

Philco Radio & Television Corp.

	Model: 14	Chassis:	Year: Pre March 1934
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources

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PHILCO RADIO & TELEVISION CORP.

MODEL 14
Voltage,
Chassis view
Socket, Data

PHILCO RADIO MODEL 14 is a nine-tube superheterodyne receiver, designed for operation upon alternating current. The intermediate frequency of the superheterodyne circuit is 175 kilocycles. The frequency range of the receiver is 520-4000 kilocycles, which includes standard broadcast, police, aircraft, and amateur radiophone reception. The tube sequence is: Type 78 tube for radio frequency amplifier, Type 6A7 tube as combination first detector and oscillator, Type 78 for intermediate frequency, Type 37 for automatic volume control—second detector, Type 77 as first audio frequency, Type 42 as Driver—2nd A. F.; two Type 42's as triodes form the class "A" amplifier, and a Type 80 is the rectifier. The power consumption of the Model 14 is 110 watts. The Receiver incorporates automatic volume control, four-point bass-compensating tone control, shadow-tuning, and a waveband switch which permits reception over a wide frequency band with the same superheterodyne circuit.

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

CIRCUIT	R. F.	Det. Osc.	I. F.	A.V.C.—2nd, Det.	1st, A. F.	Driver (2nd, A. F.)	Output (Class "A")	Rectifier
TYPE TUBE	78	6A7	78	37	77	42	42	80
Filament Volts—F to F...	6.3	6.3	6.3	6.3	6.3	6.3	6.3	5.0
Plate Volts—P to K...	210	210	220	...	80	205	275	340
Screen Grid Volts—SG to K (Type 6A7—G3-5 to K)...	90	90	90	...	40	205	280	...
Control Grid Volts—CG to K (Type 6A7—G4 to K)...	4	1	3.2	4	5	4	28	28
Cathode Volts—K to F...	2.7	2.7	3.2	...	...	...	...	...
Type 6A7—G1 to K...	...	30	...	...	...	...	...	...
Type 6A7—G2 to K...	...	170	...	...	...	...	...	...

*All the above values were obtained from the underside of the chassis, using test probe and leads with a suitable A. C. voltmeter for filament voltages and a high-resistance multi-range D. C. voltmeter for all other readings. The PHILCO MODEL 048 ALL-PURPOSE SET TESTER IS RECOMMENDED FOR THIS. Volume Control at maximum; station selector at 520 K. C. Readings which are obtained with a plug-in adaptor will NOT be satisfactory.

Table 2—Power Transformer Data

Terminal	A. C. Volts	Circuit	Color
1-2	105-125	Primary	White
3-5	6.3	Filament	Black
6-7	5.0	Filament of 80	Blue
8-10	780	Plates of 80	Yellow
4	...	Center Tap of 3-5	Black—Yellow Tracer
9	...	Center Tap of 8-10	Yellow—Green Tracer

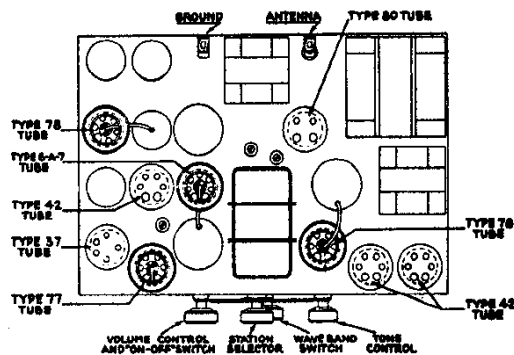


Fig. 1—Top View of Chassis

Adjustment of Model 14

The accurate adjustment of receivers is completed before shipment from the factory. Subsequent adjustments should not be undertaken unless complete instruction has been obtained in the adjustment of the compensating condensers. An accurately calibrated signal generator is necessary, and the PHILCO MODEL 048 ALL-PURPOSE SET TESTER, which contains a precision signal generator, is thoroughly recommended. Philco Service Bulletin No. 120-C, "Adjusting Philco Superheterodynes", outlines the general procedure. The following specifically supplements for Model 14:

Figure 3 of the present Bulletin shows the electrical position of the several compensating condensers; Figure 2, the physical location of those compensating condensers which are mounted upon the underside of the chassis, and at the rear of the chassis sub-base.

The intermediate frequency compensating condensers should be adjusted first. The intermediate frequency is 175 kilocycles. The location of these compensating condensers is: (a) 1st, I. F. PRIMARY—(28)—underneath the chassis. May be reached through hole in chassis sub-base to rear, left, of Tuning Condenser Assembly (9). See Figure 1. (b) 1st, I. F. SECONDARY—(29)—at rear of chassis, and accessible therefrom. Mounted near (28) and (30) electrolytic condensers. (c) 2nd, I. F. PRIMARY—(31)—at rear of chassis. Accessible from rear. Mounted next to (28). (d) 2nd, I. F. SECONDARY—(32)—underneath the chassis. Accessible through hole in sub-base, located between Type 42 (Driver) and Type 77 (1st, A. F.). See Figure 1.

Next, the "OSC.; H. F." (33), "DETECTOR" (34), and "ANT.; H. F." (35) compensating condensers should be adjusted in the order given. (36) and (37) are mounted upon the Tuning Condenser Assembly (9). (36) is located underneath the chassis, accessible through hole in sub-base at rear of Tuning Condenser Assembly (9),—between Tuning Condenser and Type 80 (Rectifier). See Figure 1. The signal generator is adjusted to a frequency of 1500 K. C. for (36), to 1400 K. C. for (37) and (38).

The "OSC.; L. F." (39) compensating condenser is next adjusted. It is located at rear of chassis, beside (36), and toward "GND" terminal of Receiver. The signal generator is set at 600 K. C. for this adjustment. The Tuning Condenser should be "rocked" during this adjustment.

The "Push-on Button" shields covering the holes through which these adjustments are made, must be replaced upon completion of the adjustments.

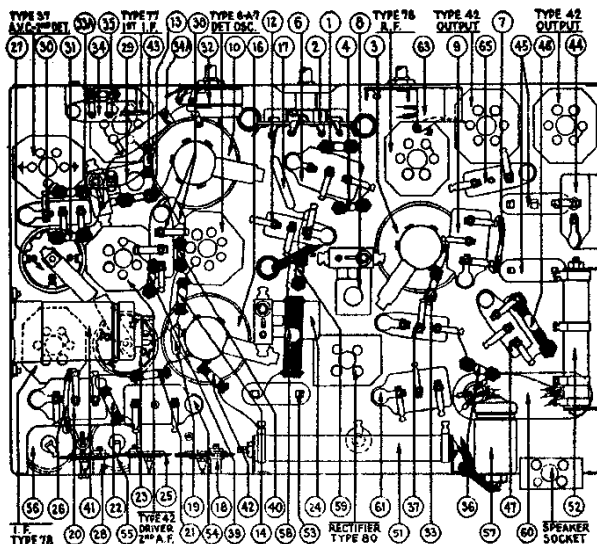
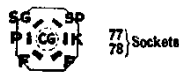


Fig. 2—Bottom View of Chassis Showing Parts



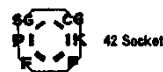
77/78 Sockets



6A7 Socket



37 Socket



42 Socket

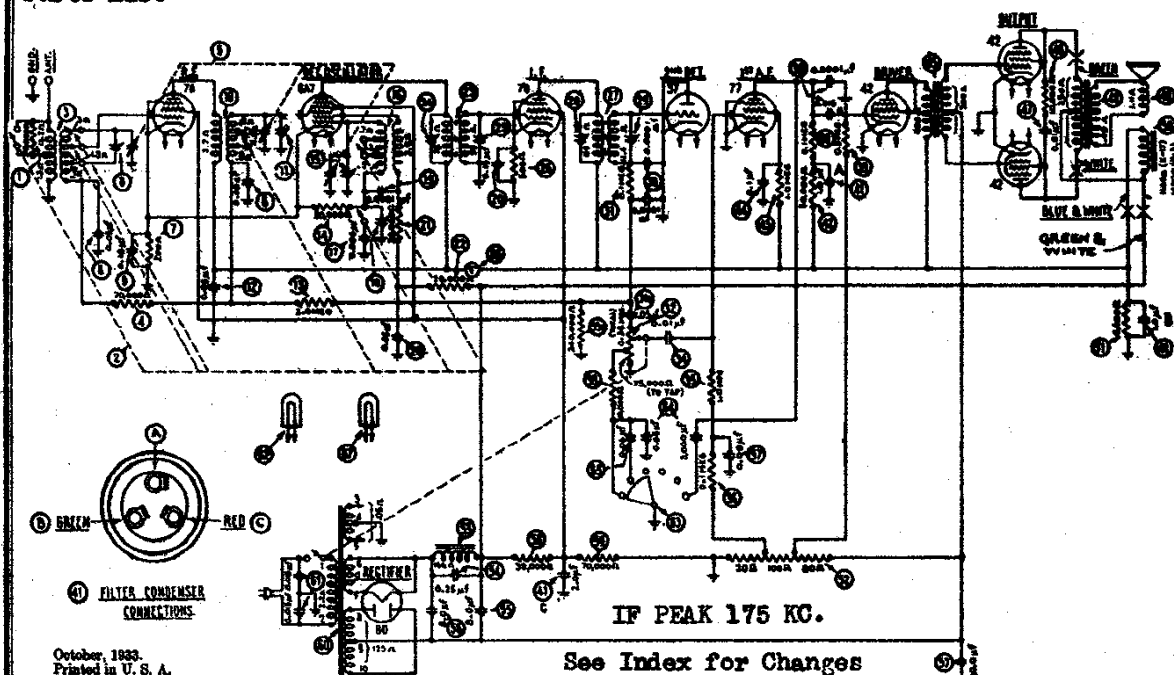


80 Socket

Terminal Arrangement of Tube Sockets Viewed from Under Side of Chassis.

MODEL 14
Schematic
Parts List

PHILCO RADIO & TELEVISION CORP.



October, 1933.
Printed in U. S. A.

Fig 3—Schematic Wiring Diagram

No. on Figs.	Description	Part No.	List Price	No. on Figs.	Description	Part No.	List Price
①	Resistor (10,000) (Brown-Black-Orange).....	4412	\$0.24	④②	Resistor (50,000) (Green-Brown-Orange).....	4518	.34
②	Wave Band Switch.....	43-1035	.78	④③	Resistor (1.0 meg.) (Brown-Black-Green).....	4400	.34
③	Antenna Transformer.....	33-1261	.60	④④	Condenser (.1).....	3615-BM	.35
④	Resistor (70,000) (Violet-Black-Orange).....	3385	.34	④⑤	Input Transformer.....	33-7087	2.70
⑤	Tuning Condenser Assembly.....	{(Code 123) 31-1099 {(Code 123) 31-1100	4.35 4.35	④⑥	Resistor (10,000 ohms) (Brown-Black-Orange).....	3594	.34
⑥	Condenser (Double) (.05-.05).....	3615-AM	.34	④⑦	Condenser (.01).....	3603-P	.34
⑦	Resistor (Flexible Wire Wound); (200) (Red-Black-Brown).....	7317	.18	④⑧	Output Transformer.....	33-7078	1.35
⑧	Compensating Condenser (Ant. H. F.).....	04000-A	.14	④⑨	Voice Coil and Cone Assembly.....	34-3061	.90
⑨	Condenser (.18).....	4920-AC	.34	④⑩	Speaker Field Coil and Pot Assembly (U-3).....	36-3163	6.75
⑩	Detector Transformer.....	33-1256	.45	④⑪	Resistor (Wire Wound); (8,500).....	33-3083	.35
⑪	Compensating Condenser (Det.; Part of ⑩).....			④⑫	Voltage Divider Resistor (Wire Wound).....	33-3082	.30
⑫	Condenser (.05).....	3615-AA	.34	④⑬	Filter Choke.....	33-7115	1.50
⑬	Resistor (2.0 meg.) (Red-Black-Green).....	3573	.34	④⑭	Condenser (.25 mfd.).....	6287-N	.30
⑭	Resistor (50,000) (Green-Brown-Orange).....	4518	.34	④⑮	Condenser (Electrolytic); (8.0 mfd.).....	{(Code 123) 30-3032 {(Code 123) 7464 {(Code 123) 30-3035 {(Code 123) 7464	1.00 1.50 1.15 1.50
⑮	Compensating Condenser (Osc.; H. F.; Part of ⑮).....			④⑯	Condenser (Electrolytic); (8.0 mfd.).....	30-3003	.34
⑯	Oscillator Transformer.....	33-1263	.55	④⑰	Resistor (32,000) (Orange-Red-Orange).....	33-1036	.30
⑰	Condenser (.005).....	6350	.45	④⑱	Resistor (70,000) (Violet-Black-Orange).....	3385	.34
⑱	Compensating Condenser (Osc.; L. F.).....	04000-R	.42	④⑲	Power Transformer (50-60 cycles).....	33-7111	5.75
⑲	Condenser (.0001).....	4519	.32	④⑳	Condenser (Double); (.015-.015).....	3790-R	.30
⑳	Condenser (Double); (.05-.15).....	6387-M	.35	④㉑	Pilot Lamp (Station Selector).....	6008	.14
㉑	Resistor (30,000) (Red-Black-Orange).....	6680	.30	④㉒	Tone Control.....	30-4073	.35
㉒	Resistor (30,000) (Red-Black-Orange).....	6680	.30	④㉓	Condensers, (Internal to ㉒).....		
㉓	1st. I. F. Transformer.....	33-1265	.55	④㉔	Condenser, (External to ㉒).....	3615-C	.19
㉔	Compensating Condenser (1st. I. F. Pri.).....	04000-J	.34	④㉕	Shadow Tuning Meter.....	6497	2.20
㉕	Compensating Condenser (1st. I. F. Sec.).....	04000-H	.32	④㉖	Pilot Lamp; (Part of ㉕) Shadow Tuning Meter).....		
㉖	Resistor (Flexible Wire Wound) (500) (Green-Black-Brown).....	6077	.34	④㉗	Shield ("Push-on" Button).....	W-775 per C	1.50
㉗	2nd. I. F. Transformer.....	33-1264	.55	④㉘	Tube Shield.....	38-1107	.12
㉘	Compensating Condenser (2nd. I. F. Pri.).....	04000-J	.34	④㉙	Four-Prong Tube Socket.....	7544	.07
㉙	Compensating Condenser (2nd. I. F. Sec.).....	04000-T	.19	④㉚	Five-Prong Tube Socket.....	7545	.12
㉚	Condenser (Double); (.0001-.0001).....	8035-K	.35	④㉛	Six-Prong Tube Socket.....	7547	.12
㉛	Resistor (.1 meg.) (White-White-Orange).....	4411	.34	④㉜	Seven-Prong Tube Socket.....	37-0005	.12
㉜	Volume Control & "On-Off" Switch.....	33-5024	1.00	④㉝	Speaker Socket.....	4967	.10
㉝	Resistor (10,000) (Brown-Black-Orange).....	4412	.34	④㉞	Dial Scale (Station Selector).....	37-5012	.20
㉞	Resistor (240,000) (Red-Yellow-Yellow).....	4410	.34	④㉟	Mounting Bolt (Chassis).....	W-567 per C	2.25
㉟	Condenser (.01).....	3903-Z	.17	④㊱	Mounting Washer (Chassis).....	5199	.04
㊱	Condenser (.05).....	30-4020	.14	④㊲	Mounting Washer (Chassis).....	6006 per C	.85
㊲	Resistor (1.0 meg.) (Brown-Black-Green).....	4400	.34	④㊳	Knob (large).....	6003	.10
㊳	Resistor (.1 meg.) (White-White-Orange).....	4411	.34	④㊴	Knob (small).....	6004	.07
㊴	Condenser (.00).....	4930-N	.32	④㊵	Knob Spring.....	5303 per C	.42
㊵	Condenser.....	{(60011) 4519 {(015) 3790-AB	.32 .30	④㊶	Base.....	6410	.34
㊶	Resistor (.5 meg.) (Yellow-White-Yellow).....	4517	.34	④㊷	Base Mounting Screw.....	W-453 per M	4.35
㊷	Resistor (.1 meg.) (White-White-Orange).....	4411	.34	④㊸	Base Felt.....	6732 per C	.25
㊸	Electrolytic Condenser ("A"—1.0 mfd.; "B"—1.0 mfd.; "C"—2.0 mfd.).....	30-3029	1.00	④㊹	Speaker (K-17) (Baby).....	33-7075	1.35
				④㊺	Output Transformer.....	33-7076	.45
				④㊻	Voice Coil & Cone Assembly.....	36-3104	2.25
				④㊼	Speaker Field & Pot Assembly.....	7004 per C	.90
				④㊽	Speaker Socket Hole Cover.....	L-1632	.24
				④㊾	Speaker Cable.....		

PHILCO RADIO & TELEVISION CORP.

MODEL 14, 14-121

Changes

MODEL 18

Changes

Model 14

Part Numbers of knobs and bezel used on 14-MX cabinet are as follows:

Knob (large-black).....	27-4051
Knob (small-black).....	27-4052
Bezel.....	27-4092

Effective with Run Number 2, Condenser Ⓐ, Part No. 3903-Z, (.01 Mfd.) is superseded by Condenser, Part No. 4989-AJ, (.09 Mfd.); also, Resistor Ⓒ, Part No. 4411 (.1 Meg.; White-White-Orange) is superseded by Resistor, Part No. 4517 (.5 Meg.; Yellow-White-Yellow).

In Run No. 2, Model 14-121, Tone Control Ⓐ Part No. 06698 is superseded by Part No. 30-4041; Resistor Part No. 4411 by Part No. 4517 in both Ⓐ and Ⓐa positions; Resistor Part No. 6984 Ⓒ by Part No. 5310; By-pass Condenser Part No. 4989-T Ⓐ by 4980-K; and By-pass Condenser Part No. 3903-P Ⓐ by Part No. 3615-BJ. The leads from the Volume Control are NOT twisted.

Model 14-121

Twin speakers (H-7 and K-12) in this model were superseded by speaker "U". This speaker ("U" type), Part No. 36-1017, has a field coil D.C. resistance of 6500 ohms and a D.C. resistance of 2 ohms in the voice coil. The Speaker Field assembled with Pot ("U") is Part No. 36-3074. The Voice Coil and Cone Assembly is Part No. 36-3061. The Output Transformer is Part No. 32-7051, and has a D.C. resistance in primary of 680 ohms; in secondary, .2 ohm.

With Run number 1-X, Tuning Condenser Assembly Ⓒ will be changed to Part No. 31-1048, superseding Part No. 31-1011. In this substitution, three of Part No. 29-6060 spacers and three of Part No. W-729 mounting bolts are used.

Model 18

Effective with Run Number 4, Condenser Ⓐ, Part No. 7006, (.0025 Mfd.) is superseded by Condenser, Part No. 30-1026,—same capacity.

This additional list price should be included in the Replacement Parts list:

No. on Figs.	Description	Part No.	List Price
Ⓒ	Speaker Field Coil and Pot Assembly (H-13).....	36-3104	\$2.25
	[Code 121] Speaker Field and Pot Assembly (K-17).....	36-3104	2.25

NOTE: The above list price is effective September 15, 1933.

ALL PRICES CONTAINED IN SERVICE BULLETIN NO. 172 (MODEL 18) WERE THOSE EFFECTIVE SEPTEMBER 15, 1933.

Compensating Condenser Identifications

Cellulose paint spots on the bottom of compensating condensers will identify them as follows:

Part No. 31-6000.....	Capacity 350-600 Mmf.	No Spot
Part No. 31-6001.....	Capacity 100-145 Mmf.	Red Spot
Part No. 31-6002.....	Capacity 145-190 Mmf.	Green Spot
Part No. 31-6003.....	Capacity 50-125 Mmf.	Yellow Spot

Courtesy Nostalgia Air

MODEL 14, 91

(126-226)

Schematic

Parts List

PHILCO RADIO & TELEVISION CORP.

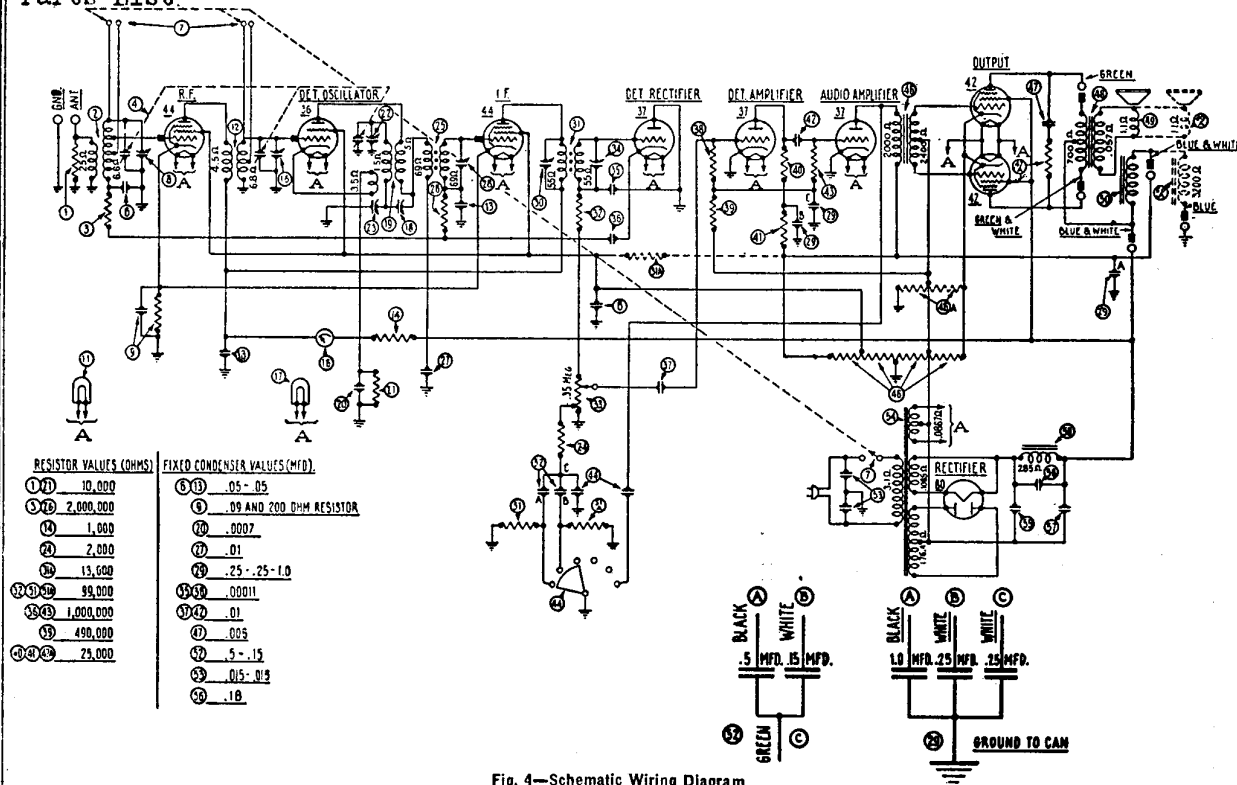


Fig. 4—Schematic Wiring Diagram

No. on Figs.	Description	Part No.	List Price	No. on Figs.	Description	Part No.	List Price
①	Resistor (Brown-Black-Orange)	4412	.20	④③	Resistor (Brown-Black-Green)	4409	.20
②	R.F. Transformer	32-1069	.60	④④	Tone Control	06698	.55
③	Resistor (Red-Black-Green)	5872	.20	④⑤	Push-Pull Input Transformer	6064	2.25
④	Tuning Condenser Assembly	04790	4.25	④⑥	B.C. Resistor (Wire Wound)	6702	.40
⑤	Compensating Cond. (R.F.) Part of ④			④⑥a	B.C. Resist. (Wire Wound) Twin Speaker	6808	.18
⑥	Condenser	3615-AM	.20	④⑦	Condenser	7625-B	.12
⑦	"On-Off" and Frequency Switch	42-1002	1.00	④⑦a	Resistor (Red-Green-Orange)	4516	.20
⑧	Condenser (and Resistor)	6287-C	.20	④⑧	Push-Pull Output Trans. (Sing. Speaker)	2585	1.35
⑨	Pilot Lamp (Philco Scale)	6608	.14	④⑧a	Push-Pull Output Trans. (Twin Speaker)	2565	1.40
⑩	Detector Transformer	32-1070	.40	④⑨	Voice Coil and Cone Assembly (K-6 and K-12)	02823	.45
⑪	Condenser	3615-AJ	.25	④⑨a	Voice Coil and Cone Assembly (H-7) Twin Speaker Model	02807	.65
⑫	Resistor (Brown-Black-Red)	5837	.20	⑤①	Speaker Field Assembled with Pot (K-6 and K-12)	02803	2.25
⑬	Compensating Cond. (Detector) Part of ④			⑤①a	Speaker Field Assembled with Pot (H-7) Twin Speaker Model	02803	2.25
⑭	Tuning Meter	6497	2.25	⑤②	Resistor (White-White-Orange)	4411	.20
⑮	Pilot Lamp (Tuning Meter)	6608	.14	⑤②a	Resistor (White-White-Orange)	4411	.20
⑯	Compensating Cond. (1st I.F. Primary)	04000-M	.16	⑤③	Condenser Bank	06713	.45
⑰	Oscillator Coil	05985	.40	⑤④	Condenser (Double)	3793-E	.20
⑱	Condenser (White and Yellow)	4520	.20	⑤⑤	Power Trans. (50-60 cycles) Sing. Speak'r	6554	4.75
⑲	Resistor (Brown-Black-Orange)	4412	.20	⑤⑤a	Power Trans. (25-40 cycles) Sing. Speak'r	6555	7.25
⑳	Comp. Cond. (High Freq.) Part of ①			⑤⑥	Power Trans. (50-60 cycles) Twin Speak'r	6804	5.50
㉑	Compensating Condenser (Low Freq.)	04000-B	.18	⑤⑥a	Power Trans. (25-40 cycles) Twin Speak'r	6805	7.50
㉒	Resistor (Red-Black-Red)	6084	.20	⑤⑦	Electrolytic Cond. (6 MFD) Sing. Sp'ker	4916	1.75
㉓	First I.F. Transformer	04319	.75	⑤⑦a	Electrolytic Cond. (8 MFD) Twin Sp'ker	7464	1.25
㉔	Resistor (Red-Black-Green)	5872	.20	⑤⑧	Condenser	4989-T	.20
㉕	Condenser	3903-AE	.14	⑤⑧a	Electrolytic Cond. (6 MFD) Sing. Sp'ker	4916	1.75
㉖	Comp. Cond. (1st I.F. Secondary)	04030-M	.16	⑤⑧b	Electrolytic Cond. (8 MFD) Twin Sp'ker	7464	1.25
㉗	Filter Condenser Bank	04830	.75	⑤⑨	Filter Choke	4819	1.40
㉘	Comp. Cond. (2d I.F. Primary)	04000-M	.16	⑤⑩	Tube Shields	8005	.05
㉙	Second I.F. Transformer	04320	.75	⑤⑩a	Knob (Large)	03063	.08
㉚	Resistor (White-White-Orange)	4411	.20	⑤⑩b	Knob (Medium)	03064	.06
㉛	Volume Control	8054	1.25	⑤⑩c	Knob (Small)	03437	.02
㉜	Comp. Cond. (2nd I.F. Secondary)	04000-M	.16	⑤⑪	Four Prong Socket	5026	.08
㉝	Condenser (Blue and Golden Yellow)	4519	.18	⑤⑪a	Five Prong Socket	4956	.10
㉞	Condenser (Blue and Golden Yellow)	4519	.18	⑤⑪b	Six Prong Socket	6417	.10
㉟	Condenser	3903-P	.20	⑤⑪c	Dial, Complete	04832	.40
㊱	Resistor (Brown-Black-Green)	4409	.20	⑤⑪d	Bezel	6418	.20
㊲	Resistor (Yellow-White-Yellow)	4517	.20				
㊳	Resistor (Red-Green-Orange)	4516	.20				
㊴	Resistor (Red-Green-Orange)	4516	.20				
㊵	Condenser	3903-P	.20				

PHILCO RADIO & TELEVISION CORP.

SEE INDEX

FOR FURTHER INFORMATION ON THESE RECEIVERS,

Models 38 and 38-A

The following additional list prices should be included in the Replacement Parts list:

No. on Figs.	Description	Part No.	List Price
①	Volume Control	33-5017	\$0.72
②	Wave Band Switch	42-1030	.48
③	Antenna Transformer	32-1208	.48
④	Tuning Condenser Assembly	31-1076	2.70
⑤	Oscillator Transformer	32-1209	.78
⑥	1st I. F. Transformer	32-1251	.60
⑦	2nd I. F. Transformer	32-1252	.60
⑧	Voice Coil and Cone Assembly	36-3014	.60
⑨	Switch ("On-Off"; Battery)	42-1040	.54
	Battery Cable Assembly (including Multi-Plug)	38-5265	.96
	Station Selector Dial Scale	27-5019	.14

Note: The above list prices are effective September 15, 1933.

Model 71 Series

To correct typographical error,—

Change Part No. 02761 @, Speaker Field and Bucking Coil assembled with Pot (K-7)—(single speaker Models), to Part No. 02741.

Change Part No. 02762 @ Speaker Field and Bucking Coil assembled with Pot—(K-9)—(twin speaker Models)—to Part No. 02761.

Model 89-126-126B**Model 19-122-126-126B**

The following substitutions of electrolytic condensers are effective with current production:

Position	Code 122 (Model 19 only)	Code 126 and 126B (Models 89 and 19)
ⓐ	8095 (6 Mfd.), or 7464 (8 Mfd.)	30-2020, or 8166, or 4916, or 8095
ⓑ	8095 (6 Mfd.), or 7464 (8 Mfd.)	30-2021, or 8165, or 8095
		(These are all of 6.0 Mfd. capacity)

Effective with Run Number 5, Tuning Condenser ③ is superseded by Tuning Condenser, Part No. 31-1053. The complete Tuning Condenser Assembly ④ Part No. 06577, is superseded by Assembly, Part No. 31-1059.

The sub-base has been modified to accommodate the new condenser by change in location of mounting holes.

Effective with Run Number 6 for Model 89, and with Run Number 5 for Model 19, the red and black wires connecting Oscillator Transformer ⑤ and Compensating Condenser—(1st. I. F. Primary) ⑥ are reversed at the Compensating Condenser.

Part No. 3615BF Condenser is substituted for Part No. 3615E in ⑥.

Change Part No. 02761 @, Speaker Field and Bucking Coil assembled with Pot (K-7), to Part No. 02741.

Effective with Run Number 6 for Model 89, and with Run Number 5 for Model 19, the red and black wires connecting Oscillator Transformer ⑤ and Compensating Condenser—(1st. I. F. Primary) ⑥ are reversed at the Compensating Condenser.

Models 91 and 14 Series

Make ⑤ Oscillator Coil read Part No. 05983. This part has a list price of 65 cents.

Model 91-122

With Run number 2, Tuning Condenser Assembly ④ will be changed to Part No. 31-1051, immediately superseding Part No. 31-1015. In the substitution, it is necessary to remove three of Part No. W-453 mounting bolts and add three of Part No. W-729 mounting bolts; to add three Part No. 29-6060 spacers, six Part No. 3914 rubber washers, and three Part No. W-410 washers.

Model 91-A; Code 121

Effective with current production, this Model will have two Part No. 8022 (10 microfarad) Electrolytic Condensers.

MODEL 14-LZX, 91
23, 14, 19-
LZ, 19-LZX,
37

PHILCO RADIO & TELEVISION CORP.

Changes.

Changes in Models

It is unnecessary to alter receivers in your stock to comply with these changes.

The main purpose of these change bulletins is to enable you in ordering and supplying correct replacement parts to dealers. Mark up your copies of Service Bulletins to agree with the latest production. Your orders for parts from Philco will be filled as specified on your order.

This information is intended for your service department only.

Model 14LZX

In run number 3, the following changes were made to permit police and airplane broadcast reception; the antenna coil ① part number 05984 was changed to new coil part number 32-1069. The interstage coil ② part number 05984 was changed to new coil part number 32-1070. The "on-off" switch (53A) part number 6498 was removed. A combined "on-off" and frequency change switch part number 42-1002 was added.

In run number 3, the Philco Three Purpose Antenna system was added. The set transformer part number 32-1003 was mounted in the radio chassis. The antenna transformer part number 32-1005 was mounted in the speaker cabinet. In the speaker cabinet the control box part number 06617 was changed to new control box part number 38-5056.

Models 91, 23 and 14

In run number 1, the (15,000 ohm) resistor ② part number 6208 was changed to new resistor (10,000 ohms) part number 4412. Condenser ③ part number 3615AM was changed to new condenser part number 3615AF. A terminal block part number 03103 was added. This terminal block was mounted on the condenser ④ part number 4989K or 4989T.

Models 19LZ-19LZX

In run number 4, model 19LZ; run number 3, model 19LZX; the following changes were made to permit police and airplane broadcast reception: The antenna coil ① part number 06619 was changed to new coil part number 32-1062. The interstage coil ② part number 06662 was changed to new coil part number 32-1063. The "on-off" switch part number 6498 was removed. A combined "on-off" and frequency change switch part number 42-1017 was added.

In run number 4, model 19LZ; run number 3, model 19LZX; rubber insulators part number 4054 were added to both ends of the 10,000 ohm resistor connected between the tone control and the tap on the volume control.

In run number 3, model 19LZX, the Philco Three Purpose Antenna system was added. The set transformer part number 32-1003 was mounted in the chassis. The antenna transformer part number 32-1005 was mounted in the speaker cabinet. In the speaker cabinet the control box part number 06798 was changed to new control box part number 38-5057.

Model 37

The (99,000 ohm) resistor ② part number 4411 was changed to new resistor (490,000 ohms) part number 4517.

The (490,000 ohm) resistor ③ part number 4517 was changed to new resistor (240,000 ohms) part number 4410.

The (99,000 ohm) resistor ② part number 4411 was changed to new resistor (1,000,000 ohms) part number 4414.

The (51,000 ohm) resistor ② and the (25,000 ohm) resistor ② were removed.

The secondary lead of the second I. F. transformer connected to condenser ② was removed and connected to the secondary lead of the first I. F. transformer on condenser ③. A (490,000 ohm) resistor part number 4517 was added between the center top of the volume control (in cathode circuit) and the secondary leads of first and second I. F. transformer connected on condenser ③.

A (15,000 ohm) resistor part number 6208 was added, connected between end of the volume control (in cathode circuit) and end of resistors ④ and ⑤.

A (30 ohm) resistor part number 7155 was added across the filament of the Ballast tube. Two pieces of 1" braid was used to protect the ends of the resistor.