

PHILCO SERVICEMAN



RADIO • MANUFACTURERS • SERVICE • NEWS



FEBRUARY, 1941

Philco Service Accelerated Growth of EDITORIAL Auto Radio Industry

BIG BUSINESS REVIVED

The tremendous comeback of the phonograph this year has been the basis of practically a new business for many radio dealers. Philco, the world's largest radio manufacturer, has sold more radio phonographs this year than the total for all past years together. This remarkable growth brings up new problems for the dealer and the serviceman.

Dealer's Responsibility

The correct installation and operation of a radio phonograph is definitely a dealer responsibility. It is up to his serviceman to see that the instrument is installed correctly, that it is adjusted so as to operate properly, and that the customer is carefully instructed in the operation. The dealer who simply dumps such a set in the customer's living room and then hopes for the best is in for some trouble.

Adjustments Necessary

Philco radios and Philco phonographs are better engineered and better built than anything else on the market. Your dealer experience through the years has proven that fact beyond a doubt. There are going to be some installation and service troubles from time to time, however, and it is going to be necessary to adjust these troubles before you pronounce the set ready for customer use. Every Philco product when it leaves the factory is carefully adjusted and tested for correct performance. We must remember what a delicate and complicated piece of electrical apparatus the radio set really is and we must appreciate the fine mechanical construction and adjustment that has been made a commercial reality in the Philco radio phonographs at their amazingly low price. When such instruments are shipped hundreds or even thousands of miles, we cannot expect all of them to work perfectly without some adjustments being necessary at the time they are removed from the shipping box.

Big Business

This radio phonograph proposition is big business. It is big for the manufacturer, the distributor, the dealer, and the serviceman. It is something that can make some big money for everybody in the industry if we get set up to handle it properly. Radio phonographs are not over-the-counter package merchandise and they must

(Continued on Page 2)

Warranty Labor Service Organization Largest in World

The work which has been done by Philco in pioneering and developing the auto radio business has created within the past ten years an entire new industry in Canada. In addition to the finest engineering and sales development for the design and merchandising of auto radio, Philco has gone the entire way by building up the largest and best qualified independent auto radio service organization in the world to take care of the performance of these sets.

About 100 highly trained and well equipped Philco Warranty Service Stations, strategically located over the country, carry out the obligation of keeping in perfect running order the many thousands of Philco-built auto radio receivers which have been sold. No other manufacturer in the industry can boast of such a fine service organization to care for its products.

To the Philco Warranty Service Station organization goes just as much credit for the tremendous expansion and development of the auto radio industry as to the great engineers who design these Philco radios. Certainly without such highly skilled and well equipped service facilities, the auto radio business could not have grown and prospered to the extent that it has today. We can truthfully say that the work of the Philco Warranty Service Stations has contributed greatly to the increased use of the automobile in modern Canadian life. The pleasure which the car owner derives from auto radio adds to the pleasure and desirability of driving his car.

Car Manufacturers' Service

The primary purpose of the Warranty Service Stations is to provide reliable auto radio service for the custom-built sets which Philco supplies to the various leading car manufacturers. This nation-wide service to car owners makes it possible for a person who bought his radio-equipped car in Halifax, for example, to obtain satisfactory service, should the occasion arise, in Brandon, Man. There are a number of stations in each key city throughout the country and there are also individual stations in various towns and smaller cities so that the customer need never be without radio service for his custom-built set.



A Typical Philco Drive-In Auto Radio Service Station

High Standards

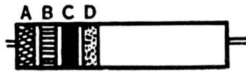
One of the requirements for the Warranty Service Stations is that they be adequately equipped with the necessary radio test instruments, a sufficient stock of parts and replacement tubes, and that they have adequate technical personnel to take care of the necessary service work. There must also be drive-in facilities so that the customer can drive his car directly to the station and have the work done in a convenient location off the street. There is an elaborate questionnaire which is filled out by the Philco representative and which outlines the service station's technical and physical qualifications for the appointment.

Complete Technical Information

Philco Service Headquarters in Toronto is constantly supplying technical information and service helps to the Warranty Service Stations. Complete service bulletins on the various car manufacturers' sets are mailed directly from Toronto to the Warranty Service Stations. In addition to these service bulletins, the stations also receive, regularly, confidential service summaries in which specific service problems or installation questions are discussed and explained. This information is prepared in Toronto and is mailed to the Service Stations within a few days after the question has been brought to the attention of Toronto Service Headquarters. There are also general letters sent to the Service Stations from time to time in which new or revised service policies

(Continued on Page 3)

Resistor Colour Code R.M.A. Standard



- A—Colour for 1st significant figure,
- B—Colour for 2nd significant figure,
- C—Colour for number of ciphers or multiplier,
- D—Gold or silver indicates tolerance, when applied.

Colour	Significant Figure	Multiplying Value
Black	0	1
Brown	1	10
Red	2	100
Orange	3	1,000
Yellow	4	10,000
Green	5	100,000
Blue	6	1,000,000
Violet	7	10,000,000
Gray	8	100,000,000
White	9	1,000,000,000
Gold	+ 5% Tolerance	0.1
Silver	+ 10% Tolerance	0.01
No Colour	+ 20% Tolerance	—

Examples

- 16,000 ohms—
Brown (1) Blue (6) Orange (X1000)
- 2,000 ohms—
Red (2) Black (0) Red (X100)
- 4.4 ohms—
Yellow (4) Yellow (4) Gold (0.1)

BIG BUSINESS REVIVED

(Continued from Page 1)

not be sold, installed, and serviced as such. They require plenty of attention, but in return for this attention some really handsome profits are made.

The dealer's serviceman must know about the servicing of these instruments. He must be able to put his finger on the source of any trouble immediately. Service information on Philco light beam pickups and automatic record changers has been furnished to every member of Radio Manufacturers Service, which means all the better-class servicemen throughout the country. Dealers can obtain extra copies of these bulletins from the Philco distributors should the need arise. Practical service information on record changers has been published lately in various issues of the Philco Serviceman. Any serviceman who is actively interested in learning more about phonographs can go to his Philco distributor's Service Department at any time for willing assistance.

The radio phonograph business has greatly increased the average unit list price of radio sales. Certainly a business of this kind is worth hanging on to and the responsibility for keeping it going is largely up to the serviceman.

R.M.S. Appreciation

Letters were received again this month from a large number of our R.M.S. members, extending to us their thanks for the various R.M.S. helps which we send out. Here are just a few extracts from these letters. We wish to thank sincerely these members, as well as all the others who have written us in connection with their mailings:

Mr. Ulric Rivard, of La Tuque, P.Q., says—"I wish to acknowledge and thank you for your circular dated December 2/40, addressed to all members of Radio Manufacturers Service. I am taking this opportunity of thanking you for your monthly circulars containing considerable useful information and sound advice, which are issued regularly throughout the year. Wishing you the Compliments of the Season—"

From Mr. Aime Simard, of Gilbert & Frere Engr., 149 Rue Racine, Chicoutimi, P.Q.—"Nous profitons de l'occasion pour vous dire que nous apprédions beaucoup vos bulletins de diagrammes et notes de service pour lequel nous vous emercions beaucoup."

Mr. M. E. Neitzel, of Ideal Radio Service, 821 King Street East, Kitchener, Ontario, says—"I want to thank you for the many circuits that you have sent me. They have helped me quite a lot. I am doing service work for a great number of radio stores all over the country. . . . I do more Philco work than anything else. I am sold on Philco radios 100%."

Mr. Albert Jackson, formerly of Jackson Radio Service, 41 Auburn Avenue, Toronto, who is now in the R.C.A.F., says—"I am now enlisted in the Royal Canadian Air Force as a Wireless Electrical Mechanic. At the present time I am on ten days leave, pending draft. I have had much satisfaction with contacts with your organization and will keep it in mind when the present dirty job is completed and I am ready to begin in radio service again."

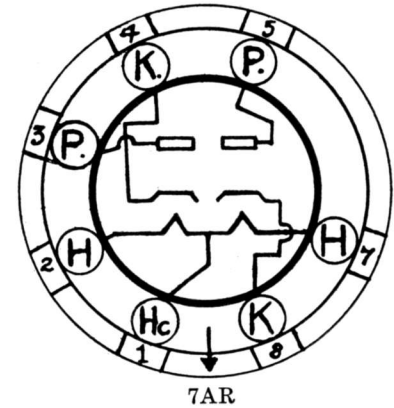
Mr. J. Morgan Kendall, of Kendall & Kjelihus Garage, Pleasantdale, Sask.—"I would like you to know how pleased I am with my new 177 Signal Generator. It is really a peach, and I would like you to know also how being a Philco R.M.S. member has helped me out."

Checking Overload Relay on Philco Refrigerators

Servicemen should inspect the relay on each and every refrigerator service call, regardless of the reason for the call. This is a very simple test and can be made in a minute.

All that is necessary to make the test is to stall the unit and to time the interval between the actual stalling and the time that the overload kicks out. The kicking out will be indicated by a distinct click as the contact is broken. If the unit is turned off and then turned back on, and actually

Characteristics of Philco Type 117Z6G Tube



Philco Type 117Z6G is a heater type high vacuum full wave rectifier designed for operation directly across a 117 volt line. The heater center tap is brought out to Pin 1 so that it is possible to operate the heaters in parallel on 58.5 volts. Conventional rectifier circuits may be employed.

Characteristics

Heater Voltage — 58.5 117 volts
Heater Current—0.150 0.075 amps
Base Layout—small octal 7 pin—7AR

Ratings

D.C. Heater to Cathode Voltage
350 350 volts
Peak Inverse Voltage 700 700 volts
Tube Voltage Drop
(120 M.A. per plate) 15.5 15.5 volts

As Voltage Doubler

Heater Voltage117 volts
A.C. Volts/plate (RMS).....117 volts
D.C. Output Current..... 60 M.A. Max.
Peak Plate Current.....350 M.A. Max.

As Half-Wave Rectifier

Heater Voltage 117 117 117 volts
A.C. Voltage/Plate
(RMS) 117 150 235 volts
max.
D.C. Output Current/Plate 60 60 60 M.A.
max.
Plate Supply
Impedance/Plate 0 40 100 ohms
min.

starts instead of stalling, the process should be repeated until the unit is made to stall.

The time interval between the stalling of the unit and the kicking out of the overload relay should not exceed ten seconds. If the ten second period is exceeded, the relay should be replaced.

This is a very simple test to make, and will save you hours of needless service troubles.

Additional Adjustments for Record Changer Used in Philco Model No. 715P

The 10" and 12" record indexing adjustments are both controlled by one single cam. The proper method is to adjust the cam for 10" records and then the 12" records will be taken care of automatically. If after making this adjustment, the tone arm tends to skid off the edge of the record while playing 12" records, then the tone arm rest should be adjusted by bending it so that the jewel on the tone arm will land in the 12" record starting groove.

When the tone arm tends to skid off on a 10" record, either regularly or intermittently, it is most likely due to the guide arm spring (identified on page 6, Bulletin 344 as 'CN') being too weak. This allows the tone arm to be pulled off the record even after it has been properly located on the record and has played three or four turns. The weak spring does not permit the lever that controls this action to become disengaged from the master cam gear when in normal operating position. A spring was added early in production to the tone arm lift rod assembly to assist it in returning to its home position. After this spring was added, it was found that the spring "CN" required more tension to function normally. The new spring was then removed and steps were taken to eliminate friction so that the tone arm lift rod assembly returns to its home arm position by gravity. If trouble is experienced with the tone arm skidding off the 10" records on changers on which the spring has been added to the tone arm lift rod assembly, either the spring on the tone arm lift rod assembly can be removed or the "CN" spring shortened to increase its tension.

Philco Service Accelerated Growth of Auto Radio Industry

(Continued from Page 1)

are outlined and explained. Through this mailing service, it is possible for the stations to be up to the minute at all times in having the latest factory information on the car manufacturers sets.

This successful method of handling the auto radio service on millions of sets has been made possible in a large measure through the marvellous co-operation that the Service Stations have given the automobile dealers of Canada. This same group of Service Stations developed by Philco has become the back-bone of the service organization of all the independent car manufacturers. Philco's engineering, Philco's right pricing, and the Philco Warranty Labor Service Station organization will continue to make Philco auto radio the leader in this great new industry.

Letter from Mr. Hewson

We were very pleased indeed to receive the following letter from Mr. H. Ernest Hewson, of 60 Cambridge Avenue, Toronto, who as you know was the winner of a Philco 026 Circuit Tester in our recent "Mike Farad" Signal Chasing Contest. We are certainly glad that Mr. Hewson likes his Philco Tester.

Toronto, Ontario,
December 17th, 1940.

Philco Products Limited,
Toronto, Ontario.

Dear Sirs:

I wish to thank you and the Editor of Philco Serviceman for my Philco 026 Circuit Tester, which I was lucky enough to win in your recent Signal Chasing Contest.

I would also like to thank all the others who entered your Contest, and I am sorry we all couldn't win. (Better luck next time, fellows)

I received my Philco 026 Circuit Tester a few days ago, and I am sure I am going to find plenty of use for it, and also good results from it.

I thank you again, gentlemen, and wish you and Philco Products every success. So here's a Happy New Year to you all, and many Happy Years to Philco Products.

Respectfully yours,
(Signed) H. E. Hewson

H. Ernest Hewson,
60 Cambridge Avenue,
Toronto 6, Ontario

Accessory Plug-in Loop Aerial for Philco Portable Models 405T and 406T

A new Accessory Plug-in Loop Aerial is now available for Philco Portable Models 405T and 406T. This new aerial has two important improvements over the previous type available. The centre is cut out to avoid obstructing light through the window, and the two plugs at the end of the lead-in strap have been replaced by a one-piece plug which is easier to insert or remove.

When plugged into radio models 405T or 406T, the loop in the radio is disconnected.

Part No. 45-2878—List price \$1.75

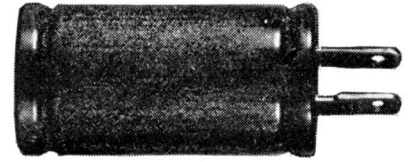
Service Notes on Philco Custom Car Radios

F1840—Ignition interference may be picked up by the aerial due to a poor ground or complete lack of grounding on the windshield divider strip inside the car. It may be necessary to bond this strip to the instrument board at one end and to the roof at the other.

F1840—Lack of sensitivity may be caused by the aerial being grounded at the roof of the car. Fairly satisfactory local reception can be obtained with the aerial grounded, but distant reception cannot be obtained at all. Aerial grounding commonly may occur due to the windshield moulding touching the aerial nut on the inside of the header bar.

C1808—Lack of sensitivity may be caused by poor contact or no contact at all between the aerial and the set end of the lead in. Local reception will be obtained in this condition, but distant reception will be very poor.

PHILCO NOISE ELIMINATOR



The Philco Noise Eliminator reduces radio interference from electrical equipment, electric razors, sewing machines, etc.

Simply plug it into the A.C. outlet, then plug the interfering electrical device into it. The result will be quieter radio reception and greater freedom from electrical interference. Same as supplied with famous Philco Mystery Control Model.

Part No. 30-4603—List \$1.00

New R.M.S. Advertising Materials

New Two-Year R.M.S. Calendar

This Calendar is 4" x 6" overall dimensions and has a 2" x 3" two-year calendar attached to it.

Space is provided on either side of the calendar pad for writing in other 'phone numbers. It is already imprinted with your name, address and 'phone number.

This is an ideal telephone pad, and will bring in much service business.

R.M.S. imprinted cost only:

\$ 7.00 for 250
13.50 for 500
25.00 for 1000

This handsome calendar is intended for distribution by R.M.S. members to their old and prospective customers.

R.M.S. 2-Year Calendar PR710C

New Size R.M.S. Envelope

R.M.S. Imprinted Envelopes are now available in a new, smaller size. This size is usually known as business size (#8).

Imprinted with your name and address, this envelope costs you net only

\$3.00 for 500,
or \$4.30 for 1000

JOIN THE R.M.S. ORGANIZATION so that you, too, can take advantage of the many benefits. Consult your Philco Distributor for details. There are no initial fees or yearly dues, or charges of any kind for R.M.S. membership. Every Radio Serviceman should belong to R.M.S.

Test Scale for Pick-ups

For checking Tone Arm Drag, Trip Sensitivity, and other adjustments of Automatic Record Changers, Philco has just announced a new Special Test Scale. This scale is easily hooked on, and measures accurately in ounces.

This Philco Test Scale will be found invaluable for many purposes.

Philco Part No. 45-2851

List Price \$3.25

Questions and Answers

1. Q. How can "wow" or speed variation be eliminated on Philco phonograph combinations?

A. This wavering of tone can sometimes be traced to a tight fitting flexible coupling between the motor and the changer mechanism. The coupling may be warped out of shape which causes uneven turntable speed. The motor and mechanism must be lined up so that the coupling is not strained in any way and can be slipped on the shafts easily. Distorted or extremely tight fitting couplings should be replaced. This is Philco Part No. 35-2220.

2. Q. What is the cause of record scratch with the light beam pickup on the new Philco phonograph models?

A. Many dealers and customers have overlooked the fact that there will be scratch reproduced from old records played on the new light beam pickup phonograph models. A record which has been played on a crystal or magnetic type pickup a number of times has a certain amount of scratch in the record itself. This is in no way a reflection on the performance of the light beam pickup. The almost complete freedom from surface noise which is made possible by using the light beam pickup can be demonstrated when a new record is played.

3. Q. What is the cure for distortion which sometimes occurs in Model 715P at low volume on radio.

A. This type of distortion has been found to occur only on local stations having a very strong carrier wave, and seems to be due to insufficient A.V.C. action. The remedy is to increase the amount of A.V.C. action by adding the 2nd I.F. amplifier stage to those controlled by A.V.C. To do this, unsolder the blue lead from the 2nd I.F. transformer where it connects to a ground lug, and connect it instead to the similar blue lead from the 1st I.F. Transformer.

4. Q. Can Philco vibrator part No. 83-0026 be used in place of No. 83-0027?

A. Yes, but it is necessary to remove the felt vibrator hold-down pad, on the tube side cover, and replace it with a rubber hold-down pad, Philco part No. 27-4743. This change is necessary since No. 83-0026 is larger than vibrator No. 83-0027.

5. Q. Has humidity any effect on the photo-electric cell of Philco's beam of light radio phonograph Model 715P?

A. Where the humidity is so extreme as to cause a film of moisture over the surface, a considerable reduction in volume will be noticed.

MIKE FARAD ACTS AS INTERPRETER



If Mike Farad could translate for us the mental processes in the Philco radio serviceman's mind, we might hear something like the following as work begins in the morning:

"Business is good. Always a big rush around this time of the year. Plenty of work to do—where's that Philco 44X?

"Well, I better pull the chassis and loop out of the cabinet and turn it on. Dead! Let's see. Finger on the rotor contact of the volume control causes plenty of hum, so the audio is probably O.K. Maybe the I.F. is shot. I guess I better stick on the signal generator. Where to connect? These laktal converter tubes don't have any grid cap like the 6A8EG. Say, the rotor section of the mixer tuning condenser is connected to the grid I want. That's swell. I can connect the generator to the set without much fuss. There, the I.F. seems plenty good. That leaves only the antenna and oscillator circuits. What now? According to the Service Bulletin there should be around 85 volts on the oscillator plate: 028 reads 89 volts. Cathode should be 1.5 ohms to B—and infinite to the chassis. Those readings are correct. Let me see, 47,000 ohms from oscillator grid to cathode.

"Hey, wait a minute, open! And no wonder, resistor is broken. What's the part number? Schematic number 21 in the diagram—33-347339. Here's one, this kit box is O.K. Saves me a trip and I can get this radio out pronto.

"Well, what's next—a Philco 715P.

Probably be a good idea to try the changer before I pull the chassis. Let's see, set the blades for a ten-inch record, push the "ten" button and hit the "R" button. Tone arm picks up O.K., but sets down too far out on the edge. That's simple to fix and its easier to reach in back of the cabinet and turn the indexing adjustment than use a screw driver through the hole. Stop the mechanism just before the tone arm falls onto the record, turn the adjusting cam. There, that's perfect. Well, try the tone and trip. Say, the thing sounds terrible. Wonder how the light beam is? This opening in the head is swell. Wow! no wonder it sounds awful—the light is all over the cell. Have to take off the cover to get at the lamp assembly. Three screws and that's that. I think it needs to be pushed forward—no, that's worse. Oh! there, that's sharp enough, but the beam is smack in the middle—back off the adjusting screw, half on half off. Should be O.K. now. Put the cover on and give it another try.

"Say! what a difference. Now to use my pet record. Yes, it sure was a good idea to keep this one record to try these new pickups. I know this record so well it's easy to recognize distortion. Boy! no trouble with this baby now. Now to try a stack of records—need ten more records. Here's ten—put them on the spindle. Now I'll let the pile run through while I check the radio.

"I'm going good so far today, but it's still early. Cross my fingers on this next complaint—weak. Try manual broadcast. Tune in station ZZZZ, that's my old standard—if I can hear that station well, the radio is hot. Where are they? Can hardly hear the carrier swish. This radio has something wrong with it. Take out the chassis but the loop is too big to handle, so I'll use my Philco aerial coupler instead. Audio O.K., and I.F.—wait a minute—got a little gain there, and more on this padder. Guess it's better to go right on padding this set. Roll in 580 and recheck 1400. Short wave is O.K. now. Try ZZZZ now. Where are they? Oh, oh, pass the shot gun—that's the second time I padded a set completely before I reset the pointer. Oh well, start all over again.

"There, plenty of hop now—and on KC. Shove the chassis back in and see if ZZZZ is O.K.—Yes sir, and then some. Oh yes, the pile of records went right through and should be O.K. Now I put the records back on and let them play through and listen to them while I get on this next radio."

PHILCO PRODUCTS LIMITED

PARTS AND SERVICE DIVISION
TORONTO

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