

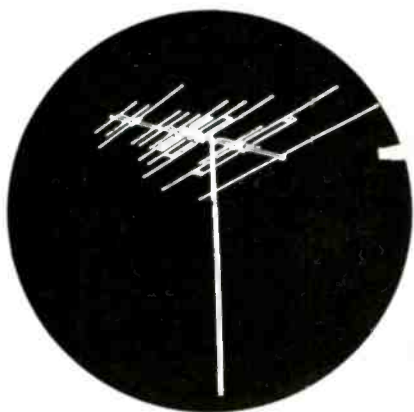
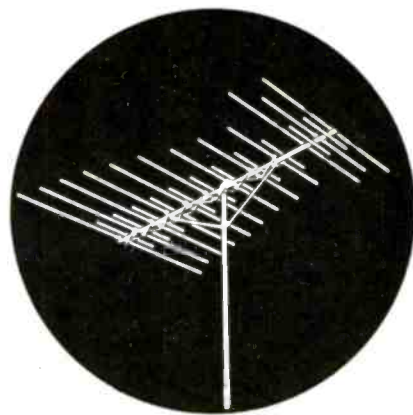
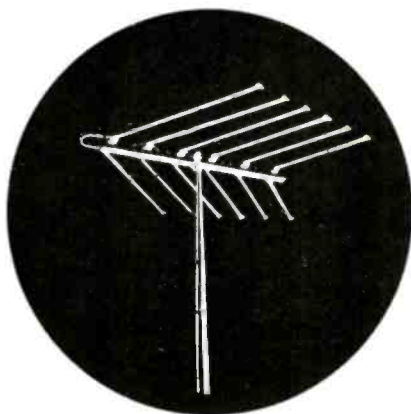
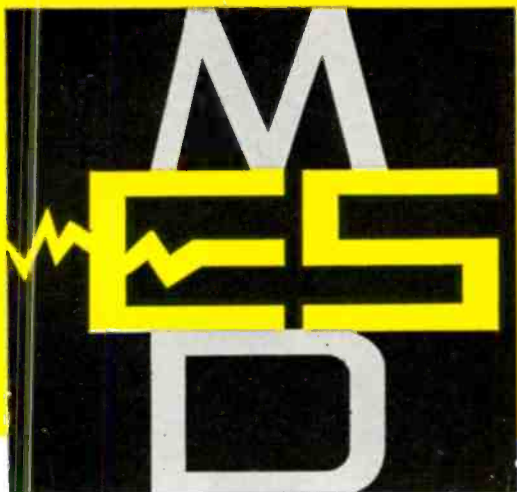
MODERN

electronic service dealer

THE OFFICIAL PUBLICATION OF THE CALIFORNIA STATE ELECTRONICS ASSOCIATION

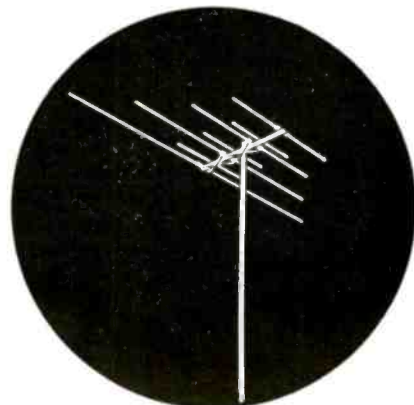
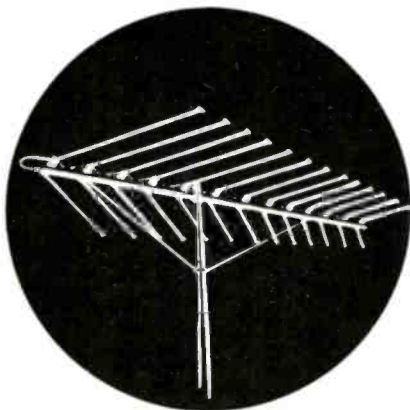
VOL. 3, NO. 3

JULY, 1963



**SPECIAL
ANTENNA
ISSUE**

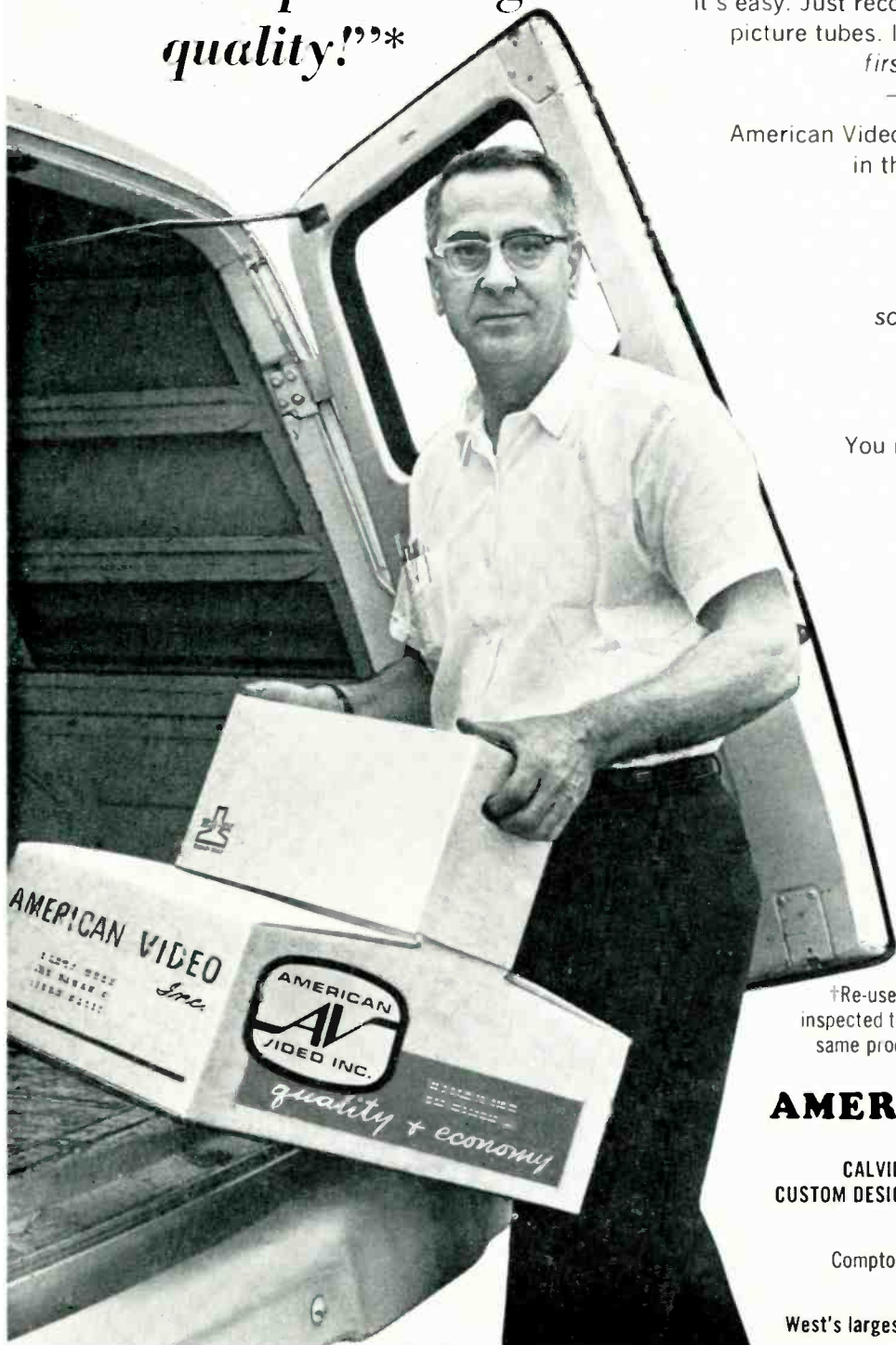
STARTS PAGE 12



ALSO IN THIS ISSUE:

- Registration Law Passed
- CSEA Annual Meeting Report

**“Here’s how I
make more money
selling
picture tubes
—without
compromising
quality!”***



*... So states service dealer, Art Touchette, owner of Art's T.V. Hospital, Los Angeles, Calif.

It's easy. Just recommend and sell American Video picture tubes. Install with confidence the finest, *first-line* picture tube on the market — plus make more profit per sale.

American Video picture tubes are manufactured in the largest picture tube plant west of Chicago, each tube contains *100% new materials and parts, except for the glass. † 100% new phosphor screens. 100% new aluminization. 100% new internal conductive coating. And 100% new universal-straight electron gun.*

You make money! Just compare cost, and you will see why American Video offers you the best combination of quality and profits... more than any other major picture tube brand on the market.

Contact your American Video Distributor and be sure to ask him about American Video's exclusive *free \$5 Callback Plan.* American Video can offer this plan because it has fewer call-backs and warranties, as a result of its outstanding quality control.

†Re-used glass envelope is thoroughly cleaned and inspected to meet standards of original new envelope, same process as used by the major tube companies.

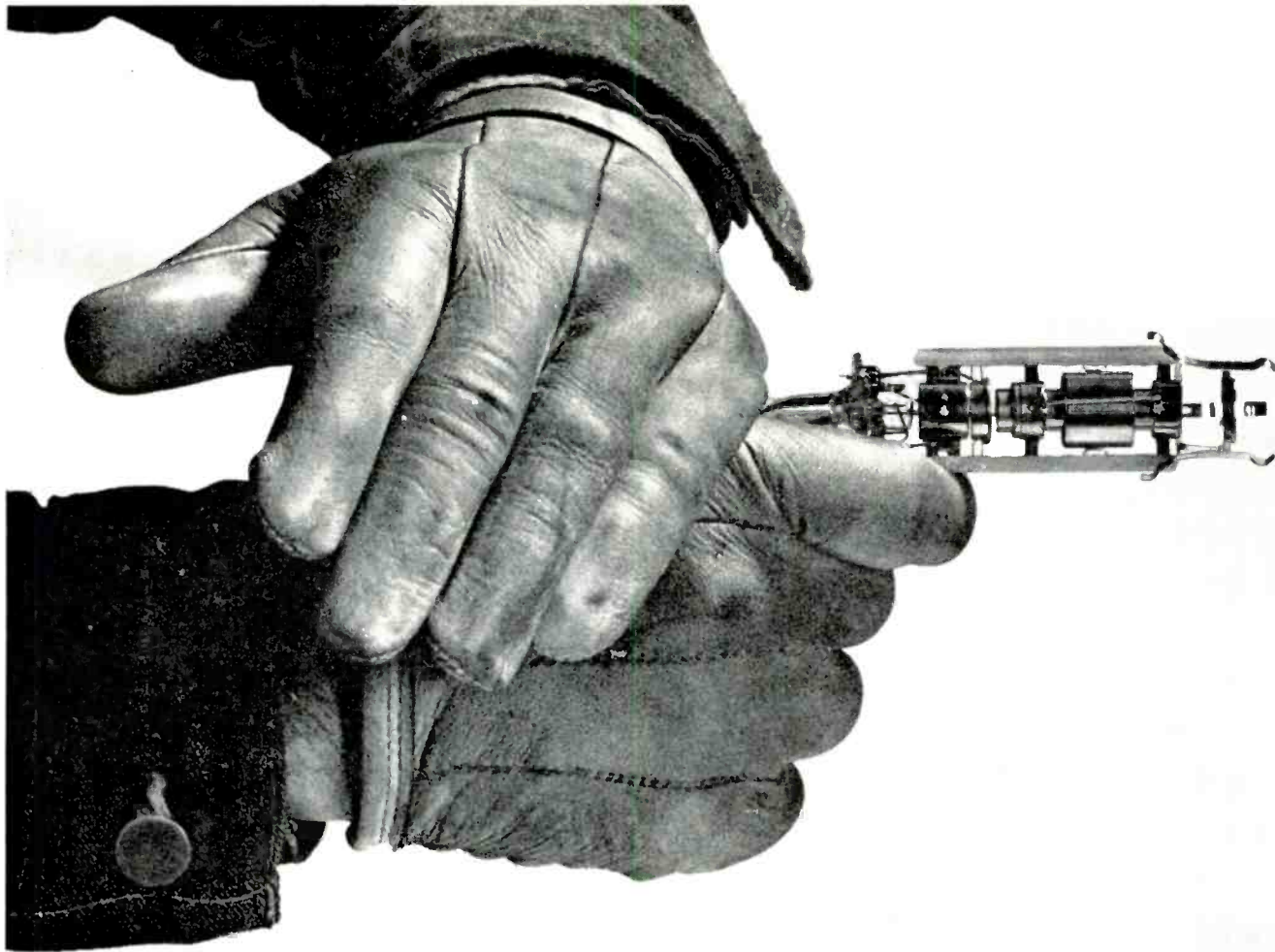
AMERICAN VIDEO INC.

Manufacturers of
CALVIDEO, CUSTOM KING,
CUSTOM DESIGNED picture tubes.

18601 S. Santa Fe,
Compton, Calif., NE 6-0741



West's largest manufacturer of television picture tubes



This straight shooter never gets trapped

G-E "SG" straight gun picture tubes* do away with ion traps. No fuss, no call-backs. A G-E "SG's" rugged gun fires electrons with uncanny precision straight at the aluminized phosphor screen—assuring sharply resolved pictures up to 80% brighter. How's that for "Accent on Value"? These features save your time and give your customers thousands of hours of viewing pleasure.

And that's not all the value accents you get with these "straight shooters." A single G-E "SG" picture tube replaces as many as twenty other types, bent gun or straight gun—the types that get "trapped." In fact, with only 25 G-E "SG's", you're ready to replace 250 other picture tube types. You'll serve customers faster—and say *good-bye* to emergency pick-ups and the ion trap nuisance.

MORE "ACCENT ON VALUE" FROM YOUR
G-E *ELECTRONICS* DISTRIBUTOR

CONTACT ANY OF THE FOLLOWING DISTRIBUTORS:

**MILLERS RADIO &
TV SUPPLY, INC.**

530 East 8th St., Oakland, Calif.
7076 Armory Dr., Santa Rosa
1263 Arroya Way, Walnut Creek
785 S. First St., San Jose

ANDREWS ELECTRONICS

1500 W. Burbank Blvd., Burbank

**WHOLESALE ELECTRONIC
SUPPLY**

265 So. Laurel, Ventura
209 W. Cannon Perdido, Santa Barbara

GET THIS "ACCENT ON VALUE" BONUS, TOO!



This 16" x 12" x 1/2" polyurethane foam bench pad neatly protects the picture tube from marks and scratches. The handy pad's yours with the purchase of a G-ESG-21FLP4 Service-Designed "straight shooter." Your

reliable General Electric distributor is waiting for your order now. Call him today. General Electric Company, Distributor Sales, Electronic Components Division, Room 3018, Owensboro, Kentucky.

**All new parts and material in a reused envelope.*

Progress Is Our Most Important Product

GENERAL  ELECTRIC

KIESUB CORP.

311 W. Pacific Coast Hwy., Long Beach
1152 Industrial Ave., Oxnard
14511 Delano St., Van Nuys
910 - 11th St., San Bernardino
318 - 21st St., Bakersfield
2426 - 4th Ave., San Diego
725 N. Los Angeles St., Anaheim

COOK ELECTRONICS

210 E. Hardy St., Inglewood

EDISCO, INC.

5901 Mission Street, San Francisco



Dick Nyholm, Radio & TV, 108 N. Lower Ave., Centralia, Washington

"Television antennas represent an important part of my business. Since handling Winegard Colortrons, my business has increased greatly. Seems that one person tells another and your advertising also pays off."

Edwin L. Fisher, Fisher Appliances, Inc., 107 N. E. Front Street, Milford, Delaware

"During the thirty-one years I have been in the Radio and Appliance business few new items have been so immediately successful as your Colortron antenna."

"Our sales of color television testify that your new Colortron antenna has been the answer. In fact we will not sell a customer if they are not willing to install a proper type antenna to operate the new color set."

"Hoping this letter will encourage you to further efforts in developing more new products."

Ken Kesler, Electromatic, Inc., 237 N. E. Broadway, Portland 12, Oregon

"We have used the Winegard assortment of antennas for over three years and find that whatever situation we encounter, Winegard has the answer."

"We have been especially pleased with the WINEGARD COLORTRON which we have used extensively since Color TV has come into its own."



Ray Summers, Ray Summers, Inc., Louisville, Illinois

"We live in an area which has the poorest television reception in the State of Illinois. There are no stations closer than 100 miles. Our TV and antenna sales have more than doubled since using the Winegard Colortron as it has improved reception to the point where we can get good reception from several channels."



George W. Terry, Terry's Electric, McLean, Texas

"I am so pleased with the new Winegard Colortron antennas that I would like to tell you about the reception we have here in McLean, Texas."

"We have these antennas as far as 100 miles from our local stations in Amarillo, Texas and the customers are overjoyed with the reception."

"We have installed over 200 Winegard Powertrons and Colortrons on a money back guarantee. As yet we haven't had the return of even one antenna!"



Twin City Radio & TV, Inc., 97 National Avenue, Chehalis, Washington

"We are especially pleased with Winegard Colortrons and the Nuvisor amplifier is the best by far. Keep up the great engineering and your fine advertising-both help us sell more antennas and boosters."



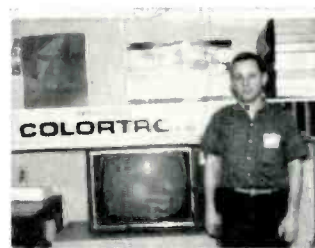
THEY SAY IT BETTER THAN

Some of America's leading dealers tell why they think Winegard Colortrons are



Max Schwartz, Avon Television Co., 189 Bway, Amityville, New York

"We here at Avon T.V. have used many different antennas for our color installations and have found that for best all around results in color as well as black and white reception the Winegard Colortron is superior in every respect."



William D. Miles, Miles Electronic Co., Baxley, Georgia

"We are over one hundred miles from the nearest commercial station. We have tried most of the so-called color antennas. Thanks to Winegard's high signal-to-noise ratio and high directivity Winegard is the only acceptable antenna-boost combination which was found to meet our 'customer's satisfaction' requirements. Beautiful color is being received now with the Colortron."



Roy Sahlin, Central Television & Appliance, 911 Chehalis Ave., Chehalis, Washington

"Finest piece of equipment we have worked with in electronic field. The Winegard Colortron and all Winegard products have no competition."



Walter Finkbeiner, 107 New Jersey Ave., Absecon, New Jersey

"I have found the Winegard Colortron and Electronic Power Pack to be the most powerful antenna in our fringe area. Colortron antennas make a perfect combination with our Admiral Color television installations."

"I install Colortrons on trial and have not lost a sale to date."



Charles Dumaine, Dumaine Antenna Service, 735 Woodtick Road, Waterbury, Conn.

"Among the top three antennas I have found it to be the best for any reception. The AP220N Nuvisor Amplifier is tremendous in controlling both high and low channels; eliminating all types of interference. Being an exclusive Winegard dealer, I make between 30 to 40 installations per week of the Winegard Colortron and Amplifier. The people for whom the installations were made are all well satisfied with the performance; bringing more business my way than I can handle."



Leonard P. Hellenthal, Nielsen & Neilson, Inc., 1462 Glendale Blvd., Los Angeles 26, California

"I am extremely happy to inform you that we have been a constant user of the Winegard line of antennas and related products for six or seven years."

"We are now moving into the Colortron series which we find to be another added improvement in new type hardware and improved over-all performance."

"As you know, our clients in this area consist of many television and movie stars as well as prominent city officials. We are, therefore, of necessity, quite concerned about the equipment we use and its performance. We are looking forward to future success with this newer series of antennas and amplifiers."



J. C. McNiven, The Gester-McNiven Co., 305 N. Tower, Centralia, Washington

"We feature Winegard Colortrons because they have helped us immeasurably to sell more color sets. They really bring in a magnificent color picture and black and white is also the best. Finest antenna on the market, and we've tried them all."



G. Borders, Borders Radio & TV Service, Flora, Illinois

"In my opinion, the Winegard Electronic Antenna is perhaps the finest piece of equipment I have worked with in the last thirty years."



J. A. Etchison, Etchison Brothers Appliances, Flora, Illinois

"The new Winegard Colortron with the twin nuvistor amplifier permits us to give our customers the best television reception ever!"

Berkeley M. Phelps, TV & Radio Repair, Washington Depot, Conn.

"The high gain of Winegard antennas and boosters give the customer excellent pictures on channels that were not usable before. Winegard equipment does not require sales pressure—seeing is believing!"



WE DO!

the world's finest TV antennas...



Jack Ross, Smith's Home Furnishings, Portland 2, Oregon

"This is hilly country, with lots of tall trees. We install and service thousands of sets a year. We've found many real problem areas—where only a Winegard Colortron antenna with Nuvistor amplifier will pull in the kind of picture a set owner has the right to expect. We recommend Colortron to our customers—especially to the many people now buying Color TV."

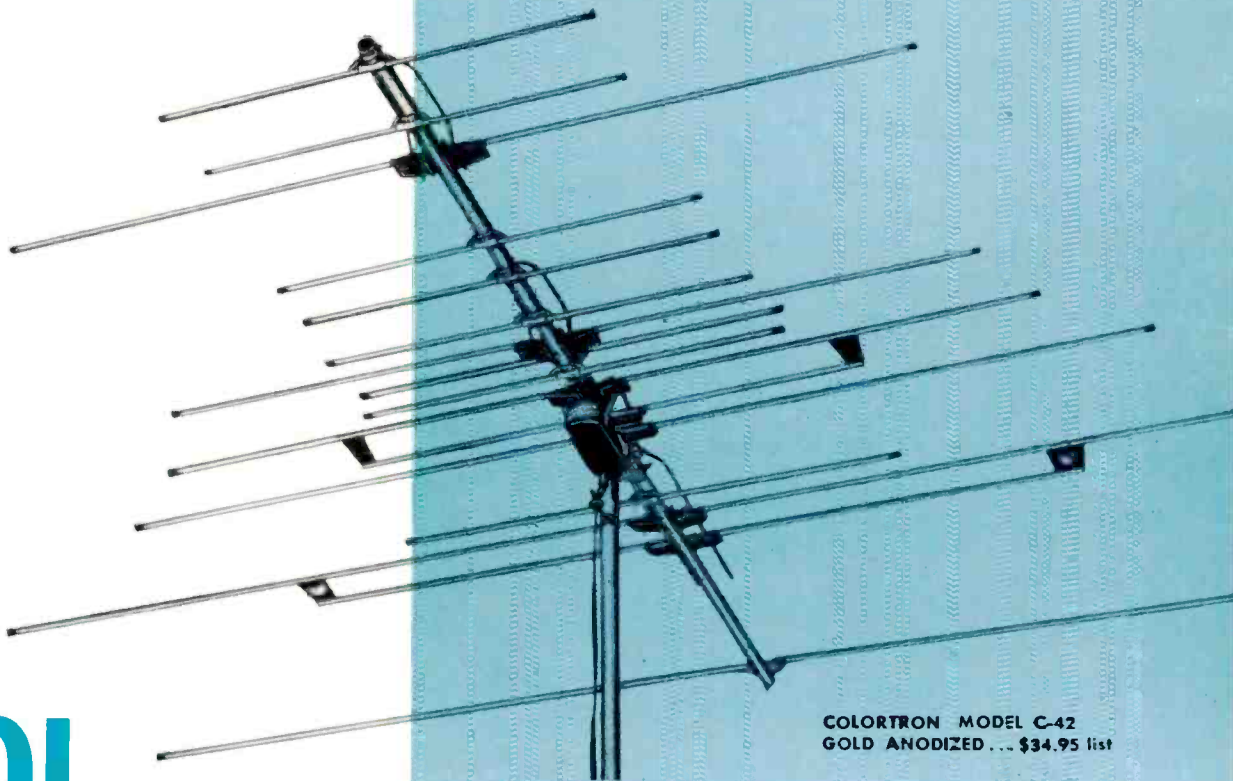
David B. Newman, Radio Service Co., 262 Ninth St., Astoria, Oregon

"With the new Colortron TV antenna and Stereotron FM antenna and matching Nuvistor boosters we have obtained excellent reception of the Portland, Oregon TV and FM stations. We are 100 miles from Portland with the coast range of hills between us. We also obtain good results from Seattle, 150 miles away. These are the finest antennas on the market today!"



If you haven't tried Winegard Colortron antennas or Colortron Nuvistor amplifiers, we hope you will try a few soon.

We feel confident there is nothing on the market that can match them for performance and quality. Write for technical bulletins or ask your Winegard distributor.



**COLORTRON MODEL C-42
GOLD ANODIZED... \$34.95 list**



Takes up to
400,000 Micro-
volts input—
Model AP-200N
\$39.95 list

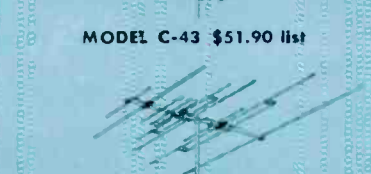
**COLORTRON
Twin Nuvistor
AMPLIFIER**



MODEL C-44 \$64.95 list



MODEL C-43 \$51.90 list

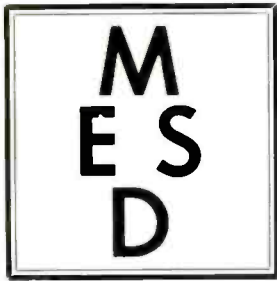


MODEL C-41 \$24.95 list



Winegard
ANTENNA SYSTEMS

3020-7 KIRKWOOD • BURLINGTON, IOWA



MODERN ELECTRONIC SERVICE DEALER

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DON MARTIN

EDITORIALLY SPEAKING

SB 1292 PASSES THE ASSEMBLY

As one dealer put it, "you could hear the cannons go off . . . all you had to do was listen." Two years of extensive work that was preceded by many years of frustration and disappointment vanished into the past on the 20th of June, 1963. In an overwhelming vote the California State Assembly passed SB 1292 that calls for and establishes a Registration Law for all Television Service Dealers in California. The Bill was previously passed by the Senate without amendment and now, with the Assembly's action, needs only the Governor's signature to make it the law. This is expected to be done within the very near future since the administration has always been behind such legislation. It is important to point out that a tremendous amount of support was extended by the close work of the Association with Attorney General Stanley Mosk's Office and the State Consumer Council headed by Mrs. Helen Nelson. Without their support it is doubtful whether or not this type of legislation would have been passed.

The establishing of the Consumer Council by Governor Brown a few years ago has been a big factor in protecting the consumer from fraudulent practices in not only the Television Industry but many others that affect each of us every day.

A great deal of credit must be given to CSEA's Executive Secretary Mr. Kieth Kirstein who has worked for months on all of the details that have led to a successful conclusion to the Association's legislative objectives. Our sincere appreciations to him, his staff, the individual members of the Sacramento and Stockton chapters who have carried the ball during the last few months and to the Board of Directors, the Board of Delegates and the general membership of the California State Electronics Association for their untiring efforts in making this legislation possible.

CONTRACTORS LICENSE

We wish to thank Mr. Richard E. Linebarger, Secretary of the Association of Electronics Systems Contractors for a letter we received from Mr. Leo B. Hoschler Registrar of Contractors, Contractors' State License Board, Sacramento. The following is Mr. Hoschler's letter. "In the first place, there is no specific specialty contractor classification of "Electronic Contractor." The Contractors' State License Board has established 32 specific specialty classifications and one specialty classification of Limited Specialty, C-61. This latter classification is for those who do not have a specific specialty classification such as electronic contractors. A limited Specialty Contractor is limited to a field and scope of operations of specialty contracting in which he has had experience and which is accepted by the Registrar as his field and scope of operations. Thus one who would install sound and antenna systems would be licensed and classified as a Limited Specialty Contractor, C-61, and the field and scope of his operations would be limited strictly to sound and antenna installations.

Secondly, if a license is required to install sound and antenna systems, it would apply to subcontractors as well as to prime contractors. No person can legally work under another person's license.

Section 7026 of the Contractors' License Law which defines the term "contractor" reads:

"The term contractor for the purpose of this chapter is synonymous with the term "builder" and, within the meaning of this chapter, a contractor is any person, who undertakes to or offers to undertake to or purports to have the capacity to undertake to or submits a bid to, or does him-

self or by or through others, construct, alter, repair, add to, subtract from, improve, move, wreck or demolish any building, highway, road, railroad, excavation or other structure, project, development or improvement, or to do any part thereof, including the erection of scaffolding or other structures or works in connection therewith. The term contractor includes subcontractor and specialty contractor."

The installation of sound and antenna systems is certainly included in the definition of a contractor as quoted above. There are, however, certain exemptions to the licensing provisions of the Contractors' License Law that may apply and oftentimes do.

Section 7045 provides:

"This chapter does not apply to the sale or installation of any finished products, materials or articles of merchandise, which do not become a fixed part of the structure, nor shall it apply to a materialman or manufacturer furnishing finished products, materials, or articles of merchandise who does not install such items."

Section 7046 provides:

"This chapter does not apply to any construction, alteration, improvement or repair of personal property."

Section 7048 provides:

"This chapter does not apply to any work or operation on one undertaking or project by one or more contracts, the aggregate contract price for which for labor, materials, and all other items, is less than one hundred dollars (\$100), such work or operations being considered as of casual, minor or inconsequential nature.

"This exemption does not apply in any case wherein the work of construction is only a part of a larger or major operation, whether undertaken by the same or a different contractor, or in which a division of the operation is made in contracts of amounts less than one hundred dollars (\$100) for the purpose of evasion of this chapter or otherwise.

"This exemption does not apply to a person who advertises or puts out any sign or card or other device which might indicate to the public that he is a contractor or that he is qualified to engage in the business of contractor."

You can see from the above-quoted law sections that there are many factors to consider before a flat statement can be made on whether or not a license is required for the installation of a sound and antenna system. The facts and circumstances of sound and antenna system installations are so variable that it is impossible to give a so-called "solid answer" on license requirements that will cover every installation.

Another section of the Contractors' License Law that might be taken into consideration is 7026.6 which reads:

"Any person who advertises or puts out any sign or card or other device after the effective date of this section which would indicate to the public that he is a contractor, or who causes his name or business namestyle to be included in a classified advertisement or directory after the effective date of this section under a classification which includes the word "contractor" other than his license classification, is subject to the provisions of this chapter regardless of whether his operations as a builder are otherwise exempted."

Accordingly, a person who is otherwise exempt from the requirement of a license is subject to the licensing provisions of the Contractors' License Law if he advertises as a contractor.

STOLEN MERCHANDISE REPORT LIST

Stolen from	Date	Make	Model	Serial No.
Leon Block Radio Service 3801 W. Jefferson Los Angeles	1/2/63	Guide Eye Checker Eico 6-12V Pwr. Supply Heath Signal Tracer N.V. Pic. Tube Checker Delco Radio 20 New Motorola Car Radios 200-300 Assorted Tubes		AE 5369 983945
Hoyt's Corner Superette 9700 Main St. Lament, Calif.	2/9/63	Motorola	421T18M	D140294
Page TV Service 5534 Monte Vista Street Los Angeles 42		Zenith Zenith Zenith Zenith	K1620K2 H2214G H2105L H3308Y	7393408 3661922 3780301 3628718
Victor Hardware & Appliances P.O. Box 97 Victor, Calif.		Zenith Admiral RCA Zenith	K1620Y2 P908 3RC51 K725L	7549511 10043435 008382 22141806
Lucky TV 669 N. Glendora La Puente	2/15/63	Sylvania Motorola	19P18 19P15BE	362-4010 592293
United T.V. Service 6494 Broadway Sacramento	4/16/63	Zenith Zenith	2012G-2 2014F-2	7666312 7614914
Nara Boonstra	5/23/63	Adm.	PL 17F31B	7542068
Heim's Electric Shop	4/14/63	Phi. TV Phi. TV Phi Ste. Radio	3808 3804 L1528 795 & L866	03683 35481 7514
Colonial Electronics	5/10/63	P.B.		83680

**TEAR OUT AND SAVE FOR
FUTURE REFERENCE!**

Stolen Merchandise Report Form

Store: _____ Date Stolen: _____

Address: _____

Make

Merchandise
Model

Serial No.

CLIP AND MAIL

LETTERS TO THE EDITOR . . .

Congratulations Don—
on the very excellent article you did on our store. Not only the Millers boys are very proud of it, but our dealers are equally happy and proud. Caused much more comment than I anticipated.

I truly think you captured the tone and feeling of our organization and that is an art to be able to do this in writing an article on any organization.

Sorry more advertisers didn't come through, and only wish I had time to have worked on it.

I would have written sooner, but I just returned last week from Europe. Had a wonderful trip.

Kindest regards and best wishes.

Cordially,

Louise N. Miller

Millers Radio & TV Supply, Inc.

We have received numerous comments. Louise, all stating that we couldn't have picked a better person to honor in our publication. I'm very happy that we were able to capture the Miller image and our best wishes for many years of continued success.

Dear Mr. Martin:

Thank you for your letter of May 14, and for sending me a copy of the latest edition of the California State Electronics Association publication.

I am pleased to know of your support for SB 1292, as indicated in your editorial.

Sincerely yours,

Stanley Mosk

Attorney General

Dear Editor:

Referring to my recent telephone call for a copy of your survey for price charges for TV repairs, etc., will you kindly mail this to my address above as soon as it is available.

Yours truly,

W. E. Rutter

Happy to do so!

Dear Editor:

I am a TV service student of RCA Institute and as such would like to know where the nearest chapter of TV servicemen meet and what time.

Thank you,

N. Andreadakis

Dear Don:

In reference to the Color Article run in the May issue of MESD emanating from my shop I have only one comment to make other than being very proud to have employees who are extremely qualified to discuss and render service on color television.

To quote "realizing that many shops in California are looking forward to the golden years in color television and will need the best qualified technicians," I, as an employer, don't mind supplying the technical know how, but ask, any person or firm, PLEASE REFRAIN from trying to PIRATE my employees by telephone and by letter.

My employees are on a salaried basis and have been in my employment for many years. Any person or firm wishing their services or aid in the repair of any color television can be supplied on a monetary hourly basis.

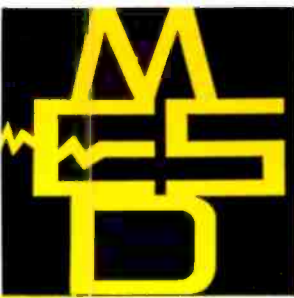
Sincerely,

Ralph Johonot

Tri-Color TV

P.S. Don:

I have had several phone calls and my employees have received some mail— Shame-Shame on the letter writers.



PRESIDENT'S MESSAGE



CLAIRE W. LANAM

VICTORY AT LAST

We have achieved a significant approach to the final setting of standards for a profession.

We can look back over 35 years and see the struggle that started to attain these standards but at last we had the proper combination of people and desires which has culminated in our success.

It has not been one person or more, it has been all of us, each knowing someone and with some special knowledge that has spelled success. The loss of any one factor could have spelled disaster.

This is working together for the common good, and minor petty details should be forgotten. Time will march on and there will be many changes, but the things that count will stay.

We have victory now, but we must retain this ground we have won. It can only be lost by ourselves, if we do not work together, we will destroy that which we have worked so hard to attain. We will lose unless we work as an agreeable, closely coordinated group, *everyone* of whom must follow the wishes as voted on in regular procedure.

We must accept and work hard, not be an individualist; true, we should make known our thoughts, but then we should follow the plan voted.

Remember you are on a two-year trial. Remember the only way we can benefit is by a united wholehearted cooperation.

Individualism can destroy us now.

SB 1292 TO BECOME LAW ... A REPORT BY KEITH KIRSTEIN

June 20, 1963, was a "red letter day" for CSEA. On that day the Assembly passed our Registration Bill, which made it a law subject to the approval of the Governor. This law, which was asked for by the industry, is the result of the industry's desire to have the state assist us with our "Project Cleanup." This law puts teeth into the ideals and objectives of our "Project Cleanup." This Registration Law will be very easy to live with provided we all work with the Department of Business and Professional Standards.

The responsibility of CSEA now is even greater than it has been in the past. This Registration Law was requested of the Association and it is up to the Association to show strength and solidarity in carrying out the contents of the Bill, as this type of legislation is brand new. No place else in the nation, or in the state, has this type of legislation been enacted. This places responsibility on the shop owner in that if he hangs up a sign and says he is open for business, he is responsible to both the industry and the customer.

This is truly the first step in becoming a professional rather than a "hobbyist" or "tinkerer."

The conduct of all shop owners with regard to this Registration Bill is no more than was requested by our "Project Cleanup." Some Local Chapters have had these requirements in force for some time and they have proven satisfactory. These requirements are just good business sense. It is imperative that shop owners abide by the requirements of this bill and see to it that all others in the industry cooperate.

This bill provides us with a strong tool to work with as an industry. It is most urgent that we use this tool as it is intended to be used. Each Local Chapter should hold meetings and discuss Senator Short's Registration Bill. Each Delegate is being challenged to coordinate the activities in his Zone to stimulate new chapters and to make certain that all present chapters are familiar with this new tool. Of course, it is the duty of the Board of Directors to coordinate the state as a whole in carrying out this objective.

LOS ANGELES CHAPTER TO DISCUSS NEW REGISTRATION LAW AT SPECIAL MEETING

The Los Angeles Chapter of the California State Electronics Association will hold a special meeting of that group and all interested industry dealers and technicians on July 18 to learn all the details of the new Registration Law and its effect on the Industry.

The meeting will be a dinner meeting at the Rodger Young Auditorium

in downtown Los Angeles and will begin at 7:30 p.m. The cost of the dinner is \$4.90 each and includes tax and tip. Everyone is invited to attend and all members are urged to bring a guest. This is the most important event in California Service Industry history and this first hand information can be very vital to all service dealers.

LOS ANGELES CSEA SEEKING INSTRUCTOR FOR TRANSISTOR COURSE

The Los Angeles Chapter of C.S.E.A. is endeavoring to organize a class in transistor theory, circuitry and servicing techniques which will be of *substantial practical value* to the industry. It has found that, if this requirement is to be met, it is of primary importance to obtain the services of an instructor who is not only thoroughly familiar with theory and circuitry, and who is at least a reasonably good teacher, but one who has considerable practical shop experience in this field.

Class time and preparatory time should require approximately four hours per week for one night session per week. The instructor will be paid for his time. All incidentals, such as duplicating of outlines and diagrams for class use, obtaining and setting up a projector (if used), securing classroom, etc., would, of course, be handled by the Chapter.

Some of the problems which have come up are: One instructor is found to be too one-sided in his approach (e.g.: strong on theory but weak on servicing experience); another would not be available for the complete course; one who is well-versed on the subject lacks ability to keep the interest of his students (poor teacher).

Maybe what is needed is two instructors: one to present transistor theory and circuitry, the other to pass along practical servicing techniques (methods that make profitable transistor servicing possible).

The Chapter would appreciate your recommendations. Send them to Hugh Wilkins, the Chapter's Educational Director, 2818 Rowena Avenue, Los Angeles 39, or call NO 4-4484.

Following is a tentative outline of the kind of course the Chapter has in mind (actual details would be worked out with the instructor):

TRANSISTORS: Theory, Circuitry and Practical Servicing Techniques General Outline

1. Introduction to course
 - a. Objectives and How to be Obtained
 - b. Subjects to be Presented
2. Description of Transistor Types and Semi-conductors: Construction, Materials used, etc.
3. Transistor Characteristics and Comparison with Vacuum Tubes
4. Circuit Components

5. Circuit Configurations
6. Trouble-Shooting — Pin-pointing Defects, etc.
7. Test Equipment
8. Servicing Techniques
9. Economic Aspects of Servicing When to Repair and When to Reject Shortcuts to Permit Profitable Servicing, etc.
10. Review and Summary



LOCAL DISTRIBUTOR WINS WALSCO DRAWING

Mrs. Bob Elliot, wife of the well known local owner of Elliot Electronics is shown here receiving her prize from Mr. Arnold Kloman, Western Regional Manager for WALSCO.

The event took place during the recent May Parts show in Chicago and climaxed the week of activities and registration of distributors for the contest at the WALSCO booth.

Charity Work of Local Group Brings Letters of Gratitude

"On behalf of the children at Juvenile Hall, I wish to thank you for the six television sets which you kindly contributed for their benefit several weeks ago. There are approximately 850 children detained at Juvenile Hall from month to month and these televisions will provide many hours of enjoyment for these youngsters." These were but a few comments made by David Bogen, superintendent at Los Angeles Juvenile Hall, to Floyd Cox of the South Bay Chapter of CSEA.

Floyd Cox TV Hospital, 8611 Melrose, Los Angeles, Calif., with the aid of the Welfare Information Service, Inc. and chapter members have donated many televisions to worthy institutions, effecting the lives of young children and servicemen in the L.A. area.

"Thank you for your letter of March 25, 1963, in which you listed the agencies that received the wonderful gifts of radios, phonographs and televisions during the past Christmas season. We know that the members of your organization must have experienced that inner glow of satisfaction that comes with bringing the miracle of Christmas to

so many youngsters and adults." These too were comments taken out of context from a letter to Mr. Cox from Mrs. Angelina A. Ruggie of the Welfare Information Service, Inc. Others relating similar expression of gratitude for gifts received were: United Service Organizations, Inc., Hollywood Club; United Service Organizations, Inc., Los Angeles Club; Girl Scouts; The Regis House, Sisters of Social Service; and Ernest E. Debs. Supervisor for the Third District.

Such praise is obviously due in connection with projects of a nature that make the lives of others a little more relaxing and pleasant.

CHAPTER OFFICES

SAN DIEGO #13
3211 Adams Ave.
San Diego 16, Calif.

NORTH COUNTY #18
930 S. Santa Fe Ave.
Vista, Calif.

California State Electronics Association
SAN DIEGO NEWS

NEXT MEETING

CHAPTER 13
To Be Announced

CHAPTER 18
TO BE ANNOUNCED

VOL. 2, NO. 10

JULY, 1963

Editor: ED FORT, JR.

LET'S MAKE THE NEW REGISTRATION LAW WORK!

Now that we have the licensing for which we have worked so many years, we can just sit back and let the state take care of all our problems. We won't have to worry about the retailing wholesaler, the cut-rate gyp artist, the every-corner tube testers, the here-today-gone-tomorrow operations—these are all things of the past now that we have a licensing bill. All we have to do as a legitimate business concern is go out and pay our registration fee and just wait for all these evils to eliminate themselves.

Sounds good? Sure it does. But don't you believe it!!

Like any other tool, it cannot do a job by itself. The soldering iron is an

indispensable tool when in the proper hands and used in the proper manner. But it is not worth a darn when it's merely lying idle. This licensing bill is not going to do your customer any more good than is your soldering iron sitting on your bench. It needs someone or something to give it direction and purpose.

This bill is not going to do the things we want it to do unless we, as an industry, use it and use it wisely. It's up to us to see to it that this bill protects the public in the way in which the sponsors intended.

As of January 1, 1961, every organization included in this bill will have to be registered and their names made

a matter of public record. It will be the duty of each and every one of us to expose any and all wrong doing by bringing it to the attention of the proper authorities. In the past we've all run across numerous instances where the uneducated public has been duped and sometimes robbed; and we've been powerless to do anything about it. We won't have this excuse now. Through the untiring efforts of many individuals and many agencies and organizations, the public finally has some protection. And it's up to us as an industry to make sure this protection is utilized.

**SAN DIEGO
BUSINESS INDEX
HITS
91%
IN MAY**



YOU TOO! ... CAN AID YOUR INDUSTRY



**COMPREHENSIVE
INSURANCE
PROGRAM**

STATE OFFICE

**BETTER BUSINESS
SUPPLIES & AIDS**

Application For Membership

CALIFORNIA STATE ELECTRONICS ASSOCIATION

3333 Watt Avenue

Telephone 482-0706

Sacramento 21, California

Owners Name.....

State Resale Permit No.....

Business Name.....

Business Address.....

Tel. No..... City.....

CLIP OUT — MAIL IT TODAY — WE WILL CONTACT YOU

MASTER ANTENNA SYSTEMSAND UHF

By JACK BEEVER
National Director
Jerrold-Taco Technical Representatives
Jerrold Electronics Corporation

The increasing use of UHF in California poses a problem in master antenna (television distribution) systems for apartment houses, trailer courts, hotels, motels, hospitals and small community systems. The cause of the difficulty lies in the fact that the number of available stations exceeds the number foreseen by the original TV allocations group, who only thought in VHF terms, and never expected any community to exceed seven channels. Television sets, although able to tune to twelve channels, were therefore designed to operate properly only when the channel in use had no adjacent channel. As an example, Los Angeles, with the minimum VHF allocation, has channels 2, 4, 5, 7, 9, 11 and 13, all of which have a band of frequencies between each channel. Channels 4 and 5, although numbered adjacent, are not—there is a 4 mc band between them. Channels 6 and 7 are not adjacent either—there is a band 86mc wide between.

All this has an effect on distribution systems since at present these systems are only able to handle VHF. The state of the art in UHF amplifiers and the losses in cable pose tremendous difficulties in development of distribution apparatus at practical costs. Because of this, the technique presently used where UHF stations are available is to convert the UHF channel to an unused, non-adjacent VHF channel, then amplify and distribute the signals in the normal, VHF manner. Viewers on the system thus see the UHF signal as a VHF channel.

When non-adjacent channels are available, the technique poses no problems, but this ideal situation does not always exist. Los Angeles, mentioned before, is typical of this situation, since Los Angeles has seven VHF channels and two UHF channels. At this point, the only solution left is to "go adjacent."

The community antenna systems have been operating with adjacent channels for years, but they have used special techniques. For example, a typical "community" will use channels 2, 3, 4, 5, and 6 and some have gone to 12 channels, adding 7, 8, 9, 10, 11 and 12. In order to prevent adjacent channel interference, they suppress the aural (sound) carriers of the television signals by 10 to 14 db and carefully regulate (with automatic gain control circuitry) the visual carriers. The theory of this technique is clear when we look

at the cause of adjacent channel interference.

The aural carrier of the lower adjacent channel is 1.5 mc below the visual carrier of the upper adjacent channel. Channel 2 aural carrier, for example, is at 59.75 mc and channel 3 visual carrier is at 61.25 mc. TV set tuners do not tune sharply enough to eliminate the adjacent carriers, so that if a tuner were set at channel 3 and channel 2 were present at the set input, channel 2 aural carrier would appear at the intermediate frequency amplifier of the set. It would be converted to a lower frequency, of course, but the 1.5 mc difference would be maintained. If the i.f. amplifier is not sharply tuned, these frequencies will appear at the video detector of the TV set. The result is the production of a beat note at 1.5 mc—the difference frequency. Since the video signal ranges between 30 cycles per second and about 3.5 megacycles, the 1.5 mc beat note falls right in the middle of the video signal, producing a chopped-up herringbone pattern. This pattern will not be visible if the beat note produced is 40 db below the video carrier. Almost all—99%—of sets in use today will produce this much attenuation of the beat note *if the two stations are received with the same power*. If the lower adjacent channel "fades up," or the higher adjacent channel "fades down," this difference cannot be maintained and the herringbone pattern will appear on the screen.

This mechanism opens the way to utilize extra UHF conversions, but only if the incoming signals are controlled by amplifiers having automatic gain control. This also indicates that system "head ends" must use single channel AGC type amplifiers. A sufficient number of these systems have been unable to handle such controlled signals have been reported. The possibility cannot be ignored, however, but is not insoluble if it does arise. A good TV technician can align the i.f. of the receiver for steeper slopes on the lower edge of the band, or even, if necessary, install an adjacent channel trap.

All indications are that the percentage of sets needing such work is below one tenth of one per cent.

A typical head end set up in block diagram form is given in Figure 1. A peculiarity of these types of head ends is the necessity of keeping the adjacent strips isolated from one another, a requirement caused by the fact that strip ampli-

FIG. 1. TYPICAL HEAD-END USING ADJACENT CHANNELS

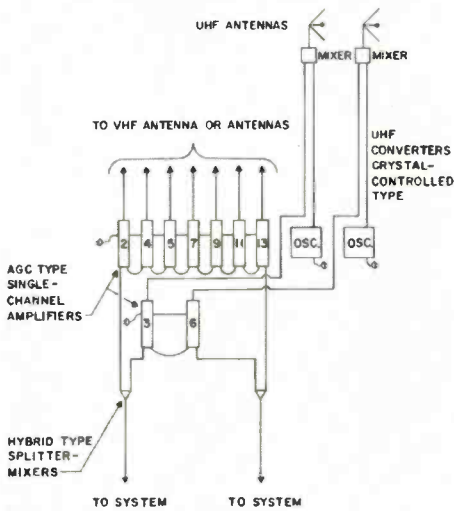


FIG. 1

fiers must have a flat response across the channel they amplify. Having such characteristics, they cannot help having some response into the adjacent channel. Since such response is on the "slope" of the amplifier's characteristic gain pattern, it will produce phase distortion—a very undesirable effect.

The necessary isolation of adjacent channel strips is done in the manner shown in Figure 1. Two groups of strips are laid out separately, so that no group has adjacent channels. The two groups are then coupled together into a common line (or lines) with hybrid type splitter-mixers. These units prevent one set of strips from "seeing" the other set. This set up shows a full lower VHF band, channels 2, 3, 4, 5 and 6. Channels 8, 10 and 12 are still available for total use of the VHF television spectrum.

A method of using channels has been tried many times with broadband amplifiers (amplifiers handling more than one channel). The technique was to "trap out" the sound carrier, thus reducing its level below that received from the air. In this way, the effect of the sound carrier on the upper adjacent visual carrier could be eliminated while still leaving sufficient sound signal to operate the TV set. The method has one very bad fault. Because of the close proximity of the color sub-carriers, less than a megacycle below the sound

carrier, the phase of the color sub-carrier is distorted, hence the color signal is useless.

When multi-channel UHF stations are to be received, other problems need to be considered before a head end is designed. The difficulty lies in the mechanics of UHF to VHF conversion. The UHF-TV spectrum from 470 to 890 mc, while the VHF-TV spectrum covers 54 to 88 mc and 174 to 216 mc. Since the oscillator frequency needed to convert a UHF channel to a VHF channel will differ from the UHF channel by the frequency of the VHF channel to be used, it is easy to see that these oscillator frequencies fall in the UHF band. It is not practical to design UHF converters which suppress all oscillator radiation, therefore a small part of the oscillator signal will radiate from the antennas. Improper choices of conversion can result in this oscillator signal falling in another "in-use" channel.

An example will make this clearer. Suppose that channel 46 were being received and converted to channel 2. The oscillator must be at the difference between 46 (starting at 662 mc) and channel 2 (starting at 54 mc) or 608 mc. 608 mc is the frequency of channel 37. Therefore, if channel 37 were also being received, we would find a carrier, the oscillator radiation, falling 1.25 mc below the visual carrier of channel 37, and a herringbone interference on this channel. When five channels are being received, as is now possible in California, five such spurious signals are in the air.

The cure is to figure out the combinations of conversions which put the oscillator frequencies out of the "in-use" channels, or else let the converter manufacturer do it for you.

The future looks a little more involved. Many TV distribution systems in California are now carrying 12 channels—the maximum possible in the VHF spectrum. The ruling by the Federal Communications Commission that all TV sets shipped in interstate commerce after April 30, 1964 shall be capable of receiving all channels—2 to 83—is going to put pressure on suppliers to distribute more than 12 channels. Television distribution system component makers are working on the problem now, and systems will probably soon be available to distribute UHF.

They will be more expensive, and the chances are that they will be dual wire systems, to provide the separate inputs needed for all-channel receivers. Meanwhile, conversion of U to V will be the method of choice, and probably will be the only practical method of adding UHF to existing VHF systems.

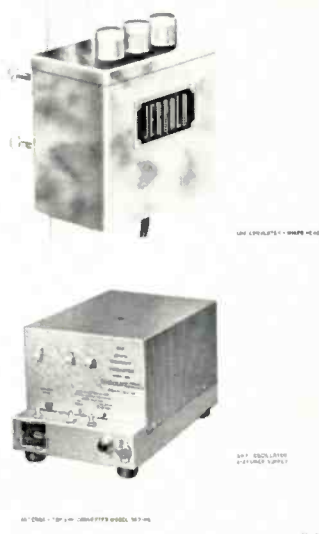


FIG. 2

Mast-mounted UHF converters, in combination with single-channel AGC type amplifiers, allow apartment house owners to offer residents a broad variety of TV programming. Both types of programming, VHF and UHF, will be seen on a single set. (The converted UHF signals appearing on adjacent channels of properly tuned receivers.)

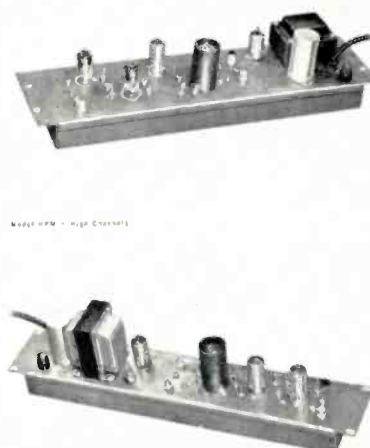


FIG. 3

Single-channel AGC type amplifiers, such as the Jerrold Model HPM, offer an immediate solution for the coming boom in UHF. With only modest cost, any present apartment house master antenna system can be expanded to accommodate additional UHF programming.

THE 13 QUESTIONS MOST OFTEN ASKED ABOUT UHF INSTALLATIONS

By SAM SCHLUSSEL
Sales Manager
Antennas and Electronics
Channel Master Corp., Ellenville, N.Y.

1. How critical is the actual location of the UHF antenna?

Contrary to popular belief, antenna location is usually not too critical. If the installation is made in an area of fairly strong signal, and if the terrain is moderately level, UHF antenna location is no more critical than VHF.

However, antenna location may be expected to be very critical in hilly terrain, and in areas where local reflecting conditions exist, such as: Water towers, tall buildings, storage tanks, etc.

If an installation is made in a weak signal area where reflecting conditions are suspected, it is desirable to "probe" for the best possible antenna location. In some cases, a difference of even 1 foot in location may make considerable difference in the quality of the picture.

2. What is the maximum distance at which UHF channels can be received?

The reception area of a UHF station is dependent upon many factors: The height of the transmission antenna, radiated power, the horizontal and vertical patterns of the transmitting antenna, height of the receiving antenna, and the terrain between the transmitting and receiving antennas. For these reasons, no flat statement can be made as to the receiving range of a UHF station.

However, most UHF channels on the air today use a transmitter with ERP (Effective Radiated Power) of approximately 50 kilowatts and have their transmitting antenna at a height of over 500 feet above average terrain. With this type of transmitter, fairly good signals are received up to a distance of about 50 miles, although there are cases where fringe signals have been received up to a distance of 70 to

80 miles. On the other hand, areas of very poor reception may also be encountered well inside the 50-mile radius. This may be due either to poor vertical patterns of the transmitting antenna, or to a "shadow area" behind a fairly large obstruction, such as a tall building or hill. If the transmitting antenna is at fault, the station usually will correct this condition by electrically tilting its transmitting patterns.

The UHF translator stations, on the other hand, have an ERP of 5 or 10 watts. Their signal will cover approximately a 10 mile radius.

3. How do UHF antennas differ from VHF antennas?

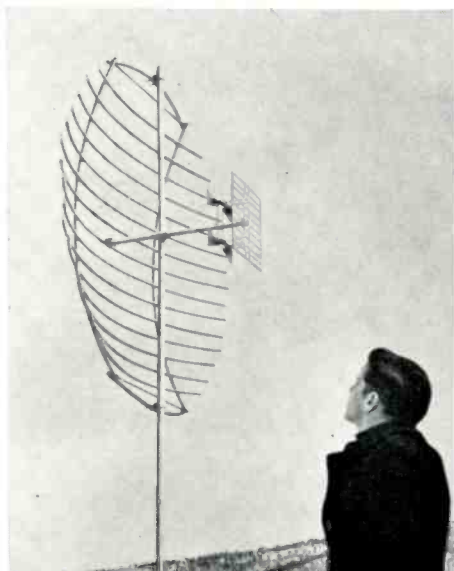
Besides the fact that the antennas must be cut for a different set of frequencies, there are two considerations in UHF antennas which do not arise in VHF. Because they can easily interfere with good UHF reception, they have become known as the "Twin Terrors."

The first of these is vibration. UHF antennas must be unusually rigid, since vibration, caused by wind, can induce picture flicker.

The second "terror" is the accumulation of dirt, ice, or rainwater between the antenna terminal points which can dim and actually short out the picture. UHF antennas must be designed with "free-space" terminals to prevent such deposits.

4. What types of antennas are recommended for the various signal areas?

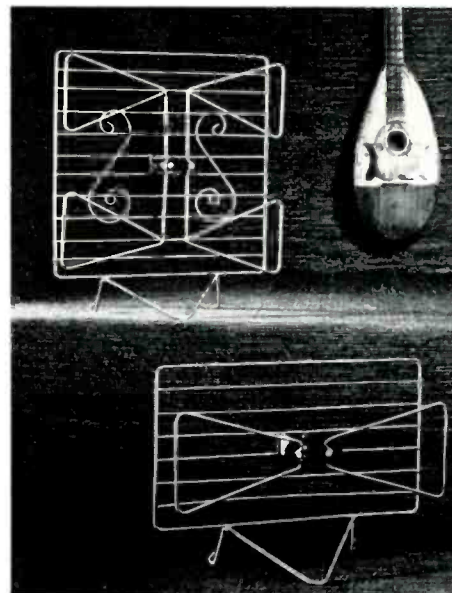
It is not possible to honestly make a general statement that will tell what antenna should be used at any given distance from a transmitter. The installer must select antennas based on his knowledge of local reception conditions.



SHAPES OF UHF ANTENNAS

The Para-Scope is designed as an extremely efficient unidirectional antenna. The principal of the design is to direct the signal in the best possible way.

One of the most unusual indoor designs is the new Duo-ton UHF-VHF with FM. Its design is both attractive and functional.



5. What kinds of antennas can be used in combination VHF-UHF areas?

There are two approaches to this problem:

- (1) The single VHF-UHF antenna, or
- (2) The two-antenna VHF-UHF combination.

There are several antennas available which will give excellent performance on both UHF and VHF channels. The Channel Master Champion is an outstanding example of this type of antenna. This type of antenna, however, may require separate orientation for the UHF channels since at many UHF frequencies the horizontal directivity pattern is such that there are several strong lobes. None of these lobes are necessarily towards the front of the antenna.

Another approach is to use a separate high gain VHF antenna and to combine this with an individual UHF antenna into a single transmission line system by the use of an isolation filter such as the Channel Master Ultra Tie.

In installations where a rotor is not used, this second approach may be more desirable.

6. How serious is the "ghosting" problem on UHF frequencies?

Ghosts on a television screen are caused by signals coming from different directions due to the reflections of tall buildings and other large structures. The reflected signal travels a longer distance than the direct signal and, therefore, is received a split-second later than the direct signal—and shows up as a second image or "ghost."

Antennas such as the Bow Tie and Screen, Corner Reflector, and Yagi have very sharp directivity patterns which help to eliminate ghosts in areas where reflecting surfaces are present.

Since UHF signals are at a much higher frequency (470-890 megacycles) than VHF, they are much more subject to reflections and, therefore, create much more serious ghost problems. Because the ghost problem is a serious one in UHF television, it is particularly important to install high-directivity antennas and to orient them very carefully toward the transmitter.

7. If there are numerous UHF channels coming from different directions, can we install one antenna to receive them all without the use of a rotator?

Since ghosting is a serious problem in UHF frequencies, highly directive antennas should be used for best results. Therefore, if the channels are received from different directions, the most effective way to obtain good reception is to use a highly directive antenna in conjunction with a rotator.

8. Is it ever possible to use a VHF antenna for UHF reception?

In areas of fairly strong UHF signal level many existing VHF antennas may also be sufficient for UHF reception. Or, in cases of some antennas that are specifically designed to cover UHF and VHF bands, these may also be used in areas of secondary or fringe UHF signal level. It is important, however, that a UHF type of transmission line be used whenever one antenna is installed for both the UHF and VHF bands.

9. Where can indoor antennas be used?

Experience has shown that outdoor UHF antennas provide better performance than indoor antennas. However, an indoor antenna has now been developed which provides good reception in primary as well as in secondary areas. This is the first antenna to combine a Bow Tie dipole with a Screen Reflector (which has been the most successful type of outdoor antenna), and, therefore, provides high directivity and good gain across the entire UHF band. Directivity is an exceptionally important consideration in indoor antennas, since ghosting is an ever greater problem indoors than it is with outdoor installations.

10. What is the best method of adding a UHF antenna to a present VHF installation, and can this

be done by using only one transmission line?

Present VHF installations can be converted to a combination VHF-UHF installation merely by installing a UHF antenna on the same mast. Both antennas can be combined for use with a single transmission line if they are joined by an inter-action filter. Inter-action filters get their names from the fact that they isolate the VHF and UHF antennas and prevent inter-action between one another. The more effective of these products are the types that consist of separate band-pass filters. That is, half of the filter will pass only VHF frequencies, and the other half will pass only UHF frequencies. This type of circuit, as opposed to the parallel resonant, provides the highest degree of isolation, across all 83 television channels. Some filters now available permit the installation man to join as many as three antennas (two VHF and one UHF) to a single transmission line.

There is another important use for devices such as the Ultra Tie. Most converters on the market today have separate UHF and VHF terminals. If an antenna system is used that brings only one lead down to the set, the UHF and VHF signals must be separated before they are fed into the converter. Inter-action filters accomplish this important function neatly and easily.

11. What are the "right" transmission lines for UHF installations?

Due to the extremely high frequencies at which UHF channels operate, the conventional type of flat-ribbon transmission line has prohibitive losses when it gets wet because of its extremely short leakage path. Longer paths help reduce wet losses and provide better results. There are numerous types of oval or tubular leads on the market that provide performance far superior to the flat-ribbon line. Prices of these lines vary considerably. However, full consideration should be given to higher priced transmission lines if they provide longer leakage paths. The best of the UHF lines available today is the foam type, where the conductors are protected with a maximum of insulation. The physical shape of this wire is rectangular, measuring approximately .450" in width. The additional money will be an investment in better all-weather performance.

12. In converting to UHF reception, will strip converters for Turret-tuners operate efficiently, or will an outside converter have to be used with all present receivers?

An outside converter has the advantage of incorporating a pre-selector stage, and also has higher gain than a strip converter. Therefore, the former is more desirable in moderate or weak signal areas. In strong signal areas, however, the strip converter has proven itself very satisfactory, and there is no reason to believe why it should not continue to receive wide acceptance. It is important to note, however, that in an area where numerous UHF channels will be received, the signal level at one particular channel may be strong enough for a strip converter, but for other channels an outside converter may be necessary. Therefore, it might be advantageous to install an outside converter whenever the customer is willing to incur the additional expense. At any rate, this provides a basis for possible future "follow-up" calls.

13. Are ignition and other man-made noises as troublesome on UHF as they are on VHF?

The fact that UHF channels operate at much higher frequencies is sometimes a distinct advantage, since it has been found that ignition, diathermy, and other man-made noises do not reach UHF frequencies and, therefore, do not cause nearly as much interference as they do on VHF. For this reason, UHF installations, if they are properly handled and carefully made, will give excellent results and produce clear, bright pictures that are actually more free of interference than VHF pictures.



Executive Secretary Kieth Kirstein is shown here discussing the Registration Bill before the Board of Delegates.



Annual CSEA Installation Luncheon attracts over 200 members and their wives.



A record number of chapter Delegates turned out for this year's Annual Meeting of CSEA.



New Vice President Emmett Mefford, far left, is shown here during the installation luncheon.

A Report on the **CALIFORNIA STATE ELECTRONICS ASSOC. ANNUAL MEETING**

Claire Lanam Re-Elected as President of Group — By-Changes Defeated — Legislation Discussed.

The 1963 annual conference of the California State Electronics Association was mixed with optimism in regards to legislation, conservatism in regards to changes within the organization and confidence in their officers with the re-election, for another year, of three of the four positions.

Mr. Claire Lanam, Berkeley, California Dealer, was re-elected as President of CSEA. Many felt it was important to the success of the current legislation to re-elect the present slate of officers in order to avoid a break in the communications that had been established over the past few months.

Elected as Vice President of the State-wide Association was Mr. Emmett Mefford of Fontana, California who replaced Mr. Ralph Johonnot, who declined the nomination for a second term. Filling out the slate of officers was Mr. Ken Preston who was re-elected as Secretary and Mr. Ed Fort who was re-elected as Treasurer.

Other members of the board who were elected by their own zones several

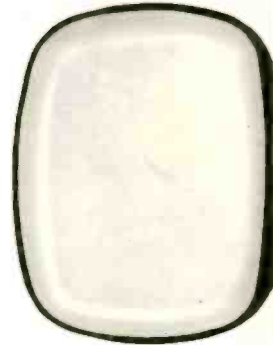
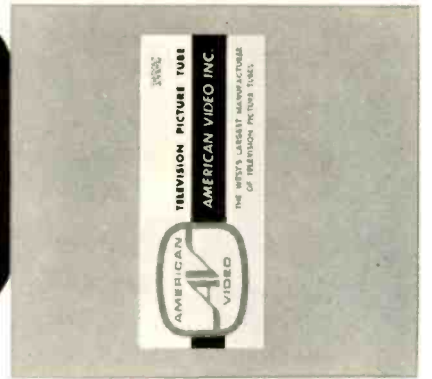
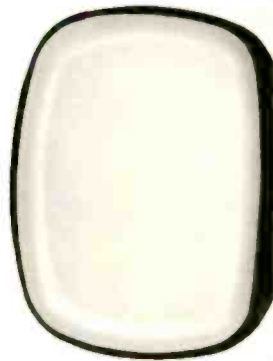
months ago include: Mr. Darrell Petswal, Sacramento; Mr. Wes Keys, Walnut Creek; Mr. Ralph Hoy, San Rafael; Mr. Russ Hamm, Soquel; Mr. Ralph Cornelious, Bakersfield; Mr. Ralph Johonnot, Burbank; Mr. Robert Whitmore, Bellflower, and, of course, all of the officers.

Board of Delegates Meeting

One of the most controversial proposals ever presented to the Board of Delegates was brought before the special recessed meeting held on Saturday, June 8th, in Fresno. The proposed change in by-laws would have called for the election of the State President at an annual convention to be held each year in place of this annual meeting. Needing a 2/3rds majority vote of the delegates present, the amendment failed although passed by the simple majority. Reasons given for and against the amendment were debated for over four hours before the final vote was taken and the results reported. Following the

WHAT'S THE DIFFERENCE

?



No difference in picture tube quality* (but) Big difference in your profit!

BEFORE YOU PURCHASE ANOTHER PICTURE TUBE — COMPARE THE FACTS ON QUALITY AND PROFITS

This comparison chart will show you that American Video manufactured tubes are equal or superior in quality, performance and reliability to the other picture tube brands listed on this chart. Judge for yourself why American Video is equal to the major brands listed here in all ways *except* for *profit!*

A proven quality line, American Video tubes are

manufactured to meet highest industry standards, in the largest automated picture tube plant west of Chicago — and one of the largest in the nation! Stringent production procedures, plus tough, uncompromising quality control make the American Video line the picture tubes you can trust for fewer call-backs and in-warranty failures.







FOR MANY YEARS THE TRADE HAS BEEN CONFUSED! The major tube brands such as R.C.A., Du Mont, General Electric and Sylvania, have been called new tubes, and tubes manufactured by independents have been called rebuilt.

All brands listed below on the quality comparison chart use the glass envelope over again. The difference is American Video and other major manufacturers destroy glass bulbs that will not meet original equipment standards. Also, American Video and other major manufacturers must supplement their tube type availability with new glass when used glass is not available.

The industry agrees that after a thorough cleansing and inspection, most glass bulbs will meet original

IF YOU ARE IN BUSINESS TO MAKE A PROFIT (AND WHO ISN'T?) JUST COMPARE THE COST! For greater sales and money-making opportunity the choice of the smart businessman is American Video. American Video offers you the best combination of quality and profits, more than any other major picture tube brand on the market.

QUALITY COMPARISON CHART

TUBE BRAND	PHOSPHOR SCREEN	ALUMINATION	INTERNAL CONDUCTING COATING	ELECTRON GUN	GLASS ENVELOPE
 Manufacturer of: CALVIDEO CUSTOM KING CUSTOM DESIGNED	100% NEW	100% NEW	100% NEW	100% NEW	Same as RCA, DUMONT, GE, SYLVANIA
   	100% NEW	100% NEW	100% NEW	100% NEW	Re-used envelope is thoroughly cleaned and inspected to meet standards of original new envelope
	USED	USED	USED	New but with larger aperture (Poorer Focus)	USED

Get your share of profits! Contact your American Video Distributor for all the facts... and be sure to ask him about American Video's exclusive FREE \$5 Callback Plan for you!



AMERICAN VIDEO INC.

Makers of "proven quality" Calvideo, Custom King, Custom Designed picture tubes.

WEST'S LARGEST MANUFACTURER OF TELEVISION PICTURE TUBES.

AMERICAN VIDEO INC., the largest manufacturer of television tubes west of Chicago, one of the largest manufacturers of television tubes in the Nation!

When you sell American Video products . . . you offer your customers the finest in *proven* quality and reliability — produced by one of the largest, most automated plants in the television picture tube industry.

American Video Inc. has been selected by several of the nation's leading TV set manufacturers to supply tubes under their brands—American Video is the only independent tube manufacturer offering a complete line of *picture perfect* universal straight gun tubes . . . and the only manufacturer west of Chicago, who can state that each and every picture tube produced by them contains 100% new parts and materials except for the glass envelope.

American Video's unsurpassed quality control procedures and production facilities assure your customers of the finest picture tube available.

AMERICAN VIDEO INC.

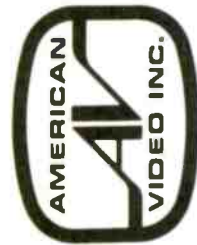
18601 S. Santa Fe Avenue, Compton, California

The largest manufacturer of picture tubes in the West

Serving the following states: California, Arizona, Nevada, Hawaii, Washington, Montana, Utah, Colorado, Idaho, Wyoming, Oregon, Texas, New Mexico.

INTERNATIONAL DEPT.

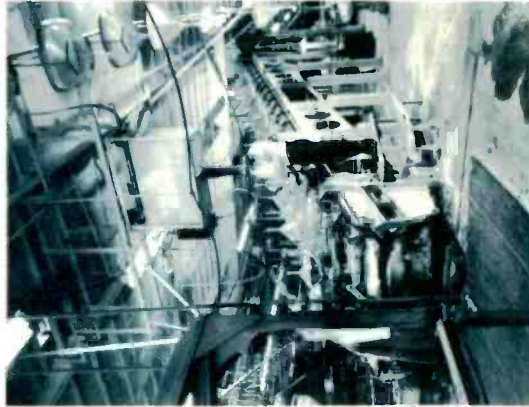
Cable Address
"Amvideo"



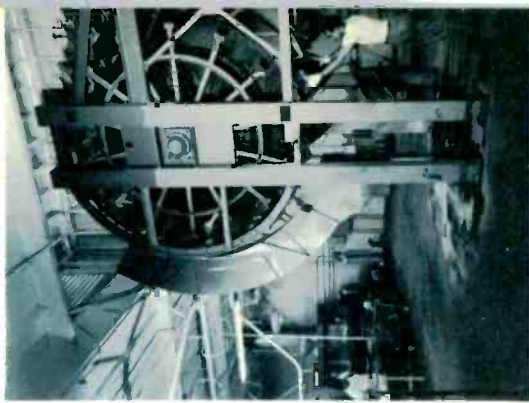
AMERICAN VIDEO - The largest picture tube plant west of Chicago.



QUALITY CONTROL - High standards of engineering, design and manufacture are constantly checked by engineers.

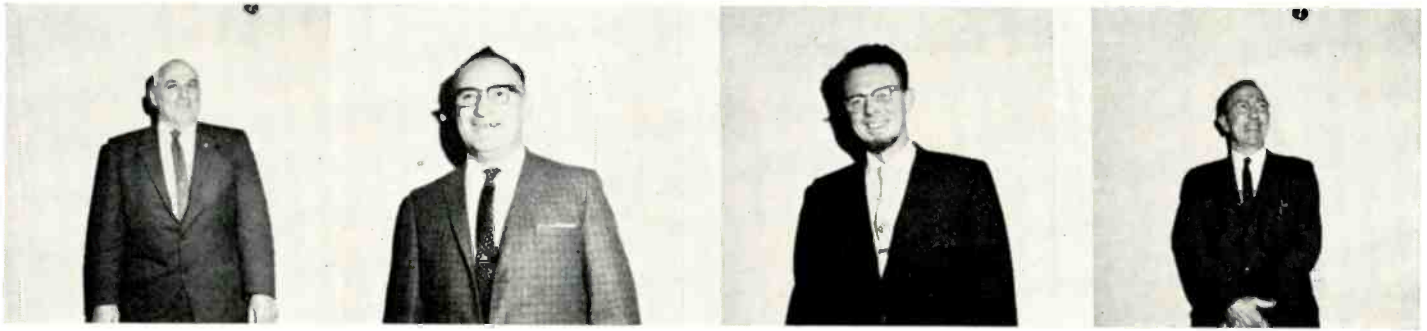


AUTOMATED PHOSPHOR SCREENING MACHINE - One of five in the United States. Capable of screening 1,500 units per day. American Video is the only independent manufacturer to use this automated equipment to insure highest quality phosphor screens.



Makers of "proven quality" Calvideo, Custom King, Custom Designed picture tubes.

California State Electronics Association 1963-64 Officers



President
Claire Lanam

Vice President
Emmett Mefford

Treasurer
Ed Fort, Jr.

Secretary
Kenneth Preston

defeat, a motion was made to refer the entire matter to the Board of Directors who have the power to investigate the idea and to move for its adoption at a later date. The Board of Delegates must ratify any by-law changes proposed by the Directors.

Legislation

A complete up-to-date report on the progress of the current registration Bill SB 1292 was presented to the Delegates and, in turn, to the Board of Directors by State Executive Secretary Kieth Kirstein. The complete history of the Bill and some of the pit-falls they ran into were brought out and discussed. At the time of the meeting the Bill had just passed the Senate by 27-8 and was then sent to the Assembly where it was referred to the Business and Professions Committee of that body. The next step will be to the floor of the Assembly and passage. With time running out we hope that in another section of this issue we will be able to give you the final results of the registration bill program.

Work on this Bill started with the failure of a previous licensing bill in a Senate committee some two years ago. Through a concentrated effort to show an industry dedicated to cleaning its

own house, if possible, operation clean-up was started. Constant cooperation between the officers and members of CSEA with the Attorney General's office, the Consumer Council directed by Mrs. Helen Nelson and Better Business Bureaus throughout the State ended with the SB 1292 calling for the registration of Television and Electronic Service Dealers. The Bill has passed all committees and the Senate without being amended in any way. It certainly bares out the thought and effort that went into the writing of the Bill before it was presented by Senator Short of Stockton.

A special "well done" can be directed to all the members of the Stockton Chapter of CSEA who worked so hard to acquire the necessary backing by Senator Short. These men spent endless

hours in working on this Bill and are to be congratulated for their efforts.

Annual Installation Luncheon

The annual installation luncheon was highlighted by President Claire Lanam who stated that there are three main objectives that should be taken under consideration by the Delegates and all members throughout the State. These included the Yellow Page situation with special reference to multiple ads by the same dealers under different names and the need for manufacturer's authorization for dealers listing under their trade names. 2. a close study of the need, if any, in the present structure of CSEA and 3. a logical and reasonable evaluation of the advantages of a national affiliation.

Another main topic of consideration by individual chapter officers and members was the need for an all out membership drive to attract as many legitimate dealers as possible into CSEA.

The installation of the new President, his Board of Directors and officers was conducted by Don Martin, Publisher of MESD, who expressed a special call for a concentrated effort in the furthering of the California State Electronics Association during the coming year.

At the time these photos were taken three of the new board members were not present. These included Mr. Ralph Cornelious from Bakersfield, Mr. Russ Hamm from Soquel and Mr. Wes Keys from Walnut Creek.

California State Electronics Association 1963-64 Board



Zone F
Ralph Johannot

Zone A
Darrell Petswal

Zone B
Ralph Hoy

Zone F
Robert Whitmore

How to Sell More Antennas for Color, FM and UHF

By ROBERT M. FLEMING, Jr.

Sales Manager, Winegard Company

With comparatively little effort, I believe service-dealers can really cash-in on the usually lucrative antenna market which has opened up in the last few months.

I believe this can be done not only by scouting for "new" customers, but by simply doing a little sound selling to past and present customers.

Many service-dealers put considerable money and effort into promoting and selling color sets, stereo-fm outfits and black and white VHF and UHF sets. But how many put the same effort into selling a good antenna to go with these units? Not too many, I'm afraid . . . and yet the profit on an antenna installation frequently amounts to far more than the profit on a TV or FM receiver.

Before a service-dealer even attempts to sell antennas, the first thing he should do is make sure the antennas on top his own store are the best he can buy. The reasons for this are obvious. 1) The best antennas will help the sale of color, FM and TV sets because reception on the sales floor will be at its best. It is much tougher to sell a customer who is watching or listening to poor reception. 2) If the customer likes what he sees, it is easy for the dealer to recommend that the customer install an antenna "like we use."

The market for TV and FM antennas has changed considerably in the last year. New emphasis on color, FM stereo and UHF have in turn put new emphasis on antennas. Each of these types of entertainment require the best reception possible in order to get maximum results from the receiving equipment.

I recall once making a little survey of my own in one of our larger cities. I called several service-dealers by phone, telling them I was interested in buying a new TV antenna to improve my reception, and I asked what they recommended.

The answers I got were amazing. One dealer said, "We have 3 or 4 different kinds of antennas. They range in price from \$10.00 to \$30.00, but I think you'd be crazy to buy the \$30.00 one. If I were you, I'd buy the \$10.00 one . . . it's a lot cheaper."

Another dealer told me, "We can give you a complete installation for \$30.00 or one for \$10.00." I asked him what the difference was. His reply: "\$10.00."

These are, perhaps extreme samples, but they do show that *some* dealers, at least, are passing up the opportunity to make profitable antenna sales while at the same time providing their customers with best possible reception.

This brings up the point that every dealer, if only for his own good, should make a sincere effort to upgrade TV and

FM reception for *all* of his customers. By rendering this "help," you not only get paid for it, but the customer really feels you have done him a favor. The next time he needs service, he will *automatically* come back to you.

Do you know the main features of the brand of TV sets you sell?? I'll bet you do. And chances are you know the features (and drawbacks) of competitive sets, too. But how well do you know your antenna? Do you really know from experience which models work best to solve the different reception problems in your area. Do you know which ones are most profitable for you?

If you don't know the answers to these questions, it's a good bet that you're not selling very many antennas. And this means you're passing up some pretty easy profit. I'd like to repeat that "a single antenna installation will frequently put more profit in your pocket than the sale of a TV set."

It follows, then, that it's well worth your while to put just as much merchandising effort into selling antennas as you do in selling sets.

Let's take a quick look at the major antenna "markets" open to you today! If you sell color TV, you're already aware of the big difference a good antenna makes in color reception . . . and customer satisfaction. Many dealers, though not enough, I'm sure, insist that a new TV antenna go up with each color set sold.

These dealers not only make good antenna profits, but they provide a measure of insurance that their customers will be completely satisfied . . . cutting down chances for expensive dealer callbacks.

In the case of FM and FM stereo, millions of people have put a lot of money in fine receivers, yet a large percentage of these same people either fail to put up an FM antenna or put up the cheapest one possible. In truth, they are being short-changed on FM enjoyment, because a good antenna will frequently improve reception on the stations they presently receive . . . and will, in most cases, provide them with a far greater selection of stations.

It's surprising how many FM owners receive only one or two FM stations. Few of them (and many dealers, too) don't realize how many *more* stations they could be getting by simply connecting a good antenna to the FM receiver.

Stereo broadcasts, as you know, go out at approximately 50% of regular FM broadcast power. People who want good stereo are your top prospects for a good FM antenna.

As in TV antennas, it pays to know what FM antennas can do. Winegard, as well as other manufacturers, makes

several FM antenna models, one or more for each reception problem.

What about UHF? The market for UHF receivers and antennas is already well established in a few years. But before long, vast, new markets for UHF equipment will open up because of the U.S. Government ruling that all TV receivers built after April, 1964, must be equipped with both UHF and VHF tuners. This will encourage new UHF stations to go on the air in many areas across the country.

In turn, there will be a ready market for UHF antennas and products like Winegard's new UHF transistor antenna amplifier. The dealers who will *really* cash in on these new markets are those who have made a good study of UHF reception problems, who know their UHF antennas and who actively merchandise them!

Just how do you go about selling more antennas? I think the same characteristic methods and principles apply to antennas that apply to most consumer "appliances." In almost every case, you're selling satisfaction. With antennas, this means the best reception possible for the enjoyment and satisfaction of the set owner.

There's no need for me to say much about the value of *consistent* newspaper and radio advertising. These are the old standbys that help keep most retail and service-type companies in business. Like Winegard, I think most manufacturers supply their distributors with ad mats and radio spots for dealer use.

Perhaps next most important is store display. Even though there may not be a lot of traffic through your particular store, it will pay you well to make full use of your window, floor, wall and ceiling space.

Let people know without a doubt that you are in the antenna business!

Here you can make use of the high quality "point of purchase" advertising materials supplied by manufacturers without charge or on a share-the-cost basis. Some of the items Winegard Company has developed for dealer store use are: indoor-outdoor pennant sets, window streamers, silk wall banners, floor-to-ceiling anodized antenna display poles, antenna hang-tags, counter cards, window decals and a host of other materials, which, if used regularly, can be most valuable in making antenna sales for you.

One important sales tool, often overlooked by dealers, is the antenna carton itself. Winegard, for instance, packages

all its major antenna models in full-color, display type cartons. Several of these cartons placed in a window or on a display floor make an attractive display and are real attention-getters.

Another use of antenna cartons is to give them a few coats of plastic spray or clear varnish and mount one on top of each of your service trucks. This gives you a free, full-color sign that tells folks you're really in the antenna business.

While I'm talking about trucks, let's not forget to have a few words about antenna sales and installation painted on the sides. In addition, outdoor decals are available from Winegard for use on truck doors as on store doors and windows.

And now we come to the free sales literature produced by manufacturers for dealer use. Do you put this type of sales aid to work for you? You should.

Envelope "stuffers" have many uses besides the obvious one of enclosing them with the invoices and statements you send out. They can also be used as "handouts" in your store, at county fairs, home show displays . . . or left at the home where you've just made a service call.

Another sales producer is the "doorknob hanger" which we recently designed for service-dealers. This advertising piece is placed on the doorknob of homes where you have noticed a broken, out-of-date or inadequate antenna. A tear-off return card encourages the prospect to action.

Other merchandising items which can help you sell more antennas are "Antenna Specialist" shirt emblems, antenna check-up sheets for quoting a prospect on an installation, advertising balloons, "yellow pages" advertising, FM station logs and maps such as those provided by Winegard.

As you can see, there are a multitude of items readily available to use in merchandising TV and FM antennas. No dealer, of course, needs to use each and every one. The important thing is that you cannot rely on just one or two forms of merchandising. It takes a *combination* to do the job.

Perhaps the best advice is to try out all of the various sales aids made available to you. Then pick out the ones which work best in your particular case. Then use them *consistently*. Keep up-to-date on new reception products . . . and watch your antenna sales and profits soar!



Pictured here are a few examples of materials available from Winegard to let people know you are in the antenna business. Most manu-

facturers have similar material and dealers should take advantage of these sales promotion programs.

Whether you are aware of it or not, the starting gun has sounded for the largest sweepstakes since the original invention of the TV antenna. The size of your winnings, however, will be based of effort rather than chance.

Flourishing color TV sales, the growing acceptance of FM Stereo, the coming UHF antenna boom, and rising replacement demand, could mean a record year in profits for alert installers, servicemen and dealers.

The golden apple, however, is not going to fall into your lap. You will have to invest time and work in a program.

First, you must make a planned effort to familiarize yourself with the technical and promotional circumstances of these markets.

At this point, I can hear many of you saying: "Easier said than done."

I would agree with this thinking except—the record shows that many technicians have gotten tidy dividends in sales and profits as their return from a moderate program of *planned effort* similar to what follows here.

There are over 60 million TV sets in use in the U.S.A.—thousands in your area, most of which could provide far more enjoyment to their owners if outfitted with modern new antenna.

Most outdoor antennas have become hopelessly inefficient after five years' service. In corrosive atmospheres, deterioration is much sharper. Here's how you can get started.

Start using a lively catch-phrase such as Antennas *Do* Wear Out—or something like it. Paint the sign on your window, your truck, your tube caddy, anywhere it can be seen. Get door-knob hangers and flyers printed that hammer away at the same theme—and start circulating them in your neighborhood.

Everytime you spot a house with an old antenna, ring the doorbell and tell the owner, "I couldn't help but notice the condition of your antenna . . ." or "Would you mind telling me how old your antenna is? . . ." or, "How is your reception on channel so-and-so?" Chances are you will get a conversation started that could culminate in a sale.

And to keep your proposal alive in the prospect's mind, you could give him or her your business card with a notation that it will entitle the owner to a \$5.00 discount off your regular TV antenna installation cost.

Color TV is another broad avenue for outdoor antenna sales. This year, the industry expects to sell 600,000 units. Buyers of color-TV sets are made-to-order customers for new outdoor antennas. Most color TV buyers own antennas that, either because of age or obsolescence, can not deliver the flat gain, high front-to-back signal, sharp

HOW TO SELL UP IN A GOOD RECEPTION AREA

JAMES SARAYIOTES
Advertising Counselor
JFD Electronics Corporation

directivity and optimum impedance match required of antennas for fidelity color pictures.

This makes a new antenna, designed particularly for the purpose, a natural tie-in item for every color television receiver sale. Such an antenna provides high gain which is substantially flat across the broad bandwidth of a color television channel, delivers the maximum possible amount of signal to the transmission line, and minimizes problems caused by reflections and other spurious signals.

COLOR ANTENNAS FOR BLACK AND WHITE TV VIEWERS

Don't hesitate to sell up to a better quality, higher priced color-designed TV antenna when talking to a new black and white TV buyer. Impress upon him the wisdom of investing in a new antenna installation that cannot only assure him better black and white reception now—but the finest in color when he buys his color set in the future. In other words, why buy *two* antennas when *one* will do?

AND SOON—UHF

Another sizeable market for antenna sales will be developing next April in the field of UHF TV. Witness the home-receiver phase which demonstrated the importance of a good antenna for clear UHF reception.

There are many reasons for this, most of them technical. For example, VHF

generally carry about 50 per cent further than UHF signals if no obstructions are encountered. With obstructions, VHF signals usually bounce off and keep on going.

Seasonal effects can influence UHF reception. In some areas, pictures received during the summer are of excellent quality, yet become grainy and weak when cooler weather approaches.

The FCC tests indicated that UHF pictures that are at least passable in quality could be received in all but about 10 per cent of the households getting comparable very-high-frequency reception. Jules Deitz, the FCC engineer who supervised home-installation tests, disclosed at the Electronic Industries Assn.'s Radio Fall Meeting that the difference was found to disappear almost completely when properly located outdoor antennas were used.

Here we have the made-to-order reason-why an outdoor antenna is a must for good UHF TV reception. Top this off with the millions of new UHF/VHF and UHF antenna installations that will be required during the next five years and you can readily appreciate the sizable dimensions of the market potential developing.

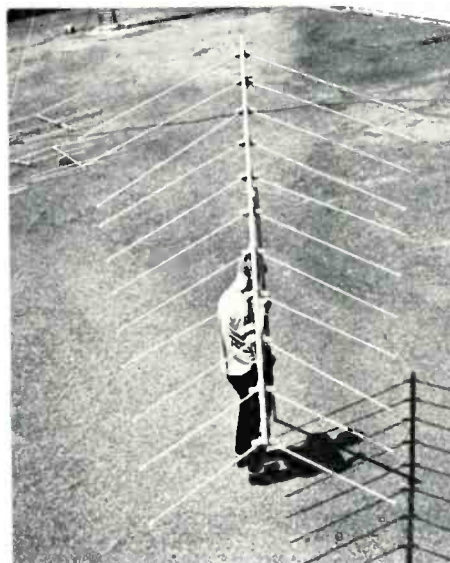
MANUFACTURERS CO-OP ADVERTISING AVAILABLE TO DEALERS

JFD Electronics Corporation, as well as other antenna manufacturers have a large variety of advertising aids which any dealer can avail himself through his wholesale distributor. Newspaper mats, flyers, direct mail, radio and TV commercials, in-store and out-store merchandising displays and streamers are some of such items. All they need is your store imprint to become your personal silent salesman.

Manufacturers will also work with your distributor to help you defray the cost of these promotions through use of their co-op advertising funds. Your wholesale supplier would be happy to furnish you with more details in this respect.

CHALLENGE TO DEALERS

Get your program rolling now. Begin translating your market potential into profits with an advertising and sales-promotion drive that will make the respective benefits of each antenna come alive in your prospects' minds. Remember, your 1963-64 antenna boom depends on you.



Pictured here is one of the new JFD LPV Antennas. This kind of a high ticketed item can be sold by merchandising and is a source of new profits to most service dealers.

MODERN ELECTRONIC SERVICE DEALER'S COLOR CUES[®]

PART II

• • • A CTC-4 COLOR CHECK CHART TO PROFESSIONAL SERVICING

"Color Cues," Part 1, appeared in May and was devoted to a description of service problems encountered during the first eight years of CTC-4 operation.

Conventional service problems, such as those solved daily in all types television receivers, were ignored, and the items listed were limited to unusual situations where factory modifications, or specially worked out solutions, would save time and improve results.

"Color Cues," Part 2, appeared in June, and was devoted to modification changes and data. Items "Y-1" through "Y-5" detailed corrections or changes to up-grade early runs to correspond to late runs.

Servicemen who plan to "break in" to the color service field by doing familiarization work on one of the CTC-4 receivers will find that a great deal of experience can be gained by a methodical check out against the "Color Cues" data. If the receiver so encountered happens to belong to one of the earliest production runs, the "Y" series will provide the information necessary to obtain the benefits of later production engineering.

"Color Cues," Part 3, is in a sense a wrap up. If a serviceman has carefully overhauled and upgraded one of the CTC-4 series to best possible condition he may now be interested in some added information on adjustment and operation. The "Z" series outlines factors which may not have been included in the original service manuals.

Z-1: HORIZONTAL REGULATOR, EFFICIENCY COIL, AND DRIVE ADJUSTMENTS.

- a. Turn brightness and contrast controls fully counter clockwise.
- b. Measure high voltage at the plate cap of the 6BK4, and during measurement adjust the high voltage control to provide a 25 KV reading. The control should permit adjustment from above to below this value. If no control results, change the 6BK4 and/or check voltages at cathode and grid of the regular tube. (Note: If B+ is either higher or lower than 100 volts from B+ to B- it may be impossible to obtain 25 KV and B+ should be corrected before other adjustments are attempted.)
- c. Open the cathode circuit of the 6CB5 or remove the the fuse on the high voltage cage and insert a millimeter capable of indicating 300 ma or more. Adjust the efficiency coil for the lowest indication. Adjustment of the efficiency coil should cause a dip of 20 ma or more. This adjustment is of utmost importance to cool flyback and 6CB5 operation. If no dip occurs, check and substitute, as necessary, all parts of the efficiency circuit. The drive control should be set just below the drive line point.
- d. Recheck the Regulator adjustment. In a dark room the plate of the 6BK4 may operate at a visible "red" temperature. This will cool down as soon as the CRT draws beam current.

Z-2: CONVERGENCE SUGGESTIONS:

The horizontal and vertical pulses used for convergence correction are affected by sweep circuit adjustments, and height, vertical linearity, width, efficiency, drive, and high voltage regulation adjustments should be completed before convergence is attempted.

Z-3: TRACKING.

The ability of a color television receiver to maintain consistent highlight, color, and lowlight values with scene or brightness changes is the measure of tracking ability.

Early tracking instructions called for a preliminary adjustment of the screen controls to produce a high level gray screen. Since this setting was a matter of judgment and was greatly affected by ambient light conditions these instructions were changed in the 12-9-55 manual to call for adjustment of the red CRT grid to -70 volts with respect to the red cathode, followed by adjustment of the blue and green screen controls to produce gray without further adjustment of the red screen control.

Individual receivers and color CRTs will vary widely, and several tracking combinations of screen and background controls may be developed with corresponding advantages and disadvantages. The important factor to the new color serviceman is that such experiments provide an excellent background of experience for all color receiver setup work.

Z-4: BEAT PATTERN AND INTERFERENCE PROBLEMS:

When the overhaul, modification, and upgrading work has been completed on the individual CTC-4 chassis, when high voltage, raster, convergence and tracking adjustments have been checked out, the time for evaluation of results has arrived. The new color technician should check these factors:

- a. Does the receiver show a "sharp" black and white picture without ring, leading or trailing reversals, striations, or smear?
- b. Does color information "fit" well on the black and white detail?
- c. Is the receiver free from beat patterns or interference on all channels when the fine tuner is properly adjusted?

Unless the receiver has undergone alignment recently by competent personnel using highest quality equipment the serviceman should not be surprised if several forms of interference are present.

Color receivers are subject to most beat and interference problems common to black and white receivers, and in addition present a whole family of special effects due to the presence of the sub-carrier circuitry.

BEAT PATTERN SOURCE IDENTIFICATION:

The first step is to determine whether the beat pattern is developed in the monochrome or color circuitry.

- a. If the interference pattern does not change when the color gain setting is changed, the source of trouble is in the sections which process black and white information.
- b. If the color control also controls the interference, suspicion will point to color circuitry as well as overall tuner, IF, trap, and bandpass correlation.

Z-5: CHANNEL 8 11TH HARMONIC INTERFERENCE:

In areas where Channel 8 stations are received with sufficient field strength to develop normal signal levels in the pix IF strip, enough power may be radiated from the output of the pix IF amplifier to the 300 ohm line in the vicinity of the

UHF/VHF switch and cause a beat pattern to appear in the raster.

The interference will be caused by radiation of the 4th harmonic of the IF pix carrier, and the frequency depending on the fine tuner setting, will be about 183 mc.

Elimination of this problem will require different procedure on early and late runs, but the following steps should help reduce the interference:

- a. In early and late runs connect a 22 uuf capacitor across the 4th IF transformer terminals "B" and "C."
- b. On early runs it may be necessary to reroute tuner power leads from the vicinity of the pix IF output. The brown filament lead should be removed from the pix IF PC board and reconnected to pin 4 of the band-pass amplifier and killer tube.
- c. AGC and B+ 285 connections to the tuner from the pix IF PC board may have to be re-routed from the area of the 4th IF stage.
- d. PC hold down screws must be tight, and shield contact areas should be clean and well grounded.

Z-6: 3.58 CRYSTAL OSCILLATOR INTERFERENCE:

The 13th harmonic of the 3.58 oscillator (46.5 mc approx.) may beat with the pix IF carrier at 45.75 mc and a 750 KC beat pattern may appear on any channel. In some ways the interference may resemble the 920 KC interference in Z-7, but will not be eliminated by turning the Color control counter clockwise.

To test for 13th harmonic radiation momentarily ground the grid of the 3.58 oscillator. The raster will tend to yellow, but the disappearance of the beat will be very noticeable.

To eliminate this interference follow the recommendation for the run of receiver concerned:

- a. Early runs: Remove the ground of the vertical blanking shielded lead which is connected to the 3.58 oscillator tube socket, and reground the lead at the vertical output transformer end.
- b. Later runs: Dress the unshielded vertical blanking lead away from the vicinity of the 3.58 oscillator.

Z-7: SUBCARRIER AND SOUND 920 KC BEAT:

The 920 KC beat problem can be very persistent in the CTC-4 series and can develop from a variety of sources. The beat pattern will be most prominent in highly saturated color areas, particularly where yellow, flesh tones, red-orange, or bright blue occurs. The beat develops from the presence of excessive color subcarrier and sound energy.

The 920 KC beat will appear with many different combinations of misalignment or where circuit gain factors have been altered.

MOST COMMON SOURCES OF 920 BEAT INTERFERENCE:

- a. Cross modulation at the tuner input due to excess signal input. This can usually be corrected by using an antenna pad for signal reduction.
- b. Inaccurate adjustment of 41.25 and 4.5 mc traps.
- c. AGC settings which permit overloading.
- d. Loss of correlation between IF and band-pass response curves.

ELIMINATION OF 920 KC BEAT INTERFERENCE:

- a. Check and/or correct items as listed in "a" and "c" above.
- b. Individual circuit gain, tuner, IF, or band-pass response curves, and trap settings require a high degree of skill, experience, and equipment for satisfactory results. Of the more than 40 adjustments, many of which interlock, more than half must be preset to a high degree of accuracy.

If you have a high quality sweep, marker, wide band scope with matched probes, absorption markers, carrier modulator, and preferably a marker injector, a successful completion of an alignment job will be both fascinating and rewarding.

If you do not have the above equipment, but have completed an overhaul and up grading of one of the color receivers, complete alignment by experienced personnel with proper equipment is recommended for best performance.

Z-8: DECODING ADJUSTMENTS:

The subject of Color Decoding adjustments deserves a special word at this point. If alignment has been completed as described in Z-7 above, it can be assumed that decoding adjustments are correct. However, if no special reason for alignment existed this paragraph should be applied.

Many of the "X" and "Y" recommendations were made to correct amplitude and color processing accuracy. The service-man should now employ a color bar generator to check the phase relations of the signals fed to the three guns.

If the receiver is properly adjusted to receive the color bar signal the following assumptions can be made:

- a. If a keyed bar generator is employed ten bars will usually be visible. If all visible bars have a different shade of color the phase or quadrature adjustments are good.
- b. If a group of bars appear to have little difference in their shade of color the phase or quadrature adjustments should be adjusted. (It is not uncommon to find a receiver in daily use that will show as many as six bars, probably blue, with almost no color variation.)

TO ADJUST CTC-4 COLOR PHASE:

- a. Ground the blue and green CRT grids to chassis through 100 K resistors.
- b. Rotate the hue control until the center of the 6th bar from the left matches the raster background between the bars. If the hue control lacks range, center the hue control, and adjust the "Phase Detector" transformer to control the 6th bar as above. When this is accomplished do not move the hue control for the balance of the adjustment.
- c. Move the 100 K grounding resistor from the blue grid to the red grid. The centers of the 3rd and 9th bars should match the background between the bars. If not, adjust the top screw on the 3.58 CW Transformer until this is accomplished.
- d. Remove the shorting resistors and the ten bars should now be of different colors. If not, it can be assumed that a complete alignment of all circuits should be considered.

Z-9: CHANGES IN CRT COLOR AMPLITUDE PERCENTAGES:

Service manuals have listed matrix waveform percentages on page 17 as follows:

Blue 100%; Red 55%; Green 34%.

Proper alignment of receivers with all modifications installed will result in the following values being normal:

Blue 100%; Red 75%; Green 40%.

A Round-up Of Products We Feel Will Be Of Interest And Benefit To The Electronic Service Dealer In The West



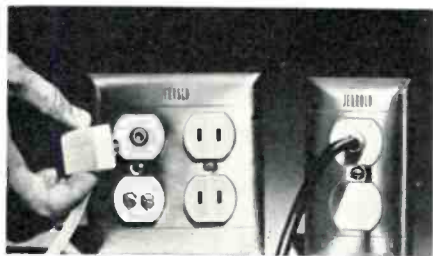
A TRANSISTORIZED . . .

two-way communications system aimed at home or business use—the Interphone—has been introduced by Channel Master Corp., Ellenville, New York.

Designated as Model 6555, the Interphone meets the need for a moderately priced intercom, or monitoring device of good quality. It can be operated with push-button ease and employed for numerous purposes. In the home, for instance, the system can be used to “monitor” as well as communicate inside the house . . . nursery, children’s bedroom, playroom, sickroom, etc. It can also be employed to make contact *outside* the house (home workshop, garage, etc.). Commercially, the Interphone fills a need in stores, factories, offices, etc.

The transistorized Interphone is battery-operated, and is therefore completely safe. Light and compact, it can be placed anywhere—even hung on a wall. Either unit, master or slave—can initiate calls. The master unit can be set to insure privacy, yet can be buzzed at any time. A volume control feature is included.

The Channel Master Interphone will operate for approximately 1000 hours on a set of batteries. Master and slave are smartly styled to fit any decor; and are attractively packaged (along with 75 feet of wire) in a red, white, and blue display box, designed to sell right off the counter.



THIS NEW . . .

wall outlet tap-off has been stylized, ruggedized, and engineered to replace every TV-FM tap-off on the market.

“Ultra-Tap,” the name fits the product, offers architects every possible choice of color in richly designed mold-

ed plastic cover plates. Either flush (pictured) or surface mounting types are available. For the latest sophisticated decors Jerrold features single or duplex plates in imposingly chaste brushed stainless steel.

For more beautiful, efficient rooms the AC outlet can be combined with Ultra-Tap behind a duplex cover plate.

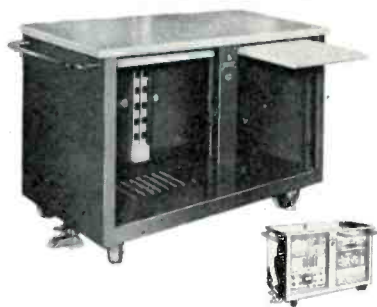
Servicemen will find Ultra-Tap simple to install and connect. All system fittings are push-on types. The TV and/or FM receivers also connect to the tap-off through push-on connectors. Two connector models are offered—one for use with 300-ohm twin-lead (left), the other for 75-ohm coax cable (right).

Either connector will fit any of the three models in the Ultra-Tap series.

The Ultra-Tap Model UT-33 (shown in a duplex cover plate) is for simultaneous tap-off of TV-FM signals. The UT-33 has built-in isolation networks to eliminate cross-talk (interference of TV signals by FM signals and vice versa) in either line.

The Model UT-22 (shown in the single cover plate) is for tap-off of either TV or FM signals. It also includes an isolation network to prevent any AC power from appearing on the system.

Model UT-12, not shown, is a wall terminal unit for connecting a TV or FM set to a remotely mounted isolation unit such as Jerrold’s Model G1404 4-outlet Isolation Network.



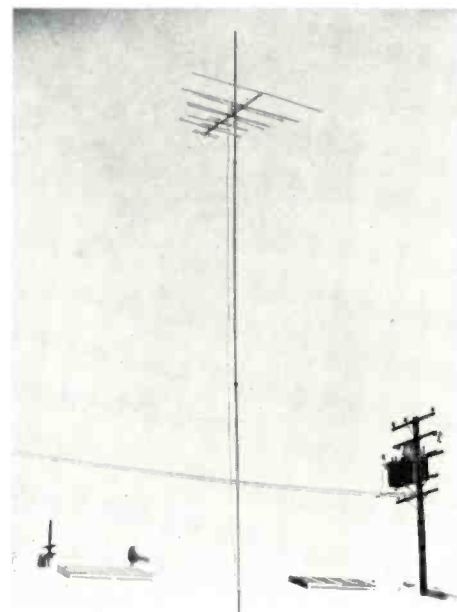
A NEW ELECTRONIC . . .

instrument cart, Model B-363, has been introduced by Anets-Bapco, a division of Anetsberger Brothers, Inc. The Model B-363 instrument cart provides the user with utmost convenience and complete portability in electronic testing and check-out applications. Any instrumentation required for a specific assignment can be quickly assembled and easily mounted in the cart.

Twelve electric outlets are provided for instruments and are energized by connecting the three (3) conductor main power line of the cart to any standard

outlet. Two 24½” x 19” openings on each side of cart available for instruments, with standard E. I. A. spacing. Unistrut shelf kit is optional feature.

Once organized for the job on hand, the Anets-Bapco Instrument Cart can be moved wherever needed for instant use. When project is completed, the Model B-363 Electronic Instrument Cart can be quickly reorganized for the next assignment.



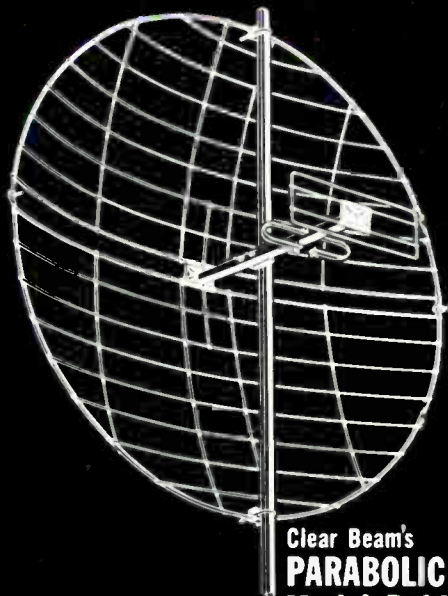
A NEW ANTENNA . . .

most called “Beanstalk” which can be erected in less than two hours to a height of 100 feet has been developed by Sealing Corporation of America, Santa Monica, California.

The new mast is raised by less than 25 pounds of air pressure from a compressor under normal antenna loads. It is made of stress-tested aluminum tubing in 20-foot sections which telescope as pressure is applied. As each section reaches full length it is automatically locked by a unique mechanical device to the mother section. The next section is then automatically released to the pressure, thus achieving a smooth, controlled rise. Once raised the air pressure is disconnected and released. The mast is then “solid” until locking devices are deliberately released by a technique again applying air pressure. Since Beanstalk is also available in 60, 80 and 100-foot lengths this feature enables the mast to be used for mobile and portable antennas and probes. The 60, 80 and 100-foot lengths are standard models. Longer and shorter masts are also available on special order.

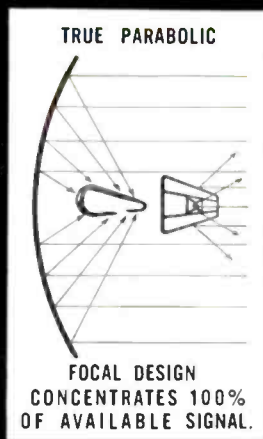
The 100-foot Beanstalk is packaged to retail at less than \$200.

Most POWERFUL UHF FRINGE ANTENNA EVER!



Clear Beam's
PARABOLIC
Model P-100

New, from Clear Beam UHF Research



Unique parabolic "big screen" design, single dipole feature, and all metallic construction provide maximum performance even in the toughest fringe and translator UHF areas. Prevents signal loss caused by weather deterioration and phasing harness mismatch. Preassembled screen and dipole for fast, strong installation! Up to 18 db gain. *Proven the most powerful UHF antenna ever designed!*

Ask your distributor or write today
for technical bulletin

FOR THE BEST • UHF RESEARCH UHF DESIGN • UHF PERFORMANCE • CLEAR BEAM

Through continuing research and nationwide evaluation of problems in UHF areas, Clear Beam brings you the widest selection of proven UHF designs. Clear Beam's UHF antennas have been field tested in every type of UHF reception area to assure you maximum performance, maximum profits!



CLEAR BEAM ANTENNA CORPORATION
21341 Roscoe Boulevard • Canoga Park, California

... one step ahead!

A NEW . . .

feature-packed low-cost stereo high fidelity tuner, the Knight KN-170, has been introduced by Allied Radio Corp., Chicago.

Priced at under \$90, the KN-170 receives all broadcasts including full range AM, monophonic FM and the latest FM stereo multiplex programs. The quality unit also offers a variety of plus features generally found only in much higher priced stereo tuners.

Positive identification of stereo FM broadcasts is made by a special indicator light, while an automatic frequency control (AFC) eliminates drift and locks in every FM signal whether mono or stereo. Static is blocked out by a special limiter circuit.

The sensitive AM circuit has a built-in ferrite rod antenna to pull in distant stations. A line cord antenna is provided for FM reception.

The KN-70, designed to cover the full range between 30 and 20,000 cycles/second, also features a channel separation control to adjust for best stereo effect. The unit is styled in a brown metal case with a polished brass front panel, matching perfectly its companion 24-watt stereo amplifier, the Knight 724A.

The Knight KN-170 (Allied Cat. No. 95 DU 145), complete with case, is offered at \$89.95 exclusively by Allied Radio Corp., 100 North Western Ave., Chicago 80, Ill. Full particulars are included in Allied's free 1963 catalog, now available on request to the company.



SINGLE CHANNEL U.H.F. CONVERTER . . .

Domestic Electronics Corp. wishes to announce the availability of a newly developed Single Channel U.H.F. Converter. The Converter, which has no tubes or transistors and operates on a 10¢ 1.5 volt Penlite Battery, can be easily attached to any make TV set by unskilled individuals. The unit measures 3" x 2 1/4" x 1". Battery life is approximately 250 hours continuous duty. The unit can be factory adjusted to receive and U.H.F. frequency and convert it to either Chan-

nel 5 or 6. All FCC requirements have

MODERN ELECTRONIC SERVICE DEALER

NEW PRODUCTS

(Continued)

WALLER CORPORATION . . .

has developed a new front end FM radio tuner which it says will be priced about 20% below the average cost of tuners now on the market.

The new model FM-2 combines low drift, low oscillator radiation and highest usable gain. In operation, the balance in performance between these desired features creates maximum efficiency and maintains highest industry standards.

In addition, the Waller tuner is used with standard 12DT8, 6DT8 or 6AQ8 tubes available in most retail tube outlets. Replacement tubes are cheaper and easier to buy.

There are several exclusive features important to radio manufacturers. The first is the multiple mounting option. There are four positions in which the tuner can be mounted in a radio.

Provisions have been made for radios using a printed circuit board. Feed-throughs and special mounting brackets allow fast and easy connection to the board.

The Model FM-2 is a development of the Waller research and development department. It is new in concept and design. Tests conducted by major radio manufacturers have proven the performance. The combination of low-cost and high efficiency is expected to have a substantial effect on retail prices of AM-FM radios as the tuner is a major cost component.

Waller is the largest supplier of tuners to the U.S. Radio Industry. It has a complete line of transistor and other type tubes. For more information about the new model FM-2 FM front end tuner, write Waller Corporation, Crystal Lake, Illinois.

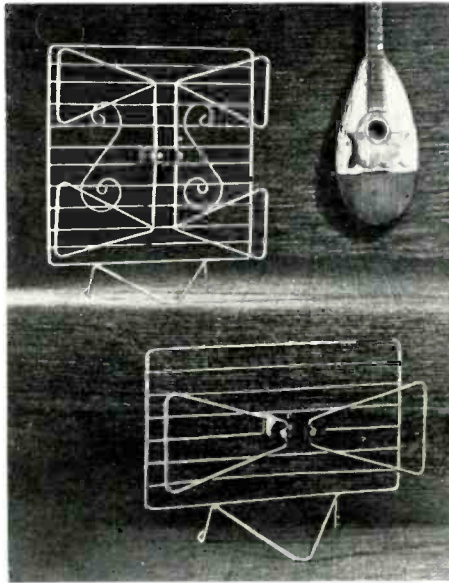


ELTEC LABORATORIES, INC. . . .

announces an extremely accurate and versatile Citizens Band Frequency Standard, Model 600. With accuracy of .0002% and a frequency range of from

25MC and 54 MC, the Model 600 is said to exceed F.C.C. requirements by five times. It enables the service technician to quickly and precisely adjust frequencies of both transmitter and receiver.

Model 600 is claimed to have excellent stability over its entire range and it can easily be checked against W.W.V. in the field. Moreover, it can also be used from 10KC on other applications such as amateur radio for calibrating 100KC oscillators and for spot checking frequencies all the way to 54MC. Price of the Eltec Model 600 is \$349.95. Optional items available are an Audio Amplifier for remote operation at \$29.95, and a built-in Tone Oscillator for 5 KC F.M. Deviation measurements at \$19.95. Manufactured by Eltec Laboratories.



THE INTRODUCTION . . .

of 2 new UHF Indoor Antennas — the "Wonder Bow," and the "Double Wonder Bow," is announced by Channel Master Corp., Ellenville, New York.

The Wonder Bow, Model 4170, is a single-bay bow and screen with a wire form dipole. The Double Wonder Bow, Model 4160, is a stacked bow and screen, also using wire form dipoles.

The addition of these two models to the Channel Master line is evidence of the growing importance of UHF in today's TV picture. Because, in these antennas, Channel Master utilizes the same basically superior bow-and-screen design of UHF outdoor antennas, TV set owners get top gain, correct impedance match, plus ghost and interference rejection. Rear pick-up is eliminated because both antennas are reflector-designed and directional.

In addition, scientifically correct size-and-space relationships are scrupulously engineered into these indoor UHF antennas to insure absolute top performance.

Both antennas are attractively styled, in golden color, and their addition to Channel Master's line now gives consumers a selection of 4 different UHF indoor antennas in different price ranges.

A NEW CLEANER-LUBRICANT . . .

for use in assembling and servicing electronic, TV and radio equipment was announced recently by Rubber and Silicone Products Co., Inc.

The cleaner-lubricant is said to have been manufactured for the Government and it is now available to equipment manufacturers and TV-radio repair shops as Min-Ohm 50 and Min-Ohm 10; the latter being more of an economical cleaner containing less lubricant than the other grade.

According to the manufacturer, the product keeps controls, switches and relays quiet by cleaning and lubricating the contact points. It also eliminates sticky points and improves conductivity. It is said to be ideal for the original equipment manufacturer in assembling equipment to provide proper lubricant for smooth performance. It is also claimed to be excellent for use in servicing electronic, TV, radio and industrial electrical equipment in the field where dirt accumulates on contact points of relays, switches, tuners, potentiometers and where a lubricant is needed to improve performance.

The cleaner-lubricant is available in two and four ounce cans, twelve cans to the case. The material can be applied with a lint free cloth or a fine hair brush.

For further information, write Min-Ohm, Rubber and Silicone Products Co., Inc., Box 215, Caldwell, N.J.

ERIC ELECTRONICS . . .

has introduced a new low noise, high sensitivity FM-AM stereo multiplex tuner featuring low operating voltages for extended tube and component life, according to Norman Skolnik, Eric national sales manager.

The new Eric 3157MX stereo decorator tuner panel is brushed satin scratch- and stain-resistant anodized aluminum with edge lighted slide rule dial, flywheel tuning and a Multiplex Monitor indicator light. A tuning indicator provides precise FM & AM tuning in addition to showing relative signal strength.

The FM frequency response is reported to be 20-20,000 cps ± 1 db and IHFM sensitivity rating of 3.5 uv. AM frequency response is reported to be 20-8,000 cps with sensitivity rating of 3 uv for 20 db signal to noise ratio. Channel separation is 30 db at 1,000 cps.

CURRENT LITERATURE AVAILABLE

FROM ROBINS . . .

Six separate catalogs each covering a distinct product line to make it easy for the serviceman to get information on the products he needs most in servicing are being released, Herman D. Post, President of Robins Industries Corp., Flushing 56, N.Y. announced. A seventh catalog covering displays will also be available.

The six product lines covered are: replacement heads for tape recorders; drive belts and wheels for tape recorders and phonographs; patch cords and connectors; tape accessories; record accessories; industrial products.

While the serviceman might be interested in all of these products, it is most likely that replacement items such as wheels, drives and heads are of greatest interest. By publishing a separate head catalog, Robins was able to include a cross-reference for replacements plus specifications and details on the individual heads. The same is true of the drive belt and wheel catalog. Thus, the serviceman has a more functional catalog to use.

The Robins firm pointed out that these catalogs are available free at Robins distributors or by writing to the company requesting the specific catalog or catalogs desired.

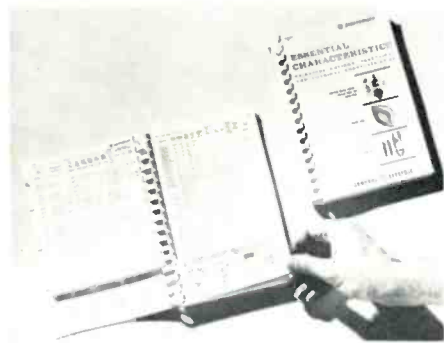
FROM SAMS . . .

TV service technicians will generally attempt repairs on any section of a receiver without hesitation—until the symptoms point to trouble in the station tuning unit. While the circuitry in the tuner is relatively simple in principle, the complex and compact mechanical design all too often makes it a foreboding "little black box."

PRACTICAL TV TUNER REPAIRS, by Robert G. Middleton, is a down-to-earth "shirt-sleeves" book that shows how to identify and correct many tuner troubles with a minimum of effort. (It also advises when it is wiser to replace the tuner or send it out for repair.) The author's inimitable style is a rare combination of practical procedures and circuit theory. In his new book, he outlines complete step-by-step techniques for isolating troubles to specific circuits and components. Numerous illustrations and check charts are included to guide both the experienced technician as well as the neophyte, beginning with preliminary analysis and measurement techniques, and following through with professional advice on practical repair and alignment procedures.

The content progresses logically from how to quickly determine whether or not the tuner is at fault, through how to perform various tests to isolate tuner troubles, and how to track down many of the more classic "tough-dog" troubles, how to evaluate test data, to procedures for making complete tuner replacements, etc.

Seven practical and informative Chapters include: Troubleshooting RF Tuners; Elusive Tuner Troubles; Evaluation of Test Data; Tuner Replacement; Tuner Test and Alignment Setups; Job Reports; Step-by-Step RF Alignment.



FROM GENERAL ELECTRIC . . .

OWENSBORO, KY.—Several innovations to speed the work of engineers, technicians and experimenters feature the tenth edition of the General Electric receiving tube, capacitor, and picture tube handbook, "Essential Characteristics."

All receiving tubes with the same base pin connections now are listed together alongside the respective basing diagrams. This is particularly useful in servicing older model receivers.

In addition, the basing diagrams are on separate "strip" pages at the bottom of the book—which permits the use of larger diagrams and still allows the basing diagram for the tube under consideration to be viewed at the same time as the essential characteristics at the top of the page.

The book includes typical characteristics curves, outline drawings, circuit diagrams showing typical applications, and construction data for loudspeaker enclosures.

Tube classification charts have been expanded to facilitate reference to similar types. Cross-reference lists of prototypes for Five-Star and other special purpose tubes also are included.

Priced at \$1.50, the book is available from authorized distributors of General Electric receiving tubes or from the General Electric Company.

FROM SAMS . . .

Practically everyone concerned with the replacement of vacuum tubes has, at one time or another, been faced with the problem of considering substitute types because an exact replacement is not readily available, or is no longer manufactured.

The famous Howard W. Sams **TUBE SUBSTITUTION HANDBOOK** is the one complete and accurate answer in cases like this. The brand-new 6th Edition of this all-time favorite now lists over 9,100 DIRECT substitutions—over 1,400 more than in the previous edition.

The expanded Receiving Tube Directory now includes over 4,900 substitutions for more than 2,100 types. The Picture Tube Section gives recommendations for over 1,835 substitutes for 534 types. Other Sections give substitution listings for over 370 subminiature tubes, 932 industrial and foreign substitutes for American receiving tubes, and 568 American receiving-tube substitutes for foreign types.

A brand-new Section lists more than 165 substitutes for communications and Special-Purpose tubes.

Instructions accompanying the various Sections provide guidance in making proper substitutions, in addition to suggestions on cross-referencing between sections for additional substitutes.

Invaluable as a reference and working guidebook for anyone whose work involves vacuum tubes, this **NEW 6th EDITION** is more complete and up to date than ever—in fact, it lists more valid DIRECT substitutes than any other cross-reference guide available. The price, however, remains the same—only \$1.50.

FROM G.E. . . .

A pocket-size booklet of 101 "teletips for easier television servicing" is available from the General Electric Company through authorized receiving tube distributors.

The booklet helps television repairmen diagnose troubles via a series of unretouched photographs of bad reception on the screen caused by the most frequent circuit failures.

Publication of the book is in connection with the company's 101 Contest open only to service dealers through franchised G-E tube distributors. First prize each of the three contest months is \$100 in merchandise, with 100 prizes each month of \$10 in merchandise. First place winners are eligible for the grand prize of \$500 cash.

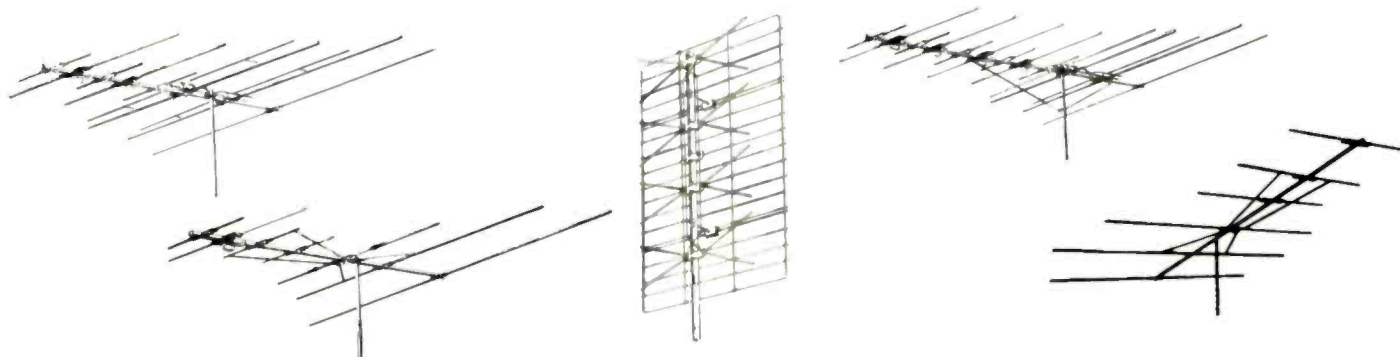


How To Talk

ANTENNAS TO YOUR CUSTOMERS

By ROBERT D. RAYNOR, President
Clear Beam Antenna Corp.

PART V



WHY SO MANY DIFFERENT ANTENNAS?

We have seen how the problems of ghost and snow affect the design of an antenna. In addition, the TV engineer is faced with the complication that these conditions exist on various combinations of channels ranging through the VHF band (channels 2 through 13) and the UHF band (channels 14 through 83). Depending on the combination of channels and the problems existing on each, there is almost an infinite number of possible problems which need specific solutions. Since it is obviously impossible for one antenna to solve all these problems, a wide variety of antennas are necessary and are currently on the market. Each of these attempts to solve specific combinations of common reception problems.

The reason there are so many different shapes and types of antennas is that engineers will frequently use a wide variety of combinations. As an example: putting two dipoles on one boom and arranging directors and elements

around each, or they will combine two different antennas; or couple one above the other, or they will resort to the use of loops, coils, cross-overs, as well as different bends and shapes of elements to accomplish specific tuning and directional functions, or to make one element do several jobs on one channel or do the same job on many channels. As complicated as many big antennas may appear, bear in mind that they are all operating on the same basic principles. If you look closely, you will see the dipole (or dipoles if more than one is used) and you will be able to see which elements are directors and which are reflectors.

By actual count, there are well over two hundred different types of antennas currently on the market with new types seeming to appear every season. The very fact that there are so many available gives rather strong testimony to the fact that there is no one overall best antenna. HOWEVER . . . there is not a single marketing area in the country where a selection of two or three antennas will not cover all the existing problems in the area.

INDUSTRY NOTES

American Video Makes Personnel Changes

Mr. Gil Sherman, Vice President, Marketing for American Video has announced the appointment of Carl Roberts, former District Manager for the firm in the South, as their new District Manager for Northern California.

At the same time, it was announced, Mr. John Burton has been named to head the new Export Division of the firm. According to Sherman, "the for-

ign market has become extremely attractive to our firm and we intend to move in this direction. We have a geographic advantage over our American competition and hope to expand this division immediately."

Along with these plans an extensive dealer meeting program is being set up throughout the State of California in conjunction with the "Operation Success" movie of the American Video plant. The one half hour film will be shown on Television in many of the major marketing areas.

PHILCO PLANNING TWO NEW TECHNIRAMAS

Philco Corporation is planning two new Technirama programs in 1964, covering both appliances and electronics.

R. E. Nugent, manager of Philco's Parts and Service department, said the success of Philco's Technirama '63, which attracted over 20,000 service personnel to a series of 123 scheduled meetings, prompted Philco to plan the new series.

Technirama '63 covered the servicing of Philco's "Perma-Circuit" panels and "Cool Chassis" television receivers, color television and multiplex FM.

Meetings covering white goods will be held early in 1964. Said Mr. Nugent, "A dire need exists in the white goods field for service meetings covering the trouble-shooting and repair of the complex electrical circuits in today's appliances, particularly in automatic laundry equipment."

Philco International Corporation will sponsor a Technirama '63 for Latin American service personnel in Kingston, Jamaica, this summer. These meetings will cover the servicing of Philco's "Perma-Circuits", transistor theory and some basic FM and multiplex circuits.

Sylvania B&W TV Tube Plant In 3-Shift Production

The Electronic Tube Division of Sylvania Electric Products Inc. has announced that its black and white television tube manufacturing facility here is operating on a three-shift, twenty-four hour basis, six days a week. Sylvania is a subsidiary of General Telephone & Electronics Corporation.

Walter A. Weiss, divisional Vice President and General Manager—Picture Tube Operations, attributed the increased production to a sharp upswing in the company's original equipment business. He said that original equipment orders for the first four months of this year are approximately 25 per cent ahead of 1962 orders for the same period. The Ottawa plant employs about 1100 people.

R. D. Hershey Promoted

Richard D. Hershey has been promoted to the newly created position of manager of technical training of Philco Corporation's Parts and Service Department, Consumer Products Division. It was announced today by R. E. Nugent, manager of parts and service.

**PICTURE
TUBE
SAVINGS!**



COLOR

AND

BLACK & WHITE

- TOP QUALITY
- ALL SIZES
- ONE YEAR GUARANTEE

WHOLESALE ONLY—DIRECT FACTORY TO YOU

Distributors of:

Westinghouse Receiving Tubes—Rogers Transformers & Yokes—
Test Equipment—Condensers—Resistors—Antennas—Everything
for the TV Replacement Market.

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RE 1-2177

LYNWOOD
10906 Atlantic
NE 9-6248

EAST LOS ANGELES
5916 Whittier Blvd.
PA 1-2907

CHANNEL RADIO TO HOLD DEALER SHOW

One of the most unique dealer shows to be produced by a Distributor has been set up by Channel Radio in Santa Barbara.

Set up as a miniature trade show, the well known distributor will have booths that will feature technical information on RCA color, Sprague on Capacitors, Sarkes-Tarazan on Rectifiers, Sams on Dealer Pricing Problems and Stancor on Transformers. The idea behind the project is to provide dealers with an opportunity to talk directly with factory representatives in an atmosphere that will allow a free discussion of technical problems that confront dealers everyday.

The show itself is set for July 16th at the Channel Radio Store in Santa Barbara from noon to 9 and refreshments will be served throughout the day.

AB 1359 PASSES LEGISLATURE

AB 1359, a bill to govern liens on TV repairs, also passed the State Legislature before it adjourned. This Bill was introduced early in the session and many felt it was the CSEA sponsored legislation. The Association itself did not endorse this Bill but it also did not oppose it.

With the passing of this Bill, all Service Dealers will be required to give a written estimate of the charges. If, for some reason, the actual charges go above the estimate the dealer must get an o.k. in writing from the customer. If no written consent is received the dealer loses his lien rights for the amount of difference between the original estimate and the final cost. This Bill was amended before its final passage to pertain only to Counties with a population of over two million population.

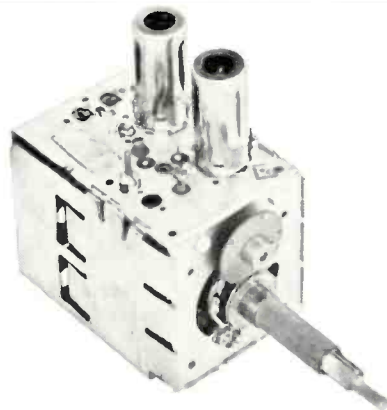
Hurley Oxnard To Hold Factory Information Program Late This Month

Hurley Electronics in Oxnard is setting up the final details for a Factory Information Center for dealers throughout their area.

The idea behind this information center is to provide the dealers with an opportunity to talk directly with Factory

Representatives, their West Coast Representatives or Distributor Salesmen about individual problems. It is expected that over 20 different manufacturers will be represented at this affair and dealers are asked to look for the announcement of the date and time.

Tarzian offers
**FAST, DEPENDABLE
TUNER REPAIR
SERVICE (ALL
MAKES)**



It just makes sense that a manufacturer of tuners should be better-qualified, better-equipped to offer the most dependable tuner repair and overhaul service.

Sarkes Tarzian, Inc. pioneer in the tuner business, maintains two complete, well-equipped Factory Service Centers—assisted by Engineering personnel—and staffed by specialized technicians who handle ONLY tuner repairs on ALL makes and models.

Tarzian-made tuners received one day will be repaired and shipped out the next. Allow a little more time for service on other than Tarzian-made tuners.

Tarzian offers a 12-month guarantee against defective workmanship and parts failure due to normal usage. And, compare our cost of \$9.50 and \$15 for UV combinations. There is absolutely no additional, hidden charge, for ANY parts except tubes. You pay shipping costs. Replacements on tuners beyond practical repair are available at low cost.

Ⓢ Tarzian-made tuners are identified by this stamping. When inquiring about service on other tuners, always give TV make, chassis and Model number. All tuners repaired on approved, open accounts. Check with your local distributor for Sarkes Tarzian replacement tuners, replacement parts, or repair service.



SARKES TARZIAN, INC.

Bloomington, Indiana

MANUFACTURERS OF TUNERS . . . SEMICONDUCTORS . . . AIR TRIMMERS . . . FM RADIOS . . . AM/FM RADIOS . . . AUDIO TAPE . . . BROADCAST EQUIPMENT

ONLY
\$9.50
INCLUDING

ALL PARTS
(except tubes)
and LABOR

**24-HOUR SERVICE
1-YEAR WARRANTY**

**TWO SERVICE CENTERS
TO SERVE YOU BETTER**

See your distributor, or use the address nearest you for fast factory repair service

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Tel: 769-2720

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— Manufactured in the West's Newest Most Modern Tube Factory!

DIRECT FACTORY TO DEALER PICTURE TUBES

Free delivery in Los Angeles area

Shipments anywhere in California

WRITE FOR FREE PRICE LIST

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\$50

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REGISTRATION LAW ONLY ON TRIAL BASIS

SB 1292, passed recently by the State Legislature and awaiting the Governor's signature before becoming law, did have an amendment tagged onto it just prior to passage through the Assembly. With this amendment, the law will go into effect for a two-year trial period. At the end of this time it will be reviewed and, if successful, it will be extended. All Industry leaders feel confident that the law will pass with flying colors and that this amendment will, in no way, have an effect on the strength or effect of the new legislation.



CLASSIFIED ADS

BUY, SELL, TRADE, HIRE HERE

FOR SALE

FOR SALE

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BUSINESS OPPORTUNITIES

TUNER REPAIR AND REPLACEMENT SPECIALISTS

ALL TYPES UHF-VHF-Combo UHF-VHF
ONE DAY SERVICE ON MOST TUNERS

90 Day Warranty

Tuners will have all worn, broken or defective parts including shafts, wafers, sockets, etc. replaced and aligned to factory specifications on crystal controlled equipment.

PRICES

any UHF	\$14.50
any VHF	\$14.50
Combo UHF-VHF	\$15.00
Includes true combos only, not 2 unit jobs.	
Two unit types	\$22.50

Includes separate U & V sections bolted to common bracket with string drive, etc.—Includes all Motorola, GE, RCA types. An additional charge at net will be made for any missing parts, tubes or gross mutilation.

SAVE return Postage and C.O.D. Charge by enclosing remittance with tuner.—Shipped via U.P.S. where possible. Always include all tubes, shields, broken parts, and identify Tuner by set make, model and chassis number. ALSO, state what is wrong with Tuner.

FRESNO TUNER SUPPLY

7497 E. Jensen Ave., Fresno, California
AMherst 6-6796

TV TUNERS • \$9.50

Rebuilt & Aligned with Factory Equipment per Specifications. Including all parts except tubes. Valley TV Tuner Service 5641 Cabuenga Blvd. No. Hollywood, Cal. POplar 9-4730 *Practical Repairs.

PARTS & SUPPLIES

WE'RE UHF Specialist and have something to offer you so that you can convert any set you have in the shop (portables excluded) into an all channel set. We have, at the low cost of \$12.95 an All Channel Converter Kit for installation IN THE SET. The kit comes complete with tuner, knobs, mounting bracket, wire, and complete instructions. It is easy to install and works as well as a one tube external converter. Ideal for used sets and extra dollars for you on repair jobs.

UHF ASSOCIATES
1027 E. Belmont Ave.
Fresno 1, California

WE'RE UHF Specialists and want to help you make money in this new field. For the Los Angeles area, we have available for immediate delivery most Standard Coil Strips for Channels 22 and 34. These strips are Air Checked and fully guaranteed. It is an inexpensive way of giving your customer these fine new stations. The price for each is a low \$4.95. Write for quantity prices.

UHF ASSOCIATES
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USED TV'S FOR SALE

USED—TV'S AS IS

WHOLESALE TO DEALERS

100's OF SETS TO CHOOSE FROM
LOW SHIPPING COSTS ANYWHERE

TV BROKERS

4920 W. PICO, LA. 19, Calif.
WE 1-6622

HOW TO USE WANT AD PAGE

TO PLACE AN AD

BY PHONE: in Los Angeles call AXminster 2-0287. (This is the number of the Classified Dept. only) ask for GRAYCE KENNEDY.
IN PERSON: Come to 4041 Marilton Ave. in the Crenshaw Shopping Center, next to Barker's. (This Address is for the Classified Dept. only.)
BY MAIL: Send your ad to MODERN ELECTRONIC SERVICE Classified Dept., 4041 Marilton Ave., Los Angeles 8, Calif.

RATES

95c PER LINE, one time. **MINIMUM:** 5 lines.
BOX NO.: Add 50¢ service charge, and allow 2 lines for reply address.
RE-RUNS: 2nd and 3rd times, less 10% each, 4th and thereafter less 15% each. Same copy.
HEADLINES, ETC.: Large headlines, box borders and 2-col. ads available at modest charge.
"POSITION WANTED": Less 15%, payable in advance.

T.V., RADIO & COMMUNICATIONS SALES & SERVICE INCORPORATED

Estab. for 20 yrs. Active in color T.V. \$100,000 Gross last year. Inventory, trucks, Equip., etc. \$20,000. Owner will retain acc. rec. and repeater sites. Will turn over business to one or more qualified people.

P.O. Box 1624, Hudson Station
Modesto, Calif.

T.V. SERVICE BUSINESS FOR SALE

FULLY EQUIPPED
WELL ESTABLISHED
BUSINESS IN INGLEWOOD
TRUCK INCLUDED
EXCELLENT BUY

Inglewood TV
512 S. La Brea
OR 8-3859

TV SHOP

Established 17 years.
Fully equipped. Ample floor space.
Could be used for sales also.

Low Rent. Full Price \$3,500.

2703 W. Florence, near Crenshaw.

PL 3-8738

T.V. / RADIO

Excellent Opportunity

BIG BEAR LAKE

WELL ESTABLISHED

Completely equipped & stocked

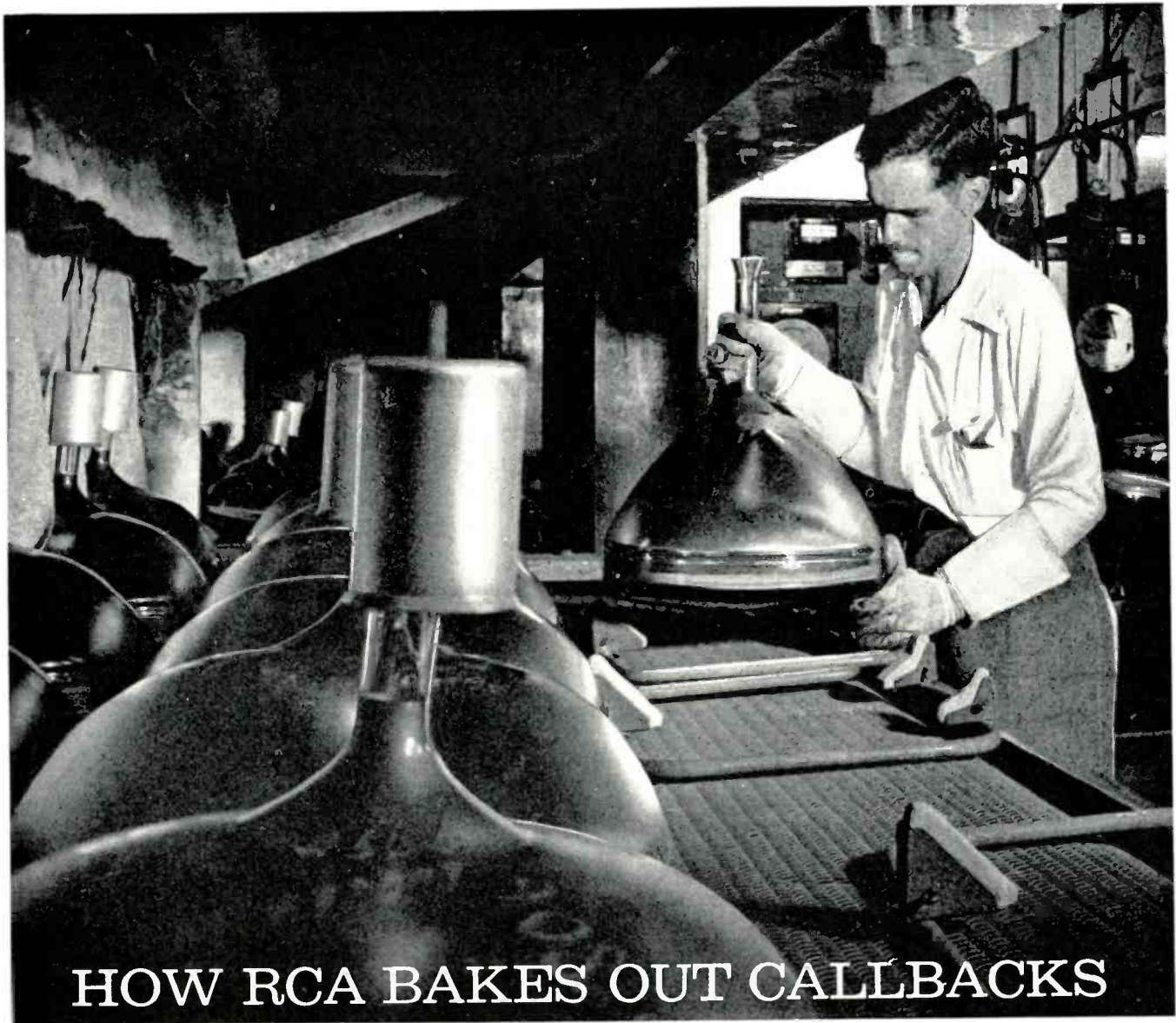
\$5,000 Full Price

Including good current stock
Some terms available.

Write: P. O. Box 125
Big Bear Lake, California

GOOD LOCATION—
LOW RENT

Or Phone 668-1



HOW RCA BAKES OUT CALLBACKS

Oven-drying Silverama® bulbs improves performance, prolongs life

You are looking from-inside-out of a Lehr oven—a high-temperature “picture tube kiln” designed to bake potential troubles out of Silverama picture tube bulbs.

This oven—in our Marion, Indiana picture-tube plant—bakes aluminized picture-tube bulbs for 2½ hours; peak temperature during bake out: 460°C. Objective? Bake out all moisture and decompose all organic material that might short-

en the life of the tube or otherwise affect its performance.

This long bake-out also produces favorable stresses in the glass itself to increase strength and long life. It is but one of many stringent manufacturing steps taken to assure the high quality standards of RCA Silverama. Result: substantial reductions in callbacks and in-warranty picture tube failures when you install RCA Silverama.



Envelope Inspection. After a series of acid baths the re-used envelope is thoroughly inspected to make sure it meets the standards of an original new envelope.



Screen Quality Inspection. After rescreening, each bulb undergoes rigorous inspection for screen quality. A strong reflected light behind the bulb reveals even the smallest flaws in the screen; even the smallest is cause for rejection of the bulb.

RCA ELECTRON TUBE DIVISION, HARRISON, N. J.



The Most Trusted Name in Television

AUTHORIZED RCA DISTRIBUTORS

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**ANDREWS
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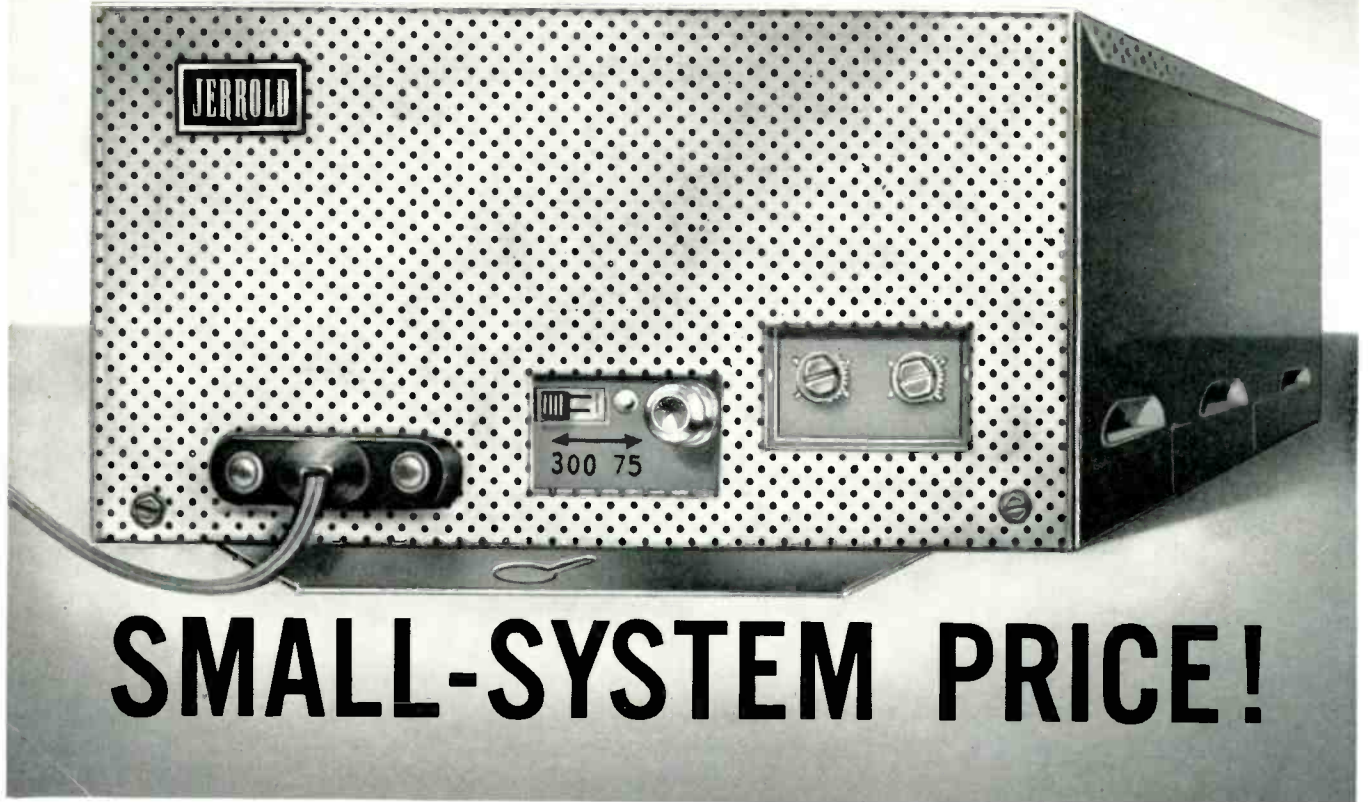
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BIG-SYSTEM MUSCLE...



SMALL-SYSTEM PRICE!

NEW JERROLD *Challenger* TV DISTRIBUTION SYSTEM

ENGINEERED FOR THE NEW COLOR-TV ERA

- Designed for TV shops, dealers' showrooms, small apartments and motels
- Feeds up to 32 TV and FM sets
- No controls or adjustments
- New "Quick-Disconnect" plug-in outlets

Here's the distribution system to sell to TV and FM dealers for their color-TV showrooms... perfect too for the small apartment building or motel that's been needing an antenna system but couldn't afford one before. It's also ideal for your own service shop.

The JERROLD "Challenger" Amplifier, Model ACL-200, delivers 20db minimum gain over the low band, 19db over the high band. Flat response—unique in a low-price amplifier, but necessary for good color TV. Easy to install, no controls to adjust. Famous JERROLD quality is built in to stay.

Model ACL-200 amplifier \$38.97 net

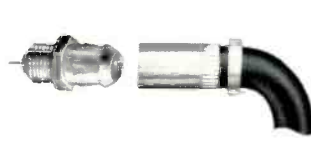
See your JERROLD distributor or write Jerrold Electronics, Distributor Sales Division, Philadelphia 32, Pa.



New 4- and 8-way night-isolation networks.



New crown-washer screw terminals for stripped or unstripped twin lead.



Exclusive "Gamma" chassis fittings for quick disconnect of any set.



A subsidiary of THE JERROLD CORPORATION

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