

PHILCO
Factory-Supervised
Service



the **PHILCO SERVICEMAN**

VOL. 23 NO. 9

SEPTEMBER, 1955

**THERE'S A FIGHT GOING ON!
WHOSE SIDE ARE YOU ON?
(See Page 7)**



A lovely girl and the sands of Miami Beach provide the setting for Philco's new transistorized portable phonograph. Think of it! No vacuum tubes . . . nothing to wind up . . . no cords . . . no electrical plug in!

THE SHAPE OF THINGS

INTENSIVE PHILCO DEVELOPMENTS IN TRANSISTORS AND PRINTED WIRING

We present here the story of two of Philco's newest transistorized product developments that promise so much new convenience to the public and industry and a greater stake for you in the future of electronics.

A NEW CONCEPT of linking transistors in a miniature computer called "TRANS-AC" has been developed by Philco's Research and Engineering Laboratories. Such a computer would operate ten times as fast and its size, weight and cost would be one-third of any previously announced transistorized computer.

Known as the Philco Direct Coupled Transistor Circuit, the invention is a long step toward mass production of transistorized computers capable of phenomenal speeds. A digital computer using the direct-coupled transistor circuit could perform 600,000 additions or subtractions a second!

One of the principal advantages of the direct-coupled circuit is that it reduces the number of components. For example, diodes and vacuum tubes are eliminated in an ordinary "flip-flop" circuit for a digital computer, accomplishing the same electronic objective with a great saving in parts, wires, and soldered connections.

In packaging a computer using the Philco direct-coupled circuitry, all elements required for addition, subtraction, multiplication and division, as well as common control circuits are combined on a single replaceable unit—a printed wiring card. Transistors and resistors are the only electronic components required in the arithmetic section of the computer.

A complete digital computer system has four major sections. The first section must have an input device whose function is to provide information, either from a punched card, a transducing device, or an instrument.

This may give business data to the computer, it may show the relative direction between the path of an airplane and north, or it may indicate the temperature, humidity or barometric pressure of the atmosphere.

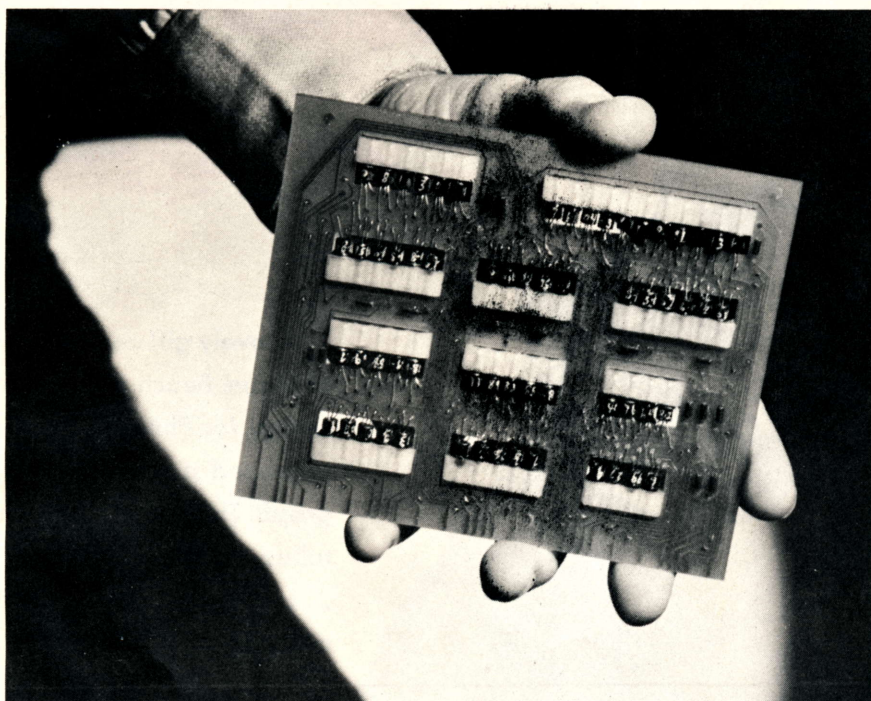
A second major part of a computer or control system is the program which instructs the computer to perform certain types of operations such as add, subtract, multiply, divide, determine the square root and take the result of another mathematical computation and proceed to still other mathematical computations.

In the case of a business computer, for example, it can compute payrolls, accumulate the accounts payable, or even control an industrial process based on the relationship between accepted production units versus total quantity produced.

Third, the device must have a "memory" section at various points. If two numbers have been multiplied and inserted in the memory, the system would use its memory to correlate the new information with that which has been previously stored. The computer must communicate with its memory just as man communicates with his.

The last major portion is the actual computation unit which is called the arithmetic and control unit. Through connections with other portions of the system, it provides the function of adding, subtracting, multiplying, dividing and computing.

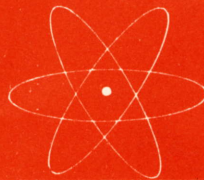
The control section determines which circuits should be opened or closed to perform one of the mathematical steps. The arithmetic section performs the proper steps at an incredible speed, and signals when the problem has been completed. It takes the answer in digital form, and by means of the conversion system the output signal is converted into the type of electrical impulse necessary to ac-



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● TO COME!



PANELS CHANGING WHOLE CONCEPT OF ELECTRONIC PRODUCT FORMS

tivate whatever the computer is to operate. In business and scientific computer systems, the output is either stored on magnetic tape or printed on paper.

The speed of Transac was made possible through the use of the high-frequency Surface Barrier transistor developed by Philco. While transistors can replace the functions of vacuum tubes they also have special performance characteristics not possible with tubes. Using these characteristics with the Philco Direct Coupled Circuits, computer complexity is reduced by eliminating unnecessary circuits.

Transistors fundamentally have greater reliability, longer life, lower power requirements and extremely small size—all very important in the military and civilian computer field. The Surface Barrier transistor is the most advanced transistor reported to date, and the only one known to be adaptable to mass production.

On the other side of the fence in the field of public entertainment comes announcement of the first completely transistorized portable phonograph . . . from Philco of course!

This revolutionary portable phonograph has three tiny transistors, about the size of a pencil eraser, which takes the place of all vacuum tubes. Philco engineers report that the transistor phonograph will play up to 3,000 standard 45 RPM records using only the current from four standard flashlight batteries. No "plug-in" current is required. Because of the low power drain, 150 hours of continuous operation is possible.

The completely transistorized portable phonograph is the result of Philco's long research into transistors and their applications to consumer products. For the first time transistors have been used extensively in a familiar item about the home. This phonograph is the second completely transistorized

entertainment appliance Philco has made available to the public within a few months. Only recently, Philco and Chrysler Corporation announced that a completely transistorized auto radio, using 11 tiny transistors instead of vacuum tubes, will be available as special equipment on Chrysler and Imperial cars this fall (see July, 1955 issue of THE PHILCO SERVICE-MAN).

Components in Philco's new transistorized phonograph are radically different from conventional phonograph components. The new set has the smallest turntable motor of any phonograph on the market—a 4-volt motor weighing less than three ounces and approximately one-fifth the size of the conventional motor.

Philco engineers have developed a speed control to compensate for any loss of power as original batteries grow old. Special provisions have also been engineered in the phonograph's chassis so that fresh

batteries can be quickly inserted through a trap door at the bottom of the small, compact cabinet. The transistor phonograph uses a printed wired chassis and 4-inch speaker which result in amazing tone quality in a small portable phonograph.

Among other engineering features of Philco's transistor phonograph is the tone arm which serves as the ON-OFF switch and automatically stops the turntable and turns off the set after each record, thereby eliminating excess waste of battery power. No warm-up time is required and records can be played with the cabinet lid closed.

Once again Philco has startled the industry with something new, something different to keep its product leadership in 1956. The world famous Philco laboratories are continuing to show why millions of dollars invested in research and development are paying off in better products that are more readily accepted by the consumer.



IT'S PHILCO FOR

NEW RADIO AND TV RECEIVERS FEATURE IMPROVED RECEPTION, EXCITING ADVANCES

GLAMOROUS MIAMI BEACH played host to Philco as its 1956 radio and television receivers were unveiled to an approving audience of distributors and dealers. Since it has become an annual custom with us, we'd like to give you a brief run-down of this feature filled '56 line.

of the set will be available as an accessory with each model incorporating the "top touch" tuning principle.

"PICTURE FRAME" CABINETS

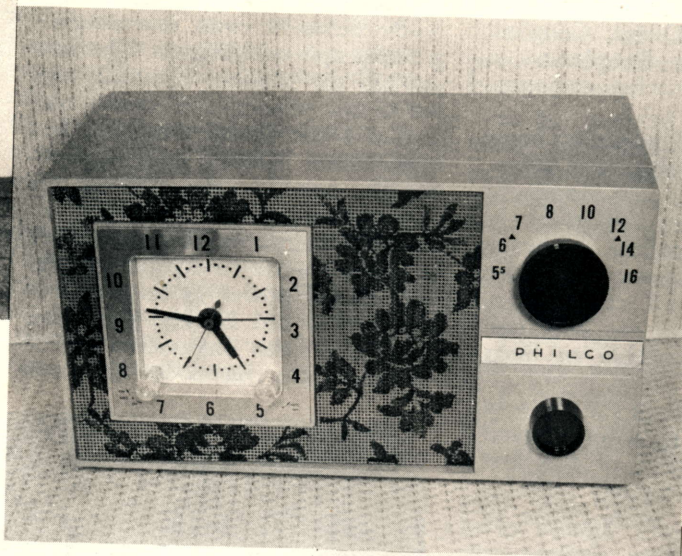
The "picture frame" effect on some models is made possible by placing all controls on the top of

'56!

the set, out of sight of the viewer. The television picture is "framed" by a decorative panel in color. A number of the 1956 Philco models will have "inclined" sounding boards with the Philco-developed "acoustic lens" for high-fidelity reproduction of sound. This design change results in sound uniformly diffused throughout the entire listening area. Several models will have twin speakers for better sound reproduction in conjunction with the "acoustic lens" system.



Philco 21-inch television-high-fidelity phonograph combination with electrostatic speaker. Features automatic "top-touch" tuning, an aluminized picture tube, and self-leveling feet.



Philco "Senora", 1956 clock-radio with charming Castilian effect of damask speaker grille overlay pattern inspired by Spanish Mantilla. Has 5-tube printed-wire panel and acoustically designed cabinet for superb tonal response.

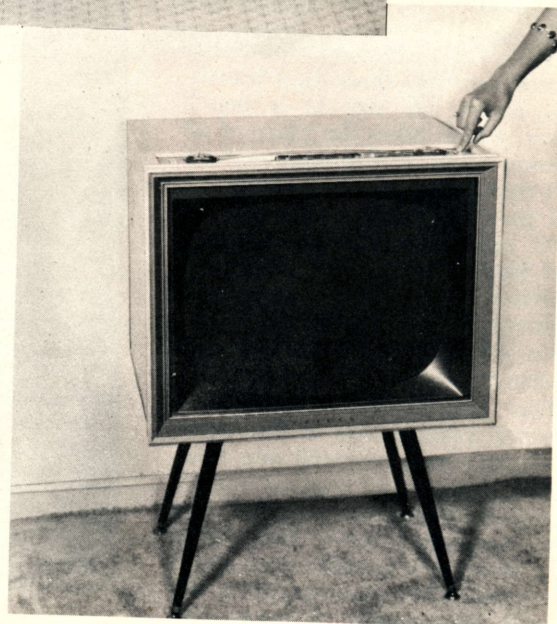
"NEW LOOK" IN TELEVISION

These '56 receivers are completely redesigned and restyled, inside and out. In addition to automatic and remote control tuning, new incorporations include the upright chassis, printed wiring circuits and other Philco research developments that promise the viewer bigger, brighter, clearer pictures than he has ever seen before.

"TOP TOUCH" TUNING

Tuning the new set is accomplished by a finger controlled "treadle bar" which automatically triggers the mechanism at the slightest touch and selects, in sequence, all receivable channels in any location. A second "treadle bar" automatically turns the set on or off at the touch of a finger. The new controls are located on top of the set, near the front of the cabinet where they are convenient for full scale television operation from a standing position. The remote control unit for armchair operation

Philco's 21-inch consolette featuring "picture frame" front completely eliminates all controls from front of set. Automatic "top-touch" tuning and fingertip control center is recessed at top front of set.



Several models are equipped with a "swivel base" for directional viewing.

NEW, IMPROVED RECEPTION

In addition to printed wiring circuits and the upright chassis, Philco has developed an amplifier tube and micro-grid tuner for outstanding performance in fringe areas. These engineering developments, incorporated in the 1956 line, overcome outside interference and control picture distortion.

BIG RADIO NEWS

Wait until you see these! The new Philco radios are called "Powertone" and also use printed circuits which result in more compact chassis and larger tone chambers. Philco's method of print-wiring the radio chassis has made possible big radio performance and tonal quality in a small radio for the first time. Because the printed wiring system eliminates the maze of wiring common to conventional radios, more room is available in the cabinet for the tone chamber. And that's why we call 'em "Power-tone"!

NEW AUDIO-DYNAMIC SOUND SYSTEM

The gain in space within the compact radio cabinet has also en-



Twin speakers are featured in this new Philco "Miss America" portable, automatic 3-speed phonograph. For more portability, it has wrought iron legs which fold into the cabinet making easy conversion from table to console model.

abled Philco to adopt larger speaker magnets which help achieve superb tone balance through the entire range of sound. Philco acoustic engineers have developed superior radio reception in all frequencies with deeper, richer basses and truer trebles than were possible with earlier designs.

Philco '56 radios will also incorporate silhouette lighting for both radio and clock faces, and illu-

minated dials and tuning controls. Speaker grilles on many of the new sets have unique overlay patterns consistent with the Latin American theme, which vary from geometric regularity to a floral design inspired by the Spanish Mantilla.

Automatic features on clock-radios include automatic clock, buzzer alarm, "off" and "on" radio switch, phono-jack, automatic switch for turning on kitchen ap-

(Continued on Page 8)

ROLL ALONG TO BIGGER SERVICE

LAST YEAR we presented a unique idea for circulating your business name around town at little expense but with gratifying results.

Several dealers have told us that their sponsorship of a bowling team (in some cases, their own personnel formed a team) has created a lot of talk and an increase in service calls. Many of their new customers have mentioned that they had learned of the service operation from watching these teams in local matches.

The attractive but rugged bowling shirts we are making available afford you an unusual opportunity to do something in the way of advertising. Outfit your team with these handsome bowling shirts that feature a special action back that

provides ease and comfort while rolling. They come in a variety of colors and lettering to spell out your name and service.

The rise in bowling popularity in this country has been tremendous. Every alley is usually full to capacity and during league matches many people are attracted as spectators. That is the reason you can realize maximum coverage from a team in action under your very own business sponsorship. You want to reach potential customers when their mood is relaxed and happy—you can do it any night in the week when your team is on the firing line rolling strikes and spares. If you assemble a team from your own service personnel, you will have created a program of employee recreation that will pay off

in happier, more efficient workers.

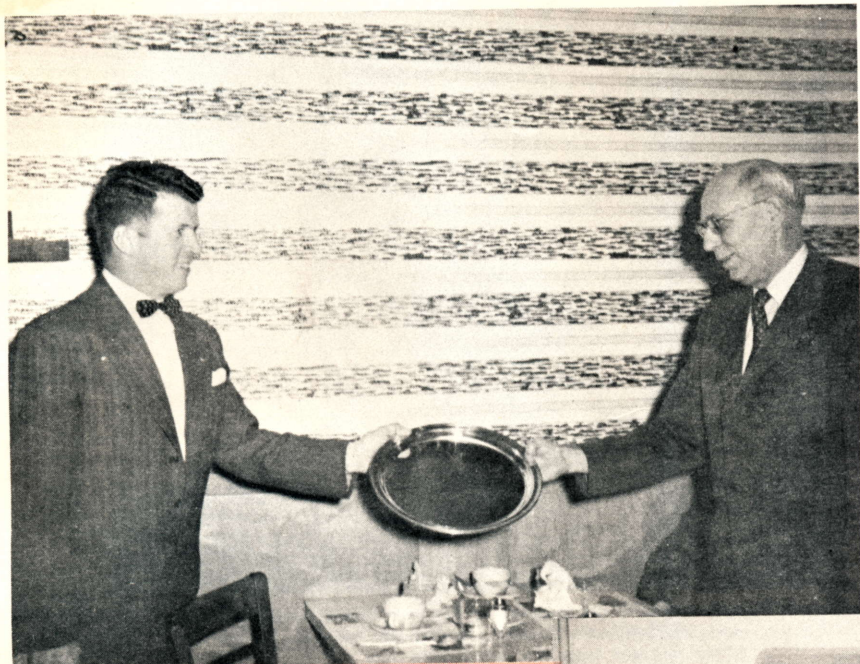
Who knows, you might even win a championship and reap a heap of free publicity from it?

Shirt Size: Neck—14 through 18

Sleeve—32 through 35

Colors: Maroon, Grey, Yellow, Green





Minneapolis, Minn.—Active John Lilly makes another presentation to a conscientious distributor service manager — Lewis Chadwick of The Roycraft Co., this city.

AWARDS



Baltimore, Md.—Ash Sales-Service Co., Baltimore, receives Service Achievement Award for their excellent service to Philco customers. Left to right—Carroll Shiller, partner; Ben Troutner, serviceman; Sam Herman, partner; and Lee Bloom, Zamoiski Co. sales representative.



Peoria, Ill. — John Lilly, Philco Appliance Service DR (third from left) presents silver serving tray to Claude Foote, Service Manager of Distributor Williams, Inc., this city, for outstanding support to the area's service members. Looking on at left is Mr. Ferrell, Williams General Manager and Servicemen Pople, Voltz and Pinkan.

MR. PFSS MEMBER:



WHO'S SIDE ARE YOU ON?

HERE'S THE ARGUMENT -

"WHO REALLY BUYS SERVICE PARTS, TUBES, EQUIPMENT?"

WE'VE been having a friendly argument here at Service Headquarters and we've all taken sides! One side has it that the individual Philco Factory-Supervised Service member has little or no hand in the buying of service parts, tubes, equipment, etc. and, in fact, little or no influence in the selection of what parts brands he uses in his daily service work.

The other side argues that, as individuals, Philco Factory-Supervised Service members do buy service parts, tubes and equipment, or at least influence the selection of what parts brands will be used.

The only way we at Service Headquarters can end the argument is to ask our Philco Factory-Supervised Service membership for the facts. Therefore, we are asking your personal assistance in deciding this matter once and for all.

Will you kindly complete the reply card below —then detach and drop it in your nearest mailbox.

Since this is one of the few times we have come to you for a personal favor, we'd also like to take this opportunity to get your opinion of our 8-page monthly service magazine, "The Philco Serviceman". (See reply card.)

PLEASE MAIL REPLY CARD TODAY!

To PHILCO SERVICE HEADQUARTERS:

Here are the facts to help decide which side wins your discussion . . .

I am in Business for Myself:

I Have a Retail Store My Business is Exclusively Service

I Personally Select the Brand and Buy the Parts, Tubes and Equipment Used in My Service Work

YES NO

I Work for a Dealer

I Work for a Service Shop

(PLEASE ANSWER BOTH QUESTIONS BELOW BY CHECKING ONE BOX IN EACH COLUMN)

	Who Selects Brand of Parts, Tubes, etc.	Who Does the Buying of Parts, Tubes, etc.
Employer	<input type="checkbox"/>	<input type="checkbox"/>
Self	<input type="checkbox"/>	<input type="checkbox"/>
Service Manager	<input type="checkbox"/>	<input type="checkbox"/>
Other Person	<input type="checkbox"/>	<input type="checkbox"/>

I READ "THE PHILCO SERVICEMAN" MAGAZINE*:

Every Month Occasionally Seldom

AS SERVICE MAGAZINES GO I WOULD RATE IT:

Good Fair Poor

*Do not confuse with "THE PHILCO SERVICE SUPERVISOR"

(PLEASE GIVE LOCATION:)

CITY _____ STATE _____

SIGN ONLY IF YOU WISH: _____

JUST CHECK THE BOXES . . . NOTHING ELSE TO DO —THE CARD IS ADDRESSED AND POSTAGE —FREE!

10 DOLLAR AWARD!

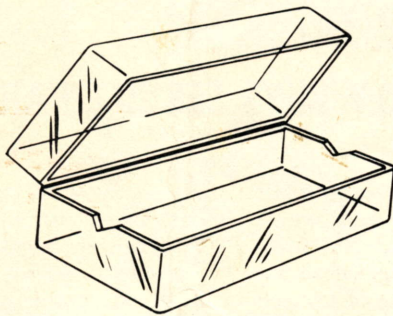
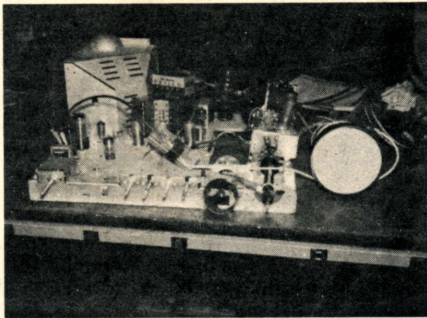
Bench Check Safety Tip

The ten dollar winner for September, Joe M. Aston, Westcliff TV Center, Fort Worth, Texas, passes on an idea that will save you from a lot of "cussin" on your next bench check.

"In bench checking the anode lead often arcs to chassis or the bench repair man. This simple gimmick removes both of these hazards.

"Take a plastic phono cartridge box, cut a "V" in both sides of the box, place anode lead connection in box. Use a piece of tape to close box."

Note photo that shows the phono cartridge box being used in an actual chassis. Simple, sweet and neat!



5 DOLLAR AWARD!

Step Saver for Rectifier Performance Check

"As a matter of convenience I have added to my condenser-resistor substitute panel a selenium rectifier. Appropriate positive and negative jacks are brought up through the panel. By using this

arrangement I am able to check the performance of the rectifier installation without removing it from the circuit."

And that suggestion brings five dollars to Andy Scott who runs his own radio service shop at 318 South Burns St. in Holdenville, Oklahoma.

2.50 AWARD!

"Topsy Turvy" Pays Off

Our \$2.50 award this month goes to John Minster, 157 North 21st St., Philadelphia, for his simple but time saving idea for keeping your tube inventory up-to-date.

"Keeping tube inventories up-to-date in a technician's tube caddy can be a confusing and time con-

suming job. The method of squeezing the cartons or leafing through work sheets to find the empties is not recommended.

"I find that putting the empty or used cartons in the caddy upside down will facilitate keeping your tube stock complete. It indicates immediately which tubes should be replenished and which one of popular types (of which you may have 3 or 4) were used, by merely turning the carton over."

IT'S PHILCO FOR '56

(Continued from Page 5)

pliances, and a "delayed off" switch which permits up to one and one-half hours of music with automatic shut-off.

Outstanding in the Philco portable line is the "First Mate" with special marine band for short wave reception and a built-in flashlight; the "Overnighter" is strikingly feminine styling with a built-in vanity case, and the "Sportster", in a genuine top-grain cowhide case for style and durability.

PHONOGRAPHS, TOO!

Inclined sounding boards and separate base-treble controls for exact mix of tone are featured in the '56 Philco hi-fi mahogany and blond phonograph models. Standard equipment on all Philco hi-fi phonos includes a 3-speed automatic record changer, full fidelity reproducer pick-up arm with micro-ground twin sapphire needles, an all metal 45 RPM record spindle that drops over the conventional turntable spindle and, an "encore" switch that can be set to replay or stop playing after the last record has played.

A higher degree of portability has been attained in the new line. Two sets have concealed wrought iron legs to make them easily convertible from table to console models. Twin speakers set in "V-front" grilles give greater diffusion of sound.

That's Philco for '56 and what a line it is! You will be hearing much more about it in the form of complete and comprehensive technical information from Service Headquarters in the not-too-distant future. The whole line will be covered for all electronic members of Philco Factory-Supervised Service. The only thing you will not get is information on how to service such colors as Inca Emerald or Varadero Sand . . . but you won't have to worry about that. Watch your mail for the big news from Philco in '56!