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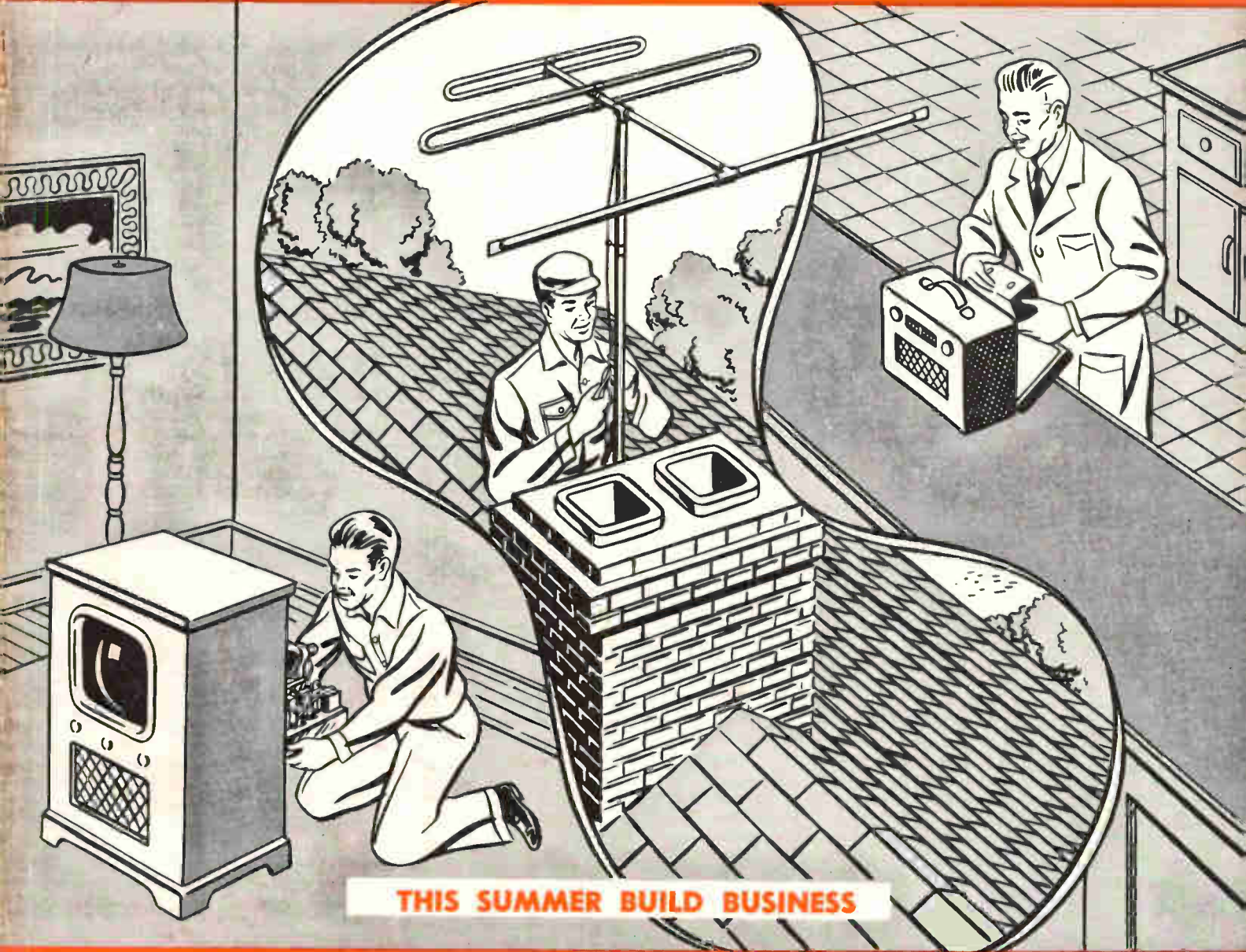
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# Service Management

THE BUSINESS MAGAZINE OF THE  
RADIO-ELECTRONICS SERVICE INDUSTRY

Volume 1 Number 9

June, 1952



**THIS SUMMER BUILD BUSINESS**

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### Predicts Shortage of TV Technicians

The construction of 2,000 new TV stations will create a need for 170,000 new TV technicians according to Leonard C. Lane, president of the Radio-Television Training Association, who recently gave an appraisal of the lifting of the F.C.C.'s TV freeze. "Television," Mr. Lane said, "will soon be plagued with a manpower shortage such as TV repairmen, F.C.C. license holders, personnel for operation of cameras, control boards, sound equipment and dozens of other devices in a TV station."

### SERVICE MANAGEMENT

is compiling a complete list of radio and television service associations for a Service Associations Directory that will be published in the late summer.

Association officers are urged to write to the News Editor, SERVICE MANAGEMENT, 501 Fifth Ave., New York 17, N. Y., for an Association registration form.

# Service Management

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**FRANK B. POWERS** elected vice-president in charge of manufacturing for P. R. Mallory & Co. . . . **JOHN Q. CANNON** elected secretary of the Radio Corporation of America. . . . **Allen B. DuMont Laboratories, Inc.**, has named the **CLIFF LANDIS SALES CO.** sales representative for the cathode-ray tube division in the New York metropolitan area. . . . **F. W. TIMMONS** appointed eastern sales manager of the National Union Radio Corporation. . . . **Pyramid Electric Company** announced two new appointments: the promotion of **BERT KOHL** to assistant sales manager and the naming of **WILLIAM P. LEVISON, JR.**, as advertising manager. . . . **WILLIAM H. LINZ** has been appointed representative for Peerless Transformer covering Illinois, Wisconsin and part of Indiana. . . . **KENNETH C. DeWALT** named manager of engineering for the General Electric Tube Department. . . . **Technical Appliance Corporation** announced the appointment of **FRED VOORIIAAR** as sales promotion manager. . . . **United Technical Laboratories** made the following additions to their staff of sales representatives: **G. G. WILLISON COMPANY** of Houston, Texas; **BILL BARTLESON** of Minneapolis, Minnesota; and **HARRIS POUND** of Montreal. . . . **C. V. BRADFORD** has been appointed manager of RCA Victor's East Central Region. . . . **Webster-Chicago Corporation** has named **NORMAN C. OWEN** general sales manager. . . . **NORMAN FLYER** appointed supervisor of development of the Hytron Radio & Electronics Co., picture tube division. . . . **EUGENE J. FLESCH** newly named assistant to the general sales manager of the Standard Transformer Corp. . . . **Jensen Industries, Inc.**, appointed **PERRY SAFTLER** firm as sales representatives for New York and New England area. . . . **Ram Electronics** has named **AL FRIEDMAN** national field sales engineer. . . . **KENNETH L. BROWN** is the new New England sales representative for the Grayburne Corp. . . .

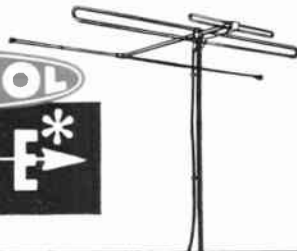


## ... and TV ANTENNAS too!

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In the almost four years since the Amphenol Inline Antenna was originated, many other types of antennas have come into the TV market. Comparison with the manufacturers' own test data and reports reveal that the Amphenol Inline is still the superior all-channel TV antenna.

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### Permo Announces Change In Sales Policy

Sherman E. Pate, president of Permo, Inc., announced May 29th a basic change in the sales representation of the company.

The Fidelitone Line of Products will continue to be handled by Direct Factory Men. "The phenomenal acceptance by the music trade of the new Fidelitone Special Type Needle Line will make it necessary," said Mr. Pate, "for our Factory Men to spend more time with record distributors and dealers."

Richard F. Goetzen, sales manager of the Fidelitone Division of Permo, Inc., will direct the accelerated activities of the Direct Factory Men covering sale of the Fidelitone Line.

The Permo Line of Products, presently consisting of 113 Special Type Needles, Magnetic Recording Wire and Recording Tape, and Record Brushes, will be handled by Independent Manufacturers Representatives. Gail S. Carter, vice-president in charge of sales, and J. Wayne Cargile, sales manager of the Permo Products Division of Permo, Inc., are in process of selecting Independent Representatives for the Permo Line as fast as the right men can be lined up to match territorial boundaries and effect proper national coverage.

## "OUR OPINION"

As this is written the service business, directly affected by the sluggishness in buying that has gripped the retail sales field generally for the past few months, is in the throes of a pre-summer slump. The effects of this sag in business volume are being felt most severely by service operators in major TV areas. To them business is lousy. Service businesses that are geared to handle a certain volume of installation work, including antennas and sets, are hard pressed to keep their experienced men employed in profitable work.

Radio service operators who have made known their facilities and abilities to handle auto radio and portable radio repairs, have one of their best business months in June. This is the month when folks are anticipating the fun of vacationing and picnicing in the summer months ahead. Most of them try to get all of the supplementary items they will need put in good operating condition so they won't have to fool around with having them repaired at the last minute. The service businessmen who are cashing in on this auto and portable radio maintenance business are those who were far-sighted enough to have plans all ready to solicit it aggressively.

Under normal conditions we would feel that if the service business was dragging along during late May and June the months of July and August would be brutal. But this is not a normal year. This year several important factors will have a strong bearing on the sales and servicing of radio and television receivers during the summer months.

Both of the national political conventions to select the presidential candidates who will battle for votes in the Fall campaigns, will be held in Chicago during July. They both look as if they will be "knock-down-and-drag-out" affairs. The Republican convention will get underway on July 7 and the Democratic on July 21. The public has already shown an avid interest in the presidential candidates of both parties and in the issues involved. These two conventions will undoubtedly attract the greatest seeing and listening audiences we have experienced to date.

Just prior to the conventions eight additional cities will be hooked into the national television networks. These

areas will probably experience a substantial boom in set sales, installations and service adjustments.

Another important TV broadcasting factor that may commence soon enough to have a substantial effect on receiver sales before the end of July is the 25 TV areas that are scheduled for channel changes, together with a boost in station power that will be available to these stations at the same time they change channels. It is expected that these channel changes together with the power boosts, will extend each of these TV markets by several miles. This, in turn, will open up new markets for service and installation work.

In other TV areas where nothing new will be added during the summer in the way of new stations or power boosts, aggressive set selling should be successful in replacing many older, less efficient sets with current model receivers.

But the service contractor or service dealer who is alert to the opportunities that will be created by the widespread public interest in the national conventions, will not depend upon new receiver sales to bolster his summertime service business. Every set owner will want to have the best possible picture his set will produce while he is following the trend of political events in Chicago. Service businessmen should be sharpening their promotional programs to capture the interest of set owners in having their receivers checked by competent technicians and adjusted to produce the best pictures possible. Antenna systems, particularly where an outdoor antenna is used, should be checked carefully from the antenna to the input.

These are important maintenance measures that can be "sold" to set owners when they are so keenly interested in a series of significant events. Since the conventions are not short-term programs but will continue to attract viewers daily for about a month, set maintenance programs should be continued indefinitely. After the conventions are over and the nominees selected, the public will want to follow the campaigners wherever possible in their tours across the country. This is one year when millions of TV set owners will be able to go barnstorm-

(Continued on page 21)

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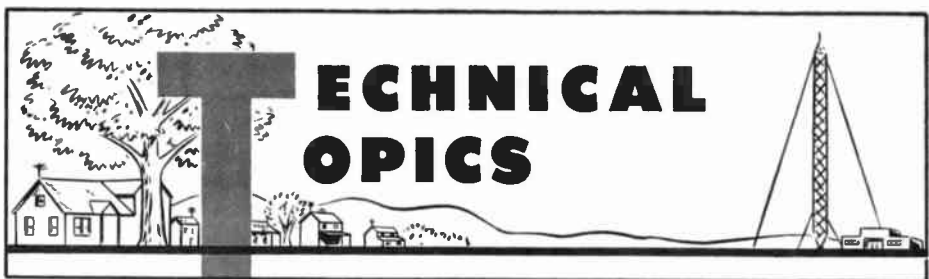
Send complete Q-TEE literature

Send copy of new Vee-D-X catalog

Name .....

Street .....

City ..... Zone.....State.....



## The Effect of Technical Developments and Products Upon Your Present and Future Business Activities

By EDWARD M. NOLL

We have expressed repeated confidence in the future of industrial-commercial television. The present planning in this division of the field heralds an early break-through into wide-spread activity. SERVICE MANAGEMENT and Television Technicians Lecture Bureau is now planning a lecture series to be presented in the Philadelphia area early in September. Lectures will be presented one night per week and continue up to the first of the year.

Subject matter will present a thorough coverage of systems and methods. Your technical editor will give the lectures with an occasional visit from members of industry.

1. Applications and Business Potential
2. Basic Industrial Systems
3. Scanning Principles for Industrial TV
4. Formation of Composite Signal
5. Image Formation and Resolution
6. Television Camera Tubes
7. Video Amplifier Techniques
8. Camera Amplifiers
9. Cathode Follower Circuits
10. Synchronizing Methods
11. Sync Generators
12. Mixing and Distribution
13. Optical Systems
14. Commercial Industrial Systems
15. Installation Procedures
16. Practical Design of Systems

Lecture series is to start early in September in the Philadelphia area (or any other eastern area where we can secure a minimum group of 50).

We want to stress the importance of contacting us immediately. Write and express your interest in such a series. The tedious work of organization will not be started until certain minimum interest figures are attained. We would appreciate immediate word from electronic personnel in the Philadelphia area. Send for information to:

Technical Editor  
 SERVICE MANAGEMENT  
 501 Fifth Ave.  
 New York, N. Y.

### Field Strength Meter Applications

1. Area Surveys
2. Minimum Acceptable Signal Levels
3. Tuner Performance
4. Site Checks
5. Antenna Gain Checks
6. Orientation

### The Field Intensity Meter

A field intensity meter can be used effectively in all television areas. It is a time-saving instrument for difficult antenna orientation problems. However, the versatility of the instrument does not stop with this single function. There are a number of additional and generally neglected applications, the active service organization should consider to derive full benefits from this type of meter.

#### a. Noise Level Measurements of Receiver

The field intensity meter can be used to judge tuner performance and to establish acceptable performance standards for your vicinity. A rather simple test procedure can be used to test noise level conditions in the receiver. Your own standards of performance for your area can be established in relation to what you consider average reception in your area.

In demonstrating the procedure to be followed we have chosen the two extremes of reception—far fringe and metropolitan. For metropolitan and suburban areas a criterion of tuner performance is signal level at which there is the first appearance of noise in the line structure of the picture. When this signal level is established for a given chassis type, you have a signal level reading you know must be exceeded to produce a noiseless picture. Inasmuch as tuner noise content often varies from channel to channel, take the measurements on the channel or channels with which you have most difficulty.

Proceed as follows: Set up the test units at shop or any point where you have a better than normal signal available.

1. Connect antenna transmission line via signal attenuator to receiver input. Use IRC signal attenuator or two similar value concentric potentiometers, figure 1.

2. Pick up strong signal on receiver. Now keep attenuating signal with control until you notice (by close observation of picture) the first appearance of noise in the line structure of the picture. At proper viewing distance this noise or snow should not be discernible.

3. Detach leads from receiver antenna terminals and connect to field intensity meter. Record field intensity reading—for most modern receivers this reading falls between 500 and 1000 microvolts.

4. It is now established that this reading must be attained or exceeded to produce a noiseless picture. When antenna installations are made, the installation crews can use this reading as an objective in your difficult areas. It can help them in choice of antenna type, mast height, mounting position, and optimum orientation. All of this work can be done without entering customer's house except to locate a source of AC for the field strength meter.

5. The very same measurement technique can be used to compare receiver chassis types and to check performance of a tuner after it has been repaired or aligned. It is really a practical, visual check of receiver sensitivity and noise level—this is the best type of objective testing in the field.

In the fringe area, a useful signal level to know is the one that represents minimum acceptable performance for your area. Once this level is established for channels with which you are concerned, you again have a useful reading that your installation crews know they must attain or exceed.

Again set up the test units at a position where you obtain higher than normal signal levels. Adjust attenuator until picture degrades to its minimum acceptable appearance for your area. Record this level and have your installation crews use it as a performance standard.

In the far fringes, attenuator would be adjusted until picture is down in the snow level which constitutes the minimum level of tolerated viewing (25 to 100 microvolts). In near fringe areas it would be adjusted for just a faint noise background. Use average per-

formance in your area as a standard objective.

For fringe areas in particular, this technique can be used to compare various types of receivers to ascertain which most readily meet your specific fringe requirements. It is an excellent test of tuner and i.f. performance whether you are tracing a defect or double-checking sensitivity and noise level after work has been performed on these sections of receiver.

#### b. Area Survey

A field strength meter and associated equipment can be used to compile signal level data over your entire area. Signal levels can be ascertained street-by-street and recorded on a local map. With this information available plus the previous readings in regard to minimum acceptable signal levels, antenna installation requirements can be predicted before installation work is begun.

Typical field strength measurement equipment, figure 2, could consist of field strength meter (calibrated accurately), power converter, and variac. Power converter could be a Cornell-Dublier model 6R5 which converts 6 volts d.c. to 110 volts a.c. Power plug and cord was type used with an auto trouble light so 6 volts for converter could be obtained by plugging into cigar lighter receptacle of car. Variac was used to keep line voltage reading constant and maintain calibration of field intensity meter. It was found advisable to keep car engine running whenever measurements were taken so as not to allow car battery to discharge to too low a level after a day of continuous measurements.

Measurement sites must be chosen carefully. Antenna must be erected in the clear and away from large metallic objects as well as power and telephone wires. In urban areas lots, open fields, athletic fields, etc., are likely locations at which to take readings and erect mast with no great difficulty (bolted

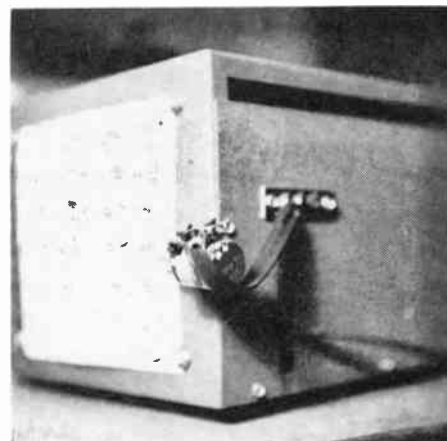


FIGURE 1

or telescoping sections). Fringe area measurements are made conveniently along flat sections of turnpike or highway and at various points around the outskirts of small towns.

For these measurements it is advisable to use an antenna for which you have accurate gain figures for each channel. Then, all readings can be converted to microvolts picked up by a standard dipole. These measurements are convenient because it permits easy calculation of signal delivered by any type antenna if its gain figures are known. Likewise, it is helpful to use a standard 30-foot-antenna height when making the measurements



FIGURE 2

for the survey. For other than 30-foot heights, signal level can be predicted as microvolts vary almost directly with antenna height at most locations.

In a far fringe area where average antenna heights are much greater, a higher survey antenna can be used for more precise measurements. A trailer and telescoping mast, figure 3, is of great advantage in tracking down some of the fringe propagation variables.

#### c. Site Check

Still another application for the field intensity meter is testing of prospective sites to ascertain signal levels. This procedure has utility when new stations come on the air and a quick performance survey is needed. Measurement technique can also be used when you plan to provide expanded fringe service because of higher transmitted powers or because you sell a more sensitive receiver.

In difficult areas the field intensity meter and portable units permit you to measure signal levels at a given house to ascertain if reception is feasible before antenna or receiver is installed. Early checks of this type permit you

(Continued on page 25)

BY APPOINTMENT



TO THE AMERICAN PUBLIC



In some countries products are endorsed by the Crown, and bear the arms of the royal family. That gives them prestige which stimulates sales.

But in democratic America our products are endorsed solely by the approval of the American people, and are identified by brand names and trademarks that have won esteem the hard way.

Here every product must stand on its own feet, and fight for survival in the intense competition of the market place.

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Our system of brand names and advertising is important to the American way of life for two other basic reasons:

1. It develops broad markets for our goods, which in turn stimulate volume production. As a result, many conveniences that would otherwise be luxuries can be sold at prices almost everyone can afford.
2. Brand competition spurs our manufacturers to greater efforts to please us. And this results in constant product improvement and the birth of many new products to add to our comfort and happiness.

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# THIS SUMMER

## Boost Sales With Portable Radio Batteries

By HARRY J. MILLER

THERE'S a big market and a continuing profitable source of repeat business that many service dealers seem to have overlooked — replacement batteries for portable radios.

Batteries, however, unlike a lot of other merchandise that the average merchant stocks, are one item that needs constant and consistent merchandising and sales promotion effort if the potential is to be realized. Portable radio owners need to be told over and over that you have in stock the batteries they require, and it is a proven fact that most of these folks don't know where to buy them!

If you stock them, tell him so, and you've got a regular customer.

It has been estimated that many of the portable set owners got them as gifts. This means that they owe scant loyalty to the dealer who made the sale. And in most cases, it is probable that he doesn't even know who the dealer was.

Until his batteries go dead, he is not concerned with replacing them. But when they do wear out, the owner doesn't know where to buy replacements.

Most dealers' showrooms are crowded with radio and video merchandise, and there is small evidence of batteries on display. Seldom does the dealer adver-

tise the fact that he handles batteries, and seldom does the customer walk in to the dealer's, unless it be for a television set or a radio. Consequently, the owner of a portable just doesn't use it until he finds a place that sells the batteries he needs.

Many times the sale goes to an auto supply store. Which is again proof that if they are adequately displayed and the customer's attention called to the fact that the radio-television service dealer stocks them, many sales will ensue.

Since the radio-television store is a natural for the sale of this item, it seems strange that dealers should permit this business to go elsewhere. After all, the traffic is there, the batteries are already in stock. All that is necessary is that the dealer *tell the customer he has them!*

Whatever the manufacturer's brand you handle you can be sure that a variety of selling aids are available. Ranging from a colorful window display or streamer that stop the passer-by to the direct-mail card that influences the consumer in his home, they are made specifically to boost battery sales. It is a shame that too few dealers put the manufacturer's sales builders to use. Practically offered to the dealer at no cost, they both signify a battery outlet and stimulate battery sales.

Too few television operators are making use of their home servicemen to promote the extra sale. Certainly an added packet of batteries is not going to overload his service kit. The man you send into the customer's home should be intelligent enough to merely ask if the customer needs any batteries. It's a good bet that the home either has a portable or a searchlight. Should there be any need for the item you make buying easier. You stimulate sales without any added selling cost.

More than 9 million battery-operated portable sets have been sold in this country since the end of the last war; portable sales are still on the upswing, and a large radio manufacturer opines that portables currently account for about 20% of radio unit sales.

(Continued on page 22)



## Through Preventive Maintenance

By E. C. TOMPSON

*Public Relations Counsel*

One of the things that every TV Service organization needs is some form of business insurance. Fortunately, the best form of business insurance is contained in the "policy" that is written by TV Service management. Instead of paying premiums to a collector, the TV Service operator simply takes a few minutes a day, studies his actuarial tables and writes his own policy. This is economical and practical because the TV Service operator knows more about his business than any commercial underwriter who would charge him for the losses of the average service business operation.

The life insurance business, for example, has grown through the initiative of a few people with extensive statistical data provided by professional actuaries, or computers. Barring a return of the plagues of the middle ages, life underwriters place a sure bet every time they write a policy. They do not have to take any chances because the policy they issue is based on prior studies of probabilities. Life insurance actuaries know how many people, in every thousand, will die from specific causes and at specific ages.

In the radio-TV industry similar principles have been applied, principally in tube manufacture, where the "actuary" is called the quality control engineer. A principal difference between these two professionals is that the life insurance actuary is as old as the business but in the radio-TV business the quality control engineer is relatively new. Statistical quality control is hardly twenty years old.

The basic principles on which the profession of the actuary and the quality control engineer are based are simple. They are concerned mainly with probabilities. You can demonstrate the law of probability yourself—if you like. Take groups of pennies, a 100, 1,000 and 10,000. Toss them in the air and care-

fully note the number in each group that fall "heads" up. Repeat the process a number of times and compare results. You will soon learn that the probability of the number of coins falling "heads" up in the larger group will be shown by the record of results provided by the smaller group.

Professional pollsters survey public opinion through a "qualified sample" of only a few hundred people—to obtain projections of opinion that is probable through all people in the nation. They, too, lean heavily and successfully on the law of probability.

The TV Service organization should have a "qualified sample" of its business in the form of records. These records should be adequate for study and application of principles that will guarantee the business insurance policy.

These records should show the number and kind of service that has been sold to customers. They should also show the frequency that certain kinds of service have been called for. A study, we believe, will indicate that there have been consistent calls for specific kinds of service at *regular* intervals.

### Service Records

The kinds of service and the intervals will vary from community to community, depending on the technical aspects of TV sets in use and the number of hours of operation per set but every TV Service operator can determine the pattern of his specific market by reviewing his own records. By tabulation of these basic factors he will have made the first step toward establishing the probability of his business.

If he is alert he will also become enthusiastic about the probability of increasing his business by merchan-

dising preventive maintenance in a series of service packages, not only to his customers but also to many of his prospects for new business and increased profits.

The TV Serviceman's preventive maintenance program is one of the best forms of insurance that he can obtain. Like the commercial insurance company, he is placing a sure bet every time he promotes a preventive maintenance policy. This is due to several facts: first the policy is based on the statistical record of his own business and second, it is based on the principles that have been proved workable and profitable in similar service industries.

TV Service organizations should be familiar with preventive maintenance as it is applied in the automotive field. Most everyone has been encouraged to have his car lubricated at regular intervals and has been solicited for "tune-up" jobs—not only at regular calendar and mileage intervals—but also at changes of seasons.

Preventive maintenance has also become widely applied to merchandising in fields close to the professions. You have probably noticed slogans like: "brush your teeth twice a day, see your dentist twice a year" or "know your druggist better, he's your doctor's right hand man."

These themes have created some business at the local level for manufacturers in spite of common, basic weaknesses. The ideas are good but they were created in ivory towers from which the actual consumer appears only as a cold statistic. The big job: creating warm, human consumer contact through understanding of the actual consumer, is seldom done. The beautiful thought loses perspective.

*(Continued on page 23)*

# NEW ORLEANS • LA. •

## Service Center

By

DAVID MARKSTEIN

*A Southern TV Service Operator*

*Hits Back at the High Cost of Doing Business*

What can the owner of a TV service shop do to keep high costs from running away with his profits in these days of swollen overhead and increased taxes? "Control his buying, his job procedures and his inventory," answers Ernest Simonds, owner of Simonds Radio and Television, 5501 Magazine Street, New Orleans, La.

"Buying procedures," Mr. Simonds notes, "offer a fertile field for cost control. Take just one angle of buying, the taking of quantity and cash discounts. Right there, it is possible to cut costs by worthwhile percentages. When I say worthwhile, I mean that considerable amounts of dollars can be saved. Some service shop owners scorn a two per cent difference. I do not. When you buy a lot, that two per cent mounts up. Quickly.

"We have set up a tickler file for invoices here in the office. As they are received, they are filed in this tickler under the date by which they must be paid in order to realize the discount. Our office girl carefully notes this as each invoice comes across her desk. Every morning, she digs out the invoices due for payment on that date and sees that these checks go out on time.

"Often, the difference between getting a quantity discount and missing it can be a matter of only three or four units. While I am certainly no believer in purchasing a single nickel's worth of parts it is not likely we will be able to

use up inside a reasonable length of time, and just as certainly no believer in tying up capital needlessly on the parts shelves, yet if it seems probable that we will need the difference in number, then I'll go ahead and order it so we can get along with it the sometimes substantial difference in price. That is plain good business sense. It is also a sound way of controlling costs and increasing profits in these days when the size of the overhead can cause a shop's books to be written in red ink."

In any business where the labor of employees is a big part of the overhead, the question of how to get more work and better work out of every hour is top on a list of ways to cut costs. "We have instituted a percentage system," says Ernie Simonds. "Part of every service labor charge is retained by the house, part belongs to the man who does the job. He gets no salary at all. The harder he works, the more money he can make.

"A system of this sort attracts a better type of man than the technician who looks for salary security only. Actually, too, they make more money."

Mr. Simonds hastens to point out that there is an inherent danger in a percentage plan such as his. It offers an incentive to do the job sloppily simply in order to turn it out fast and get on to the next one. "That," he notes, "can mean lost customers as well as lost motion in setting things right. But we have no trouble here, because we have a rule: If the set comes back because work was faultily done, then the same man has to do it over—on his own time.

(Continued on page 24)



*Inventory is a spot where costs can get out of all control. Too much in stock, and money is tied up needlessly. Too little, and expensive time is wasted. Stock boxes are marked to give Simonds an informal perpetual inventory described in the text.*

# Antenna Inspection

## Means More Business

By EDWARD M. NOLL

*Technical Editor*

*A Summer Business Builder*

*You Can't Afford to Overlook*

Summer is the season for antenna work. Peak signal levels exist and any antenna demonstrations and results are more gratifying. There is a decided business slump and time devoted to antenna work can recover some activity.

In addition, what is learned about antenna performance and installation during this period can be used to advantage in making just the right installation quickly in the fall when new receivers begin to move and antenna installation time is at a premium.

A local summer inspection drive and some well-planned local advertising can be beneficial in a business way and in establishing good customer relations and interest. A great many apparent receiver troubles are antenna troubles. Sloppy pictures on just certain channels are generally not tuner but antenna troubles. There are so many ways an antenna can influence picture quality. Consequently, the antenna should not only be a proper one for your locale but antennas and accessories must be kept in peak operating condition.

An antenna inspection procedure

should consist of the following activities:

1. Placement of local ads of a technical nature explaining the need for antenna care and possible replacement.

2. Instruct consumer that just having a picture doesn't mean antenna is giving peak performance. Antennas influence picture clarity, stability, reflections, and noise content.

3. Know what type antenna system permits peak performance in your area (we are concerned with peak performance now and not the cheapest type antenna that will give a picture on each channel). Perhaps build a portable antenna-mast assembly that can be used for demonstration purposes

4. Antenna inspection should include the following:

a. Quality and appearance of transmission line. Inquire if high band signal levels are weaker when it rains — an indication of severe line loss through moisture absorption.

b. Connections at antenna terminals. Soldering lugs are preferred.

c. Check for loose and weak elements. Check for rust and wear at places where electrical contact must be established, such as between elements and stampings, etc.

d. Check for correct orientation. Check in particular U-bolt assembly to make certain there is no play and possible shift in orientation with high wind.

e. Check to see if transmission line stands clear of roof and metallic objects. Replace infirm and broken insulators.

f. Inspect guy wire system and mounting brackets for any signs of wear or weakness.

5. If by observation of receiver performance on each channel you realize better results can be obtained with a different style or new antenna, explain possible improvement to customer. If possible, explain and demonstrate these improvements to him.

## An Approach to Antenna Advertising

Advertising that contributes guidance and some instructive reading is most welcome. True it requires longer reading time but it is likely to receive more consideration. If prepared properly it can create confidence in advertiser and an appreciation of the advertiser for his more dignified approach.

What the public does and can understand about television is not to be under-rated. To most average income families it is their major or only source of entertainment. Any such group with their activities so closely related to a device soon acquire a surprising depth

of understanding about its operation. It is true they also acquire many misconceptions but they are so well versed in phraseology and general operation, if you take pains to explain a technical subject well they can understand it. We have found, for example, in fringe areas in particular the ardent TV fan has a fundamental understanding of antenna practice that often approaches and on occasion exceeds the knowledge of the average installation crew.

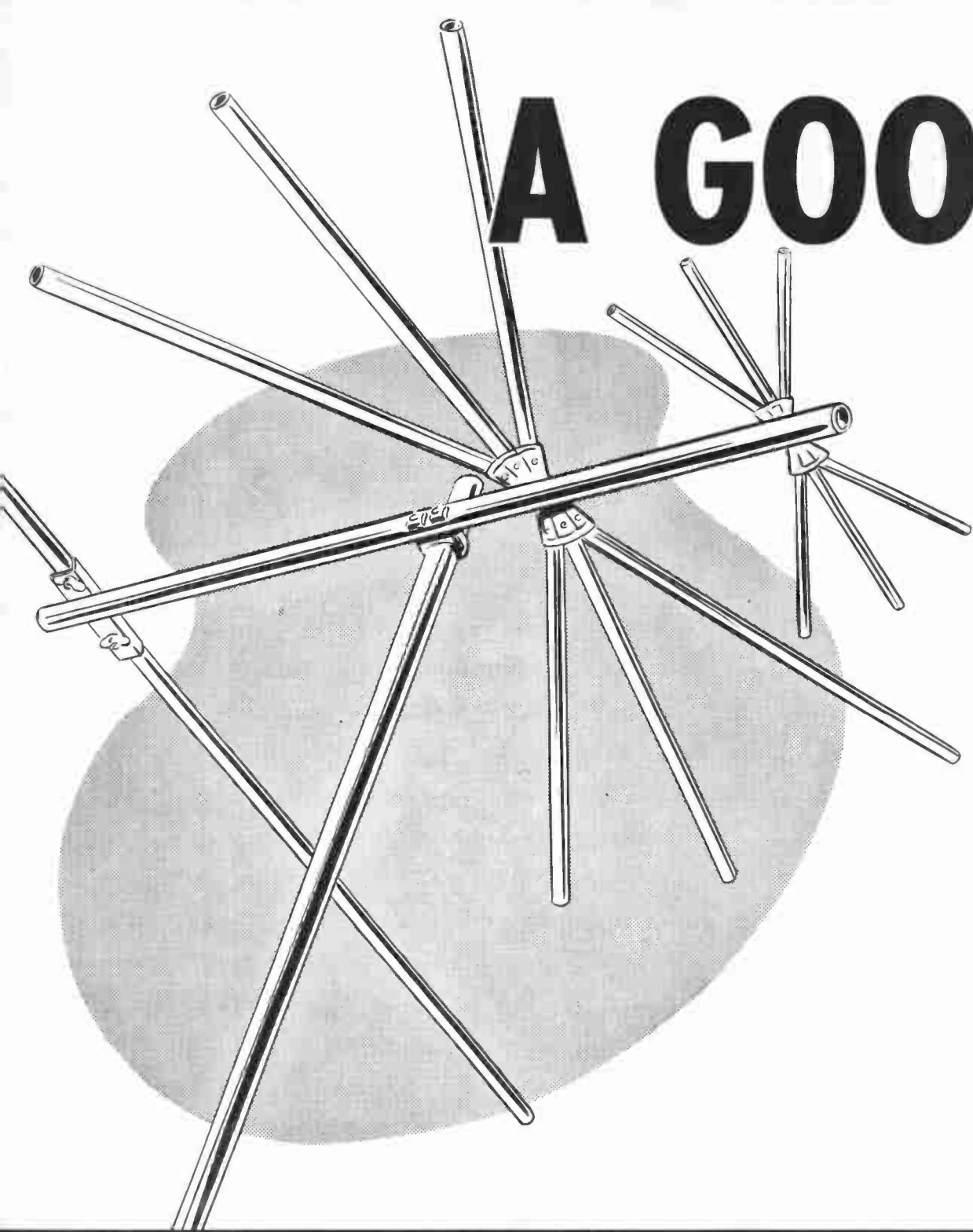
A technical explanation can be understood if it is written clearly in under-

*(Continued on page 23)*

*Here's a consumer message that can serve you well. Set up as a streamer, it speaks a piece that every consumer should see. Put it up on your window or over your counter.*

***Stop your customers at the point of sale.  
Paste this streamer on your window and  
promote antenna replacement business.***

**A GOOD A**



**M**

• **b**

•

**HAVE YOUR A**

*Checked to*

**ANTENNA**

*Learn-*

**• better**

**• picture**

**• quality**

**ANTENNA**

*today*

**VEE-D-X**



**AMPHENOL**

***Stop your customers at the point of sale.  
Paste this streamer on your window and  
promote antenna replacement business.***





# Ouachita Service

## Philosopher

By JACK DARR

Your typical radio and TV serviceman is a confirmed gadgeteer. Give him a difficult job to do, and nine times out of ten he'll come up with some tricky little gadget that will enable him to do the job just a little bit better and quicker. I know what I'm talking about; I'm one of 'em. For years now, gadgets have made the work a lot easier around my shop, and I know it will in yours.

The average gadget doesn't take much time to make. For instance, one of the handiest things in the shop is a test antenna for auto-radios. This is a piece of good flexible wire, with a bayonet plug on one end, and a "Cinch" plug on the other, about three feet long. Just plug in the end that fits, and fit it up; if it'll play on that, it'll play in the car. There's no need to go to great lengths to check the sensitivity. This comes so close to matching the low capacity of a car-antenna that there's no difference.

The principle behind a gadget must be simple, and it must also do some one job quickly. If it will meet these standards, it's in. If you'll make an effort to develop a gadgeteering turn of mind, you'll find that it will save you many an hour of work, and make your job lighter. This is one place where the trade magazines, like *SERVICE MANAGEMENT*, give the serviceman a whole lot of help. In their pages he'll find many an idea he might not have thought of himself, and he can also, if he wants to, contribute some of his own ideas. I've gotten many a useful idea from the radio magazines, and any alert servicer can do the same.

First and foremost in the gadget department come tools. I don't mean the everyday tools such as screwdrivers, pliers, and stuff, but special tools that you can adapt to your special needs, though they might be a long way from the job they were originally designed

for. There are, of course, lots of special "standard" tools, such as screw-holding screwdrivers, ratchet wrenches, etc., but that isn't what I mean. I'll try to give you some ideas, and let you take it from there!

It has been said that the radioman uses the tools of every trade in the world, from jewelers to blacksmiths, and I believe they're about right. Let's take a few — the dentist: From him we can get little steel picks and other instruments of torture, which make ideal tools for picking solder out of a lug, loosening wires from a tight joint, and various and sundry digging and scraping jobs around a set. Most of these are made of very good steel, and you can work your dentist out of several of them, if you go about it in the right way. Also, he usually has a supply of old abrasive discs, burrs, polishers, and so on, that will fit beautifully in the chuck of your Handee or other hi-speed hand-grinder.

The doctor can give you some good tools, too. What he calls a haemostat, and radiomen call something not nearly so nice, is an awfully handy gizmo around the shop. Looking like a cross between pliers and scissors, the handles lock together, and can be used for innumerable holding and fishing jobs. Sometimes you can find these on sale at surplus houses. Get two pairs if you can, a long one and a short one. Old scalpels and other surgical knives are handy for cutting and carving operations in the shop, as they, too, are made of fine steel. They will take a razor edge.

From the jeweler's come the little eyeglasses, or "loupes," if you want to get technical about it. These range from 1½ to 4 powers, with focal lengths up to 4 inches. They're invaluable for examining coils for breaks, inspecting phonograph needles for wear or chipping, as in sapphires, and many other jobs that require a high-powered magnifying glass. The locking tweezers used by watch repair men are swell for fine work. So are some of the fine pliers and cutters, for working with fine wires and other small parts.

The druggist gets in the act, too. He can furnish you small bottles with eyedroppers, for use with volume-control

cleaning fluid, carbon-tet, light oil, and any of the various "juices" that we have to use. Also from the drug store are the rows of small "ointment jars," of glass, with wide mouths. These are very handy indeed for holding tiny screws, soldering lugs, knob springs, set-screws, and any of the other very small items which are so hard to keep track of around the shop. Incidentally, while we're on this, a few old mayonnaise jars, without lids, make elegant places to keep screws, washers, nuts, self-tapping screws, wood screws, etc. A few minutes spent separating these out into separate jars will surely save you a lot of time later on!

Even the variety store, dime store, or toy store can furnish us with stuff; they've got model airplane dope in several gay colors, quick-drying, cheap, and just the thing for color-coding, painting pilot lights, etc. A dime store bottle of nail polish is handy, too. Don't laugh! This is good stuff. Y'wanna lock a trimmer or a core-screw on a slug-tuner? Dab it with a bit of nail polish. A red pilot light? Out with the nail polish bottle. Keep the knot on a dial-cable from slipping? Nail polish again.

Here's a good gag for the colored dope bottles: identification of tools. Your screwdriver drawer has two or three Phillips, Clutch, and other "funny" screwdrivers, all very necessary, but annoying as all git-out when you want to get a plain ordinary old screwdriver. All the handles look alike, so how're you gonna tell 'em apart? Easy. Get the colored dope bottle; paint the Phillips handles all red; the Clutch drivers all blue, and so on. Leave the ordinary screwdrivers plain, and there you are. Same stunt works with the "nutdrivers." You probably use the ¼-inch size more than any of the rest. Paint it some color, and you can pick it out the first time.

Radio men are noted for their ingenuity in applying odd and unusual objects to their own purposes. Let your imagination go next time you get a chance, and you'll be surprised how much help these "funny tools" can be! Happy Gadgeteering!

P.S. If you ever find out something you can do with a pair of hog-ringing pliers, lemme know, willya?

# Service

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## As a Sales Gimmick

By HAROLD CHASE, *President*  
*Television Service Association of Michigan, Inc.*

### Is It Ever Justifiable?

It is highly doubtful whether the general public has ever been as confused on any issue as the TV set-owning public is about television servicing. Television is the most complicated mechanism ever mass produced for the general public and yet the public has been led to believe that manufacturing "ingenuity" is producing receivers that are so simple that they are practically trouble-free.

In discussing television with set owners and the subject turns to service, nine out of ten of them will tell you that

the prices charged for TV service are exorbitant and the "kids" they send out to fix the receivers do not seem to know what it is all about. However, if you ask the average complainant when he had his receiver last repaired he will probably tell you that he hasn't needed any service on his set for some time. He was just mouthing a general feeling about TV service costs that exists among the majority of TV set owners.

Take the \$5.00 minimum service charge that most legitimate service operators get for a home service call. When a set owner gripes about cost of service, take the time to analyze for him the costs of operating a service business in today's market and he will usually agree with you that you undoubtedly must charge that much in order to stay in business. Why keep our costs of doing business such a dark secret?

People do not like to spend money to have anything repaired. Necessary repairs to homes are often put off until they reach a serious stage where something must be done. Inoperative appliances like vacuum cleaners stand idle in basements or clothes closets because of owner apathy and the normal reluctance to spend money on any repairs. And we all well know how badly crippled radios were kept in continual service until a tube or component part finally gave up the ghost and the set quit playing.

Since television becomes the medium around which home life revolves after a set is installed, when the set needs service the family is reluctant to "put it off." They want that service right now. But competent "on call" service cannot be "cheap service" so everything we do in this industry where service publicity is involved should be directed toward conditioning the minds of the set-owning public that good service is worth the price that is charged for it.

When we see an ad like the one reproduced on this page, where a "lifetime TV-warranty" is given at the price of a 90-day-service warranty and the statement is made that there will be "no labor repair costs — EVER" — we shudder. We know it is a gimmick to sell sets. We know, too, that the warranty the customer gets will specify that while labor charges will be free there will be transportation charges for service personnel on home service calls on the set and when it is pulled to the shop for repairs. These are facts that are probably explained to prospective purchasers who become interested in the advertised receiver because of the "lifetime service" offer. Maybe the fine print in the owner's service agreement insures that the servicing agency will be able to hide the normal labor charges in renewed parts warranties — we don't know. (One of these gimmick ads recently appeared in Detroit papers offering

(Continued on page 25)

**1<sup>ST.</sup> OFFER OF ITS  
KIND EVER  
MADE**

## LIFE-TIME TV-WARRANTY...

at price of 90-day service warranty



MODEL 450 CVM

**\$349.<sup>95</sup>** PLUS  
PARTS  
WARRANTY

"Small screen eye-strain" is gone forever because this beautiful mahogany console brings gigantic 21" Living Pictures in a superb cabinet so cleverly contrived for limited space and budget that virtually no home now need do without the finest in BIG picture reception!

**NO LABOR REPAIR COSTS EVER!**

ONE-YEAR PARTS WARRANTY

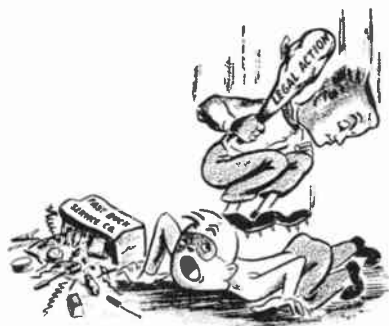
THIS SPECIAL . . .  
LIFE-TIME WARRANTY OFFER IS  
LIMITED TO THE  
NEXT 50 SENTINEL SETS  
SOLD FROM OUR STORE . . .

HERE'S WHY WE FEEL FREE TO MAKE  
THIS SPECIAL OFFER!

Our experience in serving Sentinel Television for a year proved to us that Sentinel has fewer service problems than any other set.

We have chosen to feature Sentinel over all others in opening our new store. We are confident that you will be as enthusiastic as we are about this set with the "living picture" and will want to act quickly—be one of the next 50 proved owners of a beautiful 1952 Sentinel Television. Remember, you pay only the price of a regular 90-day warranty—and your TV service problems are over—no further labor repair costs—EVER!

# Service Association



## Developments

Reports from various parts of the country indicate that in many television areas legitimate service business operators and dealers are meeting with success in their efforts to stamp out service racketeering through collective action on local levels. The depressed condition of all retail business for the past several months brought out a rash of fast-dollar service manipulators with ads and hand-bills featuring low-priced "service charges" on TV sets but whose actual charges for the jobs they got were loaded with high-priced parts.

### In Chicago

The Television Installation Service Association (TISA), working with the local Better Business Bureau and the Illinois State's Attorney's Office, conducted an exhaustive survey of the practices employed by new service outfits that were advertising home service calls for \$3.00 with service available day time, night time, Sundays and holidays. They reported that the same general pattern of operation was used by all of the companies under investigation. Wherever possible, the set owner was persuaded to permit his receiver to be taken to the "shop" for repairs. No estimates were given. Owners were charged service fees ranging up to \$85.00 to get their sets back. No itemized bills were given and no defective parts ever returned.

Frank J. Moch, president of TISA, reported that:

"TISA obtained hundreds of sworn statements from bilked set owners and from past and present employees of the companies involved. Sets were set up with very obvious, natural type defects. Every step of these set-ups was witnessed and sworn to by the owners and qualified, competent experts. These sets were submitted for service to suspected companies. The results confirmed the reports of set owners. The Chicago Better Business Bureau, some newspapers and the State's Attorney's Office cooperated fully. A special investigator and special prosecutors were assigned to the case. The first of the

companies was subpoenaed to appear before the Cook County Grand Jury. As a result of the investigation Par TV, Alert TV, Halburn TV and Guaranteed TV have closed their doors and ceased operations. Other offenders will be brought to trial as soon as the first case is disposed of. A permanent grievance committee is now functioning to continuously police service operations."

### In Detroit

The Television Service Association of Michigan is working closely with the Better Business Bureau, the OPS and the Prosecutor's Office in policing service business advertising and service practices in the Detroit area. They also furnish technical advice and assistance whenever it is needed. Their activities have been successful in ousting several "bad actors" from the newspapers, have gotten two convictions on fraud and have others in the process of prosecution.

Two management meetings conducted by the TSA of Detroit attracted an attendance of approximately 1,300 peo-

ple. They recently conducted a two-day television service clinic in which set distributors cooperated by displaying their latest chassis units with either the distributor's service manager or a factory service man or field engineer in attendance to answer questions on service or design. TSA sponsored similar clinics in Kalamazoo and Grand Rapids and has plans to carry the program into all key cities in the state.

### In Pittsburgh

The recently organized Television Service Association of Pittsburgh is engaged in perfecting plans for their activities in the tri-state area. Robert Laneve of the Pittsburgh Radio, Sound and Television Lab, is president of this new service business association. Serving with him for the year 1952 will be: vice-president, Milton J. Reich of Allegheny Television, Inc.; secretary, Thomas Ulrich of Penn Television; and treasurer, L. C. Reed of Moree Television. Penny Martin, public relations counsel, was selected to handle the post of executive secretary. TSA offices are located at 414 Bessemer Building in Pittsburgh.

### In Philadelphia

The Joint Electronic and Radio Committee on Service for Philadelphia, working in close cooperation with the Better Business Bureau, is credited with having reduced the volume of complaints about TV service by 85% in that area, according to Hugh A. Smith, secretary of the Philadelphia BBB.

The JERCS Committee is made up of representatives from all industry elements in the Philadelphia area which includes both service associations—the Philadelphia Radio Service Men's


(Continued on page 26)



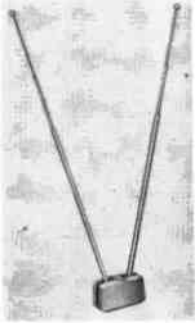
Overflow crowd jams Franklin Institute Auditorium in Philadelphia to hear Edward M. Noll, of the Television Technicians Lecture Bureau, talk on UHF television. The meeting, sponsored by the JERCS Committee with the cooperation of all local Parts and Set Distributors, PRSMA and TCA, was the first in a series planned by the Committee. The equipment demonstrated by Mr. Noll in connection with the lecture included all of the UHF converters that were available at the time the lecture was presented.

— Photo by Norman M. Pastor

# PRODUCT REVIEWS



## TIP-PROOF INDOOR ANTENNA



Radio Merchandise Sales, Inc., 1165 Southern Blvd., New York 59, N. Y., recently introduced a new indoor antenna of three-section telescopic design with adequate weight in its base to prevent accidental tip-over. The three-section elements are made of

an aluminum alloy and are supplied with springs to assure positive contacts. Inserts between element sections greatly reduce tendency to bow after long use. The new indoor antenna, designated as type T-3, is available through all RMS jobbers.

## CHANNEL MASTER BOOKLET

Channel Master Corp., Napanoch Road, Ellenville, N. Y., has published a new 12-page booklet describing more than fifty different types of antennas



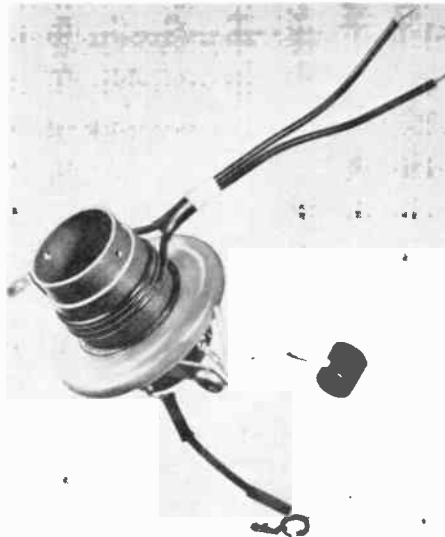
and accessories. The booklet, which is fully illustrated, also contains gain curves and polar diagrams. It is available, free of charge, to all TV installation and servicemen.

## "SILVER STREAK" ANTENNA

Technical Appliance Corporation, Sherburne, N. Y., is distributing a new fringe-area antenna that is said to be designed and manufactured to afford the highest possible gain without separation of audio and video signals and to provide a directivity pattern with excellent front-to-back ratio. The antenna incorporates eight directors and a two-diameter-driven element and reflector. It is available as a single bay or stacked array. High-band "Silver Streak" antennas are identified as 1850-( ) and 1851-( ). The low-band version is identified as 1800-( ) and 1801-( ). The antennas are supplied completely assembled and ready for installation.

## AIR-CORE AUTO TRANSFORMER

Ram Electronics Sales Co., Irvington-on-Hudson, New York, has announced a new air-core auto transformer for replacement in RCA, Emerson and Capehart Farnsworth TV receivers. The unit is said to provide excellent voltage



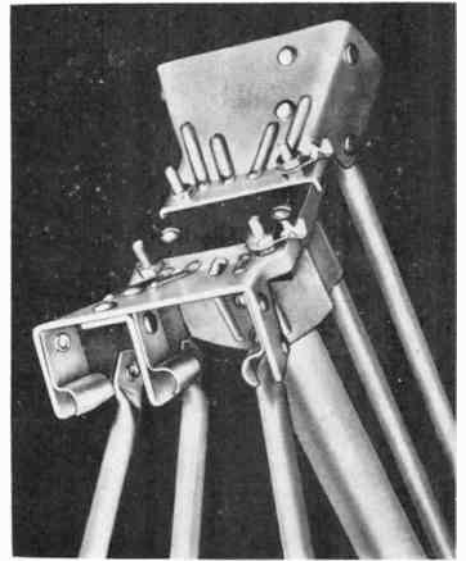
regulation and to feature improved anti-corona construction. RAM X068 transformer is designed for direct drive circuits and will deliver eleven to thirteen kv output for picture tubes ranging from 14" to 20".

## BATTERIES FOR PORTABLES

RCA Tube Dept., RCA Victor Division, Harrison, N. J., has announced two new types of dry batteries for personal radios that are said to be designed to enable playing up to ten times longer without battery replacement. The new "A" batteries, designated as RCA VS236, provide 1½ volts and are designed for use with the new 67½ volt "B" battery designated as RCA VS216, which is reported as the first alkaline dry cell type. It is 22 per cent smaller than comparable "B" batteries.

## ANTENNA ACCESSORIES

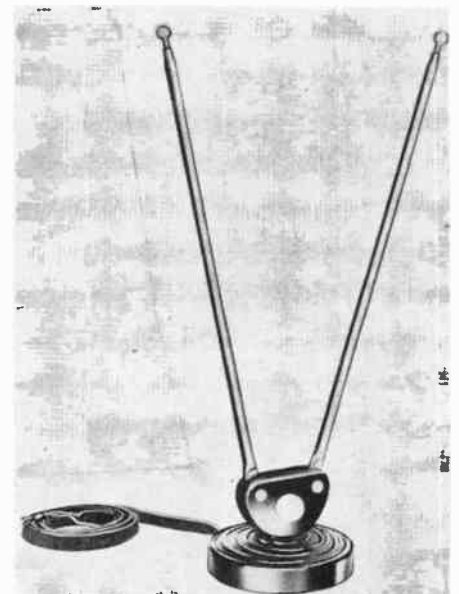
TV Products, 152 Sandford Street, Brooklyn 5, N. Y., have announced a new type of TV antenna that is supplied completely assembled and requires no tightening of nuts, bolts or wing nuts.



They have also announced a new wedged-end mast joiner for 1¼" O.D. masts. The MJ-10 mast joiner is supplied with a polychrome coating to withstand corrosion.

## INDOOR FM-TV ANTENNA

TV Development Corp., 2024 McDonald Ave., Brooklyn, N. Y., is distributing a triple-section telescopic dipole antenna for FM-TV indoor reception. Clean, permanent contact is assured between sections through the use of brass tubing. Model TV-33 indoor antenna is supplied with a molded bakelite base and heavy cast iron underbase.



# PHILCO SERVICE

## OUR CHARGES for Television Service and Repairs ARE STANDARD AND REASONABLE

As Members of Philco Factory-Supervised Service—A World-Wide Organization of Appliance Servicemen, We Endorse the Policy of Insuring to the Public Proper and Uniform Charges for Thorough and Reliable Television Service Work

### REPLACEMENT AND REPAIRS

These suggested standard charges cover service only, and include all testing required to locate trouble. Prices for materials used are extra, and are listed in the Philco Catalog of Parts, Accessories, Tubes, and Batteries.

Aerial: repair or orientation, per hour	\$ 9.20
minimum	11.50
Aerial: installation or replacement (job price)	
for standard installation	\$17.25 to 23.00
Audio Amplifier: resistor or condenser replacement, wiring repairs	4.05
Audio Transformer: replacement	5.20
Automatic-Frequency-Control System: resistor or condenser replacement, wiring repairs	5.75
Automatic Record Changer: major repair, including cleaning, adjustment and lubrication	\$7.75 to 13.80
Automatic Record Changer: minor repairs	2.90
Automatic-Volume-Control System: resistor or condenser replacement, wiring repairs	5.20
Beam Bender (Permanent-Magnet Type): replacement or repairs	1.75
Beam Bender (Electromagnet Type): replacement or repairs	4.30
Condenser: main-filter replacement	5.20
Condenser: trimmer replacement	6.05
Condenser: tuning-gang replacement	7.50
Control: replacement	3.75
Damping Circuit: resistor or condenser replacement, wiring repairs	6.05
D-C Restorer: circuit resistor or condenser replacement, wiring repairs	4.30
Deflection Coil: replacement	6.35
Detector Circuit (Audio): resistor or condenser replacement, wiring repairs	4.30
Detector Circuit (Video): resistor or condenser replacement, wiring repairs	4.30
Dial-Drive Cable: replacement	\$2.30 to 3.45
Dial-Drive Mechanism: replacement or repairs	3.15
Dial Lamp: replacement	1.15
Dial Pointer: replacement	\$1.75 to 2.30
Dial Scale: replacement	3.15
Discriminator Circuit: resistor or condenser replacement, wiring repairs	6.35
Discriminator Transformer: replacement	7.50
Filter Choke: replacement	4.90
Focus Circuit: resistor or condenser replacement, wiring repairs	4.30
Focus Coil: replacement	6.35
Horizontal Circuit: resistor or condenser replacement, wiring repairs	6.05
Horizontal-Output Transformer (Direct View): replacement	7.20
Horizontal-Output Transformer (Projection): replacement	11.50

Intermediate-Frequency Amplifier (Audio): resistor or condenser replacement, wiring repairs	5.45
Intermediate-Frequency Amplifier (Video): resistor or condenser replacement, wiring repairs	5.45
Optical System: flat or spherical-mirror replacement	6.60
Optical System: corrector-lens replacement	10.05
Optical System: cleaning and adjustment	4.30
Oscillator Circuit (Horizontal): resistor or condenser replacement, wiring repairs	4.90
Oscillator Circuit (Horizontal): transformer replacement	6.60
Oscillator Circuit (Vertical): resistor or condenser replacement, wiring repairs	4.90
Oscillator Circuit (Vertical): transformer replacement	6.60
Phonograph Motor: cleaning and lubrication	5.20
Phonograph Motor: replacement	4.60
Phonograph Pickup: replacement or adjustment	3.75
Power-Supply Circuit (High-Voltage System): resistor or condenser replacement, wiring repairs	5.45
Power-Supply Circuit (Low-Voltage (B+) System): resistor or condenser replacement, wiring repairs	4.30
Power Transformer: replacement	9.50
Projection Screen: replacement	5.45
Radio-Frequency Amplifier: resistor or condenser replacement, wiring repairs	5.45
Radio-Frequency Transformer: replacement (does not include "clip-in" coils)	6.05
Resistor (Voltage Divider): replacement	4.30
Speaker: replacement	4.30
Speaker Cone: recentering	2.60
Speaker Cone: replacement	5.45
Station-Selector System (Mechanical): repairs	3.45 up
Switch (On-Off): replacement	4.30
Switch (Push Button): cleaning and lubrication	4.05
Switch (Push Button): replacement	7.20
Switch (Radio-Phono) replacement	5.20
Switch (Wave-Band, Single-Section): replacement	7.20
Switch (Wave-Band, Multiple-Section): cleaning and lubrication	5.75
Switch (Wave-Band, Multiple-Section): replacement	\$9.20 to 13.80
Tubes (Complete Set, Except Cathode-Ray Tube): replacement	2.90
Tubes (Cathode-Ray, Direct View): replacement	4.30
Tubes (Cathode-Ray, Projection): replacement	6.05
Tube Socket: replacement	7.20
Vertical-Output Transformer: replacement	5.75
Width Coil: replacement	5.20

### ALIGNMENT OF TUNED CIRCUITS

Television Chassis: complete audio and video	5.75
Radio Chassis: complete FM and AM	4.05
Automatic-Frequency-Control Synchronizing Circuit	3.75

PHILCO FACTORY-SUPERVISED SERVICE has compiled this suggested standard schedule of television service charges, based upon a careful estimate of the work and time involved in each process as performed by a competent television service engineer. These prices are based on the correction of trouble that appears continuously and without interruption. For correcting trouble that occurs intermittently, requiring additional testing over a period of time, prices will be higher than those listed, depending upon the amount of additional time required. All parts and tubes replaced are subject to the terms of Philco Television Parts Warranty.

When more than one of the above items occur in a single set, items other than the major item are charged for at lower rates than that shown on the chart, because of the time saved in handling.

The standard PHILCO FACTORY-SUPERVISED SERVICE charges include only the work done on a set in the shop or in the home. On outside service calls an additional charge is made for traveling time and for transportation, depending upon the distance and the number of trips required to complete the work.

The handling and transportation charge for outside calls within ten miles of the service agency is \$3.45 for work which is completed in the home. This amount is to be added to the repair charges as given above.

More extensive repairs which require the return of the set chassis to the service-agency shop will have \$5.75 added to the repair charges to defray the handling and transportation cost.

MINIMUM CHARGES: \$2.90 on all sets brought to the shop, \$4.60 on all outside calls within ten miles, (there will be an additional charge for mileage and time beyond ten miles).

## 90 DAY GUARANTEE

COVERS OUR SERVICE AND PHILCO PARTS AND TUBES USED.

PR 1977

Printed in U. S. A.

The Philco Corporation is noted for its extensive work in helping to build a strong, independent servicing industry capable of giving Philco owners competent, efficient service. In addition to the many technical services on Philco receivers that they make available to Philco authorized service outlets, the Company has consistently encouraged the application of good business practices in the management of service businesses.

One of these business services has been to supply Philco service outlets with schedules of recommended charges for labor. The major purpose of these schedules is to provide the service business man with a suitable yardstick for gauging his own prices for labor charges and for checking the efficiency of his operation when his labor costs greatly exceed those shown on the suggested schedules. All prices listed do not necessarily have the approval of SERVICE MANAGEMENT.

## OUR OPINION

(Continued from page 5)

ing with the presidential candidates in the solid comfort of their own living rooms.

For AM radio service operators this is one year when there should be a lively business in automobile radio and in battery-operated portable maintenance. July is the main vacation month.

Millions of people will want to follow the progress of the conventions as they drive their cars or as they relax at beaches or in mountain resorts. Good service selling will bring a lot of this business into service shops.

Parts and equipment manufacturers have prepared excellent service-sale promotion material to help you promote a share of this business for your shop. Your Parts Distributors can help

you to select the material that will be most effective in your particular location or in your specific kind of a service business.

But—don't wait for this business to come to you. Go after it. Use the selling tools that are available to you from your Parts Distributor and the chances are good that you will be able to make the summer of 1952 a season of good business for your shop.

## Extended Coverage for 25 TV Areas Forecast By Sales Managers Group

An expansion of telecasting coverage in 25 TV areas and a consequent stimulation of television receiver sales in these areas this year are expected by the RTMA Sales Managers Committee which recently studied the immediate effects of lifting the "freeze" on TV station construction.

The FCC has stated that it will give priority to the processing of applications for the channel shifts ordered in its recent allocations report and to requested power increases beginning July 1. In most instances, hearings will be unnecessary, it was indicated.

Following are the stations in which TV channel transfers have been ordered, the stations involved, their present channels and the proposed channel assignments:

Areas Stations	Present Channels	Proposed Assignments
WBKB	4	2
WDTV	3	2
WXEL	9	8
WNDK	4	3
WTMJ-TV	3	4
WLWT	4	5
WKRC-TV	11	12
WCPO-TV	7	9
WJAR-TV	11	10
WLTV	8	11
WTAR-TV	4	3
WAVE-TV	5	3
WHAS-TV	9	11
WBRC-TV	4	6
WRGB	4	6
WLWC	3	4
WHAM-TV	6	5
WMCT	4	5
WLWD	5	2
WHIC-TV	13	7
WSYR-TV	5	3
WOOD-TV	7	8
WDEL-TV	7	12
WMHC-TV	6	8
WJAC-TV	13	6
WOC-TV	5	6
WGAL-TV	4	8
WSAZ-TV	5	3
WTTV	10	4
WOI-TV	4	5

## Boost Sales with Portable Radio Batteries

(Cont.ued from page 9)

The same radio maker says: "Although there has been a portable radio market for more than 25 years, it has never been fully exploited as a source of battery sales, primarily because too many dealers do not fully appreciate the scope of the portable field and the possibilities for merchandising batteries among set owners."

## RCA Service and Replacement Drive

A new promotion by the Tube Department of RCA Victor Division, designed to accelerate consumer demand for TV picture and receiving tubes and to support radio service dealers in local business-building effort, embraces national radio and television advertising, in-store and window displays, direct mail, a kit of six basic sales aids and a promotion plan catalog.

L. S. Thees, general sales manager of the RCA Tube Department, comparing TV sets now in use with the probable increase said: "Today there are more than 16 million television receivers in use. By the end of 1955, according to findings gleaned from various surveys, there should be nearly 38 million receivers in American homes — with each receiver requiring an estimated average of up to four hours of maintenance time annually."

To pre-sell TV set owners on the performance advantages of replacement picture tubes, informative sales messages will be carried directly into millions of homes by RCA Victor's two network television shows and its coast-to-coast radio program.

The promotion plan book, "In Focus for '52," describes the new display unit, sales aids, a wide variety of RCA promotional material for TV picture tubes and receiving types, identification signs, clocks, repeat-service labels and direct mail literature.

## Mort Farr Cites Changes In Appliance Business

Mort Farr, president of the National Appliance and Radio-TV Dealer's Association, recently said that the lifting of Regulation W consumer credit controls from appliances and television should have a favorable psychological effect on dealers and consumers but that it will also bring about many basic changes in these fields, which he cited as follows:

1. The banker will resume his traditional role of a stable, balancing influence recommending down payments and credit terms.

2. More expensive items will be sold as a result of relief from large down payments.

3. Excessive trade-in allowances will decrease and trade-in values will have an opportunity to become stabilized.

4. Financing will become more diversified.



## RTMA SERVICE COMMITTEE

Standing, left to right: Albert Coumont, RTMA Service Manager; A. W. Kramer, Crosley Division, Avco; Richard H. Schneberger, Crosley Division, Avco; G. F. Hoppmann, Crosley Division, Avco; Harold J. Schulman, DuMont Lab. Inc.; Fred Abrams, Emerson Radio & Phonograph Corp.; John M. Woodland, Motorola, Inc.; John F. Rider, John F. Rider Publisher; F. B. Ostman, Capehart-Farnsworth Corp.

Sitting, left to right: D. R. C reato, RCA Service Company, Inc.; F. L. Granger, Stromberg-Carlson Company; E. W. Merriam, Sylvania Elec. Products, Inc.; Joseph S. Durant, GE Supply Corp.; David Davis, General Electric Co.; R. W. Felber, Stewart-Warner Electric Div.; Ray J. Yeranko, The Magnavox Company; C. E. Hoshour (guest), Belmont Radio Corporation; A. H. Kuttruff, Westinghouse Electric Corp.; N. J. Cooper, The Hallicrafters Co.; Frank E. Smolek, Zenith Radio Corp.

## ANTENNA ADVERTISING

(Continued from page 12)

standable semi-technical language. Do not use difficult technical sentence structure but don't avoid technical words, otherwise subject loses its meaning.

A successful ad plan of this type was conducted by Snyder Manufacturing Company in the Philadelphia TV Digest. The ads, instructive to consumer because of their explanatory guidance, created business as well as a more tolerant feeling between consumer and the television service industry. Consumer interest in these ads was high as indicated by continuous steady flow of queries sent in throughout the series. Response came from many sides. A member of the firm walked into a small lunchroom and the owner shouted across the room, "Say, you did a favor for me last week." It seems each time there was a minor wind in the area or a rainstorm, his picture started to bounce. After reading ad, he called service company to inspect his antenna — results, a loose connection at antenna terminals. He is now planning a new modernized antenna system.

An objective of this type of advertising is to create customer confidence in



Trailer and Telescoping Tower

your products and service. Confidence is gained slowly and can be lost quickly. Certainly, all technical information should be fact. We cannot say — use half-inch elements instead of three-eighth inch and you will have a better picture on all channels. We can say with half-inch elements we are able to build and install a sturdier and stronger antenna. Be technically accurate — one false presentation will chase your readers.

The ancients said, "Nothing is ever desired until it is known." What better way to present our story exists than through instructive advertising?

### Local Advertising

This very same technique can be used locally by the service organization. It can be made very effective and friendly — just like you were explaining certain technical facts to a neighbor pay-

ing you a visit at the shop. Local advertising can be made especially instructive because you can talk over specific local problems with the consumer.

### Antenna System Demonstration

A method of demonstration is advantageous in the sale of new antennas. Some means of raising a new antenna to same height as an old one and actually demonstrating improvement can sell the idea of a new antenna.

The approach to success in any type of demonstration work is to first locate the antenna type that will give the very best results in your area and use a high quality low-loss transmission line to permit delivery of peak signal.

In the far fringes a trailer and telescoping tower must be used because of higher antenna heights. In stronger signal areas a much simpler trailer or truck with a 30-40 foot telescoping tower can be used for demonstration work.

A fringe example is the AlprodcO trailer as demonstrated by Almo Radio Company at their fringe area store in Salisbury, Md. This represents an elaborate case as average antenna heights are 60-80 feet.

Pleasant summer weather is the ideal time for antenna work. Reception conditions are good for demonstration work and income can take up for the normal business decline.

### 1/26/52 issue of Phila. TV Digest

Consider how important a part your antenna plays in the proper functioning of your television set. Yet, out on the roof, it is exposed to wind and every kind of weather, and its various parts become deteriorated by moisture, heat, and cold. Eventually the antenna system loses its vitality and causes weak signals, shaky or indistinct pictures and a high background noise.

Very often we think it is our receiver that is getting old, while it is really the antenna system that is aging. Sometimes receiver performance is affected suddenly and severely by moisture or a dirt-laden transmission line, rust, loose or corroded connections, or wind-shifted orientation. Sometimes the change is slower and more subtle, and we say, "Our picture isn't as clear on channel 5 and so," or "interference seems more severe on channel X." Antenna failure can affect some channels more than others, depending on channel and signal levels.

The best way to enjoy finest reception is to have your antenna system inspected regularly. Deteriorated parts and elements should be replaced, any orientation-shift corrected and clean new connections established. Replacement and modernization of your antenna system by a skilled service organization can improve set performance and possibly bring in clearer those channels formerly more difficult to receive.

Since a knowledge of how your antenna operates will help you to attain better television viewing, we invite you to write to us about any antenna problems you have.

## PROFIT THROUGH PREVENTIVE MAINTENANCE

(Continued from page 10)

Referring again to the automotive

field: the motor car buyer is not happy to be considered a mere statistic. This is confirmed by the record of more than half of them who consistently prefer to have their cars maintained by independent service organizations where they are treated like warm, human beings.

### Sell Local Market

Alert TV Service organizations realize that they cannot treat their customers as mere statistics — but they will study their records to gain perspective for an effective human contact at the local level. They will carefully avoid the "penalty of leadership" that comes from ivory-tower thinking and lacks perspective in their warm and human community. They will approach their customers with practical preventive maintenance service from the customer's viewpoint — at the local level.

We would like to stress this because we believe that the independent TV Service organization really has a "ace in the hole." His main problem is to separate the wheat from the chaff as he looks about at merchandising in comparable businesses. Most of the criticism of TV Service, and there is still a great deal of it, stems from malpractices not inherent in the TV Service business and from the fact that many TV Servicemen appear to reject the idea of good business and good public relations at the local level.

But, by the same token that "authorized" service fails in its purpose with more than half of the purchasers of motor cars, it also provides some of the keys to successful preventive maintenance programs that are accepted by the other half of their market.

The most significant of these is the form in which business is solicited. The form is invariably a package of which "winter tune-up" and "summer tune-up" are typical. Similar combination deals apply to preventive TV maintenance and should suggest themselves when your records are studied and analyzed. A good way to start is to offer a flat fee service for regular checking of set adjustment. This service should result in better set performance at low cost. It has the advantage of providing customer feeling that you are striving to work in his interest — not just probing for an excuse to sell expensive replacement parts.

Start your preventive maintenance program with TV but don't stop there. Extend the program to portables, home radios, record players and auto sets. Some of these fields may be exploratory to the TV Service organization but they are all worth study and effort. All should be contributing sources to increased sales and increased profits.

## NEW ORLEANS SERVICE CENTER

(Continued from page 11)

"This rule has an added advantage. Like many other shops, we guarantee sets we service for a ninety-day period. If they come back for any reason, we service them again without charge. The technician who makes the original estimate thus has an incentive to look for more than the obvious troubles, to search out parts that are about to give out as well as those which have already failed, and include the replacement of these in the estimate. It works for better customer satisfaction in addition to saving the expensive motion of re-dc's."

Another way of streamlining work procedures and thus reducing shop costs is to see that there is no "walking around" in search of tools, parts or anything else. "Every man has his own set-up," says Ernie Simonds, "and it is complete even to individual parts manuals so each has a constant fact source at his fingertips without having to spend minutes walking into the office."

Careful control of inventory is Simonds' third avenue for seeking cost cuts. An informal system of perpetual inventory is maintained — informal, he explains, only in that it does not involve complicated records which would defeat the purpose by piling up additional expenses.

"Small parts, for example, are kept in boxes," he explains. "On the boxes, we mark the parts number and the minimum inventory quantities which

can safely carry us over until a new shipment can be secured. Whenever a technician draws out one of these parts, he looks at the box to see the minimum. If his withdrawal brings inventory down to the minimum or below it, then he puts a note into the office to re-order, specifying the stock number which is marked on the box. The informality of this plan saves elaborate bookkeeping for running inventory while at the same time permitting extra-close control. We buy neither too much nor too few, and our shop is never idle because needed regular parts are suddenly found to be out of inventory."

Work tickets are made out for each job. These tell Mr. Simonds exactly what went into it, in the form of parts and labor time, and he has a complete, one-record system for figuring. A single technician follows a job from start to finish. The job tickets become permanent office records when the serviced set has been delivered back to the customer.

"And how these records help us!" exclaims Mr. Simonds. "Every shop has had experience with customers who insist that sets were serviced only 'a couple of months ago' when in reality the work might have been done a year previous. Our job ticket records tell a complete case history of each set, just as a doctor's or a dentist's cards tell every ache and pain suffered by a patient — plus when and what was done about it."



Save walking around and wasted minutes and you save money. That's why each technician has his own set of tools, own complete work bench — even his own "library" of service manuals to consult without walking to the office.



Complete where-to-buy files are maintained by Ernie Simonds. Costs are controlled at the buying stage by always knowing where to find the best price, and by taking advantage of quantity and cash discounts.

## Book Review:

*The Recording and Reproduction of Sound* by Oliver Read. Over 800 pages. Howard Sams & Co., Indianapolis. \$7.95.

Electronics is an ever-expanding industry with each facet becoming more complex. Consequently, there are many phases of the art in which we would like to take a more active interest if time permitted. Our own segment of the art might be consuming many hours and time demands required to catch up with a new phase excessive. High fidelity audio is one of these phases in which many of us would like to indulge but never take the time.

There is a way, however, to learn the fundamentals of sound recording and reproduction as well as modern advanced techniques effectively and quickly. You can be on your way to more profit in audio or just plain full enjoyment of high fidelity sound as a hobby. We refer to the new, revised and enlarged edition of *The Recording and Reproduction of Sound* by Oliver Read.

The comprehensive coverage means it can be used as a text or a practical working handbook of sound techniques. It really puts the audio bite on you and one starts dreaming about plans to add or revise high fidelity sound equipment in your own living room.

Don't miss this thorough and capably written coverage of fundamental sound theory, recording methods, reproducers, magnetic (tape and wire) recording, film recording, microphones, loudspeakers and enclosures, dividing networks, tone controls, attenuators and mixers, amplifiers, PA systems, fundamental acoustics, tuners, speech input systems, recording systems and audio measurements.

E.M.N.

## NEW LIGHTNING ARRESTERS

*The LaPointe Plascomold Corp., Windsor Locks, Conn.*, has announced three new models of RW series lightning arresters including a strap mount for masts and pipes, a heavy-duty open wire model and a single screw type for simplified installation. The strap mount types, RW-200-S and RW-204-S feature gripping prongs for non-slip mounting on all sizes of masts and pipes. Model RW-310 is designed with brass connecting blocks and prong-tooth washers that provide positive connections and assure accurate wire spacing. Models RW-210 and RW-214, for simplified installation, have a single wood screw for quick, easy mounting on all wood surfaces. All of these VEE-D-X lightning arresters have Underwriters' Laboratories approval.



## TECHNICAL TOPICS

(Continued from page 7)

to decide in advance what antenna types and height are needed for satisfactory performance.

### d. Antenna Gain Checks

A field intensity meter also permits you to check antenna gain to help you seek an antenna type most suited to your needs and channels. To check gain of an antenna choose a site where antenna can be mounted in the clear. First use a folded dipole cut to center



FIGURE 3

of each channel with which you are concerned. Take a measurement with standard folded dipole on a given channel and record reading. Now substitute antenna to be measured at same position (use exactly same mounting position and length of transmission line) and take new reading. Do same for each channel using proper dipole standard. Voltage ratios can be converted to DB figures if desired. Compare other type antennas using same procedure.

### Pulse Generator

Again we express our thanks for your inquiries. Most of you requested a schematic so you could build unit. Here is schematic, figure 4, of unit we used in our lectures and demonstrations this past season. A more advanced model is under development for use next fall.

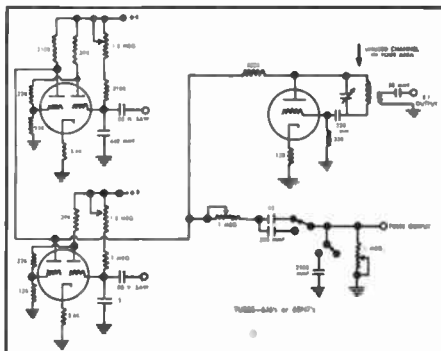


FIGURE 4. Pulse — Sawtooth Generator and Modulated Oscillator.

## Customer Relations Campaign Carried Out in Utica

The Mohawk Valley Radio & Television Technicians Guild, with headquarters in Utica, N. Y., is conducting a strong promotional campaign aimed at creating better relations between the public and the radio and television service trade in the area.

Focal point of the program is a consistent newspaper advertising program in which most Guild members are participating. Individual ads of the members are grouped together on one page of a Utica paper each week, along with an institutional type ad sponsored by the Guild itself.

Copy in the Guild ad reads: "RTTG trust in each other. The Television Technicians Guild helps its members do better work on your TV. Educational meetings each month with the representatives of leading manufacturers give us more know-how. Insist on a Guild member doing your work. You can trust him."

Ads, playing up the dependability angle, are being run by the following Guild members: Genesee Television and Appliance Co., Doyle Radio & TV Service, Yorkville Radio and Television, Triangle Radio & Television Co., Curtis Television, Thomas Radio & TV Sales and Service, Electronics Laboratories and Supply Co., Morse Radio and Television Service and Killian Television.

## SERVICE AS A SALES GIMMICK

(Continued from page 18)

home service calls for \$2.50. But investigations disclosed that from \$4.00 to \$6.00 over-charges were made on the parts used.)

What we are concerned with is the effect of this kind of advertising on the general public. The average person knows that you do not get "something for nothing" when you buy anything. With the general feeling about the cost of TV service being what it is, the reaction of those who read such an offer would be that if labor charges can be given free on one type of receiver for its lifetime, the service contractors who charge five dollars for a home service call and twenty-five dollars or more for major repairs on receivers that require shop service — the public is really being "rooked" on service charges.

We appreciate the fact that the radio-television industry has operated on the theory of "let's make all the bucks we can today — let tomorrow take care of itself" but — experience has already shown us that if we are to build the television industry into the kind of industry it can be, we must quit using service as a sales football. Efficient, reliable service is the keystone of good television viewing and good service cannot be cheap or free service.

The industry should remember that "the bitterness of poor quality is long remembered after the sweetness of low price."



Is your shop located in a spot where it cannot be seen until the passing motorist with possible business is almost abreast of it?

Many radio service shops are. Some are hidden by adjoining buildings . . . others by homes or signs or trees. The only way to make the business stand out in such circumstances is ordinarily to buy an expensive sign which the passer-by cannot help but see. Most of the time this is beyond the means of the average shop owner.

There's a simple way to solve the problem and here's how Linam Radio Service at 807 East Grand Avenue in Albuquerque, New Mexico, has done it very inexpensively. It's just an ordinary small sign set on a corner lot in the block ahead of the shop's location informing the advancing prospective customer the firm is waiting to serve him in the center of the block just ahead.

## SERVICE ASSOCIATION DEVELOPMENTS

(Continued from page 19)

Associations and the Television Contractors Association. In carrying its program of consumer education to the public, the committee has employed every medium of publicity, including TV, radio, the daily newspapers and the local trade press.

### In Burbank, California

The Society of Radio and Television Technicians, Inc., formed early this year by a group of television technicians in the San Fernando Valley, has been holding bi-monthly dinner meetings in the Airline Cafe banquet room, 2704 North Hollywood Way, Burbank.

Dell Davis, chairman of the public relations committee of the Society, said the group is very anxious to have all men actively engaged in television servicing in the San Fernando Valley attend their bi-monthly meetings. Information about the programs of SRTT may be obtained by writing to Dell Davis, 1745 West Glenoaks, Glendale, Cal.

### In Middlesex County, N. J.

About seventy-five technicians actively engaged in television servicing in this area recently organized the Television Technicians Association of Middlesex County. Officers of the Association are: Robert Sahulchik, president; John Dankanyin, vice-president and treasurer; and Bud Anderson, secretary. Ray Viglioni, of Ray's Television, 1276 Washington Street, Perth Amboy, N. J., is handling public relations activities for the Association.

### In Cincinnati, Ohio

The Master Television Servicemen's Association was organized earlier this year in Cincinnati. B. H. Sparks, ser-

vice manager for Ohio Appliances, Inc., has been acting as industry liaison man for the group.

### National Association Elects Officers

NETSDA (the National Electronic Technicians and Service Dealers Associations) elected the following group of officers at their annual meeting: president, Max Liebowitz, New York City; vice-president, Roger Haines, Haddonfield, N. J.; corresponding secretary, David Van Nest, Trenton, N. J.; recording secretary, Richard Devaney, Philadelphia; treasurer, T. L. Clarkson, Harrisburg, Pa.; sergeant at arms, John Wheaton, Long Island, N. Y.

## Vibrator Data Compiled By P. R. Mallory & Co.

A complete, concise Replacement Vibrator Guide is now being made available to radio servicemen throughout the country by P. R. Mallory & Co., Inc., Indianapolis.

The guide contains complete cross-reference charts, specifications, and illustrated installation instructions for replacing car-radio and other types of mobile communication equipment vibrators and their accessory buffer capacitors with recommended Mallory replacements.

Listed are the original equipment receiver manufacturer and his model numbers with the numbers of the corresponding Mallory replacement vibrators. The capacity values of secondary buffers and recommended Mallory replacement capacitors are also given.

Other cross-reference charts included are: vibrator types with their applications; original equipment vibrator numbers with correct replacements; replacement vibrator numbers with correct replacements.

## NEW NOTEBOOK ON APPLICATION OF TELEVISION TEST EQUIPMENT

Provides practical technical data on features and characteristics of leading manufacturer's equipment and suggestions on application procedure by specific examples.

A new notebook describing practical application of television test equipments that has been especially prepared for TV-radio technicians, has been announced by The Paul H. Wendel Publishing Co., Inc., of Indianapolis.

The new notebook, Number 6 in the Television Technicians Lecture Bureau series, was written by Edward M. Noll, author of "Television for Radiomen" and instructor at Temple University.

Mr. Noll has presented his subject in three logical steps: Features and characteristics of test equipment; how to know your test equipment; and how to use your test equipment. Use of test equipment is clearly explained through specific examples and by service-tested procedure.

Test equipments discussed in text include: oscilloscopes, sweep oscillators, vacuum tube voltmeters, instrument probes and signal generators. Diode modulators, uhf test equipment and service bench arrangements are also described.

Application of TV test equipment is clearly explained in eighteen "how-to-do-it" charts that treat TV set adjustments, practical ways to check and calibrate test equipment and advance information on uhf test equipment.

The 48-page Notebook is generously illustrated with photographs, block and schematic diagrams. It contains a comprehensive tabulation of the features of specific manufacturer's equipment for quick, ready reference. Copies of the new Notebook No. 6 may be obtained through parts distributors or by remittance of \$1.00 direct to The Paul H. Wendel Publishing Co., Inc., Post Office Box 1321, Indianapolis 6, Indiana.



Officers of the newly formed Television Service Association of Pittsburgh: Robert A. Laneve, president; Thomas F. Ulrich, secretary; Penny Martin, executive secretary; Louis C. Reed, treasurer; Milton J. Reich, vice-president.

## Reception Difficulties Analyzed in Scranton

Intermittent poor reception on some television sets in sections of Scranton was attributed to improper tuning and interference by incorrectly adjusted FM sets at a meeting of the TV dealers group of the Lackawanna County Appliance, Radio and Television Association.

It was announced at the meeting in the Chamber of Commerce Building that 37 complaints about poor reception have been received by the group since March 4—with 27 of the complaints coming from West Scranton.

The group decided to have a special committee of technicians continue a check of West Scranton of possible causes of the interference, especially during the evening.

TV set owners were urged to ask their dealers for proper instructions in tuning sets if they have difficulty. It was alleged that some part-time set dealers are failing to properly instruct set buyers in tuning methods.

If FM interference is suspected, TV set owners were urged to check in the neighborhood for any FM sets which are two or more years old and which may not be properly adjusted.

Set owners also were cautioned against depending on "Fix It Yourself" booklets in adjusting sets because some booklets contain inaccurate instructions. Sidney Kronen presided.

## Missouri Valley NEDA Chapter

The Missouri Valley Chapter of the National Electronics Distributors Association recently met at the Pickwick Hotel, Kansas City, Mo., and re-elected J. D. Pottenger of the Interstate Electronic Supply Corp., Wichita, Kansas, as president and director. Jack Fisher of Radio Supply Co., Wichita, was elected secretary-treasurer, and Martin Brotherson of M. Brotherson, Joplin, Mo., was elected chapter director. Jim B. Stapleton and Jack Stapleton, two new members from Acme Radio Supply of Topeka and St. Joseph, were introduced during the meeting.

## HERE'S HOW TO

# HOLD your customers — and get more!

The rising flood of responses following announcement of SERVICE MANAGEMENT's "forecast" and other notable issues shows that the mental receiving systems of TV Servicemen are catching all the signals.

### Service Management Means Business

They are quick to realize that survival — and growth — depend on *business* skill as well as technical ability. They ask: "How can we improve our financial position?" . . . "How can we maintain closer contact with customers and prospects?" . . . "How can we best control inventories?" . . . "Check up on insurance protection?" . . . "Stop losses?" . . . "Keep books properly and safeguard our records?" . . . "Maintain the goodwill of our sources of supply?"

### Service Management Means Business

More and more the Service Industry understands the need for a *business* magazine. SERVICE MANAGEMENT is edited by men who REALLY KNOW the business problems of the Service business from personal, first-hand experience. It is the *one* magazine — in the field of television, radio, audio, electronics — which accents and persistently preaches the importance of business fundamentals as they apply specifically to this field.

*In the matter of maintaining solvency, making money, overcoming unfair criticism — growing, prospering — Service Management may well be your most important piece of "equipment." SERVICE MANAGEMENT MEANS BUSINESS. Don't miss a single copy!*

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Subscription  
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LECTURE BUREAU PUBLISHING CO.  
161 Luckie Street, N. W.  
Atlanta, Georgia

GENTLEMEN: PLEASE ENTER MY ORDER FOR A SUBSCRIPTION TO "SERVICE MANAGEMENT" AT \$3.00 A YEAR. (TWO YEARS, \$5.00.)

CHECK  MONEY ORDER  CASH

NAME \_\_\_\_\_ 152  
(Please Print)

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

SIGNED BY \_\_\_\_\_ POSITION \_\_\_\_\_

Type of Business:

SERVICE CONTRACTOR;  DEALER  
 TECHNICIAN;  DISTRIBUTOR  
 PARTS JOBBER  
 MANUFACTURER OF \_\_\_\_\_

# SIX QUALITY FEATURES OF ALL TUNG-SOL PICTURE TUBES MEAN BETTER TV RECEIVER OPERATION



1

Glass heart type assembly is stronger, both mechanically and electrically—gives greater protection against leakages and arcing.



2

Double cathode tab provides double protection against failure in the cathode circuit.



3

Low resistance of outside conductive coating minimizes radiation of horizontal oscillator sweep frequency.



4

Fortified screen composition resists burning (X pattern).



5

Rigid control of internal conductive coating materially improves service reliability.

6

Tung-Sol Picture Tubes can be used with single or double field ion trap designs.



## TUNG-SOL®

RADIO, TV TUBES, DIAL LAMPS

*Dependable*

TUNG-SOL ELECTRIC INC., Newark 4, N. J. • Sales Offices: Atlanta • Chicago • Culver City (Calif.) • Dallas • Denver • Detroit • Newark  
Tung-Sol makes All-Glass Sealed Beam Lamps, Miniature Lamps, Signal Flashers, Picture Tubes, Radio, TV and Special Purpose Electron Tubes.