

GTE SYLVANIA

INCORPORATED

FACTORY PREPARED TECHNICAL SERVICE DATA

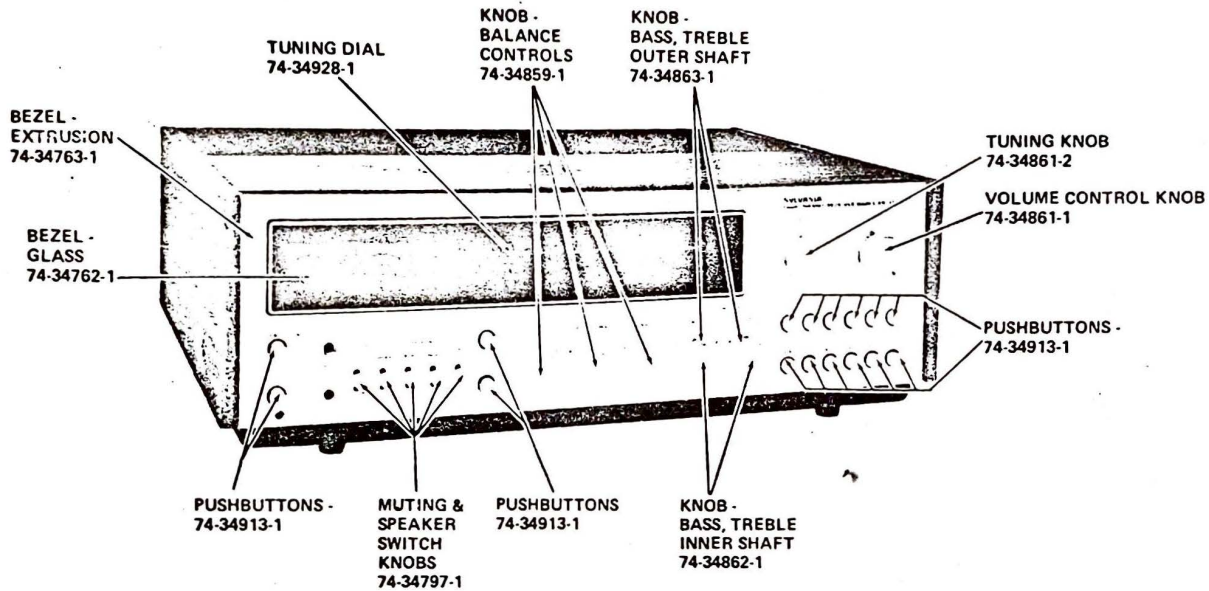
STEREO HI-FI
BULLETIN: R74-3

MODEL: RQ3747

SERVICE PUBLICATIONS DEPARTMENT

Entertainment Products Group

700 Ellicott Street - Batavia, N.Y.



CABINET PARTS LIST

MODEL: RQ3747
CHASSIS: R74-3

| DESCRIPTION | SERVICE PART NO. |
|--|------------------|
| ANTENNA FM Dipole | 27-14926-2 |
| BEZEL Clip, Bezel-to-Escutcheon | 70-34933-1 |
| Dial - Tuning | 74-34928-1 |
| Extrusion | 74-34763-1 |
| Glass | 74-34762-1 |
| Glass Retaining Clip | 70-26670-1 |
| Nut - Headphone Jack | 70-32649-1 |
| CABINET Bottom Vent | 74-34761-1 |
| KNOBS Balance Control | 74-34859-1 |
| Bass or Treble (Inner Shaft) | 74-34862-1 |
| Bass or Treble (Outer Shaft) | 74-34863-1 |
| FM Tuning or Speaker Switch | 74-34797-1 |
| Tuning | 74-34861-2 |
| Volume | 74-34861-1 |
| PUSHBUTTONS Filter, Function, Lamp, Mode or Power Switch | 74-34913-1 |
| Guide - Filter, Lamp or Power Switch | 74-34929-2 |
| Guide - Function or Mode Switch | 74-34929-1 |

CHASSIS IDENTIFICATION

Chassis identification consists of two blocks of numbers. In all correspondence relating to a specific model, both blocks of numbers plus the cabinet model number should be given. To associate a chassis with its proper schematic, refer to the number breakdown described below:

CHASSIS IDENTIFICATION NUMBER

| | | | |
|--|-------------|---------------------|----------------|
| <u>R74</u> | <u>03</u> | <u>00</u> | <u>1812100</u> |
| CHASSIS AND SCHEMATIC TYPE | CODE CHANGE | FACTORY INFORMATION | |
| ENGINEERING VARIATION (1 or 01 through 99) | | | |

IMPORTANT: Always use genuine Sylvania replacement parts and tubes.

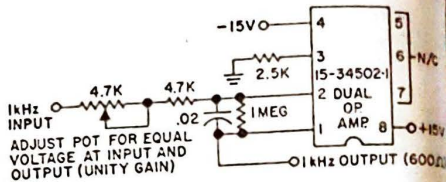
Price \$1.50

BULLETIN: R74-3

R74-3

5

90 DEGREE PHASE SHIFTING NETWORK (STEP 2)



SQ 4-CHANNEL MATRIX DECODER:

Switch HIGH FILTER, LOW FILTER and LOUDNESS off.

Mechanically center Balance and Tone controls.

Adjust Volume control to MAX. (full CW) position.

Select DISCRETE mode and AUX. function.

Drive four AUX. inputs with a 1kHz signal for an output of about 1 Watt (2.83V - RMS, measured across 8 ohm load resistors).

Note the exact output level of each channel. This is the "reference level".

TEST CONDITIONS

- 1 Select SQ MATRIX mode and remove left and right rear inputs.
- 2 Phase shift inputs so that right front input signal = left front input signal 90 deg.
- 3 Remove right front input signal.
- 4 Select SQ BLEND mode.

dB from Reference Level

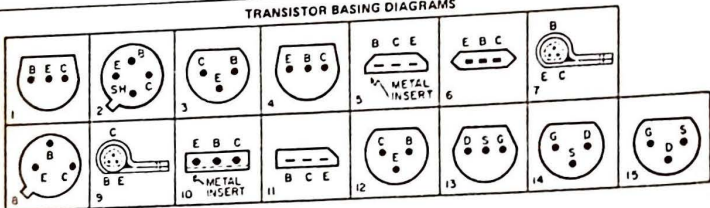
| LEFT FRONT | RIGHT FRONT | LEFT REAR | RIGHT REAR |
|------------|-------------|------------|------------|
| 0+/-1.5 | 0+/-1.5 | 0+/-1.5 | 0+/-1.5 |
| 0+/-1.5 | 0+/-1.5 | -14+/-0 | +3+/-1.5 |
| 0+/-1.5 | -30+/-0 | -3+/-1.5 | -3+/-1.5 |
| 0+/-2 | -20+/-2 | -5.5+/-1.5 | -5.5+/-1.5 |

TRANSISTOR CROSS-REFERENCE CHART

| SYLVANIA PART NUMBER | DESCRIPTION (ALL SILICON) | APPLICATION | DC CURRENT GAIN | V _{BE} (SOURCE) AT 25 DEG C AMBIENT | V _{CE} (COLLECTOR) AT 25 DEG C AMBIENT | I _C (MAXIMUM POWER DISSIPATION AT 25 DEG C AMBIENT) | I _C (MAX. IGATE CURRENT) | BASEING FIGURE NOS. |
|----------------------|---------------------------|---|-------------------|--|---|--|-------------------------------------|---------------------|
| 13-23824-1 | NPN | Q8, Q10, Q12 - FM IF Amplifier Q14 - Mixer & AGC Amplifier | 27-275 100-350 | 15V | 3V | 150mW | N/A | 1, 2, 3 |
| 13-26386-2 | PNP | Q20 - AM Converter | 90-270 | 45V | 4V | 200mW | 100mA | 3, 4 |
| 13-28192-1 | NPN | Q514 - Current Limiter | 90-270 | 45V | 4V | 500mW | 500mA | 4, 5, 6 |
| 13-28393-1 | NPN | Q616 - Current Limiter | 200-400 | 45V | 4V | 200mW | N/A | 3, 4 |
| 13-29033-3 | NPN | Q16 - Noise Amplifier Q24 - AM Filter & Mixer Driver | | 72V | .58V | 90W (25 deg. C Case) | N/A | 5 |
| 13-34007-3 | NPN | Q612 - Bias Resistor Q622, Q624 - Power Output | 30 Min. 90-270 | 70V | 5V | 700mW | 750mA | 6, 8, 9, 10 |
| 13-34003-1 | NPN | Q618 - Driver | 90-270 | 70V | 5V | 700mW | 750mA | 3 |
| 13-34006-1 | PNP | Q620 - Driver | 4-18 | 12V | 3V | 250mW | 3V | 11 |
| 13-34045-3 | NPN | Q22 - AM IF Amplifier | 10-150 | 40V | 4V | 2.1W | 100mA | 3, 4, 12 |
| 13-34045-1 | NPN | Q502 - Regulator Amplifier | See Below | 50V | 4V | 300mW | N/A | 1 |
| 13-34045-2 | PNP | Q608, Q608 - Matched D.I.F. Input | 20 | 20V | .85V | 500mW | 500mA | 4, 8 |
| 13-34367-3 | PNP | Q6 - FM Oscillator | 90-270 | 110V | 4V | 200mW | 10mA | 13, 14 |
| 13-34369-1 | PNP | Q610 - Pre-Driver | N/A | N/A | 25V | 250mW | N/A | 13, 15 |
| 13-34371-1 | NPN | Q4 - FM Mixer | N/A | +/-20V | -10V | 250mW | 50mA | 3, 4 |
| 13-34375-1 | N-Chan. FET | Q2 - FM RF Amplifier | 50-150 | 30V | 4V | 200mW | 50mA | 3, 4 |
| 13-34378-1 | N-Chan. FET | Q602 - Tone Amplifier | | | | | | |
| 13-34381-1 | NPN | Q504 - Active Filter | | | | | | |
| 13-34940-1 | NPN | Q18 - AM RF Amplifier | | | | | | |

*13-34367-3 D. C. Current Gain - Brown Dot
- Red Dot
- Orange Dot
- Yellow Dot
- Green Dot

TRANSISTOR BASING DIAGRAMS



| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|------------------|------------------|-------------|
|------------------|------------------|-------------|

CAPACITORS (All in MFD, unless otherwise specified)

| | | |
|------|-------------|------------------------|
| C27 | 42-34768-1 | Main Tuning Gang |
| C3 | | |
| C4 | | |
| C6 | | |
| C8 | | |
| C10 | | |
| C12 | | |
| C14 | | |
| C16 | | |
| C18 | | |
| C20 | | |
| C22 | | |
| C24 | | |
| C26 | | |
| C28 | | |
| C30 | | |
| C32 | | |
| C34 | | |
| C36 | | |
| C38 | | |
| C40 | | |
| C42 | | |
| C44 | | |
| C46 | | |
| C47 | | |
| C48 | | |
| C50 | | |
| C52 | | |
| C54 | 41-32477-46 | 5/25V Electrolytic |
| C56 | 40-28121-1 | 10,000PF/125V |
| C58 | | |
| C60 | 41-32477-46 | 5/25V Electrolytic |
| C62 | | |
| C64 | 40-28121-4 | 2500PF/50V |
| C66 | 40-10285-13 | 3300PF/125V |
| C70 | 40-12085-13 | 3300PF/125V |
| C72 | 41-32477-46 | 5/25V Electrolytic |
| C74 | 41-32477-46 | 5/25V Electrolytic |
| C76 | 42-18146-1 | Ceramic Trimmer, 1-6PF |
| C78 | | |
| C80 | | |
| C82 | | |
| C84 | | |
| C86 | | |
| C88 | | |
| C90 | 41-32477-46 | 5/25V Electrolytic |
| C92 | 41-32477-85 | 1/50V Electrolytic |
| C94 | | |
| C96 | | |
| C98 | | |
| C100 | | |
| C102 | | |
| C104 | | |
| C106 | | |
| C108 | 41-32477-33 | 10/15V Electrolytic |
| C112 | | |
| C114 | | |
| C116 | | |
| C118 | | |
| C120 | | |
| C122 | | |
| C124 | | |
| C126 | 40-10285-50 | 390PF |
| C128 | | |
| C132 | 41-32477-47 | 10/25V Electrolytic |
| C134 | | |
| C136 | | |
| C138 | | |
| C140 | 41-32477-86 | 2/50V Electrolytic |
| C142 | | |
| C144 | | |
| C146 | | |
| C148 | | |

| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|------------------|------------------|-------------|
|------------------|------------------|-------------|

CAPACITORS (CONTINUED)

| | | |
|------------|-------------|-----------------------|
| C150 | 41-32477-9 | 100/6V Electrolytic |
| C30F | | 100PF, Z5P |
| C30A | | 47PF, N150 |
| C30B | | .0082 |
| C30C | | .022, 250V |
| C310 | 41-32477-9 | 100/6V Electrolytic |
| C312 | 41-32477-86 | 2/50V Electrolytic |
| C314 | | .047, 150V |
| C316A | | .009 |
| C316C | | .0068 |
| C318A | | .22, 150V |
| C318C | | .009 |
| C320A | | .039 |
| C320C | | .039 |
| C322A | | .22, 150V |
| C322C | | .01, 100V |
| C324 | | .01, 100V |
| C326 | | .01, 100V |
| C328 | 41-32477-85 | 1/50V Electrolytic |
| C342 | | .01, 100V |
| C344 | | .1, 150V |
| C402 | | |
| C507, C508 | 43-98665-6 | .005, 150VAC |
| C508, C510 | | .047, 150V |
| C512 | | .017, 150V |
| C514, C516 | 41-34634-1 | 4000/50V Electrolytic |
| C518, C520 | 41-34634-1 | 4000/50V Electrolytic |
| C522, C524 | 41-32477-67 | 500/35V Electrolytic |
| C528 | 41-32477-93 | 100/50V Electrolytic |
| C530 | 41-32477-67 | 500/35V Electrolytic |
| C532 | 41-32477-95 | 500/50V Electrolytic |
| C534 | | .047, 150V |
| C536, C538 | 41-32477-67 | 500/35V Electrolytic |
| C540 | | .01, 100V |
| C544 | 41-23765-5 | 5/25V Electrolytic |
| C602 | 41-32477-34 | 25/15V Electrolytic |
| C604 | | .01 |
| C606 | 41-32477-86 | 2/50V Electrolytic |
| C608 | | .047, 150V |
| C610 | | .047, 150V |
| C612 | | 820PF, Z5P |
| C614 | 41-32477-86 | 2/50V Electrolytic |
| C616 | | 2/50V Electrolytic |
| C618 | | .1, 150V |
| C620 | | .1, 150V |
| C622 | | 1200PF, Z5P |
| C624 | | 560PF |
| C625 | | .01, 100V |
| C626 | 41-32477-86 | 2/50V Electrolytic |
| C627 | | .01, 100V |
| C628 | | 100PF, Z5P |
| C630 | 41-32477-50 | 50/25V Electrolytic |
| C632 | | 100/25V Electrolytic |
| C634 | | .01, 100V |
| C636 | | .01, 100V |
| C638 | | 330PF, Z5P |
| C640 | | 330PF, Z5P |
| C642 | | .1, 150V |
| C644 | | .01 |

RESISTORS (All carbon, 1/4W, 10%, unless otherwise specified)

| | |
|-----|---------|
| R2 | 560 ohm |
| R4 | 10K |
| R6 | 3.3K |
| R8 | 1K |
| R10 | 4.7K |
| R12 | 270 ohm |
| R14 | 22K |
| R16 | 10K |
| R18 | 10K |
| R20 | 22K |
| R22 | 330 ohm |

REPLACEMENT PARTS LIST (CONTINUED)

| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|------------------------------|-------------------|-------------------------------|
| RESISTORS (CONTINUED) | | |
| R24 | 1K | 100 ohm |
| R26 | 5.6K | 270 ohm |
| R28 | 180 ohm | 180 ohm |
| R30 | 820 ohm | 820 ohm |
| R32 | 15K | 330 ohm |
| R34 | 330 ohm | 390 ohm |
| R36 | 15K | 1K |
| R38 | 37-14576-5 | 1K Variable - FM Meter Zero |
| R40 | 1.5K | 150 ohm |
| R42 | 150 ohm | 4.7K |
| R44 | 37-14576-15 | 330 ohm Variable - Separation |
| R46 | 220 ohm, 5% | 3.9K |
| R48 | 3.9K | 470 ohm |
| R50 | 470 ohm | 33K |
| R52 | 33K | 22K |
| R54 | 22K | 10K |
| R56 | 10K | 2.2K |
| R58 | 100 ohm | 56K |
| R60 | 100K | 330K |
| R62 | 330K | 10K |
| R64 | 10K | 120K |
| R66 | 100K | 120K |
| R68 | 120K | 100K |
| R70 | 100K | 56K |
| R72 | 33K | 10K |
| R74 | 22K | 100 ohm |
| R76 | 10K | 56K |
| R78 | 100K | 330K |
| R80 | 330K | 10K |
| R82 | 10K | 120K |
| R84 | 120K | 100K |
| R86 | 100K | 120K |
| R88 | 120K | 100K |
| R90 | 100K | 56K |
| R92 | 33K | 10K |
| R94 | 10K | 10K |
| R96 | 10K | 22K |
| R98 | 22K | 1K |
| R100 | 1K | 150 ohm, 1/2 Watt |
| R102 | 150 ohm, 1/2 Watt | 1K |
| R104 | 1K | 22K |
| R106 | 22K | 82K |
| R112 | 82K | 1.8K |
| R114 | 1.8K | 560 ohm |
| R116 | 560 ohm | 10K |
| R118 | 10K | 22K |
| R120 | 22K | 120K |
| R122 | 120K | 4.7K |
| R124 | 4.7K | 33 ohm |
| R126 | 33 ohm | 150K |
| R128 | 150K | 33K |
| R130 | 33K | 470 ohm |
| R132 | 470 ohm | 3.3K |
| R134 | 3.3K | 10K |
| R136 | 10K | 150K |
| R138 | 150K | 100K |
| R140 | 100K | 100K |
| R142 | 100K | 100K |
| R144 | 100K | 100K |
| R146 | 100K | 100K |
| R148 | 100K | 100K |
| R150 | 100K | 100K |
| R152 | 100K | 100K |
| R302 | 10K | 10K, 5% |
| R304 | 10K, 5% | 120K, 5% |
| R306 | 120K, 5% | 220 ohm, 5% |
| R308 | 220 ohm, 5% | 820 ohm, 5% |
| R310 | 820 ohm, 5% | 560K |
| R312 | 560K | 4.7K |
| R314 | 4.7K | 3.6K, 5% |
| R316 | 3.6K, 5% | 4.3K, 5% |
| R318 | 4.3K, 5% | 3.6K, 5% |
| R320 | 3.6K, 5% | |
| R322 | | |

| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|-------------------------------|------------------|---|
| RESISTORS (CONTINUED) | | |
| R324 | | 4.3K, 5% |
| R326 | | 47K, 1/2 Watt |
| R402 | 37-34611-3 | 50K Variable - 4 Section Volume |
| R404 | | 4.7K |
| R502 | | 3.3 meg., 1/2 Watt |
| R504 | | 150 ohm |
| R506 | | 68 ohm |
| R508 | | 330 ohm, 1 Watt |
| R512 | | 1 ohm, 1/2 Watt |
| R514 | | 3.9K, 5% |
| R516 | | 2.2K, 5% |
| R518 | | 220 ohm, 1/2 Watt |
| R520 | | 220 ohm, 1/2 Watt |
| R602 | | 180K |
| R604 | | 27K, 5% |
| R606 | | 3.3K, 5% |
| R608 | | 10K |
| R610 | 37-34651-1 | 100K Variable - 4 Section Bass |
| R612 | 37-34651-1 | 100K Variable - 4 Section Treble |
| R614 | | 15K |
| R616 | | 39K |
| R618 | | 10K |
| R620 | | 560K |
| R622 | | 3.3K |
| R624 | | 15K |
| R626 | | 10 meg. |
| R628 | | 33K |
| R630 | | 27K |
| R632 | | 27K |
| R634 | | 10K |
| R636 | | 5.6K |
| R638AB, CD | 37-34908-2 | 100K Variable - Dual Front/Rear Balance |
| R638AC | 37-34909-2 | 100K Variable - L/R Front Balance |
| R638BD | 37-34909-2 | 100K Variable - L/R Rear Balance |
| R639 | | 10K |
| R640 | | 10K |
| R642 | | 22K |
| R644 | | 470 ohm, 5% |
| R646 | | 10K, 5% |
| R648 | | 1K |
| R650 | | 10K, 5% |
| R652 | | 3.3K, 1/2 Watt |
| R654 | | 820 ohm |
| R656 | | 270 ohm |
| R658 | 37-33717-6 | 330 ohm Variable - Bias Adjust |
| R660 | | 100 ohm |
| R662 | | 10 ohm |
| R664 | | 3.3K, 1/2 Watt |
| R666 | | 150 ohm |
| R668 | | 2.7 ohm, 1/2 Watt |
| R672 | | 150 ohm |
| R684 | | 2.7 ohm, 1/2 Watt |
| R686 | | .24 ohm, 2 Watt, W/W |
| R688 | 36-34726-7 | .27 ohm, 2 Watt, W/W |
| R690 | 36-34726-8 | 10 ohm, 1 Watt |
| R692 | | 220 ohm, 1/2 Watt |
| R694 | | |
| COILS AND TRANSFORMERS | | |
| L2 | 22-28072-3 | Ferrite Bead |
| L4 | 50-11378-5 | 3.3UH Filter |
| L6 | 50-34409-4 | FM RF Coil |
| L8 | 50-34409-8 | FM Mixer Coil |
| L10 | 50-34409-7 | FM Oscillator Coil |
| L12 | 22-28072-3 | Ferrite Bead |
| L16 | 50-34939-6 | 27UH Peaking Coil |
| L18 | 50-34411-1 | Quadrature Det. Coil |
| L20, L22 | 50-34939-6 | 27UH Peaking Coil |
| L24 | 22-28072-2 | Ferrite Bead |
| L26 | 50-34411-1 | 10.7MHz Coil |
| L28 | 50-18789-3 | 5.7MH Choke |
| L30 | 27-34851-1 | Iron Core AM Rod Antenna |
| | 86-34774-1 | Rod Ant. Mtg. Bracket |

REPLACEMENT PARTS LIST (CONTINUED)

| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|---|------------------|-----------------------------|
| COILS AND TRANSFORMERS (CONTINUED) | | |
| L30 | 86-34777-1 | Bushing, Antenna-to-Bracket |
| L32 | 22-28072-2 | Ferrite Bead |
| L34 | 50-34938-1 | AM RF Coil |
| L36 | 50-34936-1 | AM Oscillator Coil |
| L38, L40 | 22-28072-2 | Ferrite Bead |
| L42, L50 | 50-34404-2 | 3.4UH Filter |
| L602 | 22-28072-2 | Ferrite Bead |
| L604, L606 | 22-28072-2 | Ferrite Bead |
| L608, L610 | 22-28072-2 | Ferrite Bead |
| L612, L614 | 50-89962-6 | FM Balun |
| T2 | 50-34407-1 | 19kHz Coil |
| T4 | 50-34407-1 | 38kHz Coil |
| T6 | 50-34937-1 | 455kHz Transformer |
| T8, T10 | 50-34952-1 | FM Mixer |
| T12 | 55-34902-1 | Power Transformer |
| T502 | | |
| SOLID STATE DEVICES | | |
| FL2, FL4 | 26-34156-101 | Ceramic Filter - BLACK Dot |
| | 26-34156-102 | Ceramic Filter - BLUE Dot |
| | 26-34156-103 | Ceramic Filter - RED Dot |
| | 26-34156-104 | Ceramic Filter - ORANGE Dot |
| | 26-34156-105 | Ceramic Filter - WHITE Dot |
| FL6 | 50-36216-1 | Dual Multiplex Filter |
| IC2 | 15-34452-1 | FM Limiter/Detector |
| IC4 | 15-34379-1 | Multiplex Decoder |
| IC502 | 15-34401-1 | Voltage Regulator |
| IC504 | 15-34502-2 | Dual Op. Amp. |
| IC506 | 15-34906-1 | S-Q Decoder |
| IC508 | 15-34502-2 | Dual Voltage Amp. |
| IC510 | 15-34502-2 | Dual Voltage Amp. |
| L2, L12 | 22-28072-2 | Ferrite Bead |
| L24 | 22-28072-2 | Ferrite Bead |
| L32, L38 | 22-28072-2 | Ferrite Bead |
| L40, L42 | 22-28072-2 | Ferrite Bead |
| L50 | 22-28072-2 | Ferrite Bead |
| L604, L606 | 22-28072-2 | Ferrite Bead |
| L608, L610 | 22-28072-2 | Ferrite Bead |
| L612, L614 | 22-28072-2 | Ferrite Bead |
| Q2 | 13-34378-1 | FM RF Amp. - FET |
| Q4 | 13-34375-1 | FM Mixer - FET |
| Q6 | 13-34369-1 | FM Oscillator |
| Q8 | 13-23824-1 | First FM IF |
| Q10 | 13-23824-1 | Second FM IF |
| Q12 | 13-23824-1 | Third FM IF |
| Q14 | 13-23824-1 | Meter, AGC Amplifier |
| Q16 | 13-29033-3 | Noise Amplifier |
| Q18 | 13-34940-1 | AM RF Amplifier |
| Q20 | 13-26386-2 | AM Converter |
| Q22 | 13-34045-2 | AM IF Amplifier |
| Q24 | 13-29033-3 | AM Filter, Meter Driver |
| Q502 | 13-34046-1 | Regulator Amplifier |
| Q602 | 13-34381-1 | Tone Amplifier |
| Q604 | 13-34381-1 | Active Filter |
| Q606 | 13-34367-3 | Matched Differential Input |
| Q608 | 13-34367-3 | Matched Differential Input |
| Q610 | 13-34371-1 | Pre-Driver |
| Q612 | 13-29033-3 | Bias Regulator |
| Q614 | 13-28392-1 | Current Limiter |
| Q616 | 13-28393-1 | Current Limiter |
| Q618 | 13-34003-1 | Driver |
| Q620 | 13-34004-1 | Driver |
| Q622 | 13-34002-3 | Power Output |
| Q624 | 13-34002-3 | Power Output |
| SC2, SC4 | 1N295 | Diode |
| SC6, SC8 | 13-17596-5 | Diode |
| SC10 | 13-17596-5 | Diode |
| SC12 | 1N295 | Bias Diode |
| SC14, SC16 | 13-17596-5 | Bias Diode |
| SC18 | 1N295 | AM Detector |
| SC20, SC22 | 13-17596-5 | Bias Diode |
| SC502, SC504 | 13-34368-1 | Rectifier - Silicon |

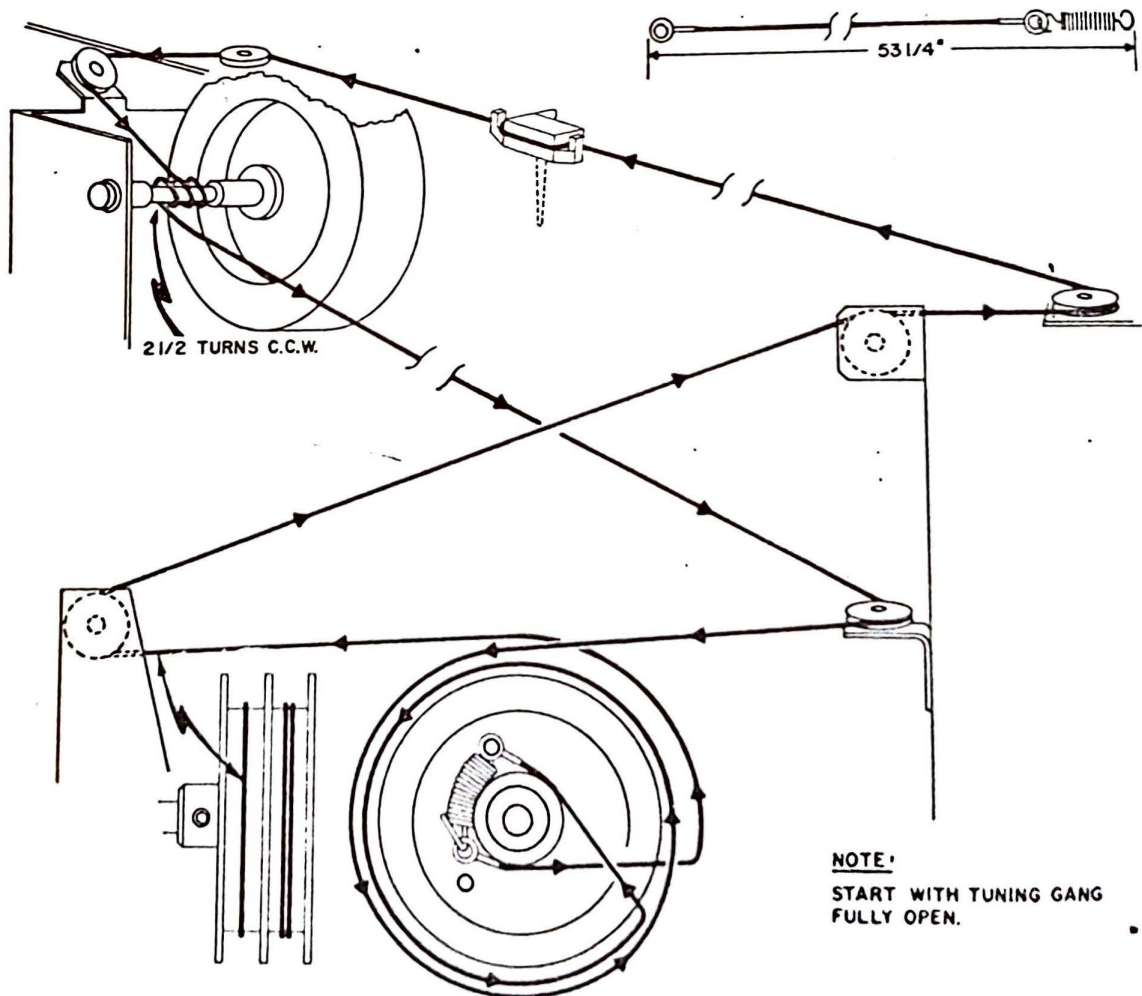
| SCHEMATIC CODING | SERVICE PART NO. | DESCRIPTION |
|--|------------------|--|
| SOLID STATE DEVICES (CONTINUED) | | |
| SC506, SC508 | 13-34368-1 | Rectifier - Silicon |
| SC510, SC512 | 13-17174-2 | Rectifier - Silicon |
| SC514, SC516 | 13-17174-2 | Rectifier - Silicon |
| SC520 | 13-17596-2 | Bias Diode |
| SC522 | 13-33179-6 | Diode - Zener |
| SC524 | 13-17596-5 | Bias Diode |
| SC602, SC604 | 13-34056-1 | Bias Diode |
| SC606, SC608 | 13-17596-2 | Bias Diode |
| SC610, SC614 | 13-34057-1 | Bias Diode |
| SC616, SC618 | 13-17596-5 | Bias Diode |
| | 70-32519-2 | Clip - Output Transistor Mtg. |
| | 86-28669-3 | Mica Insulator - Pwr. Xistor |
| | 72-34063-5 | Socket - IC, 8 pin Stagger Base |
| | 72-34063-1 | Socket - IC, 14 pin Stagger Base |
| | 72-34063-2 | Socket - IC, 16 pin Stagger Base |
| | 72-28852-1 | Socket - Xistor, In-Line 3 pin |
| | 72-27200-7 | Socket - Xistor, Large 3 pin |
| | 72-27200-5 | Socket - Xistor, Small 3 pin |
| MISCELLANEOUS PARTS | | |
| CB502 | 29-34899-1 | Circuit Breaker, 2.5A |
| CB602 | 29-34946-1 | Thermal Circuit Breaker |
| SK502, SK504 | 74-34307-2 | Polarized AC Outlet |
| SK506 | 74-34307-2 | Polarized AC Outlet |
| SK508 | 73-34786-1 | Dual Phono Jack (Phono No. 1) |
| SK510 | 73-34786-1 | Dual Phono Jack (Phono No. 2) |
| SK512 | 73-34786-2 | Quad. AUX. INPUT Jack |
| SK514 | 73-34786-2 | Quad. PREAMP. OUT Jack |
| SK516 | 73-34786-2 | Quad. AMP. INPUT Jack |
| SK518 | 73-34786-2 | Quad. TAPE NO. 1 RECORD Jack |
| SK520 | 73-34786-2 | Quad. TAPE NO. 1 PLAY Jack |
| SK522 | 73-34786-2 | Quad. TAPE NO. 2 RECORD Jack |
| SK524 | 73-34786-2 | Quad. TAPE NO. 2 PLAY Jack |
| SK540 | 73-26338-3 | Front Headphone Jack |
| SK542 | 73-26338-3 | Rear Headphone Jack |
| SK544 | 70-32649-1 | Headphone Jack Mtg. Nut |
| SW502 | 13-87162-3 | Socket - Composite FM Output |
| | 33-34723-1 | Complete Function Switch Asm. |
| | 33-35745-6 | AM, FM, PHONO or AUX. Switch |
| | | Section only |
| | 33-35745-3 | TAPE 1 MONITOR or TAPE 2 MONITOR Switch Section only |
| | 74-34929-1 | Pushbutton Guide for SW502 |
| | 33-34724-1 | Complete Mode Switch Asm. |
| SW504 | 33-35745-6 | MONO Switch Section only |
| | 33-35745-4 | STEREO or 4 CH. DISCRETE Switch |
| | | Section only |
| | 33-35745-5 | SQ MATRIX Switch Section only |
| | 33-35745-2 | SQ BLEND or LOUDNESS Switch |
| | | Section only |
| | 74-34929-1 | Pushbutton Guide for SW504 |
| | 33-34917-1 | AC POWER Switch Asm. |
| SW506 | 33-35548-1 | DIAL LAMP DIM. Switch |
| SW508 | | W/BRACKET |
| | 33-35745-1 | DIAL LAMP DIM. Switch only |
| | 74-34929-2 | Power & Dim Switch Pushbutton Guide |
| SV510 | 33-34722-1 | LOW & HIGH FILTER Switch Asm. |
| | 33-35745-2 | LOW FILTER or HIGH FILTER Switch Section only |
| | 74-34929-2 | Low & High Filter Switch Pushbutton Guide |
| SW514 | 33-27623-2 | BRIDGE - 4 CHANNEL Switch |
| SW518 | 33-34214-1 | No. 1 Front Speaker System Selector Switch |
| SW520 | 33-34214-1 | No. 1 Rear Speaker System Selector Switch |
| SW522 | 33-34214-1 | No. 2 Front Speaker System Selector Switch |
| SW524 | 33-34214-1 | No. 2 Rear Speaker System Selector Switch |

REPLACEMENT PARTS LIST (CONTINUED)

| <u>SCHEMATIC CODING</u> | <u>SERVICE PART NO.</u> | <u>DESCRIPTION</u> |
|--|-------------------------|--|
| MISCELLANEOUS PARTS (CONTINUED) | | |
| SW524 | 74-34797-1 | Toggle Switch Knob (SW518-SW524) |
| | 70-34627-2 | Speaker Switch Mtg. Screw |
| SW526 | 33-27623-2 | PHONO no. 1/no. 2 Selector Switch |
| SW530 | 33-34214-1 | FM MUTING Defeat Switch |
| | 74-34797-1 | Toggle Switch Knob - SW530 |
| | 70-34627-2 | Muting Switch Mounting Screw |
| TS502 | 29-34849-1 | Thermal Switch (Heatsink) 110 deg.C |
| | 73-10302-39 | 4 Circuit Antenna Connector |
| | 73-10302-37 | 4 Circuit Antenna Connector (Jack Plate end) |
| | 73-33071-41 | AC Power Cord |
| | 27-34851-1 | AM Rod Antenna |
| | 86-34774-1 | AM Rod Mtg. Bracket |
| | 86-34777-1 | AM Rod Mtg. Bushing |
| | 73-34927-1 | Antenna Terminal |
| | 86-34386-2 | Antenna Terminal Insulator |
| | 74-34766-1 | Cabinet Base |
| | 86-28719-5 | Cabinet Bottom Pad, Non-Skid |
| | 70-98939-1 | Dial Cord Pulley, Large |
| | 83-34756-1 | Dial Cord Pulley Bushing |
| | 77-41699-4 | Dial Cord Tension Spring |
| | 86-34757-1 | Dial Drive Pulley |
| | 74-34789-1 | Dial Function Overlay |
| | 30-34665-1 | Dial Lamp, No. 0926 |
| | 86-34758-1 | Dial Lamp Mask |
| | 73-34532-1 | Dial Lamp Mtg. Clip |
| | 81-34749-1 | Dial Light Box |
| | 74-34787-1 | Dial Overlay |
| | 74-34769-1 | Dial Pointer, Lighted |

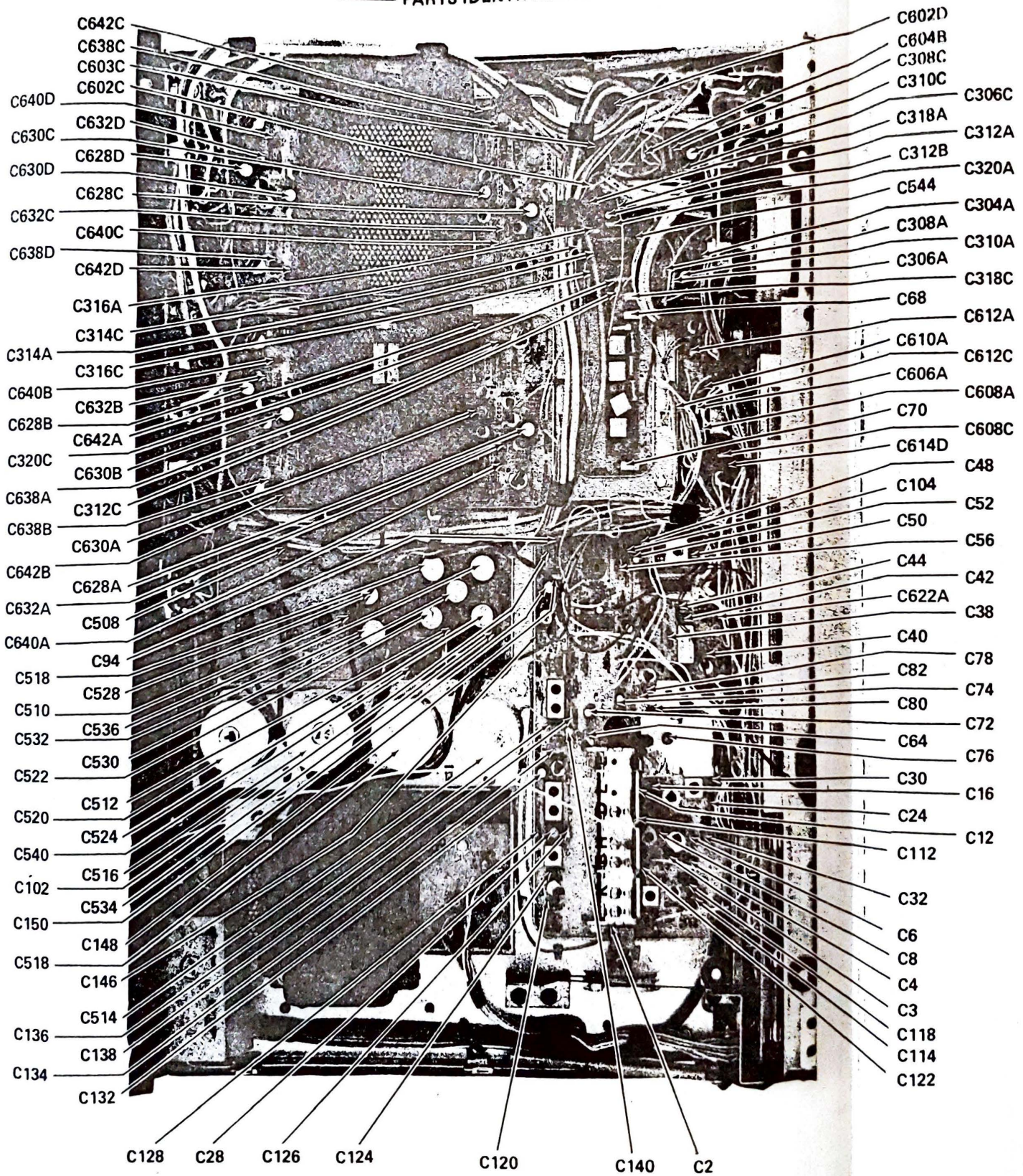
| <u>SCHEMATIC CODING</u> | <u>SERVICE PART NO.</u> | <u>DESCRIPTION</u> |
|--|-------------------------|--|
| MISCELLANEOUS PARTS (CONTINUED) | | |
| | 85-34844-1 | Dial Pointer Carriage Cover |
| | 30-34803-1 | Dial Pointer Lamp, No. 0406 |
| | 89-34801-1 | Dial Tuning Shaft & Flywheel Adj. |
| | 74-34767-1 | Jack Plate |
| | 85-34911-1 | Jack Plate AC Barrier |
| | 85-34951-1 | Jack Plate Cover |
| | 85-32766-3 | Jack Plate Cover Insulator |
| | 85-34848-1 | Jack Plate Insulator (Phono-to-Jack Plate) |
| | 70-34912-1 | Jack Plate Mtg. Spacer |
| | 73-34959-1 | Jack Plate Spkr. Connectors (Push Terminals) |
| | 30-34665-1 | Lamp - Dial & Meter (No. 0926) |
| | 73-34532-1 | Lamp Terminal (No. 0926 bulb) |
| | 30-34803-1 | Lamp - Function Ind. & Pointer (No. 0406) |
| | 86-28669-3 | Mica Insulator - Power Xistor |
| | 72-34063-5 | Socket, IC - 8 pin Stagger Base |
| | 72-34063-1 | Socket, IC - 14 pin Stagger Base |
| | 72-34063-2 | Socket, IC - 16 pin Stagger Base |
| | 72-28852-1 | Socket, Xistor - In-line 3 pin |
| | 72-27200-7 | Socket, Xistor - Large 3 pin |
| | 72-27200-5 | Socket, Xistor - Small 3 pin |
| | 25-34802-1 | Tuning Meter - Center Tune (FM) |
| | 25-34802-2 | Tuning Meter - Signal Strength |
| | 74-34759-1 | Tuning Meter Bezel |
| | 74-34788-1 | Tuning Meter Filter |
| | 70-26679-1 | Tuning Meter Mtg. Clip |
| | 70-26679-1 | Tuning Meter Plate Retaining Clip |

DIAL STRINGING



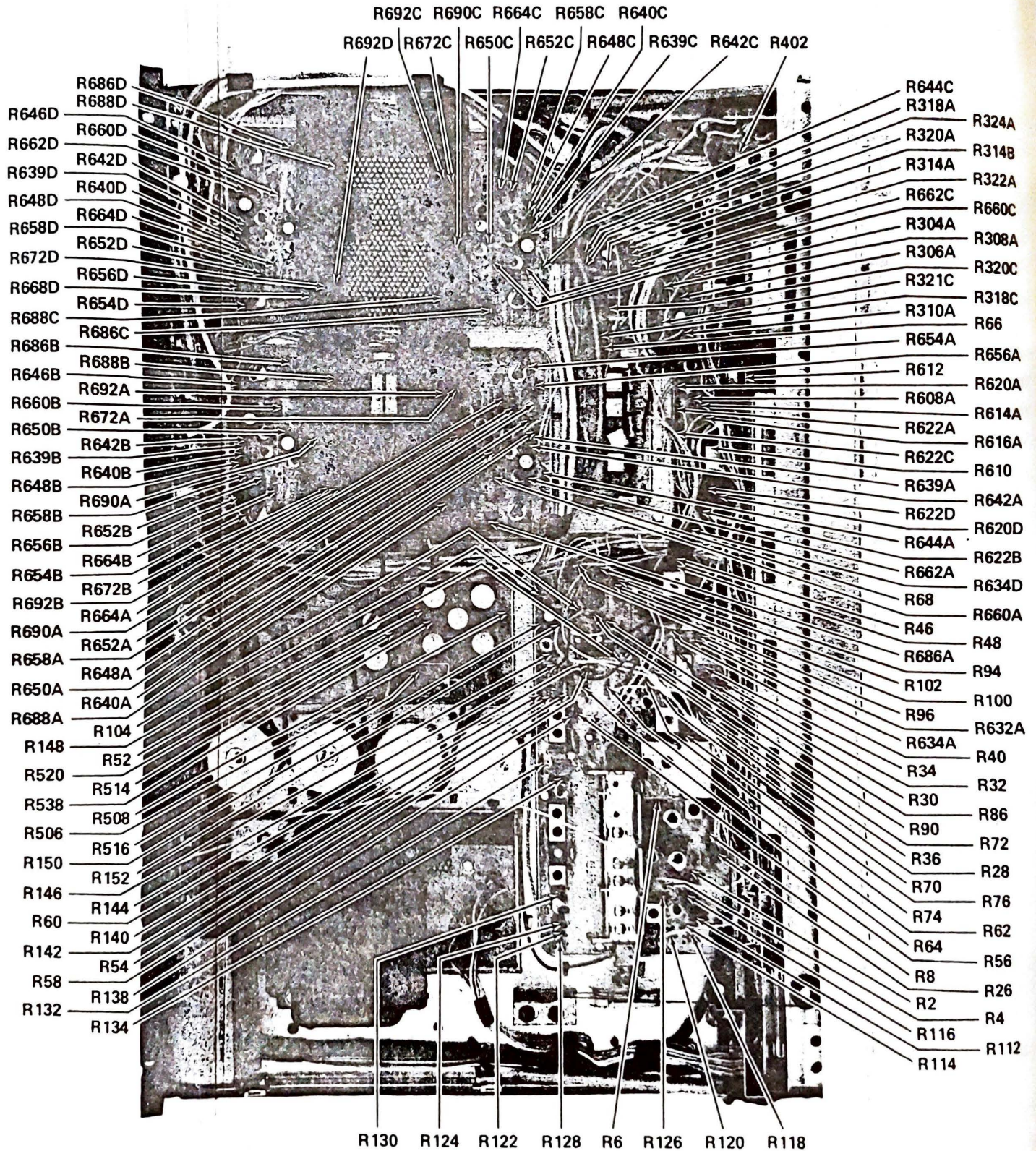
NOTE:
START WITH TUNING GANG FULLY OPEN.

— PARTS IDENTIFICATION —



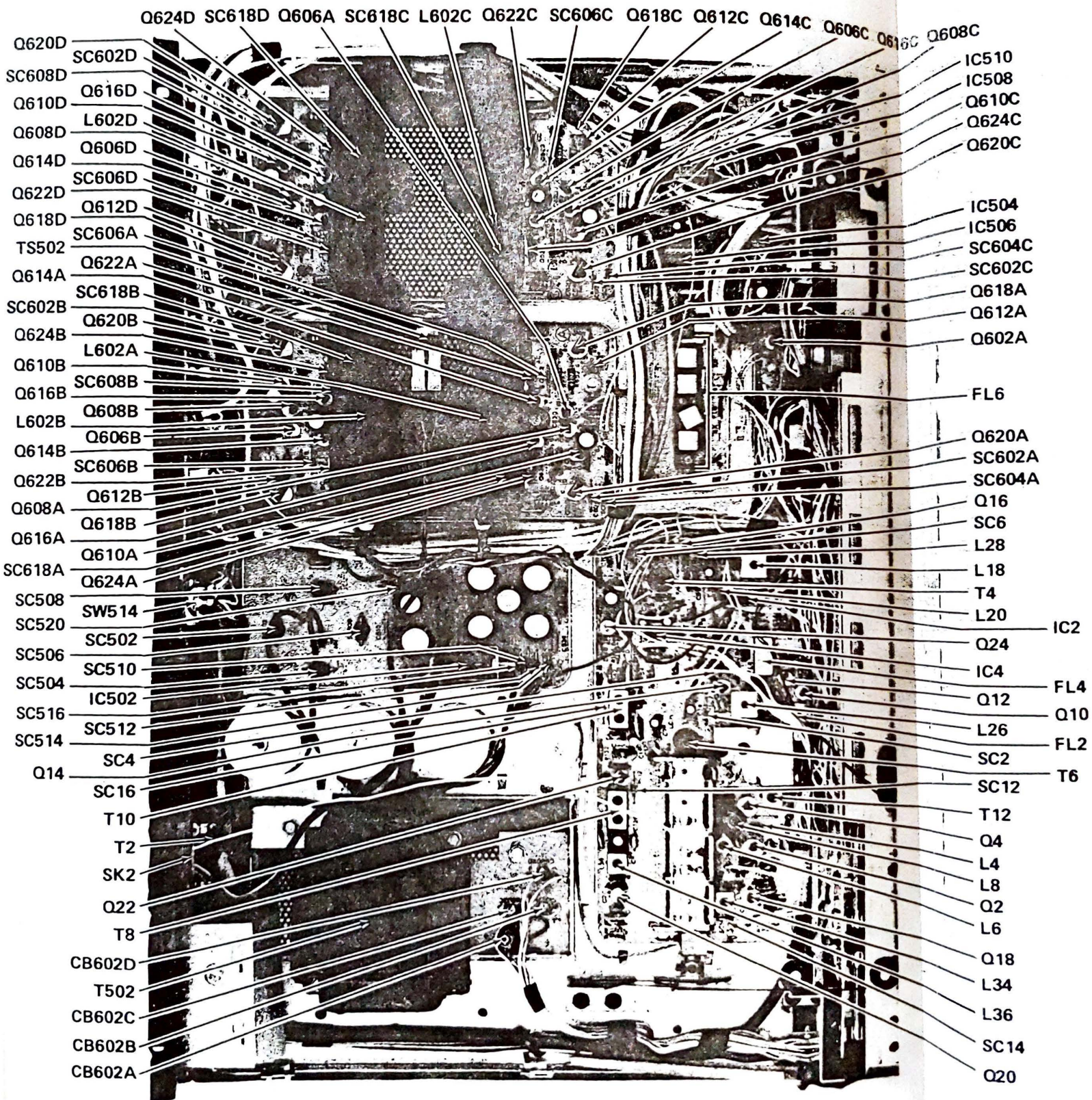
CAPACITORS

PARTS IDENTIFICATION (CONTINUED)



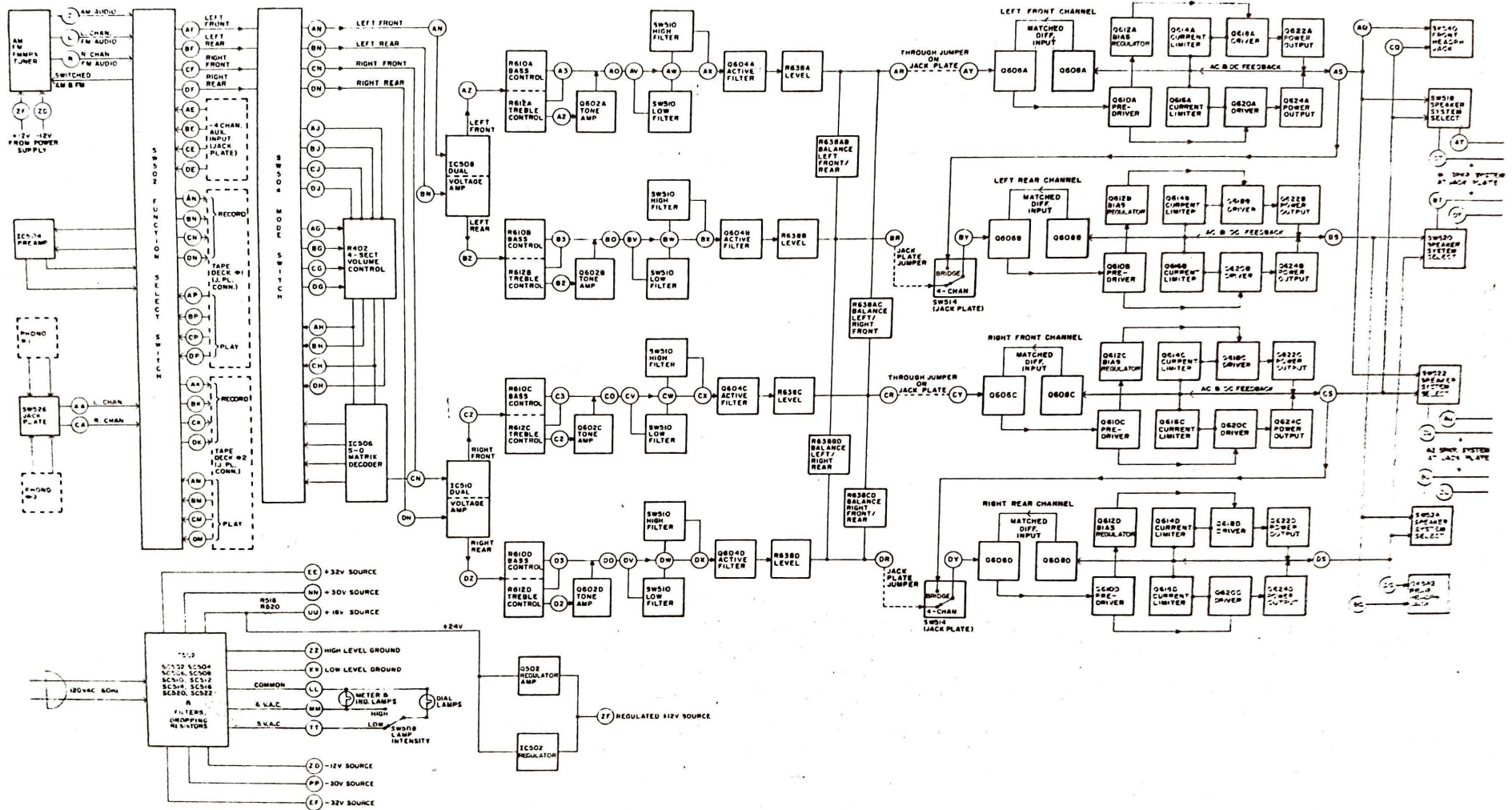
RESISTORS

PARTS IDENTIFICATION (CONTINUED)

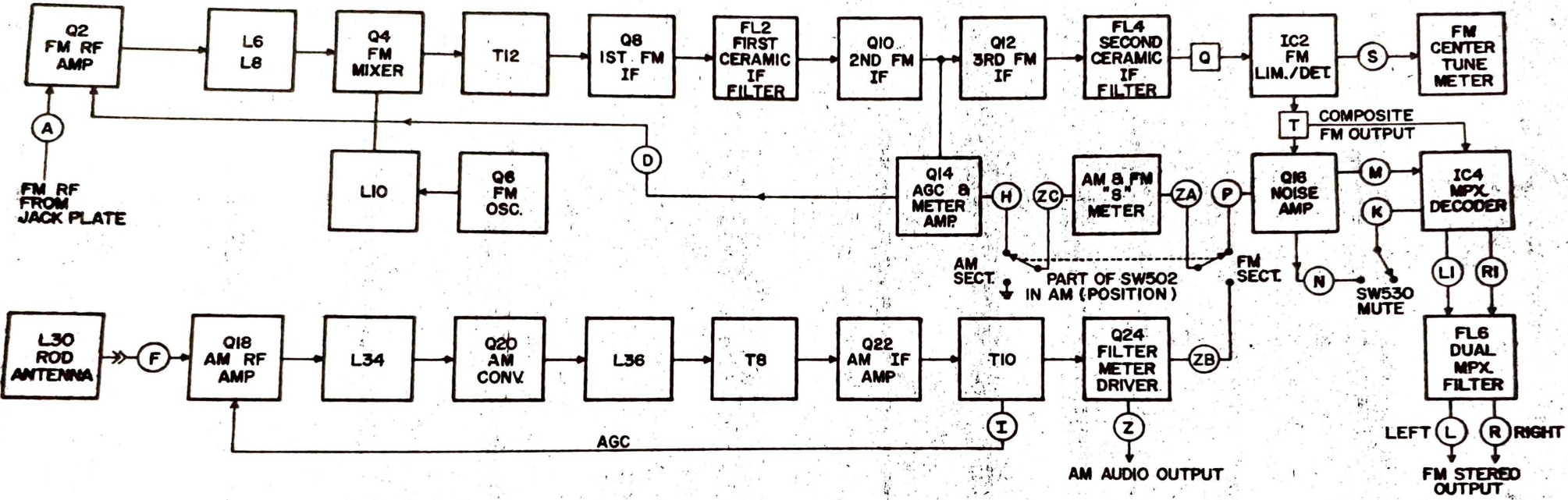


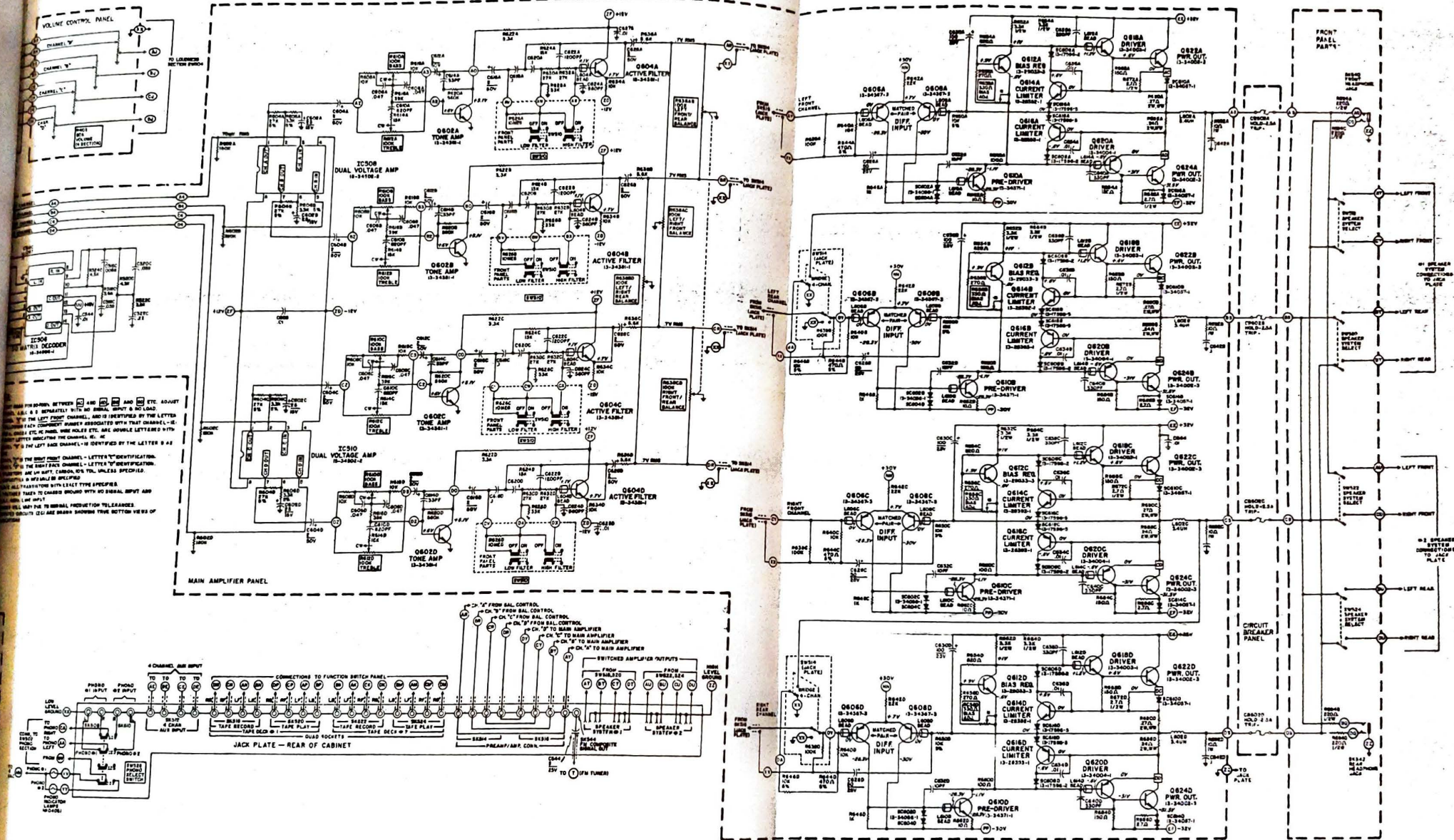
MISCELLANEOUS

BLOCK DIAGRAM (AMPLIFIER)

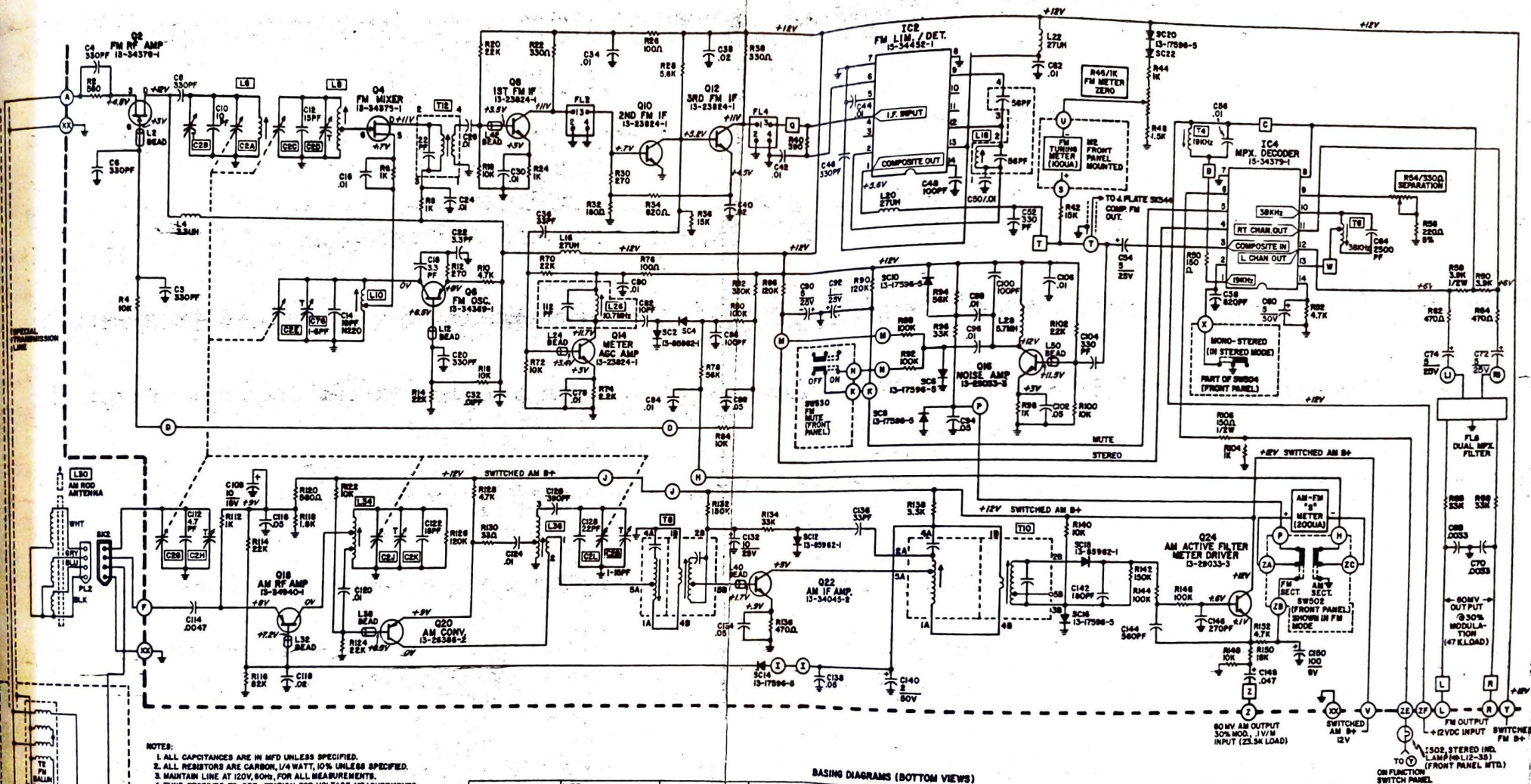


BLOCK DIAGRAM (TUNER)



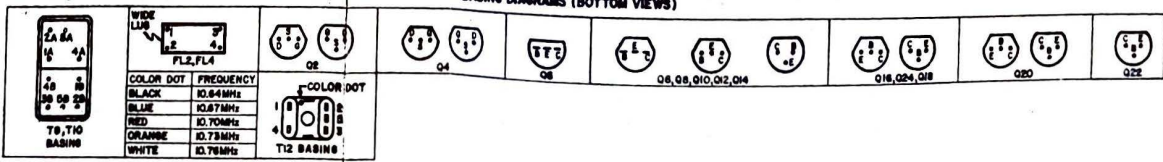


SCHEMATIC DIAGRAM (TUNER)



- NOTES:**
1. ALL CAPACITANCES ARE IN MFD UNLESS SPECIFIED.
 2. ALL RESISTORS ARE CARBON, 1/4 WATT, 10% UNLESS SPECIFIED.
 3. MAINTAIN LINE AT 120V, 60Hz. FOR ALL MEASUREMENTS.
 4. TUNE RECEIVER TO OFF-STATION FOR VOLTAGE MEASUREMENTS.
 5. SELECT FM FUNCTION FOR FM VOLTAGES.
 6. SELECT AM FUNCTION FOR AM VOLTAGES.
 7. ALL VOLTAGES READ TO CHASSIS GROUND.
 8. VOLTAGES WILL VARY DUE TO NORMAL PRODUCTION TOLERANCES.
 9. SQUARE WIRE PINS (1) ARE TEST POINTS AND/OR WIRE WRAP CONNECTIONS.
 10. ROUND CONNECTIONS (2) ARE WIRE HOLES IN P/C PANEL.
 11. INTEGRATED CIRCUIT DRAWINGS (IC'S) SHOW BOTTOM VIEW.
 12. SWITCHES ARE DRAWN AT REST (OFF) POSITION UNLESS SPECIFIED.

BASING DIAGRAMS (BOTTOM VIEWS)



ALIGNMENT PROCEDURE

This receiver has been factory aligned with precision laboratory equipment. The circuits are quite stable, and not normally subject to frequency drift. Therefore, check all circuits for malfunctions before attempting realignment. Realign ONLY when absolutely necessary.

Maintain line voltage at 120V, 60Hz during alignment.

All RF shields must be in place during alignment.

Four 25 watt, 8 ohm, non-inductive loads are required for four-channel amplifier output terminals if speaker systems are disconnected during alignment.

ALWAYS KEEP SIGNALS AT THE LOWEST USEABLE LEVEL DURING ALIGNMENT, UNLESS OTHERWISE NOTED. Note the signal generator output attenuator setting at which further input signal does not increase output signal. Keep the input signal level below this point.

Set tuning dial indicator at zero (0) on the logging scale with tuning capacitor (C2) set at maximum capacity. Readjusting tuning dial indicator after AM or FM RF alignment will make RF realignment (AM & FM) necessary for correct station calibration.

FM RF and IF sections must be properly aligned before beginning FM Multiplex alignment.

EQUIPMENT REQUIRED:

AM:

AM signal generator capable of 400Hz, 30% modulated accurate signals from 455kHz to 1610kHz.

General purpose scope.

FM:

FM signal generator capable of accurate modulated signals from 87.9MHz to 108.5MHz, and 10.6MHz to 10.8MHz.

General purpose scope.

MULTIPLEX FM:

Multiplex generator with the following capabilities:

1. Standard multiplex signal, 1kHz modulation.
2. Single channel modulation.

OSCILLOSCOPE - preferably dual trace.

AM ALIGNMENT

| STEP | TUNING INDICATOR SETTING | TEST EQUIPMENT HOOK-UP | GENERATOR FREQUENCY | ADJUSTMENT POINT | ADJUST FOR |
|---|--------------------------|--|--------------------------------|--|--|
| IF CIRCUITS | | | | | |
| Switch receiver on, select AM function and check +12V at pin V . Tune receiver to no signal area near 600kHz. | | | | | |
| 1 | Near 600kHz, as above. | Radiate RF signal from generator. Scope to pin Z . AM audio output. | 455kHz, 30% 400Hz modulation. | T10 T8 | MAXIMUM 400Hz output. |
| Repeat for maximum output | | | | | |
| SENSITIVITY AND BAND SET | | | | | |
| 2 | 1400kHz | Same as step 1, or monitor tuning meter. | 1400kHz, 30% 400Hz modulation. | C2H Trimmer C2J Trimmer C28 Trimmer | MAXIMUM 400Hz or MAX. meter deflection and correct dial calibration. |
| 3 | 600kHz | | 600kHz, 30% 400Hz modulation. | L36 L34 L30 Tuning Slug | |

Reduce input signal level and repeat steps 2 and 3 until maximum sensitivity and correct dial calibration are achieved.

When correctly aligned, this receiver will tune through a signal at 540kHz and 1610kHz.

— FM ALIGNMENT —

| STEP | TUNING INDICATOR SETTING | TEST EQUIPMENT HOOK-UP | GENERATOR FREQUENCY | ADJUSTMENT POINT | ADJUST FOR |
|--|----------------------------------|--|---|--|-----------------------------|
| IF CIRCUITS Switch receiver on, select FM function and check +12V at V. Switch MUTING off. | | | | | |
| 1 | Near 98MHz, at off-station spot. | Signal generator to FM Antenna Terminals. Scope to pin Q - Use detector or low-capacity probe. | Approx. 10.7 MHz. Tune to receiver. Use 400Hz, 100% modulation. | T12 | MAXIMUM response. |
| Adjust T4 for HIGHEST PEAK - do NOT adjust for best looking response. SENSITIVITY AND BAND SET | | | | | |
| 2 | 106MHz | Signal generator - FM Antenna Terminals. Scope to pin T - Use de-emphasis or low capacitor probe. | 106MHz, 100% modulation. | C2B Trimmer C2D Trimmer C76 Trimmer L18 | MAXIMUM response. |
| 3 | 106MHz | As above. Reduce signal level. | | C2B Trimmer C2D Trimmer C16 Trimmer | MAXIMUM response at 106MHz. |
| 4 | 90MHz | | 90MHz, 100% modulation. | L6 L8 L12 | MAXIMUM response at 90MHz. |

Continue to reduce signal level while repeating steps 3 and 4 until maximum sensitivity and correct dial calibration are achieved.

Tune receiver to very weak signal to ensure accurate tuning (90 or 106MHz) - then increase signal input level for 180mV (Approx.) at pin G. Use 100% modulation. Adjust L18 for minimum distortion at pin T.

Tune receiver to off-station around 100MHz. Adjust R46 for tuning meter center zero.

When correctly aligned, this receiver will tune through a signal at 87.9MHz and 108MHz.

— MULTIPLEX ALIGNMENT —

| | | | | | |
|--|---|---|--|----------|-----------------------|
| Switch receiver on, select FM and Stereo functions. Switch MUTING off. Check +12V at Y and pin C. Check -12V at ZD. | | | | | |
| 1 | Tune to generator. (Zero center tuning meter indication.) | Multiplex generator to FM Antenna Terminals. Scope to pin W. | Use Stereo signal, 1kHz modulation, Left channel only. | T4 T6 | MAXIMUM 38kHz. |
| Switch generator OFF. If necessary, retune receiver to nearest off-station spot on dial. Switch multiplex generator on and tune generator to receiver for zero center tuning meter indication. | | | | | |
| 2 | As above. | Multiplex generator - as above. Scope to pin L (Left channel output). | As above. | T4 T6 | MAXIMUM audio output. |
| 3 | As above. | Multiplex generator - as above. Scope to pin R (Right channel output). | As above. | R54 | MINIMUM audio output. |

Channel separation between pins L and R is typically 40db when multiplex circuit is correctly aligned.