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PHILCO

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Service Bulletin — No. 146-A

Model 19 (code 128)

PHILCO RADIO MODEL 19 is a superheterodyne designed for operation upon alternating current. It uses the high-efficiency, multiple-function 6.3 volt tubes which give the performance of a set using several more than the six tubes the Model 19 actually employs. Model 19 has Automatic Volume Control, Shadow Tuning, Four-point Bass-Compensating Tone Control, and Pentode Output. The Receiver covers a frequency range from 550 to 3260 kilocycles,—which includes all standard broadcast stations, police stations, airport and aircraft, and amateur stations. The tubes, and their uses in the several circuits, are: R. F. Stage, Philco Type 44; First Detector and Oscillator, Type 36; Intermediate Frequency Stage, Type 44; Second Detector, Type 75; Output Stage, Type 42; and Rectifier, Type 80. The intermediate frequency used in adjusting the superheterodyne circuit is 260 kilocycles. The power consumption of Model 19 (Code 128) is 70 watts. The receiver has an undistorted output of 5 watts.

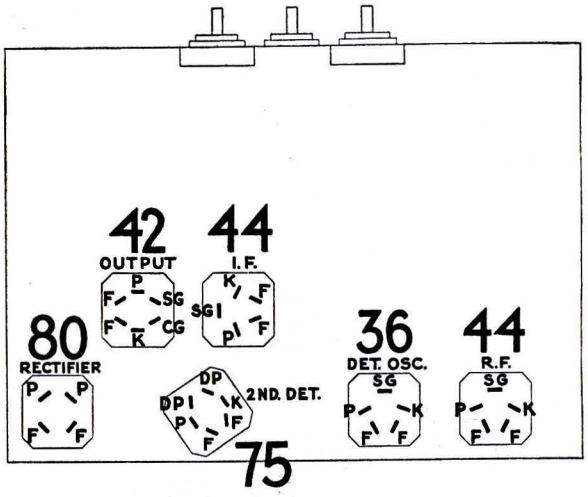

Fig. 1—Tube Socket Locations, from Underside of Chassis.

Table 1—Tube Socket Data*
A. C. Line Voltage, 115

Circuit	RF	Det. Osc.	IF	2nd Det.	Output	Rectifier
Type Tube	44	36	44	75	42	80
Filament Volts—F to F	6.3	6.3	6.3	6.3	6.3	5.0
Plate Volts—P to K	215	215	215	175	235	350/Plate
Screen Grid Volts—SG to K	95	90	95	.....	245	.....
Control Grid Volts—CG to K	.3	9.0	.3	.3	2.2	.....
Cathode Volts—K to F	4.4	9.5	4.4	.....	.....	.....
Diode Plate Volts—K to DP	.....	...	.....	.2	.....	.....

*The filament voltage values in Table 1 were obtained with an A.C. voltmeter; all the other values were obtained with a high-resistance, multi-range D.C. voltmeter. The readings were taken from the underside of the chassis,—with test prods and leads. The PHILCO MODEL 048 ALL-PURPOSE SET TESTER is especially useful in taking these readings, and is highly recommended for this and many other tests of Model 19. When the above values were obtained, the Station Selector was set at the low frequency (550 K.C.) end of the scale; the Volume Control was at maximum (all the way to the right).

Readings will NOT be reliable if taken with a plug-in adaptor.

CAUTION: DO NOT CONNECT THE CHASSIS TO THE POWER SUPPLY UNLESS THE SPEAKER IS CONNECTED TO THE CHASSIS AND ALL THE TUBES ARE IN PLACE.

Table 2—Power Transformer Data

Terminal	A.C. Volts	Circuit	Color
1–2	120	Primary	White
3–4	6.3	Filaments	Black
6–7	5.0	Filament of 80	Blue
9–10	746	Plates of 80	Yellow
5	...	Center Tap of 3-4	Black-Yellow Tracer
8	...	Center Tap of 9–10	Yellow-Green Tracer

PHILCO MODEL 048 ALL-PURPOSE SET TESTER IS HIGHLY RECOMMENDED FOR ALL TESTS OF MODEL 19.

Table 3—Resistor Data

Numbers on Figures 2 and 3	Resistance (Ohms)	Power Rating (Watts)	COLOR		
			Body	Tip	Dot
1	10,000	⅛	Brown	Black	Orange
7*	300	⅛	Violet	Black	Brown
10	15,000	½	Brown	Green	Orange
19	2 meg.	½	Red	Black	Green
23	50,000	½	Green	Brown	Orange
27	70,000	½	Violet	Black	Orange
28	70,000	½	Violet	Black	Orange
30	250,000	½	Red	Yellow	Yellow
36	2,900	⅛	Red	White	Red
39	10,000	½	Brown	Black	Orange
43	1 meg.	½	Brown	Black	Green
45	100,000	½	White	White	Orange
46	2,000	1	Red	Black	Red
49	1,000	1	Brown	Black	Red
50	15,000	2	Brown	Green	Orange
51	13,000	1	Brown	Orange	Orange
52‡	263, 21 (tapped)	1.7,.14	—	—	—

*Wire wound flexible ‡Wire wound porc. tube

44 and 36 Sockets

75 Socket

42 Socket

80 Socket

Terminal Arrangement of Tube Sockets Viewed From Under Side of Chassis

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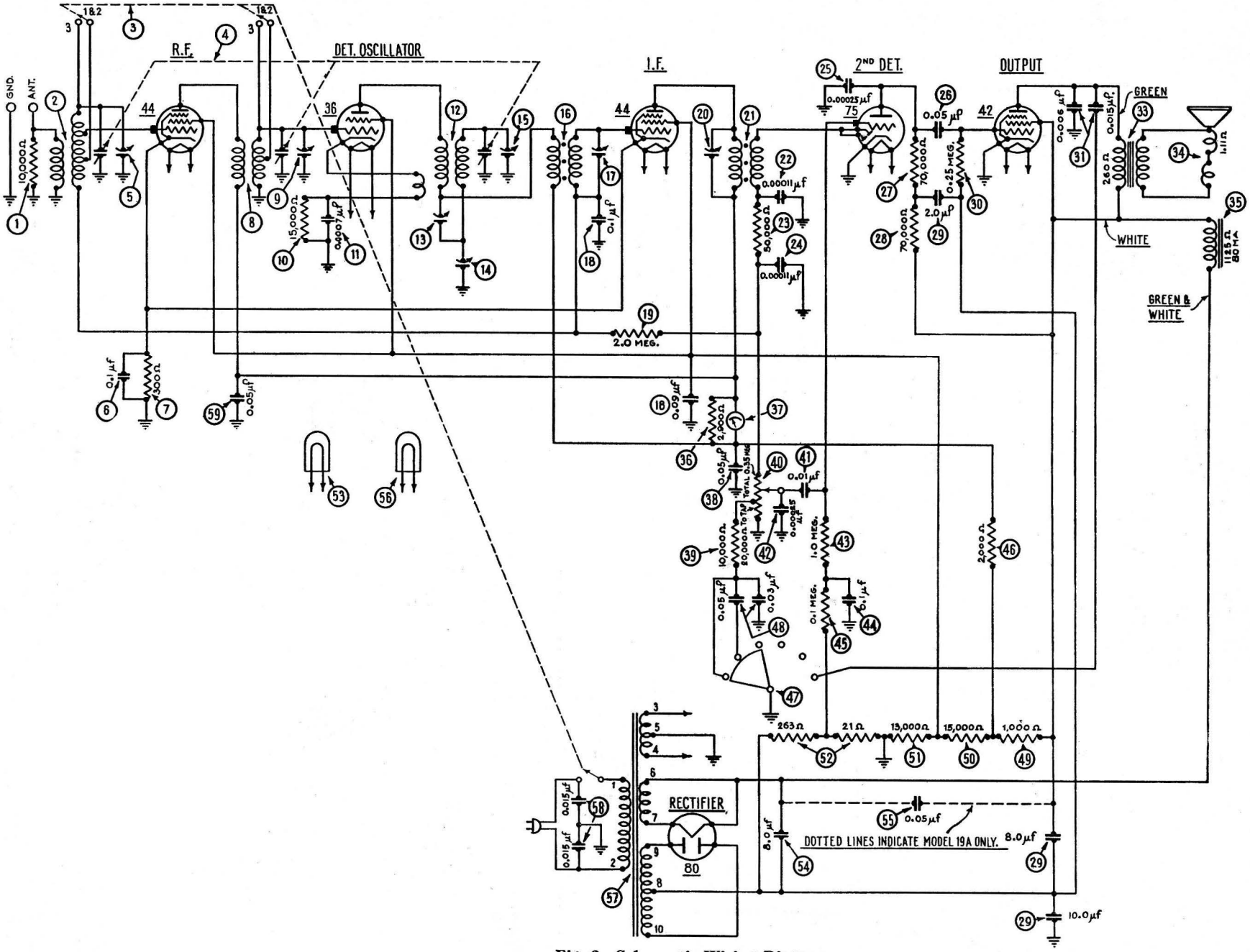

Fig. 2—Schematic Wiring Diagram

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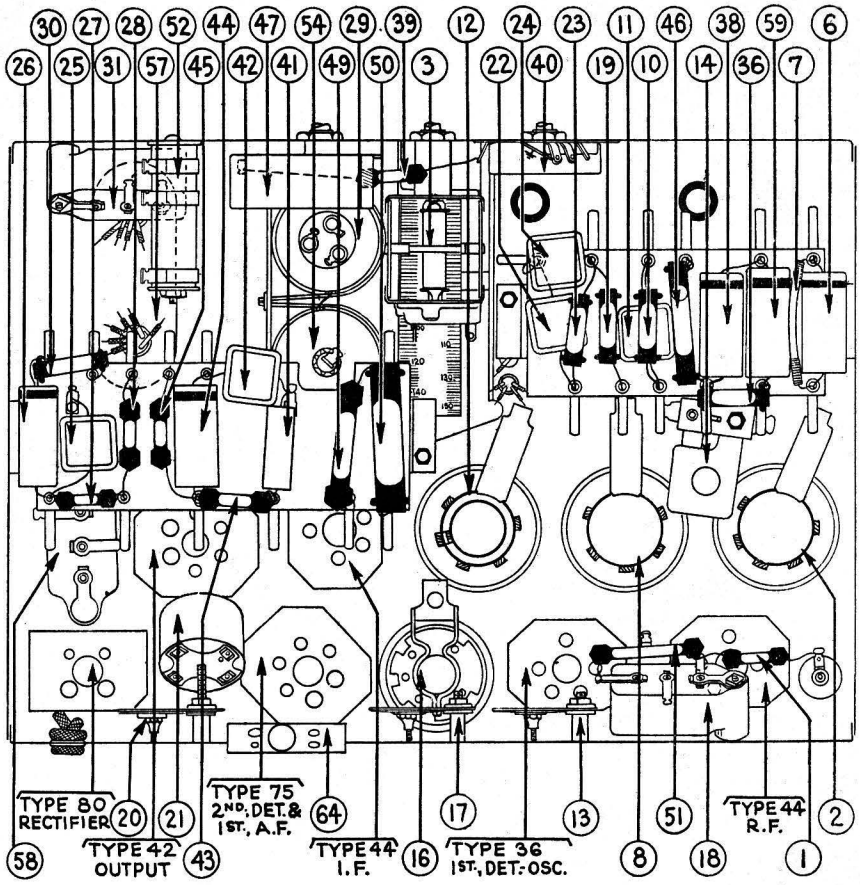

Fig. 3—Bottom View of Chassis, Showing Parts.

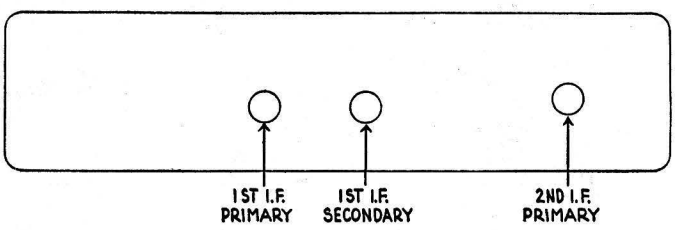

Fig. 4—Rear of Model 19 Chassis, showing location of Compensating Condensers

NOTE:—I. F. Frequency of Model 19 is 260 K.C.

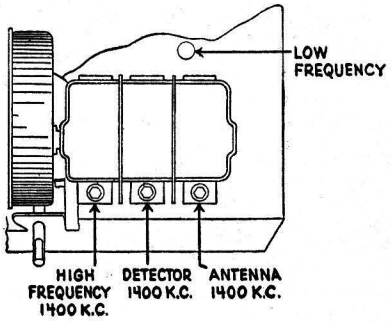

Fig. 5—Top View of Chassis showing Comp. Cond. mtd. on Tuning Condenser, Model 19, also Low Freq. Compensating Condenser.

ADJUSTMENT OF MODEL 19

COMPENSATING CONDENSERS

The compensating condensers of Philco Model 19 are adjusted in essentially the same manner described in Service Bulletin No. 120-C, "Adjusting Philco Superheterodynes." The method should be understood thoroughly before any adjustments are attempted.

These receivers are adjusted accurately before they are shipped from the Factory. If re-adjustment is required, it is necessary usually only to re-align the intermediate frequency compensating condensers. Figures 3 and 4 show the location of these compensating condensers. The intermediate frequency is 260 kilocycles.

An accurately calibrated signal generator is required for these adjustments. The PHILCO MODEL 048 ALL-PURPOSE SET TESTER includes a precision signal generator supplying frequencies from 105 kilocycles to 2000 kilocycles. It is recommended. Your Distributor can supply the Model 048 Set Tester, and can give you complete instruction in the adjustment of Model 19.

If re-adjustment of the intermediate frequency circuits is not sufficient to restore sensitivity, the high frequency and low frequency compensating condensers are re-aligned as described in the following paragraphs. Figure 5 shows the location of these compensating condensers.

The OSC; High Frequency compensating condenser is adjusted at 1400 kilocycles,—with the signal generator of the Model 048 Set Tester set at that frequency. Next the Detector and Antenna Condensers, located on the tuning condenser assembly, should now be adjusted, with the signal generator still operating at 1400.

The last adjustment is that of the low frequency (LF) compensating condenser which is accessible from above through the hole in chassis alongside the tuning condenser assembly. This adjustment is made with the signal generator set to give a 700 K.C signal.

A final re-setting may be made of the H.F. condenser (signal generator at 1400) the maximum peak of compensation is desired.

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REPLACEMENT PARTS FOR MODEL 19-128

No. on Figs. 2 and 3	Description	Part No.	List Price
①	Resistor (10,000 ohms)	33-1000	$0.25
②	Antenna transformer	32-1062	.75
③	Combined on-off and wave band switch	42-1017	1.20
④	Tuning condenser assembly	31-1103	4.75
⑤	Compensating condenser (ant.)	Part of ④	.....
⑥	Condenser (.1 mfd.)	30-4122	.35
⑦	Resistor (wire wound 300 ohms flex.)	33-3010	.20
⑧	Detector transformer	32-1063	.48
⑨	Compensating condenser (Det.)	Part of ④	.....
⑩	Resistor (15,000 ohms)	6208	.25
⑪	Condenser (700 mmf.)	5863	.35
⑫	Oscillator transformer	06620	.90
⑬	Compensating condenser (1st IF pri.)	04000M	.20
⑭	Compensating condenser (osc. LF)	04000S	.35
⑮	Compensating condenser (osc. HF)	Part of ④	.....
⑯	1st IF transformer	32-1315	.....
⑰	Compensating condenser (1st IF sec.)	04000M	.20
⑱	Condenser (.1 mfd.)	4989AK	.40
⑲	Resistor (2.0 meg.)	5872	.25
⑳	Compensating condenser (2d IF pri.)	04000A	.15
㉑	2d IF transformer	06622	1.20
㉒	Condenser (110 mmf.)	30-1006	.35
㉓	Resistor (50,000 ohms)	4518	.25
㉔	Condenser (110 mmf.)	30-1006	.35
㉕	Condenser (250 mmf.)	5858	.35
㉖	Condenser (.05 mfd.)	30-4123	.35
㉗	Resistor (70,000 ohms)	5385	.25
㉘	Resistor (70,000 ohms)	5385	.25
㉙	Condenser (elec.—2.0, 8.0, 10.0 mfd.)	30-2062X	.....
㉚	Resistor (.25 meg.)	4410	.25
㉛	Condenser (.006-.015 mfd.)	7625D	.30
㉝	Output transformer (H-16)	32-7178	.....
㉞	Speaker voice coil and cone (H-16)	02625	.65
㉟	Speaker field coil and pot assembly (H-16)	36-3218	.....
㊱	Resistor (2900 ohms)	5309	$0.25
㊲	Shadow meter	6497	2.70
㊳	Condenser (.05 mfd.)	30-4123	.35
㊴	Resistor (10,000 ohms)	4412	.25
㊵	Volume control	33-5000	1.45
㊶	Condenser (.01 mfd.)	30-4124	.25
㊷	Condenser (250 mmf.)	5858	.35
㊸	Resistor (1.0 meg.)	4409	.25
㊹	Condenser (.1 mfd.)	30-4122	.35
㊺	Resistor (.1 meg.)	4411	.25
㊻	Resistor (2000 ohms)	4515	.25
㊼	Tone control	38-5519	.75
㊽	Condensers (inside ㊼)	.....	.....
㊾	Resistor (1000 ohms)	4590	.25
㊿	Resistor (15,000 ohms)	5718	.25
(51)	Resistor (13,000 ohms)	3766	.25
(52)	Resistor (wire wound tapped, 263,21 ohms)	33-3069	.....
(53)	Pilot lamp (station selector)	6608	.11
(54)	Condenser (elec. filter 8 mfd.)	30-2026	1.50
(55)	Condenser .05 mfd. (used on 19A only)	30-4020	.35
(56)	Pilot lamp	Part of ㊲	.....
(57)	Power transformer	32-7170	.....
(58)	Condenser (double .015-.015 mfd.)	3793E	.40
(59)	Condenser (.05 mfd.)	30-4123	.35
(60)	Tube shield	8005	.06
(61)	Four prong tube socket	7544	.10
(62)	Five prong tube socket	7546	.11
(63)	Six prong tube socket	7547	.11
(64)	Speaker socket	7828	.....
(65)	Knob (large)	27-4037	.10
(66)	Knob (small)	27-4038	.10
(67)	Drum assembly (with scale)	31-1025	.....

USE PHILCO REPLACEMENT PARTS AND TUBES FOR EVERY MAKE RADIO. GET COMPLETE CATALOG FROM YOUR DISTRIBUTOR.

PHILCO RADIO AND TELEVISION CORPORATION

Service Department

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