

# PHILCO SERVICEMAN

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RADIO • MANUFACTURERS • SERVICE • NEWS

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## EDITORIAL

### Get Your House in Order

**M**OST radio servicemen have enjoyed an unusually good business this spring and early summer, due partly to the many interesting broadcasts, the steadily improving business conditions and in many cases to business-promotional efforts on their own part.

About this time, however, there is apt to be a temporary lull in home radio servicing activity due to the usual trend toward out-of-door life, absence on summer vacations, etc. Here is a wonderful opportunity for the serviceman to "get his house in order" and lay complete plans for a campaign to increase his business—and handle it in a thoroughly businesslike fashion—this fall and winter.

First of all, we suggest you take stock of your shop—its location, appearance, equipment and attention value to passersby. Some members may see fit to move to new and better quarters this fall in anticipation of increased business. Others will prefer to overhaul, dress up and improve their present set-up, check over their stock of tools, hardware, test equipment, stationery and their bookkeeping facilities. Dealers or larger service companies will perhaps consider hiring additional employees or revising the schedules of their present employee set-up.

Next you should check up your stock of common service parts, such as resistors, condensers, cones, volume controls, aeriels, etc. For extra profits, be sure to have on hand such popular accessory items as shadowmeters, head-phone kits, extension speakers, noise-elimination equipment. Don't lose any chance for extra profit by not having on hand what your customer asks for, ready to install for him while the fancy strikes him.

Finally, you should map out a definite budget for advertising and "promotion." Invest as much as you can possibly spare in display material (see the complete new R. M. S. line for 1937); plan a regular "ad" in your local paper and movie theater, and be sure to send out cards or handbills frequently to your mailing list, as well as distributing them in your neighborhood to let new and old residents know you are "on the job."

Follow out the above suggestions, and there is no reason why you can't make 1936-37 the biggest business season you have ever had.

### Unit Construction Offers Many Advantages

#### Servicemen Find Trouble Shooting Much Easier

**T**HE 1937 line of PHILCO receivers present an entirely new form of construction from that which has been used in the past. This new design is called Unit Construction and has many advantages from a service standpoint. The chassis is made up of three separate units, each of which represents a fundamental circuit of the superheterodyne receiver; that is, the Radio Frequency, Intermediate Frequency and Audio Power Unit Circuits are constructed in individual units. These three units or sections are then assembled to form the completed chassis.

#### Better Performance Built In

It is obviously feasible with this type of construction to keep the parts necessary for operation of each circuit closely associated with one another. In this way it is possible to eliminate the complications of stray capacities and coupling between parts and wires of the different circuits and thus afford better radio performance. Better shielding of each circuit can be had and a more rigid control over the assembly and inspection of the entire receiver is obtained as each unit is accurately matched before assembly in the final receiver. The result is a more stable and higher gain instrument.

From the serviceman's standpoint, unit construction has many advantages. Trouble can be isolated to one unit; the necessity for tracing various circuits is reduced; parts of each circuit are easily located for testing, and the adjust-

ment of the various tuned circuits is greatly simplified.

The radio frequency unit is separately mounted from the main chassis by rubber supports providing a cushioning effect, which eliminates the possibility of acoustical-mechanical microphonics sometimes caused by the vibration from the speaker reacting on the tuning and compensating condensers.

#### Construction of R. F. Unit

This unit is composed of the tuning mechanism, tuning condenser, individual coils for each tuning range, the switch, radio frequency amplifier tube, detector-oscillator tube and fixed condensers and resistors necessary for the operation of this circuit.

The antenna, radio frequency and oscillator coils for each tuning range are assembled in three separate sections, each section containing a selector switch, compensating condenser and the necessary coils. The coils are mounted on the selector switch by a bracket, permitting short leads from the coil to the switch. This arrangement will prove to be a distinct advantage to the serviceman in locating trouble in any section, as each section may be removed for the inspection or replacement of parts by removing one screw and a few wires. A further advantage is that the entire selector switch does not have to be removed if one section has become defective, for by removing the control shaft any switch section can be replaced without removing the entire selector switch.



PHILCO Parts Department, Harry Moll, Inc., PHILCO Distributors, Denver, Col.

# AVERAGE CHARACTERISTICS OF NEW PHILCO "G" TYPE TUBES

## 6.3 VOLT SERIES

Type	Description	Use	Type of Cathode	Fil. Amps.	Plate Volts	Negative Control Grid Volts	Screen Volts	Plate Current (M. A.)	Screen Current (M. A.)	Mutual Conductance Micromhos	Plate Resistance Ohms	Amp Factor	Load Resistance Ohms	Power Output Watts
6A8G	Heptode	Converter	Heater	0.30	250	3.0	100	3.0	3.0	520C	360,000			Anode Grid 200 Volts Max. Grid Current 4.0 M. A.
6B4G	Triode	Pwr. Amp.	Filament	1.00	250	45.0		60.0		5200	800	4.2		2,500 3,000*
6B8G	Double Diode Pentode	R. F. or I. F.	Heater	0.30	180	3.0	75	3.4	0.9	Fixed Bias	840	1,000,000	840	15.0 Push pull two tubes
6F6G	Pentode	A. F. Pwr. Amp.	Heater	0.65	250	4.5	50	0.65	7.5	2350	79,000	185	7,000	3.4
6H6G	Triode	Det. A. V. C. Amp.	Heater	0.3	250	8.0		33.0	Tied to P.	2300	2,700	6.2	3,000	0.65
6J5G	Double Diode Triode		Heater	0.3	250	3.0	100	9.0	2.3	0.5	2600	7,700	20.0	
6J7G	Pentode	R. F. Det. Amp.	Heater	0.3	250	3.0	100	2.3	Plate	1250	1,500,000	1500		
6K5G	Triode	Amp.	Heater	0.3	250	3.0		1.1		1200	58,500	70		
6K6G	Pentode	Pwr. Amp.	Heater	0.4	125	10.0	125	11.0	2.0	1525	100,000	150	11,000	0.65 (at 10% distortion)
6K7G	Pentode	R. F.	Heater	0.3	250	18.0	250	32.0	5.5	2200	68,000	150	7,600	3.4
6L7G	Pentode	R. F.	Heater	0.3	250	3.0	100	7.0	1.7	1450	800,000	1160	990	
6L7G	Pentode	R. F.	Heater	0.3	250	3.0	100	2.4	6.2	350C	1,000,000	1,000,000	1100	
6N7G	Double Triode	Pwr. Amp.	Heater	0.8	250	0.0	300	0.0	28.0	Class "B" (2 tubes)	8,000*	8,000*	8.0	
6Q7G	Double Diode Triode	Det. Amp.	Heater	0.3	250	3.0		1.1		1200	58,500	70		(Triode section)
6R7G	Double Diode Triode	Det. Amp.	Heater	0.3	250	9.0		9.5		1900	8,500	16		(Triode section)

## 25.0 VOLT SERIES

25A6G	Pentode	Pwr. Amp.	Heater	0.3	95	15.0	95	20.0	4.0	2000	45,000	90	4,500	0.9
					135	20.0	135	37.0	8.0	2450	35,000	85	4,000	2.0
					180	20.0	135	38.0	7.5	2500	40,000	100	5,000	2.75

## 2.0 VOLT SERIES

1C7G	Heptode	Converter	Filament	0.12	180	3.0	67.5	1.5	2.0	325C	750,000			Anode Grid 135 Volts Max. Anode Grid Current 2.0 M. A.
1D5G	Tetrode	R. F. Amp.	Filament	0.06	180	3.0	67.5	2.3	0.7	750	960,000	720		
1D7G	Heptode	Converter	Filament	0.06	180	3.0	67.5	1.3	1.8	300C	750,000			Anode Grid 135 Volts Max. Anode Grid Current 2.0 M. A.
1E5G	Tetrode	R. F. Amp.	Filament	0.06	180	3.0	67.5	1.7	0.4	650	1,200,000	780		
1E7G	Double Pentode	Pwr. Amp.	Filament	0.24	135	4.5	135	7.5	2.1	1600	220,000	350	16,000	.230 per Section
1F7G	Double Diode Pentode	Det. Amp.	Filament	0.06	180	1.5	67.5	2.0	0.6	650	1,000,000	650		
1H4G	Triode	Det. Amp.	Filament	0.06	90	4.5		2.5		850	11,000	9.3		
					135	9.0		3.0		900	10,300	9.3		
1H6G	Double Diode Triode	Det. Amp.	Filament	0.06	180	13.5		3.1		900	10,300	9.3		Triode section only
1J6G	Double Triode	Pwr. Amp.	Filament	0.24	135	3.0		0.8		575	35,000	20.0		10,000*   2.1
								27.0		Class "B" Operation				

## "G" TYPE RECTIFIER SERIES

Type	Description	Type of Cathode	Filament Rating		Supply	Max. Plate Volts Per Plate	D. C. Output Current M. A.	Remarks
			Volts	Amps.				
5V4G	Full Wave, High Vacuum	Filament	5.0	2.0	A. C.	400	200	
5X4G	Full Wave	Filament	5.0	3.0	A. C.	500	250	
5Y4G	Full Wave	Filament	5.0	2.0	A. C.	350	125	
25Z6G	Full Wave and Voltage Doubler	Heater	25.0	0.3	A. C. or D. C.	400	110	With choke input only
						555	135	
						125	100	

\*Plate to plate load.

C—Conversion Conductance.

\*Grids connected together and plates connected together.

## Comparative Chart of New Philco G-Type Tubes

THE new PHILCO G-type tubes listed below are similar in characteristics with the more familiar tube types of last year. All the new types are furnished with octal bases and will have a minimum of seven pins in the base.

New G Type	Early Type
6A8G	6A7
6B4G	6A3
6B8G	6B7
6F6G	42
6H6G	6H6
6J5G	37 & 76
6J7G	77
6K5G	Triode section of 6Q7
6K6G	41
6K7G	78
6L7G	6L7
6N7G	6A6
6O7G	75
6R7G	85
25A6G	43
1C7G	1C6
1D5G	1A4
1D7G	1A6
1E5G	1B4
1E7G	New Double Pentode
1F7G	1F6
1H4G	30
1H6G	1B5
1J6G	19
5V4G	83V
5X4G	5Z3
5Y4G	80
25Z6G	25Z5

## Auto Radio Vibrator Price Reduction Announced

EFFECTIVE immediately, the prices on PHILCO auto radio vibrators are reduced from \$5.00 list to \$4.25 list. The following are the part numbers of the three standard auto radio vibrators involved in this price reduction:

Part No. 38-5036
41-3170
41-3186

The same policy with regard to warranty replacements will still apply, but the exchange policy will be eliminated.

Further price changes include the reduction on PHILCO tubular condensers shown in the PHILCO Parts Catalogue. The following condensers are affected:

Part No.	Old List Price	New List Price
30-4227	\$.60	\$.45
30-4134	.35	.25
30-4117	.60	.45
30-4427	.50	.45

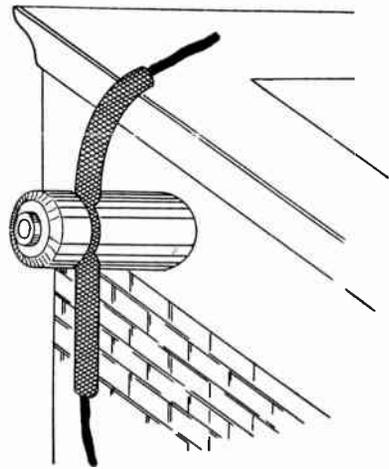
Cut out and paste in your parts catalogue.

## Questions and Answers

1. Q. Is it necessary to remove the R.F. unit from the new PHILCOS to replace a coil?

A. Yes. Before access can be had to the mounting screws of the R.F. coils, it is necessary that the particular unit be removed from the main structure. The instructions for this removal are covered in Service Bulletins.

2. Q. What is the best recommended method of eliminating transmission-line breakage due to the wire swaying in the wind?



A. The illustration on this page shows a short section of loom over the transmission line at the point where the line is supported by a nail-on knob. The loom eliminates the possibility of the line swinging at a single point and forming a sharp bend in the transmission wire.

3. Q. Is any damage done to the set if the R.F. unit of the 1937 PHILCOS comes out of the rubber support bracket?

A. Ordinarily there is no damage done, and it is simply necessary to pry the two front brackets slightly with a screw driver so as to permit the R.F. section with its supporting rubber to be replaced in the bracket.

4. Q. What type of broadcast wave trap is recommended for the new '37 PHILCO models?

A. In some locations, where two powerful broadcast stations are near the receiver, interference in the form of a squeal or cross-talk between stations will be experienced. PHILCO has developed three new broadcast wave traps for elimination of this type of interference. These traps are attached to the terminal strip on the back of the chassis and are adjustable over a comparatively wide tuning range of the broadcast band. For frequencies from 550 K.C. to 750 K.C., Part No. 38-8072 should be used. For frequencies from 750 K.C. to 1050 K.C., Part No. 38-8073 should be used. For frequencies from 1050 K.C. to 1500 K.C., Part No. 38-8078 should be used.

## Tube Base Identification for New G-Type Philco Tubes

TYPE	PIN IDENTIFICATION*								
	Cap.	1	2	3	4	5	6	7	8
6A8G	G-4	N.C.	H	P	G-3-5	G-1	G-2	H	K
6B4G		N.C.	H	P	N.C.	G	N.C.	H	N.C.
6B8G	G-1	N.C.	H	P	D-2	D-1	G-2	H	K
6F6G		N.C.	H	P	G-2	G-1	No pin	H	K-G3
6H6G		Shield	H	P-2	K-2	P-1	No pin	H	K-1
6J5G		N.C.	H	P	N.C.	G-1	No pin	H	K
6J7G	G-1	Cage	H	P	G-2	G-3	No pin	H	K
6K5G	G	N.C.	H	P	N.C.	N.C.	No pin	H	K
6K6G		N.C.	H	P	G-2	G-1	No pin	H	K-G3
6K7G	G-1	N.C.	H	P	G-2	G-3	No pin	H	K
6L7G	G-1	N.C.	H	P	G-2-4	G-3	No pin	H	K-G5
6N7G		N.C.	H	P-2	G-12	G-11	P-1	H	K
6Q7G	G	N.C.	H	P	D-2	D-1	No pin	H	K
6R7G	G	N.C.	H	P	D-2	D-1	No pin	H	K
25A6G		N.C.	H	P	G-2	G-1	No pin	H	K-G3
1C7G	G-4	N.C.	F+	P	G-3-5	G-1	G-2	F-	N.C.
1D5G	G-1	N.C.	F+	P	G-2	N.C.	No pin	F-G3	N.C.
1D7G	G-4	N.C.	F+	P	G-3-5	G-1	G-2	F-	N.C.
1E5G	G-1	N.C.	F+	P	G-2	N.C.	No pin	F-G3	N.C.
1E7G		N.C.	F+	P-2	G-12	G-11	P-1	F-	G-2
1F7G	G-1	N.C.	F+	P	D-2	D-1	G-2	F-	N.C.
1H4G		N.C.	F+	P	N.C.	G	No pin	F-	N.C.
1H6G		N.C.	F+	P	D+	D-	G-1	F-	N.C.
1J6G		N.C.	F+	P-2	G-2	G-1	P-1	F-	N.C.
5V4G		N.C.	H	N.C.	P	N.C.	P	N.C.	H-K
5X4G		N.C.	N.C.	P	N.C.	P	N.C.	F	F
5Y4G		N.C.	N.C.	P	N.C.	P	N.C.	F	F
25Z6G		N.C.	H	P-2	K-2	P-1	No pin	H	K-1

\*Element Identification—D, diode; F, filament; G, grid; H, heater; K, cathode; N.C., no connection on pin. Replacement tubes of some types listed above will have only the required number of pins instead of eight.

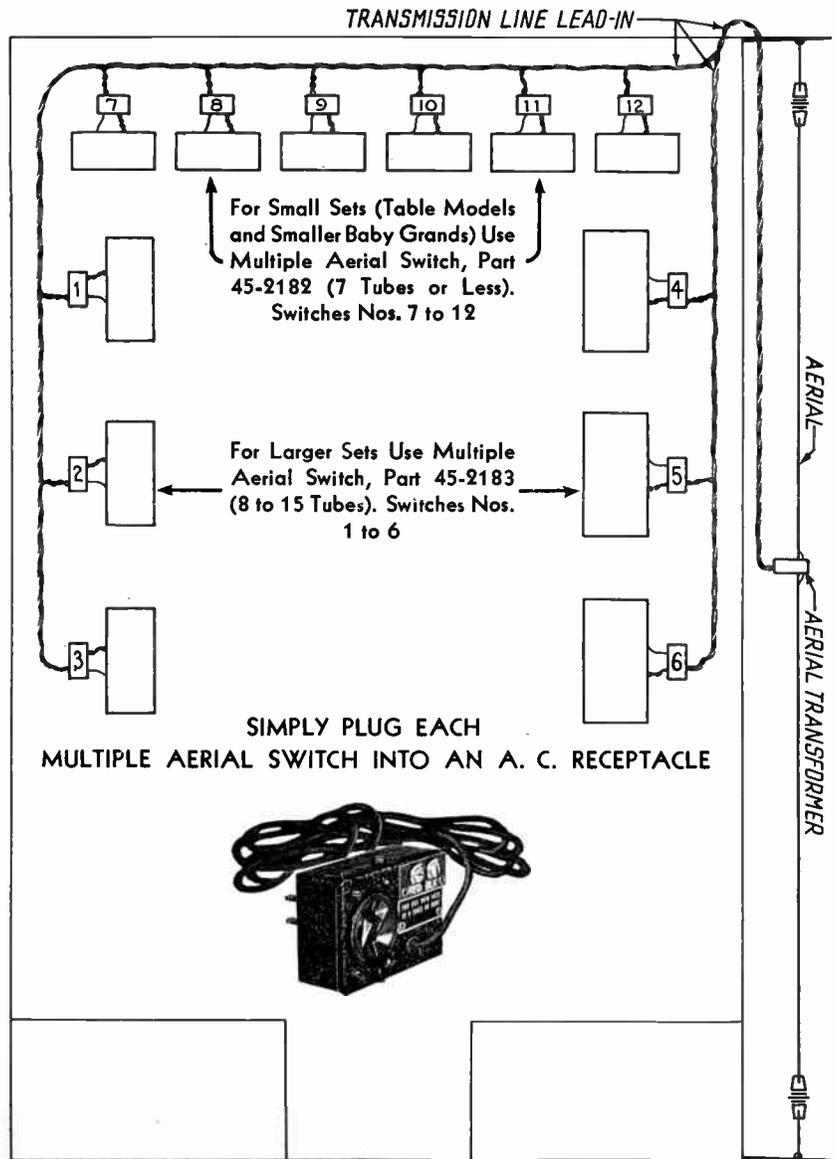
# DEALERS PREPARING *for* BIGGEST PHILCO YEAR

## More Foreign Reception Demonstrations in Stores Already Show Big Radio Sales Increase

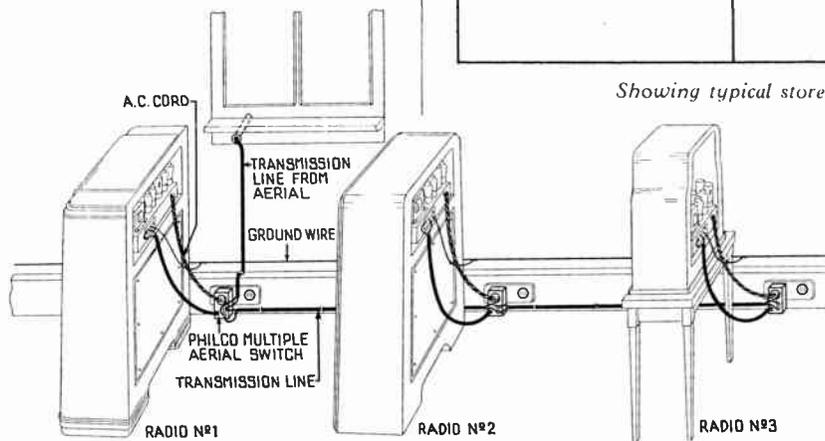
PHILCO dealers everywhere are making preparations now for the biggest fall and winter business they have ever experienced. The dealer who has listened to foreign reception on the new 1937 PHILCOS operating on the PHILCO High-Efficiency Aerial is not satisfied until he has all of the sets in his store connected to the High-Efficiency Aerial for best store demonstration. The ability to demonstrate foreign reception in the store is one of the most important factors in creating a demand and in closing the sale for new PHILCO receivers. The new sets must be operated with the new High-Efficiency Aerial for best results. This means that the aerial must be connected to the individual sets through a PHILCO Automatic Aerial Switch, the remarkable PHILCO device which enables the dealer to demonstrate any radio set on his floor with the High-Efficiency Aerial simply by turning on the switch. No aerial connection changes need be made.

The illustrations on this page show a typical connection arrangement for twelve Multiple Aerial Switches, each of which is connected to the one PHILCO High-Efficiency Aerial installed on the roof of the store. The illustration below shows the details of connection for three different sets operating from a single aerial. The same connections apply with regard to more than three sets, and as many sets can be used on a single aerial as Multiple Aerial Switches are provided.

If you want to sell more PHILCOS this year than you have ever sold before, it is essential that you make a small investment in a high-quality aerial in-



Showing typical store connection for twelve outlets.



Showing connection details.

stallation for your own store. Just remember that the profit from an extra 116X sale will more than pay for your expense in making a high-quality aerial installation using the PHILCO Multiple Aerial Switch. The many additional sales which you will make by giving a quality demonstration in your store will result in extra profit for you this year.

Your PHILCO distributor can offer you a proposition of installing the complete aerial system at a flat price to you. Be sure to see your distributor at once and be in a position to cash in on the finest radio line the market has ever offered.

## RADIO SPECIALTY COMPANY

829 N. Broadway

Milwaukee, Wis.