Philco Radio & Television Corp.

	Model: 45	**Chassis:**	**Year:** Pre October 1934
	Power:	**Circuit:**	**IF:**
	Tubes:		
	Bands:		

Resources
Riders Volume 5 - PHILCO 5-15
Riders Volume 5 - PHILCO 5-24
Riders Volume 5 - PHILCO 5-25
Riders Volume 5 - PHILCO 5-26

MODELS 16,18-124, 29(123-TX) 29,45

PHILCO RADIO & TELEV. CORP.

Model 16

Changes

Starting with run No. 14, all type Model 16 will use a different type tone control. This will be Part No. 30-4168 which replaces 30-4069 formerly used. Condenser 7653-C (㊽ on wiring diagram in Bulletin 165-B) is replaced by 3615-L.

The new tone control has fixed bass compensation, effective on all four positions, which helps subdue background noise and thus favorably affects short-wave reception.

Starting with Run No. 15, a No. 30-4125 tubular condenser, .006 mfd, will be added, connected between the plate of the 77 tube and the tone control. This gives a smoother variation in control and prevents too great a change in tone from one step to another.

Starting with Run No. 16, the tone control used on Model 16 will be part No. 30-4204, which replaces 30-4168. (See June 1st change notices.) At the same time, condenser 3615-L replaces 3615-J, and external tone control condenser 30-4125 is removed. This latter condenser is now built in as part of the new tone control, thus simplifying assembly of the set.

Model 18-124

Starting with Run No. 4, Resistor ㉙ on wiring diagram of Model 18-124 will be Part No. 5837 (1000 ohms) instead of No. 7775 (2500 ohms). There is a slight change in the antenna and oscillator transformers, the new ones being identified by a red paint mark on the bracket. No change in part number. Change to increase sensitivity.

Model 29 (Code 123-TX)

The differences between regular Model 29 and the TX type are that the latter has the following parts added:

Output transformer	**32-7256**
Speaker switch (toggle)	**3116**
Speaker	**Type P-22**

Model 29-TX also includes a furniture-type speaker, HR-2, which is connected to the receiver by a 25-foot cable and plug assembly, part No. 36-3327, attached to the speaker cabinet.

The A. C. cord on 29-TX is a flat cable and contains an extra wire, which is for use as an antenna lead by connecting the antenna to the binding post mounted on the side of the special flat A. C. plug used. However, the antenna *may* be connected to the regular antenna clip terminal on the receiver chassis if desired and more convenient.

The part number of this special cable and plug assembly is 41-3104.

Model 29

Effective July 1st, condenser ㊹ in wiring diagram of Model 29 is changed from 4989 AM, (.09 mfd.) to 3615 AW (.05 mfd.). This improves the fixed bass compensation used in this model.

Starting with Run No. 8, the cathode resistor (㉙ in wiring diagram of Model 29) will be changed from Part No. 6977 (500 ohms) to 33-3016 (400 ohms). This will prevent variation in performance of sets due to considerable variation in 6A7 tubes.

Starting with Run No. 9, electrolytic condenser ㊶ (on wiring diagram) will be a Part No. 30-2026 instead of 30-2020. The new type is of a higher working voltage.

Models 29 & 45

Effective July 1st, a new wave-trap will be used in this model. Part ① on wiring diagram of Model 29 is changed from Part No. 38-5199 to 38-5995. The new wave trap uses an improved construction which facilitates production.

Effective July 1st, mica condenser ㊱ on wiring diagram of Model 29 was changed from Part No. 7301 to 30-1028. No change in capacity; change to facilitate wiring only.

MODELS 32,34,38-122
45

Changes

PHILCO RADIO & TELEV. CORP.

Model 32

Starting with Run No. 4, the antenna and ground Fahnestock clip terminals will be replaced with insulated wire leads. This is done to better meet Underwriters' requirements.

Starting with Run No. 5, Model 32 will use a type 77 detector-oscillator tube instead of a type 36. This change gives more stable performance of the oscillator.

This change involves using a six-hole tube socket instead of the original five-hole socket used for type 36. It also requires making the following substitutions:

Part ⑲, No. 6208 resistor (15,000 ohms) is replaced by 33-1114 (8000 ohms)

Part ⑮, No. 5863 condenser (700 Mmfd) is replaced by 7007 (1400 Mmfd.)

On page 3, correct Part No. of ㉔ Volume Control is 30-5063, instead of 30-5055. (List price given ($1.00) is correct.)

Model 34

Correct *list price* of Part ㉙, 36-3157 voice-coil and cone-assembly, KR-6 speaker, to read 0.75

Starting with Run No. 3, Model 34 will be equipped with a 4-point tone control instead of a 2-point. The part No. of the new control is 30-4168 which replaces 30-4152.

Model 38-122

This model will use a new output transformer, Part No. 32-7286. This replaces No. 2565 formerly used.

Referring to change notice of July 1st regarding ballast tube shunt resistor on Model 38-122, the correct part number of the 20 ohm resistor used will be 33-3043 instead of 33-3160.

A new ballast tube shunt resistor will be used in production effective this date. This will be part No. 33-3160, 20 ohms, instead of part No. 7155, 30 ohms. This gives a slight (desirable) increase in filament voltage.

Model 45

Starting with Run No. 5, the cathode resistor on 6A7 tube, Part No. ㉑ on diagram will be changed from Part No. 6977 (500 ohms) to 33-3016 (400 ohms). This is to prevent variation in output of sets due to variation in 6A7 tubes.

Starting with Run No. 6, electrolytic condenser ㉒ and ㉓ (Part No. 30-2028) is replaced by No. 30-2079, same capacity but higher voltage rating.

Starting with Run No. 8, electrolytic condenser ㉘ (see Service Bulletin 191) will be changed from part No. 30-2020 to 30-2026. Same capacity (6 mfd.), higher voltage rating.

Both Codes 121 and 122 on this model will now use bypass condenser 3615-W for part ㉔. This change was made to simplify assembly on this model and does not affect performance.

Models 45 & 29

Effective July 1st, mica condenser ⑱ on wiring diagram of Model 29 was changed from Part No. 7301 to 30-1028. No change in capacity; change to facilitate wiring only.

Effective July 1st, a new wave-trap will be used in this model. Part ① on wiring diagram of Model 29 is changed from Part No. 38-5199 to 38-5995. The new wave trap uses an improved construction which facilitates production.

MODEL 45
Alignment Data
Voltage, Layouts

PHILCO RADIO & TELEV. CORP.

Model 45

Philco Model 45 is a six tube receiver operating on alternating current and capable of receiving either standard and police broadcasts between 540 and 1720 kilocycles, or short-wave stations between 4.2 and 13 megacycles. The left hand side of the dial is calibrated in kilocycles for standard reception and the right in megacycles for short-wave stations. A two-position switch changes reception from standard to short-waves.

Model 45 uses a type 6-A-7 detector-oscillator, two type 39-44 I. F. Tubes, type 75 2d detector, type 42 output tube, and type 80 rectifier. The power consumption is 65 watts. The intermediate frequency is 460 K.C.

Power Transformer Voltages

Terminals	Volts	Circuit	Color Leads
1-2	120	Primary	White
3-4	5.0	Fil. of 80	Blue
5-7	680	Plates of 80	Yellow
8-10	6.3	Filaments	Black
6	...	Center of 5-7	Yellow—Green tr.
9	...	Center of 8-10	Black—Yellow tr.

Tube Socket Voltages

CIRCUIT	Det. Osc.	1st IF	2d IF	2d Det.	Output	Rect.
Type Tube	6A7	39-44	39-44	75	42	80
Filament (F to F).....	6.3	6.3	6.3	6.3	6.3	5.0
Plate (P to K).....	260	255	255	175	250	335
Screen Grid (SG to K).....	G1-35 G2-135 G3-45-85	75	75	...	260	...
Cathode (K to F).....	4.2	3.8	3.8	0	0	...

The above tests were made with an AC voltmeter for filament voltages and a high resistance DC voltmeter for all others. Dial at 550 KC, volume control at maximum. Test made with test prods applied to socket terminals underneath chassis. Line voltage 115.

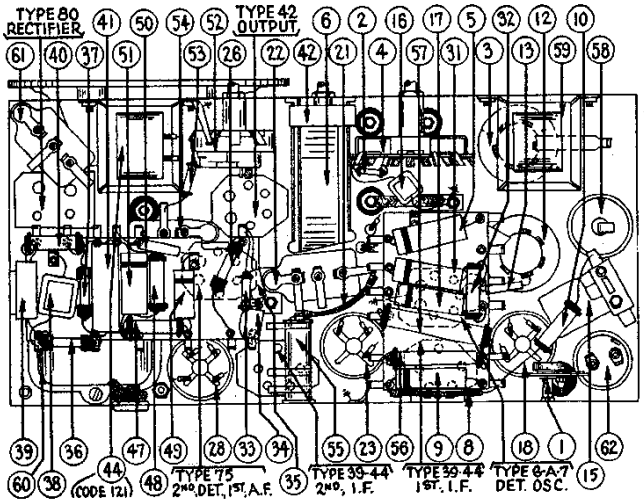

Fig. 4—Bottom View Showing Parts

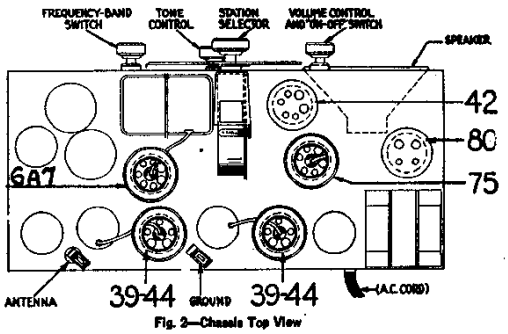

Fig. 2—Chassis Top View

Adjusting Compensating Condensers

For adjustment of compensating (padding) condensers in model 45, an accurately calibrated signal generator and a special insulated padding wrench are needed. We suggest the Philco Model 024 Signal Generator or the 048 Tester which includes a similar instrument.

The chassis must be removed from cabinet in order to make all adjustments.

Adjustments are made in the following order—

ADJUSTMENT OF THE INTERMEDIATE FREQUENCY—Remove the grid clip from the type 6A7 tube and connect the "ANT" output terminal of the signal generator to the grid cap of the tube. Connect the "GND" terminal of the signal generator to the "GND" terminal of the receiver chassis.

Connect the output meter to the primary terminals of the output transformer. Set the signal generator at 460 K.C. (the intermediate frequency of Model 45) and with the receiver and signal generator turned on, the wave band switch at left and dial at 600 K.C., adjust each of the I. F. compensating condensers in turn, to give maximum response in the output of the receiver. The three pairs of I. F. compensating condensers are located one pair at the top of each of the three I. F. transformer shields. These are the three metal "cans" near the rear of the chassis. Each of the transformers has a dual compensating condenser mounted at its top, and accessible thru a hole in the top of the coil shield. In the dual compensators, the Primary circuit is adjusted by turning the screw; the Secondary circuit is adjusted by turning the hex-head nut.

ADJUSTMENT OF THE WAVE TRAP—Replace the grid clip upon the Detector-Oscillator tube (Type 6A7). Connect the output leads from the signal generator directly to the antenna and ground terminals of the receiver. Set the Wave-Band Switch of the receiver to the standard broadcast band (left hand position) and the Station Selector at the low frequency (540 K.C.) end. Adjust the Wave Trap condenser to give MINIMUM response to a 460 K.C. signal from the signal generator. The Wave Trap ① is located at rear and underneath the chassis, and is shown in Figure 4. It is reached from the rear of the chassis, by inserting the fibre wrench thru the hole near right-hand rear corner of chassis.

DETECTOR, AND OSCILLATOR "HIGH" AND "LOW" FREQUENCY ADJUSTMENTS—The "antenna" and "oscillator H. F." compensators are located on top of the tuning condenser assembly, reached from above.

Set the signal generator at 1500 K.C., tune in this signal on the set and adjust the antenna compensator ⑦ (nearest tuning control) to give maximum reading in the output meter.

Next adjust the oscillator H. F. condenser ⑪ (located on the other section of tuning condenser) to maximum reading.

Finally set the signal generator at 600, tune in this signal and adjust the oscillator "L. F. condenser", located underneath chassis (⑮ in Fig. 4) to maximum reading. This adjustment is reached thru the hole in top of chassis, between the two electrolytic condensers (left hand end of chassis when facing rear).

MODEL 45
Schematic
Parts List
Socket Layout

PHILCO RADIO & TELEV. CORP.

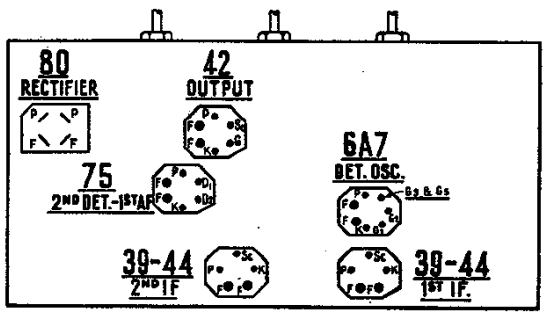

Fig. 1—Tube Socket Layout (underside)

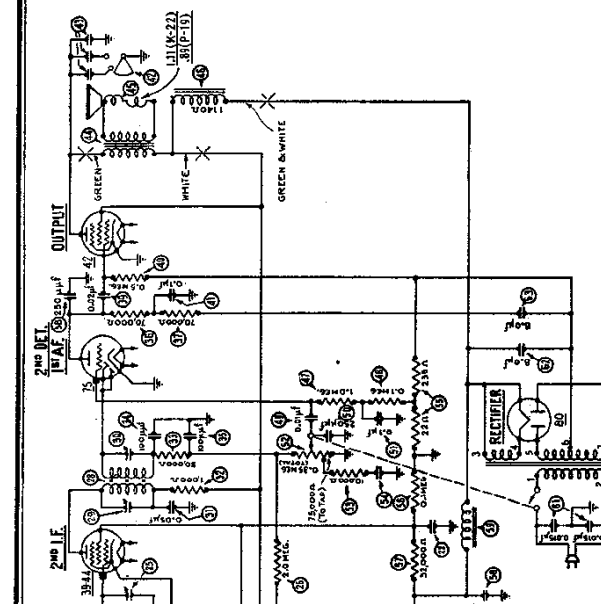

Fig. 3—Schematic Diagram

Note: Resistor (22) is 500 ohms in current production.

REPLACEMENT PARTS—MODEL 45

No. on Fig.	Description	Part No.	List Price Each
(1)	Wave Trap	38-5199	$0.30
(2)	Resistor (10,000 ohms) (Brown-Black-Orange)	4412	.25
(3)	Antenna Transformer	32-1360	.60
(4)	Wave Band Switch	42-1062	1.10
(5)	Condenser (.1 Mfd.) (Tubular)	30-4122	.35
(6)	Tuning Condenser Assembly	31-1169	4.40
(7)	Compensating Condenser (Det.)	Part of (6)	....
(8)	Resistor (400 ohms—Flexible wire wound)	33-3016	.20
(9)	Condenser (.1 Mfd.) (Tubular)	30-4122	.35
(10)	Resistor (25,000 ohms) (Red-Green-Orange)	4516	.25
(11)	Compensating Condenser (Osc. H. F.)	Part of (6)	....
(12)	Oscillator Transformer	32-1361	.85
(13)	Condenser (.0008 Mfd.—Mica)	5878	.35
(14)*	Resistor (32,000 ohms) (Orange-Red-Orange)	3525	.25
(15)	Compensating Condenser (Osc. L. F.)	04000-S	.35
(16)	Condenser (.003 Mfd.—Mica)	7301	.45
(17)	Condenser (.05 Mfd.—Tubular)	30-4123	.35
(18)	1st I. F. Transformer	32-1363	1.50
(19)	Compensating Condenser (1st I. F. Primary)	Part of (18)	....
(20)	Compensating Condenser (1st I. F. Secondary)	Part of (18)	....
(21)	Resistor (600 ohms—Flexible wire wound)	6977	.20
(22)	Condenser (.09 Mfd. twin) (Bakelite block)	4989-Z	.40
(23)	2d I. F. Transformer	32-1363	1.50
(24)	Compensating Condenser (2d I. F. Primary)	Part of (23)	....
(25)	Compensating Condenser (2d I. F. Secondary)	Part of (23)	....
(26)	Resistor (2 megs.) (Red-Black-Green)	5872	.25
(27)	Pilot Lamp	6608	.11
(28)	3d I. F. Transformer	32-1364	1.55
(29)	Compensating Condenser—3d I. F. Primary	Part of (28)	....
(30)	Compensating Condenser—3d I. F. Secondary	Part of (28)	....
(31)	Condenser (.05 Mfd. Tubular)	30-4123	.35
(32)	Resistor (1,000 ohms) (Brown-Black-Red)	5837	.25
(33)	Resistor (60,000 ohms) (Green-Brown-Orange)	4518	.25
(34)	Condenser (.0001 Mfd. Mica)	30-1031	....
(35)	Condenser (.0001 Mfd. Mica)	30-1031	....
(36)	Resistor (70,000 ohms) (Violet-Black-Orange)	5385	.25
(37)	Resistor (70,000 ohms) (Violet-Black-Orange)	5383	.25
(38)	Condenser (.0025 Mfd. Mica)	5858	.35
(39)	Condenser (.02 Mfd. Tubular)	30-4113	.30
(40)	Resistor (.5 meg.) (Yellow-White-Yellow)	4517	.25
(41)	Condenser (.1 Mfd.) (Tubular)	30-4170	.35
(42)	Tone Control	30-4178	.75
(43)(44)	Condensers	Inside 42	....
(45)	Output Transformer (Code 121)	32-7041	.95
*	Output Transformer (Code 122)	2680	1.25
(46)*	Voice Coil & Cone Assembly P-19 (Compact)	36-3027	.50
	Voice Coil & Cone Assembly K-22 (Lowboy)	36-3174	.40
(46)*	Field Coil and Pot Assembly P-19 (Compact)	36-3298	3.00
	Field Coil and Pot Assembly K-22 (Lowboy)	02767	2.70
(47)	Resistor (1 meg.) (Brown-Black-Green)	4409	.25
(48)	Resistor (.1 meg) (White-White-Orange)	4411	.25
(49)	Condenser (.01 Mfd. Tubular)	30-4124	.35
*	Does not appear in Fig. 4.		
(50)	Condenser (.00025 Mfd. Mica)	5858	$0.35
(51)(52)	Condenser (.1 Mfd. Tubular)	30-4122	.35
(53)	Volume Control and On-Off Switch	33-3066	1.45
(54)	Resistor 10,000 ohms (Brown-Black-Orange)	33-1000	.25
(55)	Condenser (Code 121) (.05 Mfd.) (Bakelite Block)	3515-W	.35
(56)	Condenser (Code 122) (.09 Mfd.) (Bakelite Block)	4989-AM	.35
(57)	Voltage Divider (BC Resistor 22—225 ohms) (Wire wound)	33-3037	.20
(58)	Resistor 1 meg (White-White-Orange)	3767	.25
(59)	Resistor 32,000 ohms (Orange-Red-Orange)	33-1026	.35
(60)	Condenser (Electrolytic—6 Mfd.)	30-3020	1.40
(61)	Filter Choke	32-7018	1.50
(62)	Power Transformer	32-7226	4.25
(63)	Condenser (.015 Mfd. twin—Bakelite block)	3793-E	.40
(64)(65)(66)(67)	Condenser (Electrolytic 8—8 Mfd. 450 Volts)	30-3028	2.40
	A. C. Cord and Plug Assembly	L-943-A	.60
	Tube Shield	28-1107	.10
	Four Prong Socket	4965	.10
	Five Prong Socket	4966	.11
	Six Prong Socket	9417	.11
	Seven Prong Socket	27-4006	.11
	Speaker Socket (Lowboy set—code 122)	4987	.10
	Knob (Large) (Lowboy only)	27-4063	.10
	Dial Assembly	27-4051	.10
	Dial Scale	31-1308	.45
	Mounting screw (Compact set)	27-4042	.17
	Mounting Washer (Compact set)	W-1345	2.75 C.
	Foot (Rubber)	5068	.85 C.
		27-4116	.05

May, 1934