MODELS 40-130, 40-135 and 40-170CS

SPECIFICATIONS

TYPE OF CIRCUIT: Models 40-130 and 40-135 are six (6) tube alternating current operating superheterodyne receivers employing the new Philco built-in aerial system which eliminates an outside aerial and reduces local interference to a minimum. One feature of the built-in super aerial system is that a statically shielded loop is used. This permits the receiver to be turned to the position where the minimum amount of interference is picked up or, if interference is not present, the receiver may be set in the position where best reception is obtained.

In addition, other features of design are: Two tuning ranges; Philco high efficiency Loktal tubes; special high gain R. F. stage; automatic volume control, tone control and a Beam power audio output stage. In general, these models are similar but differ in their tuning mechanisms and cabinets.

Model 40-130 is dial tuned and assembled in cabinet type "T".

Model 40-135 is equipped with six electric push buttons for automatically selecting stations in addition to dial tuning. Five push buttons are used for stations one of which can be used in combination with Special type PHILCO TELEVISION receivers for reception of television sound programs. The sixth push button selects dial tuning. The push buttons in this model cover frequency ranges as follows:

540 to 1030 K. C.	740 to 1300 K. C.
650 to 1100 K. C.	900 to 1470 K. C.
1160 to 1600 K. C.	

The procedure for adjusting the push buttons for reception of stations will be found on page 9, the only difference being that the frequency range of each button is different.

Philco television sets and record players contain instructions for setting up and adjusting the push-button in model 40-135.

TUNING RANGES: 540 to 1550 K. C.; 1.5 to 3.3 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 115 volts A. C., 60 cycles.

POWER CONSUMPTION: 35 watts.

AUDIO OUTPUT: 1½ watts.

PHILCO TUBES USED: 7C7, R. F.; 7A8, Oscillator and Detector; 7B7, I. F.; 7C6, Second Detector, First Audio; 7B5, Output; 7Y4, Rectifier.

CABINET DIMENSIONS:
Height, 10⅛"; Width, 14½"; Depth, 8⅛".

40-170CS

Models 40-135 and 40-170 are similar in design with the exception of the cabinets, speakers, and several circuit changes. The Service information for Model 40-135 covers the Model 40-170 with the exception of the part changes listed below.

Sche. No.	Description	Part No.
1	Loop Assembly	38-9985
3	Mica Condenser	30-1140
30	Tubular Condenser (.006 mfd., 600 V.)	30-4504
31	Tubular Condenser (.02 mfd., 600 V.)	30-4599
34	Cone and Voice Coil Assembly (For Speaker Part No. 36-1480-3)	36-4086
	Cable (A. C.)	L-3240
	Cabinet	10453A
	Speaker	36-1480

ALIGNING R. F. AND I. F. COMPENSATORS

(See page 9 for Push Button Adjustments)

EQUIPMENT REQUIRED

(1) **Signal Generator:** Philco Model 077 Signal Generator which has a fundamental frequency range from 115 to 36,000 K. C. is the correct instrument for this purpose.

(2) **Aligning Indicator:** Philco Models 027 or 028 Vacuum Tube Voltmeters and Circuit Testers incorporate sensitive vacuum tube voltmeters and audio output meters and are recommended.

(3) Philco Fiber Handle Screw Driver, Part No. 45-2610, Aligning adaptor Part No. 45-2767, when using the vacuum tube voltmeter for alignment.

CONNECTING ALIGNING METERS

Audio Output Meter: Philco Model 027 or 028 Audio Output Meters is connected to the voice coil terminals of the speaker or the plate and screen of the 7B5 tube and adjusted for the 0 to 10 volt A. C. scale.

Vacuum Tube Voltmeter: To use the Vacuum Tube Voltmeter as an alignment indicator make the following connections:

(1) **Adjusting I. F. Circuit:** Remove the 7C7 R. F. tube from its socket and insert the aligning adaptor, 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.

(2) **Adjusting R. F. Circuit:** To adjust the R. F. circuit, the aligning adaptor is inserted in the 7C6 second detector tube socket. The vacuum tube voltmeter remains connected to the adaptor as given in the paragraph above. With the voltmeter connected in this manner a very sensitive indication of the A. V. C. voltage is obtained when the padders are adjusted.

After connecting the aligning adaptors, adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in Fig. 1. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	No. 1 Ter. on Panel Note B	455 K. C.	580 K. C.	Vol. Cont. Max. Range Switch "Brdcst"	21B, 21A, 18B, 18A	Dial Push-Button "In" Model 40-125
2	Loop Note C	1500 K. C.	1500 K. C.	Vol. Cont. Max. Range Switch "Brdcst"	9A, 1A Note D	Note A

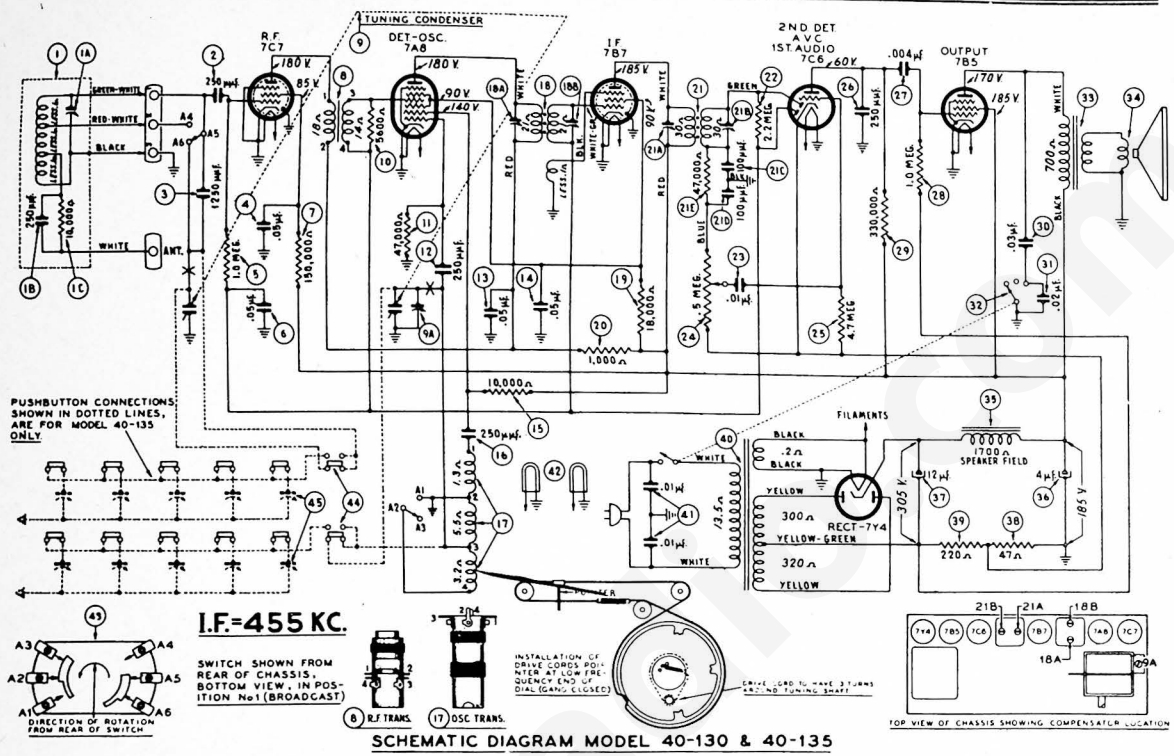
NOTE A — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the extreme left index line at the low frequency end of the broadcast scale.

NOTE B — When adjusting the I. F. padders the high side of the signal generator output is connected through a .1 mfd. condenser to terminal No. 1 of the loop terminal panel at the rear of the chassis. The ground or low side of the generator is connected to the chassis of the receiver.

NOTE C — When aligning the R. F. a loop is made from a few turns of wire and connected to the signal generator output terminals; the signal generator is then placed two or three feet from the loop in the cabinet.

NOTE D — Oscillator compensator (9A) is located on top of the tuning condenser. Antenna compensator (1A) is located on the loop. When adjusting the "ANT" compensators the receiver loop should be held in place against the back of the cabinet.

MODELS 40-130, 40-135 and 40-170CS



SCHEMATIC DIAGRAM MODEL 40-130 & 40-135

REPLACEMENT PARTS

SCHE. No.	DESCRIPTION	PART No.
1	Loop Assembly	38-9891
1A	Compensator	31-6318
1B	Mica Cond. (250 mmfd.)	61-0033
1C	Resistor (10,000 ohms, ½ watt)	33-310339
2	Mica Cond. (250 mmfd.)	61-0033
3	Mica Cond. (1250 mmfd.)	5886
4	Tubular Cond. (.05 mfd.)	30-4518
5	Resistor (1.0 meg., ½ watt)	33-510339
6	Tubular Cond. (.05 mfd.)	30-4518
7	Resistor (150,000 ohms, ½ watt)	33-415339
8	R. F. Transformer	32-3283
9	Tuning Condenser	31-2374
10	Resistor (5600 ohms, ½ watt)	33-256339
11	Resistor (47,000 ohms, ½ watt)	33-347339
12	Mica Cond. (250 mmfd.)	61-0033
13	Tubular Cond. (.05 mfd.)	30-4518
14	Tubular Cond. (.05 mfd.)	30-4518
15	Resistor (10,000 ohms, ½ watt)	33-310339
16	Mica Cond. (250 mmfd.)	61-0033
17	Oscillator Transformer	32-3212
18	1st I. F. Trans. Assy.	32-3210
19	Resistor (18,000 ohms, 1 watt)	33-318439
20	Resistor (1,000 ohms, ½ watt)	33-210339
21	2nd I. F. Trans. Assy.	32-3281
22	Resistor (2.2 meg., ½ watt)	33-522339
23	Tubular Cond. (.01 mfd.)	30-4572
24	Volume Control (.5 meg.)	33-5332
25	Resistor (4.7 meg., ½ watt)	33-547339
26	Mica Cond. (250 mmfd.)	61-0033
27	Tubular Cond. (.004 mfd.)	30-4576
28	Resistor (1.0 meg., ½ watt)	33-510339
29	Resistor (330,000 ohms, ½ watt)	33-433339
30	Tubular Cond. (.03 mfd.)	30-4449
31	Tubular Cond. (.02 mfd.)	30-4481
32	Tone Control and On-Off Switch	42-1520
33	Output Transformer	32-8063
34	Cone and Voice Coil Assy. (Spkr. Part No. 36-1478-3)	36-4085
35	Field Coil (Replace Spkr. Part No. 36-1478)	
36	Electrolytic Cond. (4 mfd., 400 V.)	30-2401
37	Electrolytic Cond. (12 mfd., 400 V.)	30-2409
	Electrolytic Condenser 20 mfd., 400 V. (25 cycle operation)	30-2438
38	Resistor (47 ohms, ½ watt)	33-047331
39	Resistor (220 ohms, 1 watt)	33-122431
40	Power Trans. (115 V., 50-60 cycles)	32-8064
	Power Transformer (115 V., 25 cycle)	32-8075
	Power Transformer (220 V., 60 cycle)	32-8093
41	Bakelite Cond. (.01-.01 mfd.)	3903-DQ
42	Pilot Lamps	44-2064
43	Wave Switch	42-1494
44	Pushbutton Switch (Model 40-135 only)	42-1518
45	Padder Strip (Model 40-135 only)	31-6315

MISCELLANEOUS PARTS

Cabinet (Model 40-130)	10394A
Cabinet (Model 40-135)	10394B
Cable and Plug (Power Supply)	L-3109
Clip (R. F. and Osc. Trans. Mtg.)	28-5002
Dial	27-5506
Drive Cord Assy. (Pointer)	31-2399
Drive Cord Assy. (Tuning Cond.)	31-2400
Escutcheon (Pushbutton) (Model 40-135)	28-8742
Escutcheon Pin (Model 40-135)	W-1074
Insulating Bushing (Insulate Drive Shaft)	27-9437
Knobs (Tuning, Tone, Volume and Wave Switch)	27-4332
Knobs (Pushbutton, Model 40-135)	27-4824
Pilot Lamp Socket Assy.	38-9904
Pointer	56-1832

SCHE. No.	DESCRIPTION	PART No.
	Rubber Bushing (Tuning Cond. Drive)	27-9432
	Spring (Drive Cord, Tuning Cond.)	28-8751
	Spring (Drive Cord, Pointer)	28-8953
	Spring (Tuning Shaft Assy.)	28-8955
	Speaker	36-1478
	Socket (Loktal, all tubes)	55-0575
	Tuning Shaft	56-6052
	Tuning Drive Drum Assy.	38-9883
	Tab (Dial, Model 40-135)	27-5526
	Tab (Television, Model 40-135)	27-9450
	Tab Kit (Model 40-135)	40-6473
	Washer "C" Type, Tuning Shaft)	28-2043

PRIMARY WIRING FOR 220 VOLT OPERATION — TRANSFORMER 32-8093

Power Supply—
220 Volt.....Red and Yellow to White
110 Volt.....Red to White

Connect Together—
220 Volt.....Black and White to Red
110 Volt.Black & White to Red & Yellow

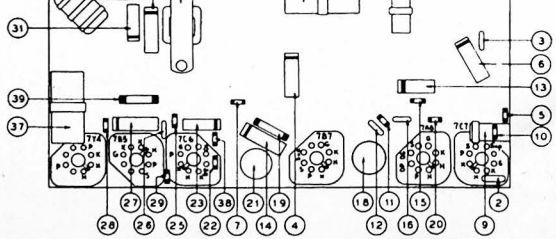


FIG. 1. PART LOCATIONS, UNDERSIDE OF CHASSIS.

PRODUCTION CHANGES

MODELS 40-130 RUN 3, 40-135, 40-170CS

To prevent oscillation at the low end of the broadcast band and 2nd I. F. transformer (21) changed from Part No. 32-3281 to Part No. 32-3382.

MODEL 40-170CS

The speaker, Part No. 36-1480-3 and cone assembly, Part No. 36-4086 listed in No. 1 change notice for Model 40-170CS has been changed on later production receivers to speaker 36-1480-4. The cone assembly for this new speaker is 36-4136.