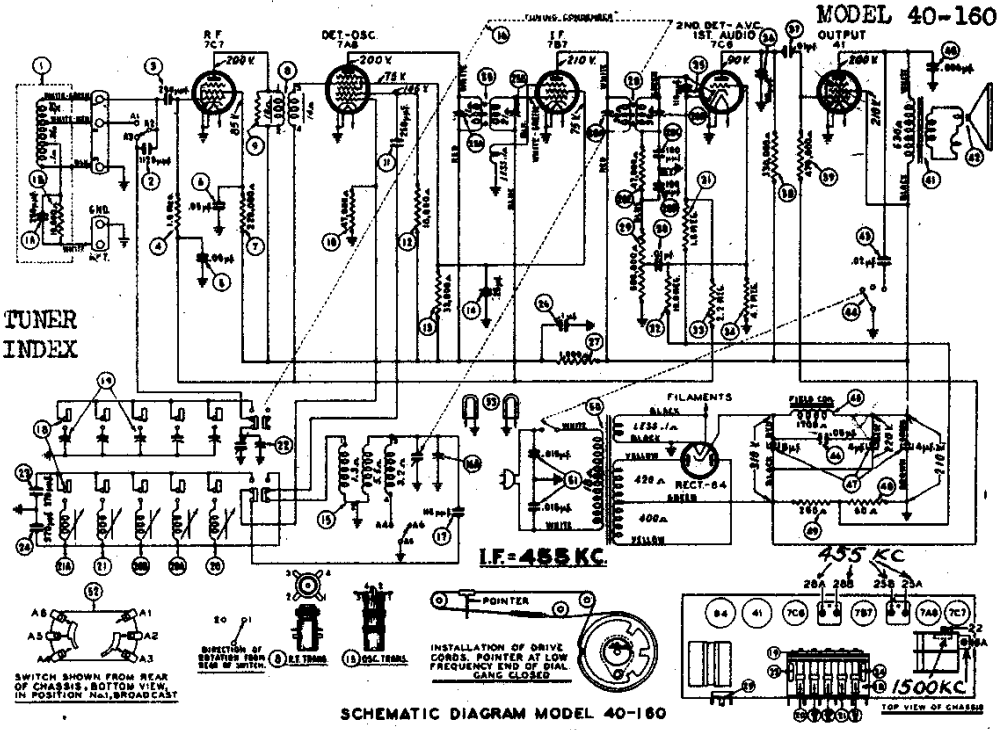
Philco Radio & Television Corp.

	Model: 40-140	**Chassis:**	**Year:** Pre June 1940
	Power:	**Circuit:**	**IF:**
	Tubes:		
	Bands:		

Resources
Riders Volume 12 - PHILCO 12-21
Riders Volume 11 - PHILCO 11-50
Riders Volume 11 - PHILCO 11-53

PHILCO RADIO & TELEVISION CORP.

MODELS 40-130,
40-135, 40-170CS
MODEL 40-140, 40-145
MODEL 40-160

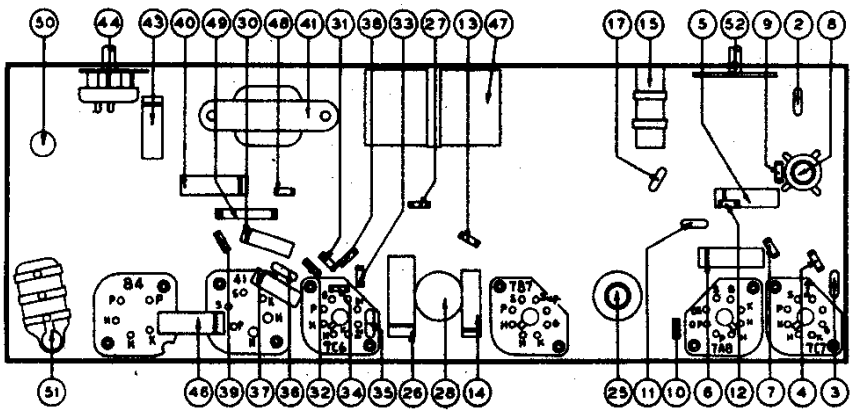


SCHEMATIC DIAGRAM MODEL 40-160

FOR TUNER SEE INDEX

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOL. VIII

Run 3 — To prevent oscillation on push-button tuning, resistors (9) **Part No.** 33-268339 were removed from R. F. transformer (9) secondary. A new resistor Part No. 33-260339 is now added across primary winding of the same transformer.



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

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. 32-3282.

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.

PRODUCTION CHANGES

MODEL 40-140

Dial Scale changed from Part No. 27-5507 to Part No. 27-3552.
Tone Control (27) changed from Part No. 42-1498 to 33-3333.

Dial Scale changed from Part No. 27-5507 to Part No. 27-5369.
Tone Control (27) changed from Part No. 42-1496 to 33-3333.

MODELS 40-140, 40-145

Operates on 115 volt, 25 cycle and 220 Volt, 60 Cycle Current by changing the Power Transformer (52) Part No. 32-8064, 115 volt, 60 cycle to Part No. 32-8063, 230 volt, 60 cycle. In addition, Electrolytic Condenser (49) Part No. 30-2400, 12 mfd., 400 volts must be changed to Part No. 30-2436, 20 mfd., 400 volts. 220 volts, 60 cycle current by changing the power transformer (52), from Part No. 32-8064, 115 volts, 60 cycle to Part No. 32-8063 can be operated on either 115 or 220 volts, 60 cycle current by connecting the primary wiring as listed below:

110 Volts—Red to White.
110 Volts—Black and White to Red.
220 Volts—Black and Yellow to Red.
Connect together—Red and White to Red.

To prevent oscillation at the low end of the broadcast band and 2nd I. F. transformer (33) changed from Part No. 32-3281 to Part No. 32-3282.

Model 40-145	Original Part No.	New Part No.
Cabinet	10395A	10444B
R. C. Loop	38-9985	76-1009

MODEL 40-160

Model 40-145	Original Part No.	New Part No.
Cabinet	10395A	10444B
R. C. Loop	38-9985	76-1009

MODEL 40-81(121,122)
MODEL 40-88(121)
MODELS 40-140,40-145,
40-507

PHILCO RADIO & TELEV. CORP.

Alignment

Models 40-140, 40-145, 40-507.

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED

1. **Signal Generator** with a frequency range from 115 to 36,000 K. C., such as Philco Model 077.

2. **Aligning Indicator,** Philco Model 027 or 028, vacuum tube voltmeter and circuit tester incorporates sensitive audio output meters and vacuum tube voltmeters. Either of these instruments can be used as an aligning indicator.

3. **Fibre Handle Screw Driver,** Philco Part No. 45-2610. When using the vacuum tube voltmeter for aligning the receiver, an aligning adaptor Part No. 45-2767 is required.

CONNECTING ALIGNING METERS

1. **Audio Output Meter:** If the Philco Models 027 and 028 audio output meters are used, they are connected to the speaker voice coil terminals or the plate and screen terminals of the 7B5 tube. Adjust the meter to use the 0 to 10 volt A. C. scale.

2. **Vacuum Tube Voltmeter:** To use the vacuum tube voltmeter as an aligning indicator make the following connections:

Adjusting I. F. Circuit: Remove the 1232 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.

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 Schematic Diagram. If the aligning 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	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	No. 1 Ter. on Loop Panel Note B	455 K. C.	580 K. C.	Vol. Cont. Max. Range Switch "Brdcst"	33A, 33B, 28A, 28B	Dial Push-Button "In" Model 40-145
2	Use Loop, Note C	18.0 M. C.	18.0 M. C.	Vol. Cont. Max. Range Switch "S.W."	27A, 2A, Note D	Check Image at 17.090 K. C.
3	Use Loop, Note C	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	25A, 1A	Note A
4	Use Loop, Note C	580 K. C.	580 K. C.	Range Switch "Brdcst"	25	Roll Tuning Condenser
5	Use Loop, Note C	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	25A, 2A	
6	Use Loop, Note C	18.0 M. C.	18.0 M. C.	Range Switch "S.W."	2A, Note D	Roll Tuning Condenser & Adjust Padder to First Peak from Tight Position

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. Circuits a loop is made from a few turns of wire and connected to the generator output terminals; the signal generator is then placed two or three feet from the loop in the cabinet.

NOTE D — S. W. Oscillator compensator (27A) is located on top of the tuning condenser. Antenna compensators (1A) and (2A) are located on the loop. When adjusting the "Ant" compensators, the receiver loop should be held in place against the back of the cabinet.

Models 40-81, Codes 121, 122

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.	1500 K. C.	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

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.

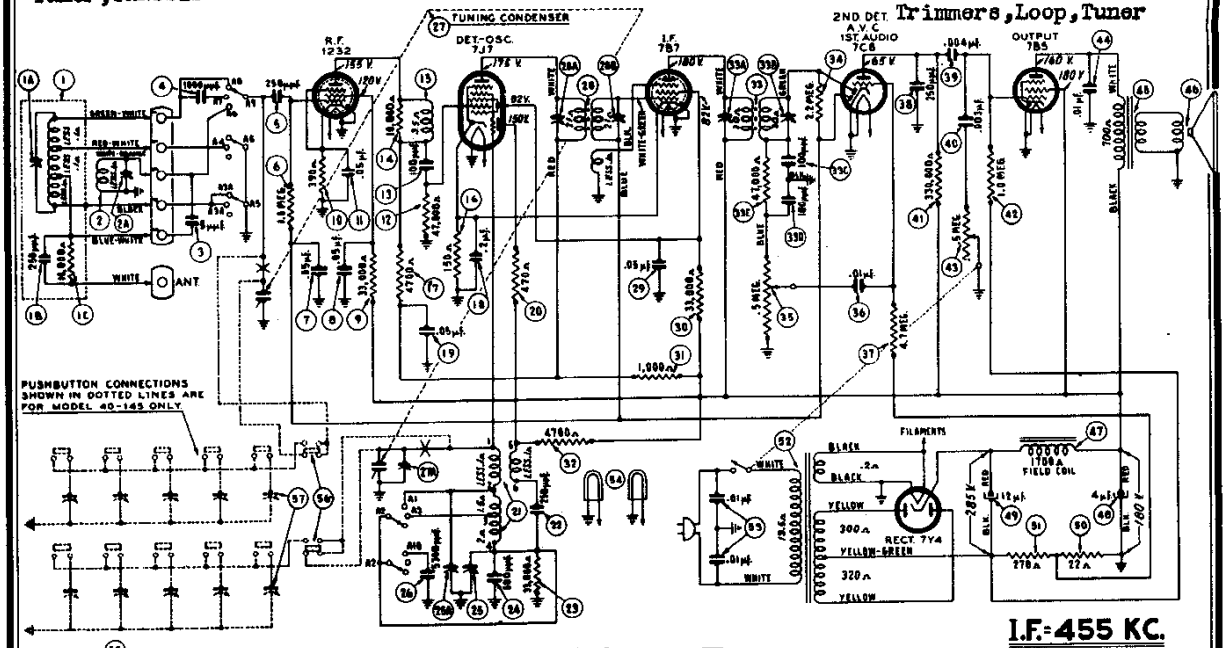
BATTERY CURRENT: "A" Battery, 200 M. A. Model 40-81 Battery, 5.6 M. A.

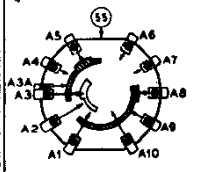
BATTERY CURRENT: "A" Battery, 250 M. A. Model 40-88 "B" Battery, 8 M. A.

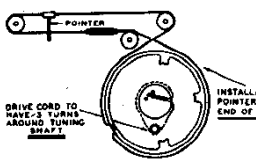
MODEL 40-507
Tuner, Chassis

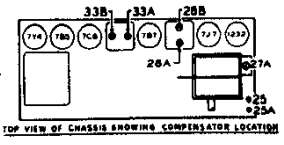
PHILCO RADIO & TELEV. CORP.

MODELS 40-140, 40-145
Schematic, Voltage, Chassis
2ND DET. A.V.C. 1ST AUDIO 7C6 Trimmers, Loop, Tuner









SCHEMATIC DIAGRAM MODEL 40-140 & 40-145

JUNE, 1939.

FOR OTHER DATA SEE INDEX

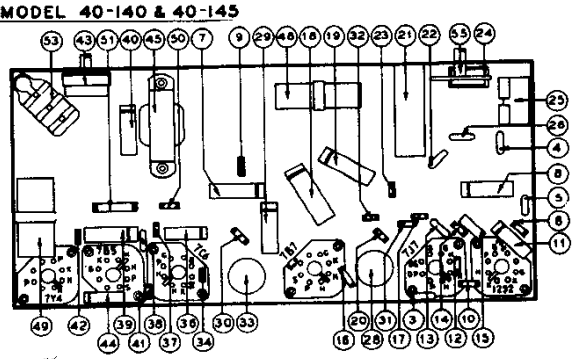


*FIG. 1. PART LOCATIONS, UNDERSIDE OF CHASSIS.

Replacement Parts

SCHE. No.	DESCRIPTION	PART No.
1	Loop Assembly (Broadcast)	38-8892
1A	Compensator	31-4318
1B	Mica Cond. (250 mmfd.)	61-0033
1C	Resistor (10,000 ohms, ½ watt)	33-310339
2	Loop Assembly (Short Wave)	38-8893
2A	Compensator	31-4320
3	Mica Cond. (5 mmfd.)	30-1097
4	Mica Cond. (1000 mmfd.)	30-1098
5	Mica Cond. (250 mmfd.)	61-0033
6	Resistor (1.0 meg., ½ watt)	33-510339
7	Tubular Cond. (.05 mfd.)	30-4818
8	Tubular Cond. (.05 mfd.)	30-4818
9	Resistor (33,000 ohms, ½ watt)	33-333339
10	Resistor (380 ohms, ½ watt)	33-138331
11	Tubular Cond. (.05 mfd.)	30-4818
12	Resistor (47,000 ohms, ½ watt)	33-347339
13	Mica Cond. (100 mmfd.)	30-1186
14	Resistor (10,000 ohms, ½ watt)	33-310339
15	R. F. Transformer	32-3184
16	Resistor (150 ohms, ½ watt)	33-115331
17	Resistor (4700 ohms, ½ watt)	33-247339
18	Tubular Cond. (.2 mfd.)	30-4536
19	Tubular Cond. (.05 mfd.)	30-4818
20	Resistor (470 ohms, ½ watt)	33-147339
21	Oscillator Transformer	32-3181
22	Mica Cond. (250 mmfd.)	61-0033
23	Resistor (23,000 ohms, ½ watt)	33-323339
24	Silver Mica Cond. (800 mmfd.)	30-1238
25	Compensator (2 section)	31-6317
26	Mica Cond. (5300 mmfd.)	30-1134
27	Tuning Condenser	31-2378
28	1st I. F. Trans. Assy.	32-3210
29	Tubular Cond. (.05 mfd.)	30-4818
30	Resistor (33,000 ohms, ½ watt)	33-333339
31	Resistor (1,000 ohms, ½ watt)	33-310339
32	Resistor (4700 ohms, ½ watt)	33-247339
33	2nd I. F. Trans. Assy.	32-3211
34	Resistor (2.2 meg., ½ watt)	33-522339
35	Volume Control (5 meg.)	38-8319
36	Tubular Cond. (.01 mfd.)	30-4672
37	Resistor (4.7 meg., ½ watt)	33-547339
38	Mica Cond. (250 mmfd.)	61-0033
39	Tubular Cond. (.004 mfd.)	30-4878
40	Tubular Cond. (.002 mfd.)	30-4580
41	Resistor (330,000 ohms, ½ watt)	33-233339
42	Resistor (1.0 meg., ½ watt)	33-510339
43	Tone Control (.5 meg.) & On-Off Switch	38-8333
44	Tubular Cond. (.01 mfd.)	30-4672
45	Output Transformer	32-3063
46	Cone and Voice Coil Assy. (Spkr. Part No. 36-1478-2)	36-4068
47	Field Coil (Replace Spkr. Part No. 36-1479)	
48	Electrolytic Cond. (4 mfd., 400 V.)	30-2401
49	Electrolytic Cond. (1½ mfd., 400 V.)	30-2409
50	Resistor (22 ohms, ½ watt)	33-022331
51	Resistor (270 ohms, 1 watt)	33-127451
52	Power Trans. (115 V., 50-60 cycles)	32-3064
53	Line Condenser (.01-.01 mfd.)	3903-000
54	Pilot Lamps	42-1494
55	Wave Switch	42-1498
56	Push Button Switch (Model 40-145 only)	42-1528
57	Padder Strip (Model 40-145 only)	31-6316

MISCELLANEOUS PARTS

DESCRIPTION	PART No.
Cable and Plug Assy. (Power Supply)	L-3199
Cabinet (Model 40-140)	103681A
Cabinet (Model 40-145)	103688B
Clip (Mtg. Osc. Coil)	28-5003
Drive Cord Assy. (Pointer)	31-2398
Drive Cord Assy. (Tuning Cond.)	31-2400
Dial	27-2507
Escutcheon (Pushbuttons, Model 40-145)	28-5742
Escutcheon Pin (Model 40-145)	W-1074
Insulating Bushing (Drive Shaft)	27-8437
Knobs (Tuning, Tone, Vol., Wave Switch)	27-4332
Knobs (Pushbuttons, Model 40-145)	27-4824
Pilot Lamp Socket Assy.	38-8904
Pointer	96-1832
Rubber Bushing (Tuning Cond. Drive)	27-9422
Spring (Tuning, Drive Cord)	28-8751
Spring (Pointer, Drive Cord)	28-8852
Spring (Tuning Shaft Assy.)	28-8853
Speaker	36-1478
Sockets (Loktal Tubes)	27-0278
Tuning Shaft	38-8892
Tuning Drive Drum Assy.	38-8883
Tab (Dial, Model 40-145)	27-3459
Tab (Television, Model 40-145)	27-4480
Tab Kit (Model 40-145)	40-8473
Washer ("C" Type, Tuning Shaft)	28-3043

PHILCO BUILT-IN SUPER AERIAL SYSTEM:

Included in the built-in super aerial system is a statically shielded loop for broadcast band reception and a short wave receiving loop. A feature of the built-in broadcast band statically shielded loop is that the receiver may be turned to the position in which it picks up a minimum amount of interference, 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: Three tuning ranges; special high gain R. F. stage; Philco high-efficiency Loktal tubes; 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 40-140 is dial tuned and assembled in cabinet type "T" (Table model).

* Model 40-145 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 procedure for adjusting the push buttons to broadcast stations is the same as that contained in "volume ten."

The frequency coverage of each push button is 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.	

Philco television sets and record players contain information for adjusting the push button on the 40-145.

TUNING RANGES: 540 to 1550 K. C. 1.5 to 3.3 M. C. 5.7 to 18.0 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

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

POWER CONSUMPTION: 38 watts.

AUDIO OUTPUT: 2 watts.

PHILCO TUBES USED: 1232, R. F.; 7J7, converter; 7B7, I. F.; 7C6, second detector, AVC and first audio; 7B5, audio output and 7Y4, rectifier.

*See Philco page 10-16.

*APPLIES TO MODEL 40-507 ALSO