

PHILCO SERVICEMAN

CIRCULATION OVER 34,000 COPIES



RADIO · MANUFACTURERS · SERVICE · NEWS



DECEMBER, 1935

EDITORIAL

Over Two Years of Radio Manufacturers Service

A LITTLE over two years ago Radio Manufacturers Service was organized. Much progress has been made, resulting in a vast improvement in the radio service industry during this time. We believe that the changes which have been brought about will have even more influence for good in the future than they have had in the past.

The program which was set up for R. M. S. was a very large one, and we believe that the points covered by this program are those in which the majority of servicemen are most concerned.

It is interesting, after two years of effort, to go over the record and see just what R. M. S. has accomplished for its servicemen members.

These accomplishments are actually in effect and full credit for them must be given to the fine co-operation of all R. M. S. members. Without it, R. M. S. could have accomplished nothing. With the co-operation, the accomplishments to date make an impressive list and indicate still greater progress in the future.

RADIO MANUFACTURERS SERVICE HEADQUARTERS—PHILCO distributors during the past two years have set up R. M. S. headquarters, which are being used by servicemen. The distributor's service manager is a highly trained man, prepared and willing to help R. M. S. members with their service problems. Pictures of many of these headquarters have been published in the PHILCO SERVICEMAN.

SERVICE BULLETINS—Servicemen in many parts of the country were called in and at service meetings votes were taken on the type of bulletin preferred by the majority of men. After discussing this with thousands of servicemen the present type of bulletin was decided on as being that which the R. M. S. members want.

DISTRIBUTION OF BULLETINS—Distributing service bulletins on new models has always been a difficult problem, but bulletins covering the 1936 PHILCO models were actually in the hands of R. M. S. members almost as soon as the radios were in the field. This was accomplished by the popular R. M. S. mailings which have been going out every month. Service bulletins covering every PHILCO model were mailed direct, at no cost, to every R. M. S. member. Members got the service information at the time they

(Continued on Page 2)

A Message From the President of Philco to All Radio Servicemen

By L. E. GUBB

THE development of Radio Manufacturers Service has been extremely interesting to us at PHILCO. The future growth of the radio industry depends a great deal on the servicing of radio receivers now in the hands of the public. No company can continue in business successfully unless its products are well cared for in the home. It is up to the radio industry to carefully provide better service in proportion to increasing sales.

Larger Units

In 1932 and 33, unit sales dropped down to the lowest point in the history of radio. Profits from the sale of those sets were so low that neither manufacturers nor dealers could make a profit from their business. With that kind of merchandise being sold, we could not give the public the kind of radio sets we wanted to. It was the spirit of the times to build sets for \$9.00, \$14.00, \$20.00. Today that is all changed. PHILCO has done everything in its power to change it by its advertising, trying to build up the unit sale. Today PHILCO makes and sells more units of over \$100.00 than all competitors combined.

The tremendous advertising campaign which has successfully built up PHILCO unit sales has also built up the sales of the whole industry. Today, the service industry is coming into its own more and more as greater pride of ownership develops with the owners of finer and more sensitive radio receivers.

Increasing Service Sales

When Radio Manufacturers Service was formed, we believed that the purposes which it was attempting to accomplish were fundamentally sound. In just a little over two years Radio Manufacturers Service has become the greatest service organization in the world by a very large margin. Today, by mailing you direct engineering data, we keep you informed and help you increase your service sales.

Aerial Policy

PHILCO's aerial policy has been of great help to servicemen. It has resulted in sales of all-wave aerials with all-wave sets. These installations have greatly increased the business of the serviceman. By having the aerials installed, the customer is brought into direct contact with trained servicemen.



L. E. Gubb, President, PHILCO Radio and Television Corporation

In your contacts with customers, it is essential that you represent manufacturers whose products give maximum performance. It might seem that those manufacturers who build inferior quality products are more directly responsible for more service jobs. But is that true? In buying automobiles, the off-brand car cannot provide a service organization equipped and able to keep performance of that automobile up to the standard manufacturers' performance. The result, invariably, of poor quality means lack of customers' faith in the company you represent. If the product is not right at the start, if it was not made right, the serviceman cannot do his work properly. Radio servicemen will advance their own interest if they represent the radio manufacturer who makes the best product he knows how to produce.

Tube Policy

PHILCO's glass tube policy is an excellent example of the protection which guaranteed performance brings to the dealer and to the serviceman. PHILCO appreciated the sales ballyhoo possible through the use of metal tubes. PHILCO could not afford, however, to risk its reputation or the reputation of PHILCO dealers and servicemen. Therefore, PHILCO receivers use PHILCO High-Efficiency glass tubes and today you know how the glass tube vs. the metal tube stands in the matter of perform-

(Continued on Page 4)

Over Two Years of Radio Manufacturers Service

(Continued from Page 1)

wanted it and not alter it was too late. Along with the service bulletins in these mailings there were included other helpful service data.

LIST PRICE CATALOG—Again, at the request of many servicemen throughout the country, PHILCO printed a list price parts catalog in December, 1934. With all other catalogs showing the lower discounted prices, the decision to print a list price catalog was arrived at only after much discussion. Servicemen were quick to praise the step, and today the practice of printing a list price catalog is spreading. You know better than anyone how difficult it is to get one of your customers to pay you list price for a part if the catalog shows that part at a discount.

PARTS DISTRIBUTION—The purpose in back of R. M. S. is to help the servicemen and not to put a lot of new people into the service business. The distribution of PHILCO parts has been guided to help the general program. PHILCO parts are available in excellent stores operated by PHILCO distributors in all parts of the world. These distributors know who their service customers are and do not sell PHILCO parts at serviceman discounts to the general public. Two things that hurt your profits are cut prices on radio parts which you are trying to sell, and selling radio parts in all types of stores to the general public at discount. The PHILCO policy set up through R. M. S. is to issue only list price catalogs and to control the sale of parts by limiting it to Philco distributors who will sell only to legitimate dealers and servicemen. Your profits are protected.

AERIAL PROFITS—PHILCO has insisted on the installation of an all-wave aerial with every all-wave radio. Naturally, these aerials have to be installed. If the dealer makes his own installations, PHILCO recommends that he use an R. M. S. man for the work. If the aerial is left to the customer to have installed, the customer is told in the instruction book that he should call an R. M. S. member for the aerial installation. This aerial policy has brought the benefits of maximum performance from the radio for the user and has resulted in a tremendous volume of business for R. M. S. members.

R. M. S. LESSONS—R. M. S. lessons have been prepared from time to time and supplied to members. They have been helpful and hundreds of thousands of copies have been distributed.

STANDARD PRICES—Although R. M. S. has never attempted to enforce any kind of standard prices for its members, a suggested standard price sheet has been printed and supplied to all members. It should be understood that this suggested price sheet was a confidential sheet which was supplied only to R. M. S. members and was not available to the public. The purpose of the sheet is not to lower any prices

(Continued on Page 3)

Uses of Signal Generator Explained

(Continued from Last Month)

It is highly essential that the low-frequency or series compensator in a superheterodyne be adjusted at the frequency specified by the manufacturer. An attempt to make this adjustment on a different frequency will invariably result in impaired selectivity and sensitivity at the low-frequency end of the broadcast band. Obviously the signal generator is again indispensable in obtaining the right frequency. Substitution of a broadcast signal, which would usually be of some other frequency, could only result in making the set perform worse instead of better.

In order to prevent the pick-up of long-wave transmitters operating at or near the frequency to which the intermediate-frequency stages of an all-wave receiver are tuned, a wave trap is often connected in the antenna circuit. This wave trap is tuned to the intermediate frequency and is adjusted by applying this frequency to the antenna terminal of the set. This, of course, can be done only by means of the signal generator. For best results this adjustment should be made immediately following the I.F. adjustments and without disturbing the setting of the signal generator.

Constant Modulation for High Fidelity

The accurate indication of peaks in the selectivity curve of a high-fidelity radio absolutely requires the use of a signal generator, and for this purpose only the highest type instrument will be satisfactory. As recently as last year, when the first high-fidelity radio, the PHILCO Model 200, was placed on the market, it was necessary to recommend in the padding instructions that an unmodulated signal be used in adjusting the receiver, simply because at that time no service instrument was available which was capable of producing sufficiently constant modulation for these extremely critical adjustments. This limitation was removed in the design of the PHILCO Model 088 Signal Generator, and it is now possible to make these adjustments with the modulated signal from this instrument.

In the high-fidelity type of radio the tuning meter as ordinarily connected would follow the broad selectivity curve necessary to produce high fidelity and would not indicate when the set had been tuned to the center of this curve. In receivers of this type a separate and highly selective amplifier is used to operate the tuning indicator. The high-quality performance of the high-fidelity radio is largely dependent upon the correct functioning of the shadow-tuning meter, and for this reason it is of vital importance that the circuit which operates this device be adjusted with the greatest precision and with the most accurate of signal generators.

Within Reach of All Servicemen

It was to meet all of the foregoing conditions that the PHILCO Model 088 Signal Generator was designed. There was just one other requirement which was recognized by PHILCO in placing this versatile instrument on the market. In order that a high percentage of all receivers in use could benefit by its application, PHILCO recognized the fact that the instrument must be priced so as to be within the reach of the average serviceman. Being more interested in the performance of every radio receiver in use today than in the profit derived from the sale of test equipment, PHILCO has priced this instrument so that any serviceman can afford it.

NEW PHILCO WIRING DIAGRAM BOOK NOW AVAILABLE



So great has been the demand for the PHILCO Wiring Diagram Manual supplied in the R. M. S. binder, that it has been necessary to reprint the manual, bringing it entirely up-to-date.

The new PHILCO R. M. S. Wiring Diagram Manual contains 96 pages of essential service information on every PHILCO model from the beginning up to and including the current 1936 line. In addition to the wiring diagram, the parts layout diagram, and the parts list, the new manual contains a complete section of essential service data on all models. This table is arranged numerically by model numbers, and contains the power consumption in watts, the intermediate frequency, the type and number of tubes used, and complete tube socket voltage data.

The Wiring Diagram Books are available from your PHILCO distributor at \$1.00 net, complete in the R. M. S. binder. The manual alone, without the binder, is available at 50 cents net.

Battery Complaints Traced to Other Sources

THE use of the correct volume control in the PHILCO battery set, Model 38, is extremely important. In the early production of this model, a grounded volume control was used. In the later production, the circuit was changed, and the control was wired in such a manner that it was ungrounded. The same part number, No. 33-5017, was used in both cases.

Investigation of complaints that the combination "B"/"C" battery was being run down after two or three weeks of service showed that replacement volume controls of the grounded type had been used by servicemen in the later model sets. When the men had a new type 38 battery set (Code 123) with a noisy volume control, they replaced this control with the old type which had the same resistance value, although one side of the control is grounded, whereas on the new Code 123 volume control the case is not grounded. The result was that sometimes two or three batteries would run

down in succession before the trouble was discovered.

Another possible cause of apparent "B"/"C" battery failure in PHILCO battery sets is the use of the incorrect ballast lamp when the set is being operated from the PHILCO Dry "A" battery. The Model 38 employs the type 1A1 ballast lamp. If the type 6 ballast tube is used by mistake, weak reception will result within a short period of time. Replacement of the "B"/"C" battery corrects this trouble immediately. The natural assumption is that the "B"/"C" battery is defective. Actually, what happens is that the initial voltage peak on the new "B"/"C" battery is sufficient to offset the effects of the lower filament voltage on the tubes and thus afford normal operation for a short period of time. After a week or so, this initial peak is exhausted and the battery settles down to its normal voltage. The use of the correct ballast lamp will give proper operation in all cases and will eliminate any faults in performance such as that described above.

Over Two Years of R. M. S.

(Continued from Page 2)

which you might now be getting for your work, but to be available to show to a customer if you have difficulty in getting them up to this price. The R. M. S. standard price sheet can be and is being used with great success by most R. M. S. members. Its use is entirely voluntary and, we repeat, the prices are not made public.

R. M. S. TUNE-UP—R. M. S. first announced and advertised a tune-up at \$1.50 price which was used with great success by many members. A considerable number of members believed that the price should be increased from \$1.50 to \$2.00, so, therefore, it was changed. Today the rest of the radio industry is getting in back of a tune-up program and we are confident that this will result in greater profits for the servicemen. The only servicemen who believe that the price charged for the tune-up is not sufficient are those who do not use the proper sales approach in getting additional work when they make the tune-up. The \$1.50 or \$2.00 actually is just what the radio owner pays you to come in and explain what is wrong with the radio, how many new tubes are needed and how much the job will cost.

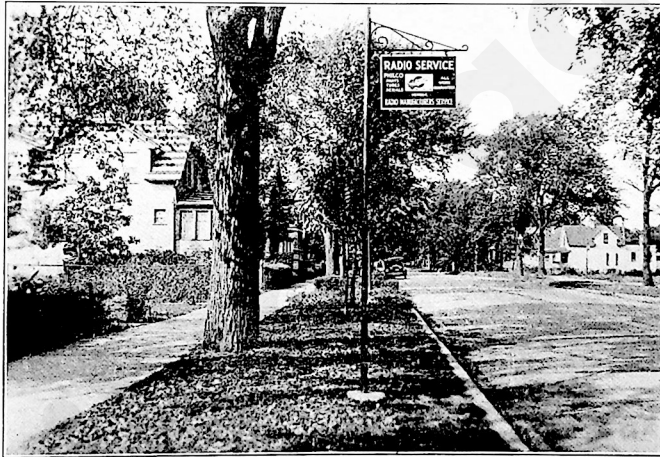
ADVERTISING—In the past two years many millions of pieces of R. M. S. advertising have been used by servicemen. As you know, this advertising material is available in many different forms. It has been prepared by people who understand what type of copy will get the best results and we suggest using it as is. However, the important thing is to do some advertising. R. M. S. has placed a tremendous amount of emphasis on servicemen advertising in the past two years and has accomplished much to help this condition. If none of the advertising material exactly suits your requirements, use the R. M. S. material as an example and prepare your own. If you want something entirely different, discard the R. M. S. example and prepare your own from beginning to end. But, whatever you do, use advertising of all kinds in order to build up your business. It is just as important for you to study methods of advertising as it is for you to study new technical circuits. The R. M. S. sales promotion campaign, which has been going on for two years and which will continue, is a powerful influence in making the public appreciate radio service and the serviceman.

RADIO MANUFACTURERS SERVICE—The above partial list of accomplishments of Radio Manufacturers Service during the past two years has helped to improve conditions in the service industry.

Many of the very excellent servicemen's associations throughout the country have also been of tremendous influence in improving conditions. Many of these associations are doing locally the same things R. M. S. is doing nationally. They have set up

(Continued on Page 4)

Illuminated R. M. S. Sign Brings Increased Business



The illustration on this page shows an effective way of using the R. M. S. Outdoor Metal Sign.

William Cordes & Sons of Chicago operate a service shop out of their home in the Oak Park Section of the city. The picture shows how the sign was supported on a metal post so arranged that people passing by in the street and on the sidewalk could readily see the R. M. S. sign. In addition to the display value in this conspicuous location, the sign was arranged so that it could be illuminated at night. This was accomplished through the use of two automobile cowl lights and a toy transformer. A conduit was run from the basement of the house out to the base of the sign in order to carry the electric wiring for illumination. Forty feet of 1/2-inch conduit was pushed out underground from the basement, using an automobile jack.

Mr. Cordes writes us that he noticed an increase in business immediately after the sign was erected, and that he had a number of favorable comments on the neat appearance. He lives in a residential district, and the lights for illuminating the sign were just bright enough to furnish the desired illumination without causing any annoyance to the neighbors.

Wherever the R. M. S. Outdoor Metal Sign is being used, servicemen have consistently noted an improvement in their business. The signs are obtainable from your PHILCO distributor at \$2.00 net, F. O. B. Philadelphia.

Questions and Answers

1. Q. What is the easiest way to remove coil shields in the new 600-line PHILCO receivers?

A. The punch which is supplied with the PHILCO Eyeletting Kit makes an excellent tool for this purpose. The indented end of the punch can be placed against the catch on the under side of the chassis, and a sharp blow with a hammer will snap the shield out of place without injuring the catch in any way.

2. Q. Is the PHILCO Under-car Aerial, which sells at a list price of \$5.00, a single or double type?

A. This aerial is the double type and should not be confused with widely advertised aerials of the less efficient single type. In the case of the PHILCO Under-car Aerial, double channel bars are placed under each running board, thus affording maximum signal pick-up.

3. Q. What is a common cause of intermittent operation which is not likely to be discovered readily?

A. One of the most common sources of intermittent trouble is loose rivets at grounded points of the circuit. These can be in tube sockets, ground connections of coils, and in the grounded rotor connections of tuning condensers. Whenever a set is claimed to be intermittent, a careful check should be made of all grounded points to be sure that the contact is a good one.

4. Q. What is the cause of station hum in the Models 650 and 116?

A. This condition is not due to any fault of the set, but is caused by hum being present in the broadcast station. Every station has a certain amount of A.C. hum in the modulation, and some stations are worse than others in this respect. Both the Model 650 and 116 have remarkable bass reproduction. This is particularly true when the bass control is operated so as to provide maximum bass compensation. Care should be observed when listening to certain stations not to operate with the bass compensation advanced too far, since excessive station hum may affect the quality of the reception.

5. Q. Is the use of a series condenser recommended in the lead from the signal generator antenna terminal when making I.F. adjustments?

A. Yes. This condenser will block any D.C. and thus permit only A.C. from the signal generator to get into the circuit. In some I.F. circuits the grid bias is affected when a direct connection is made to the grid of a tube from the signal generator. The use of the series condenser will eliminate this condition.

Battery Set Performance Improved

THE PHILCO Engineering Department is constantly trying to improve PHILCO quality and to afford more and better radio performance for the money.

The Model 623 battery set has always been outstanding in performance and when properly adjusted will afford better performance than the earlier battery model receivers.

The PHILCO Engineering Department, not being content, however, has recently succeeded in improving the sensitivity of the Model 623 to an even greater extent. The bottom of the volume control, which was grounded, is now ungrounded and connects to the A Plus. A new first I. F. transformer, Part No. 32-1671, replaces the earlier type transformer, and a 1A4 tube is now being used in place of the type 34 tube, as second detector. These improvements have resulted in greatly increased sensitivity and selectivity in this model.

When making the adjustments of the Model 623, it is highly important that a dummy antenna be employed. This is merely a 200-mmf. condenser placed in series with the antenna lead from the signal generator at the chassis end. This condenser is used when making broadcast adjustments up to 2350 K. C. On frequencies higher than 2350, a 400-ohm resistor should be substituted for the condenser.

Over Two Years of R.M.S.

(Continued from Page 3)

standard prices, appointed committees for the promotion of advertising among their members, have arranged to get technical information and in many ways are doing very valuable work. R. M. S. and PHILCO believe that these associations can be an influence for much good and are anxious to co-operate with their plans.

Radio Manufacturers Service is a plan rather than an association. The members get the benefit from the activities listed here and they get them without charge. There are no dues or initiation fees. The R. M. S. plan is not a substitute for servicemen's associations, but is a sincere effort to help all servicemen do a better job of keeping every radio in the best operating condition.

There are six million PHILCO radios in use. Certainly both the service industry and PHILCO can benefit from this vast number of instruments which, we all know, do occasionally call for the attention of an expert serviceman.

Adjusting to the All-Wave Aerial

IN the November issue of the PHILCO SERVICEMAN, we told how sensitivity could be improved on any radio set by using a dummy antenna consisting of a 200-MMF. condenser for broadcast or a 400-ohm resistor for short wave.

In the case of the 1936 Model PHILCO sets with the built-in, all-wave aerial system, it is often possible to obtain even better results by adjusting the antenna compensating condenser to the all-wave aerial instead of using a dummy antenna. This adjustment is made simply by leaving the all-wave aerial transmission line connected to the two terminals on the back of the chassis in the usual manner. The station selector is tuned to 1400 K.C. or to a near point where no interfering station is present. The signal generator is tuned to this frequency, and coupling between the signal generator and the radio set is obtained by running one wire from the antenna terminal of the signal generator over to the red wire of the transmission line. Capacity coupling is obtained simply by placing one or two turns of the wire from the signal generator around the red wire. The set is adjusted in the usual manner, and it will be found that the over-all sensitivity is now greatly improved. In locations remote from broadcast stations, it is essential that every bit of sensitivity is obtained from the receiver. Adjusting to the all-wave aerial system affords this increased sensitivity.

A Message From the President of Philco

(Continued from Page 1)

ance and service. PHILCO wants the members of Radio Manufacturers Service to feel that this was a protection for them as well as a protection for PHILCO.

For the future we realize that our interest and the interest of the serviceman are identical. When you receive the factory engineering data, the service information on PHILCO sets, we want you to go out with the confidence that you know PHILCO products, because we have given you this information. Go out to your customers with the authority that makes you part of the largest radio organization in the world. PHILCO has placed at your command its full co-operation in meeting your service problems.

DEVLIN-DREW COMPANY

1302 Van Ness

Fresno, California

1935

PHILCO

News Flash!

Philco Radio & Television Corporation of California

218 Fremont Street

San Francisco, California

July 29th, 1935.

AERIAL NOTE: The leads from the set transformer of the Philco All Wave Aerial to the "ant" and "gnd" posts of the receiver should be kept as short as possible (3 to 4 inches). Some dealers are making the mistake of running these wires several feet to the set. Long leads will pick up considerable interference.

Our first shipment of the new No. 088 Signal Generator is SOLD - but more are on the way. Developed in the Philco Research Laboratories, it is the finest all wave oscillator on the market today.

--- DESIGNED --- ENGINEERED --- GUARANTEED BY PHILCO ---
Prices at only \$19.50 Net --- Less batteries.

PRICES REDUCED: A four page folder in this issue gives you drastic reductions in prices of condensers. Look them over.

PUBLIC ADDRESS MONEY-MAKER: Remember the old "Type 104" speakers? Take them off the shelf and dust them off right away. The Philco cone is easily adapted to this famous speaker, resulting in an "extra" or P.A. unit of exceptionally high quality. The following material is required:

1	PHILCO speaker frame	No. 36-3087	List Price	\$.50
*1	PHILCO cone	No. 36-3061	List Price	1.40
4	Drive Screws 1/4"	No. W-450	@	2.00C
8	Rim "	No. W-451	@	1.80C
1	Output Transformer	No. 32-7052	List Price	2.00

The frame must be properly centered and secured to the 104 end plate by means of the four drive screws.

* High Fidelity Cone No. 36-3381 can be substituted List \$1.75 This excellent service suggestion is presented by Radio Specialities Co., Los Angeles, having been used by them and Listenwalter & Gough with excellent results. Any more money-making suggestions? Send them in.

JOIN R.M.S. AND RECEIVE THE SERVICE BULLETIN MAILINGS FROM PHILADELPHIA

--- USE GENUINE PHILCO PARTS FOR ALL SERVICE WORK ---

Yours truly,

BY: IVYN I. FARWELL - Parts & Serv. Div.