

PHILCO

SERVICE and ACCESSORY

Merchandiser



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NO. 1

SEASON FOR OUTDOOR AERIAL SALES

Very often the source of poor radio reception at this time of year can be traced to an aerial that is showing the effects of serious weather conditions. In many parts of the country the winter 1947-48 was one of the worst in many years. Its effect on many home exteriors has been anything but good. Many aerials have suffered too.

Whenever your customer complains about faulty reception be sure to check the outside aerial as a contributing cause. If so, it will be a cinch to sell the Philco Outdoor Aerial as a replacement. Be sure to place your stock of Philco Outdoor Aerials out on the counter. Yes, and display them in the window where they can be seen. And put up the Philco Outdoor Aerial Poster where it will do the most good. Ask your Philco distributor for copies.

Many consumers are following the advice of "DON'T BUY HALF A RADIO" passed out recently by a large broadcast chain, and are seeing to it that the new sets they buy have F.M. This means more and more F.M. Aerial business for Philco dealers and servicemen. Are you getting your share?

OUR FIRST ISSUE

We are pleased to offer the first issue of the Philco Service and Accessory Merchandiser. The purpose of this publication is to acquaint Philco dealers and servicemen with new service ideas, new products and merchandising suggestions that will enable them to do an all round better job in servicing and selling Philco products. We hope you like it and that you will write us your comments.

TELEVISION: Greatest New Postwar Industry

In discussing television recently, James Carmine, Philco's Vice President in charge of Distribution said:

"Television, America's fastest growing new postwar industry, promises to represent an expenditure of five billion dollars during the next few years. With substantial sums being invested at an accelerated rate in building and equipping new television broadcasting stations, in the development of networks, in providing television programs, and in the production of receivers, the television industry is already providing employment for many thousands, and bringing entertainment within the reach of forty million people.

"During 1947, its first full year, the infant television industry did a greater volume of business than the automobile industry in its tenth year.

"The retail value of television receivers purchased last year amount-

ed to an estimated \$100,000,000— or about 12 times the dollars spent for radio sets in the first three years of radio.

"For 1948 the prospects are even more exciting. Conservative estimates indicate a production of 500,000 television receivers. Each month the industry chalks up new, higher records in set output. Philco, one of the largest producers, is stepping up television production to six times its level of last year. This means an output of many thousand receivers a week from the plants of a single manufacturer.

"Mass production manufacturing techniques, designed especially for television, are utilized in producing television receivers in quantity. In the new Philco plant, for example, over a quarter-mile of conveyor belts carry a continuous stream of television production, from raw materials to finished receivers."

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Judging from this photograph, Los Angeles servicemen are pleased with the television training classes held recently by Gough Industries, Inc., Philco distributors in L.A.

VOLUME CONTROL RACKS FOR BUSY SERVICEMEN



Radio servicemen, like everyone else in business, are constantly looking for ways and means to cut corners and save steps and time in the performance of their jobs. It strikes us then that in this direction they have a tremendous asset in the new Volume Control racks now available for them at their Philco distributors.

These racks come in two sections, each containing 24 compartments; one of these sections is for the Philco Universal 3" Shaft Type Volume Control and the other is for the new Universal Shaft Saver Type Control. The two units are so designed as to stack one on top of the other. On the rounded top of each section there is a specification list showing each Universal Volume Control with the Philco part numbers and resistance values. Smart servicemen will lose no time looking into these time and money savers.

This is the season for portable radios. From now until late Fall there will be a tremendous demand for batteries. Dealers everywhere are ordering an all-time record high volume of portable batteries. Don't delay getting your order in.

SOME PRACTICAL POINTERS ON AUTO RADIO IGNITION INTERFERENCE

The bane of any auto radio serviceman is that misleading bit of ignition noise which defies all attempts at elimination. Probably the best approach to a subject like this is a review of some basic facts.

First, ignition noise is in the very high frequency spectrum and as such can produce standing waves of such short length that they can cause hair pulling and teeth gnashing until the standing wave is removed.

Follow Instructions:

Next we have the fact that ignition noise is present in any car as long as the motor is running, and it only requires the installation people to follow published instructions in order to by-pass the stuff to the point where it does no harm. Instruction sheets furnished with every Philco auto radio have in them complete information covering the suppression of ignition noise in the particular type of car, and if these instructions are followed—and the necessary precautions applied, ignition interference can be reduced to a satisfactory level for good performance of the radio.

Hot R. F. Sections:

There are some installations that require special techniques in order to eliminate a persistent noise that is bothersome even after the prescribed equipment is installed. Usually this type of interference comes from some portion of the car which is above ground with respect to the ignition noise frequency. Bumpers have been offenders, believe it or not, and in one case it was found that the cowl on a Plymouth was so hot to RF that regardless of how strong the station tuned in, it was inaudible due to the strength of the ignition noise coming in the aerial.

Process of Elimination:

When you experience ignition noise which the common methods do not take care of, the first step you should take is to determine whether the noise is coming into the set through either the aerial or the "A" lead. This is usually done by disconnecting the aerial from

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LET CUSTOMERS SEE YOUR PHILCO ACCESSORY PRODUCTS

"Say, I didn't know Philco sold all those items." If you have a Philco Accessory Products Display in your store the chances are you have heard that expression numerous times. If you do not have one of these displays, then 'phone your Philco distributor at once and find out why.



This display is intended to acquaint your customers with the numerous Accessory items that bear the quality name of PHILCO—Ice Cube Trays, Batteries for Portable Radios, Batteries for Flashlites and Penlites and other uses; Furniture and Refrigerator Polish, Radio Tubes, Screw Drivers, Pliers, Phonograph Needles, Outdoor Aerials, Farm Aerials and numerous other items.

Generally speaking a customer rarely comes to an appliance store to browse around. Therefore, due to necessary space limitations many of these items are in bins or on shelves in their respective categories, and usually out of the customer's ordinary range of vision.

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"GUARANTEED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP"

These words in the Philco warranty constitute the purchaser's insurance that he is buying an article which is as free from defects as modern manufacturing procedure can produce. So confident is the manufacturer of the quality that he insures the perfect operation of the product for a given time. In the event a defect does occur within the warranty period, the customer is then entitled to have the defective part replaced to him without charge.

Inexpensive Insurance

The length of time of the warranty period has been determined by years of experience as the length of time in which the majority of failures occur after the product has been placed in service. The customer is therefore protected on his investment in the event of failure and for no additional expense has this equipment restored to its original condition. To continue the warranty for a greater length of time would affect the selling price of the article so the warranty time, as used, gives the customer the most for his investment.

Purpose of Warranty Tags

Adjustments of defective Philco parts are based on information given on a warranty tag, filled out by the serviceman for each part. Philco uses this information not only for warranty purposes but to assist in factory and engineering quality control. Thus, it is important that the warranty tags be completely and accurately filled out. Philco Field Service Representatives inspect the defective parts returned to distributors. If they should find a certain part returned that is not a normal return for that part number, they would immediately report this to the factory. Facts are given on the returned part as listed on the tag, such as model number, serial number, length of service, complaint, etc. Therefore, if these facts are not accurate, delays result in any action being taken until accurate information can be obtained. A serviceman will help himself by reporting accurately the information needed to help prevent further service.

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PHILCO CAMPAIGN NOW UNDER WAY TO SELL UNIVERSAL REAR-SEAT SPEAKER



Every Philco Auto Radio dealer will be pleased to learn that the same enthusiastic promotional effort that proved so effective in Philco's recent drive to introduce the new Rear-Seat Speaker for Philco Auto Radios has now started rolling to help him sell the new Philco Universal Rear-Seat Speaker.

All your customers, too, will be delighted to get this news. They all want to enjoy the finer radio reception—the new easy-listening it offers for their rear seat riders, and the new clear, comfortable living-room sound quality for every passenger, front and rear.

This is a great new promotion opportunity for dealers too. A real volume builder that will not only bring new profits from present set owners, but TWO PROFITS from new buyers of auto radios. The Philco Universal Rear-Seat Speaker is, without a doubt, the auto radio accessory you have long awaited. It is easily demonstrated and quickly installed—and offers the customer value far beyond its price.

Pictured above are a few of the

sales-promotional pieces that your Philco distributor has for you.

A sturdy demonstration counter display in which speaker and switch can be mounted and demonstrated to your customers.

A colorful attention-compelling window streamer that tells the Philco Universal Rear-Seat Speaker story quickly to those passing your store.

The ever-popular handbill can always do a job for you, particularly with a product like the Philco Universal Rear-Seat Speaker.

Car-Door Hanger Cards are one of the most popular forms we know of in advertising to car owners. Arrangements can easily be made with car-lot owners for distribution of these cards in your neighborhood.

If you haven't already hopped on the "Philco Universal Rear-Seat Speaker" band wagon, don't lose another minute. Get in touch with your Philco distributor—order your speakers—and sets too, for new car-radio prospects! Be sure to ask for the attractive counter display to enable you to demonstrate the new

(Continued on page 6)

"I JUST ASKED THEM TO BUY PHILCO NEEDLES AND THEY DID"



No doubt there have been some very convincing formulas for retail selling advanced by students of sales psychology and others versed in the tricks of the trade. However, we have always felt that there are no arguments more productive of results in selling than the simple formula of just asking your customers to buy.

Cashier Becomes Salesman

As a matter of fact, we are more convinced than ever of this upon learning of the results obtained recently by the cashier of one of the largest furniture stores in the South, during that store's recent drive to sell Philco Phonograph Needles. Being an installment house, this store's customers come in to the store periodically to make payments on merchandise purchased. It was, therefore, decided that the cashier be given the job of calling the attention of each customer to Philco Phonograph Needles.

Friendly Selling

In every case, after engaging the customer in brief but friendly conversation, the cashier would begin by taking one of the Philco needle packages from the merchandiser and would proceed to talk about the wonderful playing qualities of all Philco needles. She would stress their permanence, their true, natural tone reproduction and, of course, that other outstanding feature where Philco needles are used — low record wear!

The percentage of customers who bought needles, as a result of the cashier's selling campaign, ran very high, but she still insists that they purchased Philco needles because she "asked them to buy".

YES, WAVE TRAPS IN TELEVISION TOO

The versatility of the precision channel selector in Philco television receivers readily adapts itself to various trap circuits which may be switched in and out as needed. These traps are used to "trap out" interference caused by diathermy, amateur and FM stations or even other T.V. stations.

The trap may be made up simply of a shorted half wave length of twinex or coaxial lead-in wire. In some cases on the lower frequencies, a half wave trap may be too lengthy to be practical; if so, an open quarter wave section may be tried. This too reflects a very low impedance across its output terminals.

If either of the above traps is tuned to the interfering signal, it may be used to reduce or eliminate the interference without practically affecting the T.V. signal. The circuit shown in figure No. 2 switches the trap in the circuit for only the channel where it is needed.

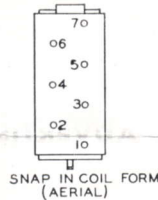


FIG. 1

A common L.F.H.F. aerial is used with this circuit; all the H.F. coils are converted as shown; and the trap is connected to the H.F. terminals of the aerial input plug. The jumpers between 3 and 4, 7 and 6 are used to connect the trap into the circuit for the channel required. The trap is made up of a piece of parallel conductor; the exact length of which may be found by starting with a piece longer than necessary and trimming the trap, and in the case of the half wave trap, shorting and repeating the procedure until the interference is at a minimum.

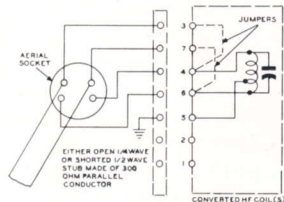


FIG. 2

The circuit in figure #3 may be used in installations where two aerials are required, but it is necessary to use coaxial lead-in.

This circuit has provisions for two traps, made of coaxial cable if required. If a condition exists where two traps would be required

on either the L.F. or H.F. channels, the jumper may be connected between 4 & 7 or 6 & 3 to provide two traps for either L.F. or H.F. channels. The method for finding the exact length of the trap is the same as that used with the parallel lead.

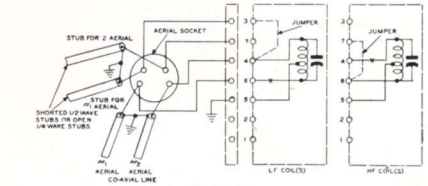
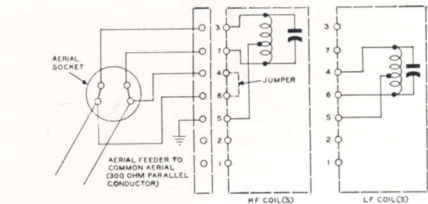


FIG. 3

The circuit shown in figure #4 should be used in installations where one aerial is used for both L.F. and H.F. channels and where the length of the unused section of parallel conductor between the aerial input plug and the turret is approximately a quarter wave length long, such as would be the case on channel 9 or 10.

Since a quarter wave open stub will represent a low impedance at the opposite end, it will absorb some of the TV signal. This may be corrected by placing a jumper as shown in figure #4 in the coil for the H.F. channel where the absorption is present.



F.G. 4

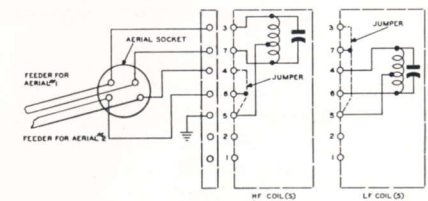


FIG. 5

In some locations where there are two separate aerials used, there may be some interaction by having the same TV signal picked up in both aerials and possibly having a different phase relationship.

Under certain conditions the signal picked up by the unused aerial may be strong enough to feed thru the capacity existing between the two lengths of parallel conductor running between the aerial socket and the turret, causing an unsatisfactory picture.

(Continued on next page)

NEW PROMOTIONAL MATERIAL BRINGS EXTRA SERVICE BUSINESS

Philco Service members who have seen the new display boards of Philco Service sales helps are rapidly climbing aboard the advertising band wagon to identify themselves with Philco's worldwide organization of appliance servicemen.

The many new promotional items—now on display at your Philco distributors—have given a new impetus to the idea of advertising and promoting quality service work at reasonable, standardized prices. Servicemen and dealers everywhere are finding that the consistent use of Philco Service signs and printed materials consistently pays off.

A member in Michigan sends us the following: "I am displaying my certificate, along with Philco signs, service price charts, etc. and we are giving the same type guaranteed service here which we did in Salt Lake City. We have been stressing Philco Service of reasonable standard rates, the use of high quality replacement components, and 90-day guaranteed service. This policy has more than paid off since it has brought us customers who had no doubt in their minds that we were out to do the job and would stand back of our work."



PR-1525 Outdoor Illuminated Sign

Let Customers See . . .

(Continued from page 2)

A Philco Accessory Products Floor Display set up in a conspicuous spot in your store is bound to attract attention to the colorful array of these useful Philco Accessory Products, and in so doing create an increased demand.

Yes, Wave Traps in . . .

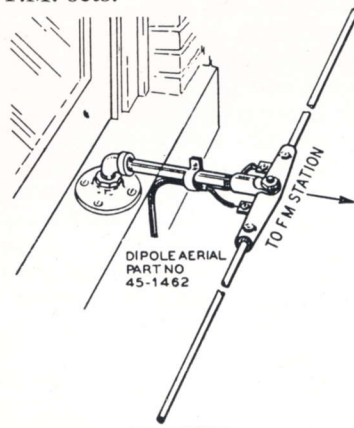
(Continued from page 4)

This may be corrected by modifying the aerial coils as shown in figure #5. This circuit switches out the unused aerial and eliminates the undesirable signal pickup.

PHILCO F.M. AERIAL PROVES BOOSTER FOR SET SALES

The public is now fully aware of the activity on F.M. started some months ago with the agreement by American Federation of Musicians permitting F.M. stations to repeat musical programs carried on standard A. M. broadcasts.

Dealers everywhere report that more and more F.M. sets are being sold, and the Philco F.M. Aerial is playing a major part in guaranteeing proper reception for owners of F.M. sets.



HIGHWAY ADVERTISING FOR PHILCO AUTO RADIO DEALERS

With the coming of vacation days and nice weather, in practically every state in the Union, comes the urge to many Americans to hit the open road. Pleasure-bent motorists flock to the highways by the hundreds of thousands.

What an opportunity this presents to auto radio dealers who have one or more of the new Philco Highway Signs installed with their imprint appearing in the attractive panel made for this purpose. Something new in Highway Sign design, the Philco sign is ruggedly constructed of sheet aluminum supported by 3" steel tubing. The message is printed and baked on with the brilliant eye-compelling colors of red, yellow and blue. The sign when erected in a base of concrete stands 7' in height and the message area measures 6' x 4'. The dealer imprint panel is 5' x 2' and is easily readable 500 feet away.

Every Philco auto radio dealer should be represented with a Philco Highway Sign. If you do not have yours, phone your Philco distributor now and make the necessary arrangements.

ANOTHER PHILCO FIRST 6 NEW UNIVERSAL COILS

At last, coils that are really Universal. Yes, one of a kind and only one for each basic requirement! That's Philco's newest contribution to better, quicker servicing of all makes of radios.

These 6 new Philco Universal Coils save the serviceman time, trouble and expense. They simplify replacement work. They make it possible to service more sets with a stock of fewer types, avoiding needless trips.

Here is the opportunity that servicemen have long been awaiting. You can now replace a coil with certainty that the new part will have the exact performance required. Once again Philco comes through with a FIRST—this time, the answer to ALL coil problems.

Only 2 coils are required to perform all the functions of antenna, R. F. and Oscillator Circuits:

Part No. 45-6389-2 from 1.7 to 6 mc. (Slip-On Primaries for 45-6389-2 are:

Low Impedance Part No. 45-6389-1 High Impedance Part No. 45-6389-3)

Part No. 45-6389 from 6 to 18 mc. (includes Primary)

These also have the full range of adjustability and flexibility of other types of Philco Universal Coils.

NEW PHILCO PARTS AND ACCESSORIES CATALOG NOW READY



Just off the press and now ready for distribution, the second edition of the Philco Parts and Accessories Catalog is one of the most complete books of its kind that we have ever seen. Covering all Philco Accessory Division products from the smallest set screw to the complete line of 1948 Philco auto radio models, the new Philco Parts and Accessories Catalog should be kept handy for reference by every Philco dealer and serviceman. Make sure your Philco distributor has a copy for you.

AN EASY WAY TO ELIMINATE "BIRDIES" IN SUPERHETS

Often the serviceman can be a hero to his customer by the simple elimination of "birdies" in the receiver.

In some localities, these annoying squeals and whistles are heard on one or more stations, particularly with sets not having a tuned R.F. stage.

They are caused by the heterodyning of two signals, which can in some cases be the signals of two stations, in other cases a station and the local oscillator of the receiver. There are other causes also, but the two mentioned are the most common. Birdies resulting from either of the two causes can easily be eliminated, or shifted to another frequency where they will not be objectionable.

Image Interference

In a locality having stations at 560 k.c. and 1470 k.c., a birdie will be noticed on the station at 560 k.c. if the radio has an intermediate frequency of 455 k.c. A little quick figuring will show that these two stations are separated by 910 k.c., which is twice the intermediate frequency. This type of interference is known as image interference, and is only noticed on a station at a low frequency which is separated from a higher frequency station by twice the intermediate frequency.

5 K. C. Shift of I. F.

This trouble is corrected by shifting the frequency of the I.F. amplifier about 5 k.c. higher or lower than it was originally. Using our same station frequencies again as an example, with the I.F. shifted to 450 k.c., the image of the station at 1470 k.c. would come at 570 k.c., where it would not interfere with the station at 560 k.c. After shifting the I.F., it will be necessary to realign the R.F. and oscillator circuits. Do not shift the frequency more than necessary, as a tracking error is introduced. A large tracking error can cause a noticeable loss of sensitivity, particularly at the low frequency end of the band.

Converter Grid Offender

The reason why the image occurs at twice the I.F. below signal frequency is simple. Again using our original frequencies, if the receiver is tuned to 560 k.c., the local oscil-

lator is tuned to 1015 k.c. in order to produce the I.F. of 455 k.c., the difference between the two frequencies. However, the difference between 1015 k.c. and 1470 k.c. is also 455 k.c., which is of course passed by the I.F. amplifier. There is enough of the 1470 k.c. signal present at the converter grid, even with the R.F. circuit tuned to 560 k.c., to produce the undesired beat. Sets having tuned R.F. amplifiers are not as likely to be subject to image interference as the additional selectivity prevents any signal other than that desired from being present at the converter grid.

In the earlier days of radio, intermediate frequencies of 175 k.c. and even lower, were used. Image interference is more pronounced when using lower intermediate frequencies, so as more stations came on the air, the change was made to higher frequencies. In most cases the images, though present, fall below the band being used and are therefore never noticed.

Short Wave Images

It is worth while to note, at this point, that images can cause trouble when aligning the oscillator circuits for short wave bands. The oscillator trimmer can be adjusted to put the image, rather than the actual signal, at the alignment point on the dial. This can be avoided by starting with the oscillator trimmer at minimum capacity. As the capacity is increased, the first signal heard is the desired signal. As the capacity is increased still more, the image will be heard next. With the trimmer at the correct point, the image will of course be found at a dial setting equal to twice the intermediate frequency lower than the desired signal.

The other cause of birdies mentioned will be discussed in a future issue.

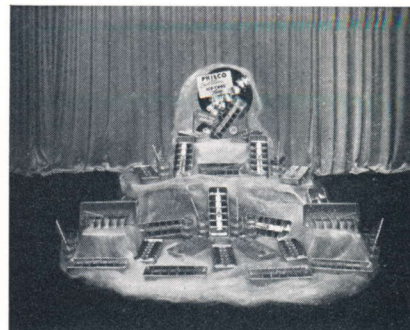
Philco Campaign Now . . .

(Continued from page 3)

Philco Universal Rear-Seat Speaker. Put the window streamers up on your window to carry the message to passersby. Make use of the handbills and the effective car-door hanger cards.

If you put all this material to work for you—you just can't miss getting your share of this sensational new business.

NOW IS THE TIME TO SELL ICE CUBE TRAYS



Warm weather always brings an increased demand for iced drinks and almost invariably a lament from housewives that they do not have enough ice cubes for special occasions requiring cooling beverages.

We think that if we were a Philco dealer we would arrange to set up on the first warm spell an attractive window display like the one shown here. It is merely a matter of arrangement of Philco Ice Cube Trays plus a number of glasses and stirring stems, and the spreading around of a bit of spun glass, commonly known as angel hair. The Ice Cube Tray Display piece? Your Philco distributor has these available for you. Phone him today!

PHILCO POLISH BRINGS FLOOR TRAFFIC

A Philco dealer in Denver started what looked like a splendid idea to promote the sale of Philco Polish. The idea spread like wild-fire, and now we find that many dealers are doing likewise.

With every Philco refrigerator this dealer sold he included a free bottle of Philco Refrigerator Polish. The customer, of course, was pleased at the gesture and, invariably, when the contents of the gift bottle were exhausted, the customer would come in to buy a new bottle.

So effective has this plan proved in the sale of Philco Refrigerator Polish that many dealers are carrying out the same idea with furniture polish and giving away a bottle with the sale of every Philco radio they make.

WITH THE NEW 7008 VISUAL ALIGNMENT GENERATOR FOR FM and TELEVISION PHILCO MAKES TEST EQUIPMENT HISTORY!

For the Radio and Television Serviceman—For the Experimenter—For the Radio Amateur—For the Radio-Electronics Engineer.

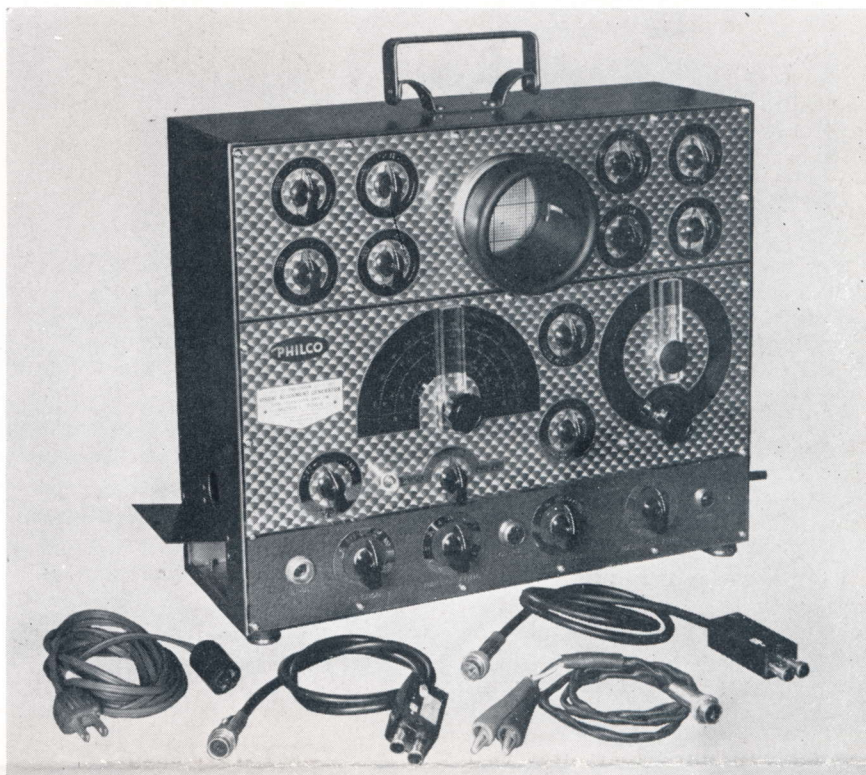
Philco Precision Visual Alignment Generator for Television and FM, Model 7008, is the only completely self-contained and moderately priced instrument for aligning television and FM receivers that is at present available to the serviceman.

The instrument is housed in an attractive steel case equipped with a handle and a special storage compartment for test leads, probes and aligning tools. Model 7008 is of compact unit design, and weighs only 36½ pounds complete; it is portable, and operates entirely from the 110-120 volt, 60 cycle a.c. line, consuming only 70 watts.

An All-Purpose Generator

Model 7008 is a precision instrument which contains the following: a crystal calibrator, to provide accurate check points every five megacycles (and at other calculable frequencies); an AM (marker) Generator, operating over a frequency range of 3.2-250 mc; an FM Generator, covering a range of approximately 4-120 mc and 145-260 mc with a variable sweep width of 15 mc maximum deviation; an Audio-Frequency generator, operating at 400 cycles; a special oscilloscope; and a common power supply. This unique combination of circuits, with only one input and one output connection, but with individual gain controls or attenuators, provides practically complete control of all circuits either individually or collectively.

In addition to being used for the primary purpose of television or FM alignment these circuits may be used separately when trouble shooting. For example, besides furnishing a marker pip for checking visual alignment, the AM generator may also be used as a separate signal generator with 400-cycle modulation for checking continuity through the picture-I-F and video stages, or through the sound-I-F. The Audio Generator can be used to modulate the AM generator, or to apply a 400-cycle signal to the receiver for checking the continuity of audio stages.



Calibration Easily Checked

The crystal-calibrator feature is not available for external use, but makes the unit self-calibrating. It is not necessary to use an external signal to check calibration; the oscilloscope is connected internally to a detector, which allows the beat signal between the crystal oscillator circuit and the AM generator to be observed, so that it is possible to set the AM generator to an exact zero beat. The AM generator can then be used as a marker to furnish a marker signal which is accurate to within a few cycles at all times. The dial calibration of the unit itself may be checked quickly and easily, and with a minimum of error. A unique vernier scale is attached to the marker generator dial, so that accurate resetting to within a tenth of a division is possible.

Complete CR Scope

The cathode ray tube is a 3MP1 type employing electrostatic deflection, and has a deflection sensitivity of better than 25 millivolts per inch at maximum vertical-amplifier gain. The screen is a medium-persistence, green-fluorescent type,

providing high contrast; it is supplied with a crosshatch screen for easy calibration. The crosshatch screen is removable, and is specially constructed of laminated sheets of plastic so that the scribed markings are sandwiched in between two sheets, and cannot be damaged by handling. The cathode-ray tube is mounted in a separate swiveled housing which can be folded into the main housing, so that the unit may be conveniently stored in a small space and carried with a minimum of interference from protruding parts. The metal light shield telescopes into the housing for compact storage when not in use, or may be removed entirely, if desired. The oscilloscope circuit is extremely stable; the trace does not move off-screen with a sudden change in line voltage or input levels; furthermore changing from test point to test point does not necessitate a long wait until the presentation is stabilized. A unique method of using compensating load resistors in the various circuits not in use provides a practically constant load on the power supply.

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Television . . .*(Continued from page 1)*

Television manufacturers must necessarily depend upon the present radio service industry to keep their television receivers operating correctly in the field. Everywhere we go one of the first questions asked by servicemen is—"How about television?" The service industry is keenly aware of the immediate importance of television; it is anxious to learn more about the basic principles of television receivers, to learn more about installation, and to learn more about practical servicing.

Very soon you will get the complete details about the greatest television training program ever undertaken—another Philco first, and only Philco has it. Be on the lookout for this big announcement.

Some Practical Pointers . . .*(Continued from page 2)*

the set. If the ignition noise stops, you know it is aerial pickup. If it persists at the same level, you know the front end of the set is clear, but the noise is entering through the "A" lead. There is another possibility, and that is a combination of aerial pickup and "A" lead pickup. This can be determined from the relative levels of the noise when the aerial is connected and then disconnected.

An Old Standby:

Persistent "A" lead pickup can be attributed to some part of the car floating—usually the radiator, fender or bumper. Quite often the addition of a bypass condenser from the ignition switch or ammeter to ground will eliminate this. Other times it may be necessary to do a thorough bonding job, and a very important precaution in bonding is that the bonding straps be as short and direct as possible. In the case of antenna pickup, quite often the trouble is due to a poor shielding on the aerial lead or a poor ground at the aerial end of the lead. In some cases, it becomes necessary to thoroughly ground the hood to the cowl. It is usually pickup through the back end of the set that presents the biggest problem and is the most difficult to eliminate, but the proper application of a well ordered investigation usually will pay dividends in time saving and the knowledge that you won't be mystified in the future by this particular problem.

**NEW REFRIGERATOR
MANUAL IS BOTH SERVICE
AND SALES BIBLE**

The new 84 page manual for servicing the 1948 Philco refrigerators (form PR-1475) is so clearly and so completely illustrated it is invaluable for dealers and retail salesmen as a sales manual.

For the serviceman, it is by far the most complete and most helpful manual on servicing Philco refrigerators that he has ever seen. It embodies features such as complete specifications for the 1948 Philco refrigerator and a newly developed method of servicing these refrigerators.

"Guaranteed Against . . ."*(Continued from page 3)***Liberal Policy**

Philco is known to be liberal in the interpretation of its warranty policies and it is true that Philco insists the customer be given all he

is entitled to under the warranty. Consideration must be given, however, to the fact that part of the revenue of servicing is the sale of parts and service beyond the warranty period. Therefore, the serviceman must try to make a fair decision at all times for justice to all.

**New Generator
Makes History . . .***(Continued from page 7)***Full Screen for Television I. F.**

With the variable SWEEP WIDTH control, the sweep can be reduced to a low value (approximately 200 kc.), before its adjustment becomes critical, and can be expanded up to 15 mc., depending on the frequency range in use. Thus the c-r-t presentation may be expanded to include the full screen for wide-band FM or for Television picture i-f channels.

High Output on H. F. Tele Channels

Because the gain of most television receivers falls off on the high-frequency channels, the high-frequency output of Model 7008 is increased to about five times the output at low frequencies; more than enough output is available at all times to view the front-end alignment of a TV or FM receiver. This feature is only available in the highest priced laboratory types of sweep generators.

The output of this instrument is controlled by a shielded multiplier attenuator, permitting absolute control of output from thousands of microvolts down to a minimum of 4 or 5 microvolts.

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