

# MODEL 40-710---PHILCO-TROPIC

## SPECIFICATIONS

Philco-Tropic Model 40-710 is particularly recommended for locations where super reception of short wave is necessary and where the radio and the cabinet are exposed to extreme conditions. The receiver is specially constructed to withstand decay, spallage and deterioration caused by extreme conditions of humidity, heat, salt air and cold; and to stand up under the most severe tropic weather conditions.

The chassis is heavily plated, making it impervious to salt air, rust and corrosion.

The various parts, such as coils, condensers, chokes and transformers, are treated with special wax that will withstand very high temperatures. In addition the wax is treated with chemicals which repel rodents and insects.

**TYPE CIRCUIT:** Model 40-710, code 121, is a five (5) tube A. C. or D. C. operated receiver employing a superheterodyne circuit with three tuning ranges for reception of Standard, Police and Shortwave Broadcast Stations. In addition other features of design are: Automatic Volume Control, Bass Compensation; and special temperature and humidity-proof compensators for reducing frequency drift to a minimum.

**POWER SUPPLY:** 100-130 or 200-260 volts A. C. or D. C. To operate the receiver on 200-260 volts A. C. or D. C. requires the use of a Ballast resistor, Part No. 33-3377 which can be obtained from your distributor. The Ballast resistor is inserted in the socket provided on the top of the chassis.

**POWER CONSUMPTION:** 120 volts, 35 watts; 240 volts, 70 watts.

**TUNING RANGES:**  
530 to 1720 K. C. 2.3 to 7.4 M. C. 7.3 to 22 M. C.

**I. F. FREQUENCY:** 455 K. C.

**PHILCO TUBES:** 7A8E, Converter-Oscillator; 7B7E, I. F. Amplifier; 7C5, Second Detector, First Audio and A. V. C.; 35A5E, Audio Output; 35Z3, Rectifier.

**AERIAL:** To obtain maximum performance from this receiver, the Philco Safety Aerial, Part No. 40-6370, should be used.

**CABINET DIMENSIONS:** Height, 8 $\frac{1}{4}$ " Width, 11 $\frac{1}{2}$ " Depth, 6 $\frac{1}{4}$ "

## ALIGNING COMPENSATING CONDENSERS EQUIPMENT REQUIRED

(1) **Signal Generator.** In order to properly adjust this receiver, a calibrated signal generator such as Philco Model 077 A. C. or Model 177 battery operated are required. These signal generators cover a frequency range of 540 to 36,000 K. C.

(2) **Indicating Device.** To obtain maximum signal strength and accurate adjustment of the padders a vacuum tube volt-

meter and circuit tester such as Philco Models 027 and 028 is recommended. These testers also contain an audio output meter which may be used as an indicating device.

(3) **Aligning Tools.** Fiber handle screw driver, Philco Part No. 45-2610.

## CONNECTING ALIGNING INSTRUMENTS

**Vacuum Tube Voltmeters:** To use the vacuum tube voltmeter as an aligning indicator it should be connected to the A. V. C. circuit with the Philco aligning adaptor, Part No. 45-2767, as follows:

Remove the 7C6 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 voltmeter to the black wire.

**Audio Output Meter:** If this type of meter is used as an aligning indicator, it should be connected to the plate and

screen terminals of the 35A5 tube. Adjust the meter for the 0 to 30 volt A. C. scale.

After connecting the aligning meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown in Fig. 2. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

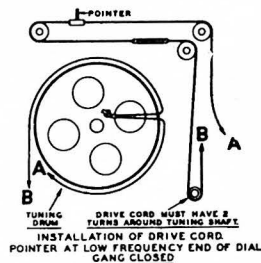


FIG. 1. DIAL CALIBRATION.

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	7A8	.1 mfd.	455 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcat"	23A, 19B, 19A	
2	Ant. & Chassis	400 ohms	20 M. C.	20 M. C.	Range Switch "S. W. 2"	18B, 18A	Note C
3	Ant. & Chassis	400 ohms	7.0 M. C.	7.0 M. C.	Range Switch "S. W. 1"	16A	Rollgang
4	Ant. & Chassis	200 mmfd.	1400 K. C.	1400 K. C.	Vol. Max. Range Switch "Brdcat"	16	Note B
5	Ant. & Chassis	200 mmfd.	580 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcat"	15	Rollgang Repeat Oper. 4

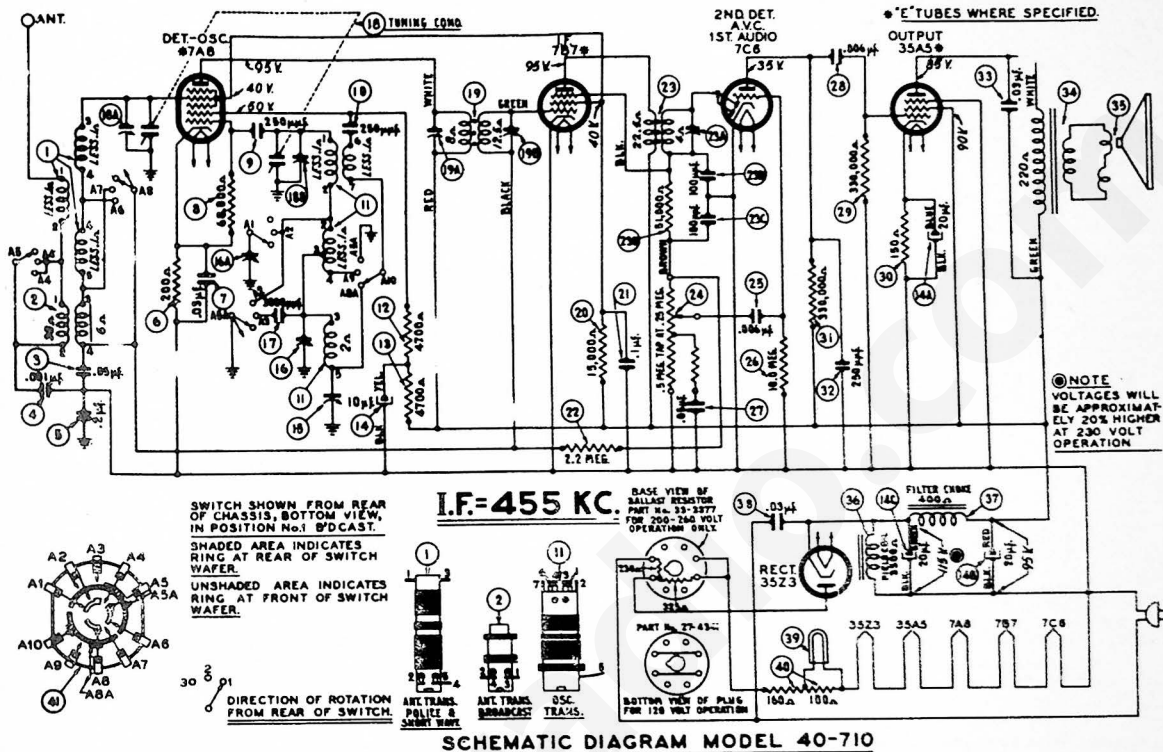
**NOTE A**—The "Dummy Antenna" consists of a condenser or resistance connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

**NOTE B**—**DIAL CALIBRATION:** In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning

condenser closed (maximum capacity), set the dial pointer on the first mark on the left edge (low frequency end) of the broadcast scale.

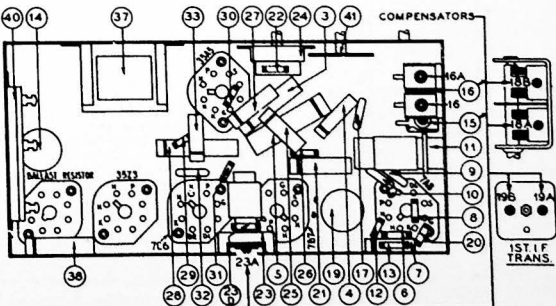
**NOTE C**—When adjusting compensator (18B) be sure to tune in the fundamental signal (20 M. C.) instead of the image signal. If the compensator is correctly adjusted, the image signal will be found by turning dial 910 K. C. below the fundamental signal, which will be 19.090 M. C.

# MODEL 40-710---PHILCO-TROPIC



## Replacement Parts — Model 40-710

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.		
1	Ant. Trans. (Police, Short Wave)	32-3295	39	Pilot Lamp	34-2068E		Drive Cord Assy.	31-2415		
2	Ant. Trans. (Broadcast)	32-3166	40	Filament Resistor	33-3372		Knobs (Volume, Tuning, Wave Switch)	27-4004		
3	Tubular Cond. (.05 mfd.)	30-4609	41	Wave Switch	42-1534		Pointer	28-5201		
4	Tubular Cond. (.001 mfd.)	30-4804	<b>MISCELLANEOUS PARTS</b>						Pilot Lamp Assy.	30-8127
5	Tubular Cond. (.2 mfd.)	30-4601		Acetate Window	27-5370		Socket (Lokalt Tubes)	27-6131		
6	Resistor (200 $\Omega$ , 1/2 watt)	33-120339		Ballast Resistor (230-260 V. operation)	33-3377		Socket (8 prong, Ballast Resistor)	27-6068		
7	Tubular Cond. (.03 mfd.)	30-4858		Changeover Plug (Volt., 115-130 V. oper.)	27-4341		Spring (Drive Cord)	28-6953		
8	Resistor (68,000 ohms, 1/2 watt)	33-368339		Cabinet	10315-B		Spring Clip (Wdg. Ant. Trans.)	28-5002		
9	Mica Cond. (250 mmfd.)	30-1119		Cable and Plug (Power Supply)	L-3289		Spring Clip (Wdg. Dec. Trans.)	28-5003		
10	Mica Cond. (280 mmfd.)	30-1119		Special Plug (Power Supply)	L-1367		Speaker	30-1406		
11	Oscillator Trans.	32-3296		Dial	27-5545		Tuning Drum	31-1263		
12	Resistor (4700 ohms, 1/2 watt)	33-247339					Tuning Shaft and Bracket Assy.	38-9888		
13	Resistor (4700 ohms, 1/2 watt)	33-247339								
14	Electrolytic Cond. (20,20,20,10 mf. 250V)	30-2438								
15	Compensator (single)	31-6289								
16	Compensator (2 section)	31-6323								
17	Mica Cond. (3000 mmfd.)	30-1028								
18	Tuning Condenser	31-2410								
19	1st I. F. Trans. Assy.	32-3297								
20	Resistor (15,000 ohms, 1/2 watt)	33-318339								
21	Tubular Cond. (.1 mfd.)	30-4866								
22	Resistor (2.2 meg., 1/2 watt)	33-528339								
23	2nd I. F. Trans. Assy.	32-2474								
24	Volume Control (.8 meg.)	33-8336								
25	Tubular Cond. (.006 mfd.)	30-4863								
26	Resistor (10.0 meg., 1/2 watt)	33-810339								
27	Tubular Cond. (.08 mfd.)	30-4819								
28	Tubular Cond. (.006 mfd.)	30-4810								
29	Resistor (330,000 ohms, 1/2 watt)	33-433339								
30	Resistor (180 ohms, 1/2 watt)	33-118336								
31	Resistor (320,000 ohms, 1/2 watt)	33-433339								
32	Mica Cond. (250 mmfd.)	30-1119								
33	Tubular Cond. (.03 mfd.)	30-4858								
34	One and Voice Gell Assy. (Sphr. Part No. 38-1486-3)	32-8095								
35	Output Trans.	32-8126								
36	Field Coil (Replace Sphr. Part No. 38-1486)	32-8073								
37	Filter Choke	30-4820								
38	Tubular Cond. (.03 mfd.)									



MANY OF THE PARTS IN THIS PHILCO, SUCH AS CONDENSERS AND RESISTORS, ARE HELD TO MUCH CLOSER TOLERANCE THAN STANDARD REPLACEMENT PARTS. GENUINE PHILCO REPLACEMENT PARTS MUST BE USED TO OBTAIN SATISFACTORY PERFORMANCE OF THIS MODEL.