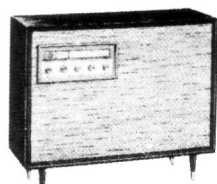


# 12B1-5T4A CHASSIS

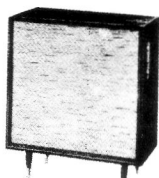
## MODEL IDENTIFICATION CHART

| MODEL NUMBER | MASTER UNIT |                     |                | AUXILIARY STEREO UNIT |                   |
|--------------|-------------|---------------------|----------------|-----------------------|-------------------|
|              | MODEL NAME  | FM-AM TUNER CHASSIS | RECORD CHANGER | MODEL NUMBER          | AMPLIFIER CHASSIS |
| 632          | KENSINGTON  | 12B1                | RC688-16S      | SS622                 | 5T4A              |
| 633          | KENSINGTON  | 12B1                | RC688-16S      | SS623                 | 5T4A              |
| 634          | KENSINGTON  | 12B1                | RC688-16S      | SS624                 | 5T4A              |
| 642          | ESSEX       | 12B1                | RC688-16S      | SS642                 | 5T4A              |
| 643          | ESSEX       | 12B1                | RC688-16S      | SS643                 | 5T4A              |
| 644          | ESSEX       | 12B1                | RC688-16S      | SS644                 | 5T4A              |
| 649          | CHANTE      | 12B1                | RC688-16S      | SS649                 | 5T4A              |
| 654          | TUSCANY     | 12B1                | RC688-16S      | SS654                 | 5T4A              |
| 662          | IMPERIAL    | 12B1                | RC688-17S      | *                     | 5T4A              |
| 663          | IMPERIAL    | 12B1                | RC688-17S      | *                     | 5T4A              |
| 664          | IMPERIAL    | 12B1                | RC688-17S      | *                     | 5T4A              |
| 671          | TITIAN      | 12B1                | RC688-17S      | SS671                 | 5T4A              |

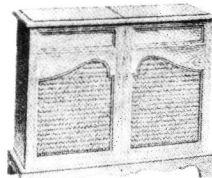
\*The auxiliary channel (including 5T4A chassis and speaker system) is incorporated into the Master unit in Models 662, 663 and 664.



MODELS  
632  
633  
634



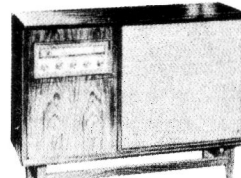
MODELS  
SS622  
SS623  
SS624



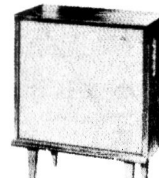
MODEL  
649



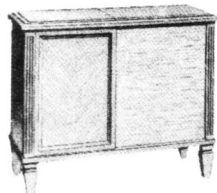
MODEL  
SS649



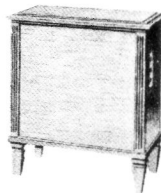
MODELS  
642  
643  
644



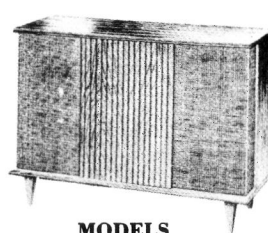
MODELS  
SS642  
SS643  
SS644



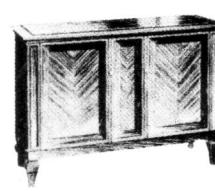
MODEL  
654



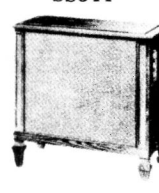
MODEL  
SS654



MODELS  
662  
663  
664



MODEL  
671



MODEL  
SS671

## 12B1

### COILS AND TRANSFORMERS

|     |                                                                     |           |
|-----|---------------------------------------------------------------------|-----------|
| L1  | RF Choke Coil (3.3 uh—blue color dot; wound on 1 meg resistor)..... | 73B 31-6  |
| L2  | FM Mixer Coil (incl. C4).....                                       | 69B 233-2 |
| L3  | FM Osc. Coil (incl. C8).....                                        | 69B 233-1 |
| L4  | RF Choke Coil (1 uh—green color dot; wound on 1 meg resistor).....  | 73B 31-5  |
| L5  | RF Choke Coil (1 uh—green color dot; wound on 1 meg resistor).....  | 73B 31-5  |
| L6  | Rod Antenna, AM.....                                                | 69B 229-1 |
| L7  | Oscillator Coil, AM.....                                            | 69A 52-12 |
| L8  | Filament Choke Coil.....                                            | 73A 2-14  |
| L9  | Filament Choke Coil.....                                            | 73A 2-14  |
| L11 | RF Choke Coil (1 uh—green color dot; wound on 1 meg resistor).....  | 73B 31-5  |
| T1  | FM RF Input Transformer (windings & core).....                      | 700B 135  |
| T2  | 1st FM IF Transformer.....                                          | 72D 28-72 |
| T3  | 2nd FM IF Transformer.....                                          | 72D 28-68 |
| T4  | 3rd FM IF Transformer.....                                          | 72D 28-68 |

| Sym. | Description                                                            | Part No.  |
|------|------------------------------------------------------------------------|-----------|
| T5   | Discriminator Transformer.....                                         | 72D 28-73 |
| T6   | 1st AM IF Transformer.....                                             | 72D 28-70 |
| T7   | 2nd AM IF Transformer.....                                             | 72D 28-71 |
| T8   | Power Transformer.....                                                 | 80D 35-16 |
| T9   | Audio Output Transformer (taps at 1.6 ohms, 3.2 ohms and 16 ohms)..... | 79D 56-11 |

## 5T4A

### COILS AND TRANSFORMERS

| Sym. | Description                    | Part No.     |
|------|--------------------------------|--------------|
| L101 | Coil, Relay.....               | Part of M106 |
| T101 | Transformer, Audio Output..... | 79D 56-13    |
| T102 | Transformer, Power.....        | 80B 66-1     |

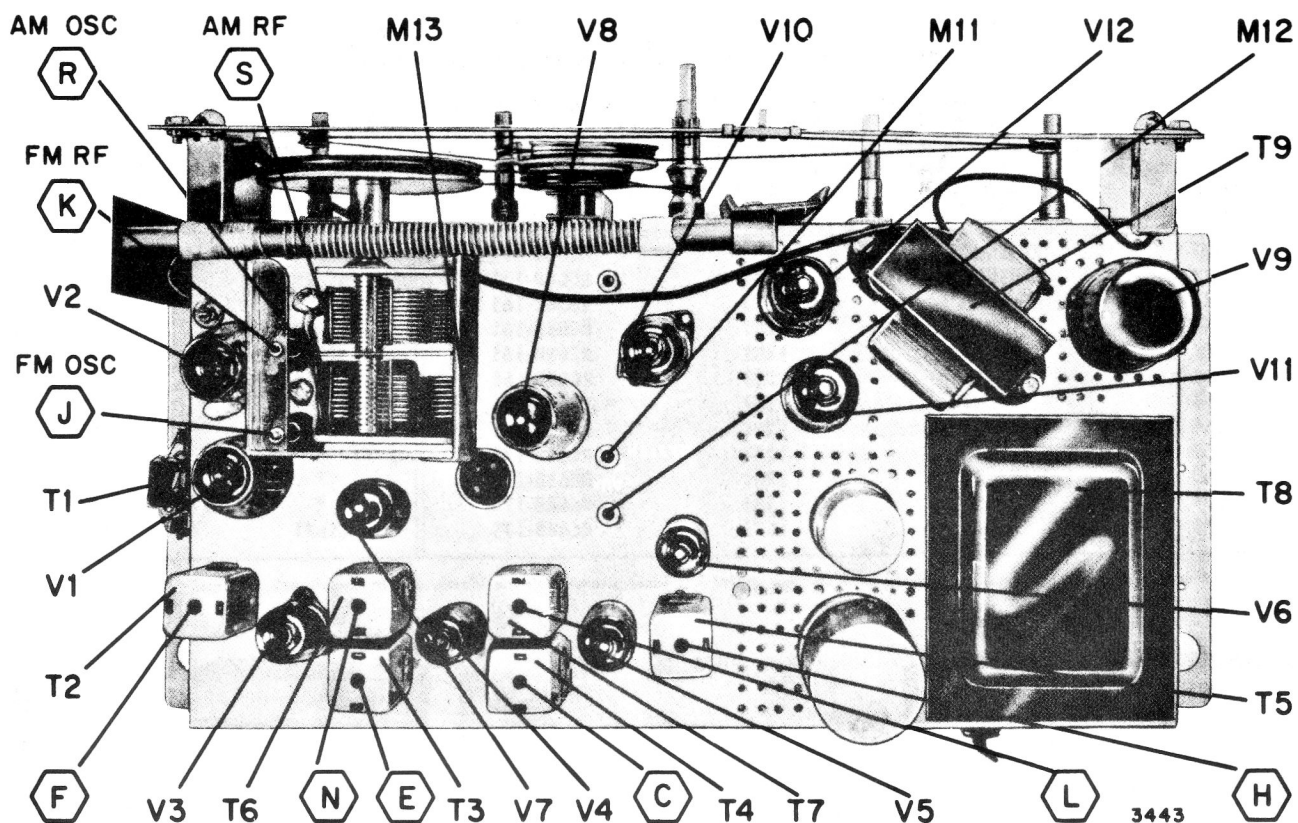


Figure 24. Top View of 12B1 Chassis. Input Connections, Output Connections and Alignment Points Shown.

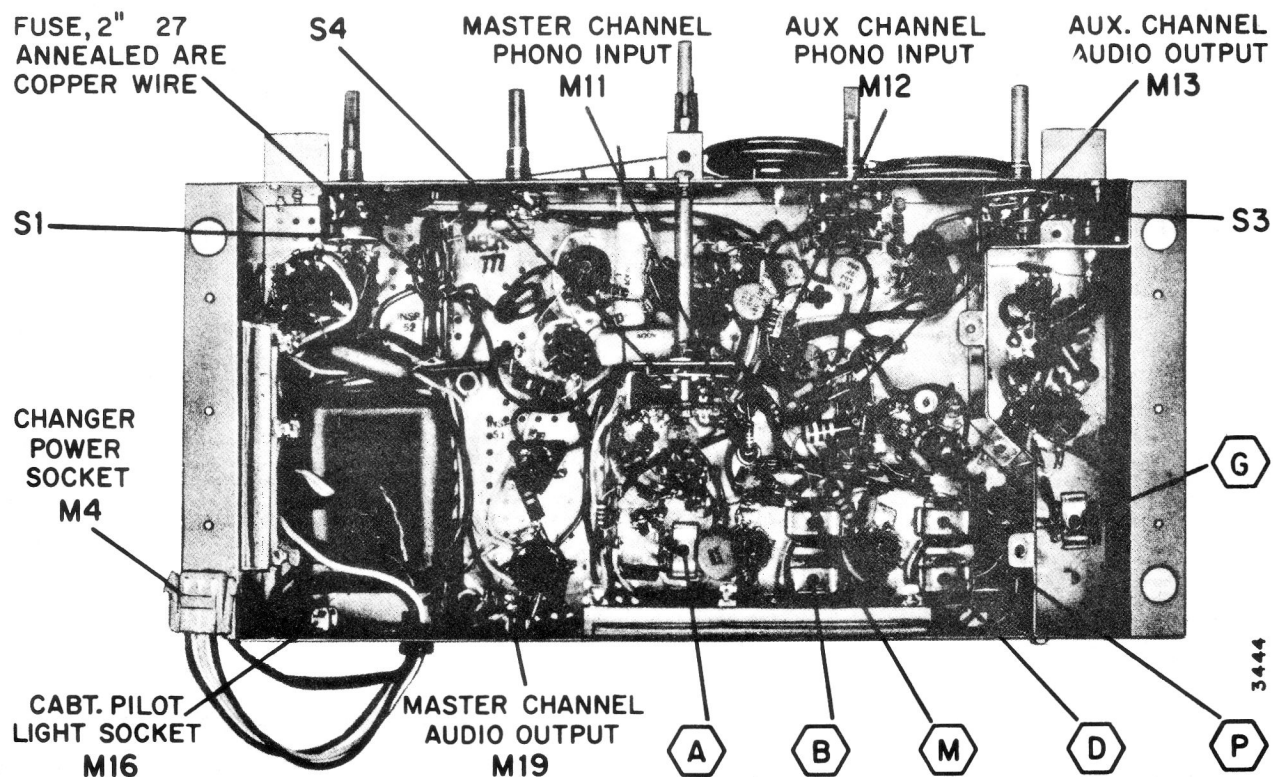


Figure 25. Bottom View of 12B1 Chassis. Input Connections, Output Connections and Alignment Points Shown.

### AM IF AND RF ALIGNMENT

| <ul style="list-style-type: none"> <li>● Turn radio on and allow 15 minutes warm up.</li> <li>● Set Loudness control fully clockwise, Bass and Treble controls at mid-rotation. Set Selector Switch to AM position.</li> <li>● Connect output meter across voice coil (3.2). If speakers are not to be used during alignment, connect a 3.2 ohm, 15 watt resistive load across the 3.2 ohm taps on Audio Output Transformer secondary winding (see schematic diagram).</li> <li>● Use 400 or 1000 cps modulation for alignment.</li> <li>● Use lowest setting of signal generator output that produces adequate indication on lowest scale of output meter.</li> <li>● Use a non-metallic alignment tool with tip <math>\frac{3}{32}</math>" wide for IF transformer adjustments (Admiral part no. 98A30-10).</li> <li>● Repeat adjustments to insure best results.</li> </ul> |                                                                                                                                                        |            |                           |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------|---------------------------------------|
| Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Generator Connection                                                                                                                                   | Gen. Freq. | Receiver Gang Setting     | Adjustment                            |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | To stator plates, antenna section of gang tuning capacitor.                                                                                            | 455KC      | Fully open                | "L", "M", * "N" and "P"* for maximum. |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Radiated signal. Feed "hot" generator lead to antenna through several loops of wire or place generator "hot" lead close to receiver for signal pickup. | 1620KC     | Fully open                | "R" for maximum.                      |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                        | 1400K      | Tune in generator signal. | "S" for maximum.                      |

\*Adjustment "M" and "P" made from beneath chassis.

### FM IF AND RF ALIGNMENT (using VTVM and Signal Generator)

| <p>NOTE: For FM alignment, a signal generator with facilities for crystal calibration should be used. Signal generator frequency settings are critical for FM alignment.</p> <ul style="list-style-type: none"> <li>● Turn radio and alignment equipment on and allow 15 minutes for warm up.</li> <li>● Set Loudness control to minimum, Bass and Treble controls at mid-rotation and Selector switch to "FM" position (completely counterclockwise rotation).</li> <li>● Use DC VTVM as output indicator. Set generator output so that indication, on VTVM, is approximately <math>1\frac{1}{2}</math> volts above noise level during alignment (except "Step 2").</li> <li>● Use a non-metallic alignment tool with tip <math>\frac{3}{32}</math>" wide for transformer slug adjustments (Admiral part no. 98A30-10).</li> <li>● Refer to figures 24 and 25 for physical location of alignment points.</li> <li>● Use an unmodulated signal during alignment.</li> <li>● Adjustment "A", "B", "D" and "G" made from under side of chassis. Remove chassis bottom cover to reach adjustments and to make VTVM connections.</li> </ul> |                                                                                                                                                                                                                                                                                               |            |                            |                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|-------------------------------------------------------------|
| Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Signal Generator and VTVM Connections                                                                                                                                                                                                                                                         | Gen. Freq. | Receiver Gang Setting      | Adjustment                                                  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Connect generator to antenna terminals with a 150 ohm resistor in series with each lead. Connect VTVM and decoupling network between "U" and ground (see schematic). Voltage reading will be negative. Adjust generator so that indication on VTVM is $1\frac{1}{2}$ volts above noise level. | 10.7 MC    | Set Tuning gang fully open | "A", "B", "C", "D", "E", "F" and "G" for maximum.           |
| Increase signal generator output until VTVM reads -5 volts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                               |            |                            |                                                             |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No change in generator connection. Connect VTVM between alignment point "V" and ground (see schematic diagram). A center zero reading scale is recommended for "ADJUSTMENT" in this step.                                                                                                     | 10.7 MC    | Same as "Step 1".          | "H" for zero reading.                                       |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Same as "STEP 1"                                                                                                                                                                                                                                                                              | 98 MC      | 98 MC                      | Alternately adjust "J" and "K", several times, for maximum. |

\*Each slug adjustment ("J" and "K") is secured with a drop of wax on the FM tuning yoke. After making slug adjustments, use a soldering iron to remelt wax and secure adjustments "J" and "K" to yoke.

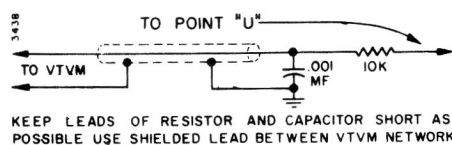


Figure 23. Decoupling Network.

## 12B1



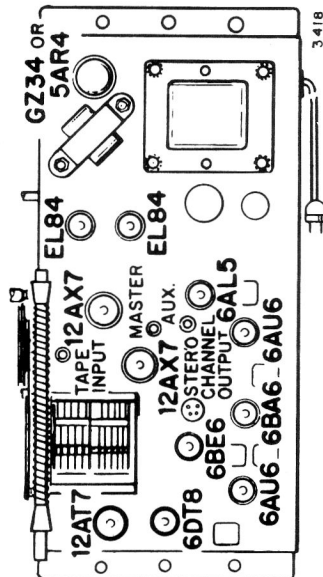
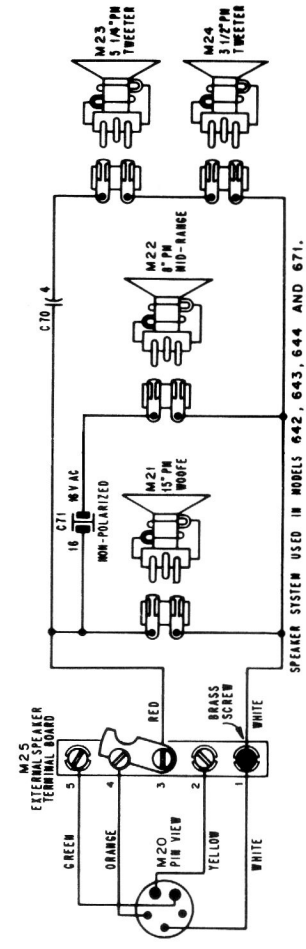
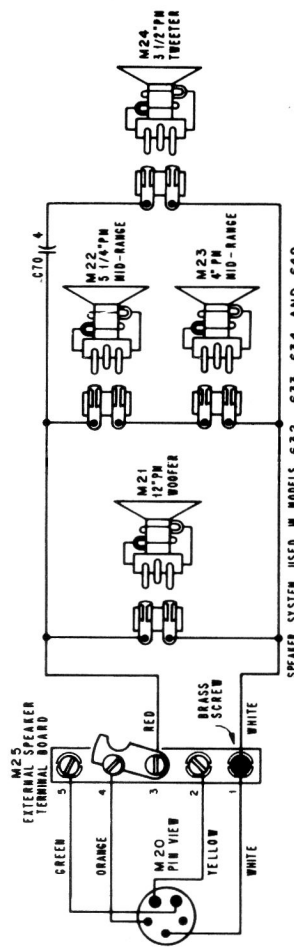
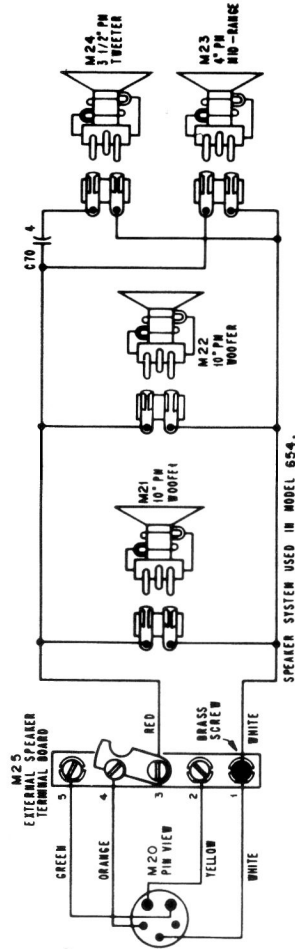
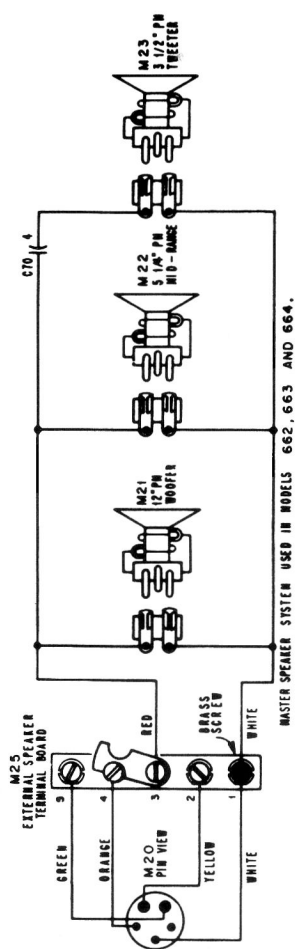


Figure 1. Top View of 12B1 Chassis, Tube Locations Shown.

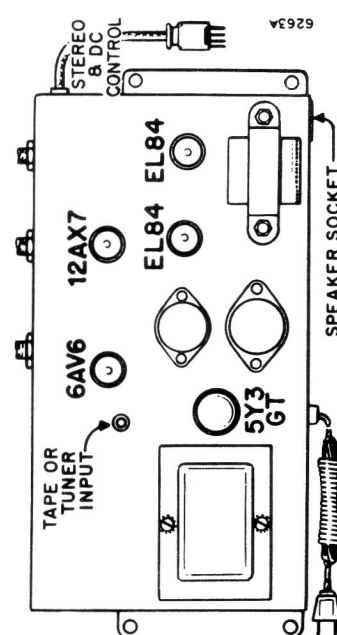
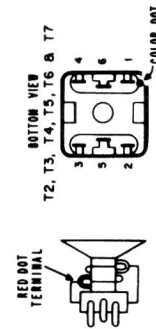


Figure 2. Top View of 5T4A Chassis, Tube Locations Shown.



NOTES:  
 ALL RESISTOR VALUES IN OHMS AND CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.  
 ALL VOLTAGES TAKEN WITH VACUUM TUBE VOLTMETER.  
 FOR ALL VOLTAGE READINGS, ALL CONTROLS AT MID-ROTATION AND NO SIGNAL APPLIED.  
 VOLTAGE READINGS AT SOCKET PINS ON V1, V2, V4 AND V8 SHOULD BE TAKEN WITH "SELECTION SWITCH IN "FM" OR "FM-AFC" POSITION.  
 \* MEASURED WITH RESPECT TO GROUND. M20 DISCONNECTED.  
 † MEASURED WITH ALL TUBES, EXCEPT V8, REMOVED FROM SOCKETS.  
 ‡ MEASURED WITH V8 REMOVED FROM SOCKET.  
 § CHASSIS GROUND.  
 ¶ C4 IS PART OF L3 ASSEMBLY. C4 IS PART OF L3 ASSEMBLY.  
 § C4 IS A 54 VIERED FROM 1000 PPM, IN EXTREME COUNTER CLOCKWISE POSITION.  
 ¶ IF 10.1 MC; AM IF 458 KC.

### RUN CHANGES

10 Start of production

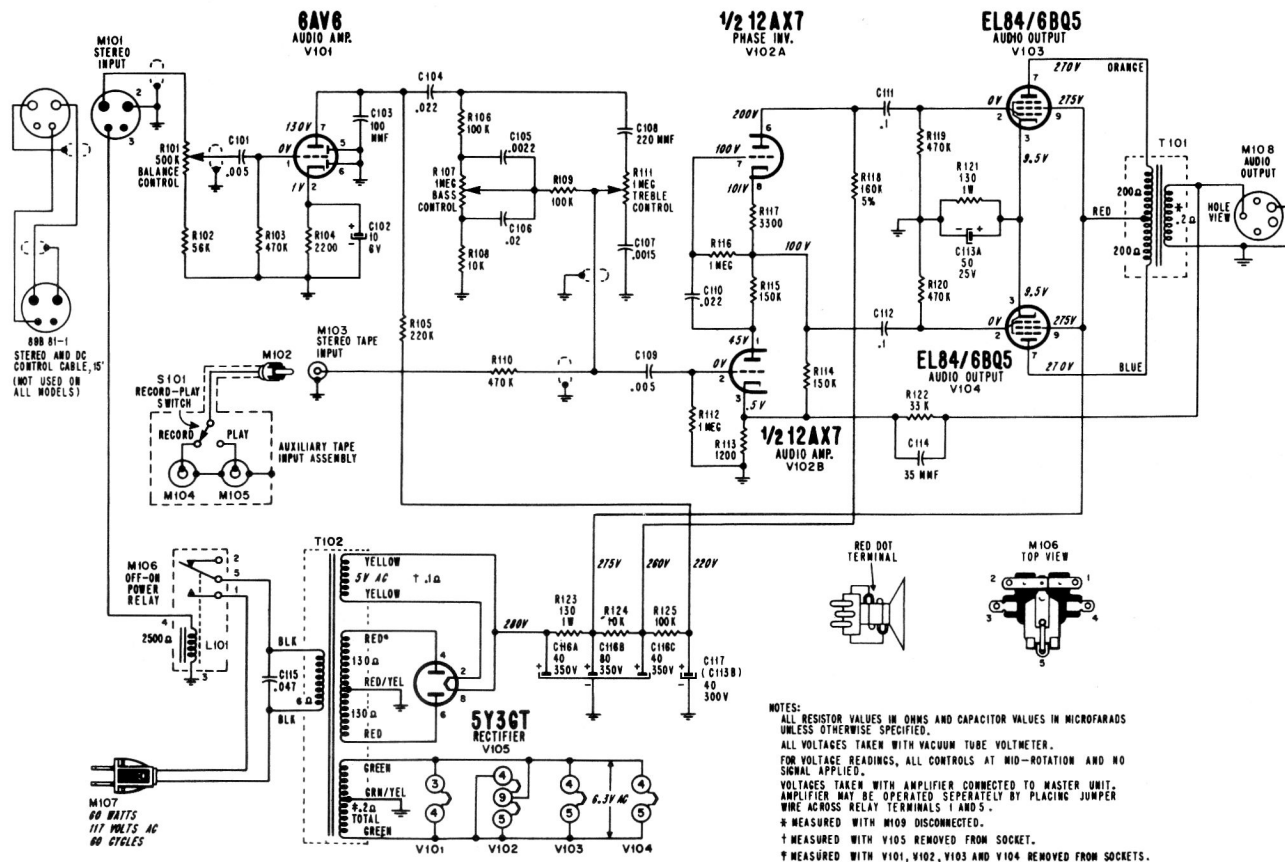
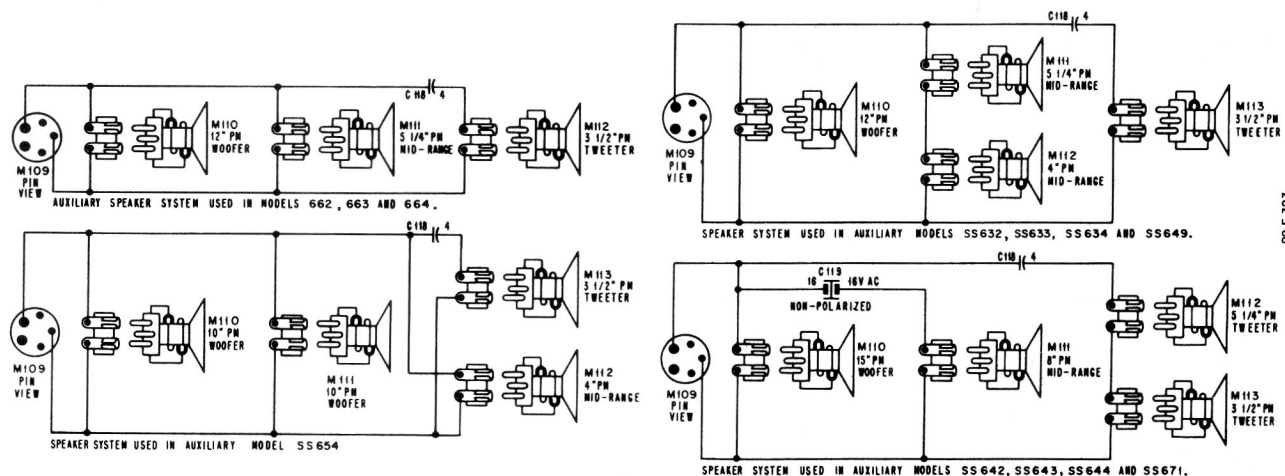
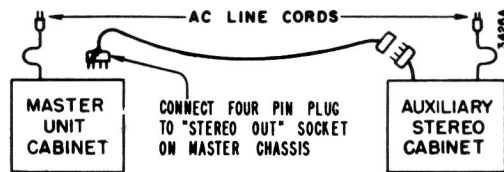
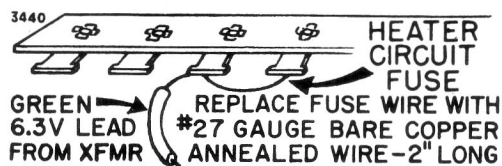
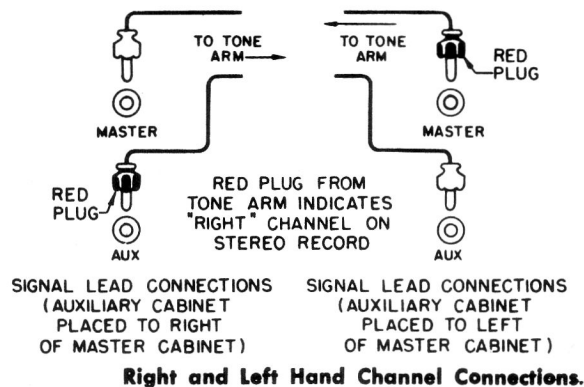


Figure 27. Schematic of 5T4A Amplifier Chassis Stamped Run 10.





**Stereo Unit Connections.**



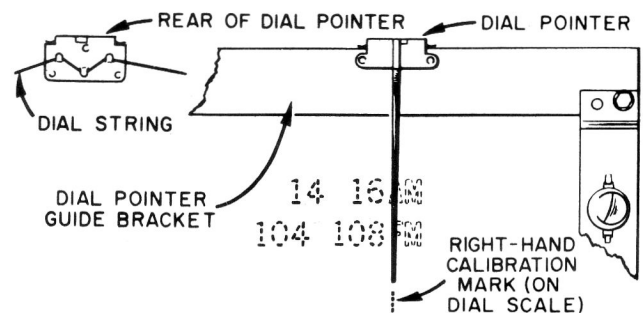
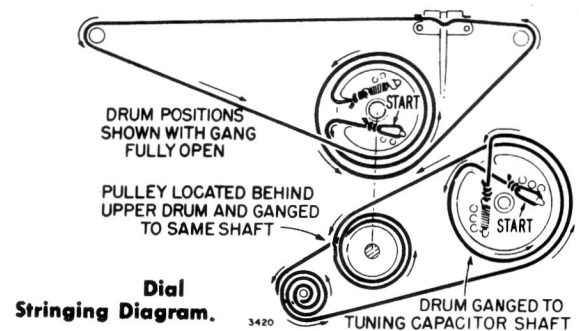
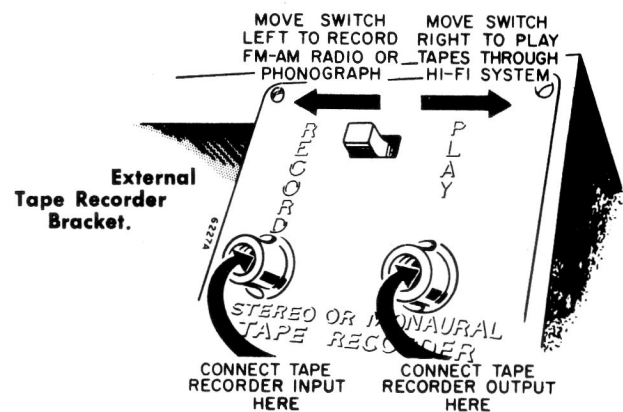
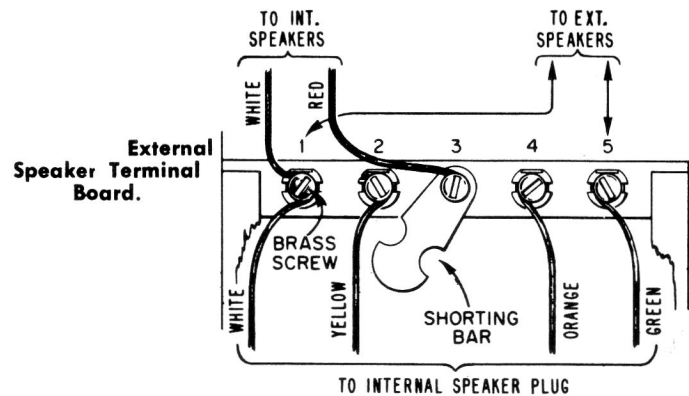
**Heater Circuit Fuse, Chassis 12B1.**

### AMPLIFIER CHECKS

| AMPLIFICATION CHECK    | On 12B1 chassis, set Loudness, Bass and Treble controls to maximum (fully clockwise). Set Record Compensation to "EUR" and Function Switch to "STEREO". On 5T4A chassis, set all controls to maximum (fully clockwise). |         |                     |                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------|---------------------|
| AUDIO GENERATOR OUTPUT | FREQUENCY                                                                                                                                                                                                               |         | VOLTS               |                     |
|                        | to 12B1                                                                                                                                                                                                                 | to 5T4A | to 12B1             | to 5T4A             |
|                        | 1000 Cycles                                                                                                                                                                                                             |         | .06 volts $\pm$ 10% | .02 volts $\pm$ 10% |
| AMPLIFIER OUTPUT       | VOLTS OUT                                                                                                                                                                                                               |         | WATTS OUT           |                     |
|                        | 12B1                                                                                                                                                                                                                    | 5T4A    | 12B1                | 5T4A                |
|                        | 5 volts                                                                                                                                                                                                                 | 5 volts | 7.8 watts           | 7.8 watts           |

| FREQUENCY RESPONSE CHECK |         | On 12B1 and 5T4A chassis, set controls as shown above. See instructions in text for settings for individual controls. |                |         |            |                                                                   |      |
|--------------------------|---------|-----------------------------------------------------------------------------------------------------------------------|----------------|---------|------------|-------------------------------------------------------------------|------|
| SIGNAL GENERATOR OUTPUT  |         | OUTPUT VOLTAGE                                                                                                        |                |         |            | DB CHANGE<br>"From MAX to MIN position of Bass or Treble control" |      |
|                          |         | 12B1                                                                                                                  |                | 5T4A    |            |                                                                   |      |
| Freq.                    | Voltage | MAX.                                                                                                                  | MIN.           | MAX.    | MIN.       | 12B1                                                              | 5T4A |
| 100 cycles               | *       | 5 volts                                                                                                               | 0.5V or less   | 5 volts | 0.7 volts  | — 20                                                              | — 17 |
| 1,000 cycles             | *       | 5 volts                                                                                                               | 5 volts        | 5 volts | 5 volts    | 0                                                                 | 0    |
| 10,000 cycles            | *       | 5 volts                                                                                                               | 0.225V or less | 5 volts | 0.22 volts | — 27                                                              | — 27 |

\*Set audio generator output so that 5 volts is indicated across 12B1 and 5T4A output. CAUTION: Do not overload amplifiers by overdriving with input signal. Use an oscilloscope to check 12B1 and 5T4A amplifier outputs for undistorted waveform at 5 volt output readings.



**Dial Pointer Setting.**