R. F. and I. F. ALIGNING INSTRUCTIONS

MODELS TP-20, TP-21, PT-35-36-43, Codes 121-122; and 55-59-67

The same procedure is followed in aligning the compensating condensers in the R. F. and I. F. circuits of any of the above listed models. The procedure for adjusting the push-buttons on models equipped with automatic tuning will be found on page 10.

EQUIPMENT REQUIRED

Signal Generator: In order to properly adjust these radios, a calibrated signal generator such as Philco Model 077 A. C. operated or Model 177 battery operated is required. These signal generators cover a frequency range from 115 to 36000 K. C.

Indicating Device: To obtain maximum signal strenth and accurate adjustment of the padders, a vacuum tube voltmeter or audio output meter should be used. Philco Models 027 and 028 vacuum tube voltmeters are recommended. These testers also contain an audio output meter which may be used as an indicating device.

Aligning Tools: Fibre handle screw driver, Philco Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

When connecting instruments and adjusting compensating condensers, it will be necessary to remove the chassis from the cabinet.

Audio Output Meter: If an aligning indicator of this type is used, connect it to the plate and screen terminals of the output tube.

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, make either of the following connections:

1 — Attach the negative termnial of the voltmeter to any point in the circuit where the A. V. C. voltage can be obtained. Connect the positive terminal to the ground connection of the receiver. In A.C.-D.C. sets the positive (+) terminal of the vacuum tube voltmeter should be connected to (B—) of the receiver. (Cathode 7C6)

2 — An aligning adaptor, Philco Part No. 45-2767, can be obtained from your PHILCO distributor for use with the vacuum tube voltmeter. To use the adaptor, remove the second detector tube from its socket and insert the aligning adaptor in the socket, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the light colored wire which protrudes from the side of the adaptor. Attach the positive terminal of the vacuum tube voltmeter to the black wire of the adaptor.

Signal Generator: When adjusting the I. F. padders, the high side of the signal generator is connected through a .004 mfd. condenser to the antenna section of the tuning condenser. Connect the ground or low side of the generator to the chassis. It may be necessary when adjusting A.C.-D.C. models to reverse the power plug to eliminate hum.

The R. F. and oscillator padders are aligned with the high side of the signal generator connected to the antenna of the receiver through a 100 mmfd. condenser.

After connecting the aligning instruments, adjust the compensators on all models in the order as shown in the tabulation below. The first and second I. F. transformers in all models are located on the top and bottom sections of the chassis respectively. The "antenna" and "oscillator" padders are located on the tuning condenser.

Procedure PT-35 and PT-59

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Ant. Section of Tuning Condenser .004 mfd. Dummy	470 K. C.	Tuning Condenser Closed	Vol. Max.	1st and 2nd I. F. Trans.	Press in "Dial" Button on Push-Button Models
2	Ant. Terminal 100 mmfd. Dummy	1720 K. C.	Note A	Vol. Max.	Osc.	Note A
3	Ant. Terminal 100 mmfd. Dummy	1500 K. C.	Note B	Vol. Max.	Ant.	Note B

Procedure TP-20, PT-43 (121, 122)-36-55-67

1	Ant. Section of Tuning Condenser .004 mfd. Dummy	455 K. C.	540 K. C. Tuning Cond. Closed	Vol. Max.	1st and 2nd I. F. Trans.	Press in "Dial" Button on Push-Button Models
2	Ant. Terminal on Back of Loop .100 mmfd. Dummy	1600 K. C.	Note A	Vol. Max.	Osc.	Note A
3	Ant. Terminal on Back of Loop .100 mmfd. Dummy	1500 K. C.	Note B	Vol. Max.	Ant.	Note B Note C

NOTE A — Turn the tuning condenser to the extreme high frequency position (all plates out of mesh). Insert a .004 (four thousandths) gauge between the stationary and rotor plates of the oscillator condenser (end where both sections enter). If the gauge is not handy, a piece of bond writing paper can be used. After inserting gauge, turn the rotor toward the low frequency end so that both rotor and stator touch gauge. Then remove gauge, being careful not to disturb condenser setting. Adjust "oscillator" padder for maximum output with the 1600 K. C. signal or 1720 K. C. signal indicated in the tabulation.

NOTE B — Turn signal generator to 1500 K. C. and tune receiver tuning condenser for maximum reading on this signal, then adjust the antenna padder for maximum output.

Place set in cabinet so that the tuning arm on the tuning condenser engages the dial pointer on the cabinet. After placing receiver in the cabinet and it is found that the dial pointer does not track properly with station signals, the dial can be calibrated as follows: Set the signal generator to 900 K. C. and tune receiver until signal shows maximum reading on the output meter. The dial pointer is then set to this signal by inserting a screw driver to the adjustment screw on the tuning condenser pulley. Loosen screw and slightly turn dial so that it reads 600 K. C. then retighten screw. When doing this, however, precaution should be taken so that the tuning condenser is not disturbed while dial is being adjusted and screw is being tightened or loosened.

In Models PT-36 and PT-43, Code 122, the dial pointer is simply pushed onto the tuning condenser shaft, and does NOT require the adjustment as given in the paragraph above.

NOTE C — Model 36 antenna padder must be adjusted with the loop connected and assembled in the cabinet.