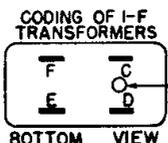
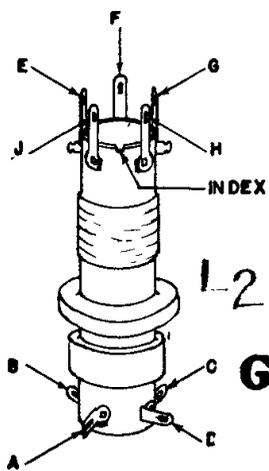


CAPACITOR VALUES IN MMF UNLESS OTHERWISE INDICATED. RESISTANCE VALUES IN OHMS. "K" MEANS 1000. THAT IS, 22K IS 22,000 OHMS.

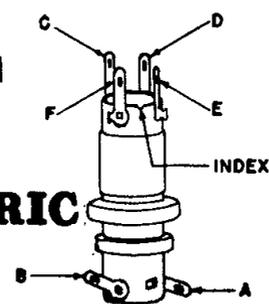


SI-A,B,C,D - BAND CHANGE SWITCH
 CI-A,B,C - MAIN TUNING CAPACITOR



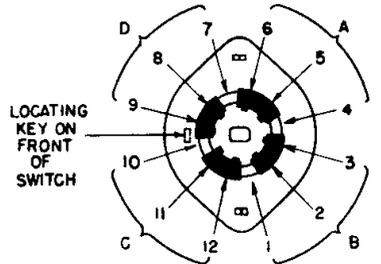
MODELS 219, 220, 221

GENERAL ELECTRIC

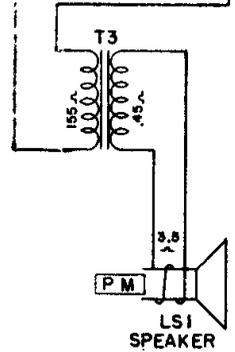


Identification of Terminals on Band Change Switch S1

Identification of Terminals on Oscillator Coil L3



AS SEEN WHEN LOOKING AT SWITCH TERMINALS WITH CHASSIS UPSIDE DOWN



GENERAL ELECTRIC

RADIO

TWO-BAND A-C-D-C SUPERHETERODYNE SERVICE DATA

for

MODELS 219, 220, 221

ALIGNMENT

Equipment Needed.

- Signal Generator, modulated 30% with 400 cycles.
- One—60 mmf. capacitor
- One—.05 mf. capacitor
- One—400-ohm resistor
- One—output meter
- One—insulated screw driver.

General.

For a complete alignment, the i-f should be aligned before the r-f.

The i-f sections may be aligned with the chassis removed from the cabinet, but for the final r-f alignment the chassis should be in place, in the cabinet.

Fig. 3 identifies and locates all trimmers.

Be sure the radio has been "on" for at least 10 minutes before making any alignment adjustments.

In order to be sure of frequency stability in the signal generator, follow the manufacturer's recommended procedure for use.

When making connections to the signal generator, avoid any ground connections to the radio unless an isolation transformer is used in the power line.

I-F Alignment.

1. Remove chassis from cabinet.
2. Connect output meter across the speaker voice coil.
3. Set volume control for maximum.
4. Connect output terminal of signal generator through a .05 mf. capacitor to pin 4 of the 12SG7 (i-f amplifier) tube.
5. Set signal generator frequency to 455 kc.
6. Set dial pointer on radio to approximately 1500 kc.
7. Peak second i-f trimmers, C16 and C17, for maximum output.
8. It is important to keep the output reading under 1 1/4 volts by reducing the input or gain control so as to avoid spurious results due to a.v.c. action.

9. Disconnect signal generator from 12SG7 and connect (through .05 mf. capacitor) to pin eight of the 12SA7 converter.
10. Keeping output below 1 1/4 volts as before, peak the first i-f trimmers, C10 and C11, for maximum output.
11. Check second and first i-f trimmer adjustments.

Broadcast R-F Alignment.

When making the following alignment, the Beam-a-Scope (loop antenna) must be mounted to the chassis, and the chassis must be installed in the cabinet. All trimmer adjusting screws are available through the hole in the loop antenna frame.

1. Connect the output of the signal generator through a 60 mmf. capacitor, to the radio antenna post.
2. Set the signal generator and dial pointer to 1500 kc.
3. Adjust C14, C8, and C2 for maximum output. If two peaks are obtained when adjusting C14, the correct point is the one with the trimmer plates the furthest apart.

Shortwave R-F Alignment.

1. Set Band Change switch to SW position.
2. Set dial pointer and signal generator to 9.5 mc.
3. Remove chassis carefully, so as not to disturb the setting of the dial pointer.
4. Connect the output of the signal generator through a .05 mf. capacitor to pin eight of the 12SA7 converter tube.
5. Adjust C13 (under the chassis) for maximum output. Two points of maximum output may be obtained. The correct point is the one with the trimmer plates closest together.
6. Remove the signal generator connection, and connect its output through a 400-ohm resistor to the radio antenna post. Peak C7 for maximum output while rocking-in the main tuning condenser.
7. Replace the chassis in the cabinet, and check the setting of C7.

STAGE GAINS AND VOLTAGE CHECKS

The following information will be useful to servicemen equipped with vacuum tube voltmeters or similar voltage measuring instruments. The stage gain values listed may have a tolerance of 20%.

Stage Gains.

- | | |
|--|--------------|
| (1) Antenna terminal* to pin 4 of 12SK7... | 4 @ 1000 kc |
| (2) Pin 4 of 12SK7† to pin 8 of 12SA7..... | 10 @ 1000 kc |
| (3) Pin 8 of 12SA7† to pin 4 of 12SG7..... | 35 @ 455 kc |
| (4) Pin 4 of 12SG7† to pins 4 or 5 of 12SQ7..... | 100 @ 455 kc |

* Connect to signal generator output through a 60 mmf. capacitor.

† Connect to signal generator output through a .05 mf. capacitor.

