PHILCO
Radio Service Bulletin—No. 6

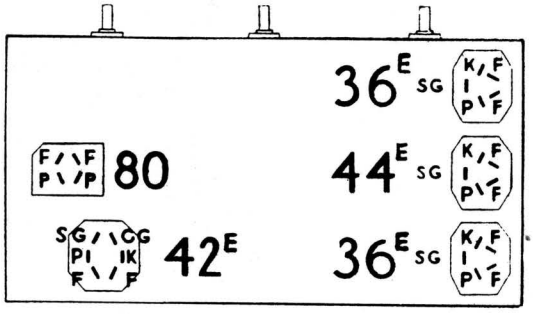
PHILCO RADIO & TELEVISION CORPORATION OF GREAT BRITAIN, LTD.

Model 56 Series

The Philco Radio of the 56 Series is an A.C. operated five valve superheterodyne designed for dual wave reception from 550 to 1,500 kilocycles (545 to 200 metres) and 150 to 300 kilocycles (2,000 to 1,000 metres). The new Philco high efficiency 6.3 volt filament valves, pentode output, and electro dynamic moving coil speaker are outstanding features of this model. The intermediate frequency used in adjusting the superheterodyne circuit is 125 K.C.

The power consumption of the various models is as follows :—

Chassis.	Volts.	Cycles	Watts.
56F	Tapped 200/230/260	40-100	55
56A	100/125	25-100	55
56E	210/240	50-100	55



F—Filament SG—Screen Grid K—Cathode
P—Plate CG—Control Grid

Fig. 1—Valve Sockets, Under Side of Chassis.

CAUTION.—Never connect the chassis to the power supply unless the speaker is connected and all valves are in place.

Table 1—Valve Socket Readings taken with Set Tester—A.C. Line 230 Volts.

Valve Type	Valve Circuit	Filament Volts	Plate Volts to Cathode	Screen Volts to Cathode	Control Grid Volts to Cathode	Cathode Volts to Chassis
36E	Det. Osc.	6.2	240	90	—4.5	6.5
44E	I.F.	6.2	225	75	—3.0*	3.0*
36E	2nd Det.	6.2	65	55	—4.5	4.5
42E	Output	6.2	235	245	—8.0	0
80	Rectifier	5.0	—	—	—	—

All of the above readings were taken from the under side of the chassis, using test prods and leads with a suitable A.C. voltmeter for filament voltages and a high resistance (300,000 ohm) multi-range D.C. voltmeter for all other readings. Volume control at maximum and station selector turned to low frequency end. Readings taken with a radio set tester and **plug-in adapter will NOT be satisfactory.**

* Volume control at maximum. Read 32 volts when volume control rotated to minimum position.

Table 2—Power Transformer Data

Terminals on Fig. 4.	A.C. Volts.	Circuit.	Wire Colour.
B-C	Type A 120 / " E 230	Primary	White
D-F	6.3	Filament	Black
G-H	5.0	Filament of 80	Light Blue
J-L	680	Plates of 80	Yellow
E	—	Centre Tap D-F	Black with Yellow
K	—	Centre Tap J-L	Yellow with Green

Table 3—Resistor Data

Nos. on Figs. 4 & 5.	Resistance (Ohms).	Power (Watts).	Colour. Body.	Tip.	Dot.
(23)	1,000	.5	Brown	Black	Red
(33)	32,000	1.0	Orange	Red	Orange
(8)	8,000	.5	Grey	Black	Red
(41)	25,000	1.0	Red	Green	Orange
(40)	32,000	1.0	Orange	Red	Orange
(27)	51,000	3.0	Green	Brown	Orange
(35)	51,000	.5	Green	Brown	Orange
(10)(34)(39)	99,000	.5	White	White	Orange
(48)	160,000	.5	Brown	Blue	Yellow
(38)(43)(47)	490,000	.5	Yellow	White	Yellow
(24)	250	.5	Combined with ·05 mfd. condenser		

On the F Type Transformer, common primary wire is White; 200-volt tap is Black and White; 230-volt tap is Green 260-volt tap is Red.

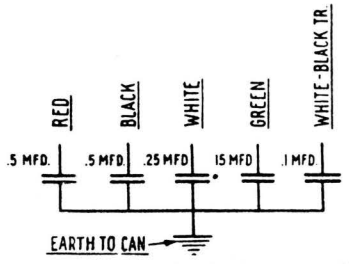


Fig. 2—Internal Connections Filter Condenser—50-100 Cycles.

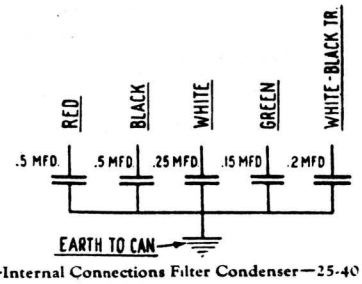


Fig. 3—Internal Connections Filter Condenser—25-40 Cycles.

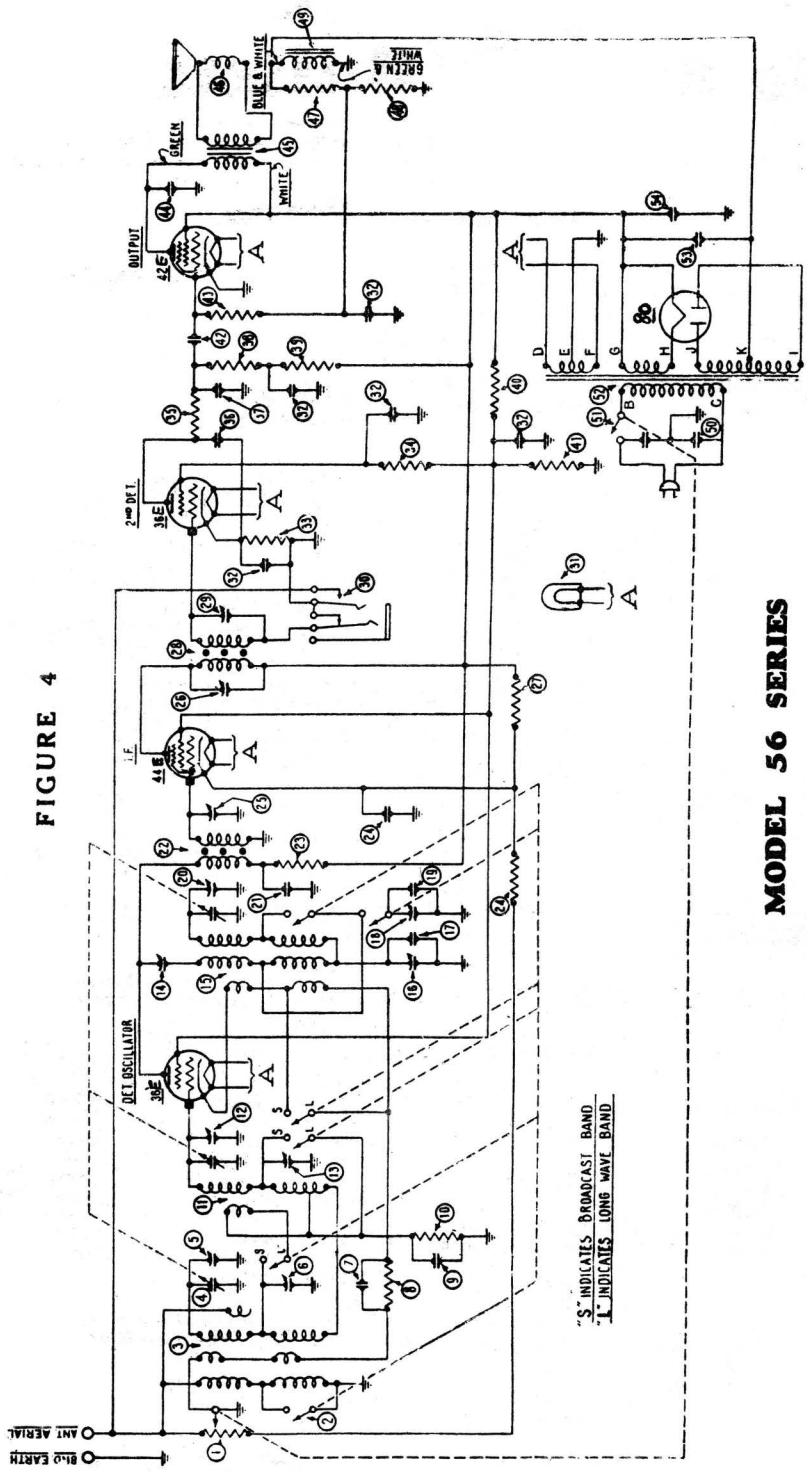


FIGURE 4

MODEL 56 SERIES

Fig. 3—Schematic Wiring Diagram

The accurate adjustment of receivers is completed before shipment from the factory. Subsequent adjustments should not be undertaken unless complete instruction has been obtained in the adjustment of the compensating condensers. An accurately calibrated Signal Generator is essential, and the PHILCO MODEL 048 ALL-PURPOSE SET TESTER, which contains a precision signal generator, is recommended.

The Intermediate Frequency padders should be adjusted first by feeding in a 125kc. signal to the grid cap of the type 36E Mod. Osc. valve, first throwing the wave change switch to the Long Wave position. Make sure that the Signal Generator is properly earthed to the receiver chassis, and have the Output Meter connected across the primary of the output transformer using the 10 or 20 volt range. Set the receiver volume control at maximum, and adjust the Signal Generator attenuator to give a half scale deflection on the Output Meter.

The I.F. padders to be adjusted are Nos. 14 and 25, first I.F., and Nos. 26 and 29, second I.F.

Now throw the W/c switch to the Broadcast position, and feed in a 1,400kc. signal to the 36E control grid, and tune this in accurately by means of the main tuning control. (First see that the trimmer No. 20 on the rear section of the gang is fully unscrewed to minimum capacity.) Without in any way upsetting the gang setting, transfer the Signal Generator feed to the aerial terminal, and adjust trimmers Nos. 12 and 5 on the middle and forward sections of the gang condenser for peak output.

Leave the Signal Generator feed on the aerial terminal for all remaining adjustments.

Feed in and tune in a 600kc. signal, and adjust padder No. 18 for peak output; retune and repad, repeat until no further gain obtainable.

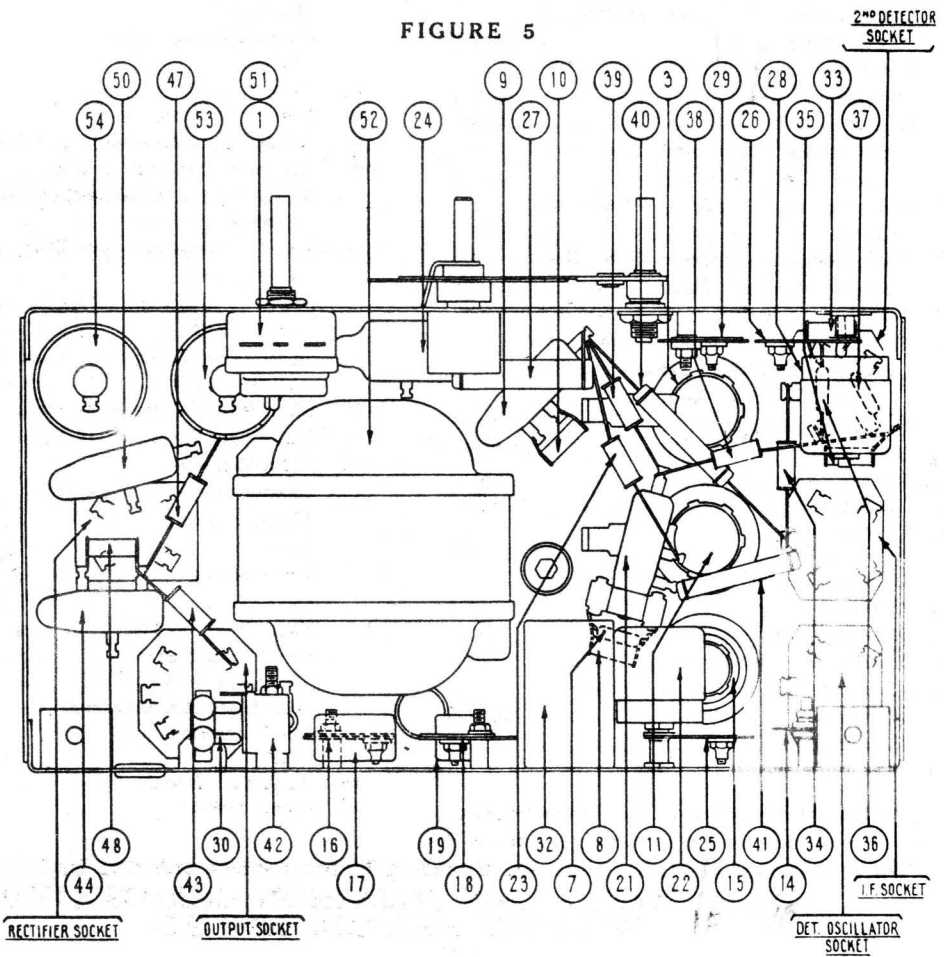
Throw W/c switch to Long wave position, and feed in and tune in a 300kc. signal. Adjust padders Nos. 6 and 13, which are located on the W/c switch assembly, for peak output.

Feed in and tune in a 150kc. signal andadjust padder No. 16 (located in 5th hole on right at rear of chassis) in the same manner as No. 18 for 600kc.

Adjustments are now completed.

NOTE.—If the Output Meter pointer swings off-scale during any adjustment, reduce Signal Generator attenuator to return it to half-scale reading.

FIGURE 5



Replacement Parts Models 56A, 56E and 56F

No. on Figs. 4 & 5.	Description.	Part No.
(1)	Volume Control (Combined with On-Off Switch)	7013
(2)	Wave Change Switch	05173
(3)	First Aerial Transformer*	05264
(4)	Tuning Condenser Assembly	05247
(5)	Compensating Condenser—Aerial Broadcast Band—Part of Tuning Condenser Assembly	
(6)	Compensating Condenser—Aerial, Long Wave Band	04000D
(7)	Condenser (700 mmf.) White and Yellow	5863
(8)	Resistor (8,000 ohms)	5838
(9)	Condenser (.05 mfd.)	3615AC
(10)	Resistor (99,000 ohms)	4411
(11)	Second Aerial Transformer*	05265
(12)	Compensating Condenser — Detector, Broadcast Band—Part of Tuning Condenser Assembly	
(13)	Compensating Condenser—Detector, Long Wave Band	04000D
(14)	Compensating Condenser — 1st I.F. Primary	04000A
(15)	Oscillator Coil*	05266
(16)	Compensating Condenser—Low Frequency (Long Wave Band)	04000F
(17)	Condenser (410 mmf.) Yellow and Orange	5120
(18)	Compensating Condenser—Low Frequency (Broadcast Band)	04000F
(19)	Condenser (1,400 mmf.) Red and Red	7007
(20)	Compensating Condenser—High Frequency (Broadcast Band)—Part of Tuning Condenser Assembly	
(21)	Condenser (.05 mfd.)	3615AC
(22)	First I.F. Transformer	05299
(23)	Resistor (1,000 ohms)	5837
(24)	Condenser (.05 mfd. and res. 250 ohms)	3615C
(25)	Compensating Condenser — 1st I.F. Secondary	04000D
(26)	Compensating Condenser — 2nd I.F. Primary	04000A
(27)	Resistor (51,000 ohms)	5868
(28)	Second I.F. Transformer	05300
(29)	Compensating Condenser — 2nd I.F. Secondary	04000A
(30)	Pick-up Input Jack	P-74
(31)	Pilot Light	6608
(32)	Filter Condenser Bank 50-100 Cycles (.1, .15, .25, 2.5 mfd.)	03915
	Filter Condenser Bank 25-40 Cycles (.15, .2, .25, 2.5 mfd.)	03945
(33)	Resistor (32,000 ohms)	3525
(34)	Resistor (99,000 ohms)	4411
(35)	Resistor (51,000 ohms)	4518
(36)	Condenser (250 mfd.) Yellow	3082
(37)	Condenser (250 mfd.) Yellow	3082
(38)	Resistor (490,000 ohms)	4517
(39)	Resistor (99,000 ohms)	4411
(40)	Resistor (32,000 ohms)	3525
(41)	Resistor (25,000 ohms)	3656
(42)	Condenser (.01 mfd.)	3903F
(43)	Resistor (490,000 ohms)	4517
(44)	Condenser (.01 mfd.)	3903K
(45)	Output Transformer	2660
(46	Voice Coil and Cone Assembly (P-2 and P16†)	02861
	Voice Coil and Cone Assembly (S-2 Large)	02887
(47)	Resistor (490,000 ohms)	4517
(48)	Resistor (160,000 ohms)	5331
(49)	Speaker Field Assembled with Pot (P16)	36-1012
(50)	Condenser (.01 mfd. double)	3903S
(51)	On-Off Switch (Combined with Volume Control)	7013
(52)	Power Transformer (230 Volts, 50-100 Cycles, 56E)	7012
	Power Transformer Tapped (40-100 Cycles, 56F)	7012F
	Power Transformer (110 Volts, 25-100 Cycles, 56A)	7011
(53)	Electrolytic Condenser (8 mfd.)	6706
(54)	Electrolytic Condenser (8 mfd.)	6706
(55)	Philco Pick-up	256-4
(56)	Gramophone Volume Control	5615
	Valve Shield	05270
	Knob	03064
	Knob Spring	5262
	Grid Clip	4897
	Four Prong Socket	5026
	Five Prong Socket	27-6014
	Six Prong Socket	6417
	Pilot Light Bracket complete	03814
	Dial complete	05276
	Bezel	7031
(57)	Radiogram Switch	7128
(59)	Motor Switch	5168

* Supplied in matched group of coils (Order 1-05323).

† P2 speaker is superseded for replacement purposes by P16.

It is essential to state Colour on Mounting Bracket when ordering Individual Coils.

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OF GREAT BRITAIN, LIMITED

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