ALIGNING R. F. AND I. F. COMPENSATORS

MODELS 41-90, 41-95, 41-100 AND 41-105

EQUIPMENT REQUIRED

1. **Signal Generator:** Covering frequency ranges of the radios. Philco Model 077 (A. C. operated) or Model 177 (Battery operated) have a frequency range from 115 to 36000 K. C. and are recommended.
2. **Indicating Device:** To obtain maximum signal strength and accurate adjustment of the padders, a vacuum tube voltmeter similar to Philco Models 027 and 028 is recommended. These instruments also contain an audio output meter which may be used as an indicating device. The method of connecting either of these instruments is listed below.
3. **Aligning Tools:** Fiber handle screwdriver, Philco Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, it should be connected to the A. V. C. circuit as follows:

1. Connect the negative (—) terminal of the vacuum tube voltmeter through a 2 megohm resistor to any point in the circuit where the A. V. C. voltage can be measured.

2. Connect the positive (+) terminal to the chassis ground terminal.

Audio Output Meter: If this type of meter is used as an aligning indicator, it should be connected to the plate of the output tube and ground. In Model 41-105 with push-pull, connect from one plate to ground.

Signal Generator: When adjusting the I. F. padders the high side of the signal generator is connected through a .1 mfd. condenser to the grid of the (1A7G) first detector-oscillator tube. The ground or low side of the signal generator is connected to the ground connection of the receiver. An external ground should also be attached to the receiving ground wire.

When aligning the R. F. padders connect the signal generator as given below in the column "Output Connections to Receiver" with a dummy aerial as indicated.

After connecting the aligning meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators for each model are shown in Figs. 1, 2, 3.

If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Models 41-90, 41-95, 41-100

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections	Dummy Antenna Note A	Dial Setting	Dial Setting	Controls	Adjust Compensators	
1	1A7G (Grid)	.1 mfd.	455 K. C.	540 K. C.	Vol. Max.	1, 2, 3	
2	Aerial Connection	225 mmfd.	1500 K. C.	1500 K. C.	Vol. Max.	4 Osc., 5 aerial	Note B

Model 41-105

1	1A7G (Grid)	.1 mfd.	455 K. C.	540 K. C.	Vol. Max. Band Switch Brdcst.	1, 2, 3	
2	Aerial Connection	225 mmfd.	1500 K. C.	1500 K. C.	Vol. Max. Band Switch Brdcst.	4 Osc., 5 aerial	Note B
3	Aerial Connection	225 mmfd.	580 K. C.	580 K. C.	Vol. Max. Band Switch Brdcst.	6	Roll Gang
4	Aerial Connection	225 mmfd.	1500 K. C.	1500 K. C.	Vol. Max. Band Switch Brdcst.	4 Osc., 5 aerial	
5	Aerial Connection	400 Ohms	12 M. C.	12 M. C.	Band Switch S. W.	7	Note C

NOTE A: The "Dummy Aerial" consists of a condenser or resistor connected in series with the signal generator output (high side). Use the capacity or resistance as specified in each step of the above procedure.
NOTE B: DIAL CALIBRATION: Before adjusting the R. F. padders the dial must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser in the closed position (maximum capacity) set the dial pointer on the small dash below 540 K. C.
NOTE C: When adjusting compensator (7) be sure to tune in the fundamental signal (12 M. C.) instead of the image signal. If the compensator is correctly adjusted, the image will be found by turning the generator 910 K. C. above the fundamental signal which will be 12.910 M. C.

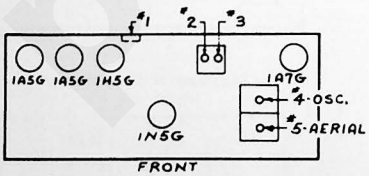

FIG. 1, MODEL 41-90

FIG. 1 — MODEL 41-90

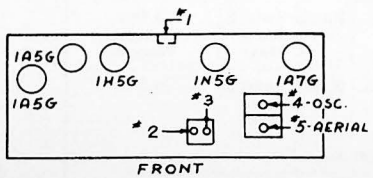

FIG. 2, MODELS 41-95, 41-100

FIG. 2

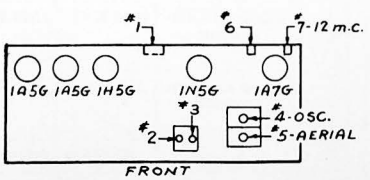

FIG. 3, MODEL 41-105

FIG. 3