



Model 9-49

Motorola

ALIGNMENT PROCEDURE

Place the radio on the service bench with the front cover removed, but with the speaker and battery connected to it.

Turn the volume control to maximum position and leave it there throughout the alignment, reducing the signal generator output if necessary.

NOTE: Do not adjust the trimmer in the R.F. coil can that is covered with Scotch Tape. The original adjustment, made in the factory, should not be tampered with. (Fig. 1 below, shows all trimmer locations.)

I.F. ALIGNMENT

1. Connect the signal generator to the control grid (Terminal No. 6) of the Osc.-Mod. tube (7B8). Turn the condenser gang completely out of mesh. Connect an output meter across speaker voice coil.

2. Set the signal generator at 262 K.C. and carefully adjust the single trimmer in the Diode coil can to the point showing the highest reading on the output meter.

3. Adjust the two trimmers in the I.F. coil can to the point showing the highest output reading.

4. Repeat the I.F. and Diode adjustment several times for maximum accuracy.

SETTING THE RANGE

1. Connect the signal generator to the con-

trol grid (Terminal No. 6) of the R.F. tube (7A7) using the same .1 MF condenser.

2. Set the signal generator at 1550 K.C. and with the condenser gang completely out of mesh, adjust the 1550 K.C. trimmer in the oscillator coil can to the point showing the highest output reading.

3. Set the signal generator at 535 K.C. Turn the condenser gang completely in mesh and adjust the 600 K.C. trimmer in the Oscillator coil can for the highest output reading.

NOTE: The adjustments above set the range so the receiver will track with the calibrations in the control head.

R.F. AND ANTENNA ALIGNMENT

1. Connect the signal generator to the antenna lead through a 40 MMF condenser and to chassis ground. Set the signal generator at 600 K.C. and turn the condenser gang until the signal is heard. Adjust the 600 K.C. trimmer on the antenna coil can for the maximum output reading.

2. Set the signal generator at 1400 K.C. Turn the condenser gang until the signal is heard. Adjust the 1400 K.C. trimmer in the antenna coil can for maximum output reading.

3. Adjust the 1400 K.C. trimmer in the R.F. coil can for maximum output reading.

4. Recheck steps 1, 2, and 3, for accuracy.

SENSITIVITY AND STAGE GAIN MEASUREMENTS

These stage gain measurements will, if properly used, enable you to localize trouble quickly. They are intended for use with a signal generator that is accurately calibrated in microvolts.

Starting with the I.F., and working back step by step to Osc.-Mod., R.F. and finally to the antenna terminal, the circuit in which the trouble exists will quickly be determined by evidence of low gain, when signal generator attenuation readings are compared to the normal values as shown in the table.

All stage-gain measurements must be made with the volume control set for full volume. The shielded lead from the signal generator is connected to the grid terminal of the tube through a .1 MF condenser, with a 500M ohm resistor connected as a leak resistance between the grid of the tube and the grid lead which has been removed.

When measuring over-all sensitivity at the antenna terminal, use a 40 MMF condenser in place of the .1 MF. It must be remembered that the figures in the table are average and allowance must be made for variations between two sets of the same general type, due to difference of tube characteristics, etc.

Average Microvolt Input *	Generator Set at	Generator Feeder Connected to	Dummy Antenna Capacity	Leak Resistance	Output Meter Reading **
25,000	262 K.C.	Grid(I.F.)	.1 MF	.5 Meg.	1.74 Volts
700	262 K.C.	Grid(Mod.)	.1 MF	.5 Meg	1.74 Volts
800	600 K.C.	Grid(Mod.)	.1 MF	.5 Meg	1.74 Volts
45	600 K.C.	Grid(R.F.)	.1 MF	.5 Meg	1.74 Volts
2	600 K.C.	Ant. Lead	40 MMF	None	1.74 Volts

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* For one watt output.

** Meter connected across voice coil.

V.C. impedance - 3 ohms at 400 cycles.