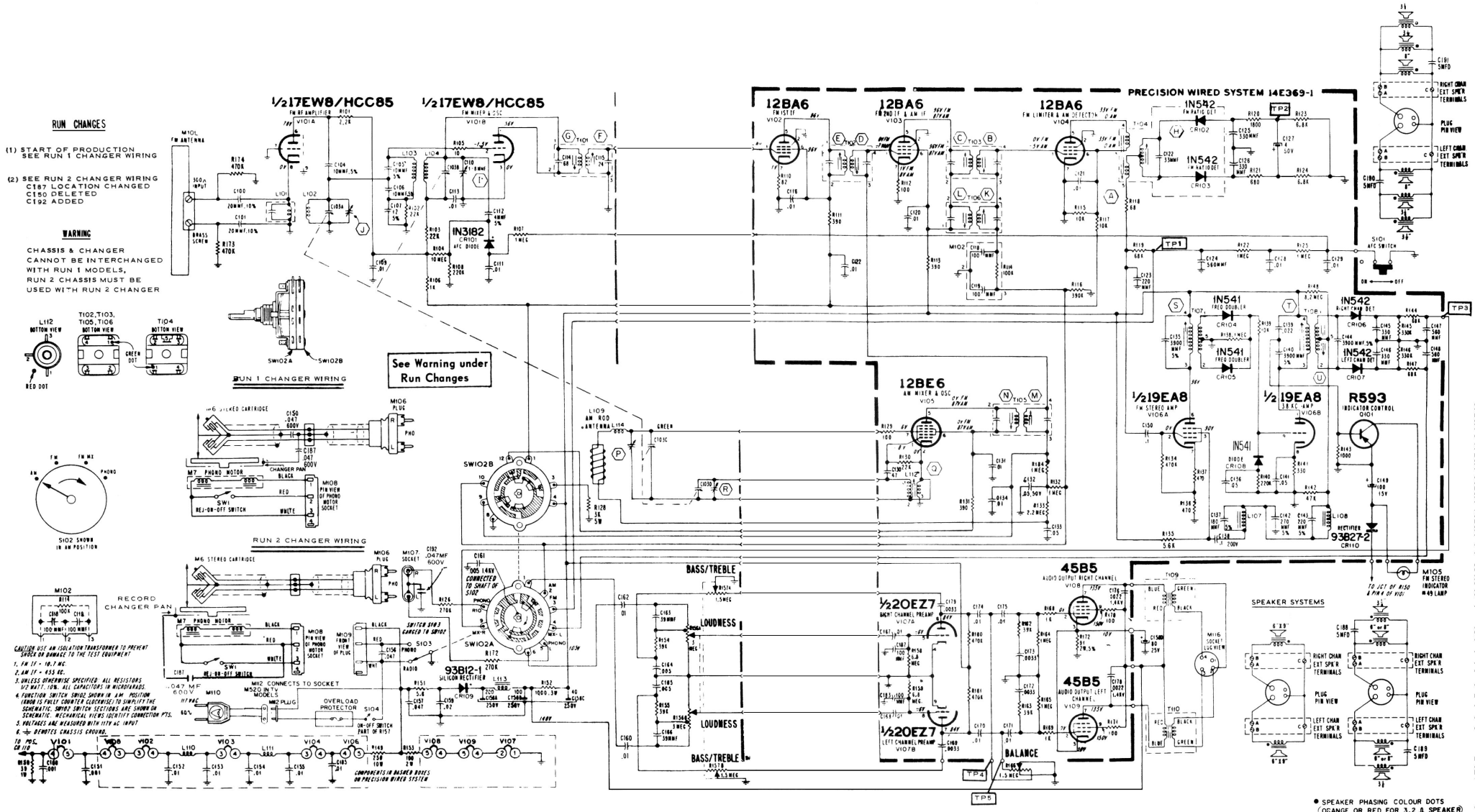
# ADMIRAL

## 9L2X



## FM ALIGNMENT PROCEDURE

### RF and IF Alignment Using AM Signal Generator and VTVM

**RF ADJUSTMENT SHOULD NOT BE ATTEMPTED UNLESS SERVICE EQUIPMENT IS KNOWN TO BE ACCURATE**

1. **WARNING:** The chassis of this receiver is connected directly to one side of the AC line. Use an isolation transformer or make certain that the ground leads of the receiver and test equipment are all connected to the grounded side of the AC line.

2. Turn function switch to FM position, AFC switch to OFF.

3. Set loudness control to minimum position.

4. For FM I F alignment, inject the 10.7 MC unmodulated signal by means of an ungrounded tube shield atop the RF tube (V101).

5. For FM RF alignment, inject signal into antenna terminals as follows: high side of signal generator through a 120 ohm resistor; low side through a 150 ohm resistor.

6. Use the lowest signal input possible to provide a usable reading on the 1.5 volt minus DC scale, except in step 2. In step 2, use maximum signal and the zero center scale.

7. Use non-metallic alignment tools. Use hex tool, 98A30–12, for I F transformers and an insulated screwdriver with a blade no wider than 3/32" for some tuner adjustments.

**IMPORTANT:** Do not adjust T107 or T108 FM stereo adjustment T, U and S unless definitely required. For adjustments of this section, use FM stereo alignment procedure.

| Step | Signal Generator Connection | Signal Generator Frequency (Unmodulated) | Receiver Dial Setting | VTVM Connection | Adjust | Remarks |
|---|---|---|---|---|---|---|
| 1 | Ungrounded tube shield on top of RF tube | 10.7 MC | High end | High side to TP1 Ground lead to chassis. | A, B, C, D, E, F and G for maximum | |
| 2 | Same as Step 1 | 10.7 MC | Same as Step 1 | Move VTVM lead to TP2 | H for zero center | Use zero center scale on VTVM. Increase signal input to Max. |
| NOTE: When H is properly adjusted, meter will swing sharply from zero center as core is misadjusted in either direction. | | | | | | |
| 3 | Antenna terminal through resistors described in paragraph 5 above | 108.5 MC Unmod. | Same as Step 1 | Same as Step 1 | I for maximum | Only slight adjustment will be required. |
| 4 | Same as Step 3 | 106 MC Unmod. | Tune in 106 MC on dial | Same as Step 1 | J for maximum | Same as step 3. |

L104 and L102 are factory aligned by pinch tuning to provide low frequency tracking. Align L104 at 87.5 and L102 at 90MC if required.

## F.M. STEREO ALIGNMENT

**TEST EQUIPMENT:** V. T. V. M.
Oscilloscope (optional)

### PROCEDURE

1. Set function switch to FM stereo position, tune in a stereo FM signal, and set A.F.C. button in the on position.

2. With VTVM set on low DC volts (3-5 volts full scale) connect between TP3 and chassis "B" minus.

3. Adjust "S" for maximum nearest top of shield can.

4. Detune "T" by threading slug towards top of shield can.

5. Adjust "U" for maximum nearest chassis.

6. Adjust "T" for maximum nearest top of shield can, Stereo light should be lit.

7. As most stereo stations broadcast some voice announcements on one channel only, turn balance control to the opposite channel and adjust "S" for minimum sound in that channel.

The following is an alternate method where single

channel transmissions are not available.

1. Perform steps 1 to 6 as outlined above.

2. Connect oscilloscope vertical and horizontal amplifiers to TP4 & TP5 respectively.

3. Turn function switch to FM position and adjust volume and scope gain controls to produce a diagonal line. (45 degrees) See Fig. A.

4. Turn function switch to FM stereo and carefully rotate "S" for a full sunburst pattern. See Fig. B.

As "S" is adjusted each side of maximum separation (maximum fullness of sunburst pattern) the display on the oscilloscope should resolve into a diagonal line.

**IMPORTANT:** To properly display the resolution of the sunburst pattern into the two diagonal lines; programme material recorded by a large orchestra or band should be used. A small group recorded with wide separation does not produce a full sunburst pattern and makes the adjustment of "S" very difficult.

## AM ALIGNMENT PROCEDURE

Turn function switch to AM position, set balance control to mid range. Increase volume control to maximum. Connect output meter across either speaker voice coil. If speakers are not connected, connect to a 3.2 ohm, 5 watt load across each channel.

| Step | Signal Generator Connection | Signal Generator Frequency (Modulated 30%) | Gang Setting | Adjust |
|---|---|---|---|---|
| 1 | Through a .1 mf capacitor to AM antenna lead. | 455 KC | Fully open | K, L, M and N for maximum on AC VTVM |
| 2 | Use a radiated signal loop of several turns of wire, or place generator lead close to antenna loop for adequate signal pickup. | 1620 KC | Fully open | R for maximum |
| 3 | | 535 KC | Fully closed | Q for maximum |
| 4 | Same as Steps 2 & 3 | Repeat above two steps until 535KC-1620KC range is established. | | |
| 5 | Same as Steps 2 & 3 | 1400 KC | Tune in generator signal | P for maximum |

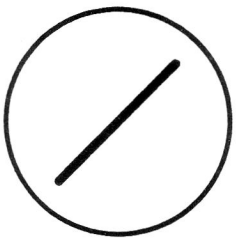


Fig. A

Fig. B

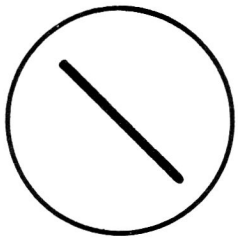
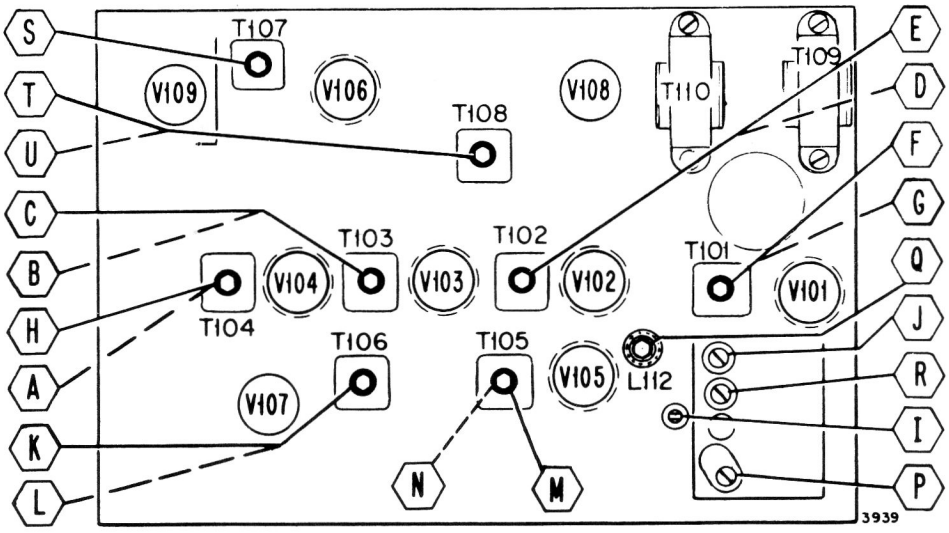


Fig. C

Fig. D

[ Depending upon the polarity of the scope amplifiers, the diagonal line and the sunburst may assume the d directions indicated in figures C & D.

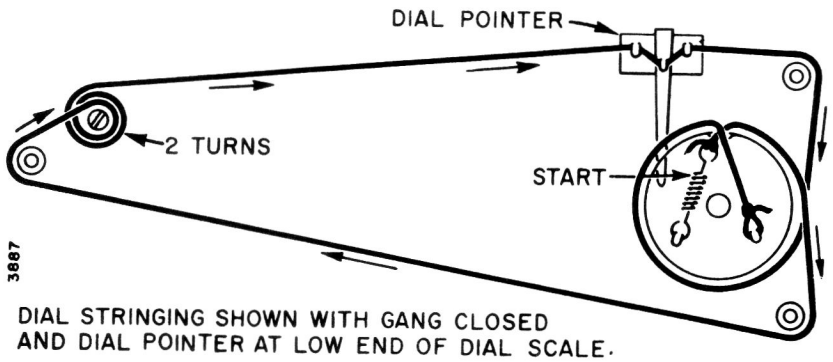



**Top View of Radio Showing Tube and Alignment Locations. Adjustments in Dashed Lines, Are Under Chassis.**

**IMPORTANT:** Do not adjust T107 or T108 FM stereo adjustment T, U and S unless definitely required. For adjustments of this section, use FM stereo alignment procedure.

## 9L2 TUBE AND SEMI-CONDUCTOR COMPLEMENT

| | |
|---|---|
| V101—17EW8/HCC85 | CR102—1N542 |
| V102—12BA6 | CR103—1N542 |
| V103—12BA6 | CR104—1N541 |
| V104—12BA6 | CR105—1N541 |
| V105—12BE6 | CR106—1N542 |
| V106—19EA8 | CR107—1N542 |
| V107—20EZ7 | CR108—1N542 |
| V108—45B5 | CR109—93B12-1 |
| V109—45B5 | CR110—93B27-2 |
| CR101—1N3182 | Q101—R593 |




**Dial Stringing Diagram**