4-ohm load connected to the left channel.

5 — Set the receiver volume control to produce a 25-watt RMS output, as measured across the left channel load.

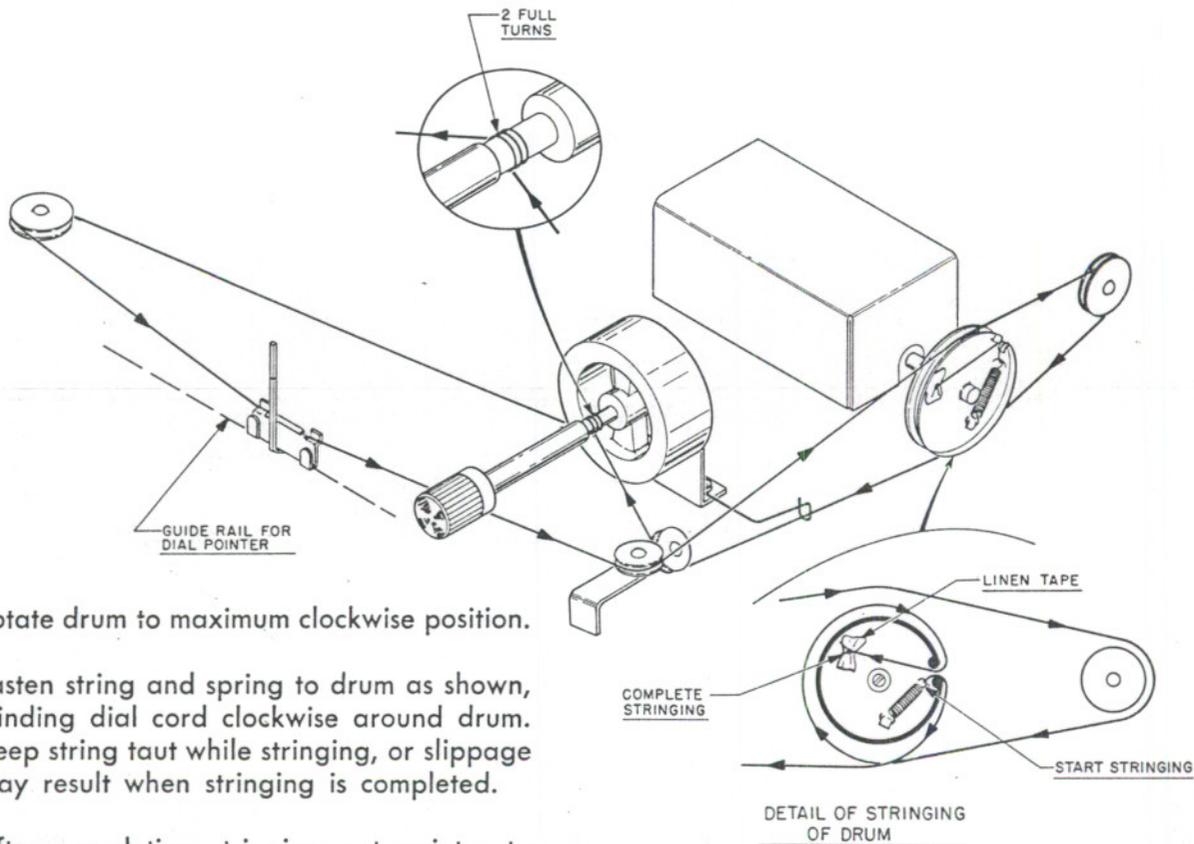
6 — Set the left channel phase inverter adjustment control for minimum IM distortion.

7 — Connect the output of the IM distortion analyzer to the right channel AUX input, and the analyzer input across the right channel load.

8 — Set the Volume control to produce a 25-watt RMS output, as measured across the right channel load.

9 — Set the right channel phase inverter adjustment control for minimum IM distortion.

DIAL STRINGING PROCEDURE



1—Rotate drum to maximum clockwise position.

2—Fasten string and spring to drum as shown, winding dial cord clockwise around drum. Keep string taut while stringing, or slippage may result when stringing is completed.

3—After completing stringing, set pointer to zero (0) on the dial logging scale, and glue pointer to dial cord.

INS238



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