

PHILCO SERVICEMAN

• SERVICE • NEWS • FOR • PHILCO • DEALERS •

AUGUST, 1933

Good Demonstrations for More Sales

ONE of the most important factors in the closing of a radio sale is the customer's first impressions of the radio performance. Many dealers fail to realize this important truth and complain about a lack of business. Other dealers who give their customers a demonstration under ideal receiving conditions are generally more successful in closing the sale. It stands to reason that the customer who is totally unfamiliar with the possibilities of a new radio set will judge the final performance of that set by the type of performance which he hears



Demonstrator floor of the Quimby Radio Company, Philadelphia, Pa.

first. No amount of explanation as to poor receiving conditions in the location of the store will serve to alter this firmly fixed impression.

In order to obtain the greatest percentage of sales from the customers who come into your store, it is essential that you provide for proper demonstration in the store. Proper facilities should be available for demonstrating the various model receivers at some point away from any source of loud noise. The background for the receiver should not be a dull and uninteresting counter, but should be an attractive table or an attractive corner where the set can be displayed advantageously. The demonstrator models on the floor should be gone over carefully by the serviceman every day in order to make absolutely sure that the sets are in perfect operating condition. The cabinets should be polished every

day, otherwise finger marks will appear on the cabinets and the general attractiveness of the beautiful woods will be lost.

One of the most important requirements is a good antenna system. Many dealers seem to think that a demonstration can be made with only a small inside aerial or with a makeshift outside aerial. If a professional installation is made of the Philco Three-Purpose Antenna System, you can be assured of proper performance at all times. Maximum efficiency from the antenna will be obtained. At the same time minimum noise and interference will be experienced. The combination of these two factors will enable the radio set to perform at its best, and in this way the tone will be like that which is expected in the customer's home. You can sell the Three-Purpose Antenna System in many cases at the time you sell the radio set, simply by your ability to demonstrate in the store just how well the system performs.

Remember that it costs money to give free home demonstrations, but it costs you nothing to give a good demonstration in your store.



Philco Three-Purpose Antenna installation used by Quimby Radio Company, Philadelphia, Pa., for good store demonstration.

RADIO MANUFACTURERS SERVICE

for Fair Charges and Fair Practices

ONE of the secrets of any business success is a policy of fair business practices. Radio Manufacturers Service is building the prestige of its members through advertising, fair charges and fair business tactics. Many servicemen who have been entirely capable of doing any type of radio service job—men who really know radio—have been forced to do work at extremely low prices because of the practices of many "gyp" repairmen. Radio Manufacturers Service will not countenance such practices, and it is the desire of all concerned that every member consider himself a responsible business man dealing with a clientele who appreciates fair business practices.

The so-called "Free Radio Inspection Service" has been used in many cases by a certain type of serviceman to obtain work from customers and prospects when such work was not required on the radio set. One example is the practice of telling the customer that he needs new tubes when all of the tubes in the radio set are operating correctly. This may be desirable from the serviceman's standpoint of sales, but sooner or later the customer is going to discover that the serviceman has taken advantage of the customer's lack of radio knowledge. Certainly that customer will not have any further business dealings with the serviceman.

We reproduce on this page an advertisement which appeared recently in one of the San Francisco newspapers. We are in entire accord with the principles outlined in this advertisement, and we feel sure that every radio serviceman who intends to stay in the radio business and who wants to build up a group of satisfied customers will go along with this idea 100 per cent.

PROFIT INSURANCE

Before Delivery

1. Check chassis.
 - a. Tubes and tube shields.
 - b. Pilot lamp.
 - c. Performance.
2. Inspect and polish cabinet.

Installation

1. Insist on good aerial and ground.
2. Loosen chassis hold-down bolts.
3. Check shadow tuning.
4. Check performance.
5. Instruct owner by demonstrating correct tuning, automatic volume control and general operation.

How the Free Radio Inspection Racket Works

The set owner, lured by the offer of free radio inspection, calls in the repairman offering this type of service. After examining the set the "gyp" repairman usually insists upon taking the chassis with him for a more thorough check-up with shop testing equipment.

Later the repairman telephones to inform the set owner that his radio needs extensive repairs, and that the cost will be ten to fifteen dollars. Actually the trouble may be so slight that only a new fuse is required!

Another variation of this racket is the door-to-door "free" service man who tells you that your set needs new tubes. Beware. He may install your neighbor's old tubes, and "sell" yours to the next neighbor.

Working from a private home, the Bureau has investigated a number of "free" inspection service men who were called in to check up a set which had already been tested and thoroughly serviced. The serviceman went through his "routine" and suggested extensive repairs in addition to new tubes, which were not necessary.

This free service racket thrives due to the misconception of the cost factors involved in radio repair work. Contrary to popular opinion, the serviceman derives most of his profit from his labor. For this reason the legitimate radio service man makes a specified fixed charge for a call, and a standard charge for the various service operations. This "free radio inspection" racket is one of many trade evils which must be combated in the interest of safeguarding the public and protecting the legitimate businessman.

The Better Business Bureau, through ceaseless investigation and prosecution, is carrying on an aggressive campaign to protect you against loss from this type of fraud. You are invited to co-operate with the Bureau by reporting shady and dishonest trade practices.

When in doubt, remember the slogan of the Better Business Bureau: "Before You Invest—Investigate."

BETTER
BUSINESS
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OF SAN FRANCISCO

15 Stockton St.



SUtter 2170

AVERAGE CHARACTERISTICS—PHILCO TUBES

In last month's issue of the PHILCO SERVICEMAN we published average characteristics of all Philco tubes in the 6.3 volt series. This month we give characteristics of the tubes in the 2.5 volt series. The diagrams below illustrate the type of bulb used in all the different tubes listed. Next month we will publish characteristics of additional tubes in the Philco line.

2.5 VOLT SERIES

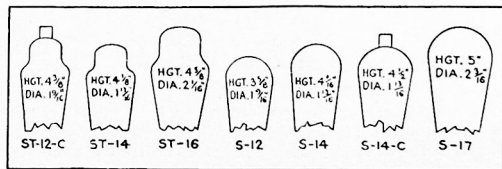
Type	Use	Base	Bulb	Type of Cathode	RATING			Plate Volts	Grid Volts	Screen Volts	Plate Current (M.A.)	Screen Current (M.A.)	Mutual Conductance Micromhos	Plate Resistance (Ohms)	Amp. Factor	Ohms Load for Output	Undistorted Power Output (Milliwatts)
					Fil. Amps.	Max. Plate Volts	Max. Screen Volts										
24	R.F.	5B	S14C	Heater	1.75	275	90	180	-1.5	75	4.0	Not over	1050	400,000	420	.....	.....
								180	-3	90	4.0	1/2 Ip	1000	400,000	400	.....	.....
								250	-3	90	4.0	Plate current to	1025	600,000	615	.....	.....
24	Det. Amp.	5B	S14C	Heater	1.75	275	90	275	-5	20-45	.....	be adjust ed to 0.1 M a. with	820	1,100	9.0	14,000	.....
27		5A	S14	Heater	1.75	275	.....	90	-6	.....	.....	.....	1000	9,000	9.0	13,000	80
								135	-9	.....	.....	.....	1000	9,000	9.0	18,700	165
								180	-13.5	.....	.....	.....	1000	9,000	9.0	.....	300
								250	-21	.....	.....	.....	975	9,250	9.0	.....	.....
35	R.F. Super Control	5B	S14C	Heater	1.75	275	90	180	-1.5	75	5.8	Not over	1100	350,000	385	.....	.....
								250	-3.0	90	6.5	1/2 Ip	1050	350,000	370	.....	.....
45	Power Amp.	4A	S17	Filament	1.5	275	.....	180	-34.5	.....	.....	.....	1500	1,900	3.5	3,500	750
								250	-50.0	.....	.....	.....	2000	1,750	3.5	3,900	1,600
46	Power Amp.	5F	S17	Filament	1.5	250	.....	250	-33	.....	22.0	.....	2350	2,380	5.6	6,400	1,250
						Class A											
						400	.....	300	0	.....	4.0+	Class B	Operation	.....	.....	1,300	16,000
						Class B											
						400	0	.....	6.0+	.....	Class B	Operation	.....	.....	.....	1,450	20,000
47	Power Amp.	5D	S17	Filament	1.5	250	250	250	-16.5	250	31	7.0	2500	60,000	150	7,000	2,500
55	Det. Amp.	6D	ST12C	Heater	1.0	250	.....	250	-20.0	.....	8.0	.....	1100	7,500	8.3	20,000	200
56	Power Amp.	5A	S12	Heater	1.0	275	.....	250	-13.5	.....	5.0	.....	1450	9,500	13.8	.....	.....
57	R.F. Super Control	6A	ST12C	Heater	1.0	275	100	250	-3	100	2.0	0.6	1225	1,500,000	1500	.....	.....
57	Det. Amp.	6A	ST12C	Heater	1.0	275	100	250	-6	100	Plate	current to	be adjust ed to 0.1 M a. with	.....	.....	no input signal	.....
58	R.F. Super Control	6A	ST12C	Heater	1.0	275	100	250	-3	100	Plate	load 250,000 ohms	.....	.....	.....	.....
59	Power Amp.	7A	ST16	Heater	2.0	250	250	250	-18	250*	26	.....	2600	2,500	6	5,000	1,250
								250	-18	250**	35	.....	2500	4,000	100	6,000	3,000
								400	0	.....	13+	.....	Class B	Operation	.....	6,000P	20,000
2A3	Power Amp.	4A	ST16	Filament	2.5	250	.....	250	-42	.....	60	.....	5500	765	4.2	2,500	3,500
								300	-62	.....	40 per tube	.....	Push Pull	.....	.....	3,000P	15,000
2A5	Power Amp.	6C	ST14	Heater	1.75	250	250	250	-16.5	250	34	7.5	2200	100,000	165	9,000	3,000
2A7	Det. Osc.	Small 7B	ST12C	Heater	1.0	250	100	250	-3	100	G4	.....	.....	.....	.....	.....	.....
								100	-3	100	G3&5	.....	.....	.....	.....	.....	.....
2B7	Duplex Diode Pentode	7C	ST12C	Heater	1.0	250	125	180	-3	75	5.8	.....	950	300,000	285	.....	.....
								250	-3	100	3.4	.....	840	1,000,000	840	.....	.....
								250	-3	100	6.0	.....	1000	800,000	800	.....	.....
								250	-3	125	9.0	.....	1125	650,000	730	.....	.....

+ Plate current with no signal applied. * Triode connection. ** Pentode connection. † Voltage on plate and anode grid. 20,000 ohms in anode grid lead. ‡ Cathode resistor for bias on G1=250 ohms. P Plate to plate load.

A Convenient and Accurate Method of Testing Tubes In the Home

The most reliable method of testing tubes is to place the tubes in a radio set which is known to be in good operating condition and to obtain an actual operating test of the tubes. Many so-called tube testers are used by dealers as tube sellers and are not accurate indicators of tube quality. Testers of this type must necessarily use the same voltage for testing all types of tubes. The readings which are obtained are at best only a compromise, and often it is found that good tubes will be indicated as poor tubes while faulty tubes will read O. K.

By using a radio set of known quality it is possible to obtain an accurate test of the tube under actual operating condition. The Philco Model 095 or Model 048 signal generator is connected to the input of the radio set and the output meter is connected in the output circuit. The radio set and the signal generator are both placed in operation and a standard tube is substituted in the proper socket for the tube which it is desired to test. This standard tube has previously been selected from a group of six stock tubes—the standard being the one which gives an average output meter reading of the six. With the standard tube in the socket, the signal generator is regulated so that the output meter reads approximately half-scale. The tube to be tested is then substituted in the socket for the standard tube and the output meter read-



Bulb illustrations—HGT. designates maximum height of tube when seated in socket.

ing compared with that obtained when the standard was used. If the reading is 35% or more lower than the reading obtained with the standard tube, the tube under test is considered defective and should be replaced. This method provides a wide range of output signal over which a tube is still considered satisfactory for operation, and the test is a true indication of performance in the radio set.

In a test of this kind the I. F. tube socket can be used for testing all of the tubes in the receiver of the same type as that employed in the I. F. stage. Other sockets can be employed for making similar tests of other type tubes. In all cases it is only necessary to obtain a comparison in output meter readings of standard tubes with the tubes to be tested.

Such a test as this enables the dealer or the serviceman to use any available chassis and does not tie up any money or equipment for tube-testing purposes.

Calibrating the Service Oscillator

MOST service oscillators are equipped with suitable compensating condensers for calibrating purposes. If the oscillator scale is calibrated directly in kilocycles, these condensers must be adjusted in such a manner that the scale readings will be correct. If the oscillator is merely calibrated from 0 to 100, and a curve is employed for a frequency determination, the condensers must be adjusted so as to make the scale readings correspond with the calibrated curve, or a new frequency calibration curve made.

In the case of the oscillator having a calibrated dial such as the Philco Model 048, or an oscillator having several fixed frequencies such as the Philco Model 095, the frequency can be checked in the following manner:

The radio set is tuned to a broadcasting station of known frequency; a notation is made of this frequency without disturbing the dial setting. The oscillator is connected to the radio set, replacing the

antenna, and the oscillator is tuned to the corresponding frequency. This may not be the point of the oscillator dial setting to which maximum output in the receiver is obtained, but will be the corresponding dial setting so far as calibration is concerned. The oscillator compensating condenser should then be adjusted until the point of maximum output coincides with the frequency on which the dial is set. This process is simply one of bringing the oscillator into line with respect to the oscillator dial calibration. Usually only one compensating condenser is provided, although in some cases there will be two. In this event, both of the condensers should be adjusted in the same manner. The oscillator should then be checked at the low-frequency end of the dial, just to make sure that the adjustment is correct. If it is off slightly at the low-frequency end, it should be readjusted slightly at the high-frequency end until correct frequency readings are obtained over the entire range.

Questions and Answers

1.—Q. What cement is recommended for fastening Philco speaker cones in the later models?

A. The cones of the type which are cemented to the speaker frame around the outer edge of the cone should be fastened with Duco Household Cement, Philco part 2827. This cement is available from Philco distributors in one-ounce tubes at 25 cents list, subject to regular parts discount. A similar preparation is used in the factory, but for service purposes the standard Duco cement is satisfactory.

2.—Q. What is the operation and adjustment of the inter-station noise-suppression feature of the Model 17?

A. The knurled adjusting screw at the left rear of the chassis controls the inter-station noise-suppression feature. This screw controls the sensitivity of the receiver at which the automatic volume control begins to function. At the time of adjustment, the screw should be turned in a counter-clockwise direction until the best average reception is obtained, with a minimum of inter-station background noise for the particular location in which the receiver is operated. The switch on the side of the cabinet should be in the UP position when the above adjustment is made. When the switch is in the DOWN position, the quiet automatic volume-

control feature is eliminated and the maximum sensitivity is available at all times. It is sometimes desirable, when tuning in distant stations, to place the switch in the DOWN position temporarily.

3.—Q. In what way does the 5Z3 rectifier tube, used in the Model 17, differ from the 80 tube?

A. The 5Z3 tube is designed to handle a larger power output than the 80. The maximum rated plate voltage of the 5Z3 is 500 volts, while that of the 80 is 350 volts. The maximum rated current output of the 5Z3 is 250 milliamperes, while that of the 80 is 125 milliamperes. The filament voltage in both cases is the same, but the filament current of the 5Z3 is 3.0 amperes, while that of the 80 is 2.0 amperes.

4.—Q. How can the Philco models 53-C and 54-C be operated from 220 volts A. C. or D. C.?

A. Philco has provided a special voltage-reducing resistor for this purpose, known as Philco part 33-3015, and listing at \$2.50, subject to regular parts discounts. One end of the resistor is equipped with a plug for insertion in the electric outlet and the other end of the resistor is equipped with a receptacle to take the power plug of the receiver.

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