service
MANAGEMENT

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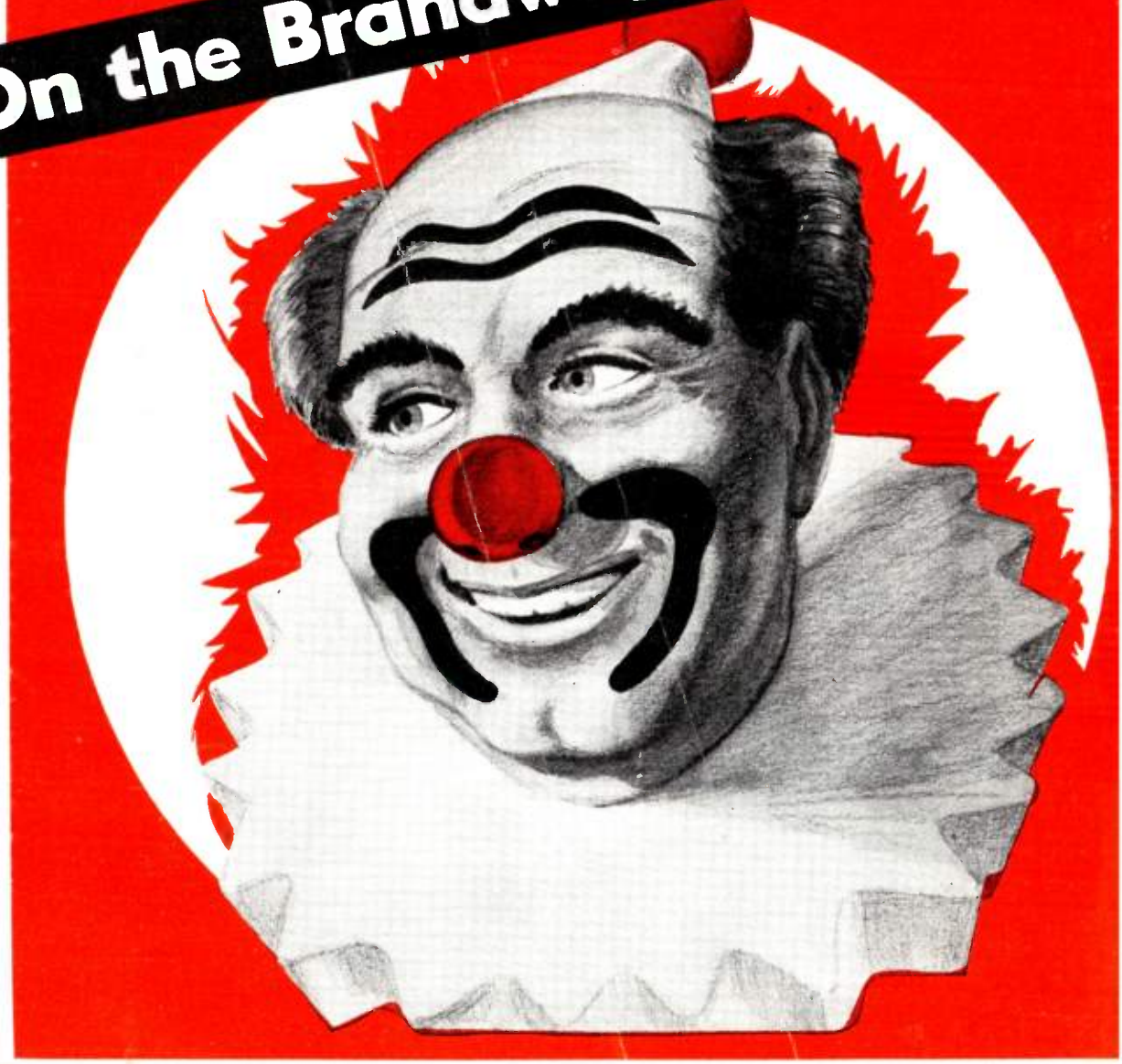
RADIO • AUDIO
Volume 3 Number 8
May 1954

Get On the Brandwagon



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They look alike...

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These RCA types today give you...

LONGER LIFE | **SUPERIOR PERFORMANCE** | **AT NO EXTRA COST**

Here are 3 more examples of how regular RCA receiving tubes are constantly being improved to meet the changing requirements of radio and television applications. These RCA types provide you with the superior performance usually claimed for higher priced specialty designed types.

RCA-6J6 features pure tungsten heaters for improved life . . . uses a special cathode material to help maintain characteristics throughout the life of the tube. Each tube mount is adjusted to provide increased uniformity of characteristics of each triode unit.

RCA-6CB6 uses a No. 2 grid of improved design, resulting in lower grid operating temperature and longer tube life. Special controls on materials and processing improve uniformity of plate cutoff and reduce variations in characteristics when heater voltage fluctuates.

RCA-6AU6 uses a double helical heater, resulting in an extremely low hum level. Inverted pinched cathode reduces possible motion of tube elements thus minimizing microphonics.

The superior performance of *regular* RCA receiving tubes—at *regular* prices—eliminates unnecessary callbacks, assures you of greater customer satisfaction, results in increased profits for you.

When you sell a receiving tube, your reputation and profit depend on its *performance* and *reliability*. So, you can't afford to buy anything less than the best in receiving tubes . . . and the best are RCA.

RADIO CORPORATION of AMERICA

ELECTRON TUBES — **HARRISON, N.J.**

Specify Electronic Parts By Brand Name

Precious Selenium

Dear Mr. Serviceman:

The President of the United States has recently stated that scarce materials vitally needed in time of emergency must be stockpiled.

Your cooperation is urgently needed in returning defective selenium rectifiers to your distributors so that selenium may be recovered and result in bringing you new rectifiers. Sarkes Tarzian, Inc. has authorized your distributor to pay you a fair scrap value price for your trouble. Thus you will profit by helping prevent a shortage of precious selenium.

Thank you again,

SARKES TARZIAN, INC.
Rectifier Division

G Eannarino

G. Eannarino
Director

Service Management

PAUL H. WENDEL, *Editor and Publisher*

VOLUME 3, NUMBER 8 — MAY, 1954

COVER PICTURE

The American public likes showmanship. When you sell service — sell it with the flair of a top-flight performer.

Features

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Letters to the Editor

ANTENNA MAINTENANCE

Referring to April number your valued publication, SERVICE MANAGEMENT, article written by Ann Karch, "TV Antenna Maintenance." This is a very interesting and timely article:—

The suggestions sections "a-b-c-d-e-f-g" are very important and section "b," "soldered lugs are preferred," is extremely important.

The writer, having had many years' experience with antennas pertaining to short wave, frequency modulation, and television, feels it might be of interest to make the following additional suggestions to those in the above mentioned article.

All connections pertaining to lead-in should be soldered including soldered lugs at antenna terminals. Any connections pertaining to antenna, or assembly of antenna, should first be wrapped with cellophane, then wrapped with "Dutch Brand" tape that comes in ¾" width, then everything including antenna assembly plus mast and fittings should have a coat of high grade black enamel and this includes the painting of wrapped connections. The above suggestions preclude future corrosion and rust.

The Raytheon Mfg. Co., Television and Radio Div., under date of Dec. 9, 1953, among other things, say: "Referring to importance of antenna, where color reception is contemplated, it is our belief that greater care than has been shown in the past will probably be necessary for adequate color reception. To use above extra care with antenna is only doing what should have been done for black and white."

Glad to know your publication is stirring up the importance of high-grade antenna installation.

ROGER M. NEWBOLD,
Commercial Engineer
Los Angeles, Calif.

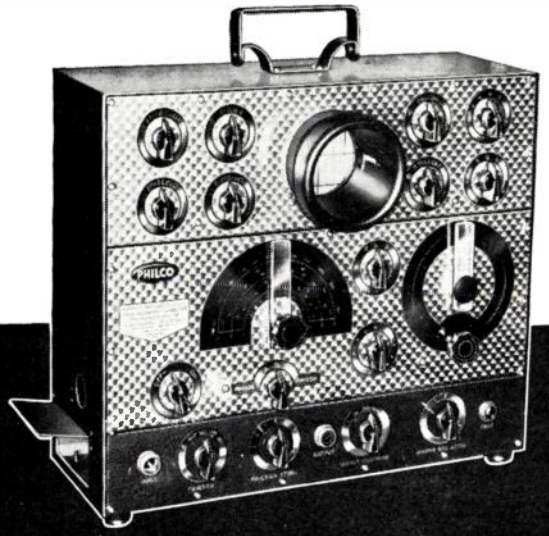
* * *

PARTS JOBBER COOPERATION

As a Parts Jobber, we read every issue of SERVICE MANAGEMENT magazine with a great deal of interest and heartily agree with your efforts to assist servicemen in the profitable operation of their business.

It is our firm belief that a Parts Jobber must accept a great deal of the responsibility for the successful operation of a serviceman's business. We do not mean by interferring in their business, but by keeping them advised in the latest developments, new items, price changes, sales promotions, litera-

(Continued on page 25)



Your Own Portable "Service Bench" for IF-RF Alignment!

PHILCO

VISUAL ALIGNMENT GENERATOR

Oscilloscope, Sweep and Marker Generator

All in One Instrument!

NEW! PHILCO FIELD STRENGTH METER

Here's more than an antenna signal checker. The new Philco Field Strength Meter provides direct readings of RF signal level . . has built-in electronic sensitivity control. Signal levels above 100 microvolts are read directly on the calibrated dial. Read 10 to 100 microvolt levels on the high sensitivity meter. High gain, low noise TV tuner provides exceptional wide range of sensitivity. Now, measure both strong and weak signals with the Philco reference calibration method. it's the same type found in expensive laboratory equipment. MODEL M-8104.

The Philco Model 7008 Visual Alignment Generator is a completely self-contained "service bench" for all alignment and trouble shooting problems in the field. It is specifically designed to permit rapid servicing of the IF amplifier and front end of TV and FM receivers. The sweep section furnishes a high output signal with uniform sweep level throughout the FM and television bands, as well as the intermediate frequencies used. The marker system, with its associated crystal calibrator, has an accuracy of .005%. The built-in oscilloscope greatly simplifies test set-up. Furnished complete with high frequency detector probe, output and input cables and AC cord.

Look at these PHILCO features:

1. Only two external cable connections necessary...minimizes regeneration and feed-back.

2. Shielded multiplier attenuator provides accurate control of RF output from a few microvolts up to .1 volt.

3. RF output increases with frequency to offset the fall off in gain which normally occurs on the higher frequencies.

AVAILABLE THROUGH YOUR PHILCO DISTRIBUTOR ON A NEW SPECIAL PAYMENT PLAN

OFFER ENDS MAY 29

Take advantage of the great

SHARE and PROFIT Program

on Philco Receiving Tubes
Parts and Accessories

NOW AT YOUR PHILCO DISTRIBUTOR

Editorial

"OUR OPINION"

We hope that every reader of SERVICE MANAGEMENT will carefully study the pertinent facts presented in the article about the GMP Qualified Service Dealers organization and program in this issue, and think of them in terms of how they could be applied in his own community.

The three leading needs of independent electronic service businesses are: First, Identification; Second, Cooperation; and Third, Business Promotion.

Read how the GMP Qualified Service Dealers' plan completely fulfills those needs. Take them one by one:

Identification: Any service dealer who can consistently sign the required pledge and who will honestly adhere to the 10-point Code of Ethics, both in spirit and in letter, is a high type of businessman of whom the Industry can well be proud. The identification of these top-flight service companies by means of the GMP Qualified Service Dealers' insignia gives set owners the assurance of competent service and honest treatment.

Cooperation: The very fact that a dealer will sign a pledge and agree to conduct his business activities on the basis of a Code of Ethics marks him as a man who is interested in *raising the level of electronic service to make it a respected business activity.*

Business Promotion: With the elements of *Identification* and *Cooperation* established, a central organization put professionals to work to develop and carry out a business promotion campaign. In this case, it was a far-sighted Set and Parts Distributor who took over as quarterback on this team of top-flight northern California service dealers to master-mind the sales promotional plays.

The time payment plan for major service jobs is a business natural at this time. The set owner is protected on charges by the schedule of service charges accepted by all members of the GMP Qualified Service Dealers' organization and published as a part of the promotional program. With detailed service bills made a part of the time payment contracts, the finance company is assured they will not have to fight claims of over-charges in collecting the accounts.

The "timing" of this promotional drive to sell service on deferred payments is excellent. Within a few weeks the industry will be moving into the normally dull business season of the summer months. With the public's interest whetted for color TV, which the average set owner won't be able to buy for a couple of years, there could be a serious let-down in service volume. This deferred payment plan for service, backed by TV, radio and cooperative newspaper advertising, plus the direct mail promotions of individual dealers, provides members of the GMP Qualified Service Dealers' group with a selling tool to keep their business going at a high level all summer.

In passing, we would like to mention that the sale of TV service on deferred payments has been done in most major TV areas for several years. However, it has been handled as individual promotions by single businesses and not by organized groups of service business. In a few cases service dealers use the time payment plans as a gimmick to gouge customers on service charges and in those areas the deferred payment plan for service fell quickly into disrepute.

There is not an area in the country where the GMP Qualified Service Dealers' program could not be applied with success—provided, of course, that all elements of the whole plan were carried out conscientiously. The promotion of business through the exploitation of deferred payments is now a basic part of our business economic pattern and is widely employed by practically all types of retail stores.

There is no valid reason why there should be a slump in electronic service business at any time. There is so much of it to be done. There isn't a home that does not have some kind of radio, sound or television set that needs servicing.

The basic weakness of service *as a business* is its failure to *sell the need* for the products it has to offer. Customers are not interested in buying time and knowledge, but they are interested in buying better TV pictures on the sets they own, better and more

(Continued on page 25)

What's In A Name . . .

***they are on the brandwagon* — prominent service leaders strongly favor the exclusive use of recognized brand-name products in consumer service.**

Wolfson-President, Associated Radio & Television Servicemen

"My feelings about Brands and Brand Names are strong.

"To me, a Brand Name means the recognition of an old friend who has proved its worth through years of service.

"Consequently, the manufacturer must hold the trust of the user, and the retailer should accept his responsibility to sell the product at the established price, but demand for his customer all the maker claims for his product."

MacFarland-Exec. Secretary, Long Island Electronic Technicians Assn., Inc.

"To be valid, a 'Brand-Name' must represent its product in terms of harmonious and useful relationship towards all concerned in its path from the factory through the distributor, the dealer and hence to the public. The technician is identified with the manufacture, the installation and the maintenance of this product. It is therefore sensible for the technician-dealer to endorse those 'names' which have the acceptance of all these groups."

Kimzey-President, Ft. Worth Radio & Television Assn., Inc.

"By using Brand-Name products you are assured of a growing business. You avail yourself of the advertising monies spent by the manufacturer and most important you identify yourself with better products. I have never had trouble selling a good Brand-Name product for more money and profit."

Rhodes-Chairman, Eastern Television Service Conference

"What does your business name mean to people who come to you for radio or TV service? The very fact that they call you means that in their mind you are reliable, they trust you, have confidence in your work. "This confidence is the result of advertising in one form or another. It may be by word of mouth a satisfied customer can start an endless chain. It may be various types of direct mailing, it may be newspaper, telephone directory, personal activities. Whatever it is, it is directed towards an objective, making your name synonymous with GOOD, DEPENDABLE SERVICE!

"National manufacturers have spent millions to develop public acceptance of their BRAND NAME PRODUCTS. Why should you sell GOOD SERVICE and couple it with replacements parts whose origin is unknown to your customer? Do a real job! Keep selling dependable service, but tie in with national advertising by always using the best in brand name replacement parts. Let the manufacturer help you to do your selling job!

"There is real value in a name where good service and reliable products are the accepted combination offered to the public."

Joslyn-President, Radio & TV Technicians' Assn.

"Selling of Brand Name Products is a very important advantage often overlooked by service people. Tying in with national advertising is not only productive in selling, but also builds customer confidence toward the serviceman. Better co-operation between manufacturers and service operators, and selling of brand products is one of many needed steps in elevating the prestige of the service industry and the electronic field."

Chase — Chairman, NARDA Service Committee

"Famous names, as well as advertising slogans, have a way of being taken for granted; however, not without cause. Millions have been spent telling the public reasons for their acceptance. To sustain a continued program of advertising these products, they

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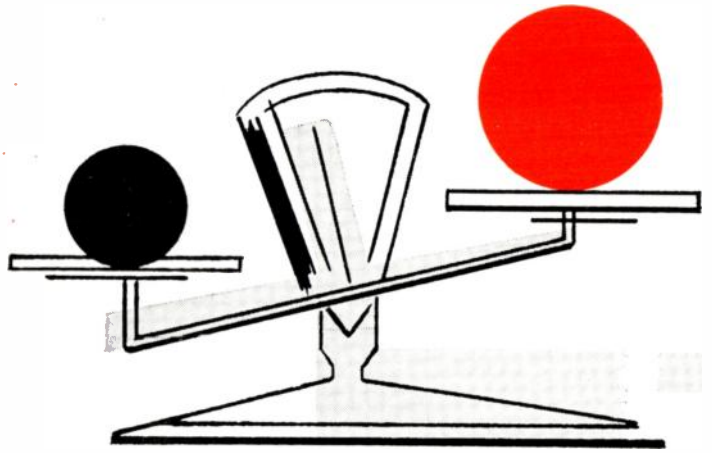

the priceless ingredient

ERNEST W. FAIR

"The priceless ingredient in every part I handle is the character and integrity of its manufacturer."

My service-dealer friend pointed from name to name on merchandise and display posters in his store as he spoke. Experience had taught him that the doorway to real profits in this business came from that direction.

Branded merchandise is half pre-sold when we buy it from jobber or manufacturer for re-sale. Millions of dollars manufacturers have spent in advertising of every sort has reached the consumer and made its impression. Dealers who lament the smallness of their advertising budgets have only to tie-in with these millions spent by manufacturers through promotion of the branded merchandise they have featured to have an advertising budget far beyond their dreams.

The "how and why" is easy. Many dealers build business at low cost themselves in this way every day of the year. Here are some of the low cost, easy to use ideas used by a number of these dealers to complete the selling job and bring the dollars from these sales through their bank accounts:

"All of my advertising allowance (and it's not too big) is used to tie-in for 'tag-along' advertising," one dealer points out. "Local newspapers, radio stations, TV stations and others all know that I'm willing to buy a tie-in every time a manufacturer's copy is featured through their medium. That means I use spot announcements before or after their radio or TV programs and small two-inch column advertisements right beside the big ones in the newspapers.

"These ads simply point out that my store is the place where the merchandise in the big ad can be secured locally. That's all that is needed.

"My experience with this system has been that it's the only way the little fellow can really get a handsome return from modest advertising investment."

Many dealers have also found that it pays to tie-in window and store display set-ups with this type of advertising. They find out from distributors or newspapers and stations when major promotions are to run locally. They see to it that the attention aroused by this effort on the part of the branded product manufacturer is channeled into their business.

All such effort is special event handling that should be an important part of the program of the dealer who realizes it's easier to sell merchandise that is already "half sold" through widespread recognition of the brand name than to sell an unknown name that no one except the trade has ever heard of before.

But the biggest month-in and month-out profit return comes from daily application of well planned selling effort right in the store or shop.

Having the right merchandise in stock is of first importance. As one midwestern dealer put it to the writer " . . . why shouldn't I stock their line in preference to some of these others; it's good, it's a leader . . . and everyone knows about it . . . " Another found his chief reason was dependability and he explained that this way: "Both my customers and I know that the firm which has spent thousands of dollars building it's name is going to protect that investment. It's *got* to mean dependability."

Many service-dealers are finding this applies to set repair and parts usage more and more. The effort by manufacturers during the past two years to reach the consumer is paying off. A very marked trend has been noticed insofar as picture tube replacements are concerned; more and more customers are asking for specific brand tubes —and are satisfied with none other.

"Any service shop owner is a fool to use parts and replacements other than recognized brands," a Missouri dealer told us recently, "because he can feature this as part of the quality and reliability of his service. It makes for confidence and brings in business. It also assures him that there will be no kick backs later; and every time one occurs it's not the fly-by-night manufacturer of some part that has to take the blame—it's the service shop.

"You only have to be caught once to know how this can hurt. After that you stick with the brand-names even if they are only tiny parts the customer never sees or knows anything about."

"Six months ago we started putting names on parts lists on repair tickets," a southern service-dealer tells us, "and it's the smartest thing we have ever done. It takes a couple of minutes extra to write out such a ticket but it pays off. Every customer gets a little ticket listing each item by brand name as well as generic name . . . and you'll be amazed how many customers recognize some of those brand names you thought were known only in the trade.

"Each manufacturer by every machine the customer uses in his home or business today keeps pounding away on the theme that any parts replacement should be only those parts made by the original manufacturer. It has left so deep an impression that the average person is far more sold on the use of brand names than most of us realize. Just start using those names on your repair tickets and you'll get a surprise . . . not only in how many customers recognize them . . . but in the extra business it brings you!"

Brand merchandising assures service-dealers of an easier time maintaining price levels on both service and merchandise. When the consumer is offered an unbranded item he may become suspicious of its quality. He knows that cut-prices on such merchandise often mean cut-quality.

There's always a segement of the buying public that is interested only in cut prices or how cheaply they can buy a service or merchandise. They wander from business to business and never stay with any dealer. The dealer who tries to build his business on their dollars soon finds himself caught in a

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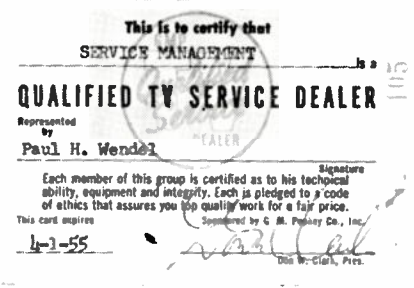
Qualified Service Dealers

(First of Two Parts)

By PAUL H. WENDEL
Editor, Service Management

There are two business problems that sit constantly on the doorstep of every service company regardless of whether it is a 1-man shop or a fifty-man organization. The first is to maintain a sufficient volume of work to sustain the business and the second is the minimization of service gyppery and thoughtless service price-cutting by fringe service men.

Intensive service sales promotions and public relations programs could answer both of these problems, but very few service businesses have the income necessary to carry out such campaigns. Cooperative programs in which comparatively small contributions from each business would add up


This is to certify that
SERVICE MANAGEMENT
is a
QUALIFIED TV SERVICE DEALER
Represented by
Paul H. Wendel
Signature
Each member of this group is certified as to his technical ability, equipment and integrity. Each is pledged to a code of ethics that assures you top quality work for a fair price.
This card expires
Sponsored by G. M. Popkey Co., Inc.
1-1-55
Don W. Clark, Pres.

to a substantial promotional budget are often discussed by service business men but seldom, if ever, reach the stage of action.

While others have been thinking about it and talking about it, a prominent Parts Distributor in San Francisco decided to *do something* about it. He developed a plan . . . and this is the story of how that plan is working.

The G. M. Popkey Company, Inc., of San Francisco, sponsored the formation of an organization called the GMP Qualified TV Service Dealers, and invited all ethical dealers in northern California to participate in the plan. Once the nucleus for this organization was established, the G. M. Popkey Company sponsored a broad promotional campaign, utilizing TV, newspaper tie-ins and direct mail to channel service business into members' shops.

In announcing the program, the Popkey Company invitations to dealers to participate stated . . .

"You are not obligated to buy one thing from the G. M. Popkey Co., Inc. It's a program to help ethical dealers and help justify your legitimate charges. It's bringing dealers who are members results in more calls and satisfied customers as well as creating confidence for new TV sales."

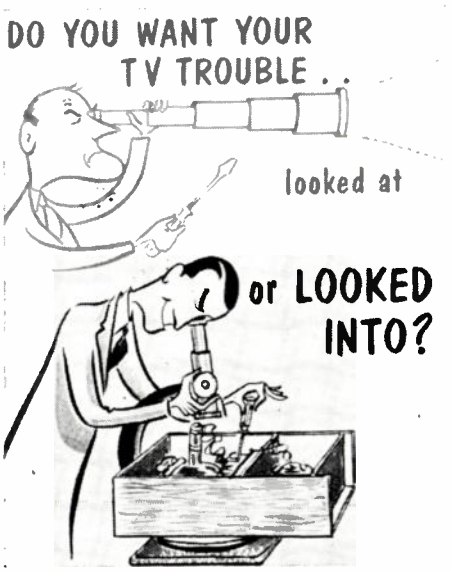
There are only two requirements made of a service dealer to belong to the GMP Qualified TV Service Dealer organization. The first is to sign a pledge and the second is to adhere to a ten-point code of ethics in the conduct of his service activities.

The GMP Qualified TV Service Dealer pledge states:

"I pledge that I will conduct my business activities as a dealer in such a manner as to cast no discredit on myself, my competitors, or the Television Service Industry.

"I further pledge that I will promptly take all necessary steps to correct any legitimate complaints which may be brought against me during the course of my business.

"I further pledge my assistance to the G. M. Popkey Company in carrying out its plans for educating the public and to maintain the standards of ethical and technical practices in the industry."



Effective illustrations are an essential part of all GMP Qualified Dealer promotion pieces.

What does this emblem mean to you?

The television service dealer who displays this emblem operates a business that has been certified as to the excellence of its equipment, trained technical personnel and high standards of business ethics. His shop has the electronic testing equipment needed to do your work and his technicians know how to use it. He has established FAIR PRICE standards, and he is known for his high integrity.

These facts have been established by careful investigation and inspection of his shop and personnel by representatives of the G. M. Popkey Company who require nothing more of the dealer than that he maintain these high standards as set forth in the Qualified TV Service Dealer's agreement.

Short and to the point, succinct explanations of GMP Qualified Dealers' qualifications put the idea of "dependability" across to set owners.

The "Ten Point Code of Ethics" covers the following:

1. *Employ qualified, trained personnel.* No student shall be passed off as a journeyman technician.
2. *Avoid trick advertising* which offers to service or deliver materials under conditions which are questionable.
3. *Issue a standard RETMA guarantee* with all work.
4. *Have sufficient and proper testing equipment* to assure good work.
5. *Install ONLY such parts and tubes as are really necessary* to assure continued performance.
6. *Use only new parts and tubes of equal or better quality* to original equipment.
7. *Issue an itemized bill.*

(Continued on page 15)

. . . Because the Blank Service Co. repairs your TV or your radio set with standard, brand-name parts only!

DEMAND A BRAND!

YOU CAN'T GET BURNED WHEN YOU USE OUR BRANDS . . .

THE BLANK SERVICE COMPANY
600 Main Street
PATTERSON, OHIO
Phone: Service 0-0000

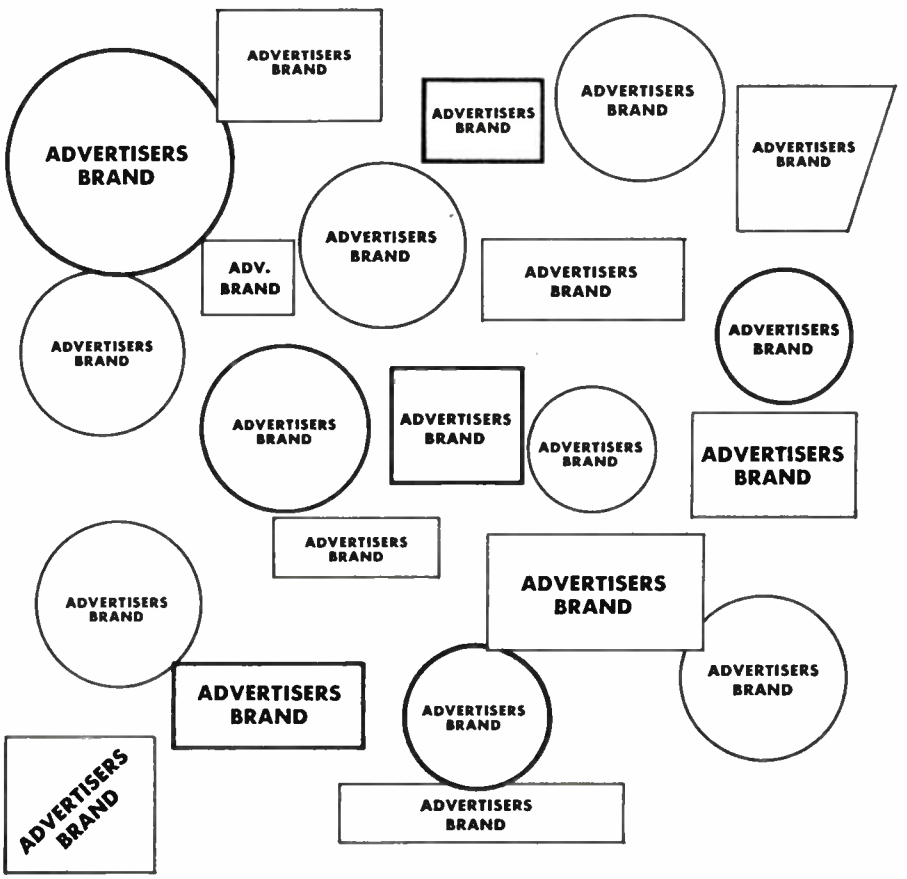
Stick with us . . . we're sticking to brands!

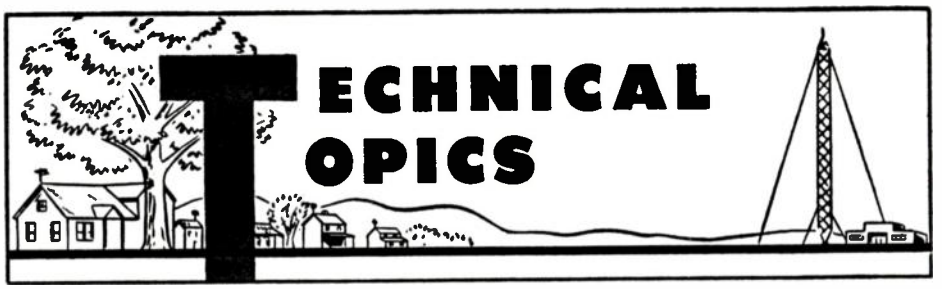
What's in a Brand?

The very best that a manufacturer has to offer goes into the making of a brand-name replacement part for your radio or television set. When a manufacturer produces and promotes a brand-name radio or TV part, he's putting his best foot forward. His company's technical know-how, experience and expert equipment all play a vital role in turning out a product he is proud of.

Don't get burned. Non-branded items will cost you more in the long run. The confidence you feel when you buy a brand name cannot be bought at any price. And that confidence is fully deserved!

DEMAND A BRAND!





Response of Antenna System, Tuner, and IF Strip for Color Reception

By EDWARD M. NOLL

Although many of the sections of a color receiver will not differ greatly from present monochrome receivers, there will be closer tolerances, more critical components, and more careful alignment. Bandwidth flatness and uniformity become very important considerations if the luminance and chrominance components are to be delivered to the color sections of the receiver.

A. Antenna System

As in monochrome service, four tenna characteristics influence the reception of the color signal—gain and standing-wave ratio, field pattern, bandwidth, and stray resonant conditions. In fringe area reception antenna gain is an important consideration if a stable and reasonably snow-free picture is to be received.

The influence of noise in the picture will have the same effect as it does on monochrome reception plus two additional effects; namely, hue changes that result from noise, plus the influence of noise on color synchronization. Gain will be a significant characteristic because the receiver itself will have a wide bandwidth and the technique of reducing receiver bandwidth in favor of receiver sensitivity cannot be employed because of the adverse influence such as approach will have on chrominance fidelity and stability.

The usual broadband type of VHF antenna is satisfactory for the reception of a color signal provided it has been installed properly and has no resonant dips on channels to be received. The bandwidth of the antenna must be broad enough to present equal sensitivity to the picture carrier and chrominance sub-carrier segments of the color spectrum. In the use of a narrow band yagi on the low band channels, a rapid drop-off in gain at the ends of the channel often is present and can influence color reception adversely.

It is possible that an antenna could have a 2 to 3 BD variation in gain over a desired channel without affecting the color picture greatly. However, if the difference in gain accumulates through a number of circuits it can be quite detrimental. For example, if there is a loss in the antenna, additional loss because of standing wave conditions on the transmitter line or loss in tuner or I. F. strip in the chrominance spectrum, the actual color rendition can deteriorate seriously. Consequently, it is advisable to keep all segments of the receiver with as uniform a bandwidth as possible for best reception of color signals.

Still another condition that arises occasionally is narrow dips in the response of an antenna system as caused by spurious resonant conditions in the antenna system from insulator mounts, cross-arm, or presence of mast. On the UHF band especially the presence of nearby metallic objects that form resonant circuits that suck out the normal response of the antenna over a narrow band of frequencies can possibly attenuate important segments of the receiving spectrum.

Antenna orientation is a significant factor too because of the influence of multi-path signals that cause not only echoes or reflections in the picture but, at the same time, disturb the hue of the color presentation. Thus the normal disturbances which occur due to faulty antenna systems in monochrome reception also have the same effect on the color picture plus the additional influence that such disturbances have on the chrominance information. In monochrome service improper orientation can cause close-spaced echoes or ringing, or sync instability; in color service, the same defects are encountered plus the influence of improper orientation on the chrominance information.

Standing wave conditions on the transmission line can also effect color reception adversely. The most serious point of mis-match, of course, is between transmission line and receiver where a disturbing reflection can originate. A mis-match at the antenna, provided it is not accompanied with a mismatch at the receiver as well, will result in attenuation or a lower gain antenna system but will not set up disturbing reflections on the line.

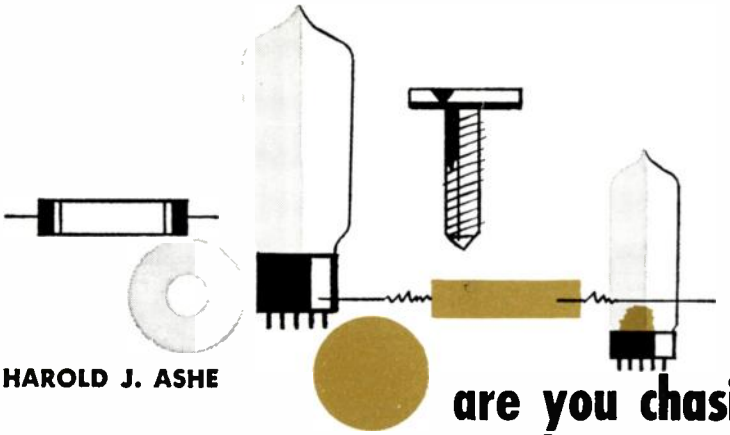
However, mis-match at the receiver accompanied with a mis-match at the antenna can set up disturbing standing wave conditions on the line. In fact, a standing wave condition in the antenna-transmission line system can be frequency selective and cause one end of a desired channel to pass with little attenuation into the receiver while the opposite end can be attenuated severely.

This condition can reverse itself as a function of the total length of transmission line between antenna and receiver input. Needless to say if a standing wave condition is present and the overall length of line is such that a standing wave minimum occurs at the receiver input on the chrominance frequency, the chrominance information could possibly be eliminated from the received signal. This condition can be checked by observing on the oscilloscope screen the horizontal blanking period at the viedo detector of a color television receiver.

As a stub is moved along the transmission line or standing wave conditions altered the actual amplitude of the sub-carrier burst riding on the back porch can be seen to vary in amplitude.

Again the possibility of variable standing wave conditions or suck-outs in the antenna system is of greater concern on the UHF band at the moment because of the less consistent uniform impedance matching and the influence of nearby metallic objects (as well as stand off insulators and lighting arrestors) or peak efficiency UHF reception.

(Continued on page 14)



PHANTOM PROFITS

HAROLD J. ASHE

are you chasing phantom profits with surplus parts?

Making a spendable net profit from radio-TV service work is difficult under the best of conditions, competition being what it is. Nevertheless, some shop owners seem to have a gift for hamstringing profits by questionable policies.

Probably in no other respect are net earnings so vulnerable as when a shop owner persuades himself to use surplus, off-brand and bootleg parts and materials in service work. And, it needs emphasizing that this is, in fact, usually self-persuasion. The serviceman can blame no one but himself when he buys such parts and materials. He's stuck with them—and he is likewise accountable to his customers for the unsatisfactory results.

A serviceman has only two commodities to sell his customers. These are:

(1) skilled technical service; and

(2) replacement materials and parts.

The point need hardly be labored that if his skills are insufficient, his customers are going to be disappointed and his business is going to suffer. No successful business, least of all in a highly competitive service trade such as radio-TV, can be built upon the shifting sands of poor workmanship.

Yet, oddly enough, the same servicemen who appreciate the paramount importance of superior technical skills, goof when it comes to buying parts and materials. Bemoaning the fact that certain undiscriminating customers are bedizened by so-called cut-rate service charges, these servicemen fall into the same error. They are beguiled at cut-rate prices on off-brand parts of illegitimate parentage.

There can be only two possible defenses for buying surplus and off-brand parts.

1. To pass on the savings to customers;

2. To enhance the mark-up on the parts for the benefit of the service shop owner.

Even superficial analysis shows the speciousness of using such parts.

If savings are passed on to the customers, these savings are negligible in relation to the total service bill. Considering the labor charge and the unsatisfactory performance of such parts, rather than doing the customer a favor, he has been done a distinct disservice.

Even the least reflective customer is not unaware of the fact that it costs as much to repair a radio or TV set with defective, short-lived parts as with nationally advertised, reliable parts of proven value. While such a customer may not be able to identify the cause for his plight, he is not going to be happy if repair bills mount because his serviceman insists on using off-brand replacements.

Secondly, even if a serviceman fails to pass on savings effected by using surplus parts, it is questionable whether, in the long run, he will profit by such a practice. Tempted by longer margins on such parts, a serviceman may wake up to the sad fact he is losing customers faster than he can get new ones. *The cost of getting customer replacements may be far greater than the margin available to him on bootleg replacement parts.* He may discover that, thanks to dissatisfied customers, he is chasing phantom profits via dubious parts which fail to give satisfaction, even though with bigger margins. No margin, however large, can return a profit on a dissatisfied clientele that deserts a shop owner.

Shop owners, dissatisfied with earnings, may be tempted to the lower prices prevailing for bootleg and surplus and unbranded parts. Yet, the cure offered is worse than the ailment. Succumbing to such a device to increase profits, they are taking a rocky road which can lead only up to a cliff from which they must plunge into bankruptcy. Rather than enhancing earnings, these parts will further reduce earnings to the vanishing point.

There is no royal road to success, profit-wise, least of all in buying unwanted, poor performance parts and fobbing them off on unsuspecting customers. If profits are unsatisfactory, a serviceman must look much deeper for the cause of his predicament than the margin available on nationally known brand name parts. That many, many other servicemen are making a profit—and precisely because they use only nationally known brand name parts—should make others think twice before flirting with the unknown.

If profits are low, a serviceman might as unwisely hire inexperienced help as to use cheap, unsatisfactory parts. Yet, the same shop owner who would not hesitate to fire a bungling serviceman may not be able to bring himself to "fire" out of his stock those parts which can create as much mischief with customer good will as a poorly trained serviceman.

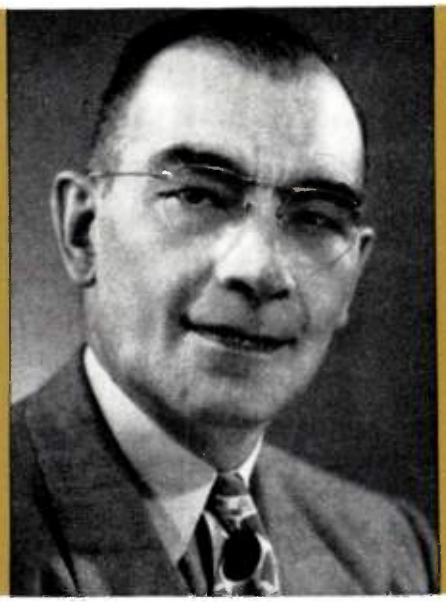
Often overlooked by shop owners in buying up surplus parts is the tremendous advantage they are given by stocking nationally known parts. These name branded parts are advertised to the consuming public at tremendous cost to manufacturers. Customers, long since, have been made name brand conscious in this country. For every chinchy, chiseling customer who shops for price, to the exclusion of quality and brand name, there are fifty or one hundred who think in terms of quality and brand name first and price only incidentally.

And, incidentally, no one has yet been able to figure out how to make a profit on the solely price-conscious minority of customers. It is a brash service shop owner who attempts to cater to such customers with any expectation of making a profit. He will find, to his sorrow, that, if anything, they expect more from off-brand goods than others do who are sold on nationally advertised products.

Service shop owners preoccupied with margins prevailing on parts and materials need to keep one fact uppermost the next time they are tempted by "low" prices on surplus parts: Margins on parts are relative to performance and customer satisfaction—and not to abstract markups alone.

PAUL H. WENDELL
EDITOR AND PUBLISHER OF
SERVICE MANAGEMENT
WRITES ABOUT

THE MARK of the PROFESSIONAL



"... In the television service shop of today an observer can quickly spot the expert professional technician by observing his modus operandi or manner of working. The tools of his profession are scopes, signal generators, tube testers and vacuum tube voltmeters. They are there at his fingertips—not for use on occasional jobs, but for consistent use on all jobs."

Reprints of Mr. Wendell's complete article "The Mark of the Professional" are available at no cost from your parts jobber or from Triplett Electrical Instrument Co., Bluffton, Ohio.
Only Triplett offers you a ten day free trial on all test equipment.

Burton browne advertising

TEST EQUIPMENT STANDARDS ARE SET BY

TRIPLETT

Model 650. Vacuum Tube Voltmeter $69.50 net. One probe ACV and RF peak to peak measurements. One selector switch all ranges.

Model 3413-A. Tube Tester $79.50 net. The only tester in its price range to get at each tube pin and make an open and short check.

Model 3436 UHF-Marker-Signal Generator $169.50 net. For calibrating front ends and converters—all that is needed in *one* instrument.

Model 3441 Oscilloscope $199.50. Peak-to-Peak Voltmeter. Exclusive reversible polarity simplifies wave form reading.

Technical Topics

(Continued from page 11)

It is a fact that for peak color reception there will be a trend toward an antenna system with better front to back ratio and better response pattern accompanied with more uniformity in bandwidth to make the antenna installation problem less difficult and minimize the influence of reflections and interference pickup on the color picture.

Tuner and I. F. Response of Color Receiver

The characteristics of tuners that influence color reception are sensitivity, stability, and response just as in monochrome service. Again the tolerance will be stricter because of the presence of the chrominance carrier at the high end of the tuner response. It is again that just a limited attenuation of the chrominance components does not influence the color picture too seriously. However, the accumulation of losses in various sections of the receiving system produce the detrimental influence on color presentation.

Tuner Sensitivity and noise factor are more important in the reception of the color signal because of the inherently greater bandwidth of the color receiver and the fact that the I. F. or tuner cannot be peaked in fringe area reception of the color picture.

Likewise the nearness of the associated sound carrier to the color subcarrier produces an interference beat between the two components at a frequency of approximately 0.9 megacycle. To minimize this disturbance the fine tuning control must be adjusted very carefully for a minimum interference pattern on the color picture.

Proper setting of the fine tuning control positions the sound carrier correctly on the overall I. F. response so that the 4.5 megacycle traps and tuned circuits function at peak efficiency in removing the sound information from the luminance and chrominance channels. Thus the advantages of employing some form of automatic frequency control for the local oscillator appears advantageous.

The presence of an additional carrier in the video spectrum of the station also foretells the possibility of an increase in adjacent channel interference for two reasons. First of all, the inherent bandwidth of the receiver is broader to accommodate properly the high frequency chrominance end of the bandpass. Likewise the influence of adjacent channel interference can be more detrimental because of the presence of the chrominance sub-carrier near to the adjacent channel picture carrier and the possibility of a higher receiver sensitivity to the interfering picture carried because of the increased bandwidth of the receiver.

I. F. System

The economy style narrow band I. F. system is not practical for peak color performance because of the necessity for holding up the bandwidth at the high chrominance frequencies. Thus the I. F. system will have a wider bandpass and more stages. With the greater bandwidth there is additional responsibility imposed on the I. F. system to provide maximum rejection of adjacent channel traps and proper setting of the sound carrier on the I. F. response to minimize intercarrier interference or interference with the chominance information.

The wide bandwidth and minimum interference requirements of the color television system means that more critical alignment will be required. In particular the sweep alignment equipment will have to be linear both amplitude- and frequency-wise to permit precise alignment. Likewise an accurate marker system is an absolute necessity for obtaining peak performance from a color receiver.

For example the response curve of the I. F. system indicates that the bandwidth of a typical color receiver must be flat out to 41.65 megacycles to properly accommodate the chrominance information. Just 0.4 megacycles lower in frequency the response of the I. F. system must drop away almost to nothing at the sound carrier frequency of 41.25 megacycles. This is indicating to us that the marker accuracy will have to be within a small fraction of a magecycle to permit accurate alignment. Notice the position of the actual sub-carrier at 42.17 megacycles is only 0.9 megacycles above the sound carrier frequency. Thus to prevent interference these two frequencies must be precisely positioned on the overall response curve and the need for an accurate alignment procedure is emphasized.

Frequency response is important not so much from the standpoint of amplitude non-linearity as the non-linear time delay it causes, In the color system the rapid fall-off of the frequency response between the end of the video spectrum and the sound carrier (4 to 4½ megacycle range) produces a detrimental phase shift at the high end of the video spectrum while the use of vestigial sideband transmission and the positioning of the picture carrier at 50% response results in a non-linear time delay at the low end of the video spectrum. Circuits are included at transmitter and receiver to compensate for this non-linear time delay at the low end of the videa spectrum.

However, proper correction only results when the I. F. bandpass and frequency response of the various sections of the color receiver meet specifications. For example, the proper positioning of the picture carrier at 50% on the response curve is important if perfect reproduction is to be obtained. Thus the proper setting of the fine tuning control, which can change the relative response at the picture carrier frequency, is important in not only reducing the beat interference with the sound carrier but also in permitting proper registration of the various frequency sections of the luminance and chrominance information.

Improper delay characteristics in the color system can produce a number of defects—color fringing or spreading of color information at a point of sharp transition in picture information, imperfect registration of chrominance information on top of luminance information (the red of an actor's lips displaced slightly with respect to the lips), and interaction between chorminance signals because of improper relative delay characteristics between the two chrominance channels.

Priceless Ingredient

(Continued from page 8)

vicious trap from which he cannot escape—there's no end to price-cutting within the little group of his trade into which he has descended—it's the only appeal these dealers have and they are all after this little group of people who get stung again and again on cut-prices but keep coming back for more all of the time.

The profits lie with branded—name merchandise as more and more service dealers are finding out every day . . . the customer who is willing to pay a price that insures us a decent profit demands the quality and standards these branded name merchandise items assure him.

Power Amplifier

Shields Laboratories, Inc., 810 N. Lincoln Ave., Pittsburgh 12, Pa., have introduced a new 25-watt power amplifier with a frequency response from 7 cps. to 100 kc., plus or minus 1 db. Power response is reported to be unusually great: 18 cps. to 40 cps. plus or minus 1 db. Intermodulation is said to be 0.07% at 25 watts rated output at the 1 watt level. The amplifier has an internal output impedance of less than one ohm, permitting it to act as almost a short circuit to transient distortion produced by a loudspeaker. This provides reduction of "boomy bass" and "muddiness" in reproduced sound.

G. M. P.

(Continued from page 9)

8. *Service sets at home whenever possible and practical.*

9. *Carry adequate insurance coverage.*

10. *Be honest, courteous and treat each client in a professional manner.*

New GMP Qualified Time Payment Plan

The latest phase of the GMP Qualified TV Service Dealers' service selling program is a time payment plan for major service jobs with the paper handled without recourse to the Service Dealer. In their announcement to participating dealers, the Popkey Company pointed out the following high lights of their new deferred payment plan for service work:

You Can Offer Your Customers:

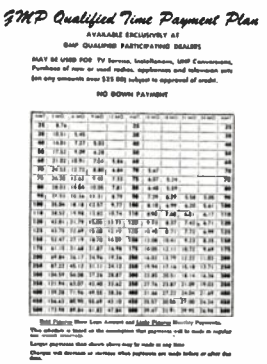
1. NO DOWN PAYMENT.

2. $5.00 monthly payments (on any bill from $5.00 to $100.00—proportional payments over $100.00).

3. No recourse to you.

4. You get ALL your money immediately after each job direct from the finance company.

5. Twelve local finance company offices to assist you.



6. Backed by one of the largest and best finance companies in America.

7. Easy credit approval to customers with a steady job.

You Can Use This Plan For:

1. All TV service work $25.00 or over.
2. UHF conversions.
3. Picture tube replacement jobs.
4. New installations.
5. Used TV set sales.
6. New TV sets—unacceptable bank deals.
7. Sales of small radios and appliances.
8. To get your money out of your old accounts receivable and save customer good will.

Promotion of Time Payment Plan:

The initial announcement of this new program was made on the William Winter Qualified TV Broadcast—the news telecast sponsored weekly by the G. M. Popkey Company.

Supporting the regular weekly telecast programs, a flyer which carries a complete schedule of monthly charges was made available to participating dealers to be used as a mailing piece or a customer hand-out.

One side of this flyer carries the complete SERVICE MANAGEMENT schedule of Standard Labor Charges for Television Service and Repairs (TVL-2). This schedule was carefully checked and approved by all associations in the San Franciso Bay area before it was adopted by the GMP Qualified TV Service Dealers' organization. The chart carries the approval of: IBEW Radio & Television Union Local No. 202, A. F. L.; Sonoma County Radio & TV Dealers' Association; Television & Radio Servicemen's Association of Contra Costa, Richmond; Television Service-Dealers' Association of the East Bay, Oakland.

It is quite possible that the GMP Qualified Service Dealers will find this new time payment plan for TV service a tremendous boon during the summer months when TV set owners are normally inclined to put off spending money for service. What better business promotion could you find that would let you offer to completely overhaul customers' sets during the months when *you* need the business with payments for that service starting when your customers finish their summertime vacations?

GMP Qualified TV Service Dealers and the Editors of Service Management Magazine

Estimating Chart for Labor Charges for Television Service and Repairs

This schedule of standard prices covers labor charges only but includes all testing necessary to locate faulty part or circuit. Prices for replacement parts and tubes used are extra. Only standard brand parts, accessories, tubes and batteries are used in effecting repairs.

GENERAL SERVICE

Home Call
1st ½ hour ..... $ 5.00 minimum
After 1st ½ hour for each 15 minute period add $1.25
Home call, pickup, delivery, pull, install and adjust up to 21" 7.50
24"-27" 8.50
Projection 10.00

Call Backs
Call backs other trouble 5.00

SHOP SERVICE

Basic technical fee 12.50
For diagnosis or analysis only (includes cleaning, testing tubes, checking alignment and circuitry check)
Phono TV combinations add 4.00

Additional technical fees for installing parts (materials extra)

Bench
Hourly Rate 5.00
Minimum ½ hour—shop 3.50

AC Interlock
Locate and install 1.50

Antenna
Install built-in 3.00
Locate and repair broken wire (built-in) 3.00

Alignment
Audio Section IF 2.50
Discriminator 2.50
Ratio detector 2.50
Complete 4.50
Video section 7.50

Beam Bender 2.00

Capacitor—by pass and coupler ..... each 1.00
Filter unit 2.50

Choke Coil ..... each 2.00

Controls
Audio seciton—volume control, single 2.50
dual 3.50
Video section single 2.50
dual 3.50
Clean controls 1.50

Connection
*Loose—locate and repair 2.00
(*Except tuner)

Dial
Dial cord replacement, simple 2.50
complex 3.50

Estimates
Minor check only—Min. 5.00
Plus—Pick-up and delivery charges

ANTENNA INSTALLATION AND SERVICE

Normal Installation
Installed complete with not to exceed 50 feet of 300 ohm lead-in, all necessary standoffs and mounting base, with 6 ft. mast on private two-story home ..... 35.00 minimum
(This is outside installation of lead-in)

Antenna Work
All antenna repair work—
one man ..... hourly rate 7.50 minimum
two men ..... hourly rate 9.00 minimum

HOW THIS CHART WORKS—On shop jobs add pick-up and delivery, basic technical fee and installation fee for additional parts, plus the list price of parts used.

Example: Set requires 1—100 ohm resistor, 1—.02 mfd 600 volt capacitor, AC interlock and volume control.

Home call, pickup and delivery	$ 7.50
Basic technical fee	12.50
Install resistor	1.00
Install capacitor	1.00
Install AC interlock	1.50
Install volume control (std.)	2.50
Total labor	$26.00
Parts	2.80
Total bill	$28.80

Note * on picture tube only, no basic technical fee is charged
Add: Pickup and delivery and installation fee.

Approved by
IBEW Radio & Television Technicians Union Local No. 202, A. F. L.
Sonoma County Radio & TV Dealers Association
Television & Radio Servicemen's Association of Contra Costa, Richmond
Television Service-Dealers Association of the East Bay, Oakland

Modifications
Modify to remove retrace 3.15
Modify to prevent blooming 2.00

***Picture Tube**
Resolder pins 1.00
Install and adjust CRT up to 9" 3.00
10" to 17" 7.50
18" to 21" 8.50
Projection—24"-27" 10.00

Rectifiers
Selenium-replace 2.50

Resistor ..... each 1.00

Short
*All circuits—locate and clear 2.00
(*except tuner)

Transformer
Audio section 2.50
Power section—mounting charge 5.50
(plus 25c per connection)
Sweep section—output—horiz. 5.50
oscillator, horiz. } Standard
output, vertical } $3.00
oscillator, vertical } Special
IF transformer, video $4.00

Tuner
Pull and install 12.50
Clean, lubricate and adjust contacts 2.00
Locate and replace defective capacitor or resistor 7.50
Locate and repair loose connection or short 3.50

Yoke 4.50

This schedule of suggested labor charges for the servicing and repairing of television receivers was compiled by the Editors of SERVICE MANAGEMENT magazine and the Cost Committee of the TELEVISION SERVICE ASSOCIATION OF MICHIGAN. These charges are based upon time studies and cost analyses of time required to accomplish the listed service operation on a wide variety of television receivers with the work performed by competent service engineers. The charges listed in this schedule are for correcting troubles that appear steadily without interruption. They do not apply to circuit faults that appear intermittently and which require additional time for testing and observation. Charges for servicing intermittents will be higher based upon the additional time required to locate and repair the faulty circuit.

NEW CASE FOR TRIPLETT V-O-M's

A handsome neolite case that combines attractiveness with utility is available from the Triplett Electrical Instrument Company of Bluffton, Ohio. It is designed to house their models 630, 630-A and 630-T V-O-M's.

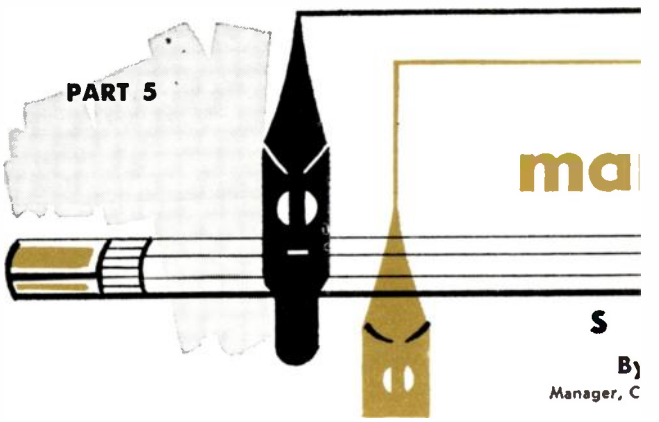
The case is constructed with a built-in stand that rests the unit at a convenient 45 degree angle when in use. It

also has a back compartment that contains sufficient room to store an instruction book, leads, the stand and small tools.

The Triplett case, identified as No. 639-N, sells for dealer's net price of $8.50, complete with stand.

Stancor Replacement Components

Chicago Standard Transformer Corp., Addison & Elston, Chicago 18, Ill., has announced the addition of a new replacement flyback transformer for Hoffman models; a universal Philco replacement vertical blocking oscillator transformer; two new width controls; and a new tapped linearity coil.



In critically analyzing the operation of a service shop for TV and Radio repair we must have some device to effectively gauge the factors of management and performance on an objective and requiring basis. The table shown represents on a minimum and maximum basis the percentage of expense, as related to income, that a service business should recognize and study. These data are indicated as "Desirable and Recommended Objectives" and "Maximum Limit, Consistent with Business Survival."

It is recognized that some degree of variation in individual operation set up will call for a slight modification of these percentage figures, however these differences are more a matter of interpretation or individual definition of the items outlined.

Please note that the percentage expense is the relation of expense, by item, to the gross sales, or income, from all service rendered.

To those service operations run on an intuition or rule of thumb basis, these figures would be meaningless. However, a true business operation with "Balance Sheets" can readily gauge their trend by reference to these, or their own similar established operating objectives.

PERCENT EXPENSE, RATIO TO GROSS SALES (**)

Expense Classification	Desirable and Recommended Objectives	Maximum Limit, Consistent With Business Survival
1.) Salary and Payroll	37.0%	42.0%
2.) Inventory & Materials	15.0%	20.0%
3.) Truck and/or Car & Travel	6.0%	8.5%
4.) Miscellaneous (*)	12.0%	15.5%
5.) Employee Benefit Service Expense and Incentive Bonus	5.5%	8.0%
6.) Total Expense	75.5%	94.0%
7.) Gross Margin	24.5%	6.0%
8.) Gross Sales	100.0%	100.0%

Note: (*) This miscellaneous item includes the following: rent, building operating expense, telephone and telegraph, depreciation, office and shop supplies, advertising, postage, bad-debt write-offs, repeat calls under provisions of work guarantee, cabinet damage repairs and replacement, and provision for uncompleted calls and work, etc.

(**) These figures do not apply for the small one, two, or three man operations since payroll percentage will be much higher, and the inventory and materials, and miscellaneous, and employee benefit, service expense and incentive bonus must and should be lower. Most small operations, while growing, work on a salary return only with an overall gross plus, profit, as a future objective.

THE FUTURE OF TV SERVICE

It is believed the attached figures might be of interest and will furnish a starting point for some consideration

ervice
agement

M M A R Y

USSELL C. HANSEN
act Service Department, Motorola, Inc.

of the future possible service potential, as related to TV.

The probable growth of, and incidentally skilled service needs, of Hi-Fi, as well as home and auto radio installation and service have not been included in these hypothetical projections.

In the following notes is a discussion of some of these figures:

A) Table I is an estimate of *TV growth* to the end of 1959, on a national basis. These figures are of course subject to argument and no doubt should be reviewed, on a periodic basis, in the future for adjusted projections based upon actual production and sales figures.

I TELEVISION

Six-Year Estimate, to End of 1959

Instrument Estimate	Black & White	Color (**)	Total
Present (*)	28,000,000	None	28,000,000
End of 1954	5,000,000	200,000	5,200,000
End of 1955	4,000,000	1,000,000	5,000,000
End of 1956	3,000,000	2,500,000	5,500,000
End of 1957	2,000,000	4,000,000	6,000,000
End of 1958	1,000,000	5,300,000	6,300,000
End of 1959	1,000,000	5,000,000	6,000,000
	44,000,000	18,000,000	62,000,000

Notes: (*) 28,000,000 TV sets, Industry Figure as of the present.

(**) Codels Report of February 27, 1954 (Television Digest).

B) Table II is a conservative development of service call load. The 2.2 service calls used for B&W TV sets, annual average, is slightly lower than the present call average. In like manner the 10.0 calls for color is much lower than the present educated guess of many authorities in the field. Perhaps this, too, is high. However, in each case the conservative approach was attempted. There is some evidence of future improved receiving type tubes and other components. Then, too, just reflect upon the improved performance on a service expectancy basis per B&W TV instrument average effected from the beginning in 1947, to date.

II SERVICE REQUIREMENTS

Conservative Estimate—1959:

A. By 1959 we will have an estimated 62,000,000 television sets in use nationally.

B. At 2.2 service calls per B&W TV set (annual figure), on 44,000,000 sets we arrive at a figure of 96,800,000 service calls (conservative).

C. At 10.0 service calls for Color TV sets (estimated annual figure) on 18,000,000 sets we arrive at a figure of 180,000,000 service calls (conservative).

C) Table III covers manpower required on the basis of tables I and II estimates. The estimated call load per

(Continued on page 18)

Service Management

(Continued from page 17)

service engineer was arbitrarily placed at realistic high levels and hence may reflect a smaller total personnel requirement than actual conditions may call for. If so service prices must be adjusted, *UPWARDS.*

D) Table IV is a development of the probable service income, and relies upon the progressive and hypothetical figures covered in the above described tables. In passing, the B&W-TV income per average call may be considered by some as approximately one dollar low, and the Color-TV income may be low to the tune of two dollars per call. If so the gross income would then be $3,834,400,000 annually, in 1959, instead of the estimated $3,668,000,000 figure shows.

III SERVICE MANPOWER REQUIREMENTS

A. General Notes

1. The normal man work year on an eight-hour, five-day week contains 2,080 work hours.
2. Allow two weeks vacation (80 hours).
3. The productive work year then becomes 2,000 hours.

B. B&W-TV

1. Allow one hour per completed home service call (including travel time), or 2,000 completed calls per man per year (8 calls per day per man, complete).
2. At an estimated 96,800,000 B&W-TV service calls (on 44,000,000 sets in 1959) we arrive at a figure of 48,400 technicians required.

C. Color TV

1. Allow two hours per completed home service call (including travel time), or 1,000 completed calls per man per year. (4 calls per day per man, completed.)
2. At an estimated 180,000,000 Color TV service calls (on 18,000,000 sets in 1959) we arrive at a figure of 180,000 technicians (or service engineers) required.

D. Total Manpower Summary (1959)

1. **Technical, Service**

B&W-TV	48,400
Color-TV	180,000
Tech, Total	228,400

2. **Management, Supervisory and General Clerical**
Note: Since the technical staff is approximately 75% of the total service business group, we have a total of 76,133 persons in this non-technical class.
3. Technical 228,400
Non-technical 76,133

Grand Total 304,533 persons

IV PROBABLE SERVICE INCOME (1959)

A. General Notes

1. **B&W-TV** Note: We will assume an average cost of $10.00 per call, including labor and parts.
2. **Color-TV** Note: We will assume an average cost of $15.00 per call, including labor and parts.

B. Probable B&W-TV Service Income

1. Service calls	96,800,000
2. Income per call	$10.00
3. Total B&W-TV Income	$968,000,000

C. Probable Color-TV Service Income

1. Service calls	180,000,000
2. Income per call	$15,00
3. Total Color-TV Income	2,700,000,000

D. Television Service, Grand Total Income

1. B&W-TV	$ 968,000,000
2. Color-TV	2,700,000,000
3. Total	$3,668,000,000

GENERAL COMMENT

The intention in these figures is to stimulate some thought, not only as to the National Service picture, but also in the local potentials of the future. You work these up for your market.

You have heard of "degree saturation" in your market; however, just how much does that estimate mean? Years ago, we heard of that same thing as related to "Radio" but today how many radios do you have in your home, how many do your friends have? What's the average per home in your market? This, too, may be true of TV and perhaps on a more limited scale than the multiple radio set ownership, but it is a factor to consider in your dreams of the successful future of service.

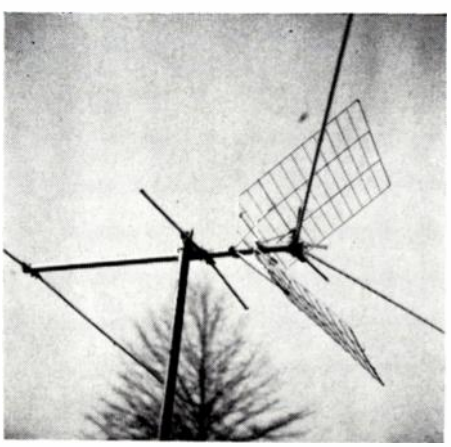
RUSSELL C. HANSEN.

SNYDER UHF-VHF ANTENNA

A problem of antenna design today is the development of a basic form that offers best optimum performance over the wide channel 2 to 83 frequency spectrum. It has been a common approach to modify a present VHF type to a combination VHF and UHF type.

Such an approach has only met with minor successes because of—poor UHF pattern (narrow and difficult to orient and with high susceptibility to reflections), loss of efficiency on the VHF band (broad pattern, loading, and tendency to smear), and poor UHF gain (standing waves and variable results from channel to channel).

A better approach to the all-channel antenna is to modify a UHF type for a VHF reception. This technique permits the modification of a high gain UHF antenna for VHF application and therefore does *not compromise antenna pattern and sensitivity on the UHF band.* VHF performance need be only sacrificed slightly as compared to the highest gain VHF types and is, in general, *better than the VHF results obtained when the VHF antenna type is modified for UHF reception.* Consequently, all channel performance is improved.



A typical all-channel type, figure 1, is developed by modifying a standard corner-reflector and bow-tie with the addition of a longer single-dipole that tilts out of the screen from the small UHF dipole. On the VHF band, the antenna functions as a broadband dipole (taper of UHF segment) and reflector with proper tilt to permit peak results on the VHF high band as well. High band gain is increased with separate high band reflector and reflector-action of screen as well.

Antenna can be stacked for fringe reception with tie-rod length optimized for all channel results.

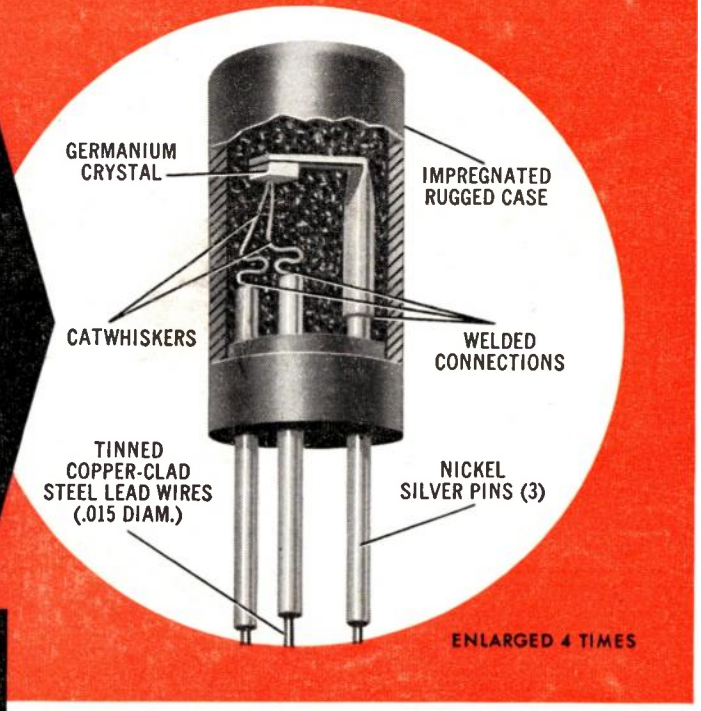
CBS-HYTRON TRANSISTORS

CBS-HYTRON PT-2A

ACTUAL SIZE

CBS-HYTRON PT-2S

- Moisture-resistant
- Plug-in or solder-in
- Sturdy triangular basing
- Polarized base connections
- Auto-electronically formed
- Thoroughly stabilized
- Operate up to 55° C



AND YOU CAN BUY THEM NOW!

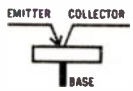
Already a major producer of germanium diodes, CBS-Hytron now offers you prompt delivery of transistors: Point-contact CBS-Hytron PT-2A (for amplifying) and PT-2S (for switching). Both have stable characteristics and are guaranteed moisture-resistant. Note flexible leads welded to base pins. You may solder flexible leads into circuit. Or snip them to use stiff base pins in CBS-Hytron type T-2 socket.

Triangular arrangement of base pins is stronger . . . avoids bent pins. Easy-to-remember basing layout simulates basing symbol (see diagram). Polarization makes socket connections foolproof. You are assured of uniformly optimum characteristics by electronic control of pulse forming. Thorough aging achieves maximum stability. You may operate these transistors up to 55°C. And you can order both CBS-Hytron PT-2A and PT-2S for immediate delivery.

MECHANICAL FEATURES

1. Single-ended construction gives maximum mechanical stability.
2. Rugged triangular basing design resists shock and vibration.
3. Dual-purpose connections permit use of flexible leads or stiff plug-in base pins.
4. Direct soldering of germanium wafer to base support guarantees positive contact, avoids flaking.
5. Glass-filled plastic case and high-temperature impregnating wax assure moisture-resistant, trouble-free operation.

BASING AND SOCKET

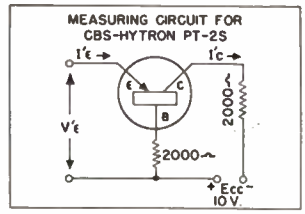


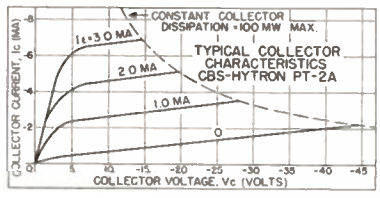
Transistor Symbol

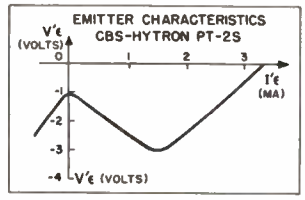
Basing Diagram (bottom view)

CBS-Hytron T-2 socket

Note similarity of pin layout to that of transistor symbol. CBS-Hytron type T-2 transistor socket features groove to guide pins into socket. Also anti-burn-out design to insure that base connection of transistor will always be made first.







CBS HYTRON

MANUFACTURERS OF RECEIVING TUBES SINCE 1921

HYTRON RADIO AND ELECTRONICS CO.

A Division of Columbia Broadcasting System, Inc.
Main Office: Danvers, Massachusetts

WRITE FOR DATA. Complete free data on CBS-Hytron PT-2A and PT-2S . . . and the T-2 socket . . . are yours for the asking.

RECEIVING . . . TRANSMITTING . . . SPECIAL-PURPOSE AND TV PICTURE TUBES • GERMANIUM DIODES AND TRANSISTORS

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your best buy, is

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NORTH BERGEN, NEW JERSEY

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How do most successful retailers make sales by the dozen? Read this!

Customers may be fresh, hard-boiled, or even slightly scrambled . . . but they're still customers!

And the more you coddle them, the better they like you!

So study the merchandise that pleases them. Notice the trusted brand names it wears. Then build your business on these brands, and see how much easier and quicker each sale becomes.

Make sure your customers are satisfied with every purchase. You can afford to be liberal in your returned-goods policy because you know that recognized brand-name merchandise is far less apt to come home to roost than unknown "clucks." And responsible brand manufacturers are proud to back you up in assuring your customers' full satisfaction.

Yes, make the most of recognized brands.

Write for free material that can help you establish your store as a *top brand names store* in your community. It's one good way to feather your nest and build a better business.

BRAND NAMES FOUNDATION
INCORPORATED
A Non-Profit Educational Foundation
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Win national recognition with a Brand Name Retailer-of-the-year Award!

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☐ PARTS JOBBER
☐ MANUFACTURER OF .....

COPY OF UHF TELEVISION TO BE SENT FREE OF CHARGE

TECHNICAL TOPICS

(*Continued from page* 20)

oriented for peak signal from the Philadelphia channels. With the use of the six-position orientation switch, peak signals were also obtained from channel 8 in Lancaster and local UHF channel 61.

A special three-wire UHF line was used with a 2" piece of foil to peak channel 61 at UHF antenna terminals.

SARNOFF

(*Continued from page* 14)

system between offices for checking papers and documents, between office, factory and warehouse, can now be realized economically.

CLOSED-CIRCUIT TV IN HOMES

One of the largest fields ahead for the use of closed-circuit television is the home itself. Closed-circuit sound systems are familiar to Americans. We think nothing of voice communication between rooms in the same house, between offices in the same building, between upstairs and downstairs. We are destined, I believe, to become equally familiar with closed-circuit systems of sight transmission.

When the cost of the camera attachments is sufficiently low to permit their use in the average home they may make the television receiver truly the control center of the home. The snap of a switch will turn the receiver from the broadcast program to view the children asleep in the nursery or at play in the yard, or the cooking on the kitchen range. The housewife will not only hear but see the caller at the door before she opens it.

As the science of electronics continues to unfold, new discoveries will be made, new inventions will be created and new products and service will be developed. This will steadily increase the size of the electronics industry, its importance for national defense and its value to the public.

SERVICE CENTER

(*Continued from page* 11)

Contract charges by Miller are $20 for 90 days to customers and accounts which furnish parts, and $30 for 90 days to drop-in customers. He handles many contracts for local retail stores, including those that maintain tube and part stocks in his shop.

CONTRACTS WITH RETAILERS

"Make a decent deal with any retailer in your community and he'll gladly stay out of the service business," Mr. Miller declares from experience, "for he's in business to sell sets and not to service them — and he would much rather keep it that way."

He believes many servicemen start their own shops before they "are ready" and feels that from six to ten years should be the minimum bench experience behind any service man going into business for himself. He also believes that if he can't "claim 500 possible customers in his area" he should never plunge into business for himself.

HANDLING CREDIT

"A wise shop owner will stay out of credit too," he continues, "for a service man is just like the family doctor — he can't reclaim the "merchandise" — and many customers know it.

"When we give credit over $20 on work and material, we always take a chattel mortgage on the set. It gives us a lien against that customer's set and also shows him that we mean business so that he'll give our account the same status he gives his automobile payments.

"In the several years I've used this the loss of business because of our lack of credit business has never balanced out what we would have lost through giving credit."

Another point in good business management: he believes many shop owners fail to recognize is taking advantage of discounts and buying opportunities by using cash — even if it must be borrowed from the bank to take advantage of special deals.

"See that you have the cash when you start ordering and you'll find you can make better deals," he advises, "as an example: here I've just bought 48 Channel 4 antennas at $6.00. They were quoted to me a week before at $12.40 in lots of 12. That's an exception because I found a jobber overstocked and needing the money quick. But not a day goes by in which we fail to take advantage of such discounts.

"I also believe it pays to give the majority of your parts business to one house and deal heavily with that house. I've checked over the past year and can trace a clear profit of $500 that I've made by following that course. It stands to reason that any supplier is going to work closer with a shop owner who gives him a goodly amount of business every month."

Mr. Miller buys for his own shop needs on a basis of two months advance stock. He has an average of $4000 invested in parts and tubes at all times.

TUBE SALES

"Never turn down a tube customer except on shortages," is another suggestion he has to make, "because tube sales can offset fifty per cent of your overhead costs. However, we never guarantee any tube purchase by a customer past our front door. You can be sure that when he comes in and asks to buy a tube just because you turn him down — is no sign he's going to bring his set back for repair."

Advertising is something he believes every service shop owner should give maximum attention. He spends an average of four per cent of his gross sales on advertising. His favorite medium is radio spot announcements, ten a day starting at 10 a. m. and going through until 9 p.m. After that time spots are worth little, he has found, because ninety per cent of a shop's business comes from older people who retire at or slightly after nine o'clock.

SIMPLE BOOKKEEPING

He also believes a shop owner should use the simplest type of bookkeeping. His requires minimum time and works like this:

Every paid out item is made by check which provides, on the stub and with cancelled checks, the record needed for all paid outs . . . no other record is necessary. Every sale is entered as labor, merchandise, and sales tax. Totals are run by the week, by the month, and finally by the year, so that compiling essential figures at the end of the year is a simple procedure.

"Checking them against each other and inventory shows, in the simplest possible way, just where we stand at the end of the year," he explains, "and it does away with complicated accounting systems which a service shop really doesn't need."

He believes every posting operation should be made as quickly as possible. He sets aside thirty minutes at the end of each day to take care of all bookkeeping chores, and thirty minutes at the end of each week to arrive at his weekly totals. "Keep it simple and keep it up to date all of the time," is his advice on bookkeeping.

SHOP OPERATION

The accompanying illustration shows features in Mr. Miller's shop. W. A. Hill is wearing a **Sylvania** protective mask. The TV chassis is on a special dolly which permits moving around the shop or up and down the bench as a part of the normal bench work.

A similiar bench has been constructed for car radio work. It can be rolled out through rear shop doors to parked cars at the rear of the shop. It contains a parts drawer below the bench level and may be slid into place in the main bench. It cost $400 to build but quickly paid for itself by making car radio repair work pay a much wider margin of profit than under old methods of bringing the set into the shop.

The entire bench is wired for 220 volts with 110 volts on each bank of four boxes. Heavy duty circuit breakers provide complete independence for each section of the bench.

These ideas have helped Cliff Miller build one of Missouri's most profitable radio and TV service shops.

ferent TV set requirements. Halldorson DF601 and DF602 yokes with the fifth lead feature are now being distributed at no increase in price. They are said to cover all 8.5 to 14 mh applications and to operate in over 80% of the TV sets in use.

Compact Portable Servishop

Radio City Products Co., Inc., 152 *West 25th St., New York* 1, *N. Y.*, has announced complete service shop equipment for radio-FM-TV housed in an attractive hand-rubbed oak carrying case that measures only 12½" x 12¾" x 4¾" which weighs only 12½ pounds. The servishop combines TV-radio-CRT tester model 730, an accurate 17-range vtvm, a stable fixed frequency generator and audio oscillator and instruments for test and reactivation of CRTs.

Heavy Duty Mast Base

Ward Products Corp., 1148 *Euclid Ave., Cleveland, O.*, has announced a new heavy duty mast base constructed of 12-gauge cadmium plated steel that is adjustable for mast diameters from 1¼" to 2¼". It is suitable for use on the roof pitch, side of a building, other flat surface or the ground. A rotatable feature permits mounting the antenna on its mast on the ground before raising the mast.

IRE

(*Continued from page* 19)

form a direct-coupled amplifier. The collector (output) of a p-n-p transistor can be connected directly to the base (input) of an n-p-n transistor and the power applied through the emitter of the first transistor. By this means, a long-chain direct current amplifier can be built. This circuit, which provides a high gain without coupling components, can be used to advantage as a d-c or pulse amplifier.

"The complementary symmetry of transistors finds an interesting application when it is applied both in cascading and for providing push-pull amplification. Such a two-stage, direct-coupled Class B amplifier does not contain any parts other than the transistors themselves when operating from a high input resistive source directly into a 16-ohm loudspeaker voice coil. This device, first demonstrated last November by RCA, has been improved to deliver several watts of audio power.

"Most transistors display another symmetrical property involving a single unit. This symmetry permits a current flow between the emitter and the collector in either direction and it is controllable by the base current. There is no comparable action in vacuum tubes since this would require an anode (plate) emitting electrons and a cathode (filament) accepting them. With transistors, however, units with high degree of symmetry can be constructed. This is particularly true for the alloying process of transistor making.

"The single unit symmetry has many interesting applications since it provides a fast bi-directional switch. A single symmetrical transistor can provide a sawtooth current with very high efficiency and with a minimum number of circuit components. A symmetrical transistor would provide a very simple clamp circuit for television and radar applications, a balanced modulator for multiplexers, and phase and FM detectors.

TV SET APPLICATIONS

In another paper presented, Mr. Sziklai with G. B. Herzog and R. D. Lohman, described studies of applying transistors to all portions of a television receiver except, of course, the picture tube. Complementary symmetry was found valuable in the receiver's audio system and the deflection circuits. The single unit symmetry was shown to provide a very simple automatic frequency control circuit. Circuits combining point-contact and junction transistors were found useful by the three-man team. Point-contact types were employed in the higher frequency circuits.

As a part of their research, the team built an experimental television receiver employing 37 transistors and a five-inch picture tube. The single-channel receiver, which is portable and has self-contained batteries, was shown in operation last fall.

Toy Piano

To explore other aspects of transistor circuits, a miniature electronic "piano" was built. About the shape and size of a pencil box, the device is battery-operated. When one of its eight keys is depressed it will sound a tone in a nearby radio receiver. It has a junction transistor oscillator and eight quenching circuits, one for each key, to produce a complete scale. Two tiny 1.35-volt batteries give the instrument an estimated playing life of 5,000 hours.

Transistor Ukelele

This device is similar in principle to an electric guitar except that transistors are used in a small amplifier that can be completely contained in the ukelele. Four experimental junction transistors are used in the amplifier. The speaker is mounted in the hole of the ukelele. A self-contained battery provides a life of more than 10 hours. A magnetic pick-up transfers the vibration of the strings to the amplifier. Unusually sustained notes can be obtained because of feedback provided by the close proximity of the speaker to the strings. The transistor amplifier and battery supply increase the weight of a one-pound ukelele to about four pounds.

Transformerless Power Amplifier

This entirely new kind of power amplifier consists of four experimental junction transistors mounted on a small tube socket. The transistors used are pairs of p-n-p and n-p-n transistors in tandem operation, utilizing unique transistor characteristics known as complementary symmetry. For many audio applications in radio, television and other sound reproduction equipment it appears that such a device can do the job that now requires two or more tubes, a phase inverter, an output transformer, and other components to amplify audio signals into a loudspeaker.

The same principle has been used in the audio amplifier circuits of an experimental portable TV receiver a FM receiver and the transistor ukelele. The principle is also employed in the vertical deflection circuit of the portable TV set.

INDUSTRIAL AUDIO

(*Continued from page* 16)

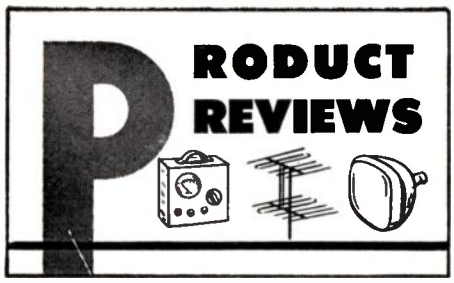
48% said that music helped their digestion.

89% said that music help them perform monotonous tasks.

77% said that music helped them to forget their worries.

These findings from the opinions of the medical profession, psychologists, university studies and factory workers make a pretty good case for audio in industry. They leave little room for doubt that industry can benefit from the use of music as a production tool.

However the degree to which industry benefits depends largely on the way music is put to use. Used indiscriminately, it cannot be expected to provide maximum benefits. In another article in this series, the application of industrial audio will be discussed from the viewpoint of program technique and selection of program material.



RMS Indoor Antenna

Radio Merchandise Sales, Inc., 2016 *Bronxdale Ave., New York* 60, *N. Y.*, has announced a new indoor TV antenna especially designed to avoid tipping or marring of the TV set cabinet. The antenna has a cast metal base finished in crackletone brown. Plastic inserts support its telescoping elements of polished brass or aluminum. The "NevaTip" antenna is distributed through parts jobbers.

Parts Storage Bins

Akro-Mils, Inc., P. O. Box 989, *Akron* 9, *O.*, has announced a new 128-drawer cabinet for parts storage. Model J-128 has a welded all-steel cabinet that is 30½" high, 25⅛" wide and 6" deep. Its transparent plastic drawers are 5⅞" long, 1⁷⁄₁₆" deep and 2¾" wide. They can be subdivided into two or three lengthwise or crosswise compartments. A built-in safety catch permits open drawers to hang out for easy access without pull-out. Other similar cabinets are available with 8, 12, 16, 24, 32, 48, 64 or 96 drawers.

UHF Converter-Booster

Blonder-Tongue Laboratories, Inc., 256 *North Ave., Westfield, N. J.*, has announced a single-channel uhf converter that may be easily mounted at rear of the TV set cabinet and flush with the top. It is reported to produce clear, sharp, snow-free pictures and to provide more than 17 db gain with low noise factor. High gain and low noise level should make type BTU-1 "Ampliverter" ideal for dealer demonstrations and use in homes in fringe or other weak signal areas. The converter-booster has input terminals for uhf and vhf antennas.

Wide Angle Loudspeaker

University Loudspeakers, Inc., 80 *Kensico Ave., White Plains, N. Y.*, has announced a wide-angle trumpet type loudspeaker with a pair of exponential horns providing twin air columns in a single assembly. The improved construction of the loudspeaker is said to retain full efficiency by permitting the wave fronts to form a uniform arc in a smooth radiation pattern that is free from cancellations in cellular and multi-mouthed horns. The wide angle of sound dispersion attained is 120 degrees horizontal and 60 degrees vertical. The loudspeaker, designated as Cobreflex-2, was designed for use in fixed or mobile installations for public address, industrial sound and two- or three-way high fidelity applications.

Plug for Industrial and Military Equipment

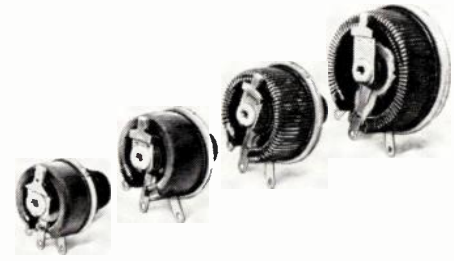
Switchcraft, Inc. 1328 *N. Halsted St., Chicago* 22, *Ill.*, is producing a three-conductor plug that features a one-piece tip rod assembled with sleeve, dead ring and ring sleeve in mold inserts so that continuous thermo-plastic insulation is provided between all metal parts. Littel plug JAN type PJ-068 has a .2065" diameter sleeve to mate with JAN-033 jacks. It is furnished with three tinned terminals fastened by screws.

High Fidelity Amplifier

Precision Electronics, 9101 *King Ave., Franklin Park, Ill.*, have announced a new high fidelity amplifier that is reported to provide eight-watt power output with a peak of eighteen watts. Distortion at eight watts is 1½% harmonic and 4% intermodulation. Frequency response is plus or minus 1 db, 20 to 20,000 cycles at the three-watt level. The amplifier features selector switches for radio channel to magnetic pickup or microphone, crystal pickup connected to radio input, volume control, treble control with 18 db attenuation at 10 kc, bass control with off-on switch and 15 db boost at 50 cycles.

Portable Kilovoltmeter

American Research Corporation, 1504 *11th St., Santa Monica, Cal.*, has announced a low cost high voltage probe that is particularly suitable for television servicing use. The new probe, which may be easily carried in the pocket, enables measurement of accelerating d-c voltages on picture tubes operating in the 4,000 to 25,000 volt range. The probe is ten inches long and self-contained. Measurements can be taken without removal of picture tube or chassis from the TV set cabinet. The probe may also be used as a r-f indicating device for check of high voltage oscillator and other circuits.



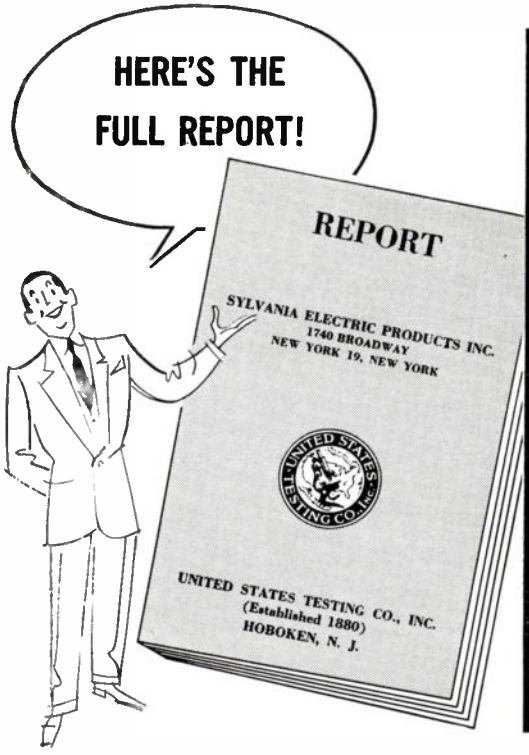
New Rheostats

Tru-ohm Products, 2800 *Milwaukee Ave., Chicago* 18, *Ill.*, have announced the addition of three new power rheostats that feature extra deep ceramic cores with resistance wire torroidally wound and bonded with vitreous enamel. This design is said to provide better heat dissipation and more conservative ratings in 50, 75, 100 and 150 watt sizes.

New Deflection Yokes

Halldorson Transformer Co., 4500 *No. Ravenswood Ave., Chicago* 40 *Ill.*, has announced new deflection yokes incorporating a fifth lead for external network control which is reported to provide RC network flexibility. The fifth lead is interconnected with components of the yoke to provide external rearrangement of the network to suit dif-

SUPERIOR PERFORMANCE OF SYLVANIA PICTURE TUBES NOW PROVED BEYOND ALL DOUBT



LIFE TEST MAGNETIC TUBES
United States Testing Company
Hoboken, N. J.

Test No. E-5526
Date 10-11-52
Engineer A.S.M.

Mfr.	Tubes Tested	Tubes Failed	Point Quality
A	8	3	76
B	8	4	79
C	8	6	62
D	8	4	74
E	8	4	67
F	8	5	42
G	8	4	52
H	8	5	30
SYLVANIA	8	0	93

Exhaustive tests by United States Testing Company prove Sylvania Picture Tubes out-last, out-perform all others tested!

• Hour after hour for over 1,400 consecutive hours, Sylvania Picture tubes were tested side by side with tubes of 8 other manufacturers. The chart at right tells the remarkable performance record. Note that only Sylvania Picture tubes showed no failures. Here's the conclusion of the U. S. Testing Company Report: "On the basis of an ultimate Life Test Evaluation of the eight tubes of each brand tested, it can be concluded that the averaged overall qualities measured on the Sylvania Tubes were superior to the averages of the other brands tested."*

*United States Testing Company, Inc., Test No. E-5526.

We'll be glad to send you full details of this report. Send your request to Sylvania Electric Products Inc., Department 3R-1304. 1740 Broadway, New York 19, N. Y.

SYLVANIA

RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; FLUORESCENT LAMPS, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; PHOTOLAMPS; TELEVISION SETS

TECHNICAL TOPICS

(*Continued from page 9*)

5. Use a 2" piece of tin-foil on line to UHF antenna terminals. Foil is not as effective on the heavier UHF lines. For this type add an extra one foot length of ordinary flat line between UHF antenna terminals and the UHF line. Tune this section of line with aluminum foil, Fig. 1.

6. Attach an 8" length of aluminum foil on the line that runs between UHF device output and VHF antenna terminals of receiver.

7. Do not attach any type of isolation coupler where you are attempting to develop the very strongest UHF signal possible. A separate well-planned UHF installation is the best approach at present.

BROADBAND YAGIS FOR VHF-UHF INSTALLATIONS

The broadband Yagis developed by a number of manufacturers are steadily growing in popularity in fringe areas because of their good gain and purer patterns. In most fringe locations of today a number of low and high band channels can be received because of recent additional VHF grants and general power increases. This type antenna con-

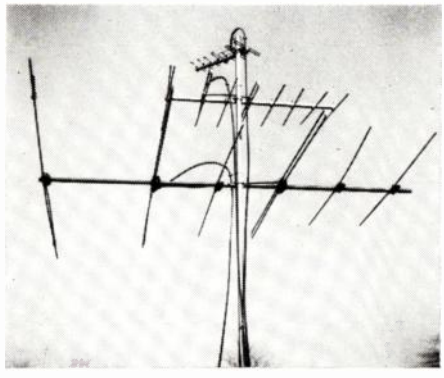
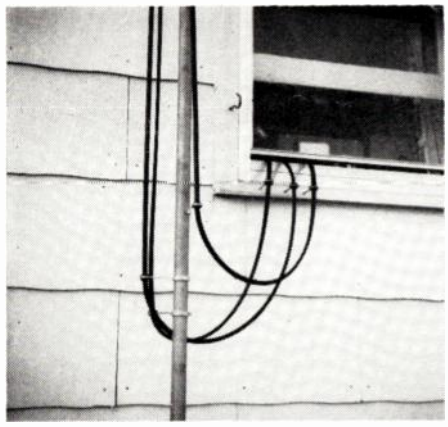


FIG. 2. *Broadband Yagi Installation.*

struction is best suited to overcoming co-channel and adjacent channel interference because of better front-to-back ratios and absence of other lobes. In addition, the use of a Yagi on the high band overcomes the multiple-lobe problems encountered with the ch 2-13 VHF antennas on the high band — a type of pattern particularly conducive to signal interference.

The presence of a UHF allocation and its preferred separate installation adds further attractiveness to the Yagi installation. A typical peak performance Yagi installation for fringe New York reception is illustrated in Fig. 2. It consists of low and high bank Yagis oriented toward New York from an area directly north of Philadelphia that is served by local channels 3, 6, and 10. Adjacent channel interference from locals and co-channel from Baltimore and Washington are held to a minimum.

A UHF Yagi tops the array and permits reception of a faint picture from channel 61 in Reading 60 miles away and anticipates reception of channel 33 from same city but with transmitter only 44 miles away. Signal levels are watched from channel 61 and influence of spring and summer variables is to be recorded.



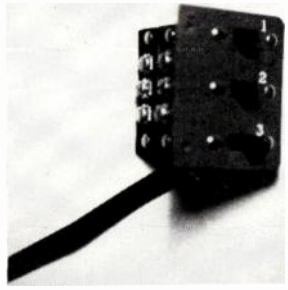
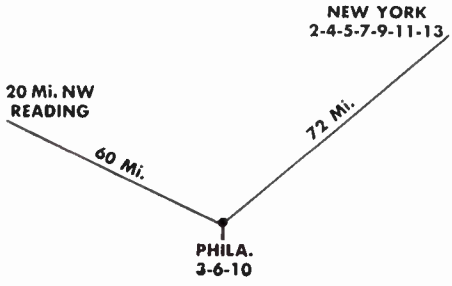


FIG. 3. *Yagi Line Input and Antenna Selector Switch.*



Reception Ranges for Yagi Installation.

Separate high quality lines are installed and a low capacity slider switch, Fig. 3, is used to select proper antenna at receiver or where lines enter house.

A DIRECTRONIC VHF-UHF INSTALLATION

A special switched-antenna system installation was made in Reading to test its potential. Reading receives fringe area signals from channels 3, 6, and 10 in Philadelphia and channel 8 from Lancaster off in a different direction,

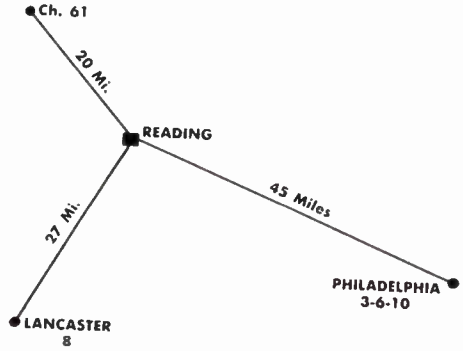


FIG. 4. *Directronic Reception Ranges.*

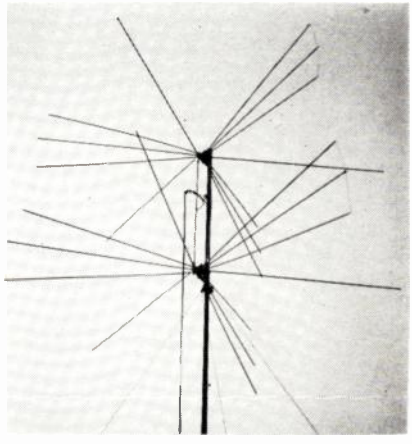
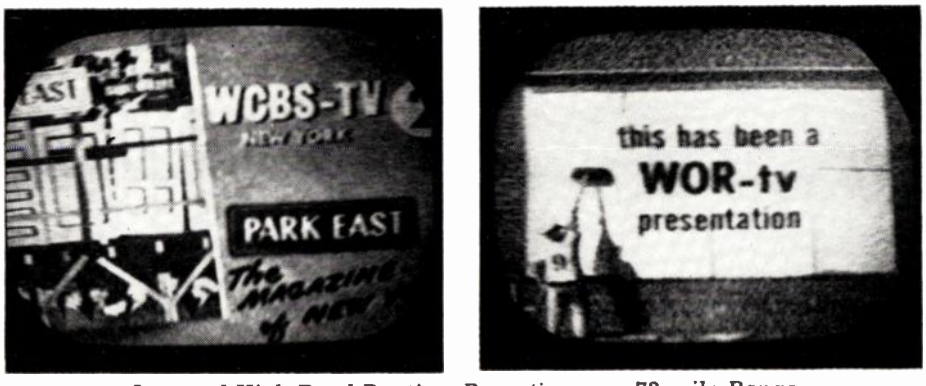


FIG. 5. *Snyder High Gain Directronic.*

Fig. 4. Its present UHF station is off in another direction and a second station coming on the air has its transmitter at still another angle. A new higher gain Directronic, Fig. 5, was installed and

(*Continued on page 24*)



Low and High Band Daytime Reception over 72-mile Range.

NEWS BRIEFS

(*Continued from page 7*)

help dealers push sales of radio and television tubes; is sponsoring a national advertising campaign for its room air conditioners; has announced the acquisition of the Cambridge, O. plant of the Continental Can Co. for production of phonographs, record players and record changers; presented an animated demonstration of its new reflection-free metal-shell picture tubes at the IRE Radio Engineering Show; has made Teleprompter service available in Hotel Statler, New York . . . **SAMSONS** of Milwaukee has been named Brand Names Retailer-of-the-Year in the electrical appliance field . . . **SPRAGUE ELECTRIC CO.** reports 1952 sales of $44,449,891, up $5,958,676 . . . **SYLVANIA ELECTRIC** reports 1952 sales at a new peak of $235,023,437, a gain of 16 per cent over 1951 . . . **VICTORIA SALES CO.** of Chicago has been appointed Radio Merchandise Sales representative for Illinois and eastern Iowa . . . **W. N. WELLMAN CO.** of St. Louis has been named Radio Merchandise Sales representative for Iowa, Kansas, Missouri and Nebraska . . . **WESTINGHOUSE ELECTRIC** recently held open house at its tube division's Elmira and Bath, N. Y. plants.

TICO

(*Continued from page 7*)

automatic garage door openers. Unlike remote-control wiring, which should be installed during building construction to avoid high costs, the automatic garage door opener can be installed at any time.

The equipment consists of a tiny fixed-frequency radio transmitter in the car and a receiver in the garage that operates a relay for control of motor-operated doors. Signals from the transmitter, which may be as far away as half a block, are picked up by the receiver in the garage. The system eliminates the possibility of operating other garage doors by use of individual frequencies. The equipment is designed for sequential opening and closing of doors without manual control.

Provision is also made to assure safety to children or objects that may block door movement. An overload relay will interrupt operation if doors come in contact with people or objects.

Orders for remote-control wiring and automatic garage door openers are beginning to pile up on Ed Ross' desk at TICO. These orders call for work during the late Spring and Summer of 1953. They make him and other men at TICO feel very confident that they have found a practical way to eliminate the summer slump and build new business and more profits in years to come.

IMF TUBE

(*Continued from page 5*)

be used to increase this range.

Mr. Roark said that the tubes using the new gun will "have all the advantages of magnetic focusing and none of the disadvantages or costs associated with present magnetic focus tubes."

He pointed out that variations in picture tube anode voltage will not affect the quality of the picture focus as much as it does with present magnetic tubes. The gun will provide a clear focus over the entire face of the screen within the rated anode voltage range.

IRE

(*Continued from page 18*)

units the emitter-collector current flow (output) will increase in one and decrease in the other. A pair of these units fed from the same signal will provide a single-ended, push-pull output of value in audio and other power amplifiers. Such a transistor circuit needs no transformer or phase inverter.

D-C AMPLIFIERS

"Another application of p-n-p and and n-p-n transistors in combination is the use of two complementary units to

(*Continued on page 23*)

NARDA

(*Continued from page* 10)

he addressed. The Farr-Bernsohn team perfected the several NARDA services that previous administrations had wisely initiated and worked untiringly to get the NARDA story across to dealers in every section of the country.

STANDARDIZED ACCOUNTING METHODS

Their activities were ably abetted by officers and directors like Harry Price, of Price's Inc., Norfolk, Va., whose frank discussions of the management practices and philosophies that made retail merchandising history in the success of his company are an education to every businessman who hears them; Ken Stucky, of Ft. Wayne, Ind., whose committee work on the standardization of radio-appliance dealer accounting methods will solve some tricky problems for NARDA members; F. L. Monette, of Lowell, Mass., whose insurance committee has been able to provide NARDA members with the most desirable 'full package' group insurance program available anywhere; and many other outstandingly successful radio-appliance retailers who have realized the gains they have made through active NARDA membership.

FOURTEEN POINT PROGRAM

Currently NARDA services to its members include the following:

1. Costs - of - Doing - Business Survey (An annual study)
2. Appliance & Radio Dealers News. A weekly time-saving digest of news of vital interest to dealers.
3. Official NARDA Trade - in Blue Books. Appliance and TV.
4. Personal service to members.
5. Legislative activities on national, state and local levels.
6. Development of more harmonious manufacturer and distributor relationships.
7. Annual Industry Directory.
8. Truth in Advertising campaigns in cooperation with BBB's.
9. CTIS (Certified Television Installation and Service) program.
10. Group insurance available to all NARDA members.
11. Dealer and Service Aids.
12. Assistance to local Dealer and Service Groups.
13. State and Divisional Meetings in cooperation with local groups.
14. Semi-annual national conventions.

NARDA members have long recognized that the best interests of the independent service busines operators and those of the radio-appliance dealers are parallel. Bad consumer feeling toward service affects the retailer just as much as it does the service businessman. Manufacturers' programs that cause confused set owner thinking about service needs are just as harmful to dealers as they are to service operators.

COMMITTEE ON SERVICE

One of the first acts of the NARDA Board of Directors under their new president, Wallace Johnson, of Memphis, Tennessee, was to establish a Committee on Service. As chairman of this committee the Board selected Harold E. Chase, president of the Chase Television Service., Inc., of Detroit and president of the Television Service Association of Michigan, Inc.

With a capable staff available to them in the NARDA national headquarters in Chicago, the hundreds of major service operators who are now members of NARDA feel that by joining forces with the dealers they can create a healthier business atmosphere for service on local and national levels.

As chairman of the Committee on Service Mr. Chase will be able to contribute a wealth of successful experience from the fine industry service programs that have been originated and carried out by the Television Service Association of Michigan.

GM WILL MARKET

(*Continued from page* 4)

United Motors warehouses are already stocked with TV picture tubes. The antenna line, which will include indoor and outdoor types for VHF and UHF reception, will be warehoused as quickly as possible.

Other United Motors sales and service policies and methods used in the automobile parts field will be extended to electronics distributors.

Sales promotional material including catalogs, window streamers, signs and other point-of-sale aids will be supplied to electronic parts distributors' service dealers. Service schools in cities across the country for the personnel of the distributors' service dealers are a regular part of United Motors sales and service promotion. Price lists and full service information are continually available. And all of this is backed up by a well planned advertising campaign.

The line of electronic parts includes cathode ray and electron tubes, antenna chimney mounts, roof mounts, mast bases, downlead and guy wire, receiving tubes, speakers, controls, vibrators, resistors, capacitors, power and audio transformers and miscellaneous hardware.

PEOPLE AND PLACES

(*Continued from page* 2)

ROLLANDET was the outstanding salesman for Brach Manufacturing Corp. during 1952. . . . **CHARLIE SARGENT** is now sales manager for the Lake Service Corporation, Brighton, Mass. . . . **HENRY A. TALASKE** of Harper Music Shop, Detroit, won the top prize in the recent contest sponsored by Jensen Industries, Inc. . . . **SAM WARDEN** has been promoted to general manager for Meyer's Electronics, Inc., Bluefield, W. Va. . . . **SYLVAN A. WOLIN** has left Pyramid Electric Co. to operate his own advertising agency.

IRE

(*Continued from page* 15)

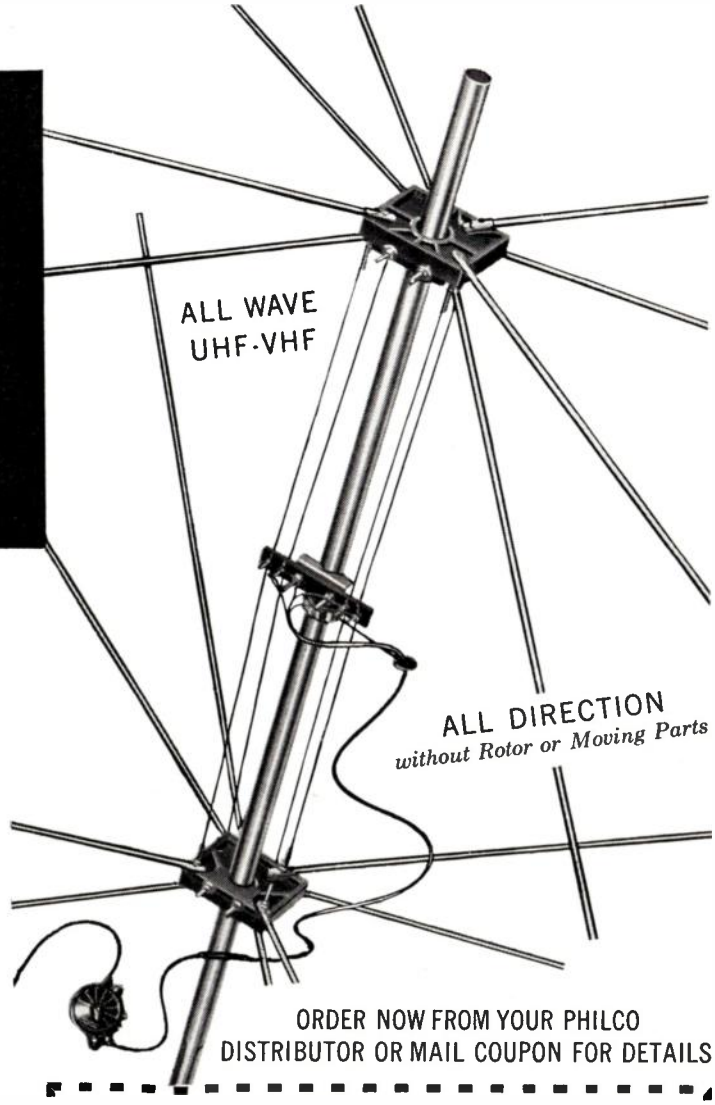
(positive electrons) would form a counterpart of the conventional electron tube emitting electrons (negatively charged).

"The property may find a number of uses. As the base current (input) is changed in the same direction in both

(*Continued on page* 19)

10 TIMES MORE POWERFUL THAN STACKED 10 ELEMENT YAGIS

PHILCO *All-Purpose TV Antenna*



NEW Design and Principle

By far the most powerful TV antenna on the market today . . . a sales value unsurpassed at its popular price. With the mere flip of a switch this exclusive all-purpose Philco antenna without rotor or moving parts of any kind instantly and automatically beams the set to the best possible signal for both UHF and VHF reception. No attenuators are necessary in strong signal areas since an off position of the switch will automatically attenuate the signal. Available in preassembled aluminum dowel reinforced elements of single bank and stacked arrays for metropolitan and fringe areas at your Philco distributor now.

ORDER NOW FROM YOUR PHILCO DISTRIBUTOR OR MAIL COUPON FOR DETAILS

Up to 22.3 DB Gain over Tuned Dipole

DB GAIN OVER A TUNED DIPOLE CUT FOR EACH CHANNEL FREQUENCY

		2	3	4	5	6	7	8	9	10	11	12	13
Single Array		7.8	14.0	6.7	-1.7	16.3	2.5	6.0	9.6	12.1	10.8	15.0	12.8
Gain Chart	36"	18.8	3.5	7.4	17.3	0.0	-1.3	6.0	8.4	11.5	13.0	12.5	13.0
using	45"	6.5	14.3	6.0	-6.0	18.6	6.7	8.5	18.2	18.1	13.2	14.3	14.5
different	60"	5.8	2.2	9.6	-1.0	-2.0	1.5	-4.0	10.3	4.0	15.4	7.0	15.5
spacing	82"	8.4	15.5	13.0	10.5	21.3	3.0	14.0	-2.0	1.6	10.0	6.0	6.0
between	98"	2.5	8.0	9.5	-4.5	17.0	6.0	2.0	4.0	1.0	10.0	7.0	3.7
two single	114"	21.0	19.0	7.4	22.3	0.0	6.0	8.2	10.4	11.5	14.0	14.1	14.3
arrays	122"	7.4	17.0	13.4	2.5	21.5	8.5	17.3	16.2	12.1	14.8	15.6	10.5

The above tests were made using a 40-foot lead-in. However amazing results have been obtained on installations using a lead-in up to 150 feet without any appreciable difference in gain. These tests were made in real fringe areas.

For maximum gain in outer fringe areas, orient the antenna for the weakest channel desired. Location will determine the number of elements to be used.

PHILCO CORPORATION, Accessory Division
Allegheny and A Streets
Philadelphia 34, Pa.

Please send me information about the Philco All Purpose Antenna, with current trade price list.

NAME.....

STORE NAME.....

CITY.....ZONE.....STATE.....

Please check in space below

I am a Retail Dealer ☐ I am a TV Serviceman ☐

PARTY LINE

(*Continued from page* 13)

PHILADELPHIA, PA.

The Television Servicing Dealers Association inaugurated its first public relations program with a half hour broadcast on station WIP. Louis J. Smith, vice-president of TSDA, with the assistance of Miss Mary Biddle, staff announcer for the station, presented a question and answer forum concerning daily questions and problems that the consumers continuously make for TV Service dealers. It met with such success that the organization has made arrangements for the continuance of similar programs on radio and television.

HARRISBURG, PA.

The Federation of Radio Servicemen's Associations of Penna. met in Harrisburg with over 65 delegates representing 20 technicians and service dealers associations from surrounding states to honor the **General Electric Company** at a luncheon presentation.

The annual Federation award was presented to the **General Electric Co.** "for their initiative in providing a public relations program in behalf of the independent television technician." The award was received by Mr. John T. Thompson, sales manager of General Electric Replacement Tube Department, on behalf of the **General Electric Co.**

Monthly business-dinner meeting of TSA in Detroit Leland Hotel.

Mr. Thompson in his acceptance speech, outlined the results of the General Electric 1952 public relations program and then outlined the 1953 program and many of its fine features that will help the entire servicing industry — in their public acceptance and in the merchandising of TV Service.

Mr. Bert Bregenzer, head delegate of the Pittsburgh Radio Servicemen's Assn. to the Federation, made the presentation.

Two Pennsylvania industry organizations have been addressed by Mort Farr during the last few weeks. On March 27 he spoke before the Berks County Appliance Dealers Association at Reading, Pa. On April 13, he will address the regular luncheon meeting of the Electric League of Western Pennsylvania in Pittsburgh.

NEDA

Arrangements for a full-scale educational program with financing of expanding distributor operations and ultra high frequency as the keynotes are now underway for the Fourth Annual Convention and Manufacturers' Conference sponsored by the National Electronic Distributors Association to be held September 14 to 16 in St. Louis, Missouri.

The Industry Committee met with Convention Chairman Aaron Lippman for a dinner-meeting in the Chase Hotel, St. Louis, which is also the headquarters for NEDA's 1953 Convention.

Assisting Mr. Lippman are co-chairmen Les A. Thayer, Chicago, Ill.; Jerry Kirshbaum, Elmhurst, N. Y.; and Sam L. Baraf, New York City, who is also chairman of the Manufacturers Entertainment Committee.

NEDA President, W. D. Jenkins, Radio Supply Co., Richmond, Va., reports that it was unanimously agreed by the Committee that NEDA give prominence to UHF, how it affects the parts distributor, what opportunities UHF offers him and his service dealers, etc. Demonstrations, lectures and panel discussions will feature technical experts representing all phases of UHF and financing so that final, up-to-the-minute reports and discussions are offered the convention guests.

National Carbon Co. and **Burgess Battery Co.**, two of the major battery producers, now include NEDA the battery numbers in their interchangeability charts, announces George Wedemeyer, chairman of NEDA's sub-committee on batteries.

The Burgess Battery Co., was the first manufacturer to specify NEDA numbers in response to the request made by the Association's Battery Committee.

The new Eveready Battery comparative stock numbers chart issued by the **National Carbon Co.**, lists NEDA battery numbers in the column adjoining Eveready numbers.

Montgomery Ward Co., has listed NEDA numbers in their battery chart appearing in the spring-summer catalog, and has included an explanatory paragraph regarding the Association's object and accomplishment.

Several other manufacturers have indicated their appreciation of NEDA's contribution to the industry and are considering NEDA numbers for future interchangeability lists.

Members who served on the committee during 1952 included co-chairmen Byron C. Deadman, Floyd C. Reason, Harry D. Stark, Thomas H. Brown, and Crandall Lassaux.

The Northwest Chapter of NEDA announces the following newly elected officers: president, Lloyd R. Norberg, Tacoma, Wash.; Earl H. Grulke, Portland, re-elected secretary-treasurer; H. Tory Horn, Seattle, Wash., national chapter director; and Roger Fjelstad, Seattle, alternate director. District chapter directors are Harold M. Barthel, Verl G. Walker, and M. G. Baker.

Can You Top This?

Customer called up, evidently having trouble with interference, and said, "My television screen, she looks like a zebra with the hic-cups!"

INDUSTRIAL AUDIO

(*Continued from page* 13)

than 0.5 per cent — when audio programs were installed.

It can be observed that in every one of these studies, the use of music had a beneficial effect on workers which was reflected in increased production efficiency without consciousness on the part of workers. What happened is proof that music in an industrial application, does help to alleviate boredom and so balances out some of the disadvantages of modern industrial technique to human efficiency.

WORKER'S REPORT

So far we have reported observations of what happens without saying anything about how the worker feels about industrial audio music. It may therefore be of interest to review the findings reported by Willard A. Kerr after soliciting the opinions of 229 radio workers:

64% said that music improved their feelings for fellow workers

93% said that music helped them when they were tired.

79% said that music soothed their nerves.

(*Continued on page* 23)

RADIO ENGINEERING SHOW

ict Applications Beyond Those of Electron Tubes

James W. McRae, president of IRE outlined new fields for electronics through transistor development.

G.E. REPORTS AT I.R.E.

The General Electric Company demonstrated a new hermetically - sealed junction transistor, said to eliminate temperature and humidity restrictions which have prevented wide use of transistors in commercial and military electronic equipment.

The G.E. engineers said the new transistor operates efficiently in temperatures as high as 212 degrees F. and under the most adverse humidity conditions, a feat they predicted will speed its commercial and military applications.

To demonstrate these points, G.E. operated a pre-production model of the new transistor in a jar of boiling water. The tiny unit was the heart of a small radio transmitter, perched atop the jar. Its transmissions were received by a table model radio a few feet away.

The development of the new transistor has been conducted by G.E. under a contract with the Air Force, Signal Corps and Navy. Automatic machinery for its production is being developed under a Signal Corps contract.

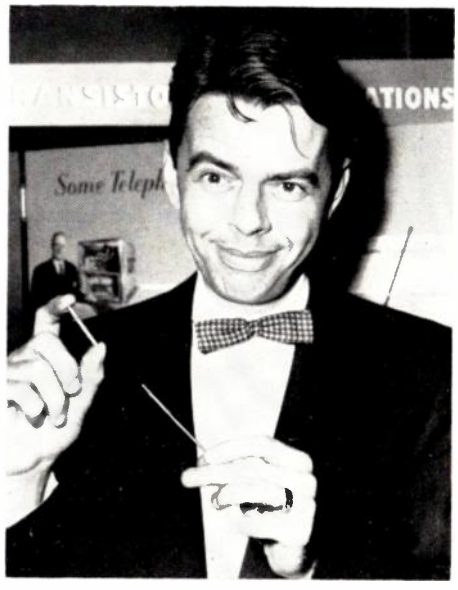
Small quantities of the new transistor will be made available to development laboratories and engineering groups within a few months. Mass production is scheduled for this fall at the germanium products plant at Clyde, N. Y.

Military electronic equipment must operate under temperature and humidity conditions anywhere on earth, or in the air, and therefore must use components capable of functioning reliably at all times.

This is also true of some commercial electronic equipment. For example, two-way radio equipment, operated by police and fire departments, is installed in the trunks of cars. Temperatures may reach 140 degrees F. with proportionately high humidities.

First use of the new transistor is expected to be in military electronic equipment, particularly communications and radar devices.

Early commercial uses are expected to be in hearing aids, automobile and portable radios. Use of the new transistor will permit operation of auto radio direct from 6- or 12-volt batteries, without vibrators.



Some transistorized devices are toothpick size.

TRANSISTOR PRICES CUT

Transistor price reductions averageing 66⅔% and the availability of two new types were announced by Federated Semi-Conductor Co.

Both new transistor types offer much higher current sensitivities than the previous type. They provide new tools for research, electronic instrumentation; and control in the fields of medicine, nucleonics and industry.

Of the two new transistors, one, the RD2525, has a minimum Alpha of .99 believed by Mr. Weiss to be the highest Alpha figure ever made available commercially. It is recommended for grounded emitter operation. The other new unit, the RD2520 with a minimum Alpha of .95, recommended for grounded base operation.

TRANSISTOR MEASUREMENT

The Burroughs Adding Machine Company's Research Activity in Philadelphia presented, through its new Electronic Instruments Division, the Burroughs Alphabetameter, a laboratory test instrument which presents transistor current gain through oscilloscope techniques.

The Burroughs Alphabetameter is a by-product of the study of applications of transistors, which may be used in future business machine equipment.

Knowledge of the behavior of transistor current gain throughout the entire operating range is important in the design of both small signal and switching type circuits; in quality control and life test operations; and in transistor development evaluations. The Burroughs Alphabetameter provides a rapid and convenient means for studying and evaluating the current gain behavior of transistors.

The Alphabetameter is assembled on a single 3" by 19" rack panel and will soon be part of a standard line of pulse control apparatus being marketed by Burroughs Electronic Instruments Division.

RCA REPORTS AT I.R.E.

Research has revealed unique properties of transistors which allow them to perform tasks in circuits impossible with electron tubes and which promise wide potentialities for simplified electronic equipment, George C. Sziklai, of the David Sarnoff Research Center of RCA, reported.

Such transistor characteristics, which also point to entirely new kinds of electronic circuits, have been named "symmetrical," Mr. Sziklai said. In some cases, he said, transistor symmetry is put to work by using n-p-n and p-n-p transistors in the same circuit where their performance might be likened to a right-handed and a left-handed glove; i.e., they are alike, yet reversed. In other cases, single transistors will often have symmetrical properties since they can completely reverse the direction in which they control current flow, he explained.

"The first kind of symmetry may be found in the complementary characteristics of n-p-n and p-n-p transistors as these types are being designed by RCA," Mr. Sziklai said. "One is the symmetrical counterpart of the other, as an imaginary triode emitting positrons

(*Continued on page* 18)

REPORTS FROM THE 1953 IR

Transistors Hold the Spotlight While Engineers P

Excerpts from an address by David Sarnoff, chairman of the board, Radio Corporation of America

A CHALLENGING ART

On an occasion such as this it is tempting to conjure up the old days of wireless that live in memory and compare them with the Electronic Age in which we now live. But this is no time for nostalgia. It is in the nature of our life's work to look forward not backward, except to pay tribute to those pioneers who made it possible for us to meet here in 1953.

The latest advances in microwaves and color television, in electron tubes and transistors now attract you to study and discussion. These potential developments brighten your destiny. At no time have radio and electronic engineers been in greater demand. Today they are soldiers of science, defenders of the flag. They are in the front line that bulwarks progress and prosperity.

It is fitting that we salute today's engineer who is being led into new dominions of science and industrial accomplishment by the challenge of the electron. His is a future that is fascinating and promising. Even our wildest dreams cannot encompass all the possibilities open to the radio-electronic engineer in the years ahead.

NEW FIELDS

Between now and 1960 — and that is only seven years away — great changes in industry will take place as a result of developments in solid-state electronics. Indeed, the vacuum tube is approaching its 50th anniversary confronted by a mighty competitor — the transistor.

Present day electronic devices, instruments and systems will be transistorized. This new tool of science will widen the usefulness of electronics. It will spread its applications into many fields which the electron tube has not been able to serve.

HOUSEHOLD PRODUCTS

Within these next few years we should not be surprised to see electronic appliances find their way into the home. Air-conditioners, using electronics, eliminating motors, blowers and compressors, and therefore noiseless in operation, may lead a mighty procession of household products to new markets.

BUSINESS MACHINES

Industrial electronics offer many opportunities for substantial development and expansion. It will revolutionize many phases of business, especially within large organizations. For example, electronic computers can translate, process, compute, store and print pertinent facts and information. They simplify the task, greatly increase the efficiency and perform the functions of an accounting system with utmost speed and accuracy.

Electronics will change clerical operations, relieve men of routine and drudgery and effect enormous savings in time, money and materials. The world of business machines is ripe for electronics.

INSPECTION DEVICES

Electronics can also serve in other directions. It promises new aids to health, safety and better living. There are countless applications for the development of inspection methods to insure the highest purity in liquids, vaccines, drugs and all bottled beverages, including milk. Electronics becomes the foe of impurity and contamination in all bottled, packaged or canned products.

AVIATION

Another important area for further development and expansion of electronics is aviation, especially in communication and radar. Electronics is the pilot of the robot plane and the hand that guides the missile. Recently the Army exhibited a new rapid-fire radar-controlled anti-aircraft gun, which is an electronically guided artillery weapon that searches out and hits with deadly accuracy a hostile aircraft in any weather and destroys it at altitudes up to four miles.

INDUSTRIAL TELEVISION

In a few short years we have seen television develop into a major factor in American life. Its extraordinary potentialities for political education, cultural instruction and entertainment have been amply demonstrated. However, many other applications of television's basic function — extension of human sight — are ready for practical use.

Thus far, the phenomenal growth of broadcast television has overshadowed these other applications which operate over closed-circuit systems and constitute the growing field of industrial television. The opportunities for expansion of television in this field are wide.

Wherever danger, remoteness or discomfort preclude the presence of a human observer, the industrial television camera can take his place. Handling of explosives, pouring of castings, watching the operations of furnaces and remote power sub-stations are examples of television's usefulness to industry.

As yet only a negligible fraction of the potential of industrial television has been tapped. The major obstacle has been cost. That obstacle is being overcome by light-weight equipment. The dimensions of industrial television may surpass the growth in broadcast television we are now witnessing.

Tomorrow we will demonstrate a much simplified closed-circuit television system, which provides a vidicon camera attachment for a standard home television receiver. The simple attachment is connected as easily to a television receiver as a record-player and does not affect the normal use of the receiver in any way. With the addition of this camera unit everyone of the 23,000,000 television receivers now in use becomes potentially a closed-circuit system for schools, the home and other places.

TV IN SCHOOLS

Schools, in which television sets are becoming more and more a standard classroom fixture, many employ their TV sets to bring talks and demonstrations to the entire school or to selected classes, without the loss of time or the confusion attendant upon a call to assembly. On college campuses the linking of the lecture halls by television will permit exchange of instruction between departments, adding to the variety and interest of the courses. In biological research and technical education, this form of television has proved a valuable tool.

The availability of a simple closed circuit system will put the television microscope as a new instrument for instruction within reach of every high school and college in the country.

Until now industrial television has been utilized mainly by larger business and industrial organizations, but the reduction in cost brings it within reach of thousands of small businesses.

Many uses are also foreseen for closed-circuit TV in hotels, department stores and other business establishments. A visual intercommunication

(*Continued on page* 24)

Later on, you can sell him preamplifiers, tone compensators, amplifiers, corner-horn speakers, crossover networks, and all of the rest. Just kinda keep telling him about what a wonderful thing a real hi-fidelity setup is, and he'll go for it.

ABOUT MUSIC APPRECIATION

You don't really have to have a knowledge of music to do this kind of work, although it does help some. I don't mean playing any instrument; what I mean is just an appreciative listener's knowledge of music; what it should sound like, and what it **does** sound like, on a low-quality player and reproducing system.

If you are one of the kind of guys that like classical music, that helps. I like it, myself; not just because it's 'classical music,' but because it's **music!** A good deal of it, that is; there's just as much **bad** 'classical' music as there is good classical music.

If you don't like a certain piece of music, it's bad, for you that is. Anyhow, if you can appreciate good music, well played, you've got a good headstart in the direction of hi-fi salesmanship. You can talk to the customer on his own grounds.

Here's another good talking point: ask him if he realizes that music played over his local radio station on a modern phonograph record, is actually much higher fidelity than the New York Philharmonic, if it comes in over a 'phone line, network cable! It is! Your record can actually reproduce frequencies as high as ten or twelve thousand cycles; the network line cuts off somewhere in the neighborhood of 4000 cycles!

Ask a telephone engineer or a broadcast engineer; he'll tell you! Therefore, if Mr. Customer has a pretty good tuner, he can actually get hi-fi radio, too, out of his hi-fi amplifier, **if** it's properly coupled to the tuner, etc. You're the boy who can do that, too! Don't forget to mention it.

BOUQUETS AND BRICKBATS

Well, sir, I've been saying a lot of nice things about the new phonographs, and to preserve my hard-won reputation as an old grouch, I oughta get in a few nasty cracks before I'm through, hadn't I? Well, I haven't got too much space left, so I'll kinda git 'em in all at once.

Don't like the following things: Pick-up arms that won't lift over an inch, so that you have to git down and crawl around on your face and fumble around to git the dang needle in 'em; fixed needles, so when the needle wears out you have to tell the customer that you've just got to replace his whole cartridge, and cause a row, usually.

Needle and phonograph salesmen that tell your customers that such and such a needle is a "lifetime needle" — never wears out. Thank Goodness, the needle and cartridge makers quit that a long time ago about the only trouble we have now is with some overenthusiastic salesmen. The needle-makers are doing a swell job of educating the public to the true facts of life about needles. They've got some mighty good literature on needles, how they work, how they wear and so forth.

Most of it's free for the asking, so if you haven't got yourself a bunch of it, it's your own fault. Have it around, and then when they come in asking about needles and stuff, you can show 'em in print. Helps to sell better needles, too.

NOT MENTIONING THE DIAMOND

I've got a set of those pictures in my shop, showing wear on osmium needles, sapphire needles, and diamond needles after a certain number of plays. Several needle and cartridge manufacturers have this kind of stuff, and it's really helpful. I've sold many a sapphire needle, when they came in asking for a "cheap needle." You can show 'em where the sapphire needle is actually the cheapest of them all, not mentioning the diamond, of course.

INDUSTRIAL AUDIO

(*Continued from page* 8)

formity and repetition. It is increased by certain kinds of work and natural reactions that may be expected at specific hours of the workday.

A study of 350 workers has revealed that many feel that time "drags" most during the first two hours of the morning and afternoon. In another study, designed to determine more about **psychic satiation**, response varied during repeated readings of the same poem and the continuous redrawing of simple patterns. When we are obliged to repeat something, over and over again, we unconsciously improvise reactions for each repetition. This unconscious behavior is a **defense mechanism** — to prevent boredom.

Specialized mechanical operations in industry cramp the worker by preventing the operation of his involuntary defense mechanisms. Music of the proper sort activates them. Without restoration of this unconscious effort, the worker's efficiency drops and rejects increase.

THE DISTAFF SIDE

The beneficial effect of music in combating boredom has been reported in a study of eighty-eight girls assembling electron tubes over a period of several weeks. Music was tried — to determine its affect on "shrinkage." It was found that slow and fast music resulted in less scrap than no music at all, or mixed music. In another wiring operation: rejects dropped from 3 per cent to less

(*Continued on page* 16)

Party Line

TV Association News

By PENNY MARTIN

Hi! What power or effect does advertising have on the average TV listener? Listen to these stories before answering:

A servicing-dealer had sold and installed a TV set in a home and monthly payments had been regular until the last payment of $7.50 was due. One month . . . two months . . . three months went by and the bill wasn't cleared up. One day out of curiosity the service manager casually dropped in to see how the set was working and why they hadn't cleared up the last of their bill.

"Yes sir, I know we owe $7.50 I'll be only too glad to pay it just as soon as we get the electronic clarifier promised when we bought the set," declared the owner. And he promptly showed the service manager where the "electronic clarifier" should be installed. The service manager installed the **chimney clip** and brought the $7.50 into the office.

The dealer had shown a timid customer every television set in his store but the customer had peered at each set and shook his head. "Nope, that ain't it." Since the customer obviously seemed more interested in cabinet than the make of TV, the dealer asked him what kind of cabinet he had in mind. "Well," replied the customer, "my wife is hep on interior decorating. She wants brown and gold in the living room so she told me to buy a brown cabinet with a **golden grid tuner.**"

(*Continued on page* 16)

Ouachita Service Philosopher

Talks About Phonographs

By JACK DARR

Well, sir, the Ed. tells me that this is the month for a special issue about phonograph, changers, hi-fi, and all stuff like that there, so I reckon this would be a good time for me to sound off about the things.

Y' know, there's a lot of good money to be made in that line of business, but there's also a few headaches, if you don't watch out. Like phono cartridges, for instance. A feller can git hisself so stocked up that he won't have room for anything else in the shop, if he don't watch out. Still, he's gotta have 'em, so what are you gonna do about it?

Well, as usual, tho I don't know too much about it, I'll tell you! First place, this is an exceedingly good replacement part market; ther's good money in 'em, but you've kinda got to watch your stock. Don't get all overloaded with a type that ain't in your territory!

PURELY A F'RINSTANCE

F'rinstance, if you haven't got any GE machines around, don't load up on a lot of variable reluctance cartridges. This is purely a f'rinstance; I haven't found a place yet that **didn't** have some GE around.

What I meant was that you've got to analyze your market before you invest a lot of money in them. They're fairly expensive, in the first place. In the second place, you ought to have a fresh stock at all times, especially in the crystals. Therefore, what I'd recommend; try to have a good stock of cartridges, with at least one of every type, and several of the fast movers.

LITTLE BITTY ONES

They've come out with some mighty interestin' new cartridges lately. Take these little bitty ones, for instance. Have you run into any of them? Ceramics, most of 'em, and they're the cutest little things you ever saw. Why, the pick-up arm ain't no bigger'n the end of my little finger. Just about as light, and the dad-burned cartridge is about as big as a small caramel candy. Looks like one, too. I jist caught my helper in time to keep him from eatin' one I'd laid down on the bench for a minute.

That's another item you gotta watch. Better lay in at least one of those little dickenses; they're coming into the market now, and you might have to replace one any day. If you do, and you ain't got nothin' but the conventional cartridges, you're cooked; they won't even begin to fit 'em!

THE TRUNCATED NEEDLE

Needles, too: Now there's a dandy item. They've got quite a few different needles out just lately, none of which seem to be interchangeable with each other. Notice this new development, the truncated needle, which is claimed to play all three speed records, the .001 and .004 both. Don't exactly grasp the principle of it, being kinda hard-of-thinkin,' but they say it will, and I've played 'em: they will! So, I reckon I'll just take their word for it; they know more about it than I do!

Changers, too, are in for another run-around. Some of the latest models are quite a bit improved over the older models. Some of the early three-speed jobs were buggers, but they have done a nice job in removing some of the kinks in them. Seem to have taken quite a few of the bugs out of the speed-change mechanism, also the drives. Maybe we won't have to use up quite so much carbon-tet on 'em from now on, huh?

"GOLDEN-EAR BOYS"

Y'know, there might be a little something in this HI-FI business, too, for the alert serviceman, if he'd just git out and dig for it. Hi-fi equipment don't go for peanuts, and if you can git hold of one of these "golden-ear boys," he'd be good for a nice-sized piece of change, before he got through buying all of the stuff he'd have to have to really set himself up in the hi-fi business.

And, after all, who, in the average town, knows more about hi-fi than the radio man? He knows what tonal response is, he knows what fidelity actually is, and how much fidelity commercial radio equipment actually has, and furthermore, he can actually demonstrate to the customer the inherent possibilities in really hi-fi sound!

The average prospect for hi-fi is pretty apt to be in the upper brackets, so far as income is concerned, therefore he would normally fall in the class of pretty smart cookies; he should be intelligent enough to grasp a really technical exposition of real high-fidelity and, also, be somewhat impressed with your knowledge and ability to get him set up in business!

GO THEE AND LOOK!

Therefore, I say again, go thee and look up someone in **your** town, and casually mention hi-fi to him, and see what he thinks about it. Get yourself some of the very excellent catalogues put out by the various manufacturers of hi-fi equipment, and leave 'em with him. Be sure to leave him the impression, also, that **you** know what you're talking about, and that **you** are the perfect solution to the problem of finding somebody to help him set up his system.

Might be able to get him started in a small way: say a real good changer, with a real quality cartridge and needle, and a fairly good amplifier. If he's got a good make of console radio, hook him up this new changer on that.

Jack Darr and friends at Channel Master Meeting sponsored by Wise Radio Supply of Ft. Smith, Ark. and held at Ward Hotel, Ft. Smith. Jack is happy guy wearing glasses just left of venetian blind. He is working on a Coke and a sandwich after presentation of Channel Master film: "Antenna is the payoff."

SPRINGFIELD MO. SERVICE CENTER

Miller's Radio & Television Service builds business on good business practice

By ERNEST W. FAIR

"Good business ideas are just as essential to the successful operation of a service shop as technical knowledge," declares Cliff Miller of Springfield, Missouri, "because the two are inseparable . . . no amount of skill in one can result in a profitable shop operation if the other is absent."

Mr. Miller had a lot of varied business experience behind him when he went into the service business in 1949 — some "5,000 in debt" as he puts it. The soundness of the methods he has used is evident in the $40,000 sales and service shop he has in Springfield today.

Many ideas have contributed to the success of his shop. Each, he believes, can be used by any other shop owner with equal success. Take the matter of new TV Service contracts on which many shop owners are losing money while the public thinks they're getting rich.

"The conventional service contracts I had seen looked like trouble to me. When TV started here my wife and I jumped in our car and toured the east," he recalls. "We visited every possible TV Service shop and learned all about the problems involved. When we came back I had a notebook full of ideas and a lot of them pertained to the Service Contract.

MILLER'S SERVICE CONTRACT

"After checking these experiences against existing forms, I knew I would have to design and print my own contracts if this business was going to be profitable for my shop. I did . . . and we have a contract that is really making money."

These are some of the essential features of that contract:

a) The contract specifies the number of days of coverage and states: "The service expires on the —— day at midnight." We found much confusion between shop owners and customers over that point.

b) It lists the make of set, model number, date of purchase, date of installation and name of seller. The installation date often differs from the purchase date. This can result in heated arguments with customers.

c) It lists coverage of "focusing and adjusting on all initial installations," covers "material and legitimate electrical breakdowns during the contract period" — providing the latter is in warranty.

Cliff Miller, at right, explains the service contract.

d) The third paragraph has this feature: "It does not cover any services to any features of the outside antenna."

e) A clause protecting against "nuisance calls" states: "all nuisance calls, such as wrong channels used, electrical plug out of the wall, etc., shall be paid for at the rate of $5.00 per call plus mileage. The failure to pay for a nuisance call cancels this contract."

f) The contract covers labor in the home but service on the set only when transportation is furnished by the owner; otherwise it sets a $1.50 drayage charge per call in the city limits.

g) The contract is void if the set is subject to misuse or any other company is permitted to work on it.

h) The contract excludes loss or damage due to fire, lightning, theft or "causes beyond the control of the company."

Two service record spaces are provided at the bottom of the contract listing date, complaint, material used, and lines for both the customer and the technician to sign as to "work completed satisfactorily." The customer is also required to sign the contract and is given a duplicate copy. Miller believes that any customer will place greater value on any document that he has signed than on one that only the shop owner has signed.

(*Continued on page* 24)

W. A. Hill, wearing a Sylvania protective mask, shops a TV chassis. Miller's shop is equipped with special dollies for home receivers and car radio work.

NARDA
THE DYNAMIC TRADE ASSOCIATION

By PAUL H. WENDEL, Editor, *Service Management*

Back in 1946 a small but virile group of appliance dealers launched a new trade association which they labeled the National Electrical Retailers Association (NERA). In January, 1953, observers who attended the annual convention of the National Appliance & Radio-TV Dealers Association (NARDA) in Chicago were amazed with the wealth of solid, down-to-earth retail business operating information that was disclosed in that swiftly-moving, action-packed three-day program.

The dynamic association that is NARDA of 1953 represents the accomplishments of a succession of hard-working, far-sighted retailers whose work will undoubtedly bring about the stabilization of retail appliance merchandising — and its hand-maiden, service — as sound business enterprises as a growing NARDA membership acquires and applies the management philosophies of their successful co-members.

In retailing, appliance dealers have led the business mortality list for a number of years. This unhealthy statistical position adversely affects all appliance retailers. But the very fact of NARDA's rapid growth and strong current position proves that appliance retailing has a solid basis for stable, profitable operation.

TRADE-IN BLUE BOOKS

Paul Kees, of Kees Appliance Co., Madison, Wis., served as the first president of NERA. During his tenure of office the organization initiated the idea of the **Appliance Trade-in Blue Book**, now a regular NARDA service. The success of the **Appliance Trade-in Book** in stabilizing values for used appliances inspired the development of the **NARDA TV Trade-in Blue Book** which dealers are now finding so helpful in handling both salesmen and customers on TV trade-ins.

COST OF DOING BUSINESS SURVEY

Mr. Kees was followed in the presidency by Herb Names of Denver, Colorado whose regime saw the development of NARDA's now famous "Costs of Doing Business Surveys." The ingenious breakdown of information in these annual reports based upon actual costs of operation as reported by members is proving indispensable to dealerships of all sizes.

GROUP INSURANCE PROGRAM

James Lee Pryor of Wilmington, Delaware, followed the ebullient Herb Names as head of the association. The name was changed from NERA to NARDA at the beginning of his regime early in 1950. During Mr. Pryor's term the NARDA group insurance program was inaugurated and NARDA activities were re-oriented to make the association an integral part of local dealer programs with organizational services geared to store level application.

In 1951 NARDA members elected Mort Farr of Philadelphia to the presidency of the organization. At the same time they employed Al Bernsohn, a highly successful publicist, to assume the duties of managing director of the association. Mr. Bernsohn brought into the direction of the organization a keen observer's viewpoint on dealers' local and national problems which he had acquired in the course of his association with the Du Mont and RCA organizations.

Mr. Farr who had created a very successful radio and appliance dealership and an associated major TV service company in one of the country's most viciously competitive areas, brought an exuberant optimism into the NARDA organization that had a telling impact on dealers who attended the meetings

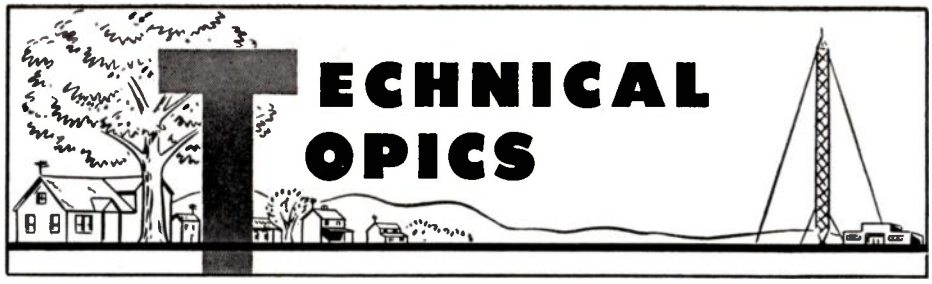
(*Continued on page* 18)

Wallace Johnston, president

Mort Farr, ex-president, now director of NARDA.

Henry Price, Jr., vice-president.

Al Bernsohn, managing director.



A SERIES OF THREE INSTRUCTIVE PRESENTATIONS DERIVED FROM ACTUAL FIELD EXPERIENCE IN EASTERN PENNSYLVANIA AND NEW JERSEY

By EDWARD M. NOLL

MORE ON UHF PROPAGATION

Reality can be sudden and cruel. There has been to much UHF "pipe-dreaming" and too many comparisons made with VHF where VHF does not exist or is at extremely weak level. Truth is, we must accept facts and results and act accordingly. Each installation must be made carefully and we can expect to find difficulties in many location.

Steps need to be taken to improve UHF device performance, higher gain antenna systems must be developed, and dead propagation pockets filled in. Perhaps some sort of direct or indirect satellite system can be evolved to deliver signals to towns and small cities now without a signal though only a short distance from station.

UHF VS VHF SIGNALS

Here are facts we can not escape and must not ignore. The Reading, Pa. UHF station has an ERP of some 200kw and an antenna height of 1,784 feet above average terrain. We have visited four towns within 25 miles of transmitter. There have been others mentioned that have practically no trace of signal.

Still channel 6 from Philadelphia 40 to 55 miles away depending on radial used, with an ERP of 27kw and an antenna height of just 650 feet above average terrain, is delivering an excellent and in some locations a snow-free picture into these very same towns. There are many many locations where Philadelphia fringe VHF dominates local UHF.

FACING UHF FACTS

We can do the most good for UHF service by facing facts — by recognizing its failings and trying to develop better performance. But first the detrimental practice of overselling must be abandoned — broadcaster, manufacturer, and dealer must tone down advertising.

No service organization can afford to take the time to make an efficient UHF installation for the price the customer has been mis-led to expect and the performance he has been told he is certain to receive. Such **indoor antenna, long range, beautiful picture, next-to-nothing conversion costs** advertising has been playing havoc with the introduction of UHF in many areas.

Service organizations in the new UHF areas will do well to plant the seeds of conservatism in their area among customers, dealers and station operators. Impress everyone with this unequivocal fact — problems and costs are involved in bringing acceptable performance throughout a UHF area.

INSTALLATION FOR A WEAK UHF SIGNAL

In obstructed city areas, behind suburban ridges and in country valleys, the UHF signal plays hide-and-seek with the installer. Often the signal, just short distance from station, is as weak

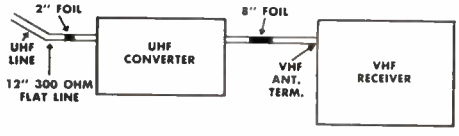


FIG. 1. *Peaking of UHF Signal.*

as its level 35 to 40 miles out in the UHF fringe. Thus even the primary area service organization will employ both local and fringe installation techniques.

In making a weak signal installation proceed as follows:

1. Locate position of peak signal for antenna mounting. Search horizontally and vertically at low and high levels.

2. Signal ricochets among the hills and often a reflected signal dominates substantially the direct signal. Although a reflected signal is a more variable quantity, it is sometimes preferable to an almost non-existent direct signal.

3. Choose antenna type carefully — remember: there are 70 UHF channels and what is good on one channel is not always tops on another. Choose a good quality line and install it carefully.

4. Choose a sensitive stable UHF conversion device. For a weak signal installation substitute mixer crystals, and local oscillator tubes to find a combination that will deliver peak signal.

(*Continued on page 20*)

INDUSTRIAL AUDIO APPLICATIONS

Knowledge about why music is effective as a modern production tool will help you sell industrial audio installations

By LAWRENCE J. EPSTEIN, sales manager
University Loudspeakers, Inc.

— New York Public Library

Music lovers gather during lunch hour to enjoy classical selections presented by audio installation sponsored by The New York Public Library during the summer months.

An important factor in the successful approach to industrial audio by TV Service organizations is a nominal understanding of **what** audio does for industrial production. This is a subject that has not been covered with as much emphasis as it deserves — but it is basic for service organizations that hope to promote and plan profitable audio installation and maintenance.

Industrial audio systems serve many needs. They provide effective call systems; they provide an efficient public address system for all employees in time of emergency or for other reasons; but by far the greatest use of industrial audio is as a source of music for increased production efficiency.

WHY MUSIC IS EFFECTIVE

Since the dawn of civilization music has played an important role in the lives of people by producing a profound psychological effect on their behavior. Evidences of this have been found in the use of tom-toms by primitive peoples — to incite barbarian passions — and the carry-over in jitterbug music. In the days of sailing ships and before machines took the place of muscles for navigation and loading, the traditional **chanties** bolstered strength and morale for heavy tasks.

Everyone is stirred, instinctively, by marching music; inspired for labor by rhythmic strains like the **Volga Boatmen;** and lulled to relaxation and sleep by soft music at the end of the day's work. Every form of music can serve a purpose — and every form can be put to use through modern audio systems.

While these facts appear to be self-evident, successful merchandising depends on research. Audio promotion is no exception. Therefore some of the results of studies that substantiate the benefits of music in industry should be of interest to aggressive TV Service organizations — with a bright eye on the industrial audio market.

PHYSICAL REACTIONS

Physicians say that music affects respiration, metabolism, and the pulse rate, so that many senses of perception are sharpened or dulled. These are some of the effects of music on normal individuals — from the academic viewpoint. They help explain why workers in dull, repetitive tasks invariably perk up to suitable music.

In a study of the effect of music on a small group of workers producing paper "snappers," it was observed that the operation required about 30 seconds. The study was arranged so that production rates were checked for 30 days without music; 65 days with music; and special attention given to production rates at different times of day.

The study revealed that production increased 6 per cent when music was supplied in the morning; 4.4 per cent when music was played during four periods; and 2.6 per cent with one music period in the morning and afternoon. The rate of increase in production was roughly proportional to the amount of music playing time.

BICEPS AND BICYCLES

The physical reaction to music described by Dr. Edward Podolsky in his book, *The Doctor Prescribes Music,* includes the flow of blood in the brain, independent of the rest of the body, and variations in expended muscular energy. These observations have been tested at the University of Cincinnati. Measurements were made on the grips of ten men during the playing of music and without music. It was revealed that two thirds exerted more than average strength during the playing of a spirited march. In another investigation, it was shown that the average speed of six-day bicycle racers increased from 17.9 to 19.6 mph — when music was played.

PSYCHOLOGICAL REACTIONS

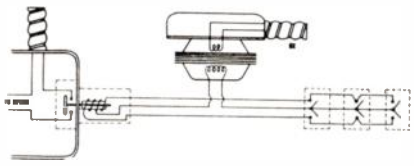
Apart from the special effects of suitable music, basic studies of what makes workers tick, have been revealed by psychologists. They are generally in agreement that a very important factor is a person's attitude, and that attitude has a direct bearing on the individual's response and physical reaction. This is significant in all studies of workers in industry, because it is recognized that boredom is probably the greatest problem affecting production rate and quality. Boredom in industrial jobs is aggravated by modern trends toward uni-

(*Continued on page* 20)

120-volt rating. Conventional wall switches are not available with ratings above 250 volts. Another limiting factor in homes and commercial lighting installations is the almost universal use of 120-volt circuits for appliances and incandescent lamps.

To utilize some of the advantages obtained in high voltage industrial systems, the **General Electric Company** has developed a remote-control low voltage system for use in homes and commercial installations. Through its application a very flexible control of lighting and appliances can be obtained with a 24-volt system that provides appreciable savings in copper and installation costs.

The power source for the remote-control system is a compact transformer rated at 35 va which is suitable for



Typical Remote Control Circuit

mounting in the 120-volt outlet box. The transformer has a current-limiting feature that protects its windings against overloads and eliminates need of fuses. A light-gauge flat ribbon conductor used for the 24-volt circuits eliminates need of expensive Rom-X BX or armored cable.

DREAM HOUSE OF TOMORROW TODAY

With remote - control wiring the housewife can switch on the breakfast coffee at her bedside, switch it off in the breakfast room and control the radio from the bedroom, kitchen, front door or the 'phone location. She has push-button control of the 24-volt circuits that actuate relays for making and breaking the power circuits to lights or appliances.

The system also makes it possible to switch on all lights from several points. Outdoor or indoor lights can be controlled at bedside. Master selector switches permit entrance to a fully-lighted house from the kitchen, garage or front door without danger of falling over furniture or groping in darkened rooms for a light switch.

Prospective homeowners quickly realize the advantages of remote-control wiring while more satisfied customers mean greater business potential. More and more builders in the McKeesport area are becoming enthusiastic about low-voltage remote-control systems — and TICO is increasing its sales in field.

GARAGE DOOR OPENERS

TICO recognized another good business opportunity in the related field of

(*Continued on page 19*)

ALLIED ELECTRIC APPLIANCE PARTS, INC., of Philadelphia is staging a three-month "Treasure Hunt" to celebrate its 25th anniversary . . . **AMANA REFRIGERATION, INC.**, has announced its new program including dealer and service training . . . **BURROUGHS ADDING MACHINE CO.** has established an electronic instruments division to produce electronic laboratory apparatus . . . **CBS-HYTRON** has announced the mass-production of transistors for hearing aids, computers and military applications . . . **COMMERCIAL RADIO CORPORATION** of Boston, Mass. has been appointed distributor for Westinghouse tubes . . . **CLAROSTAT** has established direct-wire teletype between its Dover, N. H. and Chicago area plants to speed service to western jobbers . . . **CHARLES M. FURMAN, JR. ASSOCIATES** of Charlotte, N. C. have been appointed Radio Merchandise Sales representatives for Virginia . . . **GENERAL ELECTRIC** tube department has created the "Drippley" Electronic Supply Co. as a reasonable

Serviceman Schwartz and GM's Wymer

facsimile of the "sad sack" of the electronics parts industry, will feature it in cartoon-type advertising; has announced plans for a new warehouse in Los Angeles; Carboloy Department, Detroit: operates a mobile extension training and educational program on its tungsten carbide cutting tools that has been attended by 5,400 people from 1,400 companies during the last 11 years; displayed new uhf ¼ kw and 5 kw tetrodes at the IRE Engineering Show, also microwave systems including those installed for 1840 mile pipeline from Falfurrias, Texas to Newark, N. J. . . . **GENERAL MOTORS** Delco Division recently obtained first-hand reaction of a TV Service contractor when GM's Carl Wymer showed new uhf-vhf indoor antenna to Henry A. Schwartz . . . **CLARK R. GIBB CO. of** Minneapolis his been appointed Radio Merchandise Sales' representative for Minnesota, North Dakota and South Dakota . . . **HALLDORSON TRANSFORMER CO.** has appointed the International Radio Corporation of New York to handle all foreign sales . . . **IMPERIAL RADAR AND WIRE CORPORATION** of New

Precise kitmen Merican & Byron

York has announced production of their new guy wire . . . **JACKSON ELECTRICAL INSTRUMENT CO.** recently donated $500 worth of instruments to Royal O. Tippetts, a partially paralyzed technician, to help him equip a radio-television service shop . . . **MERIT COIL AND TRANSFORMER CORPORATION** has renewed its contract with Howard W. Sams & Co., Inc., for the sixth consecutive year . . . **PHILCO CORPORATION** accessory division has announced a new antenna for vhf-uhf reception . . . **PRECISE DEVELOPMENT CORP.** introduced its new oscilloscope during the National IRE Con-

Wiremen Friedman, Ross & Friedman

vention . . . **QUAM NICHOLS CO.** is now supplying all of its five-inch speakers with pin-cushion type baskets . . . **RADIO CITY PRODUCTS CO.** has leased 2½ acres in Easton, Pa. where it will erect a new manufacturing plant . . . **RCA VICTOR** has opened a drive to

(*Continued on page 19*)

TICO BEATS THE SUMMER SLUMP

A field report on the success of an aggressive TV Service management in home electronics service fields

By PENNY MARTIN

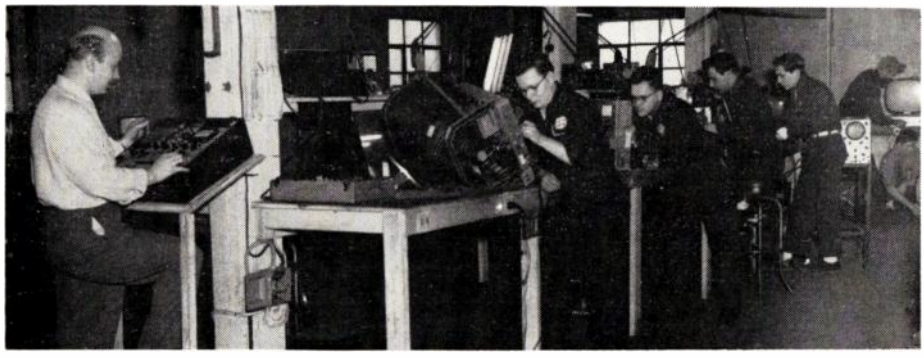
There are sure signs of Spring bursting out all over — everywhere boys are flying kites; Columnist E. V. Durling asks: "How is your wife going to look in a bathing suit this summer?" And Television Service managements are asking themselves: "How is our business going to look during the usually slack summer months?"

They know that the service industry usually suffers seasonal slumps, that TV business is best when the weather is tough, is tough when the weather is best during the summer vacation months.

The Television Service business is not, of course, the only business that has seasonal swings. But it has been generally slow to forward promotion into new **associated** fields to turn sales and profits up during the Spring and summer months.

If Television Service managements will show this initiative they can beat the seasonal slump bogey. They will not have to lay-off good technicians and face new and costly rehiring and training programs in the Fall when TV business picks up. They will not have to suffer losses by retaining good technicians during the slack period. They can maintain normal full employment of technicians and ring up good profits.

Outshop at TICO, left to right: Rose Mazur, Jo Ann Smith, Patricia Rocco and Edward J. Ross.



Inshop at TICO, left to right: Edward J. Ross, James Lynn, George Evans, Robert Trostle, Richard Hornack, Donald Smith and Martin Craighead.

THE TICO STORY

An example of an aggressive TV Service organization that has done just this is the Television Installation Company, Inc., of McKeesport, Pa. TICO began with Ed Ross as a one-man shop in February 1948. Today the corporate descendant of that shop is headed by Ed Ross, Morton S. Fiedler, S. H. Hirshberg, Jr., and William Maley. It employs four office girls, eight field technicians and three bench technicians.

The majority of TICO's business is in service. Sales of radio and television receivers are nominal. They come from trade-ins for larger TV screens, and from customers who prefer to purchase sets from sources they know will provide good service.

TICO POLICY

"Good Service at a Reasonable Price" is TICO's motto. They make it a point to live up to its meaning because they know it is a builder for new and repeat business. This policy has also been recognized by many Pittsburgh department stores that contract with TICO for installations in the McKeesport area.

TICO management feels that steady employment for its top-flight technicians is one of its obligations to the business. With this thought in mind they have advanced into the home electronics service field during the past few years. This move has made it possible to keep technicians employed steadily while maintaining good levels of sales and profits during the summer months.

Their approach has been almost entirely at the local level. They have not invested much in advertising but they have taken maximum advantage of their suburban location. They have found a good answer for off-season business in the practical and profitable exploitation of installation of low voltage house wiring, automatic garage door openers and air conditioning. They are also building radar service business on a contract basis for river boats.

LOW VOLTAGE HOUSE WIRING

Electrical engineers have long recognized the basic economies of high voltage, low-current systems for a given kva load. This was reflected during World War II when many industrial fluorescent lighting installations were designed for use with 277 volt lamps and ballasts. These were used in industrial plants with 480 volt, three phase, four wire power distribution.

However such a system is not practical in the home where filament type lamps predominate for use close to their

Editorial

"OUR OPINION"

THE incisive analyses of management requirements for successful operation of a business enterprise so pungently stated in Harry Price's article in the February issue of SERVICE MANAGEMENT merit thoughtful consideration by every man who wants to make a success of any kind of an electronics service business.

Every word of this thought-provoking presentation should be read and re-read by service businessmen. It literally breathes the stuff it takes to make a success of a business — any business.

But for the purpose of detailed discussion, we want to select one of the sharply defined human elements in this formula for success — because of its unique applicability to the electronic servicing business.

Mr. Price says that when you ask yourself frankly and honestly, "Why am I in business?" if your answer is "I want to make a living," then you are in the wrong business. And the reason, "A successful businessman wants more than a living, A man who wants only a living should be working for someone else. It takes a personality with more ambition, more drive, more determination to have the better things in life — to be successful in business. You have to like running of the race and possess perseverance to drive for the winner's circle every day."

The radio service business attracted men who **hoped** to make a living out of a hobby avocation. Few people would envy the measure of success the average radio service man attained. Yet thousands of men worked at it always hoping for the "break" that would keep a livable volume of service work coming into their shops.

When television burst upon the scene it brought the illusion of an unending stream of service business without effort. Although a small percentage of service business operators learned to sell service, the majority did not. When the easy business mirage disappeared they found themselves in trouble.

One of the major idiosyncracies of management as it is applied in the average TV service business, is that they often starve for business when they are surrounded by the need for the services they have to sell. The trouble is they have not learned how to **sell** those services.

Out of numerous case histories that could be cited, we want to take just one. Many VHF stations have increased power since the freeze was lifted last year. This has made signals available in other towns which are primary signal areas for local VHF stations on other channels. This has created a market for antenna systems in one-station cities to give set owners the advantage of service from a second station.

How many service businesses are **aggressively** selling antenna systems in those towns?

Study the facts cited in the set owner survey in this issue of SERVICE MANAGEMENT. For the moment, forget the thousands of dollars worth of service business available on radios and record players — just waiting for alert service businessmen to ask for it through proper promotion. Just look at the percentage of antenna systems that have been sold in this prime market to give TV owners the choice of a second station on their sets.

What is the answer?

Service business operators — and parts distributors — have been content to wait for business to come to them. Aggressive, creative salesmanship has not been a part of the management thinking of these businesses. Self-stimulating service business is not the best kind of business. It is a price conscious business. It is the kind of business that keeps fringe service operations alive to set the level of service income possibilities.

The solution rests in the hands of business-minded service operators and parts distributors. Co-operative campaigns financed by parts distributors and service businessmen on local levels and created on a basis of local needs is the only way to raise the stature of service as a business and tap the vast dormant market for the products of service. Backed by effective local service selling programs manufacturer and industry campaigns will prove practical and effective.

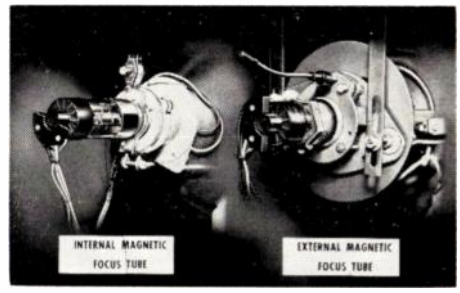
The important thought we want to get across to service businessmen — and parts distributors — is this:

Don't wait for manufacturers to do this job for you. Do it yourself and start doing it **now.**

Internal Magnetic Focus Picture Tube Announced By General Electric

For the first time, permanent magnets are being built into new television picture tubes, thereby eliminating the need for external focusing controls and decreasing production costs by discarding three assembly units.

In a new General Electric TV tube displayed at the 1953 meeting of the Institute of Radio Engineers, the external ion trap, focusing unit, and mechanical support have been replaced by a simplified ion trap and focusing unit, both built within the tube. Keys to this new design are the tiny, powerful Carboloy permanent magnets now encased within the tube.



Size of the Carboloy Alnico 5 magnet used in the ion trap has been reduced to one-tenth that of the magnet previously employed. The new magnet is ⅛ inch in diameter and ⅛ inch in length. The former Carboloy magnet was rectangular, approximately ½ inch in length, ¼ inch thick and ⅜ inch wide.

The internal focusing employs three Carboloy permanent magnets, measuring only ¼ inch in diameter and ⅝ inch long. Optimum clarity of focus is achieved through factory fixed focusing which eliminates the necessity for any external focusing control adjustment for the set user.

The new system incorporates all the advantages of magnetic focusing without the disadvantages and costs associated with the use of present magnetically focused tubes. Use of the gun will provide sharper picture definition across the entire face of television screens, according to Grady L. Roark, manager of G-E equipment tube sales, who announced development of the new electron gun.

He predicted that the elimination of the necessity for television receiver manufacturers to add a focus coil, ion trap, or bulky mounting brackets to picture tubes will mean a major saving in parts and assembly operations.

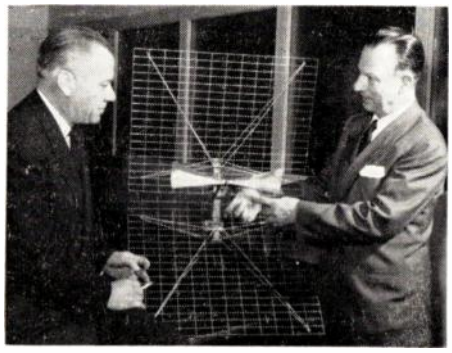
The new gun contains an internal compensating focusing lens which maintains focus over a wide range of operating voltages. A simple shunt may

(*Continued on page* 19)

General Motors Will Market Electronic Parts Through Parts Distributors

Expanded distribution of radio and television service parts and additions to these lines has been announced by United Motors Service Division of General Motors Corporation. Television antennas and picture tubes will be marketed under the Delco name and sold through electronics parts distributors by United Motors, parts sales company for GM.

Under the new expansion program, United Motors' large list of radio and



W. A. Hagen, general sales manager, at left, and C. D. Wymer, Delco electronic parts merchandising manager for United Motors Service of General Motors Corporation.

TV parts will be merchandised through selective electronics parts distributors. Formerly Delco radio electronic parts were sold almost exclusively through automobile parts distributors. In dealing with the new electronic parts distributors the same policies and distribution methods used in automotive parts distribution will be maintained.

Twenty United Motors warehouses will service parts distributors. Another warehouse in Memphis, Tenn., will be opened shortly. This network of warehouses assures local availability and speedy distribution of service parts. These company owned warehouses also make possible a complete supply of electronic parts and allow distributors to carry smaller inventories.

United Motors salesmen operating out of these 21 zone offices contact distributors and assist them in holding service and promotional meetings with their customers. The "obsolescence plan," long used by United Motors Service, will be carried into the electronics distribution field. This is unique and new in electronics merchandising. Distributors' obsolete parts up to 2% of a year's purchases may be turned back to United Motors warehouses for credit without handling charge. This policy permits distributors to keep a well-rounded stock available at all times.

(*Continued on page* 18)

Service Management

PAUL H. WENDEL, *Editor and Publisher*

VOLUME 2, NUMBER 7 **APRIL, 1953**

COVER PICTURE

New IMF Electron Gun

Development of an "internal magnetic focus" electron gun as shown in General Electric display in the 1953 IRE Radio Engineering Show. Tiny Alnico magnets in the gun provide fields for focus and ion trap.

Features

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SELLING SERVICE

By HAROLD CHASE

In today's very competitive business we all seem to think of such modern magazine writings as public relations, consumer promotions, business controls, goodwill promotions, and customer confidence reading as a must. Most of them are fine, enjoyable reading, and many times do give us food for thought, but what are they except explanations of ways of getting along with people?

There is only one way to make anyone do something. Did you ever think of that? Yes, just one way. That is to make the other person want to do it. The method will vary with different individuals, but the most vulnerable spot of all humans is their pride.

Professor John Dewey, America's most profound philosopher, said that the deepest urge in human nature is **the desire to be important.** Of course, by this I do not mean resort to insincere flattery, but a true feeling for your customers' viewpoints. Try to put yourself in their shoes.

Your serviceman took the set to the shop for repair. When asked if the trouble was very serious, the serviceman, thinking of the $100 repair bill on the set he had just delivered, said no. Then you call and inform the customer his set is ready for delivery and the bill is $52.43 when he had $12.50 in mind.

How much better it would be to call the customer before the set is completed and say, "Mr. Customer, this is your Service Company. We have some good news, and some bad news for you. The good news is: we have found the trouble with your set and can make it operate as well as, or better, than when you originally purchased it. Your choice of this set shows that you appreciate quality performance and here is what is necessary to effect this change."

Then you carefully itemize all operations and parts necessary to complete the job, and continue, saying "the bad part is the bill. It sounds almost like the war debt. To do all this work and repair your set like new is, I hope you are sitting down, $52.43."

Believe it or not, I have had customers whom I expected to have trouble with, actually say "oh, that isn't so bad. I thought with all that was wrong the bill would be much higher."

With this approach you have given him a chance to say no or yes. You have made him feel important. If handled right, you will be surprised how few times he will say no. Master the art of making your customer feel important without cheap flattery, and you have your own public relations program.

R. W. AMOS has joined the sales staff of Altec Lansing Corporation. . . . **ARTHUR H. BAIER** has been appointed Astatic Corporation representative for Western Pennsylvania and West Virginia. . . . **ALFRED Y. BENTLEY** has been named chief engineer of the receiver division of Allen B. Du Mont Laboratories, Inc. . . . **DWIGHT W. BLOSER** has been named vice president of the Transicoil Corporation. . . . **JAMES L. BROWN** has been named manager of equipment tube sales for Westinghouse. . . . **JOHN T. BUTTERS** of 4924 Oleander Drive, Wilmington, N. C., has been appointed representative for the United Technical Laboratories in the southern states. . . . **HARRY A. COLE** has been appointed southern states representative for the United Technical Laboratories. . . . **LOWELL COZART** has resigned from Meyer's Electronics, Inc., Bluefield, W. Va. . . . **WILLIAM A. DAMEREL** has been appointed vice president of La Pointe Electronics. . . . **D. HALE DARNOLD** of Racine, Wis., has been appointed Wisconsin representative for Radio Merchandise Sales. . . . **JOHN J. DOYLE** has been named manager of renewal tube sales for Westinghouse. . . . **LAWRENCE J. EPSTEIN** has been appointed chairman of a committee to examine industry problems for a proposed **Audio Council** to serve, organize and execute promotion of the sound industry. . . . **HENRY FINE** has been appointed Radio Merchandise Sale's representative in Cuba and South America. . . . **ROBERT C. FOOTE** has been appointed general plant manager for Dage Electronics. . . . **HARRIETTE GELLER** is now serving as production traffic manager for JFD. . . . **JAY J. GREENGARD** has been appointed general sales manager for Waldom Electronics, Chicago. . . . **L. G. HAGGERTY** has been elected vice president in charge of manufacturing for Capehart-Farnsworth Corporation. . . . **MILBY M. HANCOCK** has been promoted to assistant to the president of La Pointe Electronics. . . . **PAUL HAYDEN**, head of Southeastern Sales Co., Savannah, Ga., has been appointed representative for the Halldorson Transformer Co. . . . **W. H. HAZLETT** has joined the sales staff of Altec Lansing Corporation. . . . **W. H. JOHNSON** has joined the sales staff of Altec Lansing Corporation. . . . **ALDEN R. JOY** has been appointed senior engineer for Clarostat. . . . **FREDERICK I. KANTOR,** manufacturers' representative, has opened sales offices at 4010 Saxon Avenue, New York 63, N. Y. . . . **CARROLL G. KILLEN** has been named manager of field engineering for Sprague Electric Co. . . . **JAMES L. LAHEY** has been appointed general plant manager for Dage Electronics. . . . **NICK MANEY** of Johnson-Maney has been elected president of the Rockford Appliance Dealers Association. . . . **ROLAND J. MELANSON** has been appointed senior engineer for Clarostat's engineering department. . . . **MIKE MEYERS** is now serving as sales representative in New Jersey for Radio Merchandise Sales, Inc. . . . **DON L. MULLICAN** of Searcy, Arkansas, has received General Electric's Edison Radio Amateur Award for 1952. . . . **LEON PODOLSKY** has been appointed technical assistant to the president of Sprague Electric Co. . . . **JOSEPH POITRAS** is now in charge of the Astron Corporation's design and development division. . . . **WILLIAM B. PRAY** has been appointed New England representative for C-B-C Electronics. . . . **WALT READ** was the national grand prize winner in Ward Products Corp. "Slush Pump Parade" sales contest. . . . **PIET** (*Continued on page* 18)