

PHILCO Service Manual Model 89

BULLETIN
No. 146B



For Members of
RADIO MANUFACTURERS SERVICE
A PHILCO SERVICE PLAN

Model 89 (Code 123)

Features

TYPE CIRCUIT: Superheterodyne.

BANDS: Two.

BAND COVERAGE: Number one—550 to 1500 K. C.;
number two—1.5 to 3.2 M. C.

NUMBER OF TUBES: Six.

NUMBER OF ACTUAL TUBE FUNCTIONS: Nine.

FUNCTION AND RESPECTIVE CIRCUIT LOCATION OF TUBES: 1 type 44, R. F. amplifier; 1 type 77, 1st detector and oscillator; 1 type 44, I. F. amplifier; 1 type 75, 2nd detector, 1st audio and automatic volume control; 1 type 42, output; 1 type 80 rectifier.

POWER SUPPLY: 115 volts, alternating current.

CURRENT CONSUMPTION: 60 watts.

SPEAKER: K-21.

tone CONTROL: 2 point.

INTERMEDIATE FREQUENCY: 260 K. C.

Description

The PHILCO Model 89, code 123, is of advanced design, incorporating a highly selective and very efficient R. F. Pre-amplifier, using the type 44 high mu tube.

The 1st detector and oscillator are combined in one tube, a type 77. The design of the oscillator circuit is such that changes in climatic conditions do not affect its stability. A single intermediate frequency stage designed around the high gain type 44 tube is used, insuring a maximum of power; a saving of two tubes is accomplished in the second detector unit by using a type 75 tube. This tube is a combination diode, triode; the diode functioning as a detector and automatic volume control and the triode as a separate audio amplifier.

The power or output stage uses a type 42 (6.3 fil.) pentode and is capable of delivering 3 watts undistorted output.

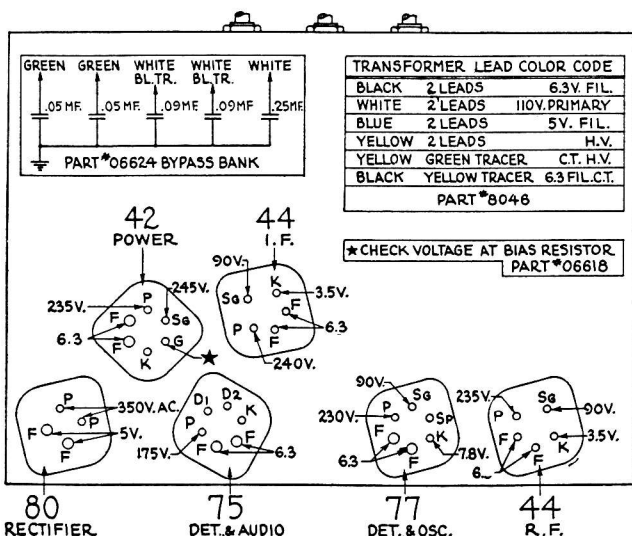


Fig. 1. Bottom View of Tube Sockets (Showing Voltages)

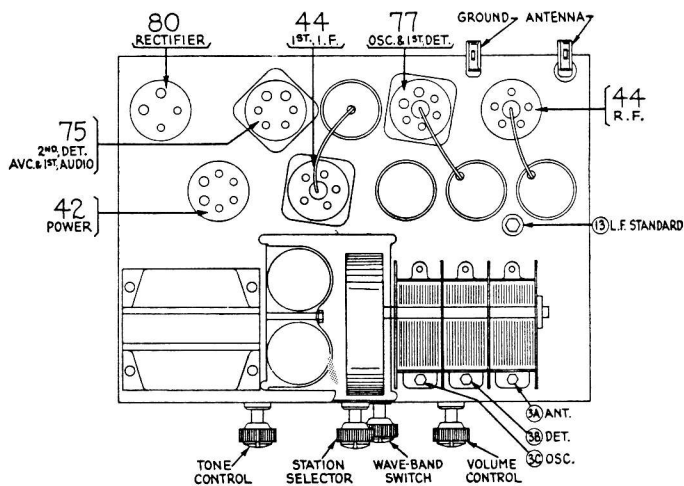


Fig. 2. Location of Compensating Condensers

Adjusting Compensating Condensers

Adjustment of compensating condensers in the Model 89 requires an accurate signal generator covering the intermediate frequency as well as the standard broadcast range. The PHILCO Model 088 or 024 can be used for this purpose.

Some instrument for measuring the output of the receiver while adjustments are being made is necessary. The PHILCO 025 Circuit Tester incorporates an output meter that is ideal for this purpose.

A PHILCO No. 3164 Fibre Wrench completes the equipment needed.

The location of the various compensating condensers is shown in Fig. 2 and Fig. 3. Connect the output meter to the

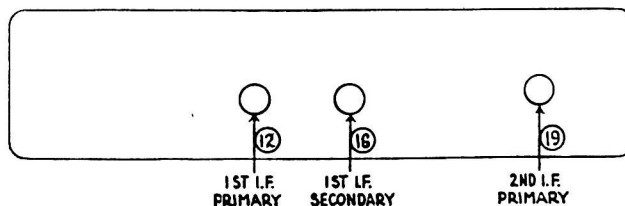


Fig. 3. I. F. Padder View from Rear of Chassis

plate and cathode terminals of the type 42 power tube, using the adapters provided with the "025" and set it for the 0-30 volt range.

(Continued on fourth page)

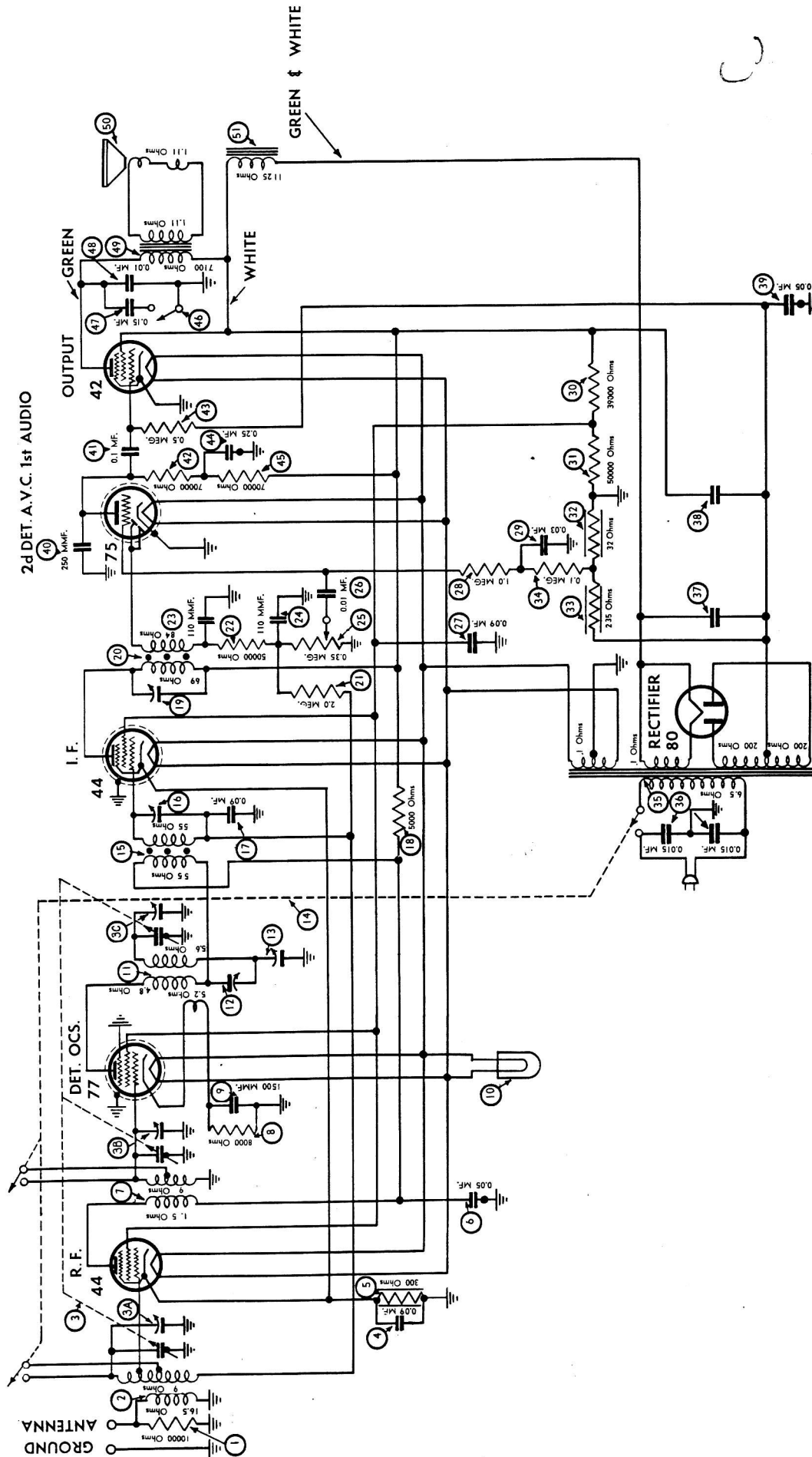


Fig. 3. Schematic Diagram Model 89 (Code 123)

Replacement Parts for Model 89 (Code 123)

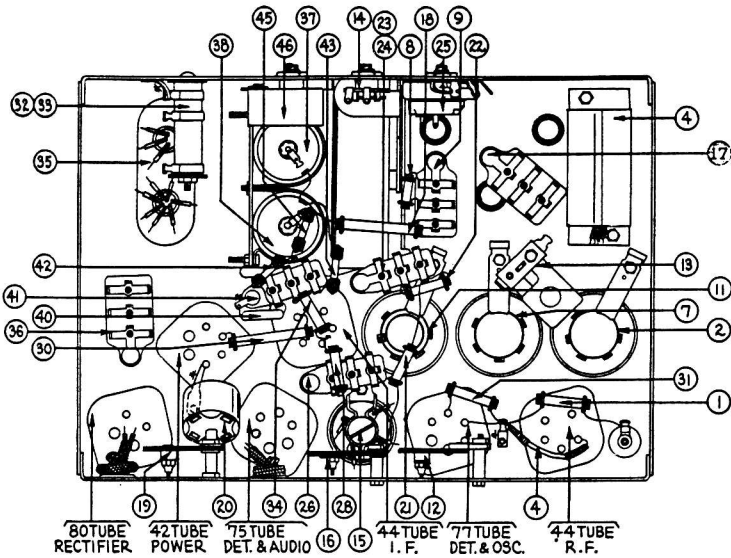


Fig. 5. Bottom View of Chassis

Description	Part No.	List Price
① Resistor (10,000 ohms).....	4412	\$0.20
② Antenna Transformer.....	32-1062	.70
③ Tuning Condenser Gang.....	31-1053	4.80
③a Compensator (Antenna).....	Part of ③	....
③b Compensator (R. F.).....	Part of ③	....
③c Compensator (Osc.).....	Part of ③	....
④ Condenser (.09-.05-.09-.05-.25 mf.).....	06624	.90
⑤ Resistor (300 ohms).....	33-3010	.20
⑥ Condenser (0.05 mf.).....	Part of ④	....
⑦ Detector Coil.....	32-1063	.50
⑧ Resistor (8,000 ohms).....	33-1114	.20
⑨* Condenser (.0015 mf. and .05 mf.).....	3615-XG	.40
⑩ Pilot Light.....	6608	.09
⑪ Oscillator Coil.....	06620	.90
⑫ Compensating Condenser (Pri. 1st I. F.).....	31-6024	.25
⑬ Compensating Condenser (L. F. Series).....	04000-S	.35
⑭ Waveband Switch.....	42-1016	1.25
⑮ 1st I. F. Transformer.....	32-1289	.60
⑯ Compensating Condenser (1st I. F. Sec.).....	04000-M	.20
⑰ Condenser (0.09 mf.) (Twin).....	4989-DG	.40
⑱ Resistor (5,000 ohms).....	3526	.20
⑲ Compensating Condenser (2nd I. F. Pri.).....	04000-A	.15

*The .05 mf. section connects the same as condenser ⑥.

Description	Part No.	List Price
⑳ 2nd I. F. Transformer.....	06622	\$1.20
㉑ Resistor (2.0 meg.).....	5872	.20
㉒ Resistor (50,000 ohms).....	4518	.20
㉓ Condenser (.00011 mf.).....	8035-DG	.25
㉔ Condenser (.00011 mf.).....	Part of ㉓	....
㉕ Volume Control, On-Off Switch.....	33-5004	1.45
㉖ Condenser (0.01 mf.).....	3903-SU	.25
㉗ Condenser (0.09 mf.).....	Part of ④	....
㉘ Resistor (1.0 meg.).....	4409	.20
㉙ Condenser (0.09 mf.).....	Part of ⑰	....
㉚ Resistor (39,000 ohms).....	33-1027	.20
㉛ Resistor (50,000 ohms).....	4518	.20
㉜ B. C. Resistor (32 ohms).....	7998	.20
㉝ B. C. Resistor (235 ohms).....	Part of ㉜	....
㉞ Resistor (100,000 ohms).....	4411	.20
㉟ Power Transformer.....	8046	3.50
㊱ Condenser (0.015-0.015 mf.).....	3793-DG	.40
㊲ Condenser (Electrolytic) (8 mf.).....	7558	1.25
㊳ Condenser (Electrolytic) (8 mf.).....	7558	1.25
㊴ Condenser (0.05 mf.).....	Part of ④	....
㊵ Condenser (250 mmf.).....	5858	.25
㊶ Condenser (0.01 mf.).....	3903-SU	.25
㊷ Resistor (70,000 ohms).....	5385	.20
㊸ Resistor (500,000 ohms).....	4517	.20
㊹ Condenser (0.25 mf.).....	Part of ④	....
㊺ Resistor (70,000 ohms).....	5385	.20
㊻ Tone Control.....	06764	.50
㊼ Condenser (0.015 mf.).....	Part of ㊾	....
㊽ Condenser (0.01 mf.).....	Part of ㊾	....
㊾ Output Transformer.....	2580	1.00
㊿ Replacement Cone Assembly (K-21).....	36-3159	.80
① Replacement Field Coil Assembly (K-21).....	36-3245	4.00
I. F. Shield.....	4450	.15
R. F. Shield.....	5084	.15
R. F. Shield.....	8000	.12
Tube Shield Body.....	28-2726	.10
Tube Shield Base.....	28-2725	.03
Speaker Cable.....	02720	.35
Drive Cord Spring.....	7776	2.00C
Drive Cord.....	31-1457	.10
Dial Hub and Scale.....	31-1590	.40
Bezel.....	27-4113	.20
Bezel Screws.....	W841B	.50C
Knob (Tuning).....	27-4051	.10
Knob (Volume, Tone, Wave Switch).....	27-4052	.10

