PHILCO Factory-Supervised Service

the PHILCO SERVICEMAN

VOL. 26 NO. 7 JULY, 1956

SEE . . .
Shop Overhead Analysis
PAGE 5

Mmm... Love that portable !

And, speaking of portables . . . Remember, your customers will want their portables in perfect operating condition for the pleasurable months to come. Are you getting your share of this seasonal replacement tube and battery business?

This new "Mustang" model is one of the great new Philco line of three-way personal portables for '56. Each of the four new models is a leader in its field and is engineered to perform at maximum sensitivity and selectivity.

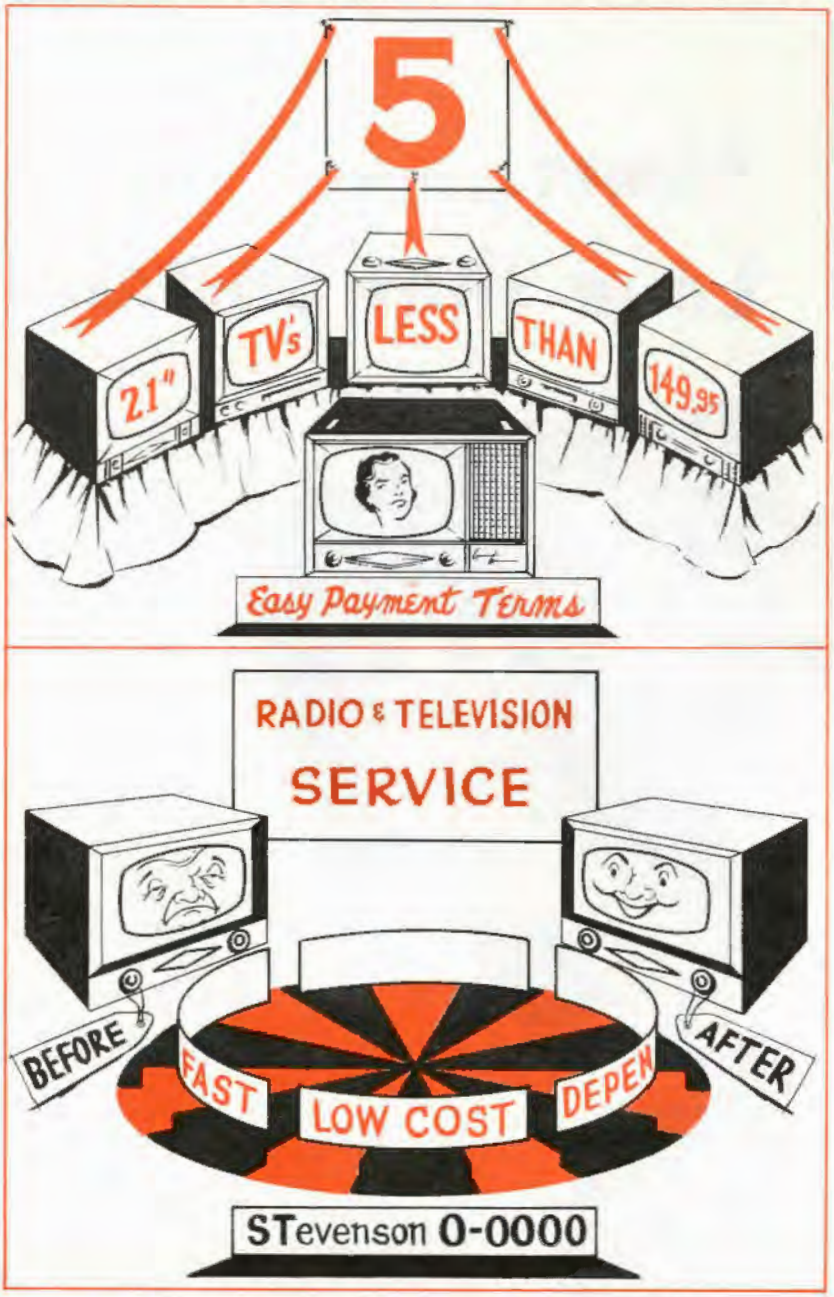
'SELL YOUR SERVICE'

THE FOURTH IN A SERIES OF "BUSINESS BUILDING" ARTICLES

DISPLAY ADVERTISING

DISPLAYS could be described as *advertising aids employed to present a sales story at the point of purchase.*

Your store exterior could be considered the most important display area you have. It should be painted, cleaned and kept in the best of condition at all times, since it is a physical reflection of your personal habits as its owner. An unkempt store exterior psychologically will implant in the customer's mind a picture of sloppy service probably performed within. A neat and attractive exterior, on the other hand, will go far to promote customer confidence even before your services have been put to trial.



Suggested Simple and Inexpensive Window Displays
Sales and Service
(Both displays employ motion—a TV in operation, and a cardboard disc revolving on a turntable.)

Along the same lines, the interior appearance will also create a lasting impression, be it favorable or unfavorable. The important consideration here is that the interior display should be arranged to extend a welcome to everyone who enters.

Window, Counter and Floor Displays

Displays are an important part of any retail sales picture, in fact they account for a major percentage of the total retail sales volume each year. Large department store executives recognize this fact and depend upon displays to advertise efficiently and create a demand for products which the consumer can purchase "on the spot." These executives realize that in every other type of advertising the end result is influenced by the time lapse between customer interest and reaction. If offered an immediate opportunity to purchase, the consumer will buy more readily the product advertised.

Volumes could be written, and probably already have been, on this subject, but we will present only the highlights and general information necessary to guide you properly when contemplating the use of display material to increase your service business.

The materials used in the construction of a display usually determine whether or not it is to be used on a permanent or temporary basis. A permanent display might take the form of a clock, plaque, decal, metal sign or any display piece of a lasting nature. A temporary display would take the form of a streamer, banner, cardboard sign, or other items of limited life.

There are innumerable classifications and types of displays, a few of which are:

Demonstrating, such as arrows, pointers, or similar "gimmicks" designed to point up certain features of the product or service displayed.

Holding, usually a three dimensional display designed to enclose or support a product and emphasize its features. The most common type of display in this category is the die-cut human form holding or displaying a product.

Animated, such as any product in operation—an iron being pulled back and forth across an ironing board, a working television set, a plane circling a globe, etc., any treatment offering motion or action to a display.

In line with the above, we'd like to present some . . .

Typical Point of Purchase Counter Displays

General Tips on Window Displays

• The window, fixtures and the display itself should always be kept clean. The display should be changed frequently and shaded to protect it from fading.

• The windows should be well lighted at night to attract the attention of those who have not been able to view the display during the day.

• Indirect lighting is better than direct lighting.

• The display should have unity . . . with each item having a definite relationship. Never crowd or clutter a window with miscellaneous items.

• The background should always be the foremost consideration and other merchandise on display should be carefully planned and arranged around it.

• A descriptive card or poster should supplement each display, in order to "get the sales message across."

• Avoid excessive reading matter, because the display should command instant consumer recognition and comprehension. It must transmit the message quickly and easily enough to catch the eye of the passerby.

• Certain seasonal and holiday displays are effective and should be employed each year.

• Make use of action when at all possible and strive to portray a human want or need. An animated or moving display is generally the most expensive type, but it is also the most effective.

• Next to animation, color demands the most attention. Create a pleasing, colorful display. Colored lights might provide the desired effect, but should be used with caution and carefully chosen to avoid any undesirable or contrasting effect.

• Displays should be changed often enough to keep interest high. If they are changed at irregular intervals, a lack of interest might result. This might necessitate changing the display once a week, every other week, or once a month, depending upon your own neighborhood situation.

Counter and Floor Displays

The last four points of window display would also apply here. However, the prime purpose of a window display is to lure people into the store, while the counter and floor displays are employed to sell them particular products or services after they enter.

The cost of finishing materials will depend entirely upon how elaborate a display you want. If you're working with a small budget, shipping boxes might be used to provide a raised or pyramid effect, and they could be covered with ordinary crepe paper or cloth.

All types and forms of displays can be prepared at little or no cost to you, because the items displayed are generally taken from stock and other signs and materials can be obtained from various manfacturers through their distributors.

One final word of advice . . . Don't overdo it . . . because too much is often worse than none at all. Well, trim along and see you next month when we'll discuss . . .

Tie-In Promotions.

THE OL' OUACHITA SERVICE PHILOSOPHER

By JACK DARR TALKS ABOUT HELP, ASSISTANCE AND OTHER STUFF

Y'KNOW, There's an awful lot of noise raised about various things in this world today. When I wuz a boy, it don't seem like there was as much fuss raised over things as ther' is now, but it jist might be that, bein' like all kids, more or less wropped up in me and what I was doin', that it jist didn't register. Probably was, and I never knew it. Anyhow, we had something around here last Fall: If you lived in this neighborhood, you'd know right away what I was talkin' about: anyhow, ever'body raised the biggest stink you ever heard over it, public officials made big statements, and in general, we had one good big row. People who was doin' it jist went quietly on with what they was doin', and sure enough, now that the tumult an' shoutin' has all died down, they went ahead and done it, anyhow, and everybody's apparently jist as happy as a little bird over it! So, I reckon it don't make too much difference how much fuss gits raised over somethin,' if it's gonna be done, it's gonna be done, and y'might as well fergit about it.

That ain't what I wanted to talk about anyway, dangit! How'd I git started on that? What I meant to cuss and discuss this time was the tremenjous amount of help an' assistance that is available, dang near free of charge, to all of us, nowadays. Mostly, I'm referrin' to the various trade magazines: Service, Technician, Radio-TV News, Radio-Electronics, and a whole raft of others that I ain't got space to mention here. Y'know, it's jist plain surprisin' how much helpful stuff a feller can git out of just one month's batch of them.

Looked over a bunch a while ago: there was articles on how to fix tricky vertical hold circuits, horizontal hold circuits, check tuners, straighten out age circuits, and stuff like that: there was complete circuit diagrams on several brand new sets, and partial diagrams on a mess of others, mostly some new circuits that the engineers had whomped up to confuse us servicemen. (Ouch! 'Scuse me. I didn't see you standin' there. Oh, well. It'll grow back, I reckon. How'd that engineer git in here?)

They was also a bunch of articles on brand new tubes, and what they'd do, and ain't there a mess of 'em comin' out these days? Whoo! Oh, well. Most of 'em will do some job just a little bit better, and that's what we live on, progress. If it wasn't for the new circuits and tubes comin' out all the time, we'd git fat and lazy, I guess.

In addition to all this stuff, there was a lot of 'Service Hints' scattered here and there through the magazines; practical stuff, sent in by fellers like you and me, mostly you. (I'll swear, it's gittin' to where when I *do* git one fixed, I'm danged if I know what I did to the thing! Gittin' old, I guess, or comin' down with another attack of th' Gallopin' Stupids!) Anyway, these hints can come in mighty handy, once in a while; I've fixed quite a few sets just from rememberin' some of these dang little 'hints,' and I reckon you have, too.

All right, now that we've outlined a few of the more desirable features of these here publications, let's go into another aspect of th' same thing: the help you can git from the manufacturers, like Philco: they'll send you diagrams, hints, and all of the other stuff, sometimes for free, sometimes for a dern small charge, considerin' what it costs 'em to set it up and git it printed. Even this here periodical would come under the same headin', with the exception of what you're readin' now. (I hope.) It's all helpful material, and worth its weight in gold, literally, to th' practicin' serviceman. Now, comes the clincher: you guys can git all of this stuff, that you couldn't git in any other country in th' world, and what do you do with it? Not a dad-burned thing! *You won't read it!*

I went around to several shops, jist a while back, jist to see what they was doin' with this kind of stuff. Most of 'em, I'm sorry to say, didn't even git the service magazines: I'd ask 'em, "Do you read a certain magazine?" and they'd say, "No, we haven't got the time!"

The Heck you ain't got the time! You ain't got the time *not* to read 'em! If you'd stop an' think a minute, you'd see that these publications, every last one of 'em, are the *only* place you can git the information on new circuits and parts, sets an' everything else, you'd see mighty quick that you couldn't afford *not* to read these things! If you want to set there on your stool and let the world go whizzin' by you, all right: if you want to git slapped in th' face with a new circuit, and find out that you don't even know what in Tunket the thing's *supposed* to do, why, jist go right ahead! Hit ain't no skin off my nose.

You know, there's hundreds an' thousands of servicemen in this country that learned all they know about television out of these magazines and publications, includin' color TV. You're talkin' to one of 'em, right now. Long before TV ever come over the mountain, down here in the Hills, me an' my feller solder-slingers was pretty well conversant with the basic theory of it, anyhow, by readin' about it in the mags: we might not know beans from bones about how the things looked, but we had a purty dang good idea of how they worked, before we ever seen one. (To tell you the truth, I'm still a little hazy about how they work, especially some circuits! Don't think it'll ever replace the old-fashioned stereopticon, nohow!)

That's what makes me mad, anyway: with all of the stuff that's bein' given away for practically nothin', less than you spend on coffee each day, you can keep yourself right up to snuff on all the new inventions, and most of you won't do it, dang your lazy hides! Incidentally, I *ain't* got a magazine stand in my shop, either, like that feller in the back row said! Yes, you, with the green necktie! I'm jist trying to git you to realize what a good thing you're missin'!

Y'know, Summer's here, and, if you ain't bin doin' it, it's about time to git out and see if you cain't rustle up some more auto-radio business than you did last summer. There's a heck of a lot of new stuff comin' up pretty soon in *that* end of the business, too, so, once again, I say, you

(Continued on page 8)

SHOP OVERHEAD ANALYSIS

The subject of shop overhead analysis is one which, if given proper attention by all Radio-TV Service Dealers and Contractors, can do much to prevent premature greying of the hair for these individuals. In this article, a critical analysis is made of the business operations of a successful TV service contractor. Facts and figures are given.

Part 1

THE FIRST step in analyzing shop overhead is to determine just where the money is going before it is spent, rather than where it has gone after it is spent. It sounds easy, but without a proper bookkeeping system it is difficult to sit down and attempt to remember each item dealing with business expenses and profits at the end of the month. If the service operation is large enough to afford it, the services of a bookkeeper and a certified public accountant to check the books periodically, will prove invaluable.

In the case of the smaller operator, however, a system of accounting may merely consist of a simple notebook or ledger in which items of expense and income can be entered daily. It isn't necessary to place all items in a certain place in the book other than as "debits and credits," or the "I paid column" or "I received column." Then at the end of the month all credit and debit items can be placed in their rightful places in another book or sheet of paper which includes the following items, and is shown as a . . .

Statement of Income.

Under Income should be listed:

Installations—include antenna erection charges.

Service Contracts—amount received for all service contracts.

Other Service—amount received for service not covered by contract.

*Sales of Parts and Tubes.**

*Less cost of Parts and Tubes

These items can be totalled and called **Net Sales.**

Next should be listed:

Installation and Service Costs—

Included are:

Wages—Service men.

Depreciation — Truck and shop equipment.

Shop Supplies.

Car Allowance—Service men.

Auto and Truck Expenses.

Truck Rental.

Garage Rental.

These items can be added and indicated as **total installation and service costs.** Total installation and service costs can then be subtracted from Net Sales to arrive at **Gross Profit on Service.**

This, of course, is not all. There are many items of expense and these should be known as **"Other Expenses"** such as:

Wages—Other than servicemen, and always include yourself under this heading. It is important to pay yourself a reasonable fixed monthly salary and to include it as an expense item. So many business owners forget this and draw on business profits for their own personal needs. This practice may well lead to bankruptcy as too many persons draw heavily on their business in good months with little regard for the possible dark days ahead when monthly profit may be less than expenses.

The second item is *Depreciation of Office Equipment.* The amount chosen for depreciation should be kept in a separate account to be used when new equipment must be purchased. All things in time will wear out and it is well to have the cash on hand to apply toward replacement items.

Office Expense — such as paper, printed matter, bill heads, business cards, shop repair tags, letterheads, envelopes and general supplies.

Rent

Heat

Light

Postage

Telephone

Advertising—This item must not be overlooked. A business may stand on its reputation, but advertising will make it grow. Such things as chassis stickers, signs, newspaper ads, radio spot announcements, handbills and direct mail campaigns will do much to keep your trucks, equipment and men occupied during slack periods.

Insurance—Always a good item to have in any business. Good protection for unforeseen catastrophies.

Dues and Subscriptions—It is well for anyone engaged in business to belong to trade associations to keep abreast of these changing times, as well as subscribing to trade magazines which can be very helpful.

Taxes, Payroll—Be certain not to overlook city and federal taxes.

Permits and Fees

Leasehold Improvements—This item would include repairs to the building and any improvements to the premises.

All of these items should be totaled as "Other Expense" and subtracted from the "Gross Profit" on Service. The remainder will then be known as Net Profit on operations. You should make this appraisal once a month to show what your business has accomplished during that month. These figures should be totaled with previous figures and evaluated collectively to give your clear picture of your progress over the year to date. All of this is known as a Statement of Income.

Statement of Condition

There is another statement which should be kept up to date which is known as a "Statement of Condition" of your company. This statement will list your assets and liabilities.

Under assets there are current assets and fixed assets.

Current assets consist of:

Cash on Hand

Accounts Receivable

Inventory—Parts and Tubes.

Added, they form Total Current Assets.

Fixed Assets consist of:

Truck Value

Office and Shop Equipment

Less Reserve for Depreciation

This total becomes Total Fixed Assets.

Another asset might be *Prepaid Insurance.* So, the **total assets** will be found by adding total current assets, fixed assets and other assets.

now, under

Liabilities you may list:

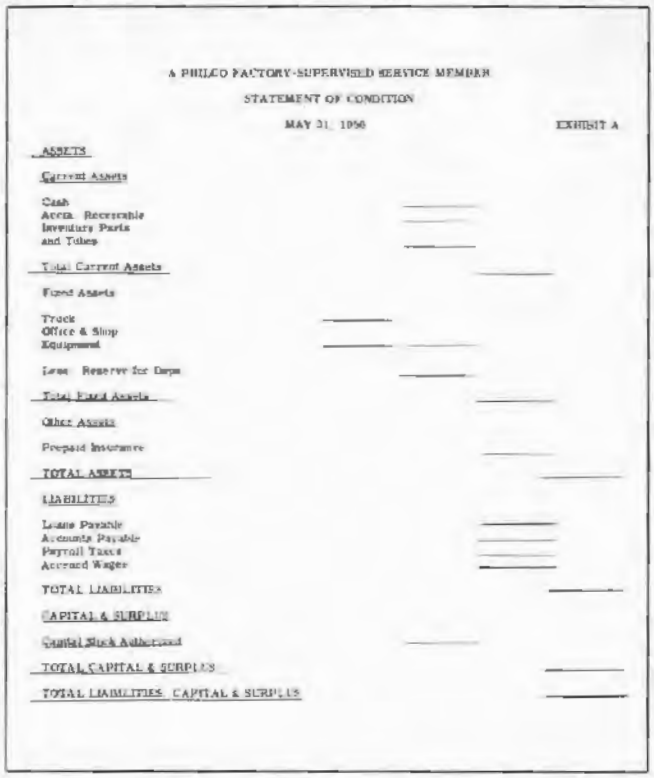
Loans Payable

Accounts Payable

Accrued Wages

Advanced Payments on Service Contracts.

Added, they become your Total Liabilities. Liabilities are then subtracted from the assets. The difference becoming the capital or net business worth. This capital can be used for business expansion.



A PHILCO FACTORY-SUPERVISED SERVICE MEMBER

STATEMENT OF CONDITION

MAY 31, 1956 EXHIBIT A

ASSETS

Current Assets

Cash
Accts. Receivable
Inventory Parts and Tubes

Total Current Assets

Fixed Assets

Truck
Office & Shop Equipment

Less: Reserve for Depn.

Total Fixed Assets

Other Assets

Prepaid Insurance

TOTAL ASSETS

LIABILITIES

Loans Payable
Accounts Payable
Payroll Taxes
Accrued Wages

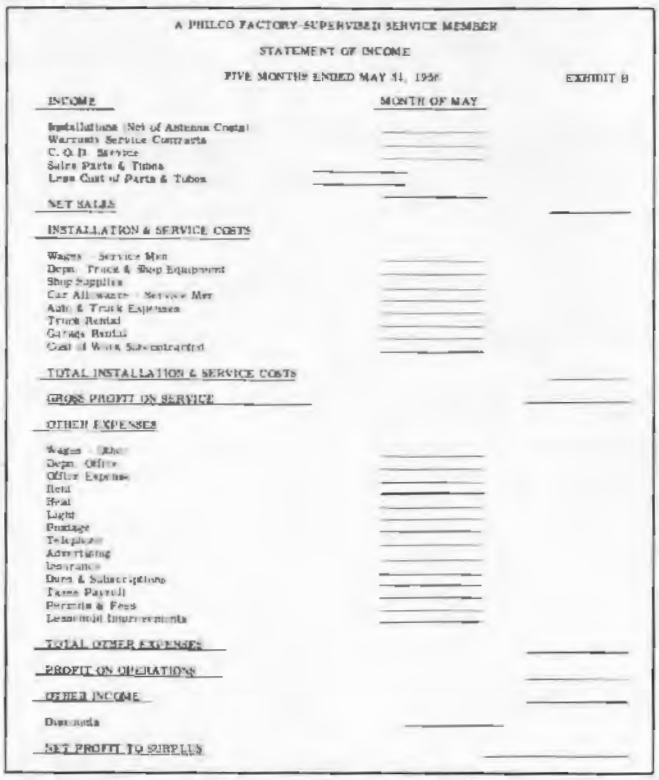
TOTAL LIABILITIES

CAPITAL & SURPLUS

Capital Stock Authorized

TOTAL CAPITAL & SURPLUS

TOTAL LIABILITIES, CAPITAL & SURPLUS



A PHILCO FACTORY-SUPERVISED SERVICE MEMBER

STATEMENT OF INCOME

FIVE MONTHS ENDED MAY 31, 1956 EXHIBIT B

INCOME MONTH OF MAY

Installations (Net of Antenna Costs)
Warranty Service Contracts
C. O. D. Service
Sales Parts & Tubes
Less Cost of Parts & Tubes

NET SALES

INSTALLATION & SERVICE COSTS

Wages — Service Men
Depn. Truck & Shop Equipment
Shop Supplies
Car Allowance — Service Men
Auto & Truck Expenses
Truck Rental
Garage Rental
Cost of Work Subcontracted

TOTAL INSTALLATION & SERVICE COSTS

GROSS PROFIT ON SERVICE

OTHER EXPENSES

Wages — Other
Depn. Office
Office Expense
Rent
Heat
Light
Postage
Telephone
Advertising
Insurance
Dues & Subscriptions
Taxes Payroll
Permits & Fees
Leasehold Improvements

TOTAL OTHER EXPENSES

PROFIT ON OPERATIONS

OTHER INCOME

Dividends

NET PROFIT TO SURPLUS

Practical Illustration

In an attempt to understand the problems dealing with Shop Overhead and good business practices, we enlisted the aid of an established television contractor.

At first, the owner threw up his hands at the mere thought of giving us the complete details of his business. After he was assured that his "secrets" would be revealed only in the interest of guiding others who need this information, he opened his records and note books.

After only 1½ years of operation the personnel breakdown is as follows:

TODAY

Manager-owner
2 Office Employees
5 Shop Technicians
4 Outside Servicemen
6 Installation Men
18 Total

The owner reminded us quickly that at the start his operation was much smaller:

START

Manager-owner
1 Office Employee
2 Shop Technicians
2 Outside Servicemen
2 Installation Men
8 Total

Help was added only as the business warranted. Space was more than adequate at the start, but today he feels that he could use more than the 40 ft. x 30 ft. shop and storage space.

He feels he needs larger quarters for safely protecting customer's receivers and stocking the larger inventory of parts he now carries. Office space, on the other hand, 15 ft. x 15 ft., is still plenty large. As a matter of fact, a small portion of this now is partitioned off to hold small tubes and costly components.

When asked if he had considered moving to larger quarters his answer made a lot of sense: "If I were to move it would have to be the same neighborhood. I get most of my business on this side of town within a radius of 15 miles in every direction. Moving headquarters in the services business, unlike sales, need not be fatal. I wouldn't hesitate if, first I couldn't expand here and if, second I were to get the bulk of my business from another area."

This Service Dealer has good drive-in and loading facilities and is building a good reputation with dealers on what he calls C.O.D. accounts. He does not boast a thrilling success story, but keeps telling us he likes the business; is there every day; manages the entire operation and is "making a living."

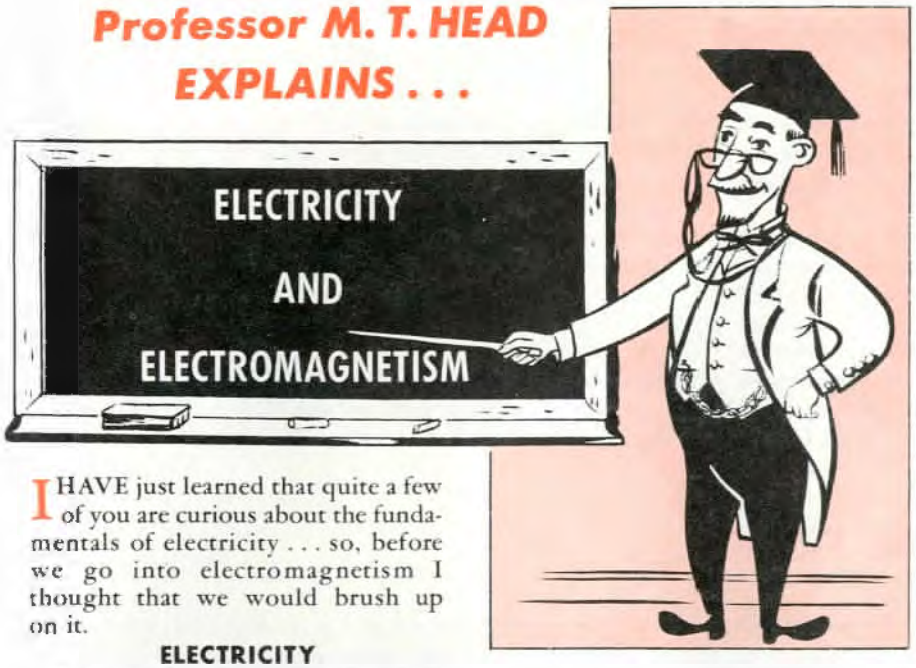
Employee Duties

One of the office employees acts in the capacity of office manager. He supervises the office work, handles the billing and banking and is constantly alert in controlling both the quality and the quantity of work done by his assistant. Both office employees are thoroughly trained in securing the necessary information from the customers who call in. Both know the "right things" to say over the phone. They aid customer relations and at the same time, have become very adept at dispatching.

Of the five shop technicians, one is the chief trouble-shooter and shop foreman. He makes all estimates on shop repair work, secures the necessary parts for the stock room and assigns and controls the work of the other four technicians. He checks all parts used by the outside technicians. He controls the inventory and makes out the merchandise requests which are turned over to the owner who follows through on the ordering.

Next month we will see how our anonymous Service Dealer routes his men, check his sources of business, and follow through on a typical service call. We will also talk about salaries and overhead figures and find out exactly what he is expecting in the way of future income.

Professor M. T. HEAD EXPLAINS . . .



I HAVE just learned that quite a few of you are curious about the fundamentals of electricity . . . so, before we go into electromagnetism I thought that we would brush up on it.

ELECTRICITY

To learn about electricity you must get to know about electrons. These are little things that are found in atoms . . . well, they are not exactly found . . . because nobody has ever seen an electron. Come to think of it, I guess nobody has ever seen an atom. Anyway, it seems that all atoms are composed of matter . . . I mean all matter is composed of atoms. And a few electrons are inside of each atom. On top of all this, there are molecules. I don't mean the molecules actually are on top . . . they may be underneath, because the atoms . . . in other words, the molecules have something to do with the atoms . . . each atom is full of molecules . . . or is it that each molecule is full of . . . Anyway, when you take a piece of amber and rub it briskly with a piece of silk cloth, what do you suppose happens? The amber gets cleaner, you say? Oh yes, but a whole lot more than that happens! You can pick up pieces of cloth with the paper . . . I mean you can pick up pieces of paper with the cloth . . . or is it the amber? Anyway, this is one of the simplest forms of electricity and this form of electricity is called static electricity. This is also a very useful form of electricity. You can use it for a lot of practical things, I am sure. One of the most popular applications of static electricity is for lightning, which was discovered by Benjamin Franklin.

Probably the greatest contribution to the science of electricity was made by an Italian named Volta, because it was he who took electricity and made it have volts, and anyone can tell you that you can't do anything with electricity without volts. Well sir, after the stuff had volts, it began to go through wires . . . lengthwise, that is. Then there was another fellow named Ampere, and when he came along and found out what was going on, he up and took the electricity that was going through the wires and made it have amperes. This gave electricity a pretty good start and things went along smoothly until a gent named Ohm showed up and found out that the wires had some kind of stuff in them called resistance. Well sir, he passed a law that until this day is called Ohm's Law. This was quite a setback for electricity. For instance, an ambitious young man would dream of making electricity his life's work, and would start out and be going along fine and then one day he would run smack up against Ohm's Law, and he would be licked right then and there. I guess more people have deserted electricity on account of Ohm's Law than for any other reason. But it is quite simple to understand once you understand it, and I will be glad to explain it right here . . . It seems that it takes one ampere to make one ohm . . . I mean it takes one ohm to make one volt . . . in other words there are three letters, E, R, and I, and all you have to do is multiply one letter by one of the others and carry the one that is left over. You will have to use algebra to do this, because plain old ordinary arithmetic is no good for multiplying letters together. I hate to resort to a mathematical discussion like this but you can see that there are some cases where mathematics is essential to a thorough understanding.

Now that you understand all this, we are ready to delve into the mysteries of electromagnetism.

ELECTROMAGNETISM

Electromagnetism is magnetism, as we discussed in last month's lecture, with electro added. It is the kind of magnetism you can turn on or off, depending upon whether or not you want it or not. That is, if you want it, you turn it on, and if you don't want it you turn it off. Whenever a current flows through a wire, it gives off some kind of stuff that spreads around the wire, and this is thought to be a magnetic field. Now you don't have to take my word for it. You can demonstrate this phenomenon very easily by the following experiment. Take hold of a wire with your right hand. If the wire is connected to a power supply, your fingers will curl, and many authorities think this indicates the direction of the lines of force that are thought to comprise what is thought to be the magnetic field. This experiment is called the right hand rule for conductors. A conductor is thought to be a wire—I mean, a conductor is a wire. However, on second thought, it doesn't have to be a wire. It can be almost anything that will conduct. But this subject is a little too advanced to consider at this time.

Now this magnetic field is given off because the electrons, and incidentally, if it bothers you to understand about electrons, it is perfectly all right to imagine these units in some more easily recognized form. I once knew a young man who had no luck at all with electrical theory when he used electrons—but he had great success when he thought of them as blueberry seeds. For the next experiment, get a piece of No. 18 single cotton-covered magnet wire, and wind it into a turn having 25 coils—I mean, a coil having 25 turns—1½ inches in diameter. Now you will need a storage battery with fibreglass insulation and 100-ampere capacity. You should be able to get a fairly serviceable battery for approximately $23.62. You will also need a couple of battery clips, so that you can connect the coil of wire to the battery. Incidentally, most textbooks that you see neglect important details like battery clips and other little accessories. If you like, you can go buy the battery before you wind the coil, or you can go get the clips before you buy the battery or wind the coil. Now after you have these articles all together, connect the clips to the coil and then clip them onto the battery terminals. You will notice at once that the magnetic field around the coil is much stronger than when you had

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AWARDS

$10.00 PROMOTIONS

Promotion suggestions are scarce again this month, so we are going to send our $10.00 promotion award to M. G. Goldberg of Beacon Radio & Television Service, St. Paul, Minn., for his award winning service suggestion.

"On a large number of Philco TV models, especially those made several years ago, the pilot light behind the station selector indicator knob is snapped into a metal clip mounted horizontally just to the left of the opening which is exposed when the knob is removed. Because of the confined space, between the shaft which protrudes through the opening and the edge of the opening itself, it is almost impossible to replace the pilot light by trying to work within this limited space with the fingers.

"Much time will be saved if the strip holding the front glass is removed and the glass and mask removed from in front of the pix tube. This will allow easy access to the top of the pilot light bracket without removing the chassis or the back of the set, if the latter is not required. Another point in favor of this procedure is that the glass and pix tube face will, in most cases, be dirty anyway, and this permits the two birds to be killed with one stone, so to speak. It never fails to evoke surprise from the customer when he or she sees the dirt that sometimes accumulates on these surfaces and the pix improvement after having cleaned these items."

$5.00 TRADE TRICKS

Our $5.00 award goes to John Purcell of Purcell's Radio & TV Service, Richmond, Va.

"For resistor replacement on printed circuit boards, the usual recommendation is that you cut the ends of the old resistor close and solder the replacement to these ends. However, quite a few are put in so tight that there just aren't any ends left with which to work.

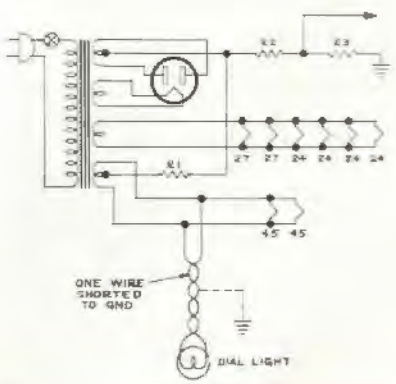
"We usually cut the old resistor in half and use the wires that are molded into the body. The extra quarter inch gained is enough to assure making the proper connection."

$2.50 TIME SAVERS

Our $2.50 award this month goes to Paul F. Wing of Wing's Radio, TV & Appliance Service Co., Independence, Ohio.

"I started in the service business back in '37 and have worked on quite a few Philco 96, circa '30 radio sets since then, but one recent 96 repair job really proved to be a stickler.

"The trouble was reported as low, choppy sound, and removing one of the PP 45's brought it in a little clearer. I then noticed that the bias of the 45 filaments was almost nil. The circuit is a little unusual, because the dial light runs off the 45 filaments. The leads to the dial light were shorted to the chassis, crippling the bias resistor. Replacing the dial light leads corrected the trouble and put this 'little old lady' back in tip top shape."



OUACHITA PHILOSOPHER

(Continued from page 4)

better git your head out from under the bench and start gittin' on the ball. Do you know what's the next thing in auto-radios? You don't? See, what'd I tell you! Dangitall, if you'd been readin' the magazines and other papers, you'd know that they're buildin' transistorized auto-radios now, and they'll just play up a storm, too! Lot of the new cars are comin' out with 'em installed, and you'll be installin' 'em, too, and what do you know about transistors? If you been readin' the trade mags, you're pretty well caught up, and they won't be total strangers to you, anyhow! See what I mean?

Anyhow, as John J. Confucius, of Confucius Radio, TV and Talkin' Machine Service, of Ink, Arkansas, says, "It pays to be careful at all times: Gas, unsuspected, in video IF tubes like gas on stomach: may lead to embarrassing consequences!" Y'all come.

PROFESSOR M. T. HEAD

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just a straight piece of wire. This is because the blueberry seeds—I mean electrons—have joined forces, so to speak, and added up the strength of all of them put together. As much as you marvel at this phenomenon, we are not through yet! Next, get an iron bolt, ¼ inch in diameter and 2½ inches long. Place the bolt inside the coil. Now go out and purchase a pack of No. 4 blued steel carpet tacks. When you get back, open the box and remove one tack. Hold this tack about ½ inch from the head of the bolt. If the tack does not jump up and hang onto the bolt, it is because the battery has run down while you were out getting the tacks. The best remedy for this condition is to disconnect the coil from the battery and take the battery down to your local automobile service station and ask the man to charge it. However, don't ask him to charge it when he has finished charging it, and wants to charge you 75 cents for charging it.

Now bring the battery back home, connect the tack to the terminals, and you will now find the bolt will jump up and hang onto the coil. This proves that you have electromagnetism. This is one of the most important advances in modern science, because when you get tired of seeing the tack hanging onto the bolt, you can remove one of the clips from the battery, and the tack will drop off the bolt because there is no longer any electromagnetism. This is a great convenience because, before electromagnetism was invented, when people got tired of seeing tacks hanging on magnets, they had to remove them by pulling them off by hand.

In the next discussion, I will simplify a few more of the amazing aspects of electricity and magnetism.