PHILCO

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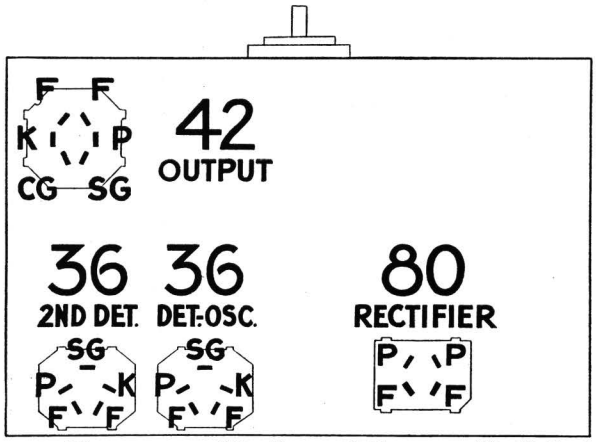
Service Bulletin—No. 140

Model 80

The Philco Radio Model 80 is a four tube superheterodyne, employing the new Philco high efficiency tubes with pentode output and electro dynamic speaker. The set uses a Philco type 36 tube as first detector and oscillator, a type 36 second detector, a type 42 output, and a type 80 rectifier. The intermediate frequency for tuning the I.F. transformer is 450 kilocycles. The power consumption of the Model 80 is 46 watts.



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

Fig. 1—Tube Sockets, Under Side of Chassis

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

Table 1—Tube Socket Data*—Power Line Voltage 115 Volts

Tube		Filament Volts F to F	Plate Volts P to K	Screen Grid Volts SG to K	Control Grid Volts CG to K	Cathode Volts K to F
Type	Circuit					
36	Det.—Osc.	6.3	245	165	6.4	8.4
36	2nd Det.	6.3	40	15	.4	0
42	Output	6.3	240	255	4	0
80	Rectifier	5.0	340/Plate	...	...	...

*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 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.

Table 2—Power Transformer Data

Terminals	A.C. Volts	Circuit	Color
1-2	105 to 125	Primary	White
3-5	6.3	Filament	Black
6-7	5.0	Filament of 80	Blue
8-10	630	Plates of of 80	Yellow
4	...	Center Tap of 3-5	Black Yellow Tracer
9	...	Center Tap of 8-10	Yellow Green Tracer

Table 3—Resistor Data

Nos. on Figs. 2 and 3	Resistance (Ohms)	Power (Watts)	Color		
			Body	Tip	Dot
㊱	325	..	Wire	Wound	
⑨	9,000	1.	White	Black	Red
⑥ ⑳	10,000	.5	Brown	Black	Orange
⑪	16,000	5.	Brown	Blue	Orange
㉒	240,000	.5	Red	Yellow	Yellow
㉖	490,000	.5	Yellow	White	Yellow
⑲	1,000,000	.5	Brown	Black	Green
⑮	4,000,000	.5	Yellow	Black	Green

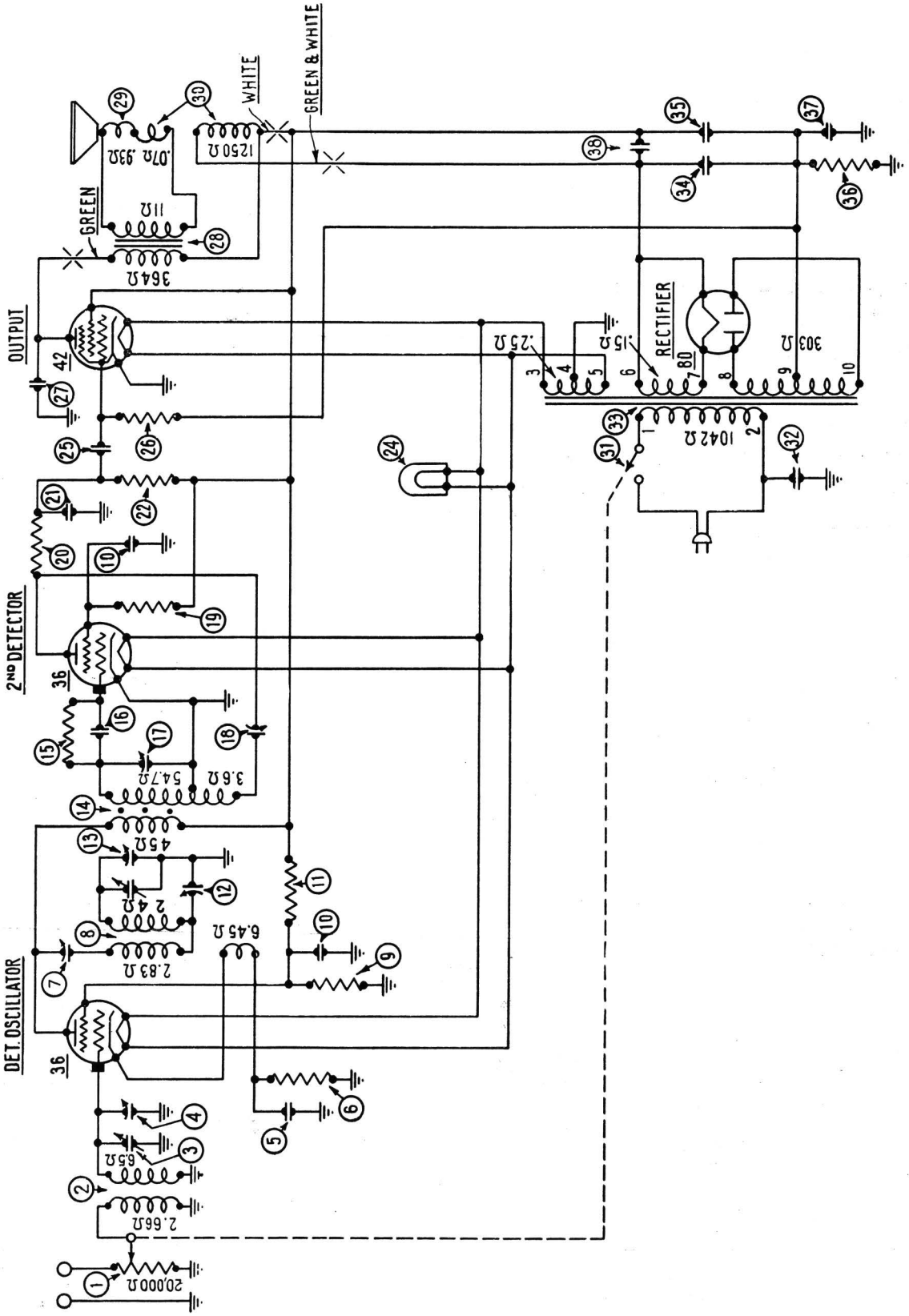


Fig. 2—Schematic Wiring Diagram

Model 80

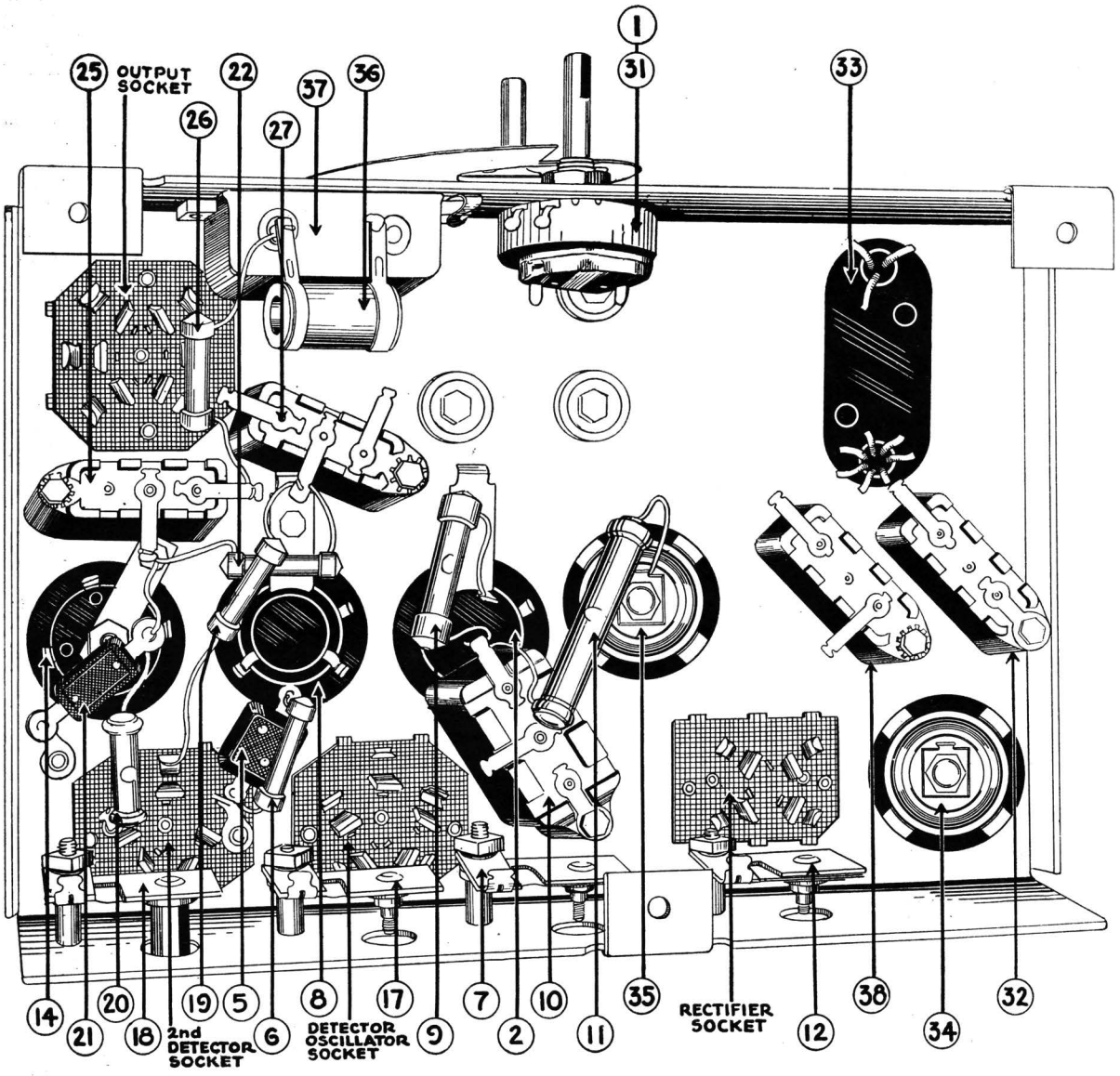


Fig. 3—Bottom View of Chassis, Showing Parts

ADJUSTING MODEL 80

Facing the back of the chassis, the compensating condenser at the right with the micarta hex head nut should be adjusted for maximum sensitivity at the time of installation. This adjustment should be done in the following manner.

Place the radio in operation as described below, tuning to a station near the middle of the dial. Turn the adjusting screw clockwise with a screwdriver until a swishing sound is heard and until a squeal is heard when different stations are tuned in. Now turn the screw counter-clockwise until the swishing sound just ceases. Continue to turn in the same direction about one quarter of a revolution beyond this point. Tune to different stations over the dial, noting that the squeal is not present on any stations received. If such a noise is present at any section of the dial, the adjusting screw should be turned farther in a counter-clockwise direction until the noise stops. Should the type 36 tube under the metal shield ever be replaced, this adjustment should be repeated.

Under normal conditions, it will never be necessary to re-adjust any of the other compensating condensers. If for any reason such adjustment should be required, it should not be attempted without first receiving the proper instructions and equipment from your Philco distributor. The Philco Model 095 B oscillator has been especially designed for use in this work, and will be found the most inexpensive and the most reliable for the purpose.

REPLACEMENT PARTS MODEL 80

No. on Figs. 2 and 3	Description	Part No.
①	Volume Control—Combined with On-Off Switch	7439
②	Antenna Transformer	05831
③	Tuning Condenser Assembly	05794
④	Compensating Condenser — Antenna — Part of Tuning Con. Assembly	
⑤	Condenser (710 Mmf.) White and Yellow	4520
⑥	Resistor (10,000 Ohms)	4412
⑦	Compensating Condenser—I.F. Primary	04000-A
⑧	Oscillator Coil	05832
⑨	Resistor (9,000 Ohms)	7501
⑩	Condenser (.09 Twin)	4989-B
⑪	Resistor (16,000 Ohms)	7500
⑫	Compensating Condenser — Low Frequency:	04000-S
⑬	Compensating Condenser — High Frequency — Part of Tuning Con. Assembly	
⑭	I.F. Transformer	05834
⑮	Resistor (4,000,000 Ohms) Mounted on I.F. Transformer	6010
⑯	Condenser (50 Mmf.) White—Mounted on I.F. Transformer	3774
⑰	Compensating Condenser—I.F. Secondary	04000-D
⑱	Compensating Condenser	04000
⑲	Resistor (1,000,000 Ohms)	4409*
⑳	Resistor (10,000 Ohms)	4412
㉑	Condenser (1,000 Mmf.) Green and White	5215
㉒	Resistor (240,000 Ohms)	4410
㉔	Pilot Light	6608
㉕	Condenser (.015 Mfd.)	3793-B
㉖	Resistor (490,000 Ohms)	4517*
㉗	Condenser (.006 Mfd.)	7625-B*
㉘	Output Transformer	2660
㉙	Voice Coil and Cone Assembly	02861
㉚	Speaker Field and Bucking Coil Assembled with Pot	02677*
㉛	On-Off Switch—Combined with Volume Control	7439
㉜	Condenser (.01 Mfd.)	3903-AH*
㉝	Power Transformer 50-60 Cycles	7421
	Power Transformer 25-40 Cycles	7422
	Power Transformer 50-60 Cycles, 230 Volts	7423
㉞	Electrolytic Condenser (8.0 Mfd.)	6707
㉟	Electrolytic Condenser (4.0 Mfd.)	7467
㊱	Resistor (325 Ohms) Wire Wound	7465*
㊲	Electrolytic Condenser—Dry—(10 Mfd.)	7440*
㊳	Condenser (.01 Mfd.)	3903-AJ*
	Bezel	7417
	Dial Complete	05828
	Tube Shield	7172
	Knob (Large)	03063
	Knob (Small)	03064
	Knob Spring	5262
	Grid Clip	4897
	Four Prong Socket Assembly	5026
	Five Prong Socket Assembly	4956
	Six Prong Socket Assembly	6417
	Chassis Mounting Screw	W-567
	Chassis Mounting Washer	W-315
	Rubber Washer	5189
	Pilot Lamp Shield	5760

* A number of circuit changes were made on chassis of run No. 5 and above. This run number is rubber stamped in a star on the back of the chassis. Refering to Figs. 2 and 3, the condenser ㉗ connects to the B- end of resistor ㉖ instead of to ground. The bucking coil - that section of ㉚ in series with the voice coil - is shorted out. The 10 mfd. dry electrolytic condenser ㊲ is eliminated, and replaced with a substitute .015 section combined with ㉜, part 3793R. The .01 mfd. condenser ㊳ is eliminated. The positions of ⑲ ㉖ and ㊱ are changed in the chassis from that shown in Fig. 3.

PHILCO RADIO & TELEVISION CORPORATION

Service Department

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