

# PHILCO

## Service Bulletin—No. 85-A

### Model 90

(Serial Nos. B-32,001 to B-35,000 and Above B-53,100)

Model 90 receivers are for operation on 100 to 130 volt, 50-60 cycle AC lines. This receiver is a nine tube superheterodyne with push-pull pentode output. Automatic volume control, 4 point tone control, super control screen grid tubes and combination first detector and oscillator tube are some of the additional features. The maximum power consumption is 100 watts.

Table 1—Tube Socket Readings Taken with A.C. Set Tester—A.C. Line 115 Volts

Tube		Filament Volts	Plate Volts	Control Grid Volts	Screen Grid Volts	Cathode Volts	Plate Milli-Amperes
Type	Circuit						
35	R.F.	2.5	225	0	38	6	4.2
24	Det.-Osc.	2.5	215	12	40	22	.5
35	I.F.	2.5	235	10	38	10	1.0
27	Det. Rectifier	2.5	...	...	...	10	...
27	Det. Amplifier	2.5	50	0	...	1.	1.0
27	1st Audio	2.5	90	0	...	1.	5.0
47	Output	2.5	210	10	225	...	31.
47		2.5	210	10	225	...	31.
80	Rectifier	5.0	225/plate	...	...	...	...

Above readings taken with volume control at maximum and dial turned to low frequency end.

Table 2—Power Transformer Voltages

Terminals Figs. 1 and 2	A.C. Volts	Circuit	Color
1-2	115	Primary	White
4	...	Center Tap Heater	Black, Yellow Tracer
3-5	2.5	Heater	Black
6-8	2.5	Filament 47's	Dark Green
7	...	Center Tap Filament 47's	Black, Green Tracer
9-10	5.0	Filament 80	Light Blue
11-13	665	Plates 80	Yellow
12	...	Center Tap Plates 80	Yellow, Green Tracer

Table 3—Condenser Data

Nos. on Figs. 1 and 2	Capacity (Mfd.)	Container
(28) (29)	.00011	Blue and Golden Yellow
(16)	.00041	Yellow and Orange
(13)	.0007	White and Golden Yellow
(40)	.001	Green and White
(30) (35)	.01	Black Bakelite
(45)	.015	Black Bakelite
(6)	.05	Black Bakelite
(9)	.09	Black Bakelite
(7)	.09 & 200 Ohms	Black Bakelite
(50)	.15	Black Bakelite
(28)	2-.25, 2-.5	Metal
(48)	6.	Electrolytic
(51)	6.	Electrolytic

Table 4—Resistor Data

Nos. on Figs. 1 and 2	Power (Watts)	Resistance (Ohms)	Color		
			Body	Tip	Dot
(52)	(Terminals)				
	1-2	205	Long Tubular		
	2-3	95			
	3-4	2,400			
	4-5	1,200			
1.	1,000	Brown		Black	Red
(21)	.5	10,000	Brown	Black	Orange
	.5	15,000	Brown	Green	Orange
(14)	.5	25,000	Red	Green	Orange
	.5	51,000	Green	Brown	Orange
(33) (34)	.5	99,000	White	White	Orange
	.5	490,000	Yellow	White	Yellow
(38)	.5	1,000,000	Brown	Black	Green
	(25)				
(32)					
(3)					
(20) (31) (36)					

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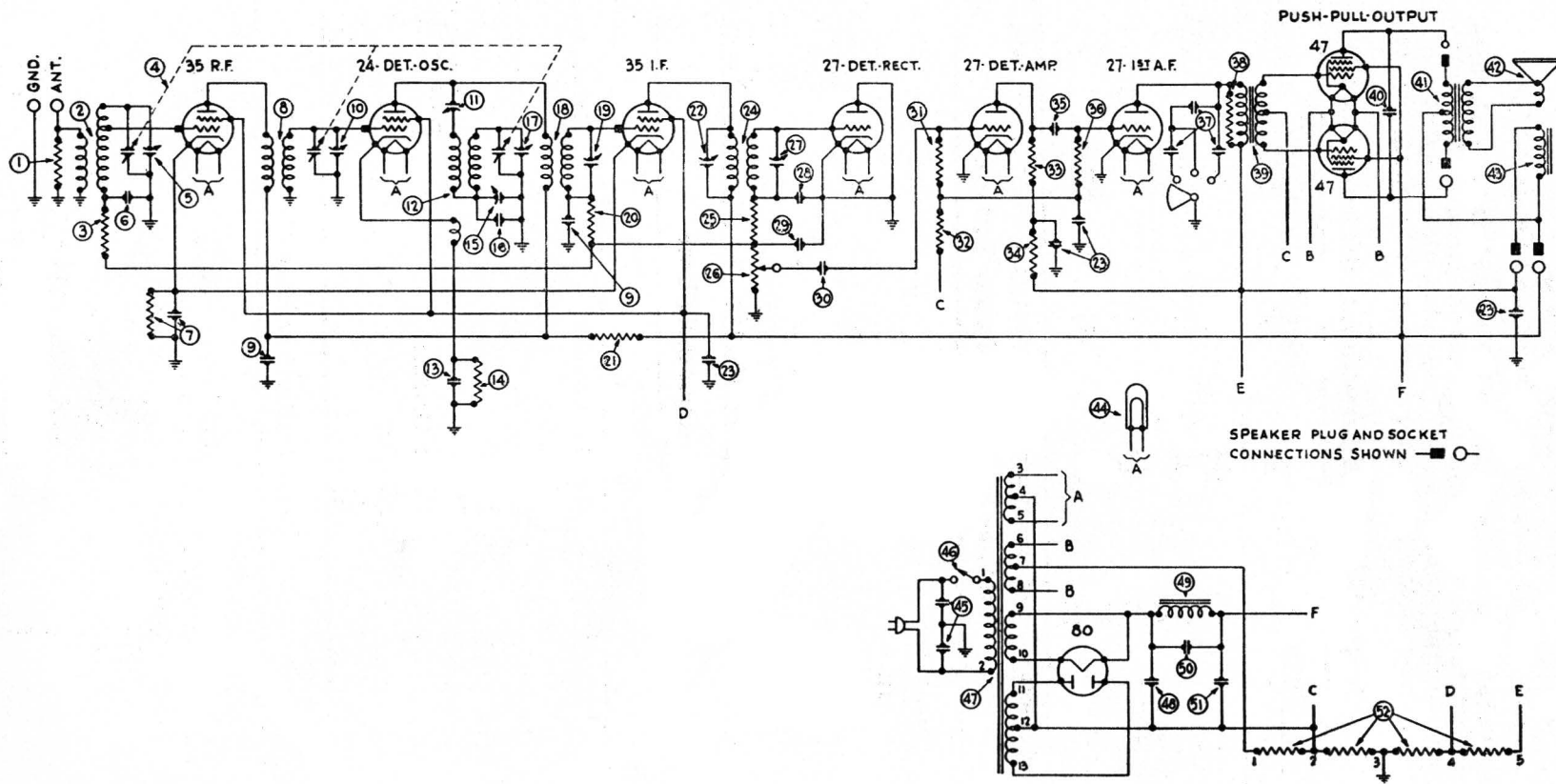


Fig. 1

**PHILCO MODEL 90**

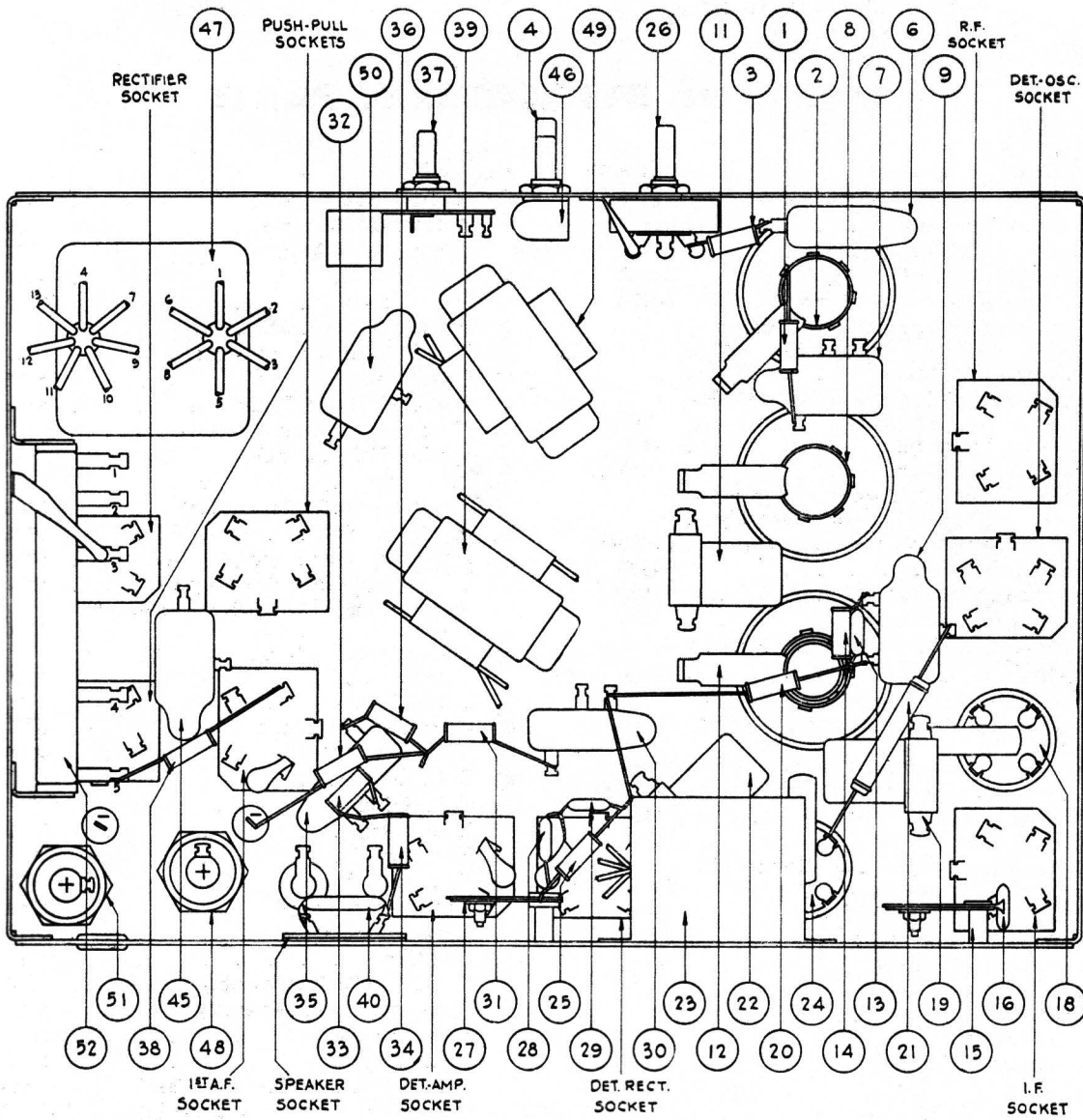


Fig. 2

## ADJUSTMENT OF MODEL 90

These receivers are accurately adjusted at the factory prior to shipment. Under no circumstances are the compensating condensers to be changed in the field unless the proper instructions and equipment are available. Complete and simplified instructions and the Philco 095 oscillator can be obtained from all Philco distributors.

## MODEL 90 REPLACEMENT PARTS

No. on Figs. 1 and 2	Description	Part No.	No. on Figs. 1 and 2	Description	Part No.
①	Resistor (10,000 Ohms)	4412	③③	Resistor (25,000 Ohms)	4409
②	Antenna Transformer	04317	③④	Resistor (25,000 Ohms)	4409
③	Resistor (1,000,000 Ohms)	4409	③⑤	Condenser (.01 Mfd.)	3903-X
④	Tuning Condenser (50-60 cycles)	04309	③⑥	Resistor (1,000,000 Ohms)	4409
	Tuning Condenser (25-40 cycles)	04310	③⑦	Tone Control	03137
⑤	Compensating Condenser — Antenna — Part of Tuning Condenser Assembly		③⑧	Resistor (51,000 Ohms)	4518
⑥	Condenser (.05 Mfd.)	3615-L	③⑨	Push-Pull Input Transformer	6064
⑦	Condenser (.09 Mfd. and 200 Ohm Resistor)	4989-L	④①	Condenser (1,000 Mmf.) *	5215
⑧	Detector Transformer	04408	④②	Push-Pull Output Transformer	2635
⑨	Condenser (.09 Mfd.)	3615-AJ	④③	Voice Coil and Cone Assembly	02874
⑩	Compensating Condenser — Detector — Part of Tuning Condenser Assembly		④④	Speaker Field Assembled with Pot	02892
⑪	Compensating Condenser—Coupling	04000-M	④⑤	Pilot Light	3463
⑫	Oscillator Coil	04409	④⑥	Condenser (.015 Mfd. Double)	3793-E
⑬	Condenser (700 Mmf.)	4520	④⑦	On-Off Switch	4095
⑭	Resistor (15,000 Ohms)	6208	④⑧	Power Transformer (50-60 cycles)	6072
⑮	Compensating Condenser—Low Frequency	04000-B		Power Transformer (25-40 cycles)	6073
⑯	Condenser (410 Mfd.)	5120		Power Transformer (50-60 cycles, 230 volts)	6074
⑰	Compensating Condenser — High Fre- quency—Part of Tuning Condenser Assembly		④⑨	Electrolytic Condenser (6 Mfd.) 50-60 cycles	4916
⑱	First I.F. Transformer	04319	④⑩	Filter Choke	4819
⑲	Compensating Condenser—First I.F.	04000-M	⑤①	Condenser (.15 Mfd.)	6287-B
⑳	Resistor (1,000,000 Ohms)	4409	⑤②	Condenser (6 Mfd.)	4916
㉑	Resistor (1,000 Ohms)	4590		B. C. Resistor	6071
㉒	Compensating Condenser—Second I.F. Primary	04000-M		Tube Shield	04311
㉓	Condenser (2-.25, 2-.5 Mfd.)	04407		Knob (Large)	03063
㉔	Second I.F. Transformer	04320		Knob (Small)	03064
㉕	Resistor (99,000 Ohms)	4411		Knob (Switch)	03437
㉖	Volume Control	6015		Knob Spring (Large)	5262
㉗	Compensating Condenser (Second I.F. Secondary)	04000-M		Knob Spring (Small)	4147
㉘	Condenser (110 Mmf.)	4519		Grid Clip	4897
㉙	Condenser (110 Mmf.)	4519		Two-Prong Socket Assembly	4956
㉚	Condenser (.01 Mfd.)	3903-N		Four-Prong Socket Assembly	5026
㉛	Resistor (1,000,000 Ohms)	4517		Dial Complete	03031
㉜	Resistor (490,000 Ohms)	4516		Bezel	5311
				Chassis Mounting Screw (2 Used)	W-664
				Chassis Mounting Screw (2 Used)	W-567
				Mounting Washer	5058
				Rubber Washer	5189

\* This item omitted on later production.

**PHILADELPHIA STORAGE BATTERY COMPANY**

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