ALIGNING PROCEDURE

MODELS 40-81, 40-82, 40-83, 40-84, 40-88, 40-90, 40-95, 40-100, 40-105, 40-110

EQUIPMENT REQUIRED

1. **Signal Generator** such as Philco Model 077 (A. C. operated) or Model 177 (Battery operated).

2. **Aligning Indicator:** Philco Models 027 or 028 Vacuum Tube Voltmeter and Circuit Tester contain sensitive audio output meters. Either of these instruments can be used as an aligning indicator and are connected as indicated below.

3. **Tools:** Aligning screw driver, Philco Part No. 45-2610.

CONNECTING THE ALIGNING METERS

Audio Output Meter: If an audio output meter is used, connect it across the plate and screen terminals of the output tubes. Adjust the meters to use the 0 to 10 scale.

Vacuum Tube Voltmeter: If a vacuum tube voltmeter is used as an aligning indicator, the negative (—) terminal is connected to the A. V. C. unit of the receiver through a 2 meg. resistor. The positive (+) terminal is connected to the chassis or 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 loop tuning condenser stator lug which connects to the grid of the first tube. The ground or low side of the signal generator is connected to the chassis of the receiver.

When aligning the R. F. padders of the portable models a loop aerial is made from a few turns of wire and connected to the signal generator output terminals. The signal generator is then placed a few feet from the set. The loop aerial of the receiver must be assembled in the cabinet, together with the battery when adjusting the R. F. padders. The R. F. padding condensers can be reached from the bottom of the cabinet.

When aligning the R. F. padders of the battery models using an aerial, connect the signal generator as given in the column "Output Connections to Receiver" with a dummy aerial as indicated.

Models 40-81, Codes 121, 122, 40-82, 40-83, 40-84, PT-63

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators	
1	See Paragraph on Signal Generator above	455 K. C.	580 K. C.	Vol. Max.	17A, 9B, 9A	See Paragraph on Signal Generator above
2	Use Loop on Generator	1500 K. C. 1400KC (40-84)	1500 K. C. 1400KC (40-84)	Vol. Max.	8B, 8A	Padder location Fig. 1 Note A

Model 40-88, Code 121

1	See Signal Generator Paragraph above	455 K. C.	580 K. C.	Vol. Max.	21A, 20B, 20A	
2	Use Loop on Generator	18 M. C.	18 M. C.	Vol. Max. Range Switch "S. W."	8B	Note A
3	Use Loop	1400 K. C.	1400 K. C.	Range Switch "Brdcst"	12, Screw, 8A	
4	Use Loop	580 K. C.	580 K. C.	Range Switch "Brdcst"	12A, Nut	Roll Tuning Condenser
5	Use Loop	1400 K. C.	1400 K. C.	Range Switch "Brdcst"	12, Screw, 8A	
6	Use Loop	18 M. C.	18 M. C.	Range Switch "S. W."	3	See Paragraph on Signal Generator above

Model 40-90

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Aerial	Dial Setting	Dial Setting	Control Setting	Adjust Padders	
1	1A7 Grid	.004 mfd.	455 K. C.	580 K. C.	Vol. Max.	On 1st and 2nd I. F. Trans.	Note B
2	Aerial	225 mmfd.	1500 K. C.	1500 K. C.	Vol. Max.	Osc. Ant. on Tuning Conds.	Note B Note A

Models 40-95, 40-100, 40-105

1	1A7 Grid	.004 mfd.	455 K. C.	580 K. C.	Vol. Max.	On 1st and 2nd I. F. Trans.	Note B
2	Aerial	225 mmfd.	1500 K. C.	1500 K. C.	Vol. Max.	Osc. Ant. on Tuning Conds.	Note B Note A

Model 40-110

1	Aerial	Note A	455 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcst"	18A, 17A, 17B	Manual Push-button "IN"
2	Aerial	400 ohms	18 M. C.	18 M. C.	Vol. Max. Range Switch "S. W."	4A	Note B
3	Aerial	225 mmfd.	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	7 screw, 4B	Note E
4	Aerial	225 mmfd.	580 K. C.	580 K. C.	Range Switch "Brdcst"	7A (nut)	Roll Tuning Condenser
5	Aerial	400 ohms	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	7 screw	

NOTE A — 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 dot below 550 K. C.

NOTE B — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, the tuning pointer is set horizontal at the low frequency end of the scale (530 K. C.).