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TELEVISION • ELECTRONICS • RADIO • AUDIO

Volume 2 Number 5

February 1953

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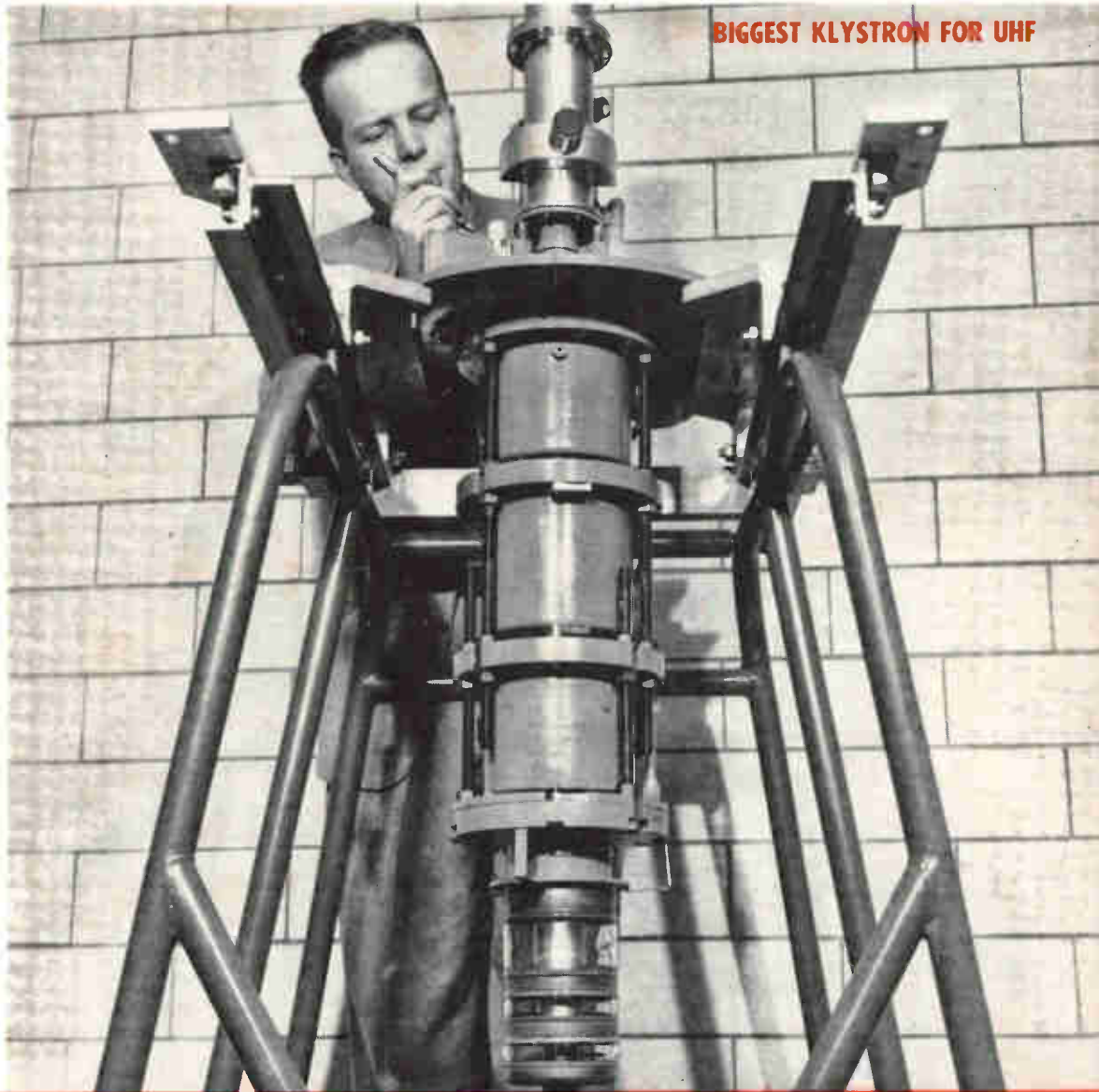
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...and now UHF antennas by



The magic words in television these days are Ultra High Frequency. That UHF television is a practical reality has been proved, not only by laboratory tests, but also by the success of the first commercial UHF station now operating in Portland, Oregon. Because of the high signal losses common to UHF, it is extremely important that the entire antenna system be of the finest quality and of a proved design. The choice of antenna and the availability of the proper accessories to adapt that antenna to the particular locale are factors that determine the success of any UHF installation. The entire Amphenol line of UHF antennas and accessories has been designed and approved by the Amphenol team of engineers that achieved industry-wide renown for the origination of the Inline VHF Antenna.

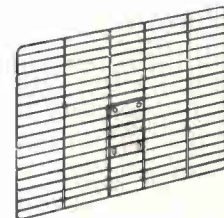
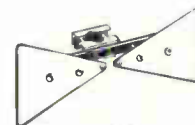
The BO-TY UHF Antenna is the first of a complete line of Amphenol UHF antennas. It is designed as a general purpose UHF antenna for all major signal areas. The Amphenol UHF Antennas previewed for you at the left have been designed to answer the varied installation requirements in major, fringe or "shadow" areas.

Two BO-TY 114-053 Antennas with Reflectors, 114-560, stacked together with Stacking Rods, 114-558, for increased signal strength in "shadow" areas or nearby fringe.

Model 114-053 BO-TY Antenna is a bi-directional, all-channel UHF antenna. It is fastened to the mast with an integral universal clamp that accommodates masts from $\frac{3}{4}$ " to $1\frac{1}{2}$ " O.D.

Model 114-558 Stacking Rods are designed for stacking BO-TY antennas one above the other. Stacking BO-TY antennas provides additional gain and the Stacking Rods maintain perfect impedance match.

Model 114-560 Reflector is designed for the BO-TY Antenna when a uni-directional pattern is desired. Addition of the 114-560 also helps somewhat in increasing the gain of the BO-TY.



Model 114-054 Yagi UHF Antenna for high gain on specific channels

Model 114-057 "V" combination UHF and VHF Antenna

Model 114-058 All-Channel UHF Corner Reflector Antenna

Model 114-060 UHF Rhombic Antenna for high gain and rejection of reflected signals

These UHF antennas are currently in final laboratory tests and will shortly be released to production. When available they will meet the mechanical and electrical efficiency characteristic of all Amphenol antennas.

AMPHENOL Tubular TWIN-LEAD

Amphenol Tubular Twin-Lead has proved itself to be the best answer to the need for an economical lead-in for UHF television. Actual installations in Portland, Oregon have established the superiority of Tubular over all other existing types of twin-lead.

The tubular construction provides a constant impedance that is virtually unaffected by age, weather conditions, salt or dirt deposits on the line. The extremely low-loss of the Tubular Twin-Lead is one of the characteristics that is essential to a UHF lead-in.

The illustration at extreme left reveals the lack of protection that the dielectric of flat lead-in affords to the essential field of energy between the conductors in twin-lead. The illustration to the right demonstrates how this field of energy is protected within the tubular twin-lead and therefore is unaffected by external weather conditions or deposits on the line.



Letters to the Editor

Industrial Electronic Service

We are interested in industrial electronics . . . have had some experience in the field on welding sequence timers, sonar, etc. If there is any way we can connect with a worthwhile project, you show us. Anything we do not have experience in we will be glad to undertake instruction at the option of the manufacturer.

STEPHEN RABOCZKAY, Owner Manager
Southwest Radio & Appliance Center

Detroit, Mich.

. . . although mobile radio, television and auto radio service account for the majority of our work, we are doing some work on industrial electronics, and are greatly interested in the program which has been outlined in recent issues of **SERVICE MANAGEMENT**.

We would appreciate further detailed information on registering in your Industrial Electronics Course, and also information on the National Industrial Electronic Service Affiliates, Inc.

JAMES G. DENMAN, Treasurer
Dempsey & Denman, Incorporated

Arlington, Mass.

The series of articles you have been running . . . on the topic of industrial electronic maintenance has been extremely enlightening. We have been investigating the field and have come to the conclusion that it is an ideal expansion endeavor for our company. We would appreciate further information on the course you mentioned, and the association.

SIDNEY L. ROSENBERG, President
Television Specialties, Inc.

New Haven, Conn.

TV Service Business Control

I am just starting a TV Servicing business and am interested in getting more information on the Markem Service System. I can appreciate the value of a good bookkeeping system and have read your articles in **SERVICE MANAGEMENT**.

I would like to know if the advantages of this system would override the initial expense of installation in a small business. . . .

EDMEND R. GUNNY

Los Angeles, Cal.

While reading your December, 1952, issue . . . I noticed an article in which Mr. Peck's service system was poorly organized and he switched to the *Markem Service System* which turned out to be very effective.

At the present time I am planning on changing our service system, completely, and putting in a more effective one. Would you please send me complete information on this system? . . .

JAMES S. HAIGLER, JR.
Haigler Radio

Miami, Florida

Letters should be addressed to Readers Report Editor, **SERVICE MANAGEMENT**, 501 Fifth Avenue, New York 17, N. Y.

VHF **INLINE** antennas for better TV PICTURE QUALITY

The Amphenol Inline VHF Antenna on your shelf establishes your reputation as a distributor of quality television antennas and accessories.

Its electrical and mechanical characteristics are second to none and its performance is backed by the name, Amphenol, which has become synonymous with quality in the radio-electronics industry.

Model 114-005 Inline Antenna is a single bay antenna designed to give maximum performance on all VHF channels. Regardless of the number of VHF stations operating the area, this one antenna provides clear, steady pictures on all channels.

Model 114-322 Inline Antenna is a double bay antenna designed for use in fringe areas where more signal strength is desired than that provided by the single bay. Because of its strong construction, the Inline Antenna can be stacked as high as four bays.



MODEL 114-005
Single Bay
Inline Antenna

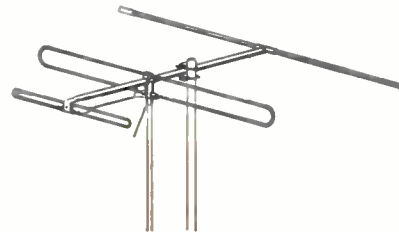


MODEL 114-322
Double Bay
Inline Antenna

Quick-Up Assemblies are a feature of both the single bay and the double bay antennas. Illustrated are the component parts of the single bay (114-005) assembly. Each assembly contains, in addition to the antenna, 75 feet of twin-lead, mast, stand-off insulators, guying ring and mounting bracket. Because each antenna is completely packaged, it simplifies stocking problems.



Model 114-040 Inline Antenna consists of the single bay antenna plus a universal mounting clamp for mast $\frac{3}{4}$ " to $1\frac{1}{2}$ " O.D. It is furnished without twin-lead or mast for those dealers and installers who prefer to buy their twin-lead or mast in bulk quantities.



Model 155-338 Lightning Arrestor is approved by the Underwriters' Laboratories and is of the type recommended by the National Electric Code. Individually boxed, they are shipped twelve to a carton that doubles as a colorful counter display.



Quantities of this booklet containing valuable information on all the factors that determine better TV picture quality over the VHF spectrum, are still available.



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1830 South 54th Avenue • Chicago 50, Illinois

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Regency

DB 520

the largest selling booster
at any price



**NO MATTER HOW
IT LOOKS
YOU LOOK AT IT
NO MATTER HOW**



the only choice is

Regency

RC 600

the quarter million dollar
UHF converter

64.5505

Dual Responsibility of Parts Manufacturers

By **VICTOR MUCHER**

president, Clarostat Mfg. Co., Inc.

A dual responsibility faces many of us today. As manufacturers of radio-electronic parts entering military and civilian assemblies alike, we are patriotically obliged to meet the requirements of our armed forces and at the same time not neglect our good way of life.

It's no easy assignment. No dual objective is ever simple. Especially when the splits objectives are of a widely divergent character, which is certainly the case with radio-electronic controls. On the one hand, we must meet extra-rigid military specifications. On the other, we must mass-produce for cost-conscious radio-TV set manufacturers, distributors and servicemen. In the first category a single control, reflecting superlative electrical and mechanical precision, may be priced in dollars; in the second, we are dealing in pennies.

At present the Clarostat organization is operating on this dual responsibility basis. History is repeating itself — the history of World War II — when again we are called upon to develop and produce the most exacting radio-electronic

(Continued on page 5)

Service Management

PAUL H. WENDEL, Editor and Publisher

VOLUME 2, NUMBER 5

FEBRUARY, 1953

COVER PICTURE

Biggest Klystron for UHF

will be supplied by General Electric to give WHUM-TV 260,000 effective radiated watts at UHF.

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"OUR OPINION"

RATHER slowly, and perhaps fortunately so, the early UHF stations are getting on the air. In the areas where they are telecasting, we are beginning to find out what the major reception problems will be—on the channels these first stations are using.

We already know that solving UHF reception problems is not going to be a pushover. A lot of experimental work must be done in the field under actual conditions of service. Much is still to be done in the laboratories and factories in perfecting UHF transmission and receiving equipment.

Reports are coming back that UHF has been oversold to the public; that in areas where VHF is available, the UHF picture is markedly inferior to VHF. Some reports infer that the disappointing picture quality has increased sales resistance to UHF sets and conversions. Or perhaps we should say, decreased buyer interest.

In UHF we have an extension of the most remarkable scientific achievement of all time—television. We are dealing with phenomena which are still in the realm of scientific speculation. It is still classed as an art. Our knowledge of how to control and utilize it is still too nebulous to rate it as a science.

The real development of any new device starts when it gets into the hands of all classes of users who operate it under every possible condition of application. As we zip over highways we are prone to forget that the endless miles of surfaced roads followed the mass development of the automobile.

The high standard of living that we enjoy—the highest ever achieved by man—was made possible by imaginative and aggressive salesmanship—an almost universal urge to want to own new things.

We need a broader concept of our role as pioneering salesmen in the expansion of the electronics art. That applies to every dealer, salesman, installer, service businessman and technician.

Can the public be "oversold" on television? Are we really "selling" television receivers or are we coasting along on the public's urge to buy and letting people "over-sell" themselves—without bothering to qualify the present status of the art?

Back in the days when we sold appliances house-to-house we hired one salesman who proved to be a whiz at

selling vacuum cleaners. While driving through a rural community that this salesman had worked, we stopped at a home where he had sold a cleaner for cash. We were curious about that sale because that particular section had no electrical service.

We found a vacuum cleaner owner who was proud and happy over her purchase. True, she couldn't use the cleaner yet, for they had no electricity. But there were plans to run electric lines out that way. When they got electric service she would have her cleaner. She knew that everyone else would be wanting to buy one of those wonderful cleaners after electric service came. They might have to wait to get theirs. But not this lady. She wouldn't have to wait. She had hers.

Was this home oversold? Not at all. The lady had the cash to pay for the cleaner. The brilliant young salesman pulled that cash out of hiding and put it to work. The customer was delighted with her purchase.

In the advancement of our industry every technician who comes in contact with set owners can be a constructive force building good will for his employer and the industry. Although a TV set is one of the most complex instruments ever built by mass production, it is apt to seem simple to the user because he has only a few dials to turn to get a talking picture. The technician who learns to convey the idea of a receiver's complexity to a user in simple terms acquires stature in that customer's eyes. Explain any complex mechanism in simple terms to the average person and you will gain his respect for your understanding of it.

UHF will expand the horizons of television many fold. But it is new. Every dealer, salesman, service businessman and technician who deals with the public in the sale, installation or servicing of UHF receivers should consider himself a pioneering salesman for this new phase of electronics. By learning to explain some of the intricacies of TV in simple terms to set owners, a great deal of user cooperation will be created. Most people enjoy the privilege of being a part of a great new development.

Now is the time for this entire industry—from manufacturer to field service technician—to close ranks and work together as a team.

PHW

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IN FUSES

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DES PLAINES, ILLINOIS

Ask your jobber for
Littelfuse TV
Replacement Guide

DUAL RESPONSIBILITY

(Continued from page 4)

controls, often in limited quantities, while turning out tens of thousands of standard types each week for initial-equipment and replacement needs.

There is as much difference between precision controls and standard types as there is between chronometers and alarm clocks. New machine tools, new assembly methods, new test and new inspection procedures, manned by specially-trained and inspired personnel, are imperative. It is quite a feat of management to be making \$100 and 10¢ controls under the same roof.

However, with the growing pressure of military business, along with the maintenance of full civilian activity, we have recently established a second manufacturing plant in the Chicago area, in order better to meet our dual responsibility. We will not fall short in meeting any and all military demands that come our way. Likewise, we will not neglect the civilian calls for initial-equipment and replacement components.

It is somewhat the same story with resistors, but in lesser degree. The mechanical requirements are not of such a highly precise nature as in the case with controls and moving parts.

THE THREE-WAY CHALLENGE

*Excerpts from a talk presented to the Federation of
Radio Service Men's Associations of Pennsylvania*

By J. M. LANG, general manager
General Electric Tube Department

Over the past seven years the television servicemen of America have set an enviable record. To master the service problems and demands of an entirely new industry, one which has grown to encompass 20 million customers, is a feat to which each serviceman can point with pride.

The magnificent record which the TV Service industry has made—a record of training, of searching for information, of conquering a new field of operations in record time. Needless to say, we are deeply appreciative of the recognition you have given us here today. In carrying the TV Serviceman's story to the public, we feel strongly that we have been giving the country's TV Servicemen the praise they richly deserve.

Having met this problem and conquered it, men of the TV Service industry should be able to rest on their laurels. They should be able to say, "we have conquered our field; we are accomplished professional technicians who know our job and know it well; things will be easier from here on in."

I am afraid that such is not the case.

Television Servicemen face a battle—a battle to keep abreast of a host of new technological developments. For this the television industry is still an infant when we judge it by its potential.

UHF A NOTABLE ADVANCE

Already upon us is the first of a series of notable television advances—UHF—ultra high frequency television.

For the individual TV Serviceman it will mean the mastering of special installation problems, new tubes, new circuits, new tuner units, new antennas. For the TV Service industry it will mean the training of still more servicemen to do the vital work of servicing in cities and towns which will have television for the first time because of UHF.

In cities which already have television, your customers will be calling upon you for advice as to how best to add UHF reception to their old sets. You will have to be ready with this information.

To gauge the importance of these new television frequencies on the nation's television scene, let's look at some figures. At the present time there are about 120 stations on the air in the United States. During the next five



years, about 700 new stations are expected to go on the air, of which 350 will operate in the ultra high frequencies. In other words, in a shorter time than it has taken to build and master our present television system, there will be nearly six times as many new stations in operation. There will be nearly three times as many UHF stations as there are VHF stations on the air today.

If you'll think of those figures for a moment, I'm certain that you'll find them rather staggering.

FIRST HIGH-POWERED UHF

In Pennsylvania you'll encounter one of the first effects of UHF television in Reading when a new station will go on the air soon. A new type of transmitting tube supplied by General Electric will make Reading's new station the most powerful UHF station on the air.

WHUM-TV in Reading will be the first high-powered UHF station on the air, another addition to the country's TV system. But there will be others—high-power, low-power UHF, VHF—new stations springing up all over the country, each representing a challenge to the TV Service industry.

You will master these challenges, I am sure, just as you have met and mastered the challenges of the past. But before the zenith of UHF growth has been reached you'll be faced with still another challenge—color television.

REPORT ON COLOR TV

I'll be frank to tell you that I don't know when color television will become a commercial reality. I can tell you, however, that the best minds in the television industry, banded together, are working hard on a color television system which will permit black and white reception of color telecasts on sets now in use.

This committee is patterned after the committee which established the standard for our present black and white television system. I am certain that their labors will meet with success. The chairman of the committee reported recently that standards for a national color television system might well be finalized this year.

Actual operation of color television stations will, of course, depend on many factors—the results of field tests, the actions of the Federal Communications Commission and the ability of the electronics industry to factor a color television building program into a manufacturing capacity hard-pressed by its commitments to military electronics production.

One fact seems certain, however, that color television will be a "new animal" to the service industry—involving changes far more basic than the transition from VHF to UHF, changes which will tax the TV Service industry's ingenuity and ability.

TRANSISTORS LOOM LARGE

The tiny electronic components known as transistors loom large on the horizon. The day is coming when these tiny bean-size units will be standard components in television receivers just as tubes are today.

It will take time. Ways must be found to mass-produce transistors. Entirely new circuits must be developed to utilize their special capabilities.

These ways will be found and these circuits will be developed. When they are, we will have components which will have real possibilities in television applications—from the point of view

of dependability, power economy and size. They will undoubtedly lead to the development of new electronic products — miniature radios, portable television receivers, tiny personal transmitters — many of which you will be called upon to service.

As a representative of the tube industry I'd like to say I welcome the addition of transistors to the electronic market. True, in many instances, they will replace tubes. But there are many applications in which tubes are vital and necessary. Actually the transistor will be a boon to the tube business because it will create new markets for tubes by making possible new products in which tubes will be needed. I am certain that tubes and transistors will be used together to help make our electronics industry even greater.

But what is the significance of UHF, of color television, of transistors to TV Servicemen, to the man in the shop?

THE THREE-WAY CHALLENGE

These developments will present a three-way challenge to the TV Service industry. As never before, education will be needed. Manufacturers will have to be prompt and thorough with the distribution of the latest and most accurate technical information on the problems which will face TV Servicemen. The TV Service industry will have to be zealous in its quest for the information needed to fill the needs of its customers. Individual TV Servicemen will have to acquire new knowledge and new skills to meet these future demands.

I cannot emphasize too strongly the necessity of effective liaison between the service dealer, the distributor and the manufacturer to meet these demands. It will take the most efficient sort of teamwork to maintain the public good will on which our businesses are based.

The portrait of the future is a picture of hard work, perseverance and initiative. However, it must be evident to you, as it is to me, that this hard work will have very real and valuable compensations. With each new step forward in television development, whether it be UHF, color television, transistors, or whatever, the TV Service industry will prosper. Each step forward means an additional incentive for the public to buy television.

The TV Service industry must consider each new set as a potential customer; that each customer represents an added measure of responsibility for the TV Service industry. These new responsibilities, posed by technological advances already under way, are our greatest challenge for tomorrow.

February, 1953



AEROVOX CORPORATION of New Bedford, Mass., has purchased Acme Electronics, Inc., of Pasadena, California, will operate it as a wholly-owned subsidiary. . . . **ALLIED RADIO CORP.** has organized a 20-year Club with thirteen charter members. . . . **ALMO RADIO COMPANY** of Philadelphia has been appointed distributor for Westinghouse electronic tubes. . . . **AMERICAN PHENOLIC CORPORATION** has signed a licensing agreement with the Cornish Wire Co. of New York which gives Cornish the right to manufacture, package and sell tubular twin-lead under Amphenol's Krueger Patent No. 2,543,696. . . . **JACK BERMAN CO.** of Los Angeles has been appointed representative for the Radio Craftsmen, Inc., in Southern California and Arizona. . . . **THE BETTER BUSINESS BUREAU OF NEW YORK CITY, INC.**, is supporting a bill designed to make it a misdemeanor to possess or offer for sale, home appliances from which serial

about 12,000. . . . **EMERSON-NEW JERSEY, INC.**, of Newark has been appointed distributor for Westinghouse electronic tubes. . . . **EMERSON RADIO & PHONOGRAPH CORP.** is launching promotion of its new "space saver" TV receivers with large-space dealer-listing newspaper ads, full-color,



New Blonder-Tongue Plant

full-page ads in national magazines — and cooperative dealer newspaper advertising. . . . **GENERAL ELECTRIC** has: begun production of high power klystrons for uhf-TV transmission and will lease them to telecasters; announced three new TV receiver models with 17- and 21-inch screens that are said to be easily adaptable for uhf reception; announced a new gas switching tube for airborne radar — with a steel reservoir for use at 8490 to 9600 mc; supplied 26 fixed transmitters, 45 remote control units and 150 mobile radiophones for the \$250,000 two-way radio system for The Montana-Dakota Utilities Company; announced that it will continue consumer advertising in



Sam Schussel of Channel Master

numbers are removed or defaced. . . . **BLONDER-TONGUE LABORATORIES, INC.**, has completed its new plant and offices at 526 North Avenue, Westfield, N. J. . . . **DAVID BOGEN CO.** has announced a new high-fidelity AM-FM tuner. . . . **CARBOLOY** department of General Electric has announced a cemented carbide tip drill which cleans dust particles from drilled hole and so eliminates jamming while boring through tough masonry including bricks, concrete, plaster, slate or asphalt. . . . **DOROSIN DISTRIBUTING CORP.** of New York City has been named distributor for RCA renewal products. . . . **1953 ELECTRONIC PARTS SHOW** reports 234 exhibitors to date and an anticipated attendance of

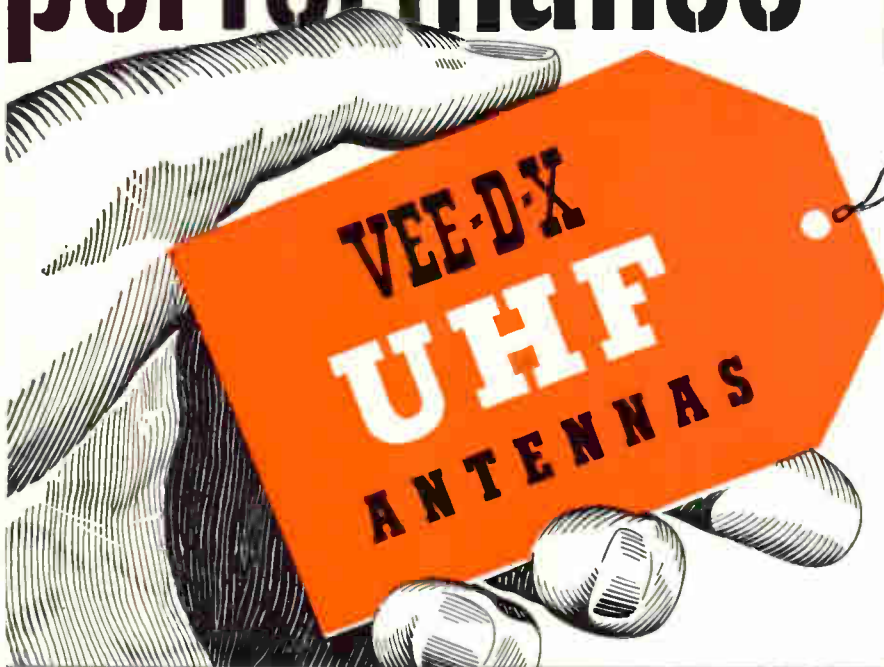


Peter L. Jensen and Friends

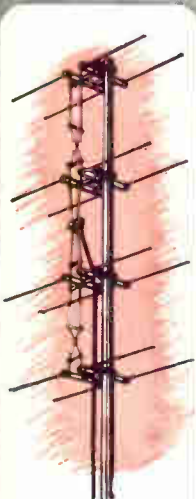
support of TV Service dealers in *Look Magazine* during 1953; will double its production of germanium diodes this year; announced plans for production of hydrogen thyatrons for radar service; expects to increase its 1953 radio

(Continued on page 19)

performance proven!



Vee-D-X takes the lead in UHF antennas—just as it did in VHF. Whatever the area—single channel, multi-channel, combination UHF-VFH, primary or fringe—there's a performance proven VEE-D-X antenna or combination of antennas that will provide brilliant reception. All Vee-D-X antennas for UHF were developed and extensively field-tested with the experimental UHF transmitter (KC2XAK) located at Bridgeport, Connecticut (since 1949)—and only 60 miles from the Vee-D-X development laboratory. So, be safe—be sure with Vee-D-X performance—proven UHF antennas.



THE UHF COLINEAR

A high gain all-channel fringe area antenna. Here is the mighty mite of all-channel UHF reception and considered by a leading TV set manufacturer as the finest UHF antenna yet perfected. Rugged four-bay construction of solid aluminum elements with fiberglass cross arms. List \$11.10 Also available in side-by-side stack.



THE YAGI

Single channel primary and fringe area antenna. A rugged, efficient 12-element yagi that delivers 14 db gain. Unusual band width of 60 mc. Boom constructed of tough-ast-steel weather-resistant fiberglass with solid aluminum elements. List \$7.65



THE VEE-D-X "V"

All-channel primary area antenna. Excellent broad band characteristics. Supplied as a straight UHF antenna or with Vee-D-X Mighty Match for use in combination with a VHF antenna using a single transmission line. The plain "V" lists \$2.75



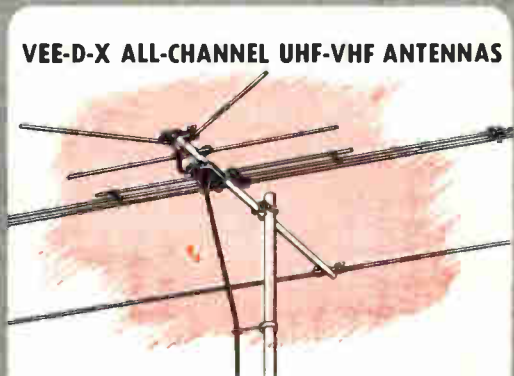
VEE-D-X UHF ADAPTING BRACKET

Permits addition of UHF antenna to existing VHF installation. Can be mounted three different ways to mast or antenna boom. Fast, easy, inexpensive to install. Supplied plain (list \$1.50) or with Mighty Match MM-30 list (\$5.50)



VEE-D-X MIGHTY MATCH (Model MM-30)

Provides a most efficient method of combining VHF-UHF antenna systems with a single transmission line. Entirely automatic in action. Employs new printed circuit filters. List \$4.00

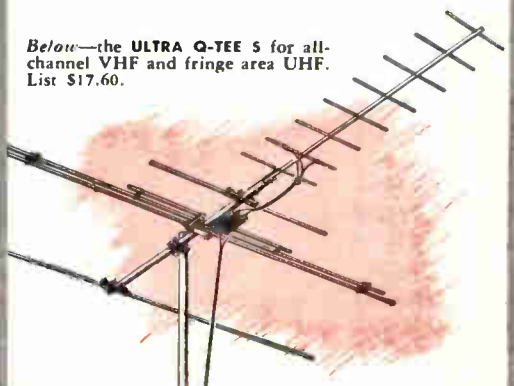


VEE-D-X ALL-CHANNEL UHF-VHF ANTENNAS

The Ultra Q-Tee

THE ULTRA Q-TEE and its new companion the ULTRA Q-TEE S, shown below, combine both UHF and VHF into a single antenna using a single transmission line. Both contain eight patented printed circuit channel separators. The ultra Q-Tee is designed for primary areas and will receive all channels 2-83 VHF-UHF. Lists for \$14.25. The ULTRA Q-TEE S is designed for all-channel VHF and fringe area UHF. Lists for \$17.60.

*Lic. A.A. K. Pats. 2,422,458; 2,282,292; 2,611,086; others pending.

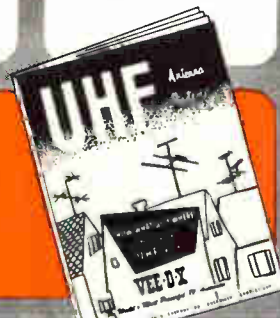


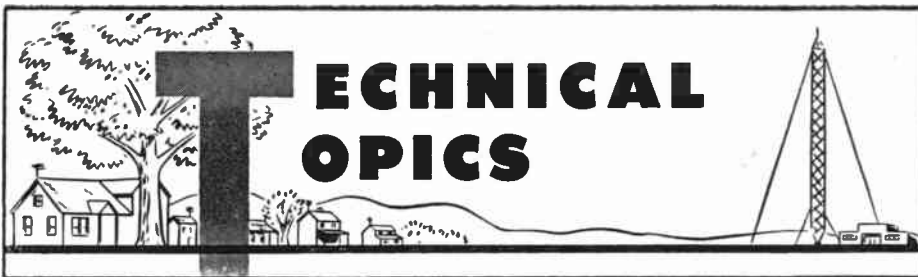
Below—the ULTRA Q-TEE S for all-channel VHF and fringe area UHF. List \$17.60.

FREE!

UHF ANTENNA GUIDE

An authentic guide to UHF antenna systems. For your copy, write LaPointe Electronics Inc., Rockville, Connecticut.





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

By EDWARD M. NOLL

UHF ATLANTIC CITY

We'd like to go down the line between "This is UHF, hurrah!" and "Is This UHF? ouch!" When one is able to spend days and days in many sections of a UHF area instead of at a few well-chosen spots, the idiosyncrasies and problems of the art unveil. Per given power and antenna height, the range is not as great nor as consistent as VHF.

It is very true that there are isolated areas that seemingly disprove this statement — but we must base our reasoning on majority and not minority results. Ignition and man-made noises are pleasingly absent on the UHF picture but the influence of scattered ground reflections and motion is more decided.

Now we in no way imply that good UHF results cannot be gotten — but we recognize for many installations, the technician must be skilled, careful, and must take the required time to do thorough work if he is to derive full benefits from received signal.

Here are a few factors we have noted:

1. Use of present VHF antennas of the stacked type now mounted on high masts and directed toward Philadelphia are only satisfactory in a few locations (matter of a chance location where one of their peak lobes is in direction of station and no serious reflections are present). UHF signal delivered to converter from this type is generally weak because of improper orientation and high line losses. Signal level with the UHF-inferior line used with this type installation also causes levels to vary greatly with weather — as a result of moisture absorption and moisture laden dirt or salt deposit on line. At other locations, the signal might be strong but picture is afflicted with smear or reflections. This type antenna has multiple lobes and would have to be oriented critically to minimize smear caused by scattered near-reflections or multiple images of a spaced reflection.

2. Where UHF signal levels are high, picture resolution becomes a problem often new to the heretofore strictly fringe location. Here is an opportunity

to enjoy a crisp sharp picture. Thus, careful installation and orientation of antenna has more than one major objective — not only reception of a strong signal but a clear well-defined one as well. This requirement can make choice of antenna type and mounting position as critical as choice and installation of an antenna system for long distance reception. A poor installation though it might receive a strong signal can introduce smear, transients, or reflections. This condition to an extent is less critical with the use of a UHF band cut antenna (rather than a modified VHF-UHF type) because of its fewer minor lobes and its broader major lobe.

3. The UHF reflections are sharp and have a decided influence on signal level at antenna. The scattered near reflections that arrive at almost same angle as direct signal can add or subtract from direct signal, having a substantial influence on apparent signal strength at antenna position. This condition makes UHF antenna mounting position critical both horizontally and vertically where strong reflections exist.



FIG. 3. Atlantic City Skyline

This reflection sharpness also causes picture level breathing as antenna sways in the wind. Same signal level breathing and flutter over a wide amplitude range can be caused by aircraft or moving vehicles, imposing strict requirements on a.g.c. systems. In location shown in Fig. 3 (Atlantic City skyline off in a distance), the motion of highway traffic cutting perpendicularly across the angle of signal arrival has an influence on signal levels. In fact, a large tractor-trailer when it passes
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All of us here at the Rectifier Division are rather proud of the parts we play in the production of Sarkes Tarzian "Centre-Kooled" Selenium Rectifiers. Barbara, shown here color-coding, is no exception.

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RECTIFIER DIVISION

Dept. V-2, 415 N. College, Bloomington, Ind.

REPORT ON TRANSISTORS

Raytheon announces Hearing Aid Applications —

RCA reports many experimental circuit developments

The Raytheon Manufacturing Company has announced that it has solved production problems of germanium junction transistors for hearing aids. The company has reported shipments of thousands of transistors per month to more than fifteen hearing-aid manufacturers.

Because fully transistorized hearing aids use no vacuum tubes, it becomes possible to eliminate the "B" battery — the largest and heaviest single component of the vacuum tube hearing aid. The current drawn from the single "A" battery used in the new sets is so much less that this battery's life is extended many hours.

Users of the new-type hearing aids can expect to save between 80 to 97 per cent in annual battery changes and costs. One of the hearing aids will run over six months on a single battery. Most units can be operated on a supply of batteries costing approximately \$3.00 per year. This compares with an average of \$40 in batteries required for an ordinary vacuum tube set for a year. The most economical of the three-transistor hearing aids will operate for less than \$2.00 a year.



Transistors Reduce Battery Cost.

The transistor hearing aid — if properly designed — gives more aid in hearing weak sounds, gives more power output to provide better hearing, and less distortion, so that sounds are more realistic. Transistor hearing aids are extremely quiet compared to vacuum tube sets, which have a tendency to generate microphonics, which originate in the vacuum tube filament.

Norman B. Krim, vice president and general manager of Raytheon's Receiving Tube Division, has emphasized the improved operation made possible by the development. "The hearing aid

manufacturers will become the first in the electronics industry to give their consumers the advantages made possible by the development of junction transistors."

In commenting on the dependability of the transistor hearing aid, Mr. Krim said, "A transistor, theoretically, has an infinite life; however, transistors are still new, so no one knows how long one will actually last. We do know, however, that transistors will not determine the life of a hearing aid. It will depend, rather, upon the other components, such as microphones, resistors, condensers and transformers. The fact that a transistor hearing aid — as compared to a vacuum tube unit — requires less than half the number of other components is an important factor because the fewer the components, the greater dependability and longer life for the entire hearing aid."

Raytheon's germanium junction transistor, which is only 0.035 cubic inches in volume and weighs 0.033 ounces, is the same general shape as the company's hearing aid vacuum tube, with a flat body and leads brought out in a straight line. The latter are designed so that the transistors can be plugged either into existing sockets or soldered in.

Raytheon executives believe that this new development will revolutionize the hearing aid industry within less than two years. They predicted that the three-transistor hearing aid will increase the 1,000,000 hearing aids now in use to several million in this country alone.

Pilot production of germanium junction transistors was under way at Raytheon in late 1951. In September, 1952, the company announced commercial availability of junction transistors for hearing aids, distributed engineering samples to all hearing aid tube customers, and began large-scale production of these units for the three-transistor hearing aid.

RCA DEVELOPMENTS

Portable Public Address System

In exploring the capabilities of transistors in audio amplifiers, a portable public address system with self-con-

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Milton Deutschmann of Radio Shack Corp. receiving first distributor shipment of Raytheon Transistors from Norman B. Krim, Raytheon Vice-President.

GOOD BUSINESS PRACTICES

*Excerpts from a talk presented to Texas Appliance
and Television Dealers*

By H. B. PRICE, JR., president
Price's Inc., Norfolk, Va.

Let's take a look at what the experts tell us. Dun & Bradstreet says: First among retail casualties is the electrical appliance dealer; next apparel and third, furniture. 63.2% of all failures occur in the first five years of the business life. In 87.3% of the failures in 1951, the underlying reasons were directly related to identifiable human weaknesses of the owner of the business.

More specifically: lack of experience in the line itself was a major factor in 13.6% of the failures. Lack of managerial experience affected 14.1%; unbalanced experience, 14.2%; incompetence, 46.1%; neglect, 55%; fraud, 3.8%. Three out of four failures in 1951 had dollar liabilities of less than \$25,000.

Breaking down Dun & Bradstreet's figures into a general analysis: mismanagement accounted for 50% of these failures; incompetence accounted for about 35%; the balance was made up of neglect, fraud and disaster.

You should use these facts and figures to determine which way you are flying. There could be some stormy weather ahead. Too many businesses fail because of the lack of working capital. Many businesses start out with substantial funds but fail for lack of working capital because the owners spent most of their capital on fixed assets.

You may have enough capital for a limited inventory and a reasonable volume. But stretch it and a loss of volume may list you among the casualties.

Many people enter business as opportunists. No particular training. No experience. Just thought it was a good business to be in. When they fail, the business is a rotten business. We who remain are stuck with a negative statistic — another failure.

LOOKING AHEAD

Speaking of years ahead, many wise old birds say we can expect a recession. Don't confuse recession with depression. There will be a leveling off. The less efficient, the price-cutters, the lazy, the indifferent will join the casualties.

This business of which you and I are a part, is a business of realistic optimism. We have a definite say in what happens to us. There is no parallel



between our business, such as it was in the early 1930's and now. Those who are willing to follow good business practices and back up those practices with hard work need not fear the leveling off. We are entering what I believe to be the stabilizing era in the industry.

GOOD BUSINESS PRACTICES

You ask "all right, what are these good business practices? Certainly I don't want to go broke. What can I do?" If your answer is "I want to make a living," then you are in the wrong business. The successful businessman wants more than just a living. A man who wants only a living should be working for someone else. It takes a personality with more ambition, more drive, more determination to have the better things in life — to be successful in business. You have to like running of the race and possess perseverance to drive for the winner's circle every day.

Next ask yourself: "Does my business have a philosophy?" Your business can't have a positive attitude unless you define such an attitude. You might want to grow and keep on growing. You may merely want to continually

increase the caliber of the service to your customer. You may want to make your company the best to work for in your community. You may want to share your experience with others through civic endeavor. You may want to do all of these, but really trying to do one or more will broaden your stature and add impetus to your success. Businesses with healthy philosophies seldom go broke.

I frequently hear talk of getting out of the business or taking on unrelated lines to help carry the overhead. You can't live a split personality. If there are constant doubts in your mind as to whether you should be in this business, it is pretty certain you should not. If I had doubts, I would survey my business and if I could find the opportunity in the TV business, I wouldn't grasp for another uncertainty to dilute my concentration. I'd get all the way out and go into something else before I went broke.

THE THREE ESSENTIALS

What are the good business practices? 1. Planning. 2. Programming and 3. Follow through.

PLANNING

Many of you do no planning at all. For example: How much business do you expect to do in 1953? Will your working capital support your goal? Have you prepared a budget?

It isn't difficult. Even if you do not follow it, you will be better acquainted with your business when you have prepared one. How much manpower do you need? Have you taken a look lately at your present manpower? Are you satisfied that it is an asset to your organization? What improvements are needed? Which of these needed improvements can you afford? Is your service department making friends for you?

Do you know your break-even point? Is it low enough so that if you experience a 20% drop in sales you will still be in the black? Does your book-keeping and record-keeping function so that up-to-date figures are available when you want and need them? Are you establishing and maintaining good customer relations? You'd be surprised how many neglect the good old cus-

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CHANGES IN OUR LIVING HABITS

Excerpts from a talk at the annual dinner of the Chicago Toiletries Salesmen

By **THOMAS B. HAIRE**, publisher
Cosmetics and Toiletries

I am going to speak about changing times, about a labor movement that is affecting your lives and the lives of America's best customers, and about enlarging our capacity to sell more. If I asked you to tell me what labor group had best improved their lot in the last decade, you would no doubt think of the steel workers, the coal miners and perhaps one or two other well known labor groups. **YOU'D BE WRONG!**

I don't know that there are any comparative statistics to prove my point. Still I doubt if there is anyone who will challenge by statement. I am speaking of a group which is completely unorganized, operating on the basis of individual employer-employee bargaining. I am speaking of household workers — the cooks, the maids, the nurses. I don't think there can be any question that they have done more for themselves and, incidentally, more toward changing the living habits of the average and above average American family than any other one group of working people in America.

Let's chew that over for a while. Ten years ago, in 1942, we were in our first year of the war. Defense plants mushroomed. Working in a defense plant became the patriotic and popular thing to do. Or, top of that, defense plant managements offered fabulous wages for unskilled labor. They lured away much of our clerical, stenographic and unskilled office and factory help. Household servants *flew* to them in droves.

Household Servants Flew

The ones who didn't desert household service had friends who did. From them they heard those alluring details of higher wages, 5-day weeks, every evening off, and a lot of other freedom they had never known before. Those who left household employment and went into industry aren't likely to return. They like their improved social status.

The decreasing number of household workers recognized the improvement in their bargaining situation quickly. The result? They now command three to four times the wages they earned in the 30's. Fewer families can hire them even if they can find them. Even for



Murray Corporation of America
The Servantless Housewife

the not very reliable, part-time, unskilled, sitter, American women are paying at the rate of nearly double the wages of the professional, full time household worker of the 1930's.

Now what has this meant to the average and above average American family? It has meant the regeneration of interest in the home, because, in matter of cold fact, folks have to stay home more. It has meant new ways of spending time in the home, new ways of entertaining themselves and their friends in the home. It has been one of the important factors in the *growth and development of television*. It has been an important factor in the growth and development of the markets for the labor saving appliances which are godsend to the servantless housewife of today.

The New Vogue Is Casual

It has brought on what we now refer to as "casual living." The more formal living that was possible a couple of decades ago is out the window, even in the wealthier home. From the top of the scale to the bottom, the new vogue, the fashion in living, is "casual."

Housewives now do more of their own shopping, they are more aware of prices, competitive products, of the way a retailer does business. Shopping has become a major topic of conversation when the "girls" get to-

gether. They swap notes on what stores to shop in, what products are "hot," what they like and don't like about everything they have to buy.

Nowadays, the more simply and efficiently the housewife runs her house the more credit she gets in the community, the more envious are the neighbors. Efficiency has been added to loveliness and charm as an attribute to be admired in a woman. More casual, more informal living has not by any means made of the housewife a drudge. Casual living hasn't meant sloppy living.

I wonder if we have recognized the full implications of the casual era, and all that it has meant in the changed and changing attitudes of women, in their changing buying habits, and in the changes that both of these have made in marketing and selling products. In these changing times our *marketing and selling attitudes need changing* if we are to realize the full fruits of our selling efforts.

Still a Lot of Nostalgia

There is less than there used to be but there is still a lot of nostalgia, a lot of yesterday, a lot of vagueness in our advertising and selling. While I believe that nostalgia is one of the great appeals in advertising, I wonder if an appeal more attuned to the everyday realities of modern living might not have a greater sales appeal for women. I wonder if it wouldn't pay off to put more "reason why," more of today and tomorrow into advertising copy.

Other industries have exploited today and tomorrow to the queen's taste. Take a look at the enormous growth in circulation and advertising volume of the home service magazines. Their growth over this 10-year period is very revealing. Women with new jobs to do in the home have turned to highly specialized home magazines to learn about decorating their homes, to learn how to run their homes to reflect their tastes, their charm; to learn how to entertain simply but graciously in the modern manner; in short, to learn how to live in this casual era.

These magazines show beautifully groomed women, without shame or
(Continued on page 25)

Ouachita Service Philosopher



*About UHF
and several other things.*

By JACK DARR

Well, sir, the Colonel tells me that this is supposed to be a special UHF edition, so I guess I oughta come up with somethin' pretty smart and gaudy-like about it, and I could shore do it, 'ceptin' one thing: I don't know no more about UHF than a hawg does about the Fourth of July!

Now, Y'all in the back row, there, jist set down and shut up! I do know somethin' about somethin' else! I kin fix about every third car-radio that comes along, and about half of the AC-DC's! Come to think of it, though, I jist got through figgerin' out m' income tax, and from th' size of th' final figgers, they might be right at that! Oh, well, maybe things'll git better this year.

FORT SMITH SERVICE MEETING

Nope, I couldn't tell you-all a frazzlin' thing about UHF from personal experience 'count of I ain't had none, yet. Howthesomever, I did git up to Fort Smith 'tother night to a service meetin', which was kindly sponsored by Channel Master and Wise Radio Supply, and seen a right interestin' film, titled, "The Antenna Is The Payoff" which is a true word if one was ever spoken.

The feller accompanyin' the film, Sam Alexander, gave us some good pointers he'd got from some of his Boys which

had participated in the UHF station-opening out in Portland. From what he says, and from what I read in *Radio News* last month, they musta had more excitement out there than we had the time Doodles Risenhoover brought his pet skunk to the Hatfield Fair, and let 'er git loose on the dance floor! Yes, sir, it musta been quite a rat-race out there for a while.

SOME WORTHWHILE POINTERS

He did give us some worthwhile pointers, too. I remember one very well amongst the rest, and that was when he said that we hadn't oughta put up our antennas until the station actually gets on the air. Of course, Fort Smith, along with several other places, is gettin' a nice new UHF station, which will be mighty fine for them, but won't do us much good down here in th' hills. We're over sixty miles and several good-sized mountains from them. These-here UHF signals don't bend no more'n Aunt Minnie's Sunday corset-stays.

Well, about the antennas, he allows as how this UHF stuff is pretty bad about shadowin', and reflecting, so that we'd best postpone hi'stin' any of our antennae until we can actually git some signal to check 'em with. Says excessive height doesn't seem to help too much either. Jist get 'em up in the clear, and then hunt up the level where the best signal is, and let'er set — that was about th' gist of it.

ABOUT UHF CONVERTERS

Also made some remarks about some UHF converters and stuff that was mighty helpful. Seems as how they got good results with both the external UHF converters and the 'Channel-strips' that go right into the regular turret tuners. Says they didn't seem to find much difference in the pictures 'tween the two.

However, if'n you happen to be in a kinda weak signal area there is one advantage to the external UHF converter; you can use a booster with it. Of course, you all know by now how these fandangles work; Takes in a UHF signal, if any. Old fringe-area man — never make any hard and fast predictions — runs it around and around and around until it gits dizzy, then sneaks up on it with a crystal mixer, and stirs in a bit of local signal. Strain the resultin' mess, and if you're lucky might oops a signal on one of the VHF bands — whichever one you don't happen to be using at the moment.

This is coupled into the TV set, tuned to that channel, and there you are. Of course, if you want to, you can connect your regular VHF booster between the converter and the set, and h'ist the level a little, if necessary. Y' understand this is all theoretical,

'cause I ain't tried it yet, but I probably will, before it's over. So, jist don't go around tellin' folks I told you it'd work, see?

Of course, the channel-strip UHF converter is quite a bit cheaper than the external converter, so if you're lucky enough to have sufficient signal strength, why, that's the thing to use.

ANOTHER GOOD IDEA

Got another good idea, too, up there. Lots of you fellers have already got VHF field-strength meters. Well, sir to use 'em on UHF, jist git a UHF converter, hang it down your back while the field strength meter hangs down your front, tie 'em together with a hunk of ribbon, tune them together, and away you go!

Of course, you ain't goin' too far with all that junk hangin' on you — but maybe you'll be able to move around enough to find a peak in th' signal! One dern nice thing about it, them UHF antennae ain't much bigger'n a fly-swatter. Kinda look like one, too, come to think of it. They wouldn't be much trouble to wave around on about a ten-foot pole.

Can't do too much of that on VHF, though. It's a mite hard to walk around a roof, wavin' a two-bay Yagi overhead! I tried that once, without the field-strength meter, too. Didn't mean to, though. Kinda got overbalanced. I made about three rapid circuits of the whole roof, 'rasslin' that thing, and prayin' for the wind to go down!

Whilst this was goin' on upstairs, th' lady was downstairs hollerin' out the window, "There! Right there! No, no! Too far! Back up a little! No, no! Over a little more! —" and so on, and I jist didn't have time to tell her that it wasn't bein' done deliberate at all! When I finally got that signal-snatcher wrapped around the chimney and calmed down a little bit, I was too outa breath to tell her, and the dern signal had faded out by then, anyhow.

EVEN A LEAFLESS TREE

Back to th' bow-ties, etc. Man says, as we said before, not to put 'em up till you can see where you're gonna get the best signal. Says that even a leafless tree can interfere with a UHF signal, so look out. Might be that you're gonna get some bad ghosts at this new frequency, or reflections. That case you'll probably wind up with one of the old faithful designs, such as the Yagi.

Of course the corner reflector is pretty popular in the high-gain department, bein's as how the dimensions have got down within reach at UHF, but I can't believe the corner reflector has quite as sharp a frontal lobe as th' Yagi. This may depend upon the manu-

(Continued on page 26)

TELEVISION TECHNICIANS

Lectures Include Displays of All I



The TTLB panel sedan, with its golden brown top and cream-colored body, has covered more than 50,000 miles in lecture tours across the country.

PROGRESSIVE TV Service associations, parts and set distributors have felt highly repaid for sponsoring the **Television Technicians Lecture Bureau's** fact-packed lectures on subjects of immediate importance to TV Service businessmen and technicians.

The Bureau is an unusual institution without counterpart in any other industry. It is completely free of commercial bias in preparing the material for its lectures because it is not subsidized by any manufacturer or manu-

facturers. When a lecture is being prepared, the Bureau's staff invites all manufacturers to supply representative samples of their products for performance and applications studies.

Exhaustive checks of equipment are made under normal user or servicing conditions. The basic philosophy of the lecture presentation is to give the maximum amount of practical servicing information in the shortest possible time—and to present it clearly and simply so that listeners can assimilate the salient facts quickly.

The current lecture on UHF television provides an excellent base of practical technical information which will prove invaluable to technicians when they are called upon to work with equipment in the higher channels. Before UHF reaches an area there are many things that TV Service businessmen and technicians can do to prepare for it that will save them important hours of time when it comes. The Bureau's UHF lecture is focussed especially on the vitally important UHF preparation period.

On a recent tour, the TTLB UHF lecture was sponsored by both service associations and distributors in Kalamazoo, Grand Rapids and Detroit; in Ann Arbor by the Wedemeyer Electronic Supply Co.; in Anderson, Ind., by Sey-



An attentive audience follows Mr. Noll's explanation of the circuitry of a UHF channel strip. Converters displayed on the lecture table are the Sutco converter-booster, Regency and Mallory.

Right, technicians examine equipment.

Below, Mr. Noll uses the Vu-Graph to point out important circuit features. TTLB visual material is designed to high-light elements that are new and especially important to service technicians. Unit at right of Sutco booster-converter is UHF oscillator developed for interim alignment and testing of UHF equipment.



LECTURE BUREAU ON TOUR

Interested Manufacturers' Products

berts Radio Supply Co.; in Canton and Mansfield, Ohio, by the Burroughs Radio Co., and in Youngstown by the Ross Radio Company.

Typical of the Bureau's painstaking lecture preparation, the UHF presentation was prepared by Edward M. Noll from experimentation and critical analysis of data developed from actual work with UHF receivers in the field.

Engineering models of antenna types that will be widely used on UHF are displayed and the basic characteristics of each type are explained. Since UHF will require a great deal of experimentation "on the job" in each new area and in the several stages of the spectrum which it utilizes, detailed dimensions and construction information is given for building certain types of antennae to meet specific reception problems.

The lecture covers all types of UHF conversion devices. Methods of alignment are described and demonstrated. Samples of all manufacturers' units are carried by the Bureau to enable members of the audiences to examine them in the course of the lecture.

Of unusual interest to those who attend this lecture is a UHF oscillator capable of generating any frequency over the entire UHF television band, which Mr. Noll developed for shop work on UHF sets. Complete construction

information for this unit is given so that technicians may build similar devices for use in their own shops. It is one of three very useful UHF servicing tools created for the service industry by the Bureau which are demonstrated in actual operation at the lecture.

Discussions are now under way with prospective sponsors to present the UHF lecture in the following cities during the early part of this year: St. Louis, Little Rock, Ft. Smith, Memphis, Indianapolis, South Bend, Dayton, Columbus, Cleveland and Toledo.



The Bureau carries all available units so technicians get a complete picture.

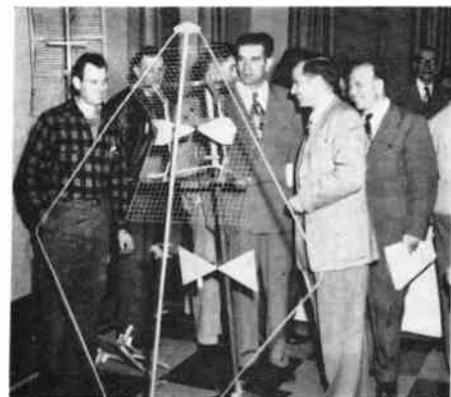


All information given and equipment shown is critically appraised for its practical value to service technicians. Circuit theory not included or briefly outlined.



Left, technicians "discover" TTLB Notebooks. Bureau's managing director, Paul H. Wendel, is swamped by takers.

Below, exotic devices that have been spawned by fast-growing electronics industry seldom fail to inspire humorous quips from men who have to make them work.



Party Line

TV Association News

By PENNY MARTIN



Hi! This is Party Line, with news and views of the various Television Associations across the country.

DETROIT, MICH.

When the Michigan Chapter of NEDA met in Detroit, C. T. Ferguson, Ferguson Radio Supply Co., Detroit, was elected chapter director. He succeeds G. E. Murphy who was elected national second vice-president during NEDA's Third Annual Board Meeting held at Atlantic City in September.

Harold G. King, Electronic Supply Co., Pontiac, was elected alternate chapter director.

Other officers serving the Michigan Chapter on the 1952-53 slate include Emil J. Rissi, president; S. L. Almas, vice-president; Floyd C. Reason, secretary-treasurer.

PHILADELPHIA, PA.

During the two-day meeting of the Keystone Chapter of NEDA held last November in Philadelphia, discussion centered on the proposed licensing bill for local service technicians.

Also considered was the incorporation of the Chapter. President Morris Green appointed a membership committee with George Hautenschild of Philadelphia as chairman assisted by Ty Yonker and Don Shover.

Albert Steinberg reported on the activities of the Joint Electronics and Radio Committee on Service. It was voted that the next Chapter meeting

be held February 7, 1953 in Philadelphia.

PENNSYLVANIA

Paul V. Forte, executive secretary of the Television Contractors Association of Philadelphia, has scored again with a blistering attack on "wholesale" distributors who sell to anyone and everyone at wholesale prices. The employees of dealers or contractors, together with amateurs and home-tinkerers, can walk into almost any "wholesale" parts distributor in Philadelphia and buy anything at the wholesale price. "This," declares Mr. Forte, "is one of the reasons legitimate dealers and contractors are finding too much red ink on the balance sheets.

"Profits in business are not, necessarily, the direct result of the sales of products or services," said Mr. Forte. "The most commonly observed losses occur in the 'shrinkage' of material and tubes, which is merely a nice way of saying that some of the technicians on the payroll have been stealing from the boss.

"Such 'shrinkage' takes an odd twist in that, more often than not, the material and tubes are used by the technician to conduct his own after-hours business in competition with his own employer. He, of course, not bothering with such burdensome things as income taxes, protective insurance and business investment, finds it quite possible to render a certain type of TV service at cut-rate prices."

Mr. Forte continued, "It seems too much to hope that the television industry will wake up to the dangers which surround it in time to do anything about them. The industry in Philadelphia feels that it has been abandoned and seems willing to embrace licensing."

Charles D. Geiger, Shoemakersville, was installed as president of the Berks County Appliance Dealers' Association at the annual meeting at Mountain Spring. He succeeds Jack Boben.

Jack Hocking, former secretary-treasurer, was named vice-president. Jerry Kauffman, secretary, and Carl Dunkle from Sinking Spring, was named treasurer.

The appliance men noted that all the ballyhoo about UHF in Reading has about died away. There are no present indications as to when the first station will go on the air. They said that since Lancaster stepped up its power almost eight times when it recently switched from Channel 4 to Channel 8, VHF, its signal is much better. This has resulted in much better reception in the Berks County areas, resulting in stepped-up business for TV repairmen.

J. B. Harris, Jr., was elected president of the Electrical Association of Philadelphia at the board of governors' annual election of officers.

Mr. Harris succeeds E. W. Loomis who headed the Electrical Assn. for the 1951 and 1952 terms. Mr. Harris has been vice-president for the past two years.

Other officers elected for 1953 were: vice-president, William E. Rubert; treasurer, Philip H. Ward, Jr.; secretary, Robert J. Moran.

Mort Farr, of the National Appliance and Radio-TV Dealers Association, charges that licensing of television repairmen in no way assures the correction of the evils it is supposed to erase.

Mr. Farr stressed that the number of consumer complaints concerning service men "have been dwindling steadily." He pointed out that a recent survey conducted by Elmo Roper for RCA Victor and a report issued by the BBB of Philadelphia, indicated that the "vast majority of people interviewed were satisfied with the work done on their TV sets."

In addition, Mr. Farr urged that the various set manufacturers emphasize to the consumer the amount of work and skill needed to repair TV sets. "There is a growing need for an educational program by the producers and service contractors," he declared.

Methods of cutting down operational costs were discussed in detail at the initial meeting of the Television Servicing Dealers Association of Philadelphia.

More than 23 area service dealers agreed that ways could be devised, or explained by accountants, in which TSDA members could reduce the ever-mounting operational expenses.

Dave Krantz, president, said that many dealers, for example, "did not know how to charge courtesy calls on their account books." In many cases, he said, a service man will spend one or two hours at a customer's home and, consequently, there is no record kept of the "loss" of this technician's time.

Members discussed ways of using the telephone as a means of stimulating business. Mr. Krantz stated that the group also talked over consumer relations and ways of improving them. Another important factor in the service business given thorough discussion was possible ways of referring customer calls in the more distant places to a nearer TSDA member. Methods of effecting the transfer system have yet to be worked out, but the group was unanimous in agreeing the idea was feasible.

The newly formed service dealer group will meet twice a month. One meeting will be open, with guests invited, while the second will be devoted to private business.

(Continued on page 18)



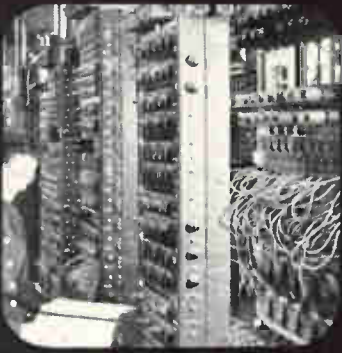
Mica specifications checked to thousandth-inch accuracy.



Completed mounts are inspected for visual defects.

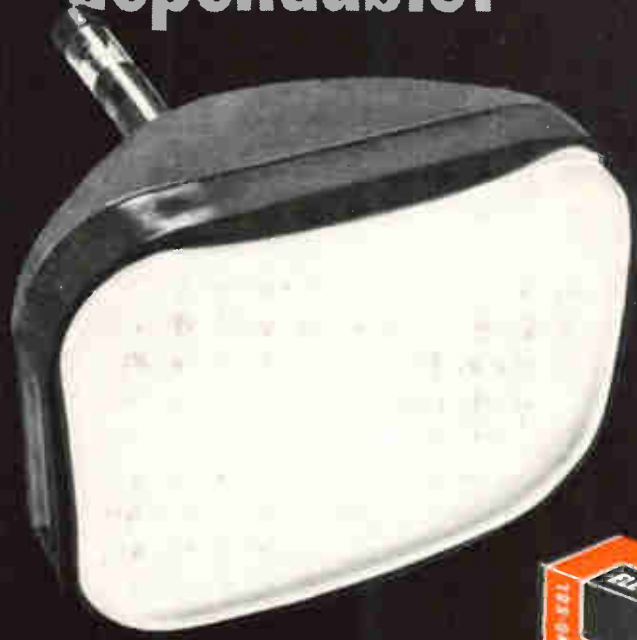


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PARTY LINE

(Continued from page 16)

CHICAGO, ILL.

Newly named Association committees by the president of NEDA, W. D. Jenkins, Radic Supply Co., Richmond, Va., include the following:

Harry D. Stark, Minneapolis, Minn., heads the ways & means committee assisted by H. Tory Horn, Seattle, Wash., and Leslie C. Rucker, Washington, D. C.

Ralph E. Walker, Chicago, Ill., chairmans the budget committee with assistants: John G. Bowman, Chicago, Ill., and Charles M. Brown, Milwaukee, Wisconsin.

L. B. Calamaras, executive vice-president of NEDA, was appointed chairman of the committee on special projects to work with Aaron Lippman, Newark, N. J.; H. E. Ruble, Dayton, Ohio; George Wedemeyer, Ann Arbor, Mich.; Byron C. Deacman, Green Bay, Wis., and Albert Steinberg, Philadelphia, Pa.

Mr. Deadman is also chairman of the sub-committee on batteries assisted by George Wedemeyer.

HOUSTON, TEXAS

"Scooter" Tcnahill, Fort Worth, Texas was elected chapter director at a meeting of the North Texas Chapter of NEDA, held in Houston, Texas. Mr. Tonahill succeeds J. Howard Klein, Dallas, who is now national secretary of the Association.

Chapter president H. E. Brown, Amarillo, appointed W. J. Wright as acting secretary for the remainder of the term vacated by Ed Bland who has resigned since entering another business outside of the industry.

LOS ANGELES, CALIFORNIA

L. B. Calamaras attended an open forum sponsored by the Southern California Chapter of NEDA in Los Angeles. Subject of the meeting was the latest effort to police licensing of radio and TV dealers and service shops currently being considered by the Los Angeles City Council.

Distributors and dealers are concerned over the rumor that the proposed city ordinance is patterned after recommendations of the Institute of Municipal Law Officers.

The recommendations would affect distributors, dealers and servicemen. If accepted, it would be unlawful for any person, firm, corporation to engage in the selling of radio or television receiving equipment or servicing without having secured a license from a proposed Board of Examiners.

Mr. Calamaras, as NEDA's vice-president has appeared before city councils and official groups in cities all over the country to point out that the objectives of these authorities cannot be achieved by licensing. As a panel mem-

ber at the forum, Mr. Calamaras gave his views on the inefficiency of licensing, as proved by the fact that many professional men and tradesmen are licensed — but each category has its proportion of unethical, dishonest, incompetent members.

WCEMA. LOS ANGELES, CALIF.

The board of directors of the West Coast Electronic Manufacturers Assn. has established a scholarship fund and made official announcement at its recent 10th anniversary banquet in the new Los Angeles Statler.

Sponsors of the fund include Hoffman Radio Corporation, Gertsch Products, Inc. and Ungar Electric Tools, Inc., all of Los Angeles, and A. H. Kolbe, New York trade paper publisher.

E. P. Gertsch, president of his own firm, is chairman of the committee.

The stated purpose of the fund is to stimulate interest on the part of high school graduates who intend to enter the electrical or electronic engineering profession. Scholarships will be given in both Los Angeles and San Francisco. The institutions to receive the awards in 1952 and 1953 include Cal Tech, Stanford, UCLA and USC. Freshmen are eligible for the awards, which will be made solely by the deans of the schools of engineering.

PITTSBURGH, PA.

Due to difficult problems that have arisen in Pittsburgh with the change over of WDTV from channel 3 to channel 2, a permanent Television Advisory Committee has been formed consisting of representatives from every element of the TV industry. It is believed to be the only committee of its kind.

Elected to the committee were: Harry Johns, Electronic League, chairman; Robert A. Laneve, representing the Television Service Assn.; George Sharp of the TV Servicemens Assoc., Inc.; George Fezell, buyer for Joseph Hornes Co., representing retailing; Raymond Rodgers, chief engineer of WDTV; Mr. Apple, service manager of Pittsburgh Products, and Mr. Paradine, field engineer for Moto Radio representing the Distributors.

TSA, DETROIT, MICH.

An industry-wide meeting on converting television sets for ultra-high frequency was held at the Detroit Edison Auditorium, Harold E. Chase, president of the TSA has reported.

Edward M. Noll of the Television Technicians Lecture Bureau and technical editor of SERVICE MANAGEMENT, was the guest speaker. Alignment demonstrations of basic circuits and UHF converters, he said, are not confined to any one manufacturer's receiver or converter. Other organizations interested in this lecture can contact Ed Noll through SERVICE MANAGEMENT.

TRANSISTORS

(Continued from page 10)

tained battery supply, instantaneous warm-up, and relatively light weight, has been constructed. This experimental amplifier delivers 1.4 watts to a 12-inch speaker and operates off a 22½-volt battery supply with an estimated life of 25-50 hours. The amplifier uses six experimental junction transistors. Smaller dimensions than those of the amplifier are feasible, if a smaller speaker and/or battery supply are used.

Personal Radio Transistorized

To solve initial circuit problems in small, portable radio receivers, a personal radio has been built in a standard receiver case retaining the converter tube but using junction transistors in all other circuits. This experimental set maintains the performance of a standard all-tube receiver. Use of transistors has enabled a three-fold reduction in the size, weight and cost of the batteries needed — without reduction of the standard 100-hour operating life.

All-transistor Personal Radio

Another approach was made in an all-transistor receiver employing nine experimental junction transistors. This experimental set, though smaller than the one described above, has not yet been engineered for smallest possible size.

In this AM-band transistor receiver, it is possible to get standard 100-hour battery life with five small batteries each about the size of a checker piece. All-transistor operation allows an even greater reduction in the size and weight of the power supply than in the one-tube set.

Portable FM Receiver

To gain experience in the operation of transistors in the vhf band, an FM receiver was built. It uses 11 experimental transistors with junction and point contacts. One point-contact transistor is used as an oscillator in the 100-megacycle region.

The experimental model is completely portable with self-contained battery supply. It weighs five pounds or about half the weight of an FM receiver using tubes. In its present preliminary form, the transistor set is not as sensitive as a standard tube FM set.

Transistor Automobile Radio

This experimental receiver employs eleven experimental junction transistors to provide an audio output comparable to that of present-day automobile radio receivers. It has push-button tuning.

An important feature of this all-transistor set is the elimination of the high-voltage power supply common to present auto receivers. This power sup-

(Continued on page 26)

NEWS BRIEFS

(Continued from page 7)

and television receiver sales about 35% above 1952 sales. . . . **GRANCO PRODUCTS, INC.**, has been organized for the design, manufacture and distribution of UHF converters and UHF measuring instruments at 36-17 Twentieth Ave., Long Island City, N. Y. . . . **GRAYBAR ELECTRIC CO.** of Boise, Idaho, has been appointed distributor for Hoffman Radio Corporation. . . . **HI-FIDELITY MANUFACTURING CORPORATION** has been established in West Palm Beach, Florida for manufacture of tuners, amplifiers and TV set chassis as subcontractor for The Radio Craftsmen, Inc., of Chicago. . . . **HOFFMAN RADIO CORPORATION**, including Hoffman Laboratories, Inc., reports the number of its employees increased 83% during the last six months of 1952 and now numbers more than 3,292. . . . **KARL-WILLIAM CO., INC.**, of Syracuse, N. Y., has been appointed distributor for Westinghouse electronic tubes. . . . **MARSH RADIO CO.** of Milwaukee has held its seventh service and dealer clinic; Bob Mueller, Centralab sales manager, presented stereo slides on printed electronic circuits related to service products. . . . **MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.**, has been organized as a wholly-owned subsidiary of Motorola, Inc., to distribute Motorola products. . . . **NARDA** is conducting a monthly check-up on sales, inventories, merchandise availability, credit conditions and other business facts — which it will render in its monthly "Get Your Bearings" report. . . . **PIONEER ELECTRONIC SUPPLY CO.** of Cleveland, Ohio, has replaced "radio" with "electronic" in its name, partly to woo its share of industrial business. . . . **PRECISION APPARATUS CO., INC.**, of Elmhurst, N. Y., has opened its 1953 lecture series on television circuitry and servicing which is conducted by R. G. Middleton, their senior field engineer. . . . **RADIO ELECTRIC SERVICE CO.** of Philadelphia, recently sponsored a UHF forum which included the 200th presentation of "The Antenna Is the Payoff," a film produced by the Channel Master Corp. . . . **RCA VICTOR** has: shipped the first four commercial uhf-TV transmitters to WSBA-TV, York, Pa.; WBRE-TV, Wilkes-Barre, Pa.; WFPG-TV, Atlantic City, N. J.; and WSBT-TV, South Bend, Indiana; announced a nation-wide service to make the **Teleprompter** available to all public speakers. . . . **REMINGTON RAND, INC.**, has announced that Engineering Research Associates of St. Paul and Arlington, Va., has been made a division of the company. . . . **RTMA** has sponsored an industry-wide engineering conference to explore all phases

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of the problem created by spurious receiver and transmitter radiations; has announced supplementary teaching aids for the training of radio and television technicians. . . . **HOWARD W. SAMS & CO., INC.**, has announced that RCA, Sarks Tarzian and J. W. Miller Co. of Los Angeles have become participants in Photofact service; has declared its eleventh consecutive semi-annual dividend of \$2.50 per share on its 5% cumulative preferred stock. . . . **SAN BERNARDINO COMMUNITY ANTENNA SYSTEM**, engineered by Hoffman Television Company, utilizes master antenna on Little Mountain, provides TV signals to 2500 homes via coaxial cable. . . . **STANDARD TRANSFORMER CORP.** has announced reduced prices on yokes and flybacks. . . . **STERLING**

RADIO PRODUCTS COMPANY of Houston, Texas, has formed a subsidiary: Sterling Radio of Beaumont, Inc., as a part of its expansion program. . . . **SUMMIT ENGINEERING CO.** has been organized for manufacture of uhf-TV antenna and other electronic equipment with office and plant at 3324 Main St., Hartford, Conn. . . . **SYLVANIA ELECTRIC** has announced four new additions to its 1953 TV set line. . . . **TELEVISION FACTBOOK No. 16** has been published by Television Digest, Wyatt Building, Washington, D. C. . . . **TODAY'S TELEVISION MARKET**, a study by J. Walter Thompson Co., says that New York City has 15.9 per cent of the TV receivers; that Chicago and Los Angeles come next. . . . **TV GUIDE**

(Continued on page 26)

TECHNICAL TOPICS

(Continued from page 9)

along a critical segment of the highway can cause a 10 db swing of signal level.

4. In city districts the indoor antenna has not been satisfactory because of weak signal at low levels, particularly when closed-in by buildings, or the annoying signal strength variations caused by traffic motion or room activity.

5. At the moment the Yagi type seems preferred for this area—high gain, small size, and good pattern. The VHF-UHF end-fire Vees and the trombones are good UHF antennas, except for multiple lobes, on UHF position but the



FIG. 1. Test Position

average 2-5 db loss that must be taken on the VHF band as compared to VHF types now existing in the area is too much for this VHF fringe area. Furthermore, this is an old VHF fringe area and most VHF antennas are up in position and operating. UHF is just an addition to existing service.



FIG. 2. Channel 46 Rolls in

6. In any area where UHF signal is less than good, the line should be tuned with a small 2- to 3-inch width of aluminum foil wrapped around the line. Slide foil along the line to obtain best picture.

Likewise the same arrangement should be prepared, Fig. 5, in making comparison checks on UHF antennas, lines and converters. Only by tuning out the influence of the line and the standing waves that exist on it can true relative comparison be made between antenna types and between various

types of converters. Refer to January SERVICE MANAGEMENT for comparison procedures.

We realize in the early days of UHF operation, most of you will want to get the feel of the art and make equip-

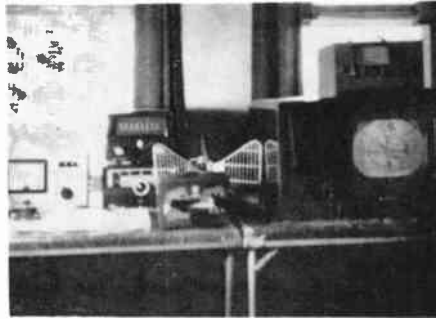


FIG. 4. Performance check of Snyder Broad-band UHF Yagi.

ment performance comparisons. However, let's be systematic about our tests because confused results will be your only reward—if variables are not properly considered.

In any antenna checks, the antennas to be compared must be mounted in exactly same position, identical length of line used, and mast and line must be fastened rigidly so positions will not



FIG. 5. Aluminum Foil Stub Check

shift in the wind as antenna changes are made. Input system and measuring device must be identical for each unit being compared and, in most cases, should include a small tunable stub to tune out the influence of line and input

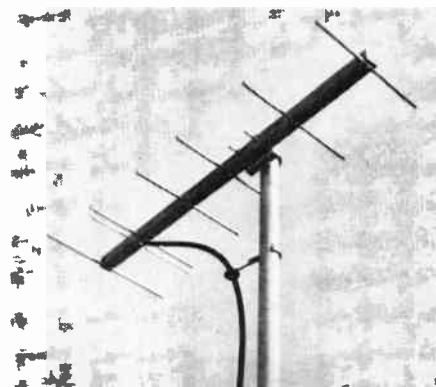


FIG. 6. JFD UHF Yagi

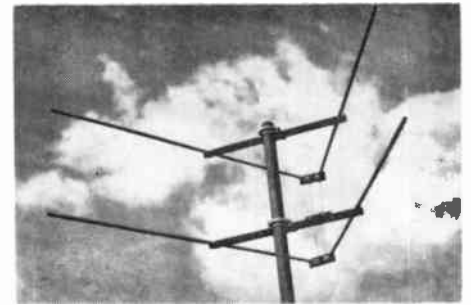


FIG. 7. Taco Long-V Stacked system in regard to standing-wave ratios.

In converter checking, too, all associated equipment should be held constant and identical and stub used to maximize signal to input of each converter. Test layout should be planned for fast and convenient substitution of various converters under check.

Plan of a simple field test board,

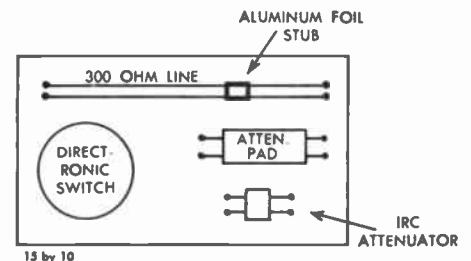


FIG. 8. Arrangement of UHF Test Board

Fig. 8, would include a section of flat 300-ohm line (14 inches) pulled tight with terminals at each end and a small sliding stub. We also included a small attenuator pad so we could approximate fringe conditions for certain tests—also an IRC variable attenuator was included and a Directronic switch for checking this type antenna. Limited checks can be made on station signals

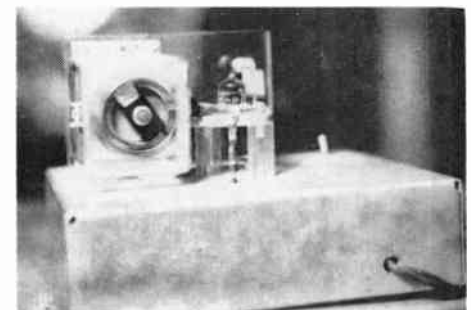


FIG. 9. UHF Test Oscillator

and, if required, they can be augmented by tests performed with a small UHF signal source, Fig. 9, details of which were presented in January issue of SERVICE MANAGEMENT.

UHF TRANSMISSION LINE

The transmission line is an important cog in obtaining strong and consistent UHF reception. By consistent reception, we mean no sharp decline in signal level when the line becomes damp, coated, (Continued on page 24)

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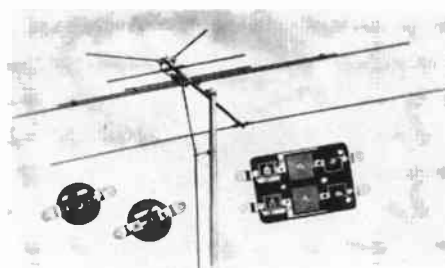
P **RODUCT REVIEWS**



ANTENNAS FOR UHF RECEPTION

La Pointe Electronics, Inc., Rockville, Conn., has announced a combination antenna for all vhf and uhf channels that employs eight patented printed circuit band rejection filters that isolate the vhf and uhf portions of the antenna so that a single transmission line may be used. Composite operation from channels 2 to 83 is obtained by use of a multi-section printed circuit filter.

Reception on channels 2 through 13 is not affected by its uhf "V" type antenna because of the series of filters connected between the transmission line and antenna connection points. Similar filter sections, located in each side of the line, are resonated at 69 and 195 mc.—to prevent simultaneous operation of the antennas at vhf.



La Pointe Electronics

Throughout the uhf range, the 69 and 195 mc. filters are virtual short circuits so that uhf signals are passed without attenuation to the common transmission line and the receiver. Broadband vhf reception is obtained through 680 mc. filters which are short circuits in the vhf range. Broadband vhf performance is accomplished by proximity coupling of all elements in the "driven" portion of the array. Additional gain from the Ultra Q-Tee antenna may be obtained by stacking.

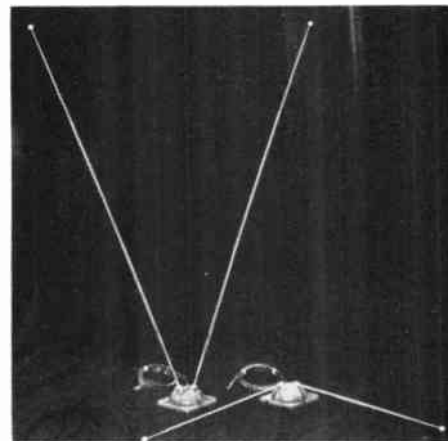
An Ultra Q-Tee Suburban antenna has been designed for all-channel vhf and fringe area uhf. It employs eight printed circuit channel separators. Its Yagi section is reported to deliver 11 db gain, and to have an unusual bandwidth of 60 mc.

For use in fringe areas served by more than one uhf transmitter, Colinear antennas similar to the Yagi type, will deliver a maximum gain of 16 db. A "cut to frequency" antenna of this type will cover twenty uhf channels on either side of the channel for which it is cut —

and provide adequate gain.

Each of the four bays of the Colinear antenna consists of a full-wave radiator and reflector. Critical harness spacing is adjusted at the factory for maximum gain on the specified channel. Cross arms of these antennas are made of fibreglass for durability and long life.

Additional gain may be obtained through the use of VEE-D-X stacking kits that include two masts, two booms and a stacking harness. This side-by-side stacked uhf Colinear array is reported to be one of the most powerful

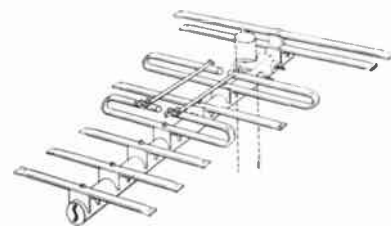


Brach — Indoor

uhf antennas — with a total gain of 19.8 db.

Tricraft Products Co., 1535 N. Ashland Ave., Chicago 22, Illinois, has announced a narrow beamwidth uhf antenna for channels 14 through 83. The antenna must be aimed within three degrees; is said to provide high gain, less than 2:1 voltage standing wave ratio over the entire uhf band with 300 ohm line; and to be suitable for forming two stacked units.

Brach Manufacturing Corp., 200 Central Ave., Newark 4, N. J., has announced a new uhf antenna of the cor-



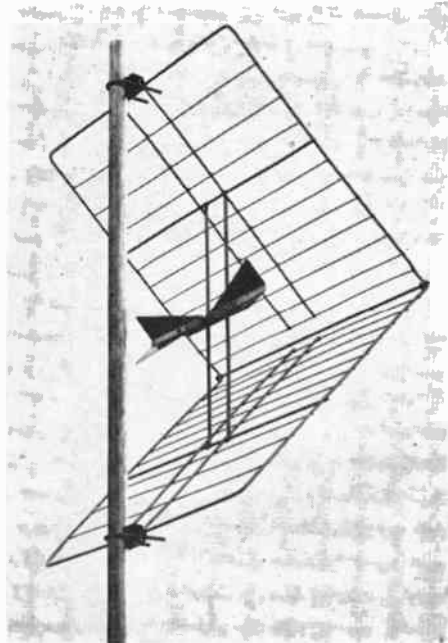
Snyder

ner reflector type with bow-tie elements — that will withstand gusts of wind up to 100 mph. The Radar-Tenna has a high front to back ratio and will provide a gain of 8 to 12 db over the uhf band.

The company has also announced a combination vhf-uhf antenna that has a gain of approximately 8 db at uhf and a directional pattern similar to that of a 6-element conical at vhf. This Dual-V

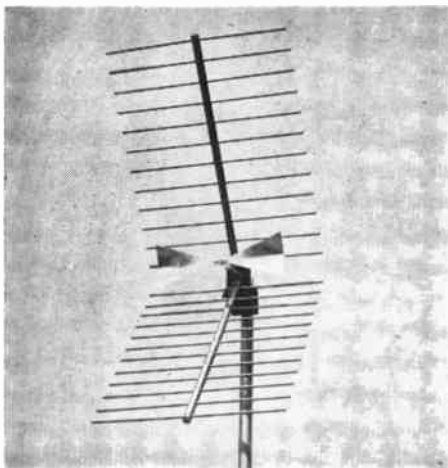
antenna is supplied individually packed and as a kit.

For indoor uhf-vhf reception in primary areas, Brach has announced its new #482 universal indoor antenna. It has conventional three-element rods for vhf that fall into a 90 degree horizontal position for uhf — by means of eccentric rotating balls. This indoor antenna is distributed through radio parts jobbers.



Channel Master

Snyder Manufacturing Co., Philadelphia 40, Pa., has announced a new broadband uhf Yagi antenna that is available in three models for channels 14 to 28; 27 to 62; and 47 to 83. Data on these antennas may be obtained by writing to Dick Morris at the address

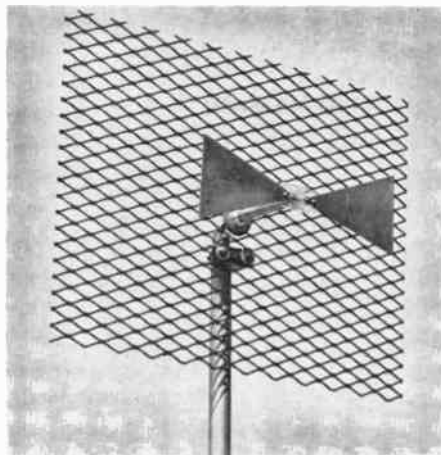


Walsco

indicated above.

Ward Products Corp., 1148 Euclid Ave., Cleveland, O., has announced an antenna designed to convert existing vhf antennas for uhf reception. It has designated its new product as the Jazz

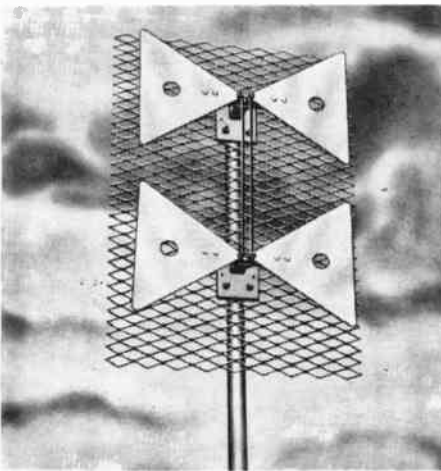
Trombone, Model TV-180. This antenna is reported to provide a uniform gain of 8 db throughout the uhf region and to provide a sharp directional pattern for solving the uhf ghost problem. Data on this antenna may be obtained on request to radio parts distributors or from



Walsco

Ward Products Corp. at the address given above.

JFD Manufacturing Co., Inc., 6101 16th Avenue, Brooklyn 4, N. Y., has greatly increased production of its Bowtie-Flector antenna to reduce prices to jobbers and dealers. To decrease



JFD

wind flutter and variations in db gain, elements of the bowtie have been punctured. Terminals of the bowtie dipoles are designed to decrease snow, ice and dirt loading. Bowtie-Flector antennas are supplied with a matching transformer bar on a no-charge basis. Literature may be obtained on request.

Channel Master Corp., Ellenville, N. Y., has introduced a series of new uhf antennas including a broadband uhf fringe model No. 405; a stacked ultra fan, model 4132; and a complete series of uhf-TV antennas including models 413 and 414.

The corner reflector model 405 is reported to have high gain across the en-

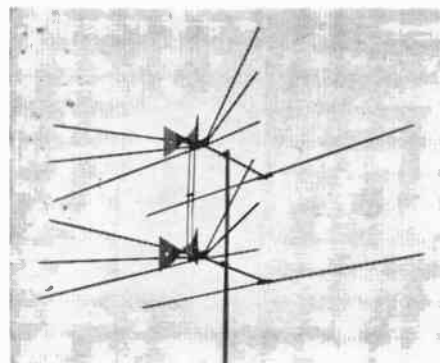
HV0-II for under chassis replacement in Zenith sets having 12" to 19" round tubes. HV0-9 Autoformer for RCA, Hoffman and Hallicrafters sets designed for picture tubes 21" and up. HV0-10 for "fast retrace". Merit TV Replacement Guide No. 405 covering practical recommendations for replacements in over 6000 models and chassis; Auto Radio Replacement Guide Form No. 3 can be obtained from your Jobber or by writing:
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tire uhf band, ranging up to 12½ db and making it suitable for fringe applications. It is supplied completely pre-assembled so that its reflecting screens open like a book. Free space terminals prevent accumulation of dirt and moisture at feed points.

The stacked ultra fan is a sensitive all-channel vhf-uhf array that utilizes two inter-action filters which separate vhf and uhf bands electronically. This design permits the use of one transmission line and vhf-uhf reception without switching. Based on a tuned reference dipole, this antenna array will average 6½ db gain on low band vhf; 10 db on high band vhf, and a uniform 9½ db on uhf.



Channel Master

TECHNICAL TOPICS

(Continued from page 20)

or wet. The better lines (in the present state of dielectric material development) have a large percentage of air dielectric spacing. To derive full benefit from better line, this air separation area



FIG. 10. Anaconda UHF Line

must be kept dry and undisturbed by proper sealing off of line at ends and proper vent arrangement to prevent condensation.

Anaconda has developed a special 270-ohm line for UHF operation. It consists of two polyethylene tubes surrounded by a weather resistant outer polyethylene jacket. Inner construction and shape of the jacket permits only a limited area physical contact, Fig. 10,

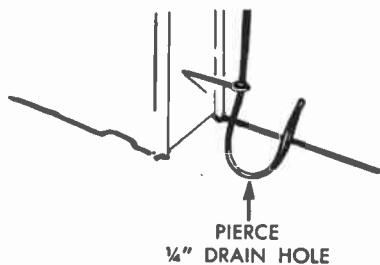


FIG. 12. Drain Elbow for Tubular Lines

with the inner tubes (large percentage of air dielectric separation). Inside each of the tubes is a solid conductor that is held centered by a polyethylene lacer again affording a large percentage of air dielectric spacing and a limited surface contact between conductor and dielectric material.

It is apparent that physical construc-

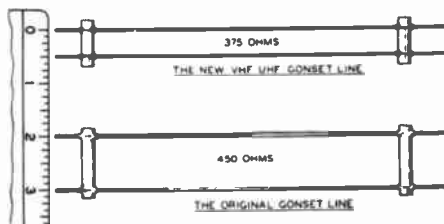


FIG. 13. Gonset Open-Wire Line

tion of the line maintains uniform spacing between conductors and much air spacing. Line loss is 3.6 db per hundred foot at 500 mcs. and 5.1 db per hundred at 900 mcs. The good weather protection offered by line can only be attained by proper sealing to prevent dampness and condensation from penetrating into the internal air separation areas. Recommended sealing procedure is illustrated in Fig. 11.

The Amphenol tubular type line af-

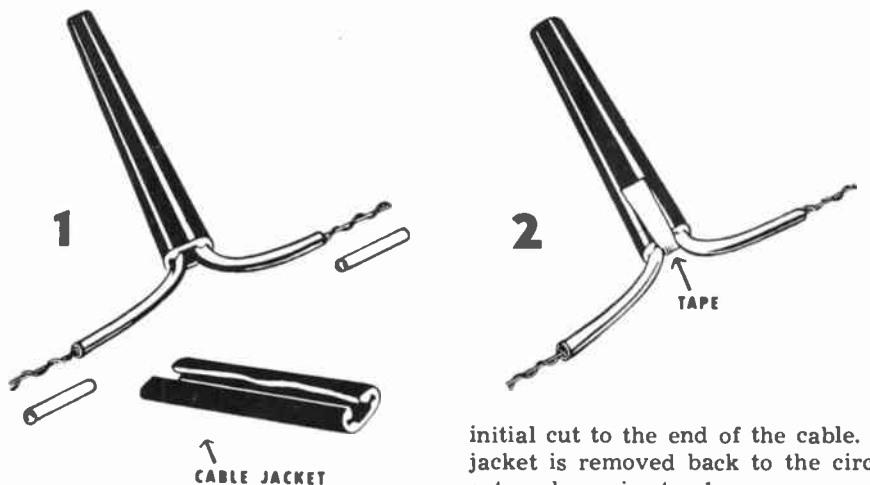
fords a very large percentage of air dielectric spacing, particularly in the area directly between conductors where it is most significant (shortest path between conductors). The dielectric material is reasonably tough and rigid to maintain uniform spacing and minimize moisture penetration. Attenuation factor is approximately 3 db per hundred foot in the 500 mc range.

All of these line types must be sealed at the antenna ends to prevent moisture penetration and should also be elbowed, Fig. 12, and pierced at point where line enters building. Line should be dipped into an elbow or drip loop and the dielectric pierced ($\frac{1}{4}$ -inch hole) at lowest joint to minimize internal condensation and provide drainage. If the line is allowed to fill with water, the advantages of its construction are sacrificed.

An improved open-wire line has been marketed by Gonset for UHF operation, Fig. 13, having a lower impedance (375 ohms), less spacing, and smaller conductors. Consequently, separation between conductors is a lesser percentage of the UHF wavelength as compared to the usual open-wire line. Electric field is better confined and less disturbed by surrounding metallic surfaces. Loss is approximately 2 db per hundred at 500 mc.

In present state of development of antennas and input circuits, it is advisable to tune the line for peak UHF reception on a given channel. A simple method is to wrap a two- or three-inch piece of aluminum foil around the line and slide it along the line for best and strongest picture.

(To be continued)



Make a circular cut around, but only partly through the cable jacket 4 inches from the end. Next make a longitudinal cut entirely through the jacket from the

initial cut to the end of the cable. The jacket is removed back to the circular cut as shown in step 1.

Spread the conductors apart and place two 1" pieces of sealing tape across the crotch as illustrated in figure 2. The tape should be applied under tension.



Next take a 7" piece of tape and begin wrapping it in a clockwise direction one inch below the crotch. When the crotch is reached, pass the tape through the crotch and continue wrapping for $\frac{3}{4}$ " along one conductor. Then wrap down

the conductor and through the crotch to near the starting point as shown above in steps 3 and 4. Repeat this for the other conductor, wrapping the tape counterclockwise in this case. The seal is finished as shown in step 5 with a 4" piece of tape.

FIGURE 11. Line Sealing Instructions (Anaconda UHF Line).

LIVING HABITS

(Continued from page 12)

apology, putting the casserole into the oven, while their husbands are making cocktails for their dinner guests. Setting the timer on the stove she joins her guests in the living room. She does it so well, she is so well organized, so cool, so efficient, her guests haven't even missed her. The meal is being prepared while she is being her gracious and charming self as the hostess.

Higher Prices and Higher Taxes

Now, let's take a look at how modern living has affected the American woman's buying habits. Let's see how they have already affected our distribution and selling techniques. Some manufacturers have gone whole hog into the supermarket. Some are thinking of it. Some are standing pat. Undoubtedly the supermarket has taken some business from the department stores and specialty stores, but they haven't yet affected sales in these stores to the degree that they have become a threat to drug stores.

Because the supermarket is a cash and carry operation, and because in these days of higher prices, higher taxes, higher everything, the supermarket offers substantial savings in the all important monthly food bill, the modern American woman is flocking to the supermarket. That trend will continue. Because of the crowded schedule of today's American woman, she is

impatient with waiting in line in stores to buy the things she wants to buy. In this connection we must remember that the store didn't force self service and self selection on women — women forced self service and self selection on the store.

The super markets have been taking advantage of the enormous traffic they have built, but it will be a long time before a woman buys much more than the necessities in the super market. The super market represents to her simply a faster, time-saving, more efficient way to pick up staples.



Holmes & Edwards Silverplate

The formal living of a couple of decades ago is out the window.

The American woman is much more efficient than she used to be. She will, therefore, patronize the stores which do an *efficient selling job*. She no longer has all day to do nothing but shop.

Very recently, one super market has added a "hostess" who floats about the department helping women make up their minds, answering questions, and nudging them a little closer toward picking the products off the shelf and dropping them into her basket. This is at least one bit of evidence that even in these meccas of robot selling and self service the *personal touch* is needed to advise, to help, to assure a not too sure customer.

Buyer's Problems

Recognizing the problems of the buyer is the first step we can take in enlarging our *capacity* to sell. Buyers tell me that too seldom do they hear from salesmen, or do they read in the advertising pages of their trade papers, the real selling features of the products that are offered to them. Too often they tell me, they hear and read the worn our selling cliches that no longer mean anything to them since every-

one uses them to sell every product that is offered.

Every product has its own selling features. The product was designed for a particular purpose. To a buyer, that's a selling point. It is packaged by experts for particular reason. To a buyer that's a selling point. It will be advertised in certain carefully selected magazines. To a buyer that's a selling point. Certain carefully, and expensively worked out merchandising aids are provided. That's a selling point. Every product has dozens of uses. Each is a selling point which helps a buyer not only to buy, but to sell. Every product has literally dozens of selling points and the cliché was never invented that described even one.

Enlarging the Capacity to Sell

The next step in enlarging the capacity to sell more products is to tell him, simply, and clearly, and often, about selling features built into products which speed their turnover — always remembering that his primary interest is the profit he can retain after selling the product.

This business of enlarging our selling capacity is the job of all of us. It's my job as a trade paper publisher. We take that job very seriously. Opening the eyes and, more important, the minds of our buyers to reach toward greater sales goals, is our editorial function. Ours is salesmanship in print.

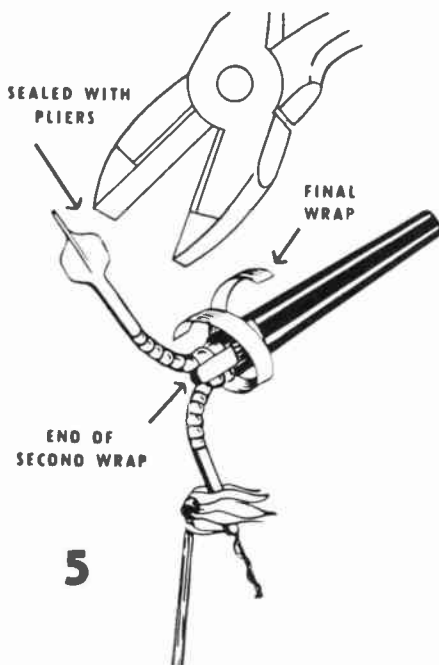
Trade Literature

Miniature Fixed Ratio Speed Changers

An engineering data sheet providing comprehensive information on miniature fixed ratio speed changers has been issued by the *Metron Instrument Company*, 432 Lincoln St., Denver 9, Colorado. The miniature fixed ratio speed changers covered are said to provide the perfect solution for fixed ratio gearing in instruments, servomechanisms, and controls or other low power devices. Two series are described, one for backlash applications. Both series are offered in over 400 ratios. Copies of the data sheet are available on request.

TV Transformer Catalog and Replacement Guide

A simplified television replacement guide and transformer catalog that lists replacement transformers for more than 4400 models and chassis has been published by the *Standard Transformer Corporation*, 3580 Elston Avenue, Chicago 18, Illinois.



Remove one inch of insulation from the conductor ends and with a lighted match soften next inch and press firmly with pliers to complete the seal around the conductor as shown in illustration 5.

TRANSISTORS

(Continued from page 18)

ply, comprising a vibrator, transformer and rectifier, is not necessary since the transistors operate on the six-volt automobile battery.

This experimental receiver uses one-tenth the current of present auto sets. In fact, the transistor receiver itself needs no more current than is necessary to operate two panel lamps.

Transistor Portable Phonograph

While investigating the possibilities for transistors in the phonograph field, a light-weight, spring-driven, 45-rpm portable model employing a battery-operated transistor amplifier was built. Low power consumption of four junction transistors enabled a 22½-volt battery to provide for approximately 75 hours of operation. An internal switch automatically turns off the amplifier circuit when a record is not playing.

Wireless Phonograph Jack

A tiny radio transmitter, employing a junction transistor and a few simple components, has been constructed to feed the signal from a phonograph pick-up to a standard AM receiver. This 2-cubic-inch transmitter is effective two feet away. Its button-sized 1.35-volt battery power supply provides an operating life of approximately 3,000 hours. Such a device could permit the use of a record-player with radios that have no phonograph connection.

Roving Microphone

Similar in principle the wireless phonograph jack, this cigar-size experimental transmitter is modulated by a tiny built-in dynamic microphone instead of a phonograph pick-up. It employs two junction transistors and a battery. It was made to explore the transistor possibilities in a low-cost wireless microphone-transmitter. The signal is picked up and amplified by any broadcast-band radio receiver. Its transmissions are effective within a radius of 25 feet.

Transistor Applications in Industrial TV

Study of partial introduction of transistors into the monitor of industrial television equipment was initiated to find ways of reducing weight, size, power consumption and circuit complexity in semi-portable, closed-circuit television equipment. With eight RCA developmental point-contact transistors in the synchronizing generator circuit, to do the work of three double triodes and four transformers, the initial result was a three-fold reduction of the size and a ten-fold reduction in power consumption. The performance was roughly comparable to that of all-tube equipment. Further work is in progress to protect the transistors from being overheated by the tubes.

NEWS BRIEFS

(Continued from page 19)

has been purchased by Triangle Publications of Philadelphia. . . . "WELCOME TRAVELERS" network TV show recently feted Peter L. Jensen, president of Jensen Industries, on the 50th anniversary of his entrance into the sound business. . . . WESTINGHOUSE has announced a new 2000 mc microwave system for terminal and repeater stations for oil and gas pipeline companies, utilities, railroads and other applications.

OUACHITA PHILOSOPHER

(Continued from page 13)

facturer. I might get called down for it right soon, but from the polar patterns I saw recently on two popular brands, the lobe of the corner reflector lacked a few degrees of bein' as sharp as th' Yagi. Might run around 110-120 degrees, as compared to the 70-90 degree lobe of the Yagi.

SPEAKIN' OF YAGIS

Say, speakin' of Yagis, as we do often out here in the hinterlands, where the signals fly few and far between, how in th' Samhill do you pronounce that?

Fer a while, I called 'em "Yahgi's," and then I discovered that the Japanese pronunciation of Mr. H. D. Yagi's name is "Yaggi," like in "aggs," so then I called 'em "Yaggis" fer a while, and now, this feller in the film 'tother night, he sets there with his blue serge suit a-shinin' Technicolor right in my eye and calls 'em "Yahgis," and now I'm dang near as confused as Scott Kinnerson's foxhound, night he run into three fresh tracks at once!

Well, sir, while me an' th' hound are settin' down here abyin' at th' moon, y'all take care of yourself. Come see us.

GOOD BUSINESS

(Continued from page 11)

tomter for the brand new one. Have you studied to see if you are spending your advertising dollar in the most effective way?

Not disregarding the national economic picture, have you attempted to analyze your own markets' potential for 1953? You should determine where the strength or weakness is among your customers. Is your relationship with your salesmen healthy? Would you want to work for you? Have you asked yourself why a prospective purchaser should spend his or her money with your outfit? Find those reasons. They're an important part of what you have to sell.

After the proper planning, you are prepared to develop your program.

PROGRAMMING

You must realize that your only assurance of remaining in business and making money comes from a good sales force. You can't demand respect from your supplier except with sales capacity. If you are to survive the stabilizing era and end up with good profit possibilities, you have to demonstrate your ability.

If you have planned your prospective sales volume, you know approximately how much you will have to spend on advertising — so set up your tentative advertising and merchandising program.

Don't hesitate to use old ideas over again. Pull out successful promotions of the past. Lift their faces and use them again. It is a real challenge to think up new promotions all the time. Plan your program at least six months in advance, and then tackle it a month at a time.

Give consideration to the following advertising and promotional aids: 1. newspapers — indispensable to a large volume. 2. Want ads. 3. Television. 4. Radio, including the use of pitchmen on second or third rate stations in 15-minute time units. 5. Direct mail, but only if given a twist to assure effectiveness. 6. Telephone canvassers. 7. Handbills. 8. Salesmen-planned activities.

FOLLOW THROUGH

Planned campaigns usually bring good results when accompanied by an incentive plan. Contests are an especially valuable part of planning and programming. Don't overlook their capacity for increasing sales. All planning and programming is futile unless you develop an effective follow through. You must have over-all organizational interest in your sales goal. If you fail to tie in all your potential, you are missing a bet.

Get pepped up. Generate enthusiasm. That's why you are getting paid, whether you know it or not. I may be short on brains, but never let it be said that I am not in there driving.

You should be proud of your business — your industry. Try to make your industry respect you. With that attitude you will never go broke. Many people, it seems to me, work hard at going broke.

You want fresh ideas. You want acquaintance with the top operators in the country. I don't believe business men who have such an interest, first, in themselves, and second, the industry, will ever stand for me pushing my three chances of going broke off on them. Plan your program and follow-through — and reduce the odds that you will ever go broke.

Let's forget the "glittering generalities" about quality.

Let's Check 4 specific ways CBS-HYTRON cuts your call-backs



✓
1. BY MAKING CBS-HYTRON TV ORIGINALS BEST.

Longest experience with production . . . with applications . . . with improvements . . . all count. CBS-Hytron-built 1AX2, 1X2A, 6BQ6GT, 12A4, 12B4, 12BH7, 12BY7, 12BZ7, 25BQ6GT, 16RP4, etc. are more trouble-free. Prove it to yourself.



✓
2. BY ENDLESSLY IMPROVING STANDARD TV TYPES.

Close co-operation with leading set makers alerts CBS-Hytron daily to needed betterments. Take one of endless examples: the CBS-Hytron 6CB6. You will find its clear, non-carbonized bulb eliminates undesirable loading effects at vhf.



✓
3. BY APPLYING "RELIABLE" TUBE TECHNIQUES.

CBS-Hytron 6AL5 is typical. Experience with the military 6AL5 family (JAN 6AL5, 6097/CT, 5726) is passed on to you. You profit by a commercial CBS-Hytron 6AL5 made truly reliable.



✓
4. BY MATCHING EACH TUBE TO THE SET.

Daily, CBS-Hytron analyzes leading TV chassis. Dynamic socket-by-socket checks, plus continuous field experience, pay off. Give you CBS-Hytron matched-to-the-set performance . . . with the accent on trustworthy replacements.

Take advantage of CBS-Hytron extras like these. Keep your customers happy. Guarantee yourself against profit-slicing call-backs. Demand dependable CBS-Hytron tubes.



NOW...TEST THE EASY TOPSIDE WAY!

Wish you could test a chassis topside? Without first pulling and wrestling with the heavy chassis? Without disturbing wiring and parts by digging underneath for buried sockets? How much faster, easier, safer you could work! New CBS-Hytron Test Adapter does the trick. Just replace a 7-pin miniature tube with the Test Adapter. Plug tube into Test Adapter. Presto, all socket connections are topside . . . within instant reach of your test prod or clip. Just one job pays for this new CBS-Hytron Test Adapter. Get yours today!

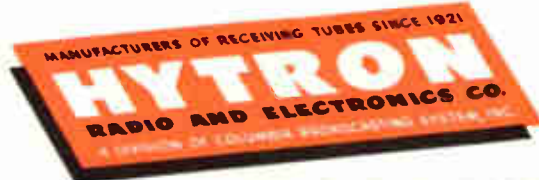


\$1.45 net

HERE'S HOW! With the CBS-Hytron Test Adapter, you quickly measure voltage, resistance, gain. You inject and trace signals . . . monitor intermittents. You check oscillating stages. Or the effect of adding a bypass condenser or shunt resistor.

With several CBS-Hytron Test Adapters you make stage-by-stage circuit checks . . . fast. You do all this dynamic testing the e-a-s-y way . . . topside. With no ill effects at a-f frequencies. And only slight capacitance and inductance effects at much higher frequencies.

You will like: The positive contact of the low-resistance, silver-plated base pins and test points. The plainly marked pin connections. The easy insertion and tight grip. CBS-Hytron Test Adapter is another designed-by-and-for-you "must" you must have. See your CBS-Hytron jobber today.



DANVERS, MASSACHUSETTS

For A More Successful Service Business...

GRAYBURNE
Grayburne means Quality Electronic Components

PATRONIZE YOUR ALERT PARTS DISTRIBUTOR

Grayburne Products Mean
Extra Profits to You

**Install A Filter On
Every Service Call**



**CLEAR-PLEX TV
INTERFERENCE FILTERS**

4 Popular, Fast-Selling Models — reject 4 most common interference causes. Incorporate scientifically designed and proved circuits. Have high rejection efficiency. Extremely simple to install — less than one minute.

Model #	Interference Rejected
CPF	FM
CPD	Diathermy
CPJ	Ignition
CPH	Amateur (21 mc)

Low Costs List \$1.98 each.

**DUAL TONABLE
TV INTERFERENCE
FILTERS**



For Professional Installations and where interference is intense. Precision-engineered. Incorporate a dual set of coils and condensers center-tapped to ground for greater efficiency. Very easy to install and balance.

Model #	Interference Rejected
SW-10	10 meter band
SW-20	20 meter band
DT	Diathermy
FM	FM

List: \$2.75 each

**FERRI-
LOOPSTICK**



**VARO-
LOOPSTICK**

Most sensitive small radio antennas ever made! Substitute them for the old type loops in every radio you repair. You'll improve set performance so amazingly, your customers will call you a wizard! Ferris-loopstick: Market-proved. For economical installations. Just set and forget. List 75¢.

Varo-loopstick: Same features as Ferris-loopstick plus Micrometer adjustment and one-hole mount. List \$1.00.

Your nearest Grayburne Distributor, listed below, has proven his interest in the success of your business . . . consult him on all your needs.

CALIFORNIA

San Francisco 3
G. M. Popkey Company, Inc.
1201 Howard Street
Stockton
Dunlap Wholesale Radio Co.
27 North Grant Street

CONNECTICUT

Waterbury
Bond Radio Supply
439 West Main Street

DELAWARE

Wilmington
Almo Radio Company
6th and Orange Streets

FLORIDA

Miami
Herman Radio Supply Company
1365 N.W. 23rd St.
Walder Radio & Appliance Co.
1809 N.E. Second Avenue
Pensacola
Grice Radio & Elec. Supplies
358 E. Wright Street

GEORGIA

Augusta
Prestwood Electronics Co
708 Reynolds Street
Columbus
Radio Sales & Service Co.
1326 First Avenue

ILLINOIS

Chicago
Allied Radio Corporation
833 W. Jackson Blvd.
Newark Electric Company
223 West Madison St.
Oak Park
Melvin Electronics, Inc.
238 Chicago Avenue
Rockford
Mid-West Associated, Inc.
506 Walnut Street

INDIANA

Anderson
Seybert's Radio Supply
1331-3 Main Street
Fort Wayne
Van Sickle Radio Supply Co.
1320 South Calhoun St.
Wall Distributing Co.
241 Pearl St.
Frankfort
M. H. Dossett Company
855 Burlington Avenue
South Bend 18
Colfax Company, Inc.
802 South Main Street
Commercial Sound &
Radio Co.
528 East Colfax Avenue

MARYLAND

Salisbury
Almo Radio Company
MASSACHUSETTS
Boston
Gerber Radio Supply Co.
1900 Columbus Avenue
L. M. Herman Company
883 Boylston Street
Lincoln Electronic Supply Corp.
876 Commonwealth Ave.
Radio Shack Corporation
167 Washington Street
Radio Wire Television, Inc.
110 Federal Street

CAMBRIDGE

Electrical Supply Corporation
1739 Massachusetts Avenue
Fall River
E. A. Ross & Co.
341 Columbia St.

SPRINGFIELD

L. L. Del Padre Associates
236-240 Chestnut Street
New England Service Center, Inc.
855 State Street
Worcester
Radio Electronic Sales Co.
52 Chandler Street

NEW HAMPSHIRE

Concord
Evans Radio
10 Hills Avenue

NEW JERSEY

Atlantic City
Almo Radio Company
4401 Ventnor Avenue

NEW JERSEY (Cont.)

Camden
Almo Radio Company
1133 Haddon Avenue
Jersey City
Nidisco
713 Newark Avenue
Newark
Continental Sales Company, Inc.
521 Bloomfield Avenue
Radio Wire Television, Inc.
24 Central Avenue
Variety Electric Company, Inc.
468 Broad Street

Red Bank
Monmouth Radio Supply Co.
404 Shrewsbury Avenue

NEW YORK CITY

Wilco Radio Distributors
383 East 138th St.
Bronx 54, New York
Brooklyn
Bay Electronic Dist.
2712 Avenue "U"
Benray Electronics Corporation
485 Coney Island Avenue
Green Tele-Radio Dist.
472 Sutter Avenue

Hempstead, L. I.
Island Radio Dist., Inc.
412 Fulton Avenue
Hempstead
Standard Parts Corp.
297 N. Franklin Street

Long Island City
Electronic Supply Corp.
4108 Greenpoint Avenue

New York
Arrow Electronics, Inc.
82 Cortlandt Street
Consolidated Radio Sales Corp.
768 Amsterdam Avenue
Radio Wire Television, Inc.
100 Sixth Avenue
Sylvan-Wellington
269 Canal Street
Terminal Radio Corp.
85 Cortlandt Street

Patchogue, L. I.
South Bay Radio Dist.
125 West Main Street

White Plains
Melville Radio Corporation
259 Mamaroneck Avenue
and

Flushing
160-13 Northern Blvd.

NEW YORK STATE
Albany
Air Waves Electronics-Radio
Dist. Co.
213 Hudson Avenue
Fort Orange Radio Dist. Co., Inc.
904-916 Broadway

Batavia
Radio Equipment Corp.
5 Center Street

Buffalo
Dymac, Inc.
2329-31 Main Street
Huron Supply Co., Inc.
117 West Huron St.
Radio Equipment Corporation
147 E. Genesee Street
Summit Dist., Inc.
916 Main Street

Kingston
Arace Electronics Dist.
25 Henry Street
Niagara Falls
Radio Equipment Corp.
1363 Pierce Avenue

Rochester
Masline Radio & Elec.
192 N. Clinton

Troy
Trojan Radio Company, Inc.
420 River Street

NORTH CAROLINA
Winston-Salem
Dalton-Hege Radio
Supply Company, Inc.
924 West 4th Street

NORTH DAKOTA
Fargo
Bristol Dist. Company
419 North Pacific Avenue

OHIO

Dayton 4
Srepro, Inc.
314 Leo Street
Marietta 2
Marietta Radio &
Elect. Sup. Company
221 Second Street

OKLAHOMA

Tulsa 3
S & S Radio Supply
721-23 South Detroit Street

OREGON

Portland 9
Lou Johnson Company
422 N. W. 8th Avenue

PENNSYLVANIA

Erie
J. V. Duncombe Company
1011 West 8th Street
Lancaster
George D. Barbey Co., Inc.
622 Columbia Avenue
Lebanon
George D. Barbey Co., Inc.
821 Quentin Road

Philadelphia
A G Radio Parts Company
17th & Venango Street
Almo Radio Company
509 Arch Street
Almo Radio Company
6205 Market Street
Almo Radio Company
412 N. 6th Street, S. E.
Eugene G. Wile
218-220 South 11th Street

Pottstown
George D. Barbey Co., Inc.
111 N. Washington St.

Reading
George D. Barbey Co., Inc.
2nd & Penn Streets
Schuylkill Haven
Ace Electronics
P. O. Box 67

SHORE ISLAND
Providence
Wm. Dandreta & Company
129 Regent Avenue
Television Accessory House, Inc.
41-45 Broadway

TENNESSEE
Kingsport
Radio Electric Supply Company
245 E. Market Street

Nashville
Electra Distributing Co.
1914 West End Avenue

TEXAS
Amarillo
R & R Electronic Co.
707 Adams
Beaumont 1
Montague Radio Dist. Company
760 Laurel

Houston
A. R. Beyer & Company
1318 Polk Avenue
Sterling Radio Products Co.
1616 McKinney Avenue

VIRGINIA
Petersburg
Electronic Supply Company
11 East Washington Street

Roanoke
H. C. Baker Sales Company
19 Franklin Road

WASHINGTON, D. C.
Washington 4
Sun Radio
938 "F" Street, N. W.

WEST VIRGINIA
Charleston
Mountain Electronic's
Company, Inc.
708 Bigley Avenue

WISCONSIN
Madison
Radio Distributors
701 E. Johnson Street
Satterfield Radio Supply, Inc.
326 W. Gorham Street

Milwaukee
Acme Radio Supply Corporation
510 W. State Street

GRAYBURNE
Grayburne means Quality Electronic Components

GRAYBURNE CORPORATION
103 Lafayette Street, New York 13, N. Y.

Your Alert **PARTS DISTRIBUTOR** is your
BEST SOURCE of supply!