



Models 28, 29, 31, 36, 45

SPECIFICATIONS

MODELS 28 & 29

TYPE OF CIRCUIT: A five tube superheterodyne radio receiver employing the new LOKTAL type tubes, and with a built-in antenna system.

POWER SUPPLY: 115 volts, 25 to 60 cycle A.C.
115 volts D.C.

POWER CONSUMPTION: 30 watts.

FREQUENCY TUNING RANGE: 540 to 1580 K.C.

INTERMEDIATE FREQUENCY: 460 K.C.

AUDIO OUTPUT: 1 watt.

PHILCO TUBES USED: 7A8E Converter; 7B7E I.F.; 7C6 2nd Detector, 1st Audio and A.V.C.
35A5E Power Output; 35Z3 Rectifier.

CABINET DIMENSIONS: Model 29, 10 $\frac{3}{4}$ " x 7" x 6 $\frac{1}{2}$ " wood.

MODELS 31 & 36

TYPE OF CIRCUIT: A five tube superheterodyne radio receiver employing the new LOKTAL type tubes, and with a built-in antenna system.

POWER SUPPLY: 115 volts, 25 to 60 cycle A.C.
115 volts D.C.

POWER CONSUMPTION: 30 watts.

FREQUENCY TUNING RANGE: 540 to 1580 K.C.

INTERMEDIATE FREQUENCY: 460 K.C.

AUDIO OUTPUT: 1 watt.

PHILCO TUBES USED: 7A8E Converter; 7B7E I.F.; 7C6 2nd Detector, 1st Audio and A.V.C.
35A5E Power Output; 35Z3 Rectifier.

CABINET DIMENSIONS: Model 31, 8 $\frac{1}{2}$ " x 4" x 5 $\frac{1}{2}$ " bakelite.

Model 36, 9 $\frac{1}{4}$ " x 4 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ " wood.

MODEL 45

TYPE OF CIRCUIT: A five tube superheterodyne radio receiver employing the new LOKTAL type tubes.

POWER SUPPLY: 115 volts, 25 to 60 cycle A.C.
115 volts D.C.

POWER CONSUMPTION: 30 watts.

FREQUENCY TUNING RANGE: 540 to 1720 K.C.

AUDIO OUTPUT: 1 watt.

PHILCO TUBES USED: 7A8E Converter; 7B7E I.F.; 7C6 2nd Detector, 1st Audio and A.V.C.
35A5E Power Output; 35Z3 Rectifier.

CABINET DIMENSIONS: 8 $\frac{1}{2}$ " x 4 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ " bakelite.

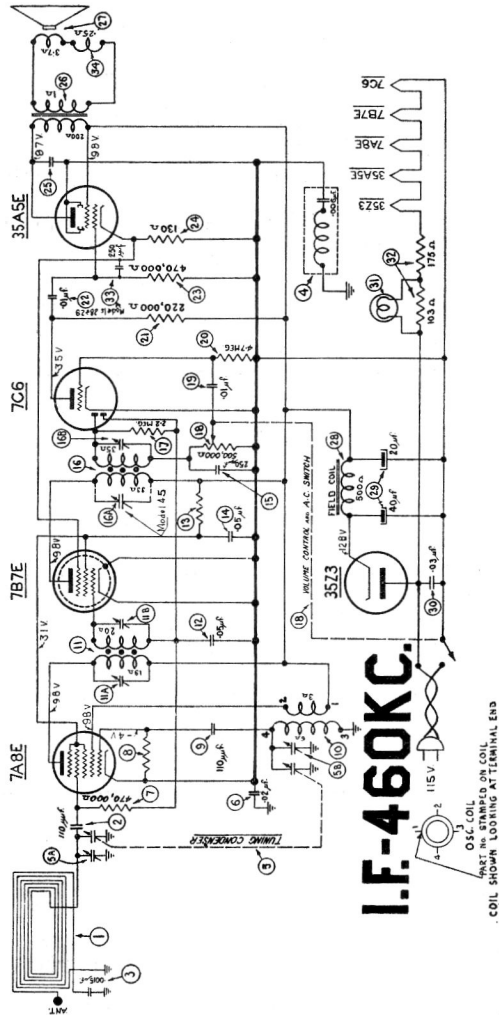
For best reception in steel reinforced buildings or in locations remote from broadcasting stations the PHILCO Utility Aerial, Part No. 45-2450 is recommended for Models 28, 29, 31 and 36 and for Model 45 PHILCO Utility Aerial Part No. 40-6370 is recommended.

For touching up a wood cabinet PHILCO Cabinet Touch-up Kit, Part No. 45-1326 is recommended.

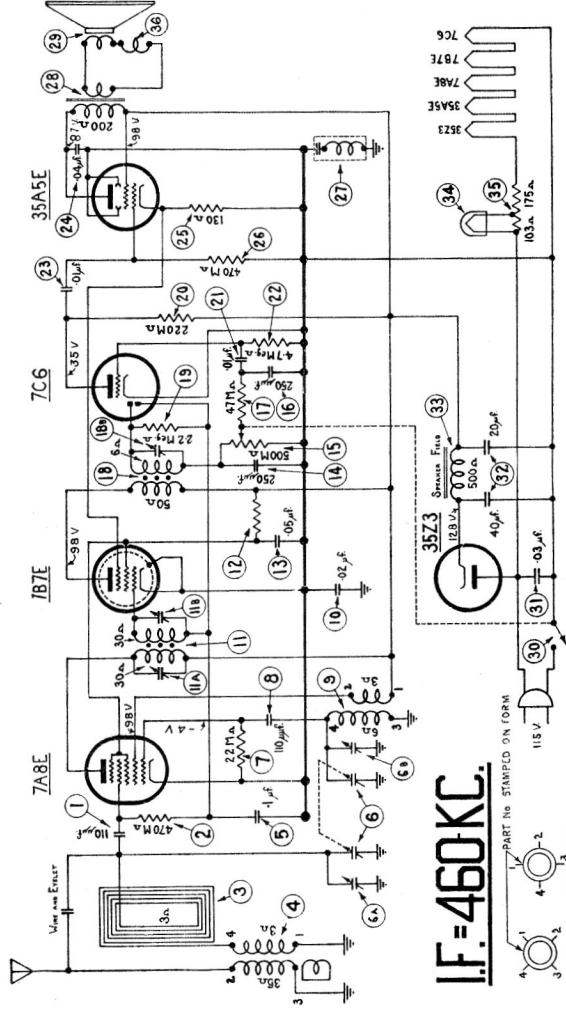
PHILCO Polish, Part No. 45-1175 gives an excellent gloss finish to bakelite cabinets.

SCHEMATIC DIAGRAMS

Models 28, 29, 31, 36, 45



Models 28 and 29



Models 31 and 36

PHILCO REPLACEMENT PARTS — MODELS 28 & 29

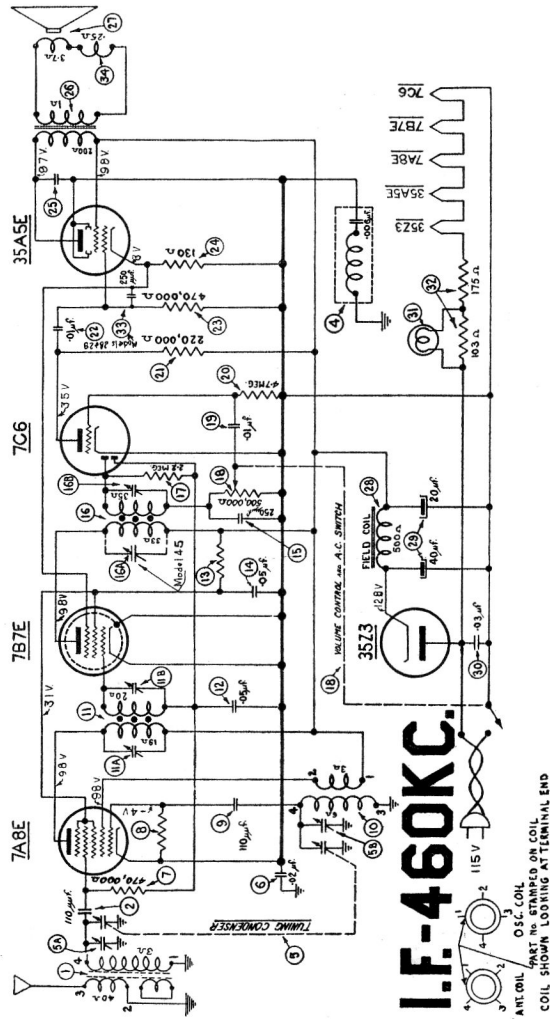
Schem. No.	Description	Philco Part No.
1.	Loop Antenna	32-8179
2.	Mica Condenser (110 mmfd.)	30-1180
3.	Tube Cond. (.0015 mfd., 200 v)	30-4555
4.	Choke and Condenser Assembly	31-2448
5.	Tuning Condenser	30-4516
6.	Tubular Cond. (.02 mfd., 400 v)	33-447344
7.	Resistor (470,000 ohms, 1/2 watt)	33-322344
8.	Resistor (22,000 ohms, 1/2 watt)	30-1130
9.	Mica Condenser (110 mmfd.)	32-3182
10.	Oscillator Coil	32-3365
11.	1st I.F. Transformer	30-4519
12.	Tubular Cond. (.05 mfd., 200 v)	33-327344
13.	Resistor (27,000 ohms, 1/2 watt)	30-4519
14.	Tubular Cond. (.05 mfd., 200 v)	30-4519
15.	Mica Condenser (250 mmfd.)	30-125157
16.	2nd I.F. Transformer	32-3366
17.	Resistor (2.2 megohms, 1/2 watt)	33-522344
18.	Volume Control and A.C. Switch	33-5306
19.	Tubular Cond. (.01 mfd., 200 v)	30-4479
20.	Resistor (4.7 megohms, 1/2 watt)	33-547344
21.	Resistor (220,000 ohms, 1/2 watt)	33-422344
22.	Tubular Cond. (.01 mfd., 400 v)	30-4572
23.	Resistor (470,000 ohms, 1/2 watt)	33-447344
24.	Resistor (130 ohms, 1/2 watt)	33-113336
25.	Tubular Cond. (.04 mfd., 400 v)	30-4119
26.	Output Transformer	32-8105
27.	Cone Voice Coil and Spider Assembly	36-4113
28.	Field Coil	32-9564
29.	Elect. Cond. (40-20 mfd., 150 v)	30-2391

COIL SHOWN LOOKING AT TERMINAL END

PHILCO REPLACEMENT PARTS — MODELS 31 & 36

Schem. No.	Description	Philco Part No.
1.	Mica Condenser (110 mmfd.)	30-11157
2.	Resist. (470,000 ohms, 1/3 watt)	33-447244
3.	Loop Antenna, Model 31	318-2017
4.	Loop Antenna, Model 36	76-1053
5.	Antenna Coil	32-3394
6.	Tubular Cond. (.1 mfd., 200 v)	30-4586
7.	Tuning Condenser	31-2439
8.	Resistor (22,000 ohms, 1/3 watt)	33-322244
9.	Mica Condenser (110 mmfd.)	30-11157
10.	Oscillator Coil	32-3182
11.	Tubular Cond. (.02 mfd., 400 v)	30-4516
12.	1st I.F. Transformer	32-3407
13.	Resistor (47,000 ohms, 1/3 watt)	33-327244
14.	Model 36	33-347244
15.	Mica Condenser (.05 mfd., 200 v)	30-4519
16.	Volume Control and A.C. Switch	30-125157
17.	Mica Condenser (250 mmfd.)	30-125157
18.	Resist. (47,000 ohms, 1/3 watt)	32-3408
19.	2nd I.F. Transformer	32-347244
20.	Resist. (2.2 megohms, 1/3 watt)	33-522244
21.	Resistor (220,000 ohms, 1/3 watt)	33-422244
22.	Tubular Cond. (.01 mfd., 400 v)	30-4572
23.	Resist. (4.7 megohms, 1/3 watt)	33-547244
24.	Tubular Cond. (.01 mfd., 400 v)	30-4572
25.	Resistor (130 ohms, 1/2 watt)	33-113336
26.	Resist. (470,000 ohms, 1/3 watt)	33-447244
27.	Choke and Condenser Assembly	38-9957
28.	Output Transformer	32-8105
29.	Cone Voice Coil and Spider Assembly	36-4113
30.	Part of 15	33-5306
31.	Tubular Cond. (.03 mfd., 400 v)	30-4517
32.	Elect. Cond. (40-20 mfd., 150 v)	30-2391
33.	Field Coil	32-9564
34.	Pilot Lamp	32-9564

COIL SHOWN LOOKING AT TERMINAL END



Model 45

Many of the parts in these Philco models such as condensers and resistors, etc., are held to much closer tolerances than standard replacement parts. Genuine Philco Replacement Parts must be used to obtain satisfactory performance from these models.

NOTE—Voltages were measured with volume control maximum and gang closed. The line voltage was 115 volts and all measurements were made with a Philco Model 028 Vacuum Tube Voltmeter and Circuit Tester.

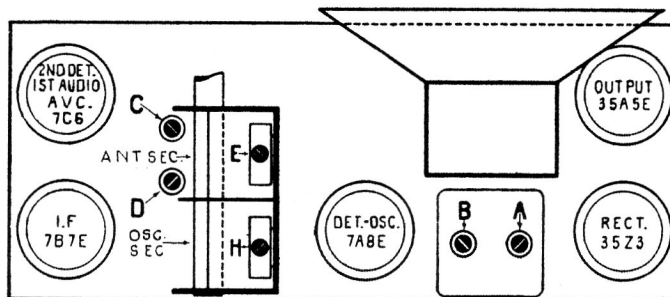
PHILCO REPLACEMENT PARTS — MODEL 45

Schem. No.	Description	Philco Part No.	Schem. No.	Description	Philco Part No.
1.	Antenna Transformer	32-3151	31.	Pilot Lamp	34-2068
2.	Mica Condenser (10 mmfd.)	60-111157	32.	Filament Resistor	33-3372
3.	Choke and Condenser Assembly	38-9957	34.	Bucking Coil	36-4144
4.	Tuning Condenser	31-2447		Speaker Complete	36-1492
5.	Tubular Cond. (.02 mfd., 400 v)	30-4516		Rivets for Speaker Pot	W-2107
6.	Resist. (470,000 ohms, 1/3 watt)	33-447244		Loktal Socket	27-6130
7.	Resist. (47,000 ohms, 1/3 watt)	33-347244		Rivet for Socket	W-208
8.	Mica Condenser (110 mmfd.)	60-111157		Coil Mounting Clip	28-5002
9.	Oscillator Coil	32-3152		Pinut (Control Mounting)	W-2157
10.	1st I.F. Transformer	32-3185		Drive Shaft	31-2370
11.	Tubular Cond. (.05 mfd., 200 v)	30-4519		Condenser Mounting Clip	56-1346
12.	Resist. (47,000 ohms, 1/3 watt)	33-347244		Pilot Lamp Socket Assembly	38-9825
13.	Tubular Cond. (.05 mfd., 200 v)	30-4519		Line Cord	L3199D
14.	Mica Condenser (250 mmfd.)	60-125157		Antenna Wire	I-3185
15.	2nd I.F. Transformer	32-3358		Drive Cord	31-2358
16.	Resist. (2.2 megohms, 1/3 watt)	33-522244		Drive Cord Ring	57-1240
17.	Volume Control and A.C. Switch	33-5306		Spring (Drive Cord)	28-8954
18.	Tubular Cond. (.01 mfd., 400 v)	30-4572		Dial Scale	27-5581
19.	Resist. (4.7 megohms, 1/3 watt)	33-547244		Snap Fastener (Dial Mounting)	56-1387
20.	Resist. (220,000 ohms, 1/3 watt)	33-522244		Pointer	27-4891
21.	Tubular Cond. (.01 mfd., 400 v)	30-4572		Cabinet (Brown)	10455A
22.	Resist. (470,000 ohms, 1/3 watt)	33-547244		Cabinet (Ivory)	10455B
23.	Resistor (130 ohms, 1/2 watt)	33-113344		Dial Window	27-5472
24.	Tubular Cond. (.02 mfd., 400 v)	30-4516		Baffle and Cloth Assembly	40-6520
25.	Output Transformer	32-3105		Chassis Mounting Screw	W-2110
26.	Cone Voice Coil and Spider Assembly	36-4113		Cabinet Back (Brown)	27-9511
27.	Field Coil	32-3564		Cabinet Back (Ivory)	27-9545
28.	Elec. Cond. (40-20 mfd., 150 v)	30-2391		Cabinet Back Mounting Screw	W-2062
29.	Tubular Cond. (.03 mfd., 400 v)	30-4517		Knob (Brown)	27-4809
30.				Knob (Ivory)	27-4950

ALIGNING COMPENSATORS MODELS 28, 29, 31, 36, 45

EQUIPMENT: To accurately adjust these receivers an accurately calibrated signal generator such as the Philco Model 177 is required. Maximum signal strength is shown by the use of a vacuum tube voltmeter and circuit tester such as the Philco Model 028. The vacuum tube voltmeter is connected in the circuit by using an aligning adapter, Philco Part No. 45-2767. The output indicator is connected as follows: Remove the 35A5E output tube from the socket, insert the aligning adapter in the tube socket, insert the tube in the top of the adapter, connect the light-coloured wire which protrudes from the side of adapter to negative (—) terminal of vacuum tube voltmeter. Attach positive (+) terminal of voltmeter to the black wire.

A fibre handle screwdriver, Philco Part No. 45-2610 and fibre wrench, Philco Part No. 7696, are the necessary aligning tools.



LOCATION OF COMPENSATORS

MODELS 28, 29, 31, 36 & 45

Operations in Order	SIGNAL GENERATOR		RECEIVER			Remarks
	Output Connections	Dial Frequency	Dial Frequency	Control Settings	Adjust Compensators for Maximum Signal	
1	High Side to Antenna Lead Section of Gang	460 K.C.	580 K.C.	Volume Max.	A, B, C, D	D on Model 45 only See Note A
2A	High Side to Antenna Lead	1500 K.C.	1500 K.C.	Volume Max.	H E	Models 28, 29, 31 & 36 See Note B & C
2B	High Side to Antenna Lead	1400 K.C.	1400 K.C.	Volume Max.	H E	Model 45
3	High Side to Antenna Lead	1000 K.C.	1000 K.C.	Volume Max.		Check Calibration
4	High Side to Antenna Lead	600 K.C.	600 K.C.	Volume Max.		Check Calibration

Note A: A dummy antenna consisting of a .1 mfd. condenser is connected in series with the high side of the signal generator output lead. This dummy is used for I.F. alignment only.

Note B: A dummy antenna for aligning the R.F. circuits consists of a 100 Mmfd. condenser in series with the high side of the signal generator output lead.

Note C: The dial must be aligned to track properly with the tuning condenser. This is accomplished by closing the tuning condenser (maximum capacity) and setting the pointer on the extreme left index dot at the low frequency (550 K.C.) end of the broadcast scale.