

PHILCO

REG. U.S. PAT. OFF.

Service Bulletin—No. 85

Models 90 and 90-A Receivers

(Above Serial No. 237,001)

This Bulletin Does Not Supersede Service Bulletin No. 56

Model 90 Receivers are for Operation on 100-130 volt, 50-60 cycle AC Lines.
Model 90-A Receivers are for Operation on 100-130 volt, 25-60 cycle AC Lines.

Table 1—Tube Socket Readings Taken with AC Set Tester, AC Line, 115 Volts

Tube		Filament Volts	Plate Volts	Screen Grid Volts	Control Grid Volts	Cathode Volts	Plate Milliamperes
Type	Circuit						
24	R. F.	2.0	255	60	.25	20	2.4
27	Osc.	2.0	65	...	.6	20	3.6
24	1st Det.	2.0	250	64	6.0	24	.25
24	I. F.	2.0	270	76	.25	18	.4
27	Det. Rect.	2.0	0	...	0	17	0
27	Det. Amp.	2.0	140	...	.4	18	2.0
27	1st A. F.	2.0	45	...	.4	20	1.8
47	Output	2.0	220*	240*	1.0*	..	32.*
80	Rectifier	4.5					

All readings taken with antenna disconnected and ground on. Volume Control on full.

*These readings must be taken from the underside of the chassis using test prods and leads unless the set checker is specially equipped for testing pentode tubes.

Table 2—Power Transformer Voltages

Terminals	A.C. Volts		Color
1—2	105 to 125	Primary	White
3—5	2.5	Heaters of 24 and 27 Tubes	Black
4	2.5	Center Tap of 3—5	Black with Yellow
6—8	2.5	Filament of 47 Tube	Dark Green
7	2.5	Center Tap of 6—8	Black with Green
9—10	5.0	Filament of 80 Tube	Light Blue
11—13	650.	Plates of 80 Tube	Yellow
12	...	Center Tap of 11—13	Yellow with Green

Table 3—Resistor Data

No. on Figs. 1 and 2	Terminal	Power (Watts)	Resistance (Ohms)	Color					
				Body	Tip	Dot			
65 42 1 26 27 50 15 16 21 41 45 22 49 17 25 29 51 36 48	{ 1—2 } { 2—3 } { 3—4 }	1.	180	(Long Tubular)					
			60						
			3,500						
			5,000				Green	Black	Red
			10,000				Brown	Black	Orange
			25,000				Red	Green	Orange
			25,000				Red	Green	Orange
			51,000				Green	Brown	Orange
			51,000				Green	Brown	Orange
			70,000				Violet	Black	Orange
			99,000				White	White	Orange
			240,000				Red	Yellow	Yellow
			240,000				Red	Yellow	Yellow
			490,000				Yellow	White	Yellow

Table 4—Condenser Data

No. on Figs. 1 and 2	Capacity	Color
13 44	.00011	Blue, Golden Yellow
19	.00025	Yellow
18 23 28	.01	Black Bakelite Container
32	.015	Black Bakelite Container
35 46 47	.05	Black Bakelite Container
39	.09	Black Bakelite Container
24	.1, .13, .25-1.	Metal Container
30	.25-1.	Metal Container
56 57	(50-60 Cycles) 6.	Electrolytic Type
	(25-40 Cycles) 10.	Electrolytic Type

Philco Models 90 and 90-A

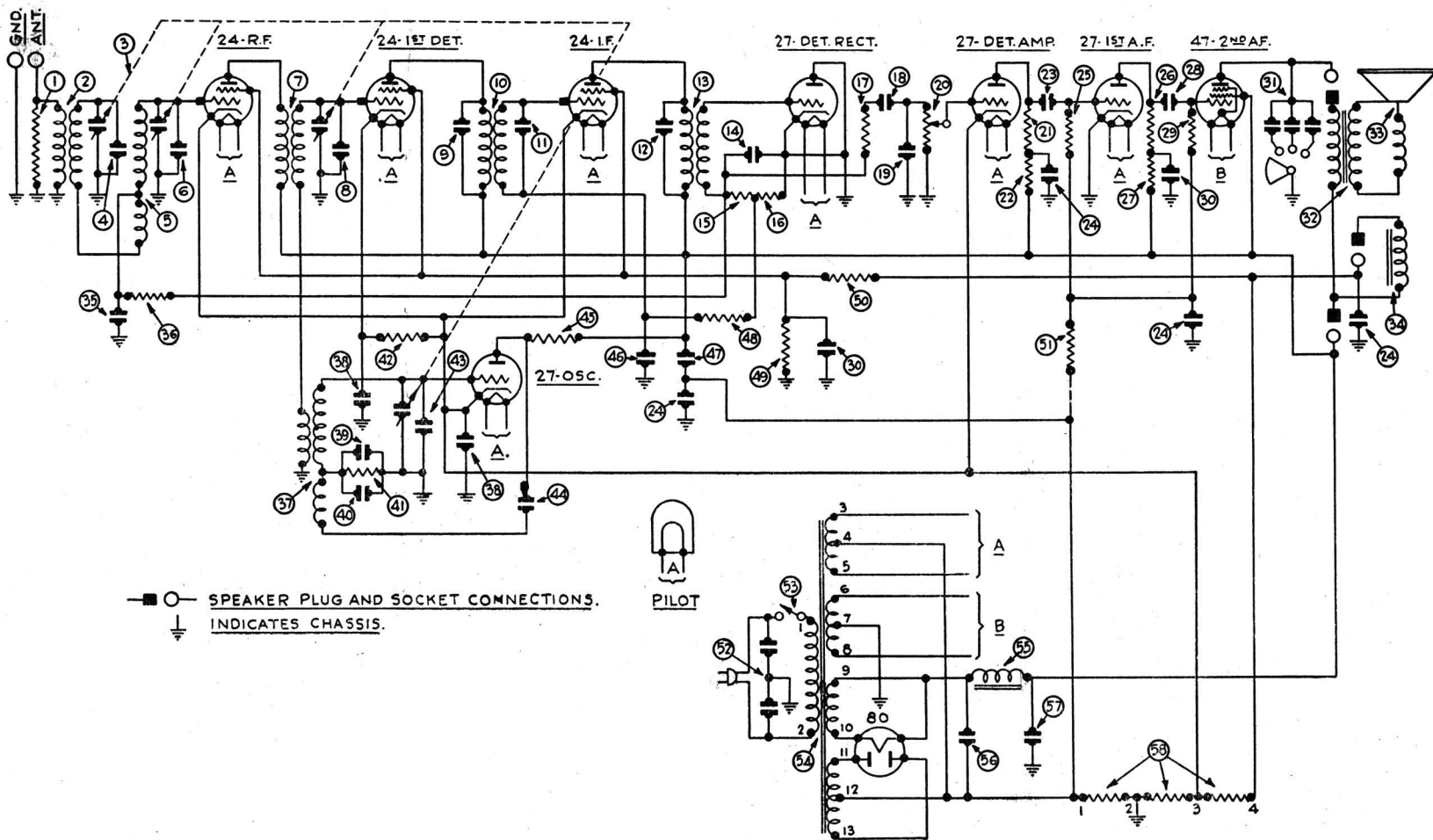


Fig. 1

Philco Models 90 and 90-A

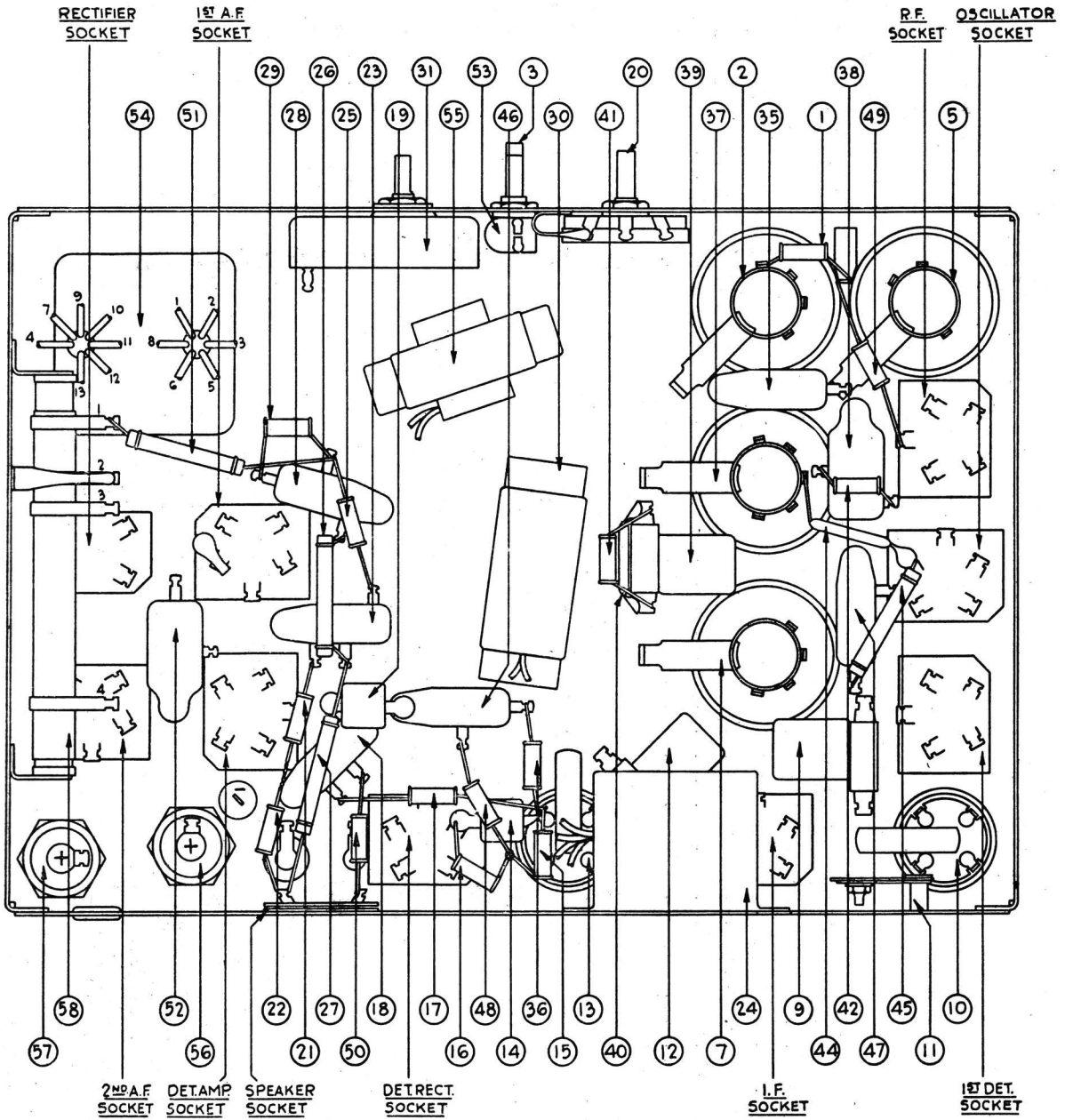


Fig. 2

ADJUSTMENT OF MODELS 90 and 90-A

These Receivers are accurately adjusted at the Factory prior to their shipment. Under no circumstances are the adjusting condensers to be changed in the field. This alignment requires special oscillator equipment, which all Philco Distributors have. If for any reason the Receiver needs adjustment it must be returned to the Distributor's Service Department.

REPLACEMENT PARTS—MODELS 90 and 90-A RECEIVERS

(Above Serial No. 237,001)

No. on Figs. 3 and 4	Description	Part No.	No. on Figs. 3 and 4	Description	Part No.
①	Resistor (10,000 ohms)	4412	③⑤	By-Pass Condenser (.09 mfd.) double	4989-G
②	First R. F. Transformer	03360	③⑥	Compensating Condenser } Assembled	03050
③	Gang Condenser (50-60 cycles) . .	03001	④⑦	Condenser (.0007 mfd.)	
	Gang Condenser (25-40 cycles) . .	03078	④⑧	Resistor (51,000 ohms)	4518
④	Compensating Condenser (part of gang condenser assembly)		④⑨	Resistor (5,000 ohms)	5310
⑤	Second R. F. Transformer	03014	④⑩	Compensating Condenser (part of tuning condenser assembly)	
⑥	Compensating Condenser (part of gang condenser assembly)		④⑪	Condenser (110 mmf.)	4519
⑦	First Detector Transformer	03015	④⑫	Resistor (51,000 ohms)	4237
⑧	Compensating Condenser (part of gang condenser assembly)		④⑬	By-Pass Condenser (.05 mfd.) . .	3615-U
⑨	Compensating Condenser (First I. F. Primary)	03315	④⑭	By-Pass Condenser (.05 mfd.) . .	3615-E
⑩	First I. F. Transformer	03009	④⑮	Resistor (490,000 ohms)	4517
⑪	Compensating Condenser (First I. F. Secondary)	03315	④⑯	Resistor (70,000 ohms)	5385
⑫	Compensating Condenser (Secor. I. F. F. Primary)	03317	④⑰	Resistor (25,000 ohms)	4516
⑬	Second I. F. Transformer	03345	④⑱	Resistor (240,000 ohms)	3768
⑭	Condenser (110 mmf.)	4519	④⑲	Condenser (.015 mfd.) double . .	3793-E
⑮	Resistor (51,000 ohms)	4518	④⑳	On-Off Switch	4095
⑯	Resistor (51,000 ohms)	4518	④㉑	Power Transformer (50-60 cycles). .	5362
⑰	Resistor (99,000 ohms)	4411		Power Transformer (25-40 cycles). .	5363
⑱	By-Pass Condenser (.01 mfd.) . . .	3903-M		Power Transformer (50-60 cycles, 220 volts)	5364
⑲	Condenser (.00025 mfd.)	3082	④㉒	Choke	4951
⑳	Volume Control	5366	④㉓	Condenser (6 mfd.) Electrolytic type (50-60 cycles)	4916
㉑	Resistor (51,000 ohms)	4518		Condenser (10 mfd.) Electrolytic type (25-40 cycles)	5142
㉒	Resistor (70,000 ohms)	5385	④㉔	Condenser (6 mfd.) Electrolytic type (50-60 cycles)	4916
㉓	By-Pass Condenser (.01 mfd.) . . .	3903-M		Condenser (10 mfd.) Electrolytic type (25-40 cycles)	5142
㉔	Condenser (1-1 mfd., 1-13 mfd., 2-.25 mfd.)	03325	④㉕	B. C. Resistor	5365
㉕	Resistor (240,000 ohms)	4410		Line Cord and Plug	L-943
㉖	Resistor (25,000 ohms)	3656		Tube Shield (Large)	03373
㉗	Resistor (25,000 ohms)	3656		Tube Shield (27 type)	5387
㉘	By-Pass Condenser (.01 mfd.) . . .	3903-P		Pilot Bulb	3463
㉙	Resistor (240,000 ohms)	4410		Pilot Bracket Complete	03081-A
㉚	Condenser (.25 mfd., 1 mfd.) . . .	03327		Knob (Large)	4958-A
㉛	Tone Control	4037-A		Knob (Small)	4959-A
㉜	Output Transformer	2673		Knob (Switch)	4290-A
㉝	Voice Coil Assembly and Cone: H ₂ (Large Cone)	02997		Spring (For small knobs)	4147
	K ₂ (Small Cone)	02996		Spring (For large knobs)	5262
㉞	Speaker Field (Assembled with pot and frame)			Grid Clip	4897
㉟	By-Pass Condenser (.05 mfd.) . . .	3615-W		Five Prong Socket Assembly . . .	4956
㊱	Resistor (490,000 ohms)	4517		Four Prong Socket Assembly . . .	4955
㊲	Oscillator Coil	03016		Volume Control Insulator	4092
				Dial	5021
				Light Shield Screen	4937
				Bezel	5009

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