MODERN
electronic service dealer
THE OFFICIAL PUBLICATION OF THE CALIFORNIA STATE ELECTRONICS ASSOCIATION

VOL. 2, NO. 9 JANUARY, 1963

NEW!!

Technical Section Begins This Month . . .

- **The Battle of The Big Bottle**
  Page 14

- **Line Voltage Can Cost You Dollars**
  Page 17

AS OF OCTOBER 22, 1962—THE

(*it ended the day JFD introduced the Log-Periodic LPV $\frac{L_{(n+1)}}{L_n}=\tau$ TV antenna)

Wave goodbye to all the Rube Goldberg contraptions with their "Chinese puzzle" combinations of collectors, directors, reflectors.

Now you can solve **any** reception problem with **one** compact, precisely-engineered antenna—the first TV antenna based on the geometrically-derived **logarithmic-periodic** scale developed by the Antenna Research Laboratories of the University of Illinois for the U.S. Air Force.

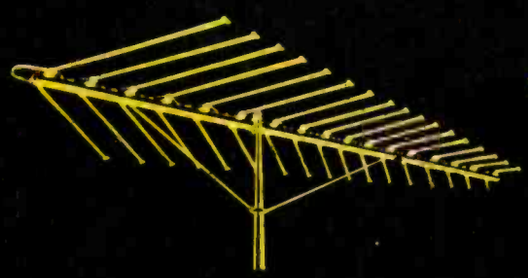
Because it is inherently frequency-independent, the JFD Log-Periodic LPV delivers **the same superb performance on every VHF channel**—performance comparable to that of a single channel Yagi. And delivers it not only in black-and-white, but in Color, and you get FM stereo too!

THE LOG-PERIODIC LPV ACTUALLY **TUNES ITSELF** TO EACH RECEIVED FREQUENCY—RESULTING IN:

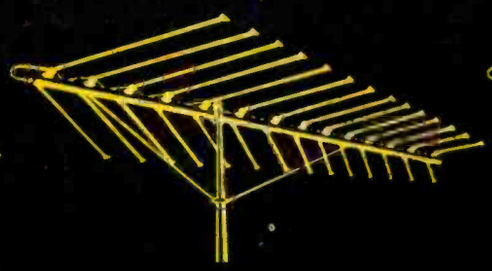
- **HIGHEST** GAIN—as high as 14 db. in the LPV 17!
- **SHARPEST** DIRECTIVITY—on high bands as well as low!
- **HIGHEST** FRONT-TO-BACK RATIO—up to 35 db.
- **LOWEST** VSWR—as low as 1.2 to 1—with constant impedance across the full bandwidth!
- **FLAT** RESPONSE ACROSS BOTH VHF BANDS—with greater gain on the high band, where it's needed most (average increase of gain in high band over low band: 3¼ db.)!
- **BROADEST** BANDWIDTH—thanks to its unique frequency-independent characteristics!

FOR THE FIRST TIME ONE SCIENTIFICALLY FORMULATED ANTENNA CONFIGURATION SATISFIES ANY LOCATION DEMAND:
Harmonically resonant V-elements operate on the Log-Periodic Cellular Principle in the Fundamental and Third Harmonic Modes for unprecedented performance —in color—in black and white—in FM STEREO

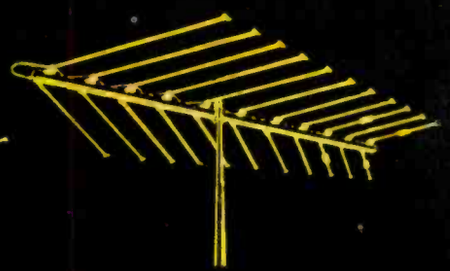
developed by the Famous Antenna Research Laboratories



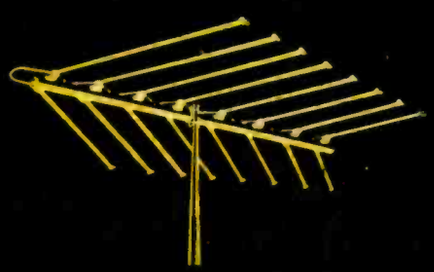
LPV-17: 15 Active Cells and Director System—up to 175 miles



LPV-14: 13 Active Cells and Director System—up to 150 miles

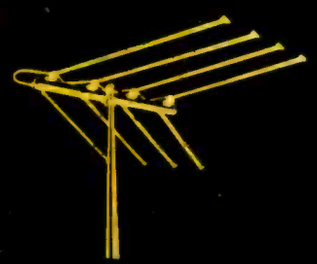


LPV-11: 9 Active Cells and Director System—up to 125 miles



LPV-8: 7 Active Cells and Director System—up to 100 miles

LPV-6: 6 Active Cells—up to 75 miles



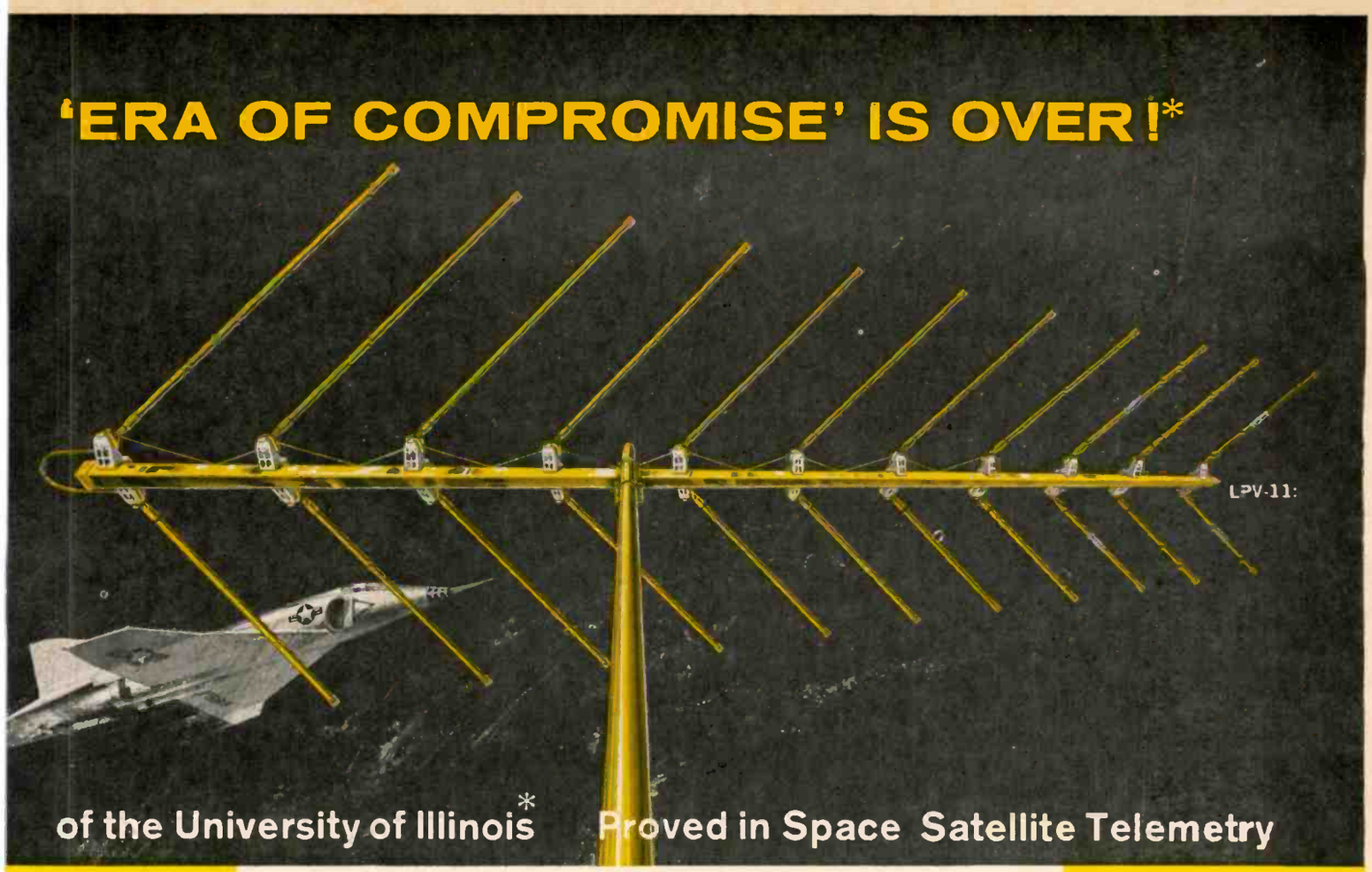
LPV-4: 4 Active Cells—up to 50 miles

Adapted to TV and FM Stereo by JFD

✓ ELIMINATES THE NEED FOR AREA-DESIGNED ANTENNAS
✓ 100% PREASSEMBLED "FLIP-QUIK" ASSEMBLY
✓ MASSIVE TANK TURRET BRACKETS THAT DOUBLE-LOCK ELEMENTS
✓ AAA† GOLD BOND ALODIZED TO KEEP THAT BRAND NEW LOOK
✓ EXTRA-RUGGED, DOUBLE-REINFORCED IN EVERY DETAIL
✓ LIGHTEST IN WEIGHT PER DB GAIN
✓ WIND-TUNNEL TESTED CONSTRUCTION
✓ LEAST SNOW AND ICE LOADING

†Attractive, Anti-corrosive Armor

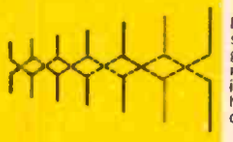
'ERA OF COMPROMISE' IS OVER!*



of the University of Illinois* Proved in Space Satellite Telemetry

HOW THE LOG-PERIODIC LPV MAKES ALL OTHER ANTENNAS OBSOLETE

The JFD LPV antenna is a direct descendant out of the logarithmic conical spiral antenna used on the Transit satellite. This basic design is FREQUENCY INDEPENDENT—it works like a conical waveguide to yield almost constant gain, matched impedance and a unidirectional polar pattern across an extremely wide band of frequencies.



Dipole version of spiral antenna has elements whose length and spacing is determined by formula derived from conical spiral geometry, so that antenna acts like a spiral with parts of coils missing. A logarithmic scaling multiplier ties the dipoles together into active multi-element cells for each frequency. Crossed phasing harness inserts a 180 degree phase shift between dipoles that cancels signals from rear, reinforces signals from front.

JFD's LPV antenna for TV and FM goes one step further—increases gain and front-to-back ratio while maintaining frequency independence. Forward V-ing of elements shrinks rear radiation lobes, narrows forward beam for sharp directivity, helping to eliminate ghosts and adjacent channel interference. Forward V also permits low band dipoles to contribute to high band gain by operating on the third harmonic mode.

For example: Operation of the JFD LPV-11 on the low band: The larger dipole cells resonate to the low band TV frequencies at their fundamental wavelength. Within each cell, one dipole absorbs the greatest amount of signal for any particular channel, adjacent dipoles pull in 60% more and the next two dipoles add 30% more signal. Many active dipoles working on each channel with constant impedance guarantee high gain.

– – – – *indicates current distribution on fundamental mode.*

On the high band: The third harmonic cell forms at the rear of antenna for channel 7 and as the frequency increases toward channel 13, the active region moves toward the apex of the antenna. It is this third harmonic operation which guarantees as much as 3¾ db. additional gain. Continuous and co-linear directors sharpen forward pattern and give peak performance across the entire VHF TV band.

– – – – *indicates the current distribution for the third harmonic mode which will be received on all elements.*

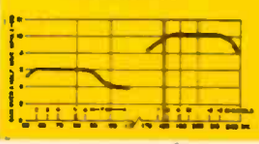
. . . . . *indicates the active region for channel 10, i.e., the different efficiencies with which the elements of the LPV-11 act on channel 10.*

The actual gain curves measured for the LPV-11 in the JFD Antenna Research Laboratories confirm this fact: Within the band for which it is designed (the principle will also be adapted for UHF and other uses), the log-periodic LPV's impedance, polar patterns and front-to-back ratio are virtually constant—with gain for each channel as high as that furnished by a comparable-sized single-channel Yagi.

FUNDAMENTAL MODE

CHANNELS

THIRD HARMONIC MODE



Each antenna in the LPV series consists of an array of resonant V-dipoles and crossed phasing bars, constituting a group of "cells." The size of each cell differs from the one before it by a Logarithmic factor. For any particular frequency, the active portion of the antenna centers on the resonant dipole (equal to one-half wavelength at that frequency), with the adjacent elements also absorbing significant signal energy. The resonances of adjacent cells overlap, so that as the frequency increases or decreases, it is transferred smoothly from one cell to the next.

In effect, the signal is passed along as the frequency increases—the active area moving toward the apex or small end—until, as the fundamental harmonic reaches one end, the other end approaches resonance in the third harmonic. Conventional wide-band antennas are like rows of compartments, one for each channel desired, with sharp cutoffs. The log-periodic antenna is like a continually moving belt that accepts smoothly any frequency that hops aboard.

*U.S. Patents 2,958,081—2,985,879—3,011,168. Additional Patents Pending. Produced exclusively by JFD Electronics under license to University of Illinois Foundation.

SEE THE JFD LOG-PERIODIC LPV AT YOUR JFD DISTRIBUTOR NOW—AND BE THE FIRST ONE IN YOUR AREA TO INTRODUCE AND PROFIT FROM THIS NEW ERA IN TV RECEPTION.

THE BRAND THAT PUTS YOU IN COMMAND OF THE MARKET

JFD

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn 19, N.Y.

JFD Electronics-Southern Inc., Oxford, North Carolina
JFD International, 15 Moore Street, New York, N.Y.
JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada
401-144 W. Hastings Street, Vancouver 3, B.C.

DESIGNED FOR COLOR TV

WINEGARD COLORTRON ANTENNAS

4 gold anodized models from $24.95

*Pat. Nos. U.S. 2,700,105; 2,955,289 • Canada 511,984 • Others Pending.

• • • • • AVAILABLE WITH REVOLUTIONARY NUVISTOR COLORTRON AMPLIFIER...

Now, through continuous Winegard research, a new, improved Electro-Lens yagi has been developed—the NEW WINEGARD COLORTRON—PERFECT ANTENNA FOR COLOR TV!

Colortrons have a flat frequency response (plus or minus ½ DB across any 6 MC channel), no "suck-outs" or "roll-off" on end of bands . . . accurate 300 ohm match (VSWR 1.5 to 1 or better) . . . unilobe directivity for maximum ghost and interference rejection. They deliver today's finest color reception, give a new picture quality to black and white. Colortrons are the only outside antennas that carry a WRITTEN FACTORY GUARANTEE OF PERFORMANCE.

And Colortrons are built to last. High tensile aluminum tubing for rigidity and stability, insulators with triple moisture barrier, GOLD ANODIZED for complete corrosion-proofing.

There are 4 Colortron models to cover every reception need, from suburbs to distant fringe areas . . . $24.95 to $64.95 list.

New Winegard Colortron twin-nuvistor amplifier perfectly matches Colortron antennas. Gives added gain and sensitivity on both color and black and white. Ultra-low noise, high gain Colortron Nuvistor Amplifier can easily drive 6 or more TV sets.

With revolutionary twin-nuvistor circuit, Colortron amplifiers can handle up to 400,000 micro-volts of signal without overloading. *This is 20 times better than any single transistor amplifier.* The Colortron Amplifier will bring the weakest signals up out of the snow, yet strong local TV & FM signals will not overload it. A special life saver circuit gives the two nuvistors a life of 5 to 8 years.

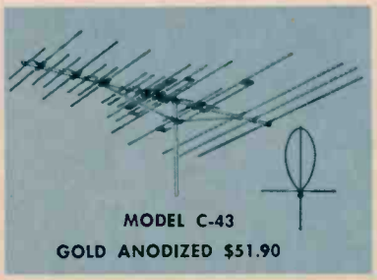
This amplifier is completely trouble free and the finest performing antenna amplifier you can own.

Completely weather sealed, nothing is exposed to corrode and cause trouble . . . has all AC power supply with 2 set coupler. (Model No. AP-220N, $39.95 list). Twin transistor model also available up to 80,000 micro-volts input. *New type circuit protects transistor from static electricity built up in lightning flashes.* (Model No. AP-220T, $39.95 list).

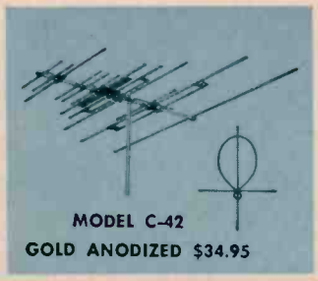
Colortron Amplifier can be added to any good TV antenna for sharper, clearer TV reception.

Ask your distributor or write for technical bulletin.

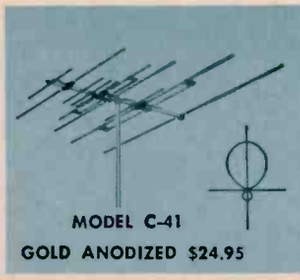
MODEL C-44
GOLD ANODIZED $64.95



MODEL C-43
GOLD ANODIZED $51.90



MODEL C-42
GOLD ANODIZED $34.95



MODEL C-41
GOLD ANODIZED $24.95

Winegard ANTENNA SYSTEMS

There's an extra bonus of quality and performance in every Winegard product.

MED

MODERN ELECTRONIC SERVICE DEALER

VOL. 2, NO. 9
JANUARY, 1963

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FEATURE ARTICLES

TECHNICAL SECTION

DEALER NEWS

INDUSTRY NOTES

DEPARTMENTS

LETTERS TO THE EDITOR:

Dear Members:

It was a real pleasure to have so many new members from the Fresno area recently. It shows that there is a great interest and need for such an association.

Your new membership kits well be delayed as new membership certificates are being printed. We hope to have them ready for you in the very near future. The kit contains considerable information and your membership card.

A representative from Woodmen Accident and Life Company will soon be contacting you with regard to the CSEA Group Health and Welfare Plan.

The possibilities of what your Fresno group could accomplish are tremendous. With an Association the size that you have you will be able to make your desires known and be counted. Let us list a few of the things that you, as a representative of our industry, should be interested and active in. Someone should be active in the Chamber of Commerce. Someone should attend all city and county supervisors' meetings. By all means, have someone on, or meet with, the City Planning and City Zoning committees in the local government. Zoning and business licenses can be made to work for you rather than against you if you will work with the powers that be. Many cities have taken advantage of business licenses and business zoning to eliminate "night crawlers" and people working out of their garage. You should also be active in the Better Business Bureau, which some of you are. Particularly take an interest in civic activities such as: helping senior citizens, participating in parades by having a float, by sponsoring bowling teams, little league baseball teams, etc. You should also participate in group and institutional advertising.

You can do more to upgrade the industry and elevate the position of the TV service man by participating in civic activities then any other way. Always be agreeable and willing to sit down and work out problems. It *is* true that you may not get what you want the first time, but you will accomplish more than by openly fighting opposition.

The difficulty of getting members to come to business meetings is a common problem. Throughout the state, the best attendance is at social functions or disributor meetings that are coordinated with Local CSEA Associations.

You have a real fine group of officers and a real fine Board of Directors. Have faith in them and back up their decisions.

CSEA is growing very rapidly. Many things are taking place. If at any time you are in doubt on anything, please don't hesitate to contact this office directly.

Congratulations on your becoming a member of a determined industry organization!

Sincerely,
California State Electronics Association
Keith Kirstein
Executive Director

Editor's Note: **This open letter sent to the new Fresno Chapter members of CSEA from our Executive Secretary contained so much good material we felt it should be printed in MESD as an example of CSEA goals as it affects each individual chapter. Thanks Keith for sending us a copy.**

Dear Sir:

Since the formation of the Antelope Valley Chapter of the CSEA, we have wondered what ideas we might contribute to our Association magazine and to the members as a group.

Through the experience of other groups and the sharing of their ideas for programs we have improved our meetings and attendance. Now the time has come for our chapter to suggest what we consider a timely and important addition to the fine programs charted by our state organization.

On Friday, November 9, 1962 or the following Saturday a.m., burglars robbed Gillin Radio and TV of five new portable Zenith televisions and a portable stereo. Chuck is our zone delegate and an independent dealer. This is the fourth such robbery in our chapter territory in as many months.

What has this to do with CSEA? Simple, if our magazine would run an article on this robbery, and if all dealers who are hit would turn the serial numbers in to be printed every month, and if the shops would add to the "Preferred Customer List," a preferred set file tearing out the list from MESD every month, we could do much to aid in the apprehension of this gang and their fence outlet. Sooner or later one of these sets will turn up for sale or repair at a member dealer shop. In this event if the serial number is on file, a call to the local law enforcement may enable tracing to the source.

The members of the L.A. County sheriffs dept. are in favor of this and cite as an example that sets stolen in the area would be marketed elsewhere in the state and vice-versa. They have no doubt that this is an organized gang of professionals with outlet stores or peddlers.

I know that this is happening all over our state and will become worse unless we give the co-operation to our law enforcement that we have and are giving to the Better Business Bureau and civic improvement organizations. Shall we pitch in and help contain this situation, or shall we pay increased insurance premiums or as in the case of Chuck, take the loss on the chin?

Yours truly,
Phil Wood, Pres. AV CSEA

Editor's Note: **As publisher of MESD we are most anxious to receive comments from our readers in regards to making the publication of greater value. A few months ago we ran a small article on this same subject along with serial numbers but received no further information until your letter arrived. Beginning with the information you enclosed in your letter we will start a "clip-out" list of stolen merchandise along with a blank that can be used for this type of reporting. Let's see if we can make it work.**

A Leee De Forrest Fund?

Dear Sir::

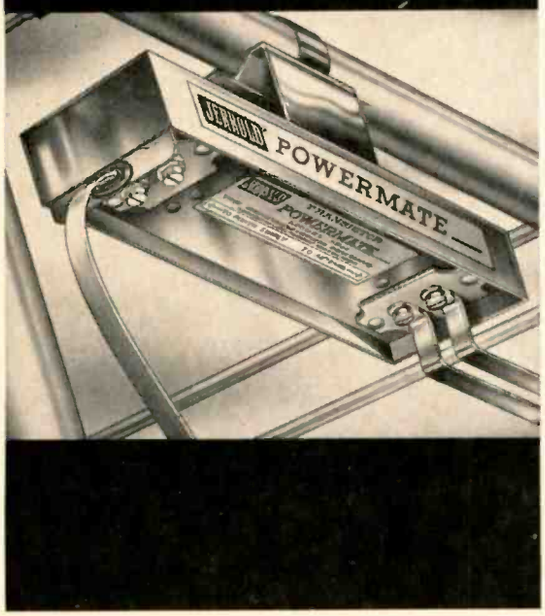
As many of us know the widow of Dr. Lee De Forest was left with only $1200. It would seem to me that some sort of a fund should be started to help his widow. A suitable memorial could also be erected in tribute and thanks for all of the jobs he has provided in our industry. If the Service Industry, Dealers in particular, would undertake such a program it would be a tribute to the Industry as well as to the Father of Communications.

An Interested Reader

Editor's Note: **This sounds to me like a wonderful idea. I would like to hear some other comments from our readers in this regard and possibly MESD could act as the means of promoting and administrating the project. Of course, this would be done without any costs involved. I do think that every Industry Association in the West could take a part in it and generate interest on a national basis. Such organizations as CSEA, AED, ERA, etc. could take the lead and, I am sure, the others would follow shortly. Let's hear from some of our readers on this project.**

POWERMATE

—rated No. 1



...the unquestioned leader in antenna-mounting preamplifiers

"Improved" models of other TV/FM antenna amplifiers may come and go, but Jerrold POWERMATE remains the one to beat.

Only POWERMATE delivers consistent high gain on both high and low bands—no "hills and valleys" to cause smearing and ghosting. And only POWERMATE offers the over-all reliability that cuts call-backs to the bone. Servicemen and viewers, even in deepest fringe areas, agree that POWERMATE outperforms them all . . . more customer satisfaction, more profit for you.

Are you getting your share of this POWERMATE-hungry market? See your Jerrold distributor today, or write Jerrold Electronics, Distributor Sales Division, Philadelphia 32, Pa.

JERROLD

A subsidiary of THE JERROLD CORPORATION

MODERN electronic service dealer

EDITORIALLY SPEAKING

DON MARTIN

TECHNICIAN SECTION

This month we are starting a new series of articles that are directed at the technical side of the Service Dealer Business. These articles will discuss actual shop problems and their solutions, fundamentals of servicing for new shop man, etc. As you know, MESD has been basically a "Business" type editorial format but we have had so many requests for technical articles that we felt a well rounded publication should carry this type of material in order to reach the maximum amount of readership. We sincerely hope that you will approve of this decision and would appreciate your comments.

DEALER BUYING HABITS

During the past two years I have heard so many comments on the loyalty of Dealers to certain distributors that I felt compelled to view the situation as a third party. Many Distributors feel that just because they have a "closed door" policy that the Service Dealers should knock down their doors ot get in. Other Distributors have made the comment that, "they buy from us to the extent of their credit and when it has reached the limit they try some other distributor or buy for cash from the guy down the street who is really in competition with them." I am not saying that in some cases these statements are not true because they are. In almost any industry, that deals with small businesmen, the Manufacturers and Distributors face the same problem. Maybe it isn't quite as convenient in other industries, but there always seems to be a way.

Now, on the other hand, what I have found is that the Service Dealer is basically a real nice guy who is trying to do a job. He is also trying to be nice to every salesman that walks in the door. It is dfficult for him to say no and instead he ends up buying a little stuff from several "closed door" distributors rather than from one. What does this mean . . . three or four Distributors are after a maximum amount of disposable income. A dealer who is buying $400 worth of materials a month is spending it at a rate of $100 per Distributor. A $400 per month account is not bad for one Distributor but a $100 account only means that he is not loyal.

There is no answer to this problem and this explanation will certainly not eliminate some of the griping about the Service Dealer but maybe it is a little food for thought.

TEST EQUIPMENT SALES

At the present time we head a lot about the lack of Test Equipment Sales. One comment that was made to me made good sense and I thought I might pass it on. This comment was that the trouble with Test Equipment Sales is that the Service Daeler has not been taught how to use the Equipment he now has on his bench let alone new Equipment. That many Service Dealers have on their bench the old "white elephant." They were told what this new equipment could do for them . . . they were sold on the idea that they needed it . . . after they got it, it took so much time to figure out how to use it that it has set there as a daily reminder to not get caught again. The Manufacturer that offers either a combined course in the use of this new equipment or a field representative that will follow every sale with a few hours of instruction will sell new equipment. This is called MERCHANDISING.

IT'S ONLY MONEY

Each month we receive a check in the mail from Figarts in Los Angeles as their part in the Jerrold Advertising campaign that has been running in MESD. This, in itself, is probably not too startling but this check does hit my "chuckle" bone and thought I might pass it on. Instead of the normal check-writer imprint of the firm's name the line reads . . . "It's Only Money". Sometimes we all get a ittle way out in trying to earn a few dollars but the greatest thing about the American people and our form of government is our sense of humor. Very few people of other nations can understand how we can laugh at ourselves. The greatest comics in the United States are the ones that use this strictly American trait to its best advantage. So . . . just in passing . . . a tip of the old hat to Figarts for this very little but appropriate bit of humor.

In tipping our hat to one distributor we would also like to start the New Year by thanking all of the distributors who have helped to make our publication as successful as it is today. Without their participation we certainly wouldn't be starting our third year. Beginning this month we will carry a list of these distributors who are using MESD as an advertising medium and we hope that the dealers will use this list as a buyer's guide.

One other thing, we have asked certain dealers throughout the state to contact leading distributors in an effort to gain more nominal participation in MESD. Certain Manufacturers have agreed to go into the publication and pay one-half the cost but the remaining one-half must be divided by their distributors at a nominal cost of $15 per listing. I sincerely hope that every distributor possible will try to participate, at least, in one program.

BROOKLYN SERVICE GROUP SETTLES TRUST SUIT

Several months ago a group of Brooklyn Service Dealers were charged with violation of the New York State Anti-Trust laws in connection with price fixing. Last month this action was settled in the State's Supreme Court with the Service Association agreeing to a permanent injunction, enjoining them from any further such activities. The officers of the Association were each fined $1,000 with the group consenting to the injunction but still denying the price fixing charges. The original charges included a statement that the cost of TV service in Brooklyn had increased some 25%.

We are reporting this only as a point of interest and a case in point for State Licensing of the Service Industry. We are living in a Democratic Country based on free enterprise and the rights of an individual to own his own business. In owning this business you must maintain certain standards of operation . . . first under the law and second under a code of ethics. The Service Industry is plagued with unfair practices that compete and sometimes destroy the legitimate dealer. The only one that suffers is the consumer. Great gains have been made in the last year that will aid our industry including the new Yellow Page Advertising Laws. Other important announcements are ready to be made momentarily and possibly in another article in this issue. Progress has been made and we look forward to a great new 1963. Our best wishes to everyone in the Industry for a happy and prosperous new year.

MESD

CSEA business wire

dates zone reports chapter news

$1 MILLION SUIT FILED AGAINST CSEA IN SACRAMENTO

It seems no individual or group can undertake a project of any consequence without someone taking exception to it and apparently CSEA's activities have attracted their share of attention as evidenced by the suit filed against it.

On November 23, 1962, a process server approached Darrell Petzwal, Board Member from Sacramento, and after finding he was not President, Vice President or manager of the State Association, he served him as an individual. Since then, the State's Executive Secretary has been served, making the State Association, as a group officially a defendant in the suit filed by Ingraham & Deming, Sacramento attornies for the plaintiff.

Since then, your President, Executive Secretarly and Petzwal have retained the firm of Fitzwilliam, Memering, Stumbos & De Meers of Sacramento, to represent the Association and its officers, including any who may be served one of the remaining John Doe warrants. This Sacramento firm will consult with our longtime Association attorneys, Anthony Anastasi, of San Jose, in preparing our case.

Needless to say, we have had to put up a sizeable retainer for our attornies and this could cost us considerably more before it is finished. No matter what it costs we cannot afford not to carry on to a successful finish. All we have done to date is at stake now.

It has been alleged in this suit that we have slandered and damaged a specific organization by statements allegedly made by us, and that we caused them to lose advertising in newspapers and other media, and have disrupted their arrangements for bank financing of its sales and services.

They state that we have caused them to lose profits of $50,000 and they ask for general damages of $10.000.

Leonard E. Ostrow also claims general damages of $50,000. Both plaintiffs also have asked punitive damages of $50,000 each, plus costs of suit.

We feel that this suit is without merit and we must and will not be frightened into evading our duties as American citizens to continue to work with all proper authorities in the public interest.

CALIF. STATE ADMINISTRATION TO SPONSOR NEW LICENSING BILL

The efforts of the CSEA to promote a Licensing Program to upgrade the TV Service industry has just received the whole-hearted backing of the Administration at the State Capitol in Sacramento. CSEA was notified that the Governor's administration, including the Attorney General's office and Consumer Counsel office, was sponsoring a bill to be presented to this Legislative Session ted this Session has been written and is in the hands of the Legislative Counsel for their approval. As soon as this is completed an author will be picked by the administration and the bill printed. We were told this would be within the next two weeks.

CSEA President, Clair Lanam, stated that as soon as the bill is in a form that can be distributed that all Delegates and Directors will receive a copy. Mr. Lanam also said that each Local Association should plan on having a meeting the first week or so in February, calling in the member of the Board from their Zone to discuss the pros and cons of this new bill. It is hoped that each member will be able to express their opinion regarding the merits of the bill.

In the next issue of the magazine will be published a detailed story on how your CSEA was able to get this support from the state administration. We are sorry for the delay in your receiving this January Issue but felt that this news was of greatest interest and importance to the Service Dealer Industry in California.

which parallels AB265, the bill that CSEA supported in 1961. The additions to the proposed bill are improvements and are to the advantage of the shop owner. This bill which is being submit-

ZONE "F" HOLDS FUND RAISING CHRISTMAS PARTY

The Zone "F" Council members of the California State Electronics Association all agree that the first annual fund raising Christmas Party was highly successful with over 150 people in attendance.

The party was held on Saturday evening December 8th at the Alhambra Elks club with special guest Al Roach of the Fresno Chapter acting as master of ceremonies. Al was so well received last fall, at one of the Board meetings, that he was asked to make the trip to Southern California and participate in the evenings entertainment.

The "original" Louie and Keeley from Las Vegas act that has become an institution in the Pasadena area was once again presented for the benefit of the many guests, from throughout the zone, who had never seen it. Bob Dumas and his brother from Grossman & Reynolds Distributors out did themselves once again. Adding a note of thankfulness was Mrs. Ralph Johonnot who read the poem, "One Solitary Life" from the December cover of Modern Electronic Service Dealer Magazine.

Gifts were in abundance as distributors and friends from all over Southern California contributed their best wishes. Those receiving special thanks from the Association were: Andrews Electronics, Grossman & Reynolds, Philco—Los Angeles, Western Electronics, Hurley Electronics, Pomona Valley Electronics, Capitol Electronics and Sylvania Electric.

All in all, a wonderful time was had by all and over $400 was raised for the Zone "F" treasury to further their work in the interests of CSEA members and service dealers throughout the state.

RIVERSIDE CSEA CHAPTER ELECTS NEW OFFICERS

The Riverside Chapter of the California State Electronics Association recently held their annual election of new officers for 1963.

Mr. Milt Weaver has been elected as the new President of the chapter with Wade Nelson being named Vice President; John Larson as Secretary-Treasurer, Jim Williamson as Delegate Representative to the CSEA Board of Delegates and Aubrey Schoof as Alternate Delegate.

The chapter meets the first Thursday of each month with the location and program being announced by mail.

Stolen Merchandise Report List

This is a new service of MESD that will aid in the location of stolen merchandise. Please report, as soon as possible, the loss of any merchandise. This information will be reported each month in MESD so that it can be clipped out and used as a handy reference.

Stolen from:
Name: Gillin Radio
Address: Palm Dale
Date: Nov. 9, 1962

Merchandise:

Make	Model	Serial No.
Zenith	19" K 2211J	5960942
Zenith	23" K2717W	7007589
Zenith Portable	K2109J	5999532
Zenith Portable	K2020J	5881509
Zenith Portable	K2005F	5956321
Zenith	Stereo KP580C	0268

STOLEN MERCHANDISE REPORT FORM

Store_____

Address_____

City_____ Date_____

Merchandise

Make	Model	Serial No.

Clip and mail to Associated Publications, 2930 W. Imperial Hwy., Inglewood, California.

MODERN electronic service dealer

PRESIDENT'S MESSAGE

CLAIRE W. LANAM

A CHALLENGE

To all of us, who put forth much time and effort to better our industry and to protect the consuming public, there will come a time when we will be seriously challenged.

This time has come.

NOW is the time when we must rally to protect the consuming public and in so doing we will protect ourselves. We are not alone in this endeavor. Let us always remember that we should always try to do what is right for other people and in the end we will always come out

BUT in spite of the fact that our license bill was not passed, we have a better plan being formulated now and this will be consumated soon.

AND in spite of legal action taken against our association by a TV Service firm we are in the position now, to really come out as a top notch association.

This is our big break, let us make the best of it, but we must be prepared to aid and abet those who are willing to help us, there is more to this than meets the eye.

We need a war chest and we need it now. There will be heavy expenses, but this is it, this is the time to pledge. We contributed much and heavily to licensing alone. This is our existence, this is industry control, this is opportunity.

The pledges and checks will be to a War Chest Committee at the State Office, 3000 Watt Ave., Sacramento. Complete information being sent to your chapter.

Lets go, the fight is on, there will be no Pearl Harbor, we will not have too little and too late, we simply cannot miss this opportunity, especially since we have strong allied support. We must win this suit.

I hereby pledge $100 to the War Chest.

Your President
C. W. Lanam

Know Your Board . . . No. 6

EMMETT MEFFORD

Mr. Emmett Mefford, owner of Mefford's Television and Radio Service in Fontana, California is our Board Member of the month. He was a charter member of ATR San Bernardino in 1948. President of the Riverside Chapter for two years and a Delegate representative for two years. He is now serving his second year as a State Director of CSEA from Zone F.

Emmett was born in La Platta, New Mexico in 1910 and had eleven brothers and sisters. He began his electronic education while in High School with crystal sets and has constantly kept up with new changes and developments in the electronic industry.

He was married to Kathryn Klahn in 1934 and has three children, all married, and four grandchildren.

Emmett opened his first shop in Tulare, California in 1937. During World War II he worked for the U.S. Air Force as Radio and Radar Instructor at Norton Air Field in San Bernardino. After the war, he went back into the electronic servicing business and has been the owner and operator of his own Television and Radio Sales and Service shop since 1949.

As an active member of his community he is a member of the Elks Club #2013 of Fontana and a member and Honorary Director of the Better Business Bureau of San Bernardino.

CHAPTER OFFICES
SAN DIEGO #13
3318 Idlewild Way
274-2320
San Diego 17
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. 4 JANUARY, 1963 Editor: ED FORT, JR.

HARBOR ELECTRONICS FORMED BY FORMER NYSTROM EMPLOYEE

Harbor Electronics in San Diego has been formed by Gene Congro. Nystrom Brothers employee for the past eight years, and Mr. Henry Handu a former San Diego Service Dealer.

Following the closing of Nystrom Brothers and the opening of Kiesub of San Diego at the same location on December 1st, Clancy Nystrom told this reporter that he will go into a semi-retired and consultant program. Clancy is well known to the Southern California Electronic and Appliance Industry having started in the business in 1929.

OUR BEST
WISHES
TO EVERYONE
FOR A
HAPPY NEW YEAR

The 23rd Psalm (Revised)

The STATE is my shepherd. I need not work,
It alloweth me to lie down on good jobs;
It leadeth me beside still factories,
It destroyeth mine initiative;
It taketh me in the paths of a parasite for politics' sake.
Yea, though I walk through the valley of laziness and deficit spending,
I will fear no evil, for the Government is with me.
It preparath an economic Utopia for me out of the earning of my grandchildren.
It filleth my head with security;
My inefficiency runneth over.
Surely, the State shall care for me all the days of my life.
And I shall dwell in a fool's paradise forever.

Board to Determine 1963 Service Courses Through Member's Requests

The courses in color and multiplexing that were held last year were so well attended that the Board of Directors felt more of this type of thing should be done this year. The problem then arises as to what courses to present and what priority to give each. It was decided to leave the decision to the membership. The following list was compiled. Please mark your preference in numerical order and do one of two things—call the office and let Trudy know your preference or clip out this list and mail it to the office. I can't over emphasize the importance of your letting the board know your desires. This is the only way they can present the things you want.

..... Transistors (Theory and Operation)

..... Color Course

..... 2nd Class License

..... Series of Business Courses (Taxes, Management, Etc.)

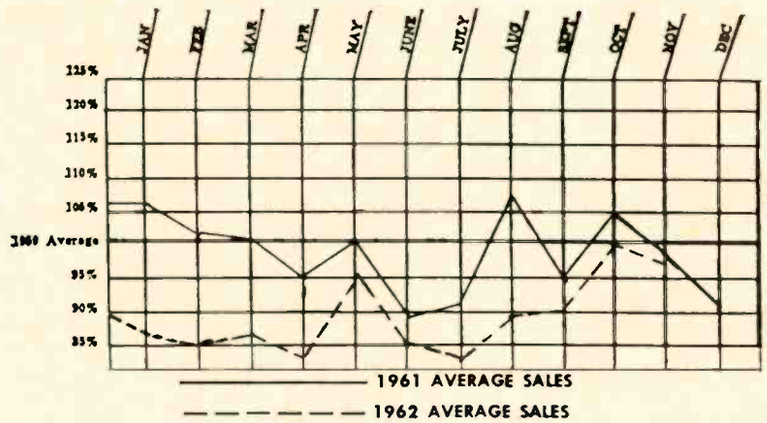
North County Party

After the exhibition of polka dancing put on by this correspondent the other evening at the Little Bavaria in Del Mar, I feel impelled to explain that the only reason I didn't do so well is because I had a very bad cold. Don't believe that malicious rumor that I don't know how. They're all lies, lies, lies.

But all kidding aside, everyone had a good time; the food was excellent, the music was fine, the people were happy, and the wine wasn't bad either. I hope Chapter 18 has another of these parties in the near future and invites me again.

STOLEN MERCHANDISE

A Zenith color TV was stolen from Scotty's television store in North Park the 18th of Dec. The model No. is 5025R and the serial No. is 5988186. If any shop runs across this set please contact Scotty's.



Service Sales Index of Reporting Shops in the San Diego Area. The Chart Compares 1961 and 1962 with the 1959 average to give some indication as to the business pulse in the area.

Professor Paul Mayes, Antenna Research Laboratory, University of Illinois (left) is shown here with JFD Executive Vice President Edward Finkel as they inspected some of the facilities at JFD's Antenna Research and Development Center.

The Log Periodic LPV—

Shortly after World War II, in 1947, the Antenna Research Laboratory at the University of Illinois was established to lay the ground work for more effiicent and longer range radar and communications antennas. From this nebulous beginning 15 years ago arose what some believed to be, the most radically new television antenna development in the history of the industry. The disadvantages of compromise were overcome through the research and development carried on at the University and after 15 years the log-periodic "LPV" antennas reflect the first genuinely new concept injected into the field.

Early recognition of the high caliber and originality of these University scientists came from the U.S. Air Force, which awarded several R&D contracts to them. No effort was spared to assemble the most advanced test and measuring instruments for this work.

Dr. V. H. Rumsey, who headed the Antenna Research Laboratory from 1956 to 1957, directed a large portion of its efforts towards a promising new frontier in antennas—the quest for frequency independence. Scattered research around the world indicated that some radically new configurations which were ironically based on some of the oldest and simplest shapes known to man—the cone and screw—might be the key to antennas which could overcome the heretofore incompatibility of high gain and narrow pattern with wide bandwidth.

From various experiments by Professor V. H. Rumsey Professor J. D. Dyson directed an extensive laboratory investigation of these log-spiral antennas and out of this research came the sharply directional, yet broadband, conical spiral antenna now being used for satellite tracking and radio astronomy. The satellite "Transit" used a modified logarithmic spiral to communicate with tracking stations: signals that ranged in frequency from 50 to 400 MC. Other satellites and communications systems encompassed frequency spreads that were even wider. Without sideband, sharp pattern antennas. the entire program would have been severely hampered.

In 1957 Professor DuHamel built the first planar log periodic antenna. This was followed in 1959 by Isbell's uniplanar log periodic dipole array in one plane, the grandfather of the LPV. Essentially, the LPV antenna incorporates two separate design concepts: (1) the log-periodic factor, which determines the size and spacing of the elements and, (2) the forward V shape of the elements, which permits multi-mode operation. The commercial adaptation of the LPV developed by the JFD Electronics Corporation, Brooklyn, New York, included six various models covering areas from 50 to 175 miles.

Good TV reception requires that an antenna furnish higher gain on the high VFW band than on the low band. Propagation tests made by TV broadcast engineers indicate, and actual home TV reception has proven, that high TV band signals suffer greater signal loss with distance than do low band signals. Therefore, to receive high band stations satisfactorily, more gain is required of the antenna. This the log periodic LPV antenna supplies as an inherent fact of its operation.

The antenna is frequency independent, but even more important relative to color TV reception, is the fact that it guarantees that all components of a composite transmitted color TV signal will be received intact. For full color fidelity, it is essential that the relative amplitudes of the various color signals be duplicated in the received as they were originated at the transmitter. Obviously this can only hold true if the antenna has a flat gain and phase response for the entire channel.

Of particular importance relative to gain, is the characteristic impedance of the antenna, and the closely allied factor, voltage standing wave ratio (VSWR). If the impedance of the antenna varies appreciably from that of the transmission line at any point in the band pass of the antenna, a mismatch will exist between the antenna and the downlead. Such a mismatch will decrease signal power to the set and introduce standing waves along the line leading

by Edward Finkel

JFD Vice President Engineering

—Breakthrough in TV-FM Antenna Design

to further signal reduction and ghosts. The LP antenna is unique in that it maintans essentially constant impedance across the full bandwidth of the antenna. This could be attributed to the impedance balance maintained by the active region of the antenna, with relation to the complete antenna. For the active region, the impedance of the antenna is low, making for high transfer efficiency from the elements to the feedline. At the inactive regions, (inactive, that is, for that particular frequency) the impedance is high. The total impedance presented to the transmission ine, is always relatively the same.

Voltage standing wave ratios for the LPV have been measured as low as 1.2 to 1. Such low VSWRs are typical of log-periodic antennas and derive from correct scaling of cells and the constant impedance characteristics.

We see, therefore, that the LPV configuration does indeed maintain a nearly constant gain, impedance, and VSWR over its complete bandwidth. Rather than serving as a limited group of pigeonholes that accept discrete frequencies (or channels) with sharp cutoffs, the LPV antenna is like a continually moving belt, accepting smoothly any frequency that hops onto it. The fact that these reception characteristics can occur on an antenna as small as the LPV—the fact that a bandwidth spread of ten to one can occur at all, is due to the logarithmic relation of the elements.

As important as high gain and constant impedance are in fringe area reception, the antenna would be worthless without good directional sensitivity. Even in the heart of cities, good directional response is necessary to reject the ghost-causing interference signals that bounce from building to building. In fringe areas, interfering signals from adjacent channels and other sources, picked up by the antenna from the rear and sides, cause venetian blind effects, herring-bones, fading, ghosts and other picture distortions.

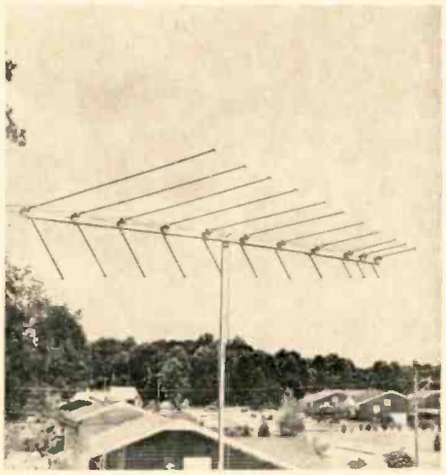
Yagi antennas obtain good directivity and high front-to-back ratios by the use of parasitic elements-directors and reflectors for a sharp forward pattern. The LPV antenna obtains a sharp forward response pattern from its periodic structure and the V-ing of the elements.

This advanced series of TV antennas incorporates not only the latest electrical concepts, but also the most rugged mechanical features. The one inch square boom is constructed of extra heavy gauge aluminum for extreme strength and element stability under high winds and heavy ice and snow loading. Poly-plug ends keep out water and prevent wind whistle.

Because it is desirable to maintain the low impedance transfer of signal from the resonant elements to the feeder line, the transposed high-Q phasing bars are made of $\frac{1}{8}$ inch solid aluminum rod, cold welded into permanent position. The high tensile strength aircraft-aluminum elements are maintained in the V position by circular spring lever brackets with double locks. Element alignment is kept true by the use of heavy wall exsert reinforcements at vital bracket connections. And finally, the entire antenna is gold alodized for protection against atmospheric corrosion.

In summary, it is fitting to quote Dr. John Dyson, one of the pioneering scientists of the University of Illinois Antenna Research Laboratory, who did much of the early research on antennas. "The frequency-dependent antennas have opened up a new era in wide-band antennas. The conception has produced advances in the state of the art that now puts pressure on the electronics engineer to design equipment that will match the available antenna bandwidths."

The log-periodic V antenna developed by the University of Illinois is a fitting match for today's most sensitive TV receiver tuners. More than that, it offers improved reception from any TV set, no matter how old and assures the owner that he is ready for color TV and any improvement in television for years to come.



The JFD Log-Periodic LPV is shown here. It is stated that the new high-gain all-channel Antenna is comparable to a Yagy Array across the entire band.

This Month:

The Battle Of The BIG BOTTLE!!

technical section

An MESD special feature

Irv Tjomsland, Editor

The purpose of this section will be to provide, for the first time by any publication, "field tested" answers to service problems that do not yield to normal repair procedures. (Similar to this month's: "Battle of the Big Bottle.")

We are asking any dealer that has a peculiar or unique problem to contact MESD. Only problems of general interest and value to the service profession will be considered, and no solutions will be offered or published until one or more field tests have verified the recommendations.

Full credit, if desired, will be given to the serviceman and shop first calling the problem to our attention. Full credit will also be given to the serviceman and shop providing the opportunity for the field tested solution.

Contact: Field Test Editor, Modern Electronic Service Dealer, 2930 W. Imperial Hwy., Inglewood, California, 755-5261.

THE PROBLEM:

"I have a Muntz 39A4 with a 27 "bottle" that came in with a "cooked out" flyback. From old service bills that were stored in the cabinet I find that four flybacks of three different brands have been installed in the last two and one half years.

I have installed a fifth replacement, but I don't think it is going to last. The wax softens in about five minutes and corona develops everywhere in the high voltage cage. What can I do to make a permanent repair?"

FIELD TEST FINDINGS:

A Field Service Call was made to the shop of the serviceman calling in the probem. Before starting work an attempt was made to locate schematic data. Howard W. Sams Photofact Index listed a Servicer in 322, and a similar chassis, the 17B8 was referenced in 208-7. The following circuit voltages were indicated:

CHART 1

	Normal Readings	*39A4 Readings*
B+—At 5U4 output	355 volts	377 volts
B+—At damper plate	340	361
Boost	595	670
Cathode—		
With a 100 ohm resistor	10	13.3
High Voltage	16,000	22,000
Drive—Synchroguide Osc.	75 volts p/p	125

Since the Photofact readings were developed at 117 Volts AC an adjustable line transformer was carefully calibrated by means of an expanded scale 1% voltmeter to the same voltage.

The 39A4 readings are indicated in Chart 1 and it should be noted that the cathode resistor was slightly under 100 ohms, more like 95 ohms.

The receiver could be operated for only a few minutes at the time because the corona was heavy, and the flyback was obviousy overheating. Linearity was very poor because of left hand "stretch". Connection of a grating generator revealed squares half again as wide at the left side as at the center of the screen. Width was satisfactory, but a slight drive line was visible.

PRELIMINARY TESTS:

The drive adjustment was checked first. It was found to be within a half turn of the fully tight position. At full tight high voltage dropped to 20.5 KV and boost to 655 volts. Linearity and overheating problems were not improved.

Several stock remedies were tested: The cathode resistor was increased to 210 ohms, but calculation showed that cathode current decreased less than 5 ma. and the drive line became somewhat brighter.

The original 13.5 K screen resistance was increased to 25 K. Cathode current now decreased an additional 14 ma, but a second drive line appeared to the right of the first one. Restoring the cathode resistance to the original value caused only a slight reduction in the drive line condition.

Since the receiver could be allowed to operate for only a minute or two at the time these tests were rather lengthy timewise, and with the owner's permission the chassis was removed to the writer's lab for further tests.

LAB PROCEDURE:

Before proceeding with operational tests the screen and cathode changes were removed and meters were installed in the following circuits:

1. The expanded scale 90-130 volt AC meter was connected at the interlock.
2. A 0-250 ma. meter was connected in series with the the cathode resistor.
3. A 0-25 ma meter was connected in series with the -CD6 screen.
4. A 0-500 voltmeter was connected from the 5U4 output to chassis.
5. A 0-1200 voltmeter was connected from Boost to chassis.
6. A 0-30,000 voltmeter was connected from the 1B3 to chassis.
7. A calibrated scope with a low capacity probe was connected to the grid terminal of the -CD6.
8. A decade capacitor box capable of 100 mmfd. steps from .0001 to .011 was available for drive adjustments.
9. A decade capacitor box capable of 10,000 mmfd. (.01 mfd) steps from .01 to 1.1 was available for bypass duty.

In order to prevent damage to the new flyback and other components during test a 300 ohm 10 watt resistor was installed between B+ and the plate of the damper. This was bypassed to chassis with a .1 capacitor. B+ at the damper plate dropped to the 340 to 350 volt area, high voltage to 18 KV, boost to 625, cathode to 12.8, but while corona and over heating were reduced, linearity was not improved and the drive line problem became more prominent.

The most practical course appeared to examine drive conditions. The original drive trimmer is rated at 10-160 mmfd. and shunting this with an extra 100 mmfd. capacitance dropped boost to less than 600, high voltage to 16.5, and the cathode to less than 12 volts. It was somewhat suprising to see cathode current drop when drive was decreased, because normally, lowering drive will reduce bias, and increase cathode current.

However, even though the voltage specifications now agreed with the schematic, linearity was not improved, and the drive line was still evident. In addition, the range of control of the drive trimmer was poor and could not be expected to compensate for differences in tubes and line voltage.

A different tactic was employed: The 100 mmfd. step decade box was substituted for the 1000 mmfd (.001) capacitor which originally coupled the "Synchro-guide" type oscillator to the -CD6. As the decade switch was rotated from 100 to 1000 mmfd. it became apparent that the dropping resistor in the damper plate circuit could be removed if the coupling was changed to about 300 mmfd. At this point the drive control provided smooth action in that High Voltage could be adjusted from 15 to 17 KV, boost from 575 to 610, and cathode current from 105 to 115 ma. (10.5 to 11.5 volts), left hand stretch disappeared, corona ceased, and flyback operating temperature became normal.

With the drive trimmer set at mid-range the following circuit readings were obtained:

Cap. mmfd.	*Drive p/p*	*Cathode ma*	*Boost V*	*HV KV*
100	50	85	445	none
200	82	130	545	13
300	96	105	600	16
400	104	110	626	17.4
600	110	122	646	19.6
800	118	132	658	20.5
1,000	125	141	670	22

FINAL RESULTS:

A 330 mmfd coupler was installed between the oscillator and drive trimmer, and performance followed the range indicated by the 300 mmfd. line in the chart above. From a further examination of the chart it appears that cathode current might increase to a dangerous level if drive is reduced as in Line 2; but this condition could not be obtained with the 330 coupler installed.

Apparently the change in coupling provided improved wave shaping rather than simple amplitude control, because the drive line disappeared and operating results became substantially defferent than were observed with other forms of amplitude reduction.

The original flyback in this receiver was probably a TO-0036-1 or -2. The replacement flyback involved in this problem was a Stancor A-8240, but similar results could be expected with equivalent replacement items.

FURTHER FIELD TESTS:

The procedure outlined above has been tested in several receivers of the 17B8 and 39A4 designation. The only further adjustment necessary has been involved in the drive line problem.

Where the drive line persisted, with otherwise normal performance, the core gap was increased slightly to improve the yoke-flyback inductive match. This was done by carefully removing the flyback mounting bolts and sliding out the rear half of the core. One thickness of Cellophane tape was placed on each half of the core face with the original (yellow) gap material remaining in position. The Cellophane was cut into squares about $\frac{3}{8}$x$\frac{3}{8}$".

When the flyback was reassembled to the bracket and the receiver turned on, a slight readjustment of the drive control restored boost to 600, and high voltage to 16 KV, and the drive line disappeared.

Even though the many runs of this fairly popular receiver appear to use the same power transformer part number, B+ may vary as much as 75 to 100 volts from receiver to receiver. This should go a long way to convince the professional serviceman that his place will never be taken over completely by a parts changer.

Considering the nature of the problem, it is not surprising that the editor renamed this project "The Battle of the Big Bottle."

NEXT MONTH'S ISSUE

Question for next month—Feb. issue.

I have a color receiver in my shop for repair and adjustment. It appears to be a 1956 or '57 model and still has the original metal CRT.

The customer complains that when the controls are adjusted to produce a good color picture, it goes wild when a black and white commercial is spotted in with the color show. Is there anything I can do to correct or reduce this tendency?

This question has been suggested by more than one shop operator and no one shop can be credited with orgination. If you have a receiver in your shop where this problem can be researched and solved your shop will be given credit as the Field Test point.

If you have a problem for future consideration which is of general interest and you are first to mention it, you will be listed as the Originating Shop. Direct your question to: Technical Editor, Associated Publications, 2930 W. Imperial Hwy., Inglewood, Calif.

SIGN UP

for more business

with colorful service signs from RCA

RCA signs for service technicians:

- Identify your business
- Call attention to your services
- Dress up your shop or truck
- Associate you with the prestige and customer acceptance of RCA—the most trusted name in electronics

Metal Outdoor Hanging Sign—double-faced with hanging bracket, 40″ x 28″. (1A1275)

Metal Wall Sign—big 40″x 28″ size. (1A1276)

All-Purpose Panel Sign Kit—for wall, truck, anyplace. Contains two 40″ x 14″ signs. (1A1278)

Metal Flange Sign—18″ x 12″—for outdoor-indoor display. (1A1277)

Decal—12½″ x 8½″—for wall, window, door, or truck. (1A1279)

Another Way RCA Helps You in Your Business

RCA ELECTRON TUBE DIVISION, HARRISON, N.J.

All available from your Authorized RCA Tube Distributor. See him this week.

The Most Trusted Name in Electronics

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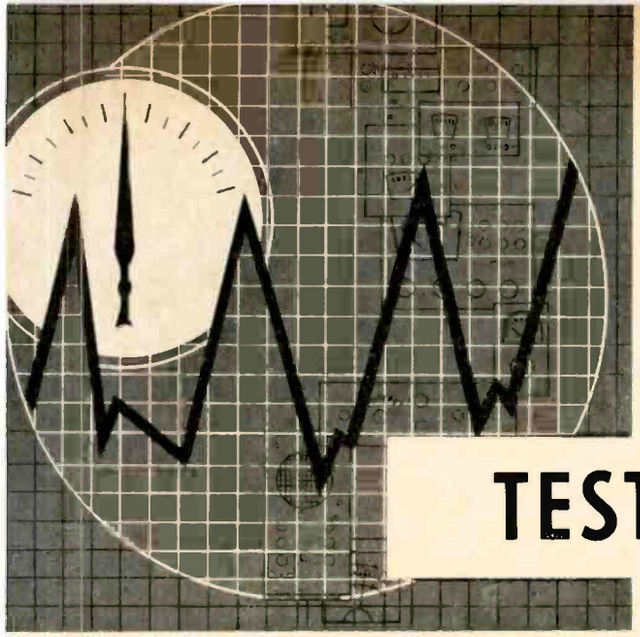
TH 5-3536

WESTERN RADIO & TELEVISION SUPPLY CO. INC.
1415 Indic Street, San Diego
BE 9-0361



Servicemen, everywhere, have invested hundreds of thousands of dollars in test equipment. Many service organizations have built excellent reputations and business operations with the assistance of fine equipment.

Unfortunately, many other sericemen have also made the investment, and some of the most expensive units perform no daily tasks, and even appear to be awaiting a first workout. For every well used Volt-Ohmeter and Tube Tester stand unused Oscillascopes, Sweep Generators, Markers, Bridges, and the like.

Lack of a profitable equipment utilization can be traced to many factors, some of them almost trivial: A shorted ten dollar probe will retire a two hundred dollar scope, lack of a twenty-five cent jig or a two dollar bias box will shelve a fine piece of alignment gear, and probably most common, lack of specific instructions or application data will create a block that cannot be overcome by the buyer

The big question is WHY? Why have members of the service profession, admittedly not a specially lucrative calling, invested so much hard-earned money in unused equipment?

TEST EQUIPMENT TOPICS

In succeeding months this column will be concerned with Test Equipment problems, capabilities, and requirements. Specific types and models of equipment already in the hands of servicemen will be reviewed and spotlighted in an effort to switch them from the expense to the profit column

Line Voltage Can Cost You Dollars $

"DOES YOUR TEST EQUIPMENT REPRESENT AN INVESTMENT OR IS IT AN EXPENSE ITEM? UNLESS IT SAVES TIME, IMPROVES WORKMANSHIP, OR MAKES YOUR WORK EASIER, IT SHOULD PROBABLY BE ENTERED IN THE EXPENSE COLUMN RATHER THAN THE PROFIT LEDGER."

Voltage and Resistance measurements are basic to the television and home entertainment equipment service industry. The majority of such tests are made with some form of multi-meter, and for the most part the DC readings are very satisfactory. The availability of calibration sources for DC voltage and resistance comparison causes the serviceman to become aware of inaccuracies in a meater he is using, and when the error is known he will almost automatically make a mental compensation for the variation and arrive at the correct value.

New, fresh, and unloaded batteries provide a convenient source of DC calibration. Conventional Carbon-Zinc cells can be expected to indicate 1.56 volts per cell, and the more modern Alkaline and Mercury cells have even better characteristics (athough different nominal voltages) for check purposes.

Ohmeters, too, are subject to constant observation. Even the most inexperienced serviceman will check a resistor of similar value, if he has reason to doubt the meter reading.

HOW ABOUT AC VOLTAGE MEASUREMENTS?

Accuracy of AC voltage measurements suffer from two main factors:

1. No convenient calibration sources exist for reference.
2. Much of the multi-meter equipment in use provides far less accuracy for AC ranges than for DC, and effects of aging, scale layout, and meter sensitivity all combine to increase the error.

A word about calibration sources: At the first thought it would appear that the line voltage should be a good source of calibration, but over the years the average line voltage in the country has increased steadily, and some authorities say it will continue to increase. Line voltages have been found to vary from 103 to 131 when checked in different sections of a large city. Daily variations at a given location have been observed to vary as much as 8 to 10 volts.

Most service shop owners would like to make the basic height, width, drive and Ion Trap settings in the shop to avoid excessive readjustment upon delivery to the home. As will be seen in the following instances the error can be greatly reduced if the bench line voltage can be accurately adjusted to normal when making such adjustments.

A plus or minus variation of 6 volts in the normal 117 volt line can cause a change of 30 volts in B+ output. It is customary to say that a change of 1 volt in the plate supply will cause a change of 1 milliampere in horizontal output plate current with a correspondingly greater change in boost, which will affect height, width, brightness, in addition to the customary effects on audio, video, and sensitivity.

The line voltage factor can become particularly critical when a new flyback, vertical output, power transformer, or rectifier system must be installed, and the maximum problem will occur when the shop line voltage is at one end of the tolerance range, and the customers voltage is at the opposite extreme.

As will be pointed out, not only is the line voltage variation a source of lost time and poor receiver performance, but inaccurate measurement can amplify the bad results. To illustrate this lets examine the effect of error caused by AC meter tolerance.

DC voltmeters have been accorded the top accuracy rating, and it is not at all uncommon to find relatively low priced units to be rated at, or less than $\pm$ 2% error. In addition the nature of the device is such that effects of age and use are not especially severe in changing the original accuracy.

Ohmeters have an additional error factor of batteries or current source, but even so are usually rated within $\pm$ 5% and, as mentioned above, subject to easy calibration if suspect.

AC tolerance is another problem, how-

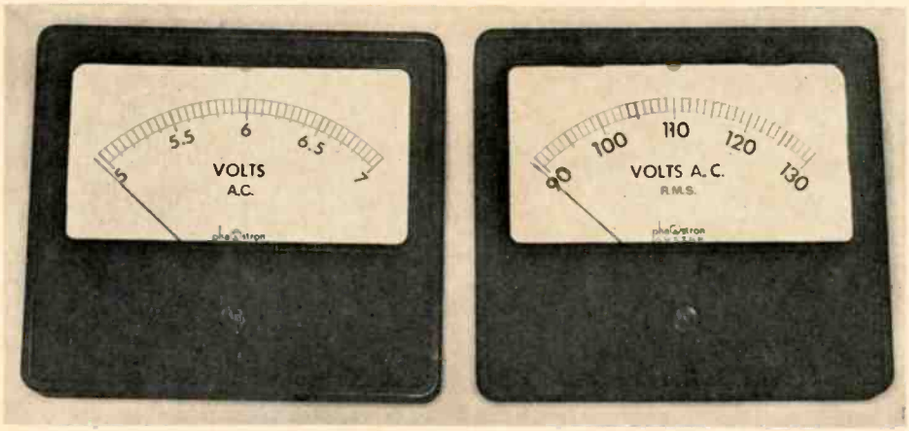


Figure 1. Shown here are expanded scale AC meters accurate to ½ of 1%. This is available for Service meetings upon request.

ever. Many older multi-meters specifications made no mention of AC accuracy, and while many excellent meters are available today, many a shop does not have an AC meter that will indicate within ± 5%.

Consider the effect if the 5% tolerance is present. With a line voltage of 117 the 5% meter may indicate this as any voltage between 111.15 and 122.85.

If a bench meter is 5% low and is used to adjust a variable bench transformer, the supply voltage will actually be 123 when the serviceman wants 117 volts. Conversely, if the bench meter is 5% high the supply will be set to 111 volts when 117 is desired. No wonder height, width, Ion Trap settings, and other adjustments have to be rechecked in the home.

The meter tolerance mentioned above is usually related to the basic meter movement and multiplier resistors, if used, but another factor enters the picture and really fouls up the performance.

This is the effect of age and overload on the various types of rectifier elements used to convert AC to uni-directional current. A recent check of VOMs, none over three years old, obtained line measurements ranging from 93 to 160 volts from a nominal 117 volt line.

Is There An Answer?

Yes: No one will argue that a professional serviceman will do well to utilize professional quality equipment. To save time tests must be accurate and the operator must be able to depend on his readings.

Pay patricular attention to these possibilities as you equip or improve your test equipment position:

1. Consider an accurate expanded scale panel type AC meter for reference and calibration purposes in your shop.

2. If you are in the market for a new multi-type meter pay attention to the AC specifications as well as the DC and Resistance tolerance.

3. Promote a "Calibration Session" in connection with one of your Association Meetings. Through the courtesy of Phaostron, Pasadena, the meters shown in Fig. 1 have been made available for improvement of test procedures.

These "Expanded Scale" 4x5 meters have a rated accuracy of ½ of 1% and are used in connection with a variable voltage source to make a "spot" calibration by comparison a simple and speedy project. A few minutes spent during a break would permit comparison of every members equipment.

If you would like to arrange such a session for your organization please write to: Technical Editor, Associated Publications, 2930 W. Imperial Hwy., Inglewood, California and arrangements will be made to present this material.

Success Stories Told At E.I.A. Conference

Members of the Electronic Industries Association's Radio Section learned today "How to Succeed in FM Stereo by Really Trying" from two young San Franciscans with a national reputation for success in the business. Gary Gielow (left) and James Gabbert (right), Co-General Managers of San Francisco's KPEN-FM, told their success story during a meeting of the section held in conjunction with the Association's Winter Conference in the Jack Tar Hotel. They are shown with the section chairman, Orphie R. Bridges, Vice President and General Manager, Consumer Products Division, Arvin Industries, Inc., Columbus, Ind.

SYLVANIA BEGINS PILOT PRODUCTION

The Electronic Tube Division of Sylvania Electric Products Inc. has begun pilot production of two new types of cathode ray tubes which offer increased television picture brightness and contrast. Sylvania is a subsidiary of General Telephone & Electronics Corporation.

George C. Isham, Product Manager, Cathode Ray Tubes, said the new components, designated 19CQP4 and 19CRP4, provide more current for given drive through optimum inter-element spacing in the electron guns. When operated at 50V G2, increased emission is attained, resulting in an appreciable increase in brightness and contrast compared to conventional low G2 designs. Mr. Isham also said that the new tubes may be operated at 35V G2, thus requiring less video drive.

Both tubes are of modern rectangular design. The 19CQP4 has a 114-degree deflection angle and the 19CRP4 a deflection angle of 92 degrees.

NEW FLAT TV TUBE TO BE SHOWN AT "DEALERS SERVICE WORKSHOP"

Vidio Color Corporation Vice Presidents Dr. Willard Geer and Ross Aiken, holders of basic patents in color television and the flat TV tube, will demonstrate a prototype of their new product during Western Electronic Week at the Shrine Auditorium on Sunday, February 10 at 9 a.m. Many service dealers in the Southern California area are expected to attend.

The presentation will cover new technolgy in television tube design not expected to reach the consumer market until 1966. The new tube, less than three inches thick, takes advantage of patented circuitry held by Geer and Aiken. Dr. Greer, head of the Physics Laboratory at the University of Southern California holds basic patents for color TV. Ross Aiken, who formerly headed the Aircraft and Laboratory Electronics for Kaiser Industires in Palo Alto, invented and developed a number of flat TV tubes for the military and is currently working on prototype models for industrial and consumer use.

In addition to the advanced technology to be demonstrated by these two scientists, there will be special presentations on television set service problems by executives from various manufacturing firms.

Invitations have been issued to the National Service Managers of RCA, Packard Bell, Sylvania and others to appear at the convention. Jarrold Electronics will present Mr. Jack Beaver discussing new developments in service practices for TV-FM reception improvement.

"We expect a large turnout of dealers from all over the state," stated Ralph Johonnot, California State Electronic Association, Coordinating Chairman for the program. This special program is being put together by Don Martin, Master Electronics Service Dealer, Andy Futchik, Andrews Electronics and Ed Cook, Cook Electronics, members of the committee assigned by the Pacific Electronic Trade Show Board to handle this particular function. The program is a special educational event sponsored in connection with the Pacific Electronic Trade Show to be held February 8-10 at the Shrine Auditorium.

Hughes Appoints New Distributors

Hollywood Radio & Electronics, Incorporated, Hollywood, California, Division of Terminal-Hudson Electronics, Incorporated, New York, has announced their appointment as an authorized industrial distributor for Hughes Semiconductors.

FRED RICHEY NEW PRESIDENT OF A.E.D.

Mr. Fred Richey, Valley Electronic Supply in Burbank, was recently elected as the new president of the Association of Electronic Distributors at the groups annual banquet held at the Crescendo Restaurant in Hollywood.

Other officers and board members for 1963 included: Bob Yale, of Yale Radio as Vice President; Irv Phillips, Pacific Radio Exchange as Secretary-Treasurer and Homer Nielsen of Kierulff Electronics became Chairman of the Board.

The Directors included: Andy Futchik of Andrews Electronics; Ken Rothman of Hollywood Radio Electronics; Howard Richey of Richey Electronics; Jim Craig of Radio Product Sales and Irv Phillips of Pacific Radio Exchange.

According to President Fred Richey, "as soon as possible we will announce the chairmen of different committees for next year including our annual WEW/PETS sponsored program." This event is slated for February 4-10 at the Shrine Exhibition Hall in downtown Los Angeles.

CALVIDEO ELECTRONICS BECOMES AMERICAN VIDEO CORP.

Mr. Judd Goldfeder, President of the newly formed American Video Corp., announced the purchase of the majority of the assets of Calvideo Electronics, Inc. American Video Corp. has investments in other tube firms serving industrial, government as well as commercial markets throughout the United States.

Gil Sherman, Vice President in charge of Sales, confirmed that all picture tubes will be manufactured in the same Compton facilities which remain the largest and most automated west of Chicago. American Video will continue to supply picture tubes to over 300 distributors in the sixteen western states under the Calvideo and Dumont A.B.D. labels as well as many of the nation's largest T.V. set manufacturers under their own Brand.

Going over final details of the new Raytheon Franchise program is (left to right) Mr. Ezra Mintz, Perlmuth President; Mr. Dick Bale, Raytheon Company; Mr. Jack Perlmuth and Mr. Allen Merriam, Raytheon Regional Manager.

PERLMUTH FIRM AWARDED RAYTHEON DISTRIBUTOR FRANCHISE

Perlmuth Electronics, a major electronic parts distributor with headquarters here, has been awarded a franchise to save as a distributor for Raytheon Company, it was announced today.

Ezra Mintz, Perlmuth president, said his firm would distribute Raytheon tubes, semiconductor devices, and full line of microwave and other industrial components as well as citizens band radios in the area.

Half of the firm's employees are graduate engineers with specialist training and experience to permit them to serve as field applications engineers assisting industrial customers. The firm maintains complete test facilities for the products it sells and holds technical symposiums in an auditorium for the purpose in its Los Angeles headquarters.

Branches in Palo Alto. San Diego, Phoenix, Albuquerque and Denver are interconnected by teletypes and all sales and inventory information is recorded on data processing machines. Included in the company facilities is a bonded warehouse where government inspected components that have met rigid specifications are held until needed.

The firm was founded by Jack J. Perlmuth, who has been in the electronics parts business for 40 years, and is now chairman of the board. He was a manufacturer's representative for Raytheon Company in southern California for many years.

RCA ANNOUNCES 9-15 MONTH DELAY IN 90-DEGREE COLOR TUBE

The RCA Electron Tube Division has advised television set manufacturers that, due to technical difficulties encountered during pilot production, it will be unable to ship its shorter 90-degree round color picture tube as a commercial product for approximately 9 to 15 months. Meanwhile, the division will continue to produce the highly reliable 70-degree color tube on an all out basis to satisfy ever-increasing demands.

During the past several years, the outstandingly successful 70-degree color tube has gained wide industry and consumer acceptance for its reliability, dependability and excellent picture quality. It is this tube upon which the rapidly growing color TV industry has been built. Because of the desire, however, for a shorter color tube, RCA embarked on a technical program for development of a 90-degree tube that would reduce the over-all depth of the set. RLA's objective was aimed at a shorter color tube, equal in performance to the 70-degree version, which could be introduced in the Spring of 1963 if all technical problems were selved.

PILOT NAMES WESTERN MARKETING AS REP FIRM IN S.C.

The Pilot Radio Corporation of New York has named the Western Marketing Associates as their Southern California Factory sales representatives. The firm succeeds Chalfant & Associates.

According to Elwood Reeves, President of Western Marketing Associates and former vice-president of Magnavox Co., "we are very pleased to announce our appointment as representatives of this outstanding line of packaged stereo products. Pilot is one of the best known lines in the sound field and we are sure of a successful association."

At the same time Mr. Reeves announced that their firm had resigned the Dominion Electrohome Industries, Ltd. of Ontario, Canada line because of its conflict with Pilot.

EIA DENIES DIVISION FOR DISTRIBUTORS

An erroneous impression has been given that the Electronic Industries Association contemplates establishment of a division for electronics distributors.

This arose from the fact at its quarterly meeting in San Francisco November 29, the EIA Board of Directors authorized the Parts Division, in consultation with other appropriate Association groups, to develop a plan for establishing a division for manufacturers who sell primarily through distributors rather than the original equipment manufacturers.

The Electronic Industries Association is an organization of manufacturers.

ERIC CORPORATION EXPAND QUARTERS

Eric Electronics Corporation, manufacturer of stereophonic high fidelity components and sound equipment, has moved into expanded quarters at 2115 Colorado Ave., Santa Monica, Calif.

The new facility provides 20,000 square feet of manufacturing space and more than doubles the company's previous quality control and pre-production area.

Erich Feigl, president, said the move follows the comuany's recent expansion into complete national distribution with a full line of transistorized tuners, amplifiers, integrated multiplex units and public address system components.

LARGE CROWD EXPECTED AT DISTR. SHOW

"All indications show that an extremely large number of people will participate in the 1963 Electronic Parts Distributors Show and Conference," said Ralph C. Seiler of California Chassis Company, chairman of the Housing Committee.

"The big attendance makes it doubly important that hotel reservations be returned to Electronic Industry Show Corporation offices as soon as possible," Seiler added.

The three-day, all industry Show will take place at the Conrad Hilton Hotel, Chicago, May 20-22, 1963.

Reservations for 3,000 rooms have been made available for the 1963 Show. Although this appears to be a large number, at a Show of this size they will soon be filled.

Hotel reservation request forms are being mailed by the Show Corporation to all exhibitors with their accepted contracts. The Show Corporation will also handle all hotel reservations for distributors. The Electronic Representatives Association (ERA) will handle reservations for their members, while the Show Corporation will process reservations for other sales representatives.

There are only a limited number of suites available at the Conrad Hilton Hotel, and a great demand for them. Because of this, only exhibitors will be entitled to reserve them. Requests for suite reservations should be received by the Show Corporation no later than December 6.

Sleeping room reservations will be processed until April 19, as long as rooms are available. These include single, double, or twin-bed accommodations.

The Housing Committee will process only exhibitors and distributors for rooms at the Conrad Hilton Hotel. At the Hilton, exhibitors will be limited to three rooms per company, distributors to two. If additional rooms are requested, they will be assigned in other hotels. Other participants in the Show will be lodged at nearby hotels. An additional block of rooms at the Conrad Hilton Hotel has been assigned to the Electronic Representatives Association.

CURRENT LITERATURE AVAILABLE

FROM ARCO . . .

Results of a 10,000 hour life test on type PJ tubular polystyrene capacitors are detailed in a bulletin available from Arco Electronics, Inc., Community Drive, Great Neck, N.Y.

The tests were conducted in a calibrated temperature chamber on regular production lots of Arco's 100VDCW units, representative of single dielectric, and 400VDCWs, representative of dual dielectric types. The temperature range was 85° to 93°C., and 150% of rated voltage was applied, 150v to the former group, 600v to the latter. A battery supply assured continuity.

Results at 1,000, 2,000, 3,000 and 10,000 hours are tabulated and explained in Arco Technical Bulletin No. 2-62. Capacitance stability was deemed to be excellent.

FROM AMPEREX . . .

A new high in electron tube reliability far exceeding the requirements of Mil Specs was recently achieved by Amperex when a large scale series of life tests resulted in zero failures in over one million tube hours of life tests. Consequently, Amperex can now guarantee the reliability of the high gain frame grid types 6922M and 7737M, a twin-triode and pentode, designed for use as broadband amplifiers in exacting military and industrial applications.

Life tests for the 6922M were conducted over a four-year period, achieving a failure rate of 0.10%/100 hours for inoperatives and 0.17%/1000 hours for total failures. Zero%/1000 hours failures was achieved during hte past two years.

Similarly tested was the type 7737M, a ruggedized, non-microphonic version of the JAN 6688. In 1962 the 7737M achieved a failure rate of zero%/1000 hours for inoperative and 0.75%/1000 hours for total failures.

A detailed description and analysis of how Amperex conceived and conducted these reliability and life studies is available in the form of a free brochure, "Guaranteed Reliability with Amperex Premium Quality Frame Grid Tubes." Interested persons may procure copies by writing on company stationery to: Amperex Electronic Corporation, Special Purpose Tube Department, 230 Duffy Avenue, Hicksville, Long Island, New York.

FROM G.E. . . .

A new catalog of advertising, sales promotion and service aids for radio and television service dealers now is available to authorized General Electric tube distributors.

With a fresh organizational approach, tabbed for quick reference, the catalog lists more than 300 items ot help service dealers increase profits by building their business and streamlining operations.

CLASSIFIED ADS

BUY, SELL, TRADE, HIRE HERE

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 Marlton Ave. in the Crenshaw Shopping Center, next to Barker's. **(This Address is for the Classified Dept. only.)**
BY MAIL: Send your ad to QUINN'S Classified Dept., 4041 Marlton Ave., Los Angeles 8, Calif.

• RATES •

95¢ 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.

NOTICE: ALL MATERIALS AND PARTS USED IN THE MANUFACTURE OF THIS TUBE ARE NEW EXCEPT FOR THE ENVELOPE WHICH, PRIOR TO RE-USE WAS CAREFULLY INSPECTED TO MEET THE STANDARDS OF THE ORIGINAL NEW ENVELOPE.

What's our BIG difference in 1963?

Regarding our quality, no one builds a better picture tube... the brand names are the same... still manufactured in the same facilities, the largest and most automated west of Chicago... tube reliability and efficiency is checked by the industry's most skilled engineering staff... and still manufacturing tubes for several of the nation's leading T. V. set manufacturers.

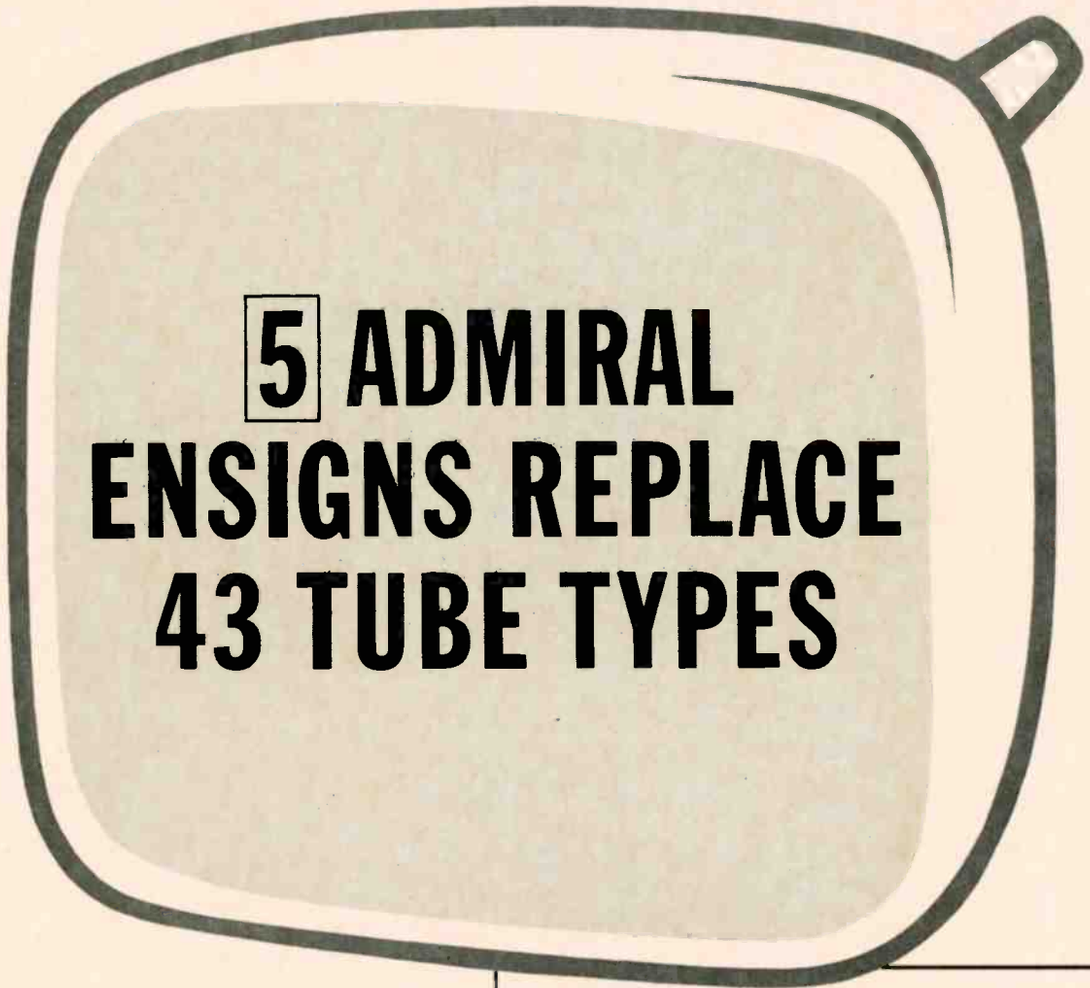
OUR BIG DIFFERENCE IS: (1) A new, sound corporate financial structure. (2) New management and engineering talent have been carefully integrated with energies and abilities of proven personnel, giving the company the strongest executive and technical team in its history. (3) Through acquisition and expansion, new facilities have been added enabling us to offer research and development of cathode ray tubes for numerous industrial, military and commercial applications... and incidentally, we are mighty pleased with our new corporate name...

AMERICAN VIDEO CORP.

18601 S. SANTA FE AVENUE • COMPTON, CALIFORNIA

Manufacturers of Dumont A.B.D. and Calvideo Television Picture Tubes • *Distributor Marketing of Dumont A.B.D. Receiving Tubes*

REDUCE INVENTORY! INCREASE SALES!



5 ADMIRAL ENSIGNS REPLACE 43 TUBE TYPES

You save space, save dollars— make more dollar profit per sale!

...with the Admiral ENSIGN "Big 5" as your basic tube inventory. Less stock, more sales—and you make more profit! That's sweet music! Every Admiral ENSIGN tube is of fine/precision quality manufacture. All materials and parts used in the manufacture of these tubes are *new* except for the envelopes, which prior to reuse, have been inspected and tested to the same standard as new envelopes.

Call your ADMIRAL DISTRIBUTOR tomorrow... start cutting inventory cost, pocketing new profits right away!

BE WISE... STANDARDIZE ON

ADMIRAL®
ENSIGN

ENSIGN **17BJP4** REPLACES	17ATP4 17AVP4A 17ATP4A 17BUP4 17CLP4 17AVP4 17CBP4
ENSIGN **21AMP4A** REPLACES	21ACP4 21AQP4 21ACP4A 21AQP4A 21BSP4 21AMP4 21CUP4
ENSIGN **21CBP4A** REPLACES	21FLP4 21ATP4 21CBP4B 21ALP4 21ATP4A 21CMP4 21ALP4A 21ATP4B 21CVP4 21ALP4B 21BAP4 21CWP4 21ANP4 21BNP4 21DNP4 21ANP4A 21BTP4 21CBP4
ENSIGN **24CP4A** REPLACES	24ADP4 24ATP4 24CP4 24AVP4 24XP4 24QP4 24AVP4A
ENSIGN **24AEP4** REPLACES	24DP4A 24ANP4 24YP4 24ZP4

REPLACEMENT PICTURE TUBES—ALWAYS FINE/PRECISION QUALITY