

PHILCO SERVICEMAN

PHILCO
Factory-Supervised
Service

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PRODUCT PERFORMANCE IN RADIO

Much has been said from time to time about Quality and Product Performance, but very little about methods and procedures used to keep performance at high level. As many procedures can be used to an advantage in servicing, this article will discuss some of our methods.

While factory production and test work is responsible for the overall performance, as related to engineering specifications, an independent group aside from this is necessary to evaluate the performance of a product from a customer's, rather than from a factory, viewpoint.

One of the things that is most concentrated on is the reduction of "short time failures". Nothing is more discouraging to a customer, who has just purchased a new radio, than to have it fail after a few days operation. Therefore, much work is done to reduce this possibility.

By making checks on the finished product as nearly as possible under the conditions existing when operated by the customer, we are able to anticipate service that may be required in the field and make suitable changes in production that would make service unnecessary.

The first step is to take, daily from the production line, sufficient samples of sets as they are being shipped to the distributors. It is necessary that these samples be taken daily in order to have information on each day's production. These sets are taken to a special building where they are unpacked (which is a check on packing procedure) and examined visually for anything that might meet customer criticism. Here is point number one to be considered by dealers and servicemen. You, too, can inspect sets before delivery to customers so that any damage or abuse in shipping can be detected before delivery.



FIGURE 1

The picture in Figure 1 is of a special automatic testing device for auto radios. This more nearly simulates the actual operating condition of an auto radio in a customer's car than regular tests. For a period of eighty hours the radios under test are turned "on"

for one hour, then "off" for one hour so that the radio can alternately heat and cool giving forty hours operation or the equivalent of several weeks operation in a customer's car.

The information we are able to
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FIGURE 2

TROUBLES DUE TO FAULTY TUBES AND THEIR RECOGNITION

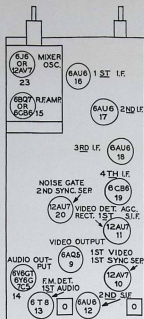
In a vast majority of cases, troubles in a television receiver, and especially during the first month of its use, are usually due to one or more of the tubes.

It is therefore important to be able to recognize a trouble, and to isolate it quickly to a particular tube or small number of tubes (2 or 3).

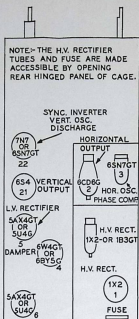
In this presentation it is assumed that the line cord and B plus fuse has been checked in the receiver, before tubes are tried. Also certain simple checks are suggested before tubes are exchanged.

Remember, dangerous potentials are present in the receiver when it is operating, and for a short time after it has been turned off!

To remove the back of the television receiver and still have AC power, it is necessary to use an AC cord with male connector.



RF-I.F. CHASSIS TOP VIEW



POWER AND DEFLECTION CHASSIS TOP VIEW

TROUBLE NOTED	BEFORE CHANGING TUBES	CHANGE TUBE
Horizontal Gunboating (Squealing)		1. 6SN7, Hor. Osc. (3) should be replaced if STAB core and FREQ. CORE on HOR. OSC. Transformer cannot be readjusted to eliminate condition.
Very Dim Raster		1. 1X2, Hi. Volt Rect. (1)
Excessive Width		1. 7N7, Vert. Osc. (22)
Insufficient Height	1. Check adj. of Height, and Vert. Lin. Controls	2. 6S4, Vert. Out. (21)
Normal Width		1. 7N7, Vert. Osc. (22)
Loss of Both Horizontal and Vertical Sync		1. Sync. Inv. (22)
Picture Normal		2. 12AV7, 1st Vid. 1st Sync Sep. (10)
Picture Not negative		3. 12AU7, Sync Clamp 2nd Sync Sep. (20)
Washed out (gray)		1. 12AU7, Vid. Det. (11)
Loss of Both Horizontal and Vertical Sync		2. 6CB6, 4th IF (19)
Picture washed out negative (gray)		3. 6AU6, 3rd IF (18)
		4. 6AU6, 2nd IF (17)
		5. 6AU6, 1st IF (16)
		6. 6CB6, or 6BQ7, RF Amp. (15)
Horizontal Wiggle, Weave		1. 12AV7, 1st Vid. 1st Sync Sep. (10)
Picture may lack blacks with little snow content or it may be very black		2. 12AU7, Sync Sep. Sync Clamp (20)
		3. 6CB6, 4th IF (19)
Lack of Vertical Sync		1. 7N7, Vert. Osc. (22)
Vertical Black Line in Picture		1. 6CD6, Hor. Out. (2)
		2. 6BY5, Damper (4)
No Light (Raster)	1. Turn Brightness to Maximum 2. Remove High Volt Cap and Spark to Chassis. If spark occurs, check Beam Bender. If no spark occurs then change tubes in this order.	1. 1X2 or 1B3GT H.V. Rect. (1) 2. 6CD6G, Hor. Out. (2) 3. 6SN7, Hor. Osc. (3) 4. 6BY5G, Damper (4)

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FACTORY-SUPERVISED SERVICE RECOMMENDED
SERVICE CHARGE PLAQUES FOR SHOP DISPLAY

Television and Radio members of Philco **FACTORY-SUPERVISED SERVICE** can now display Recommended Service Charge Plaques as a guide to service charges and as an explanation to customers of these charges.

These blue and gold, metal laminated plaques should be displayed prominently to show your customers how charges have been arrived at for their protection.

Compiled by Philco Service Headquarters, these charges have been carefully predicated on exhaustive studies of service charges throughout the country. The suggested charges cover service only and include testing required to locate the trouble.

FACTORY-SUPERVISED SERVICE Plaques list charges 15% over those on the older Philco Service Plaques to take into consideration the fact that labor charges have risen considerably.

Just as you advertise reputable service through various mediums, so will these plaques indicate your willingness to publicize the fact that you charge a fair and square price to everybody.

[illegible][illegible]

In the event that a price administering agency is created during the national emergency, these plaques will provide you with complete listings of your charges and will simplify the filling in of various time-consuming application forms bound to be required.

There is nothing customers like to see better than dealer and manu-

facturer cooperating to provide the customer with a square deal. Their sense of security through this co-operation is your assurance of repeat business.

Television Recommended Service Charge Plaques, PR-1977, and Radio Plaques, PR-1976, are available at your local Philco Distributor.

SPECIAL 1950 REFERENCE MATERIAL OFFER!

Your local distributor now has available a Dealer and Service Member "Manual Library" series that every Philco Dealer in the country should have for the products he handles. These should be used for reference purposes for his salesmen and servicemen, especially where a dealer has his own service department.

This library consists of all of the service manuals and bulletins sent to Philco Service members for the entire year of 1950. They are packaged in three categories: Radio, Television, and Refrigeration-Air Conditioning. The packages are made up separately so a dealer or serviceman handling only one or two Philco products can purchase only those packages needed for his operations.

A percentage of service personnel throughout the country moves from job to job in an effort to better their position. If a new man coming into a service operation is not a Philco **FACTORY-SUPERVISED**

SERVICE member, he still must have the technical information needed to perform a job on products handled by the organization. He can then use the library that is always on the premises.

Part numbers of the packages available, are as follows:

PR-1962 Television "Dealer
Manual Library"

PR-1963 Radio "Dealer Manual Library"

PR-1964 Refrigeration-Air Conditioning "Dealer Manual Library"

Remember, it is always good insurance to have extra manuals and bulletins around in case your originals are lost or destroyed. In this way you won't waste valuable time writing to the factory for replacement literature.

Order as many libraries from your distributor as you need—then have complete 1950 service information available for each of your salesmen and servicemen.

MIKE FARAD SEZ:



HERE'S ONE PROBLEM I'LL
LICK! WITH CHASSIS
STICKERS, MY CUSTOMERS
WILL ALWAYS KNOW WHERE
TO GET PHILCO FACTORY-
SUPERVISED SERVICE!

GET 'EM FROM YOUR DISTRIBUTOR!

Product Performance In Radio

(Continued from page 1)

get from this cycling test does much to help us cut down short time failures. The fact that sets are taken from daily production is also a daily test on the quality of different shipments of components in addition to normal receiving inspection tests.

An additional test is made in the field with a truck specially equipped to operate a number of auto radios while in transit. This test gives actual road operation and enables sensitivity and selectivity measurements to be taken under adverse operating conditions.

At regular intervals, carload shipments, as being received at a Philco Distributor some distance from Philadelphia, are given similar tests which tell us what happens in shipment.

The picture in Figure 2 shows Home Radios under a similar test. The operating test time is different because the average home radio is on for a longer period of time than an auto radio. Therefore, the home set is tested for a continuous sixteen hours on and eight hours off until it has had forty-eight hours of playing time.

During this test time, the sets are examined for drift, tone quality, and alignment. All phonograph models have the record changers completely checked on all three speeds for set down, trip, and change, as well as reproduction.

By this constant accelerated consumer type test, a considerable reduction in warranty service is achieved.

KEEP THE DEFLECTION YOKE CONNECTED

The practice of operating television receivers without having the deflection yoke connected can have several detrimental effects.

In the 50-T1400 series, removing the load from the secondary of the horizontal output transformer causes the 6BG6 to draw excessive screen current resulting in possible damage to the tube or its associated screen dropping resistor. Also in these series, sets disconnecting the deflection yoke and thus removing the focus coil from across the focus pot. causes an excessive amount of current to flow through the focus pot. If the set is left on this way for a short period the pot. will burn out.

In the 51-T1601 series which includes the 51-T1601, 51-T1602, and 51-T1634 Code 123, and in the 51-T1800 series, when operating on high line voltage, disconnecting the deflection yoke is likely to result in breakdown of the 10 mfd filter condenser on the boosted B plus voltage.

No matter what kind of receiver is being serviced or aligned, it is good practice to leave the deflection yoke connected. Correct alignment procedure requires the set under alignment to be operating under its true voltage conditions. Since removing the deflection yoke causes a change in B voltage and in any bias voltage used, this definitely isn't correct procedure.

(Continued from page 2)

Bottle Idea Wins \$10.00 For Michigan Serviceman

Philco Serviceman Dan Damrow, 5331 West 79th St., Oak Lawn, Mich., did some fast thinking and comes up a winner for the May Philco Idea Award.

"I saved a number of finger nail polish bottles disposed by the little woman of the house, and cleaned out the remainder of the contents with a little lacquer thinner. I filled them with quantities of the usual chemical aids found in the average shop—lubriplate, cement, polish, scratch remover, etc.

"In this way the already bulging tool kit does not have to be burdened further by large size bottles of chemicals, and a larger variety can be brought on service calls.

"It is a simple matter to refill these bottles from the more ample supply available at the shop, from time to time."

Get the idea? It doesn't have to be a really involved one—just simple, but effective time-savers.

Let's go Philco Serviceman, for \$10 per accepted idea!

If a complete tube assembly is not available, just a deflection yoke by itself will serve satisfactorily.

TROUBLE NOTED	BEFORE CHANGING TUBES	CHANGE TUBE
No Light (Raster) No Sound Tube Fil. Light up	1. Check B plus Fuse (Discharge each side of Fuse to Ground)	1. 5U4G L.V. Rect. (5, 6)
No Picture Raster Normal Sound Normal		1. 6AU6, Vid. Out (9) 2. 12AV7, Vid. Ampl. (10) 3. 12AU7, Vid. Det. (11)
No Sound Picture Normal	1. Check speaker plug 2. Check volume control cable and plug	1. 12AU7, 1st SIF (11) 2. 6AU6, 2nd SIF (12) 3. 6T8, FM Det 1st Audio (13) 4. 6Y6, Audio Out (14)
No Picture No Sound Raster Normal	1. In weak signal areas check antenna connections	1. 6J6 or 12AV7, Osc. (23) 2. 6CB6 or 6HQ7, RF Amp. (15) 3. 6AU6, 1st IF (16) 4. 6AU6, 2nd IF (17) 5. 6AU6, 3rd IF (18) 6. 6CB6, 4th IF (19) 7. 12AU7, Vid. Det. 1st SIF (11)
Lack of Width Sound Normal		1. 6CD6, Hor. Out. (2) 2. 6BY5, Damper (4) 3. 6SN7, Hor. Osc. (3)
Horizontal Foldover		1. 6BY5, Damper (4) 2. 6CD6, Hor. Out. (2) 3. 6SN7, Hor. Osc. (3)