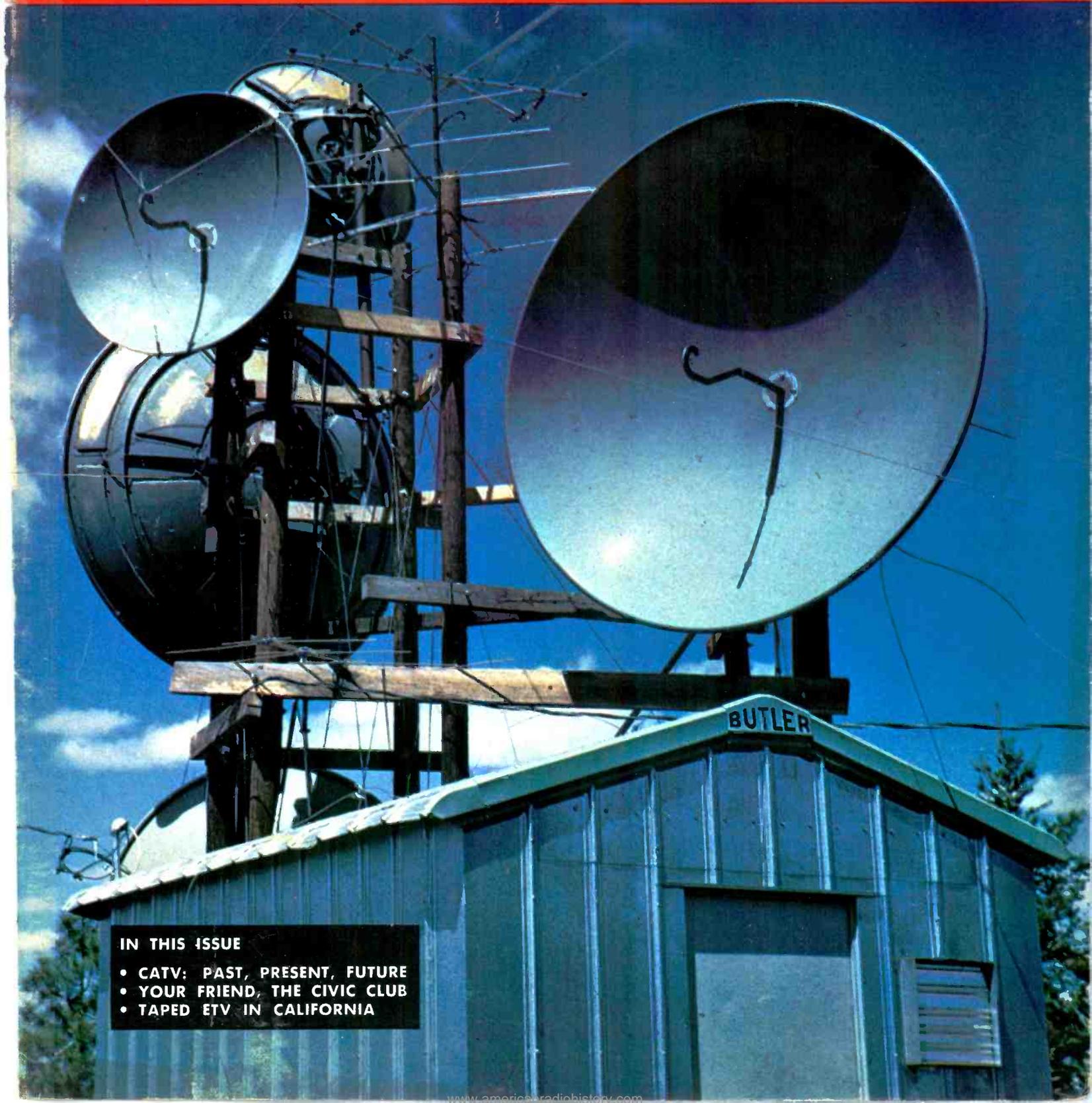




Mr. A. Browdy -B 035
KCOP-TV Channel 13
915 N. LaBrea
Hollywood, Calif.

January 1965

TV & Communications

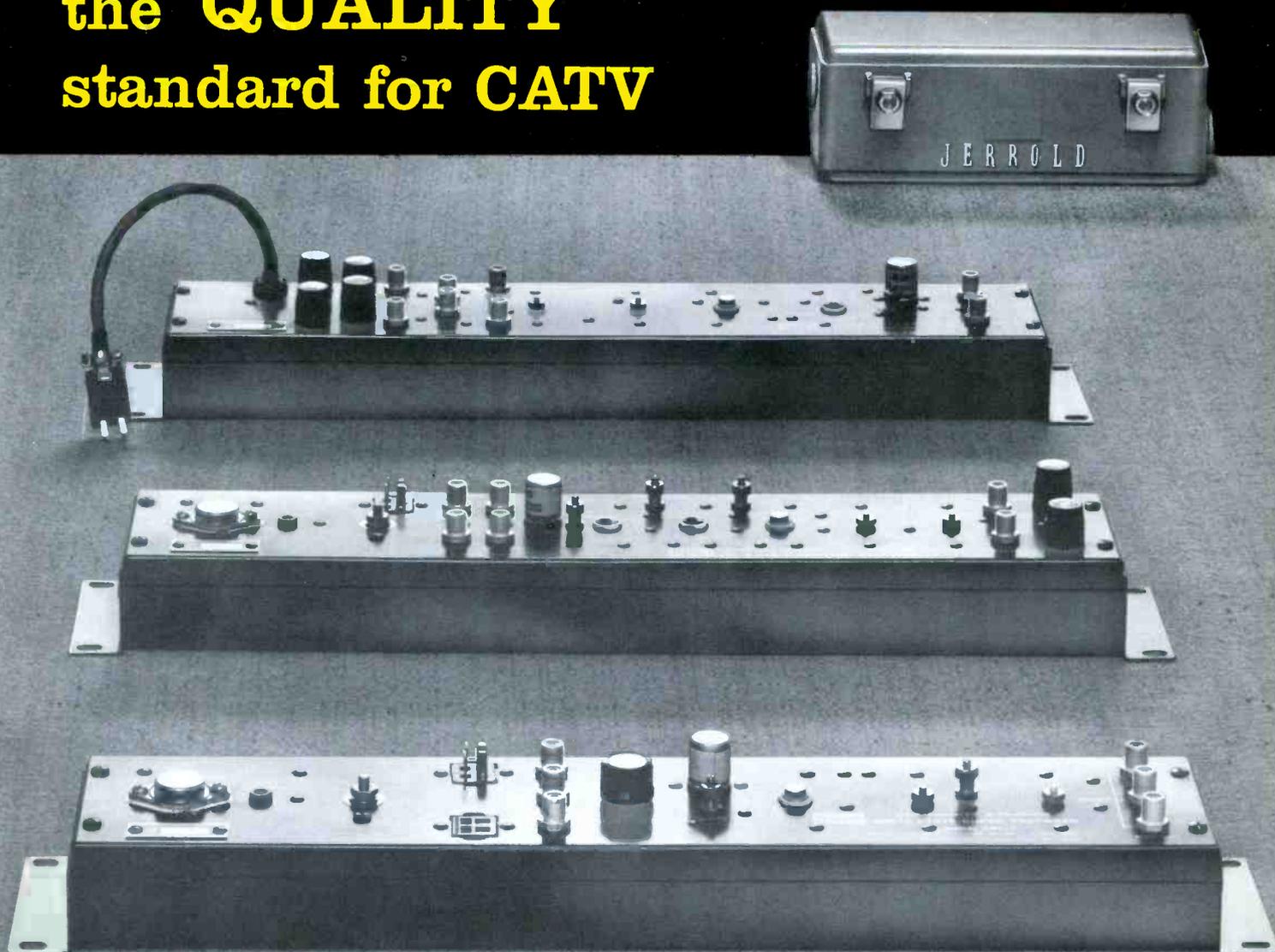


IN THIS ISSUE

- CATV: PAST, PRESENT, FUTURE
- YOUR FRIEND, THE CIVIC CLUB
- TAPED ETV IN CALIFORNIA

JERROLD SOLID-STATE

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standard for CATV



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The Viking "MUSTANG" #560 Line Extender offers the best features of solid state for use in small or large C A T V systems— low power consumption, small size, stable gain, low maintenance and economical remote power flexibility for one or many amplifiers.

The amplifier is designed with silicon RF transistors, temperature stable capacitors for all critical applications, and special electrolytic capacitors for operation through wide temperature extremes. The amplifier's solid-state voltage regulator handles any power from 17 to 30 V A.C.

The "MUSTANG" has separate gain and tilt controls to allow for compensation for various cable lengths. (An internally adjusted control may also be varied for specially short runs.)

Power to run the amplifier is remotely supplied from a 24 V A.C. source, such as the Viking 561, duplexed on the coaxial cable carrying the R.F. signal. A switch eliminates power from the output line or passes it on for cascaded amplifiers.

The "MUSTANG" Line Extender has a VIK-O-PROCESSED die-cast case, and its plated brass chassis and anodized aluminum bottom cover practically eliminate weathering effects. In addition, they serve as an efficient transistor heat sink and RF shield, preventing radiation or noise pickup. A snap-on cover of heavy polyethylene weather-protects the bottom.

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- **SEPARATE GAIN AND TILT CONTROLS FOR MAXIMUM FLEXIBILITY UNDER ANY CONDITIONS**

SPECIFICATIONS

ONLY **69.50** EACH

Band width : 10-216 mc.
V.S.W.R., input . . 50-220mc . . : 1.15:1, max.
output . . 50-108 : 1.6:1, max.
110-220 : 1.9:1, max.
Gain : 22 db at ch. 13, min.
Alignment : Through 22 db of cable
± 0.5 db., 54-216 mc.
Tilt Control : 5 db, continuous
Gain Control : 6 db, continuous
Levels recommended for a
12 channel system, input : + 15 dbmv.
output : + 37 dbmv.
Test points : -20 db at output and B-

Fittings : For all cables
Power : 17 - 30 V. A.C.,
nominal 24 V. A.C. 210 ma.,
5 watts.
Power feed through : Optional by switch
Mounting : Integral messenger mount,
Additional bracket for
polemount furnished.
Case : Die Cast Zinc Case
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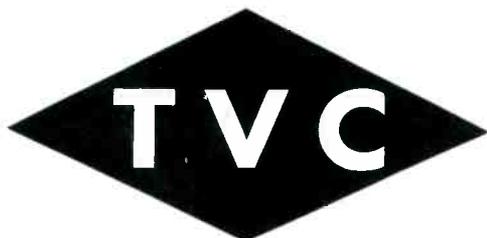
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All wiring printed on glass epoxy • Tuned circuits use small, shock resistant fibreglass coil forms or subminiature fully encapsulated fixed inductances • Latest semi-conductor diodes and transistors • Reduced battery current consumption lengthens battery life • Long term stability, temperature compensated • VHF TV FM in two ranges (54-108 Mc & 174-216 Mc) • Peak reading, Carriers marked • 75 ohm, F connector, matched input • Calibrated from minus 33 to plus 60 db in 1 db divisions and from 10 microvolts to 1.0 volts • AGC assures accuracy of plus or minus 1.75 db or better



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"The place to buy EVERYTHING for your CATV system"

WHAT MAKES THIS CATV CABLE DIFFERENT?

There's a lot more to CATV cable than is revealed by nominal attenuation figures. Factors that these figures don't show can cause subscriber complaints, added expense for extra repeaters, other problems. Read why.

Nominal attenuation is not a guarantee.

Because electrically uniform CATV cable is more difficult to make than many people know, the cable you buy may cause *actual* losses a good deal higher than the "nominal" the manufacturer was shooting for. Unless it's Rome *Unifoam** cable. Only Rome can assure you of typical figures like these (actual losses in db per 100 feet in tests of 100 standard lengths of 1/2" 75 Ω cable in a recent production lot):

	at 100 mc	at 220 mc
average attenuation, all cables	0.81	1.25
maximum attenuation	0.85	1.30
attenuation in 97% of cables	below 0.84	below 1.28
attenuation in 84% of cables	below 0.83	below 1.27

Bearing in mind the cost of repeaters, it's obvious that performance like this makes a real difference in installation cost.

The uniformity these figures show makes a big difference, too. You don't have to test your cables and pick the best lengths for the difficult runs: *every* length of Rome *Unifoam* cable will give you the transmission efficiency you expect.

HOLES IN THE SPECTRUM Attenuation at 100 and 220 mc isn't the whole story. What goes on over the whole spectrum? Plenty.

You call them "holes in the frequency spectrum." We call them *attenuation peaks*: discrete frequencies at which the cable, for various reasons, causes much greater loss than at other frequencies. Result: bad picture. Or poor sound. Or no sound at all.

90% of Rome *Unifoam* cable shows no measurable attenuation peak at any frequency from 54 to 220 mc. And no length leaves the plant (in the unlikely event it ever got produced) with attenuation peaks—at any frequency—greater than a 2.5% deviation from a smooth curve (at 220 mc, with 1/2" 75 Ω cable,



this would be 0.3 db per 1,000 feet). You can be certain every frequency will come through just as you want it to.

FORGET ABOUT MISMATCH: the uniformity of the capacitance and characteristic impedance of Rome *Unifoam* cables, length after length and lot after lot, eliminates any loss of signal strength due to mismatch between lengths. And the uniformity of physical dimensions makes it possible to get consistently reliable and efficient splices, taps and terminations.

UNCLE SAM may have had something to do with the remarkable quality of Rome *Unifoam*. We've been making ultra-precise high-frequency cables used for missile tracking sites since the beginning. We've learned more than a little about what it takes in manufacturing equipment and procedures to make cable that's more uniform than engineers dreamed was possible only a few years ago.

Rome mixes its own foamable polyethylene on an as-needed basis, eliminating the problems of contamination or moisture pickup encountered in shipping and storage. The quality and uniformity of the foam insulation determines in great part the electrical uniformity of CATV cable.

Elaborate, electronically-monitored equipment continuously patrols every phase of the insulating operation. Critical parameters—including capacitance, insulation diameter, process temperature and others—are controlled and chart-recorded automatically. A complete record of every foot of Rome *Unifoam* produced is always available.

WHAT'S IN IT FOR YOU: the best CATV cable possible... in a full range of sizes. Rome *Unifoam* CATV Cable transmits every frequency you want with minimum loss. And the price is right. Competitive.

GET THE WORD: for a copy of our folder on Rome *Unifoam* CATV Cable, call your nearest Rome/Alcoa representative or write **Rome Cable Division of Alcoa**, Dept. 40-15, Rome, N. Y. 13440.

*Rome Unifoam—Trademark of Rome Cable Division of Alcoa

Rome Cable
DIVISION OF ALCOA

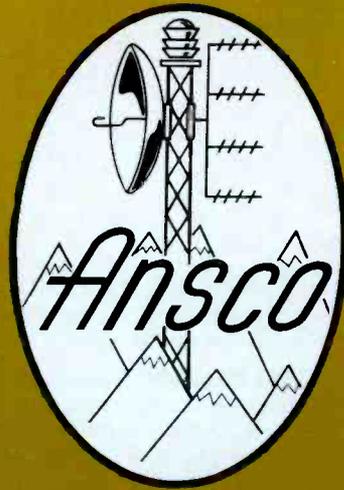
TV & COMMUNICATIONS



JANUARY 1965

Volume 2 — Number 1

Published By Communications Publishing Corp., PO Box 63992, Oklahoma City, Okla.



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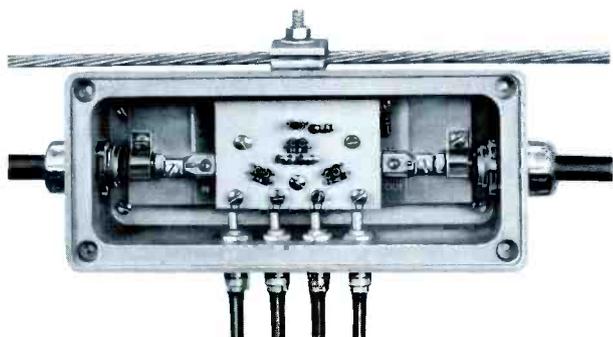
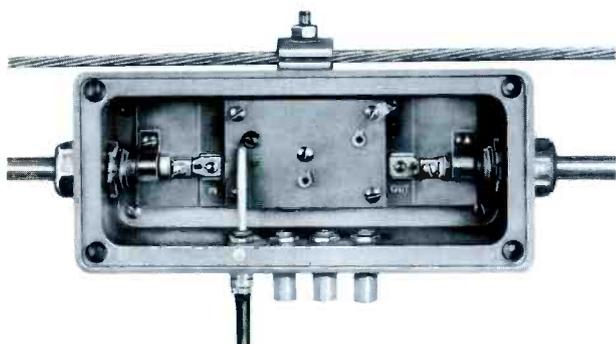
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JANUARY 1965

NEW!



MULTITAPS



- WEATHER-TIGHT DIE CAST HOUSING
- ADAPTS TO VARIOUS FEEDER CABLES
- PRINTED CIRCUIT TAPS AND ADDERS
- COMPLETE — NO MATING PARTS TO BUY

SKL was the first to introduce the multiple output directional coupler line tap. Now we are proud to announce a newly engineered version of our Multitap — professional in design, proficient in performance and profitable for you in price.

Retaining the electrically superior directional coupler principle in a compact printed circuit tap and tap adder combination, SKL Multitaps are available in values of 10, 16 or 22 db tap loss. They mount easily to the messenger strand, and their adjustable input and output fittings accommodate any feeder cables from 3/8" to 1/2" O.D. Tap adder inserts serve up to four subscribers from one location with *one* low through loss.

The Multitap combines top quality with real economy. When serving four subscribers, it costs only \$3.125 per tap. Try some in your system. After you do, we think you'll want a lot more!

SPECIFICATIONS

Multitaps

TAP LOSS FREQUENCY RESPONSE: Combined with 50 to 80 feet of RG-59/U cable, no more than ± 1.5 db from average value in VHF TV bands.

IMPEDANCE: 75 ohms at all three terminals.

RETURN LOSS: 20 db min. at all three terminals.

Model	Tap Loss At 216 mc	Insertion Loss 54 - 216 mc
410	10 db	1.5 db max.
416	16 db	1.0 db max.
422	22 db	1.0 db max.

Tap Adders

FREQUENCY RESPONSE: Same as Multitap by itself.

TAP LOSS: Sum of Multitap loss and splitting loss (see below).

FEEDER LINE INSERTION LOSS: None.

IMPEDANCE: 75 ohms at all terminals.

RETURN LOSS: 16 db min. at all terminals.

	Model 402	Model 404
No. of Outputs:	2	4
Splitting Loss:	3.5 db max.	7.0 db max.
Isolation between Outputs:	23 db min.	26 db min.



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TV Guide - Strike Two!

Last month we took issue on this page with the editors of a fine publication, *TV Guide*. We suggested that *TV Guide* reverse its negative position on CATV as expressed in the November 28 issue. However, the editors of that publication have continued on their rather puzzling course of apparently discrediting the community antenna television industry.

In the December 26 edition, an article by Mr. Henry Harding supports the "economic impact" theory of the NAB and refers to "the harmful effect it (CATV) could have on the UHF stations, where television's normal growth lies." The editorial is concerned with the Copyright lawsuit

recently filed by CBS against TelePrompTer. Mr. Harding rightfully suggests that the lawsuit could have far-reaching effects. In reference to CATV activity in large cities, he states that "this threat of new competition has station owners worried."

The *TV Guide* editorial continues, "They say that when CATV moves into an area already served by local stations, it cuts into advertising revenues. And they have a study, sponsored by the National Association of Broadcasters, which seems to bear out this contention." Then, in discussing the possibility of microwave relays bringing programs into Chicago from Los Angeles, New York, or Anchorage, Alaska, Mr. Harding concludes that "The results could be chaotic."

"This sort of chaos is something the Federal Communications Commission would like to prevent . . . because of the harmful effect it could have on the UHF stations, where television's normal growth lies."

The editorial on the CBS effort to establish control over CATV signal distribution concludes with the statement that the courts will decide "whether television's future growth will be achieved through the expansion of CATV or through the creation of more UHF stations or through some as yet undiscovered happy combination of both."

Since the old cries of "economic impact" have become so shopworn and unimpressive, it now has become increasingly popular among broadcasters to picture CATV as the anathema of UHF broadcast television.

TV Guide's lending its considerable influence to this point of view, especially at this critical time, is just as bewildering to us as the anti-CATV attitude expressed in previous *TV Guide* editorial (TV&C December '64). *TV Guide* is published by Triangle Publications, an active participant in CATV and currently a contender for a franchise to operate a community antenna system in Philadelphia.

. . . Meanwhile, back at the Retail Sales Department, Triangle Circulation Company, they are publishing an attractive little folder entitled "HOW TV GUIDE MAGAZINE HELPS CATV SYSTEMS GROW." On the first page we read, "TV Guide is currently conducting a CATV promotional program, national in scope, which will have a positive effect on the growth of community antenna systems. Through the introduction of TV Guide to CATV subscribers, we foster an interest in television . . ."

Are its editorials one of the ways that "TV Guide Magazine helps CATV systems grow"?

We don't want to unfairly criticize the Editors of *TV Guide* for their point of view. However, it seems to us that this predominantly worthwhile magazine is doing a disservice to the nation's viewers and to the CATV industry in particular when it supports the partisan propaganda of NAB.

Anything Goes

by Charles Wigutow

Nothing is more reminiscent of the picture of witches stirring a poisonous brew than watching TAME at work. Say anything, anything at all, as long as it will bother CATV. Mix into any kind of trade or governmental activity, at any level, as long as it will stall the coming of a cable system.

Why? Simply to sell home antennas. TAME, at least within its own manufacturing and distribution circles speaks frankly about its stake in antenna sales. This is their plain and unvarnished interest which they try to blow up into Public Interest.

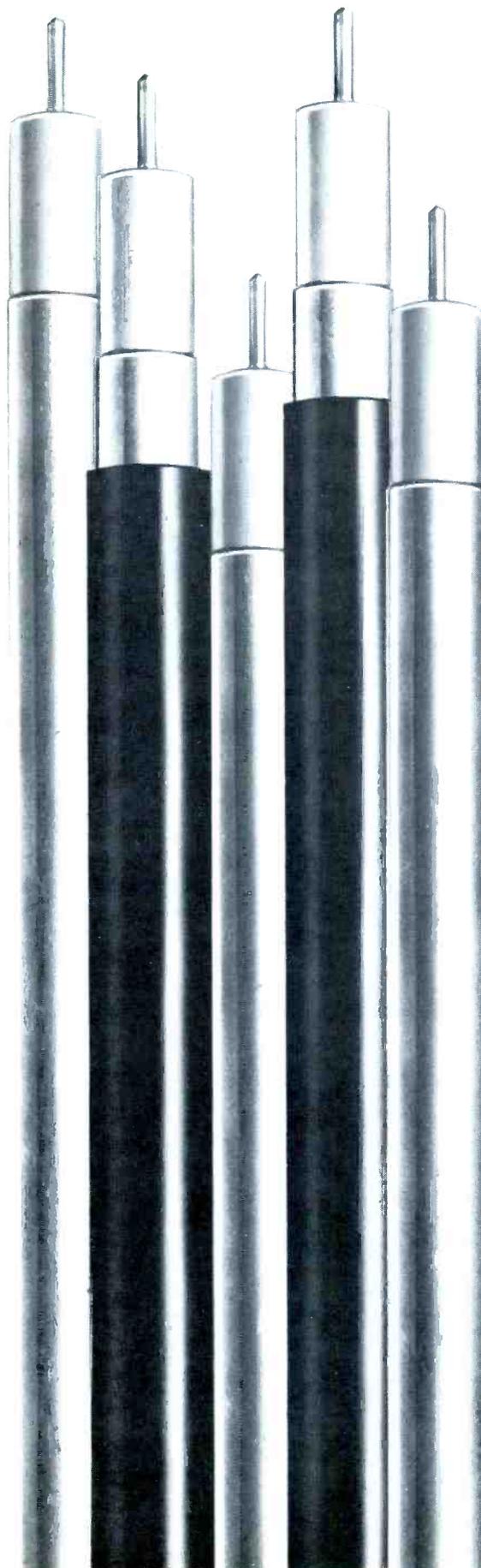
We stand squarely behind the right of the public to receive television programs in the best way the science of electronics makes possible. Cable television, which is not forced on anyone, but is voluntarily purchased, has proven its superiority in CATV towns. The growing number of subscribers is evidence.

All the stirring and commotion raised to hold back reception progress is doomed to pass away ineffectively. Home antennas will serve where they are best suited, and cable television will continue its inexorable progress. This is the American way. The American way is the one that meets the test of being competitively superior: not that of name calling, or angrily urging governing authorities to keep back the tide of cable television.

The TAME News Bulletin equates individual antenna reception with the American System of television, and solicits all interested parties to work for the preservation of this traditional way of receiving programs. What, in truth, has made our industry so beneficial to the greatest number of people? The simple answer is that you cannot continue to sell in quantity something that has been outmoded by industrial ingenuity; witness the horse drawn carriage, or the bicycle built for two.

Can TAME say it would have been patriotic to have outlawed the automobile?

Stan Searle



In a dilemma: whether to build your system for fast capital gains or for maximum operating profits?

*Before you install a so-called
economy cable system,
ask these 8 questions:*

1. Is it water & water vapor proof?
2. Is the cable self sealing when tapped?
3. What is the guaranteed maximum attenuation?
4. Will it produce an acceptable color TV picture?
5. Does it give 26 db minimum return loss guarantee
(Required for minimum ghosting)?
6. Will the quality be the same 5 years from installation?
7. Will the cable be adaptable to all pay TV applications?
8. Will it give radiation protection
when high power lever amplifiers are used?

*If you install Times JT1000 seamless aluminum tube
sheath cable, the answer will be yes to all the above.*

Whether your objective is capital gains or long-term, high net profit, you should give careful consideration to installing a long-life, high-quality cable system—JT1000 series cable, your best profit insurance. Don't settle for a system that continually degrades from the day you install it, and which may prematurely require replacement in 3 to 5 years.

DON'T TAKE OUR WORD FOR IT.

Return loss measurement is a crucial determining factor. Through this one test alone, you can prove to yourself the return loss quality of standard JT1000 cables. Times will gladly lend you a Return Loss Measurement Adapter Kit. It's absolutely free of charge. Just write or phone our Sales Manager, and he'll send you the Kit.



PROVE IT
TO YOURSELF
FREE TEST KIT



TIMES
WIRE AND CABLE

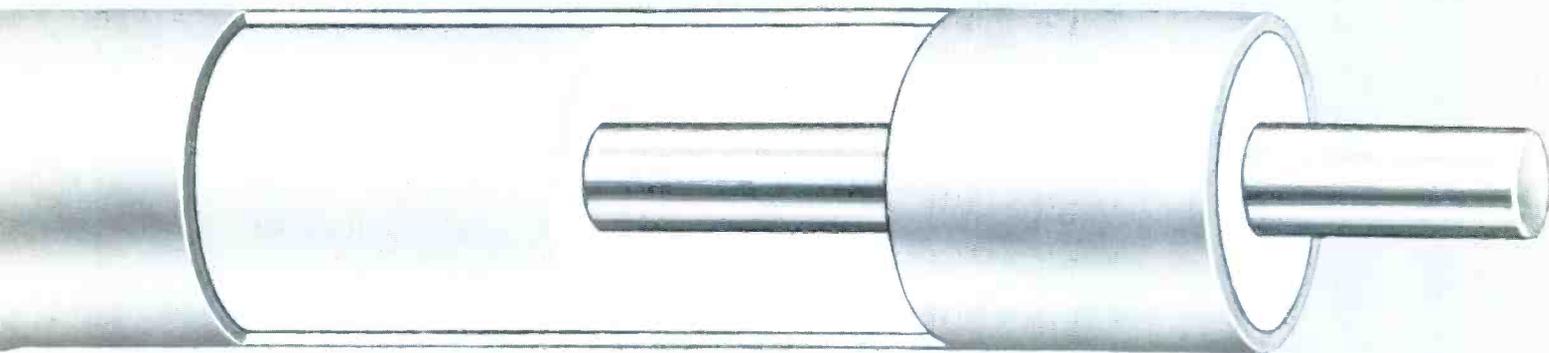
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COAXIAL CABLE

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■ Now, the availability of 75 ohm Foamflex coaxial cable in four diameters — .412", 1/2", 3/4" and 1 1/8" — fills the needs of all-band CATV systems for rugged, high-performance cable in all required sizes. Foamflex, the original foam polyethylene dielectric cable, offers unequalled low loss for superior operation in community antenna and closed circuit television. Foamflex has a proven record in demanding applications in telemetry, missile guidance and microwave in addition to CATV.

Excellent uniformity of impedance with an average VSWR of 1.05 over all channels, and low attenuation, result in remarkably good video reception for tomorrow's color TV and auxiliary service. Surprisingly, this semiflexible, air dielectric cable is competitively priced with cables covering only the low-band frequencies.

Construction consists of a copper inner conductor, foamed polyethylene dielectric, and thin wall aluminum outer conductor providing a permanent moisture vapor barrier. Foamflex is superior on the basis of operational characteristics over long use and under extreme environmental conditions. For underground use, a Habirlene jacket can be furnished.

■ average VSWR of 1.05 on all channels ■ uniform electrical properties over wide temperature variations ■ low loss, no radiation, high phase stability ■ stable attenuation at high band frequencies ■ lighter weight for easy installation ■ modified pressure taps or multi-tap distribution may be utilized ■ long term operating life

NEW!

Send for new Foamflex CATV Bulletin CA Issue 1 with full engineering data.

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News SPECTRUM

ABC PETITION GAINS SUPPORT

Two broadcasters have filed petitions backing the ABC request for FCC control over CATV. Springfield (Mass.) Television Broadcasting Company and William L. Fox, prospective UHF licensee for WIBF-TV, Philadelphia are the proponents.

Springfield asked the Commission for a declaratory ruling that all CATVs are subject to FCC jurisdiction under the Communications Act. The firm also urged the Commission to subject CATV systems to the interim rules requiring microwave served systems to carry local stations with 15-day non-duplication.

Springfield argued that the FCC

decision is needed to protect development of UHF.

Mr. Fox expressed concern in his petition that the establishment and successful operation of a UHF station in Philadelphia are being threatened by CATV franchise applications now pending in that city.

ABC REPLY COMMENTS

ABC has filed reply comments to the effect that opposition comments to its October petition contained nothing to erode the strength of the arguments in the original petition.

The network referred to opposing comments filed by the National Community Television Association. ABC charged NCTA with trying to place

“a burgeoning industry with a tremendous impact upon public interest in a never-never land of no regulation . . . state or federal.” ABC further denied any intent to cripple or destroy CATV systems.

TELEPROMPTER RETORTS

Irving B. Kahn, Chairman and President of TelePrompter Corporation, has issued a statement refuting claims in the recently filed CBS suit against the CATV company. Mr. Kahn points out that the suit is a test of the entire CATV industry rather than a test of copyright infringements by TelePrompter.

Mr. Kahn said: “The CBS suit against this company is in reality a test of the right of the entire CATV industry to perform a necessary public service. In that context, it is a step toward thwarting the intent of the Federal Communications Act that the *public's* frequencies be used for the maximum *public* benefit.

“Inasmuch as other actions testing copyright aspects of CATV operation

CALIFORNIA PUC DENIES POLE RATE INCREASE

The Pacific Telephone and Telegraph Company was denied authority to increase charges for pole attachments by the California Public Utilities Commission. In its application PT&T had requested an increase of rates to community television companies to \$2.00 per pole semiannually. Current semiannual rates are \$1.25 for each pole plus \$.50 for each amplifier.

The telephone company application received objections from CATV companies who requested that the cable attachment semiannual rate be reduced to \$.75 per pole. They did not object to PT&T's proposal to discontinue the amplifier attachment charge.

In the hearings before the PUC, the CATV companies argued that Pacific Telephone and CATV companies do not have equal rights. In specific, the CATV companies mentioned that “the CATV company must pay for any rearrangement of facilities on poles, replacement of poles, and addition of guys necessitated by the attachment of CATV equipment to applicant's (Pacific Telephone) poles or by interference of existing CATV attachments with additional space needed for applicant's own facilities; a CATV company may not erect its own pole in or near any location

where applicant will accommodate the CATV equipment on its existing or future poles; there is no time limit for applicant's statements to a CATV company as to availability of pole space; applicant is not liable for any interruptions it may cause in a CATV company's service or operations; a CATV company's right to use any or all poles can be terminated by applicant upon thirty days' written notice; a CATV company must provide a bond to cover the faithful performance of its obligations to applicant, which bond protestants (CATV companies) allege is far in excess of the amount reasonably required; and, applicant may confiscate CATV equipment which a CATV company is unable to remove within specified time limits after notification by applicant.”

In making its decision, the California PUC pointed out that Pacific Telephone's “stated objective of many of the contract provisions is to prevent the CATV operations from becoming a burden on applicant's telephone subscribers. This is commendable, but some of the provisions go far beyond what is necessary or desirable. For example, one of applicant's witnesses testified to the somewhat limited circumstances under which he

thought a CATV company would be requested to remove its equipment from applicant's poles, which is only when applicant had a requirement for that space to meet its own obligations. Nevertheless, the contract places no such limitation on applicant. From the standpoint of the CATV company, its own investment in the CATV system is in constant jeopardy, subject to applicant's wishes. Such broad powers are of no benefit to applicant if it has no need to invoke them, but are a definite limitation on the value of the service to the CATV company. Requirement of a performance bond in excess of actual need is another example of an item that does not benefit applicant yet lessens the value of the service to the CATV company.”

In addition, the Commission found that: “Various provisions of applicant's pole attachment contracts with CATV companies, as disclosed herein, limit the value of the pole attachments to the CATV companies.

“Considering all of the provisions of the typical pole attachment contract, the charges per pole and per CATV amplifier set forth therein are reasonable and an increase in those charges is not justified.

“The... application should be denied.”

already are pending in the same Federal Court (Southern District of New York), the present suit serves no useful purpose. In fact the timing of CBS after all these years of acquiescence to, and demonstrable benefit from, CATV strongly suggests an attempt to harass TelePrompTer Corporation and possibly others whose applications now are pending for CATV franchises in New York City.

"We are considering whether a counter-suit is in order against CBS for damages or delays that may result in this franchising procedure because of this nuisance suit. It is our opinion that CBS may be in violation not only of the Federal Communications Act in seeking to deny optimum television reception to a large segment of the public, but also of conspiracy with other copyright owners to misuse their copyright protection and to restrain competition.

"CBS' allegations of copyright infringement by CATV are completely fallacious. (Parenthetically, we wonder why CBS has chosen to test this principal against TelePrompTer Corporation, an independent company, rather than one of the many owners of CBS-affiliated stations who also own CATV systems.) CBS errs in characterizing



Checking data on General Electric Company's high-gain, directional zig-zag panel antenna are Ronald E. Fisk (l), G-E antenna engineer, and James A. Mead, KCET (ETV) special projects engineer. The G-E antenna is being installed at the site of the new ETV station in Los Angeles. It will reportedly make KCET the country's most powerful ETV station. KCET will be operated by Community Television of Southern California.

CATV as a 'transmitting' service. CATV merely receives television signals and delivers them to viewers; it does not add nor subtract from program content, including commercial messages, that it delivers.

"If the service we perform in providing a stronger, clearer, more watchable picture is not lawful, then it follows that every apartment house master antenna installation, and in fact every television set owner, violates the law every time an antenna is erected to get a better picture. If valid, the CBS contention would challenge the right of hotels, bars, airlines and even hospitals to make TV available to their customers or patients.

"CBS further errs in suggesting that duplication on CATV of over-the-air signals constitutes a threat to copyrighted programs by 'diverting for a fee . . . a substantial portion of audiences and advertising support.' The CATV industry now serves over 1, 600,000 homes and represents a \$750 million total investment. In all cases, CATV service is subscribed to voluntarily, and the mere fact that so many do subscribe, even in the so-called 'service areas' of stations, emphasizes the need for CATV. Actually, CATV supplements the station's facilities and, since it carries the same commercial messages of the original program sponsors, makes the program more, not less, valuable to advertisers—and hence to stations and networks."

KLIX CASE TO SUPREME COURT

United States Supreme Court has received an appeal from Cablevision Inc. and Idaho Microwave, Inc. in the KLIX Case. The two companies urged the high court to deny a petition by KLIX asking the Supreme Court to review a decision by the Ninth Circuit Court of Appeals. The Court of Appeals reversed an earlier ruling in favor of KLIX by the U.S. District Court.

CATV SYSTEMS SEEN IN NEARLY ALL CITIES, JERROLD OFFICIAL TELLS FCC BAR GROUP

Community antenna television systems will, in the not too distant future, operate in "virtually every American city, both small and large," it was predicted by Milton J. Shapp, President and Board Chairman of The Jerrold Corporation.

Addressing the Federal Communications Bar Association at the National Press Club in Washington, Mr. Shapp asserted that "there is no holding back the growth of CATV," adding that "the evidence is overwhelming that the public wants television service which only cable systems can bring." (See page 28 for text.)

"The record is clear that no segment of the public has yet been harmed by CATV, nor will it be harmed in the future by its continued expansion," the Jerrold official told the FCC group.

He emphasized that the continued development of community antenna

BE A SUCCESS!

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television will have "tremendous impact" on the broadcast industry, but that the latter "will adjust to these changes and continue to grow."

Mr. Shapp pointed out that CATV provides the lowest cost method by which a television set owner can enjoy "the highest quality reception from all the stations he wishes to receive." Systems now in operation provide up to 12 channels of television, and systems capable of handling at least 20 channels are currently on the drawing board, Mr. Shapp said.

"CATV offers the set owner a way to obtain maximum value from his television receiver," he said.

Mr. Shapp told the group that "rather than bringing harm to the public, CATV has, in fact, forced many broadcasters to improve programming in order to maintain their share of the audience."

He asserted that the history of the past 12 years has established "a complete lack of impact" by community antenna systems on the existence and growth of broadcast television in the United States.

Mr. Shapp noted that in the course of FCC hearings in 1958 and 1959, a Senate Committee heard testimony from licensees of 12 small-market television stations, each charging that CATV operations would drive them off the air by dividing the available audience until a profitable economic base was destroyed.

"However, in the six years since this testimony, none of these 12 stations have in fact gone off the air, and, on the contrary, all but two of them have increased their rates since that time," he said.

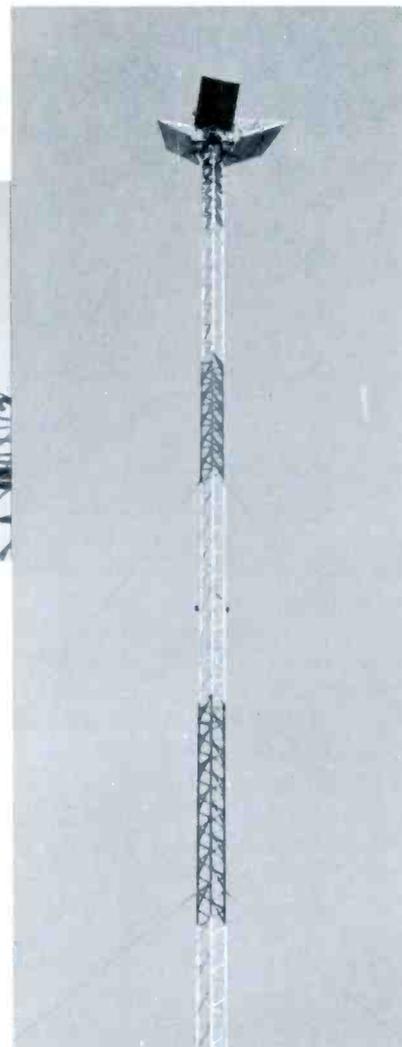
Noting that the rate of these increases ranged from 11 to 42 per cent, and averaged 25 per cent, Mr. Shapp declared that "this is hardly indicative of serious economic difficulty."

FCC DISMISSES MICROWAVE PETITION

The Commission has dismissed a petition filed by 21 common carrier microwave companies. The petition asked FCC to issue a ruling that the Commission has no jurisdiction over microwave services within the boundaries of a single state.

FCC dismissed the petition on the grounds that several similar cases are now pending and the Commission has passed upon the same points in another ruling.

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NEWPORT TV CABLE SYSTEM UNDER CONSTRUCTION

The Newport (Ark.) TV Cable Inc. system is now in operation with 2,000 subscribers signed to receive eight television channels and six FM channels. The system is owned by Davco Electronics Corporation of Batesville, Arkansas.



According to Jimmy E. Davidson, manager of the system, Newport Cable is using its own poles. More than 1200 poles are already in place with more than 50 amplifier locations being installed. Nearly one million feet of cable is being used and the system operates from a 420 foot tower with 520 antenna elements.

Jim Davidson, President of Davco, reports that "relations with the public have been extremely good." Davco has had no repercussions to the installation of poles. In addition, Mr. Davidson noted approximately 50% of the subscribers have multiple outlets. One home has signed up for seven outlets.

Newport has invested \$150,000 in the system.

PACIFIC NW TV SOLD

Jack Kent Cooke, President of Jack Kent Cooke, Incorporated, Beverly Hills, Calif., and Newell W. Priess, President of Pacific Northwest Television Inc., jointly announced that Jack Kent Cooke, Incorporated, through its division American Cablevision Co., has purchased the CATV systems owned by Pacific Northwest Television Inc. The systems are located in Lewiston, Idaho and Clarksonton, Washington, and serve over 5000 subscribers. The purchase price was one million one hundred thousand dollars (\$1,100,000). Transaction was handled by Daniels & Associates of Denver, Colorado.

This is American Cablevision Co.'s third purchase in the CATV field. American Cablevision Co. purchased a total of seven systems located in

Laguna Beach and Barstow, California; Palestine and Graham, Texas; Keene, New Hampshire; Winona, Minnesota and La Crosse, Wisconsin, serving over 23,500 subscribers.

With the addition of the Pacific Northwest Television Inc. systems, American Cablevision Co., now owns eight CATV systems serving over 28,500 subscribers.

STV EXECS FORM NEW COMPANY

Officials of Advanced Tele-Communications, Inc., a new company formed by three executives of Subscription Television, Inc., initiated action in Sacramento County (Calif.) Superior Court December 11 for the purpose of testing the constitutionality of a referendum measure which outlaws the operations of a subscription television business in the state.

The incorporators, Sylvester L. (Pat) Weaver, Jr., President of Subscription Television, Inc., Thomas F. Greenhow, Vice President of STV Programs, Inc., and Dan O'Neil, STV financial consultant, filed articles of incorporation with Secretary of State Frank Jordan on December 9. The State office declined to accept them on the grounds that conduct of a home subscription television business is illegal in California due to the passage of Proposition 15 in the November elections.

Weaver has moved his offices to New York City, where he will negotiate plans to franchise subscription television operations in other states while the company fights the lawsuit in court.

CONSTRUCTION STARTS ON LATROBE COMMUNITY SYSTEM

Latrobe, Pennsylvania will soon join the growing number of communities served by a community antenna TV system. Construction was started in December and is expected to be completed in about eight weeks.

The Highland Cable Corporation, holders of the Latrobe franchise, have contracted with Jerrold Electronics to plan, engineer and install the entire system. They will also check the system out thoroughly, train Highland Cable technicians to maintain it, and give Highland aid in setting up a promotion to sell subscriptions.

Latrobe system subscribers will have their choice of nine TV channels; channels 2, 4, 11, and 13 from Pittsburgh; 6 from Johnstown; 7 from Wheeling; 9 from Steubenville; 10

from Altoona; and channel 12 from Clarksburg.

Jerrold Channel Commander units will be used at the head end of the Latrobe CATV system. Also featured will be all-transistor trunkline, bridging and line extender amplifiers.

The Latrobe "plant" will be 20 miles long and will utilize Times Wire semi-flexible aluminum sheathed coaxial cable.

ACTA ANNUAL MEETING IN JANUARY

The Arizona Community Television Association will hold its winter meeting at the Bali Hi Motor Hotel, 1515 Grand Avenue in Phoenix on January 22 and 23.

Arlo Woolery, President of the Association, announced that members of the Arizona State legislature have been invited to the Friday evening banquet to hear the CATV story from NCTA President Bruce Merrill and to see NCTA's film story of CATV "Over The Horizon." The program will also include technical discussions of new equipment plus sales and promotional presentations.

AMERICAN CABLEVISION BUYS SYSTEMS

Jack Kent Cooke, president of Jack Kent Cooke, Incorporated, Beverly Hills, California, and S. J. Kryzsko, president of Winona TV Signal Co., and LaCrosse TV Signal Company, Inc., jointly announced that Jack Kent Cooke, Incorporated, through its division American Cablevision Co., has purchased the CATV systems owned by Winona TV Signal Co., and LaCrosse TV Signal Company, Inc. The systems are located in Winona, Minnesota and LaCrosse, Wisc., and serve 7,674 subscribers. The purchase price was two million five hundred thousand dollars (\$2,500,000).

BLONDER-TONGUE OPENS FOURTH PLANT

Blonder-Tongue Labs has begun manufacturing operations in its fourth Newark plant, it was recently announced by Harry A. Gilbert, vice president and general manager.

The new plant, which occupies an entire building on Liberty Street, provides Blonder-Tongue with an additional 20,000 square feet of production facilities. □

COVER PHOTO — Supplied to us through the courtesy of VuMore Company, Oklahoma City. Our thanks to George Milner who took the photograph.

TELESYSTEMS is people...



Sam Street, Advertising Manager, is an expert in CATV Advertising and Promotion. Sam formerly headed his own advertising agency. For over three years he has been attracted to full time involvement in Cable Television.

Many CATV companies have increased subscribers by utilizing Sam's creative promotions and merchandising techniques.

Sam rounds out TeleSystems complete CATV package by providing every form of advertising assistance from franchise proposals to "open-houses".

Sam Street is another reason it's smart to work with **TeleSystems Corporation**.

PROMOTION SERVICE



TeleSystems Corporation offers a most complete promotion service to the CATV Industry. Whether you need a CATV mat service, "Open-House" package, direct sales program, or merchandising premiums—
You'll profit by a call to **TeleSystems Corporation**.

Serving CATV Systems in Engineering, Construction, Equipment, Promotion and Management



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FOCUS

... On Progress

COWART JOINS VIKING CABLE

R. L. Cowart, former Vice-President of Engineering for National Trans-Video, has joined with Viking Cable Company to form *Systems Construction Company*.

Vice President of the new corporation, Mr. Cowart noted that Systems Construction will "build systems with the owner in mind." He indicated that the company will provide engineering services to the CATV industry including turnkey construction of systems.

ENRTON APPOINTS HAROLD K. DOBRA EXECUTIVE COORDINATOR

Harold K. Dobra was appointed Executive Coordinator for Entron, Inc., manufacturers of community, master and educational TV systems, according to Robert J. McGeehan, President.



Mr. Dobra formerly served as treasurer and director of Standard Findings Company, Pawtucket, Rhode Island. He also served as plant manager for the Central Falls, Rhode Island operation of Dictograph Products, Inc.

A native New Englander, he attended Northeastern University and Brown University.

BROADCASTER VISITS AMECO

Visiting in Phoenix, Arizona recently was J. Leonard Reinsch, President of Cox Broadcasting Co., Atlanta, Georgia. Reinsch, on a combination pleasure-business trip, visited with

Bruce Merrill, President of Ameco, Inc.

Cox Broadcasting Co. owns five TV stations and four radio stations, WHIO-TV and WHIO, Dayton, Ohio; WSB-TV and WSB, Atlanta, Georgia; WSOC-TV and WSOC, Charlotte, North Carolina; KTVU, Oakland-San Francisco; WIIC-TV, Pittsburg; and WIOD-AM & FM, Miami, Florida, and CATV systems all over the country.



(l to r) Marcus Bartlett, J. Leonard Reinsch, and Clifford M. Kirtland chat during their recent visit with Bruce Merrill, Ameco's President (second from left).

In addition to his extensive duties as president of Cox Broadcasting Co., Reinsch is kept very busy six months out of the year working with the Democratic Convention of which he was executive director in 1964. He was also one of the judges who picked Miss America this year.

With Reinsch was his wife, Phyllis, his daughter, Penny, his son, J. Leonard, Jr. Also accompanying him were Sol Taishoff, Editor and Publisher of *Broadcasting Magazine*, Marcus Bartlett, Vice President of Cox Broadcasting Co. and Clifford M. Kirtland, Secretary-Treasurer of Cox Broadcasting Co.

SIMPSON JOINS REPRONICS

Recently added to the staff of Repronics, Dallas, Texas was Jack Simpson. Repronics is a representative agency for CATV equipment manufacturers.

Mr. Simpson will serve as sales representative for the firm that covers Texas, Oklahoma, Arkansas, Tennessee, Mississippi, Louisiana, Alabama, North Carolina, South Carolina and

Florida. Repronics' lines include Plastoid, CAS Manufacturing CushCraft, Aberdeen Company, Craftsman, Delta and South Wire Company.

SHANLEY TO HEAD JERROLD PURCHASING GROUP

Aloysius J. Shanley has been named Manager of the Jerrold Electronics Purchasing Department, it has been announced by Robert Beisswenger, Vice President and General Manager of the electronics firm.

Heading a seven man buying group, Mr. Shanley will be responsible for all procurement for the two Jerrold plants in Philadelphia.

According to Mr. Beisswenger, Shanley was given the new post on the basis of "an outstanding record of buying quality material at the right time and for the right price."

"The purchasing function," continued Mr. Beisswenger, "is an integral part of the production line at Jerrold."

Mr. Shanley plans to establish new purchasing techniques, stressing controls. His new plan calls for a variety of controls, each tailored to fit the specific commodity involved.



"We intend," said Mr. Shanley, "to reduce actual costs on a broad base of items by putting the burden of stocking on vendors."

Before joining Jerrold six years ago, Mr. Shanley worked for Philco and the Robertshaw Fulton Controls Corporation. At the latter firm, he served as Production Control Supervisor, before joining the purchasing department.

ROGER WILSON, CATV ENGINEERING VETERAN, NAMED CHIEF ENGINEER BY TELEPROMPTER

Appointment of Roger Wilson as chief engineer, Community Antenna Television Division, has been an-

(Continued on page 40)

LETTERS

Gentlemen:

Enclosed is a brochure prepared by TAME presenting its analyses of the threat CATV poses to the traditional system of television broadcasting, urging federal regulation and advising city council to impose a freeze on the granting of franchises until this matter has been resolved by the Congress and the FCC.

We are sending this to the law directors of some 1400 municipalities and we are sending it to the press in communities where CATV is being debated. In the latter case the brochure will be part of a press kit which will also include news releases, the TAME News Bulletin and other items of interest.

We receive requests for background material on CATV from all parts of the country. In many cases, local members of TAME use this material when appearing before city councils or when making speeches before civic groups.

Robert R. Mullen
Robert R. Mullen & Co.
Washington, D.C.

• *Bob, we have thoroughly examined the material you sent us. We cannot find any indications of TAME turning from its original policies which we have already exposed and condemned in these pages.*

The threat to "the traditional system of television broadcasting" of which you speak is, by the admission of TAME's acting chairman, actually a supposed threat to \$50,000,000 annual antenna sales! We refer to Morton Leslie's letter published by "the supreme effort" as reported in December TV & COMMUNICATIONS.

For a more accurate picture of the alleged dangers of CATV, we suggest you read Milt Shapp's vital report in this issue.

Gentlemen:

The article by Mr. Charles Wigutow "Launching A New CATV System" in your Sept. 1964 issue, was excellent.

Last January we opened our system here and followed the same plans which were given to us by Mr. Wigutow.

A great deal of hard work is involved but let me assure you that Mr. Wigutow's plan works!

Julien Smith, Jr., Manager
King-Talton, Cablevision
Selma, Alabama

• *Julien, we're sure that other readers will be interested to learn of your endorsement of Charlie Wigutow's recommendation.*

Gentlemen:

We have applied for membership in National Community Television Association, Inc.

As we don't know whether this membership includes a subscription to "TV & Communications" and we wish to begin receiving your magazine immediately, we enclose our check for a year's subscription.

If as a member of NCTA we would automatically receive the subscription, please either return our check to us, or forward it to the association office.

Talbot Patrick, President
Catawba Services, Inc.
Rock Hill, S.C.

• *Talbot, unfortunately your NCTA membership does not include a subscription to the industry magazine. However, we have processed your subscription and welcome you to our growing family of TV&C readers. Congratulations, also, on your joining the National Community Television Association.*

CALENDAR

January 22-23—**Arizona Community Television Association** winter meeting at the Bali Hi Motor Hotel, Phoenix. Bruce Merrill, NCTA President is featured speaker; "Over The Horizon," film story of CATV will be shown.

March 24-26—**Southern CATV Association meeting.** Will be held at the Broadwater Beach in Biloxi, Mississippi.

March 29-30—**Pacific Northwest Community Television Association** Spring Convention. 10th Anniversary event at the Davenport Hotel, Spokane, Washington.

July 18-23—**National Community Television Association** Annual meeting. Denver Hilton Hotel is site of 1965 NCTA convention in Denver, Colorado. (1966 convention is scheduled for June 26-30 in Bal Harbour, Florida.)

EMPLOYMENT SERVICE

**An Employment Service for
Cable Television?
It's here now!**

**Are you a cable TV operator
looking for a man . . . or a
man looking for a cable system job?**

We can bring you together for both your mutual benefit. An employment service, exclusively devoted to the interests of the cable television interests, has been needed. TeleSystems Corporation is filling a genuine need in the CATV Industry by providing this service.

Many, many miles separate job seeker from the job opportunity. It would take great expense to pursue the opportunities that are now open. Similarly, much time and needless expense is lost in seeking the ideal person for the opening.

CATV has been growing fast. Ownership can benefit by the years of experience we have had in staffing our CATV systems. We have established significant criteria by which to judge whether a prospective employee is the right person for the job.

Often persons with good backgrounds in closely allied industries can make a successful transfer into CATV.

Or men with Manager or Chief Technician potential have pushed past the limits of their present opportunities and are seeking advancement in this exciting industry.

TeleSystems Corporation will help bring you together: System Owner—and job seeker.

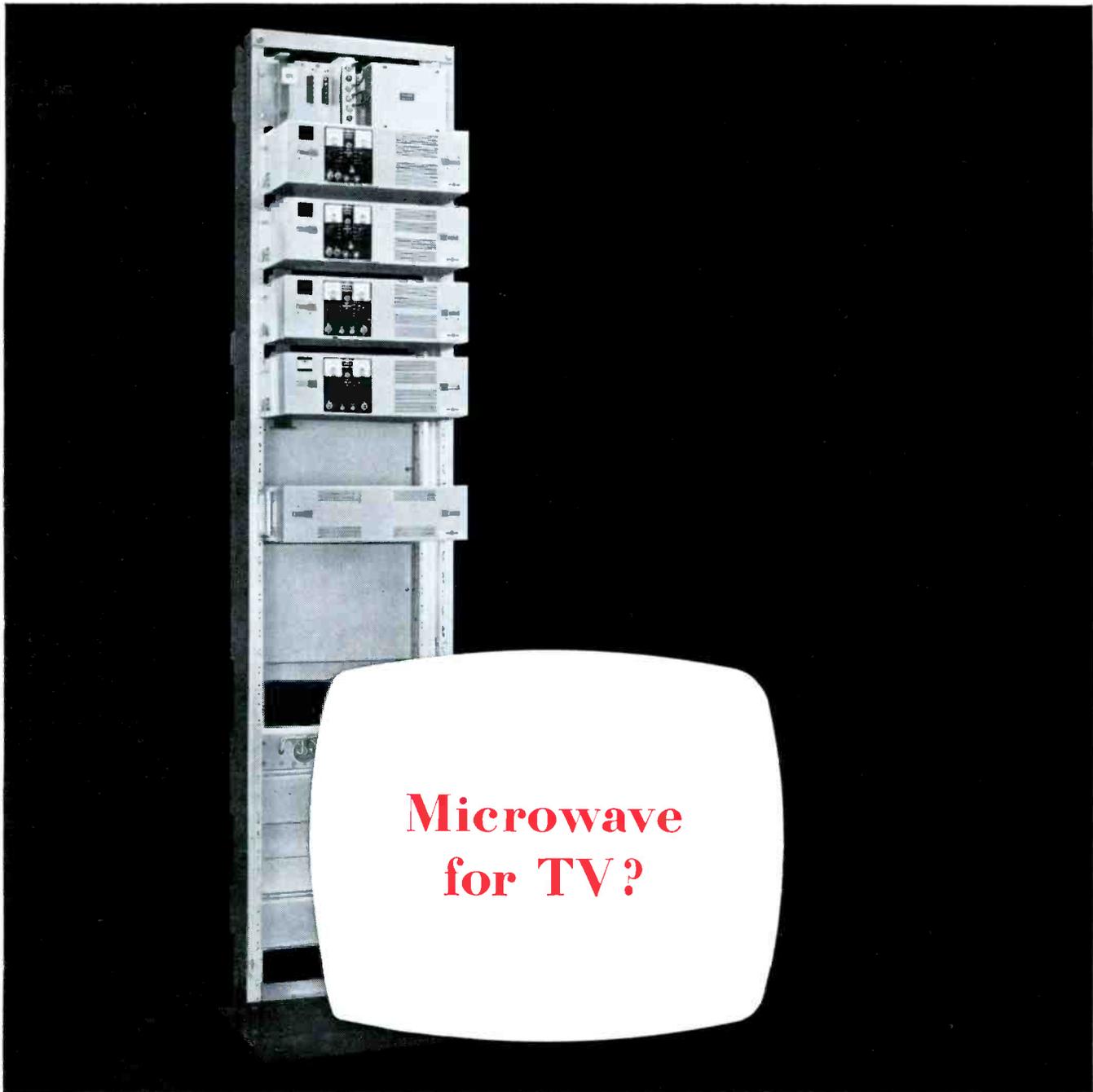
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Microwave for TV?

Consider these advantages of Collins transistorized microwave equipment

1. *Solid state reliability.* Collins microwave is completely transistorized except for klystrons.
2. *Low power consumption.* Collins transistorized microwave cuts power consumption up to 50% over older tube-type equipment.
3. *Low maintenance costs.* Extensive use of transistors and other solid state devices increases equipment operating life. Downtime is at a minimum.

4. *Equipment for every application.* Collins makes equipment at both 6 and 12 KMC. Collins offers you 1-watt remodulating systems and 5-watt heterodyne systems at 6 to 8 gc; with 50-mw and 500-mw remodulating systems available at 10 to 13 gc. These are just four good reasons you'll find Collins uniquely qualified to handle any of your CATV, ETV, STL or video network requirements. Call or write today.

COLLINS RADIO COMPANY, Microwave Marketing, Dallas, Texas, Area Code 214, AD 5-9511 • Collins Radio Company of Canada, Ltd., Toronto • International Division, Dallas



Your Friend, The Civic Club

There are many ways of defining public relations. One is getting your name into the papers, even though there are times one should know enough to keep quiet. There isn't a time during your business related activities, or for that matter, your non-business related behavior, that you are not affecting your public relations program.

I think of public relations as being all encompassing. It is the sum total of all the ways you and your employees and the company come in contact with the public, and what the public thinks of you.

What is the impression your trucks or servicemen leave on the onlooker? What was the reaction of the caller to the office employee's manner of answering the phone or to the greeting at the counter? Do you, the manager demonstrate a knowledgeable air about the business of television—this includes quality of reception as well as the nature of television programming and the place of television in our social scheme.

Does the office fit into a concept of a highly progressive, scientific way of bringing superior pictures to the community? Even your handling of a single customer is public relations. Perhaps the elementary example used to illustrate the behavior of electron waves can serve as an example. When a pebble is thrown into a pool of water, the ripples travel to the end of the pool. However we deal with a single customer our action has a way of multiplying and spreading. A happy customer becomes a good salesman. An unhappy one tells another, and so on down the line.

This may be basic, but I think we are prone to forget the simple rules. A simple rule for good public relations



At dinner meetings, a social solidarity is built up.

is to build and value a reputation for integrity, for community concern, and a belief that your business is in the public interest.

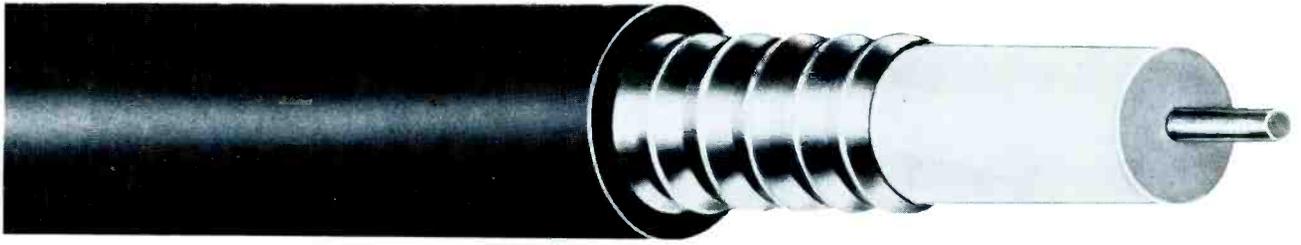
Thoughtful handling of complaints is a powerful tool for public relations. If you consider a customer's request for service a necessary nuisance you are missing out on one of your best business builders. Here is a chance to cement the ties between you and your subscribers. By strengthening this relationship, you help to make system salesmen out of your subscribers. Word of mouth recommendation by pleased customers, after your advertising program has done its work is one of the best ways to continue the push toward 100% saturation. Even when some customers seem to be unreasonable, you should still make them feel that you want them to come to you with all their TV problems (real or imagined) and that you want to do everything possible to correct or explain the problems.

How a few people can influence many others in a community has been demonstrated by social scientists. Persuasion to a degree can be accomplished by advertising and general promotion in the mass media, newspapers, radio, direct mail. . . . But to penetrate more deeply through the last layers of resistance you require the aid of those you can commit to your side.

In seeking allies who are in position to help us, I can think of no more likely groups than the Service or Civic Clubs. It is almost commercial suicide not to have these organizations as your friends. If they are not on your side someone has been doing a bad job of representing the cable system.

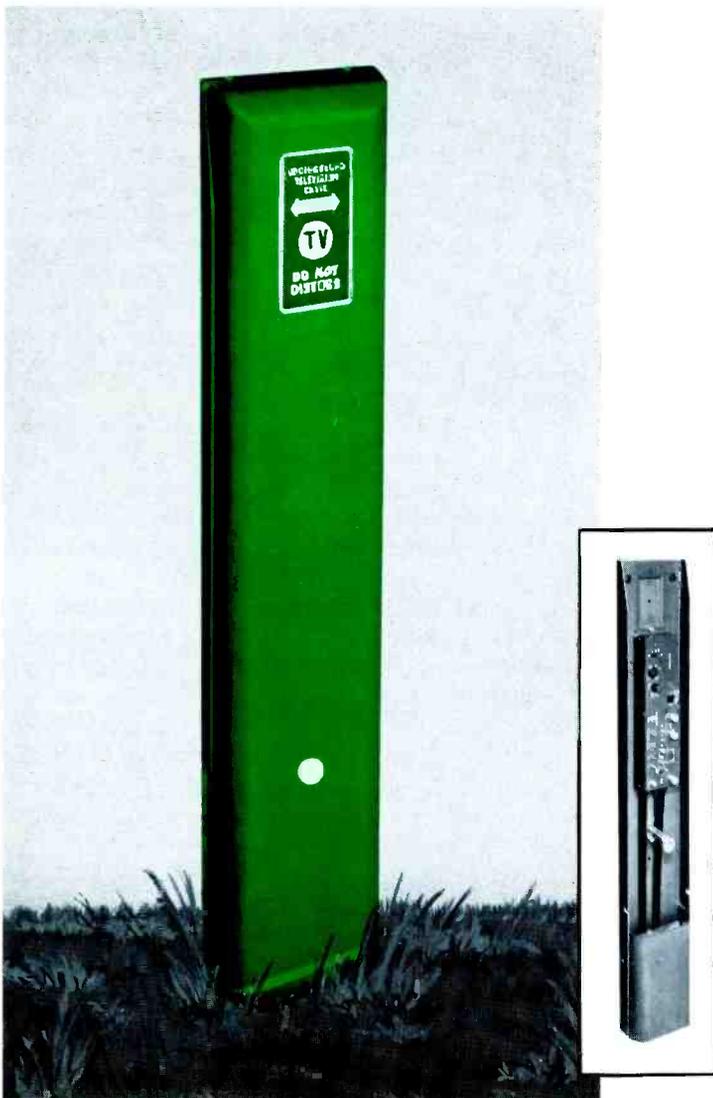
These clubs are voluntary associations of business leaders, professional men and administrators in public organizations. They comprise the reputable people in town—and often serve as extra legal bodies who support or speed major decisions that affect the town. They are often responsible for cutting through red tape to get things done. In almost all communities, the official political machinery swings with the pressure exerted by the combined service clubs.

At the luncheon or dinner meetings, a social solidarity is built up that carries on into the economic and political life of the community. Here rests the support of the elected and appointed community officials. While elections bring about changes in elected leadership, the service club remains as a constant community force. Elected officials use the service clubs as sounding boards or as take-off points for new ideas. Also out of these clubs come those who are on the political upgrade, the leaders to be.



Another **FIRST**

A complete underground
specifically for



SUPERIOR "**SOLID-D**" Direct Burial **Coaxial Cable**

Solid copper conductor. Solid polyethylene dielectric. Superior's "Coppergard" corrugated copper shield. Black polyethylene jacket. Superior's 6020 and 6030 "Solid-D" Direct Burial Coaxial Cables provide 27 db minimum return loss and full spectrum capability.

SUPERIOR **SUPER-TERM** Fiber-Glass **TERMINALS**

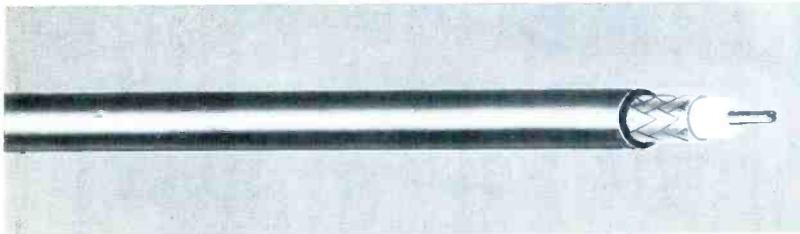
The **ONLY** buried plant terminals unaffected by environment . . . **THEY'LL LAST A LIFETIME!**

SUPERIOR SUPER-TERM Fiber Glass Terminals . . . pedestal or pole-mounted . . . in the sizes you need to accommodate amplifiers and line tap units, etc. that you may require.

Now you can go underground
with SUPERIOR'S exclusive
Direct Burial Coaxial Cable

in the Industry!

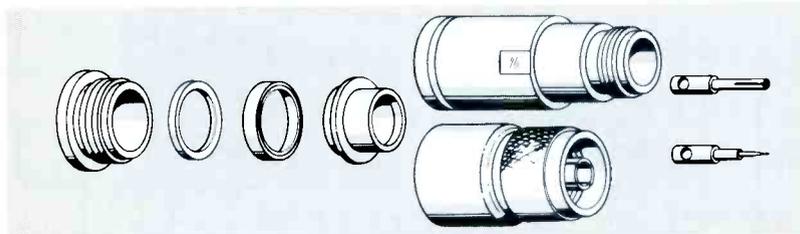
coaxial system designed
CATV installations



SUPERIOR Direct Burial COAXIAL DROP WIRE

Copper-covered steel conductor.
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braid shield. Polyvinyl chloride

jacket. Extra high strength drop
wire designed for direct burial
installation.



SUPERIOR Captive Contact 75 OHM CONNECTORS

Type "N" Plugs and Jacks for
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Coaxial Cable. Designed to mate
electrically and mechanically with

#6020 and #6030 cable. Positive,
never-fail contact. Superior's
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sure full-system compatibility.



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**Our new line of HYBRID INLINE
DIRECTIONAL MATCHED COUPLERS
with 1-2-4 OUTPUTS**



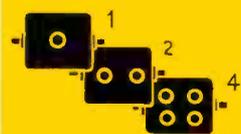
MODEL
DC-20



MODEL
MDC-8-F



BOTTOM VIEW



**A HOLIDAY SPECIAL . . .
TO INCREASE YOUR CATV SALES**

FACT . . . Craftsman has the only Hybrid Directional Coupler available.

FACT . . . Craftsman saves you money with the lowest possible cost.

NEWS . . . Craftsman now saves you more money with the same high quality. That's right—Craftsman's Holiday Special gives you the same fine Craftsman Directional Coupler; but at a special, low, low price. (And, you can take advantage of this price until February 1, 1965.)

FEATURES

- LOW COST—See Price Listing
- HYBRID DIRECTIONAL-COUPLER CIRCUITRY
- WIDE BANDWIDTH—5-220 mc.
- COMPACT, RADIATION-PROOF HOUSING with a special sun reflective paint
- THRU LOSS—1/2 db
- HIGH ISOLATION
- EXCELLENT MATCH ON ALL TERMINALS 75 Ω MATCHED
- WEATHERPROOF-EPOXY SEAL

**FITTING: TAP ATTENUATION 8-12-16-20-24 db
ALL FITTINGS IN AND OUT**

PRICE LIST

MODEL	ALL TAPS WITH "F" CONNECTORS		
	1 TAP	2 TAPS	4 TAPS
MDC-F	\$4.35	\$6.95	\$7.95
MDC-UHF	4.95	7.25	8.25
MDC-A-412	7.25	8.50	9.50
MDC-A-500	8.25	9.50	10.50

Unit comes equipped with Strand and Pole Mounts.
Specify number of taps required.

These prices subject to change without notice.

Send for our catalog for complete specification details.

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Clubs do many good works for the community—and they are committed to a friendly fellowship within the orbit of private enterprise.

We, in CATV, have much in common with them. The clubs are important to us. Precisely because clubs are most influential in the kind and size of town which usually houses a cable television system, they are deserving of our special public relations efforts.

Nowhere else does the process of magnifying the public's attitude work more effectively than here. Win the club people; the operating heads of businesses, stores, newspapers, radio stations, administrators of schools, officials of City Hall, Doctors, lawyers, chiefs of all kinds and you have gained favorable pipe lines to much greater populations.

In the past, there had been some cases of antagonism between cable system and service club. Where this has happened, either the club did not know its own end purposes, or somebody in the CATV industry had done a poor job of educating the local group on community television. The creed of the Junior Chamber, the Chamber of Commerce, and the clubs is one of promotion of private enterprise as being at the heart of a program of community betterment. Where can one find a more legitimate and community minded business than that of giving the public, at reasonable charges, a better choice of programming from a greater variety of television channels? Let the clubs and public service organizations in your town know exactly what CATV is, and what it will mean to their community. Their interest and assistance will prove invaluable to you. □

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Sixth graders, 1,000 of them, in 36 classrooms spread over a 31-square mile school district now receive enriched science instruction, including field trips and visual experiments, conducted by the same teacher.

Two portable TV recorders, in conjunction with the school's existing ETV equipment, have facilitated the implementation of improved science instruction in the Fontana, California Unified School District. The Precision Instrument (PI-3V) magnetic tape recorders permit 24 separate broadcasts by James Boyd, television teacher for the district. Mr. Boyd records two



TV technician Dean Hilleman operates portable recorder on tailgate of station wagon used as mobile distribution center. Tape is used for playback into a Fontana school's antenna system through audio/video RF modulator.

science lessons a week during the school year, each 20 to 25 minutes in length. The video portion consists of live experimentation and extensive graphics and field trips. The programs are described in advance in study guides written to encourage participation by classroom teachers.

Lee Follis, Director of Instruction Material at Fontana, applied for and received \$20,000 Federal funds under the National Defense Education Act early in 1964. The school district matched the grant and Mr. Follis purchased the recorders. He also added a master antenna system and distri-



Camera focuses on close-up of TV teacher James Boyd explaining functions of the inner ear. One of two recorders (front) tapes Boyd's science lesson.

Meet the Solid-State Sensat

AMECO-TRAN SC

Coming as no surprise to anyone in the CATV industry . . . Ameco is first among the cable equipment manufacturers to offer a solid-state modulator. ■ Mention either word . . . “solid-state” or “first” . . . and the average cable owner or technician will automatically think of the pace-setter of the industry, Ameco. ■ For while others imitate . . . Ameco originates. ■ So we know that no one will be surprised at the announcement that the Ameco-Tran Solid-State II is now ready for immediate delivery in quantity. Not a piece of paper in the laboratory . . . not a prototype being tested . . . but a tried and true solid-state modulator thoroughly tested in the field and now coming off the production line. ■ So regardless of the make or type of amplifiers now in use in your system, if you are needing new headend equipment, take a good look at the Ameco-Tran Solid-State II. It is priced right and defies performance comparison. ■ The Ameco-Tran Solid-State II belongs in your system. ■ The Ameco-Tran Solid-State II is ready for delivery to your system . . . NOW.

TAKES LESS POWER
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OUTPUT LEVELS
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CONTROLS/INDICATORS	DESCRIPTION AND FUNCTION
POWER pushbutton	Illuminating type pushbutton switch which controls application of power to unit, and displays operating channel of modulator when depressed
TEST METER Control	Wafer-type selector switch. Selects B+, B-, or video for display on test meter
TEST METER Indicator	Displays voltages selected by TEST METER Control
VIDEO MODULATION Control	Potentiometer for controlling visual of video modulation
VISUAL CARRIER Control	Potentiometer for controlling visual r-f output
AUDIO MODULATION Control	Potentiometer for controlling depth of audio modulation
AURAL CARRIER Control	Potentiometer for controlling aural r-f output

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With optional circuit boards, the quickly adapted to either a signal composite video inputs or a source f-m carrier signals. The modulator through coaxial cable to provide cable television reception. Rugged the Ameco-Tran Solid-State II.



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Ameco-Tran Solid-State II can be used as a source having separate audio and video with combined video and 4.5-mc r-f output can then be directed to your customers with the finest in modulation . . . Reliable . . . Dependable . . .

SPECIFICATIONS	VISUAL	AURAL
Tilt	Less than 1% on 60 cps 50% square wave	
4.5-MC Aural Input	0.1 rms across 75 ohms	0.1 rms across 75 ohms
Modulation Capability	Continuously variable to 90% (limited by white peak clip)	Continuously variable
Low Frequency Linearity	1 db or better at 87½% modulation	
Differential Gain	1 db or better at 87½% modulation	
Differential Phase	±2 or better at 87½% modulation	
Output Impedance	75 ohms	

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bution amplifiers for the 12 elementary schools and installed 40 TV receivers for sixth grade classrooms.

TV Studio Added

Serving a total population of more than 50,000, the Fontana School District implemented its television activities with a research program in 1958. Originally designed for an in-service teacher training program, the system developed to its present status.

As a result, a new TV recording studio was built by the district technician, Michael Takacs, to provide

adequate height for lighting and space for a sound-proofed control room. Takacs also built a mobile recording unit which can be transported in a station wagon and even on its own wheeled carriage for true field use. The mobile recording unit contains a Precision Instrument TV recorder, two G-E vidicon mobile cameras, microphones, audio mixer and a one-kilowatt gasoline generator plus a homemade voltage regulator system to assure constantly uniform generation of video synchronization signals.

Mr. Takacs later designed and constructed pulse distribution amplifiers and a transistorized switcher-fader.

Teachers Participate

Detailed outlines for each of the recorded TV lessons are prepared in advance. The outlines includes minute-by-minute classroom guides for teachers. Mr. Boyd, for example, will ask a question during a recording, then the camera will focus for several minutes on the object or graphic presentation in question.



Lee Follis (right), director of instructional material at Fontana Unified School District, discusses script with James Boyd, TV science teacher.

The classroom teacher will use this time to encourage responses from pupils.

Current topics in the science series includes recordings of science material on the human body, the solar system, basic mechanics, biology and other related selections. The series includes field trips where one of the portable recorders is used to tape instructional material as the other is used for playbacks at the 12 elementary schools.

The 75 pound tape recorders connect to the school's distribution amplifier for transmission to as many as four classrooms simultaneously.

Several additional subjects are planned for future school sessions. Upper elementary music classes will visit, via video tape recording, a symphony orchestra during rehearsal; hear a mighty church organ, and inspect its pipes. Civics classrooms will attend the Fontana city council meetings via the recorder. As in the science program, the classroom teachers will receive advance study plans and several of them will have the opportunity to teach their specialties via TV tape.

The present TV recording program is only transitional according to Follis.



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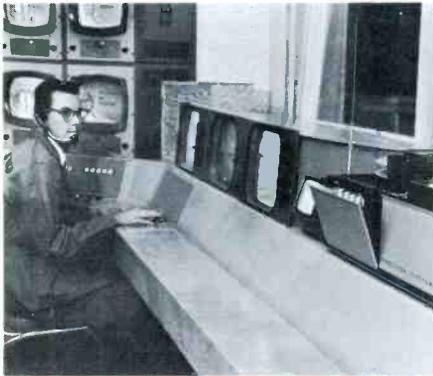
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"We are making plans now for a four-channel, 2,500-megacycle district-wide video transmission system," he said.

"This will realize the fullest potential of the TV recorders. Even scheduling of pre-recorded TV will be feasible for our senior high school with its more than 250 courses meshed into a 30-hour academic week.

"The portability of the recorders and their lower cost one-inch wide tape will still be important for recording significant performances and for field work, but there will be no lost time going from school to school. Instead, the recorders will record and playback for broadcast schedules all day long."

"We estimate a one-time expenditure of \$45,000 will give us broadcast capability compatible with classroom scheduling at all levels throughout the district."



Electronic technician Michael Takacs, who installed all electronics, is shown in Fontana Unified School District's TV control room. Four monitors at left reference live video, film and pre-recorded lesson segments. Pushbutton panels under each of four monitors are remote controls for the two recorders at right. Pushbutton switches and knobs below the bank of four monitors are controls for film and slide projectors, with remote shading controls for camera, so slide projector may be shaded for pictures and for superimposing titles over live camera. Control panel Takacs is operating is switcher/fader, which Takacs built from parts costing less than \$50.

"In the meantime we are teaching an enriched, superior science course at far less than half the cost it would require by special teachers. And the economies multiply with each enrichment class offered," Follis concludes.

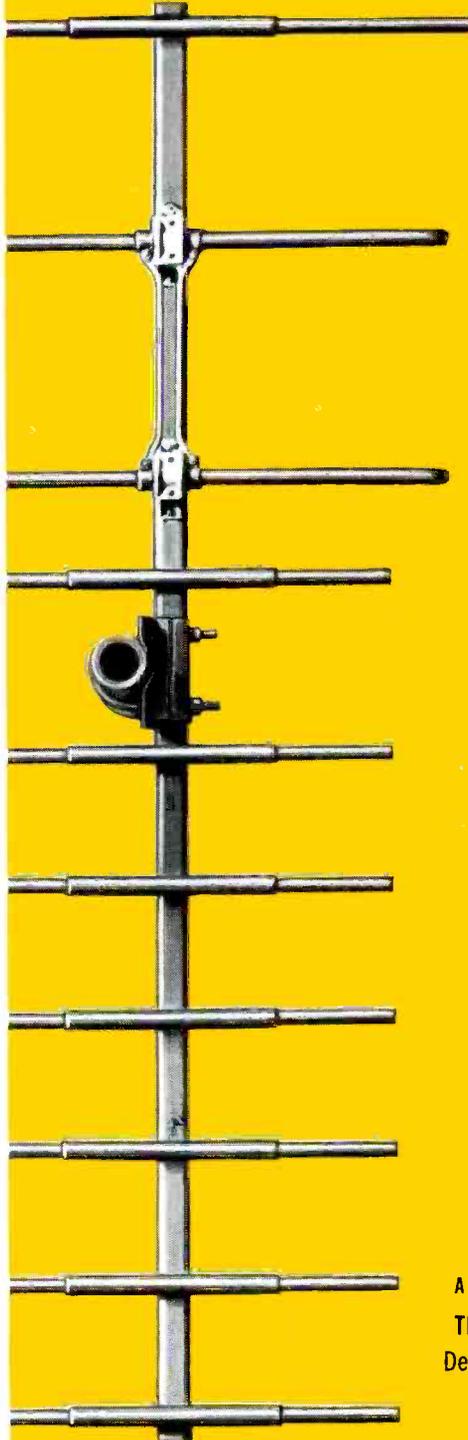
Dr. Denzil E. Widel, district superintendent, offered this comment: "The instructional staff feels that closed circuit TV, with all the possibilities added by the new TV recorders, will be the best teacher-aid that has thus far been developed."

"I feel that our students will now have advantages that would be impossible to duplicate even though we were to spend many times the money we have now invested in ETV." □

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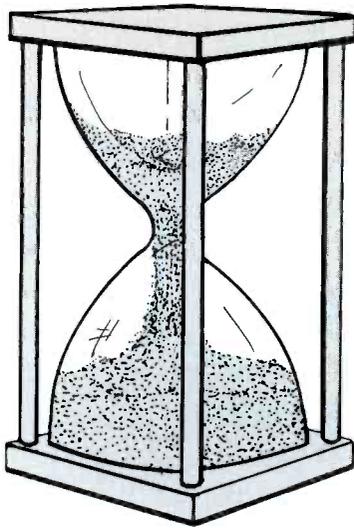
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CATV— PAST PRESENT & FUTURE

By MILTON J. SHAPP
President
The Jerrold Corporation

Community antenna television is 14 years old this month. It has come a long way since the first commercially successful system was installed in Lansford, Pennsylvania back in 1950.

The period of infancy is well behind. CATV has many adolescent problems, but being well fed and healthy, it is looking forward to continued and rapid growth. Some day soon it will mature and take its place as one of America's truly great industries.

It is normal for adolescents to be in conflict with entrenched authority. When youth gets a chance to try out new ideas, finds out they work and then proceeds to move forward on its own, the adult world can neither wish nor wash away these innovations.

Like many adolescents, CATV is misunderstood and misjudged by its elders. It is misunderstood by many of those who presently rule the roost in the broadcasting industry. It is misjudged by some officials who are supposed to rule over these TV roosters in the interest of the public.

Nonetheless, once launched, the next generation cannot be held back.

The day is not too far distant when almost all American cities—small and large—will be wired for television; and when rural dwellers in almost all the sparsely settled areas of the nation will enjoy multiple channel TV reception via cable in their homes.

That this development will have tremendous impact upon the broadcast industry is undeniable. That the TV broadcast industry will adjust to these

changes and continue to grow is also undeniable. One has only to analyze the growth of radio broadcasting and of the movie industry, since they were presumably pushed into oblivion by Milton Berle on television, to recognize this basic truth. In a growing America, where free choice is the accepted mode, there is a need and scope for all kinds and types of industries to serve the entertainment demands of the public.

There is no holding back the growth of CATV. The evidence is overwhelming that the public wants TV service that only cable systems can bring and is willing to pay for it. Further, the record is clear that no segment of the public has yet been harmed by CATV, nor will it be harmed by its continued expansion.

The problems created by the growth of CATV are more confusing than need be. Indeed, they are more confusing than they are complex. Perhaps, therefore, a clarification of CATV—a review of its history and present operations and a glance at its future potential—will serve to resolve this confusion.

Growth of CATV

Community antenna systems were spawned in the mountainous regions of Eastern Pennsylvania.

The first commercially successful CATV system was installed in Lansford in late 1950. Then, in rapid order installations were made in Mahanoy City, Pottsville, Tamaqua, and many other cities. It soon became apparent

that just as neither sleet nor rain could hold back the postman, mountains could not prevent TV signals from getting into the homes of people living in isolated communities.

The first systems were capable of carrying only three channels. However, customers stood in line to pay from \$100 to \$150 to connect and to sign contracts for continuing service at rates that varied between \$3 to \$6 per month.

At that time it was an extremely high risk business. Entrepreneurs concentrated their efforts to obtain as rapid return on investment as possible, for it was felt that when the freeze on new television stations was lifted, CATV would die.

However, during the period of 1953, 1954 and 1955, as new stations came on the air, it became apparent that the public was still willing to pay for the added services offered by wired television. In the mid 1950's engineering innovations enlarged the capacity of CATV systems so they could handle five channels. However, in areas where broadcast signals could be received on home antennas it was no longer possible to collect \$100 to \$150 for a connection charge. After much experimentation, it was discovered that under these conditions people were willing to pay \$10 or \$20 to connect to a CATV system, and \$4 to \$5 per month to receive more channels than individual antennas could pull in.

As the industry grew, it changed its patterns of operation. Instead of sys-

tem owners seeking rapid return on investment from high connection charges, investors attempted to attract large numbers of subscribers at low connection charges; and operated profitable businesses deriving regular income from monthly service charges.

In the late 1950's new services were added to CATV systems. FM signals were supplied on the cable. System operators experimented with their own closed circuit originations and some provided a channel for time, weather and news information. Many systems offered channels to school districts for educational TV.

The CATV industry entered another phase in the early 1960's with the development of 12 channel systems. For the first time it became possible to install a CATV system in a town that could receive all three networks on home antennas. By means of elaborate antenna arrays and microwave, the CATV system could bring in many additional programs not received clearly via roof top antennas, and by virtue of greater capacity, offer other programs and services of local interest.

Now, as the CATV industry moves into larger cities, systems capable of handling at least 20 channels are being designed. They are on the drawing boards. If the need arises, it will be possible in the future to install CATV systems capable of delivering 40 or 50 channels of TV, plus an almost unlimited number of FM stations on a single cable.

CATV Provides a Public Service

The true reason for the remarkable growth of CATV, despite all the technical and marketing problems that this young industry has faced, is generally overlooked.

CATV provides the lowest cost method by which a TV set owner can enjoy the highest quality reception from all the stations he wishes to receive. In short—CATV offers the set owner a way to obtain maximum value from his television receiver. If this were not true, CATV would lose its financial base of support and would cease to grow.

To understand fully the importance of this statement, two other concepts must be clarified.

First, CATV is but one form of wired television, for ALL television reception—without exception—is wired TV.

Second, there is no such thing as "free television."

Once these basic concepts are understood, then much of the mystery surrounding CATV evaporates.

All TV Is Wired TV

Consider the statement that all TV, without exception, is wired TV. A tele-



Milton J. Shapp, President and Board Chairman of The Jerrold Corporation, founded that company in 1948. A native of Cleveland, Ohio, Mr. Shapp graduated from the Case Institute of Technology in 1933 with a degree in electrical engineering. He served with the Signal Corps during World War II.

Mr. Shapp formed Jerrold Electronics Corporation to manufacture television boosters designed to pick up and improve TV signals. This led to the development of master and to community antenna systems. Jerrold helped install the first commercially successful CATV system in Lansford, Pennsylvania in the early 1950's. Since then, the firm has installed or supplied electronic equipment to more than 1,000 systems throughout the United States.

The company that Mr. Shapp formed with an initial investment of \$500 now has annual sales of more than \$25 million. Jerrold has also participated in ownership of systems, supplies management services to CATV operators, manufactures TV antennas and boosters, educational TV systems, Microwave transmitters and receivers, electronic test measuring equipment and has other holdings.

Mr. Shapp, in addition to heading Jerrold, is considered a national authority on economic growth and development. He serves as consultant to the United States Department of Commerce, and to Sargent Shriver, Director of the Peace Corps.

vision receiver is nothing more than an electronic device that produces pictures on a screen when a certain sequence of impulses (signals) are fed into its circuits.

The starting place for these signals is the tuner of the TV set. No matter how good or expensive the receiver may be—whether it be for black and white or for color—a TV set does not generate a picture by itself. Nor can it develop a clear, steady picture on its screen unless noise-free—or essentially noise-free—signals are fed into its tuner.

Here's where wire comes to play. Broadcast TV signals—of any frequency, VHF or UHF—must first be collected on an antenna and then fed into the tuner of the TV set. To do this a wire must be connected between the antenna and tuner. This is true for every set, everywhere, at all times.

Now let's ask a basic question. How long need this wire be? The answer, of course, depends upon how far the TV set is located from the antenna that picks up the signals of all the stations that the TV set owner wishes to receive.

The set owner may be very lucky. With rabbit ears on top of his set he may receive enough stations, bright and clear, to satisfy him. In this case, the wire connecting antenna to tuner need be only a few inches long.

Perhaps, though, the signals in his living room are weak or bounce around and cause ghosts. In this case, the set owner may put the antenna on his roof. Now he gets better pictures, but needs a longer wire to connect the antenna to the tuner of his set.

If the TV set owner lives in a fringe area, the signals on his roof top may not be strong enough for clear reception. In this case, he can erect a tower on his roof or on his barn or silo, or perhaps rent some road-building equipment and build a mountain outside his home. In any event, the wire between antenna and tuner becomes longer.

Some people living in city apartments have greater difficulty obtaining clear television reception than do fringe area dwellers. Rabbit ears don't work and a tenant may not be allowed to install a roof top antenna. But again, there is a practical solution. The modern landlord installs a master antenna to provide service to all residents of the building. Now, in addition to the long cables, all kinds of electronic

equipment is installed in the system to amplify signals, filter out interference, split signals, etc.

There is no basic difference between the operation of a simple apartment house or hotel master antenna system and a CATV system.

A CATV system is merely a large master antenna that furnishes TV signals to residential and commercial areas as well as to apartment houses and hotels.

Whether connected to a building system or a CATV system, the TV set owner now finds it to his advantage to pay for antenna service rather than to erect his own antenna.

All TV reception is wired TV reception—whether the viewer uses his own antenna or a master system.

"Free Television" Is Not Free

This takes me to the next basic point. There is no such thing as "free television." The only thing free about TV is the right given to a broadcaster to use the public spectrum for the operation of his private business. Everything else costs money — and plenty of it.

The broadcaster buys programs, which in turn are purchased by advertisers. Individuals buy TV sets—black and white or color, portable or console—to suit their taste and purse. Set owners buy antennas and pay to have them erected or they pay a fee to have an antenna service furnished.

The sum total of all these purchases, at either the broadcasting or receiving end, make so-called "free television" one of the largest industries in America. Every phase of this industry is interrelated and important. Make no mistake about this. If pictures could not be received clearly on TV sets, broadcasters would not sell much time to as many advertisers and would not need to buy as many programs.

Costs for high gain antennas, towers and boosters run into many hundreds of dollars. Salt air at the shore, high winds and sleet on the plains and in mountain areas ruin antennas and make periodic and costly replacements mandatory. Insurance rates to cover property, particularly against roof damage, are rising constantly.

I repeat for emphasis—CATV offers the individual set owner the lowest cost method of wiring the best antenna to his receiver and therefore the least expensive method for receiving all the

stations he wishes to view with maximum clarity.

It is important to observe that many of the most successful CATV systems are located in towns where subscribers can receive pictures with their own antennas. However, they get clearer pictures at lower cost from the CATV system.

Let me emphasize in another way that the phrase "free television" is fallacious. In addition to CATV equipment, Jerrold makes all kinds of gear to help any TV set owner resolve his individual reception problems.

Jerrold makes antennas, transistorized boosters, splitters, couplers, amplifiers, pre-amplifiers, etc., etc. This year we will sell about \$7,000,000 worth of this equipment to help individual set owners obtain better pictures.

The Opposition of TAME

Some of my friends and competitors in the television accessory manufacturing business have formed an organization called TAME. The manufacturers in this organization sell close to \$100,000,000 worth of equipment each year to people they claim must be protected to preserve "free television." It is easy to understand why TAME, "in the public interest,"—of course—is so *violent* in its opposition to CATV.

I agree that any manufacturer or association has the right to fight to protect its market. But TAME's claim that it is trying to protect the public through its opposition to CATV is as brazen as movie exhibitors fighting Pay-TV under the pretext that they are trying to preserve "free television."

The members of TAME also overlook the fact that because CATV systems enable television set owners to get greater value from their sets, greater numbers of receivers are purchased, and dealers and servicemen in CATV areas more than make up for the loss of individual antenna sales by increased set sales and services. In actuality, as long as the operators of CATV systems do not sell or service TV sets, it has been proven, there is a net gain for TV dealers and servicemen.

This is particularly true now that color TV is rapidly becoming of major importance.

More sets sold also means higher advertising rates and greater profits for broadcasters.

If, as I claim, CATV is so good for

everyone, except perhaps members of TAME (and there's nothing to stop them from making CATV equipment), why is such a fuss being stirred up these days by the National Association of Broadcasters and a certain network which proudly claims it is not an Avis when competing with the two other giants of broadcasting?

It's clear, neither the NAB nor this network seems to understand the ABC's of CATV.

Confusion at the NAB

The NAB should hang its head in shame for endorsing the Fisher Report and for continuing to repeat the erroneous dire predictions of the six year old Cox Report.

The National Community Television Association is conducting an economic study that will show the inaccuracy of the data and conclusions presented by Dr. Franklin M. Fisher. Suffice it to say that the same issue of Broadcasting Magazine that commented on The Fisher Report also carried two other stories. One dealt with the growth of CATV and the other stated that this is the most profitable year in the history of TV broadcasting. It's obvious that Dr. Fisher must have made his study in a vacuum, otherwise these conditions could not exist side-by-side.

Even if one were to assume that Dr. Fisher's conclusions on economic impact are correct (and I do not), all that he showed was that a TV broadcaster who operated without competition could make more money than if he had competition. I am sure that movie exhibitors could be found to testify they could make more money if there were no TV. Surely a Chevrolet dealer in any U.S. town would have higher profits if Ford and Plymouth didn't have local dealerships.

Almost everyone knows that shortly after World War II, radio stations all over the country advised the FCC that they would go out of business if additional AM stations were licensed in other cities.

If there were only two TV networks today, they would battle just as furiously to prevent a third from becoming organized as the three of them maneuver today to prevent a fourth from developing.

In this great free enterprise system of ours, competition is something we accept and learn to cope with, after we explore all avenues of preventing it from becoming established.



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The issue that Dr. Fisher didn't and couldn't prove in his lengthy report is that CATV creates competition that is harmful to the public. Nor has the NAB developed any proof of this contention.

A Look At the Record

Let's take a good look at this crucial point. In 1958 and 1959 the Senate Committee on Interstate and Foreign Commerce conducted hearings on the problem of television service for smaller communities under the direction of special counsel, Kenneth Cox. Then in May 1960, a bill to regulate CATV (Senate Bill 2653) was debated on the floor of the Senate.

When one reads all the testimony submitted by witnesses at the hearings, as well as the remarks made by the senators during the floor debate, it is discovered that only two concepts were developed that could be considered determinants as to whether the operation of CATV was inimical to the public interest.

First, it was pointed out that *if* CATV brought signals of outside stations into a town where a local television station was operating and by so doing created sufficient economic hardship so that the local station was forced to discontinue broadcasting, then *in this case* the people living in the area surrounding this town who were not being served by the CATV system and those who lived in the area of the CATV system who could not afford to pay the monthly service charges, would be denied local television reception.

Second, the spread of CATV might prevent the construction of new television stations in small population centers, and this would be contrary to the public interest, convenience and necessity.

These are the only two questions concerning CATV and its possible adverse impact on the public interest that appears anywhere in the record.

It has been six and a half years since the fear-of-economic-impact issue was first raised by a group of TV broadcasters in the Senate Committee hearings. What has happened since that date?

CATV has more than doubled in number of systems and subscribers. One hundred and eleven new commercial and sixty-five new educational broadcasters have commenced opera-

tion, with thirty-three of these stations being constructed in towns already being served by CATV systems, including Durango, Colorado; Sault Ste. Marie, Michigan; Coos Bay and Eugene, Oregon; San Angelo, Texas; and Richland, Washington.

More significant, at no time since the Senate Hearings has any TV station left the air because of CATV competition.

During the 1958-59 hearings, the Senate Committee heard testimony from licensees of the following 12 small-market television stations:

KXLF-TV, Butte, Montana
KYLTV-TV, Helena, Montana (semi-satellite of KXLF—sold in combination)

KMSO-TV, Missoula, Montana
KGEZ-TV, Kalispell, Montana
KLIX-TV, Twin Falls, Idaho
KID-TV, Idaho Falls, Idaho
KLEW-TV, Lewistown, Idaho (satellite of KIMA, Yakima, Washington—sold in combination)

KFBC-TV, Cheyenne, Wyoming
KWRB-TV, Riverton, Wyoming
KLTV, Tyler, Texas
WBOY-TV, Clarksburg, West Va.
WJPB-TV, Fairmont, West Virginia

Among other allegations, all of these stations charged that CATV operations would drive television stations in small communities off the air by dividing the available audience to such a point that their economic base would be destroyed.

KGEZ-TV, Kalispell, Montana, had ceased operation prior to the 1958 Senate Hearings, claiming that CATV competition was the cause. However, the facts revealed a different situation. The total area served by KGEZ-TV contained only 17,700 homes, of which number, 6,000 were already served by CATV before KGEZ-TV went on the air. A letter from NBC prior to the construction of KGEZ-TV advised the would-be station operators that the market was too small to support the operation of a TV station and suggested that they build a CATV system instead.

The Cox Report

While the report issued by this committee, commonly known as the Cox Report, recognized quite properly that it was "difficult" to pass on conflicting factual claims as to economic injury, it leaped to the unwarranted conclusion that many of the charges of economic

injury seemed "*self-evident*" with regard to small-market stations. In these situations the Cox Report concluded that "the introduction of CATV competition, which inevitably divides the audience, *would seem likely to doom the station to extinction.*" The Report stated that this conclusion followed "of necessity" since:

"The station will either (1) be unable to attract advertisers because its declining audience makes its cost per thousand still less favorable, or (2) be forced to reduce its time charges still further in order to hold any of its advertising business."

The Cox Report continued with other dire predictions of small-market station demise:

"If a broadcaster operating in a smaller community, and therefore starting with a limited capacity in this regard, has his ability to provide what advertisers want further impaired by community antenna competition, *the usefulness of his station as an advertising medium is likely to be completely destroyed.* When that happens, *it is simply a question of time until the station will be required to leave the air.*"

"Certainly the broadcasters who have appeared before the Committee have presented a *prima facie* case as to the serious consequences which are likely to flow from the invasion of their primary markets by any of the means of extending television service discussed in this report."

Prediction vs. Performance

But let's look at what has actually happened in the past six and one half years.

None of these small stations have discontinued operation since their 1958 testimony! On the contrary, all but two have increased their rates substantially since that time, an activity directly at variance with the Cox Report predictions and hardly indicative of serious economic difficulty. These increases are as follows:

KFBC, Cheyenne, Wyoming — increased rates 11-1/9%
KLTV, Tyler, Texas — increased rates 16-2/3%
WJPB-TV, Fairmont, West Virginia — increased rates 25%
KMSO-TV, Missoula, Montana — increased rates 25%
KID-TV, Idaho Falls, Idaho—in-

creased rates 32%
 KLXF-TV, Butte, Montana — increased rates 32%
 KXLJ-TV, Helena, Montana — increased rates 32%
 WBOY-TV, Clarksburg, West Virginia—same rate
 KIMA-TV, Yakima, Washington—increased rates 16-2/3%
 KLEW-TV, Lewiston, Idaho — increased rates 16-2/3%
 KMVT (formerly KLIX), Twin Falls, Idaho—increased rates 42%
 KWRB-TV, Riverton, Wyoming — same rate

In addition to the almost unanimous rate increases of these complaining stations, other occurrences since 1958-59 with regard to these licensees are significant and militate against their dire predictions.

KID-TV, Idaho Falls, Idaho, testified concerning the adverse economic effect of CATV in its area of operation. The Cox Report reflected its agreement with that argument. However, so intense has been the impact of CATV in the Idaho Falls area that a second VHF television station KIFI-TV, went on the air in 1961.

Further, two of the complaining stations have been since sold for prices which hardly reflect a sorry financial statement. Eighty percent of the KIMA-TV, Yakima, Washington (and satellites) group sold for over \$900,000, while WBOY-TV, Clarksburg, West Virginia, recently brought a price of \$950,000.

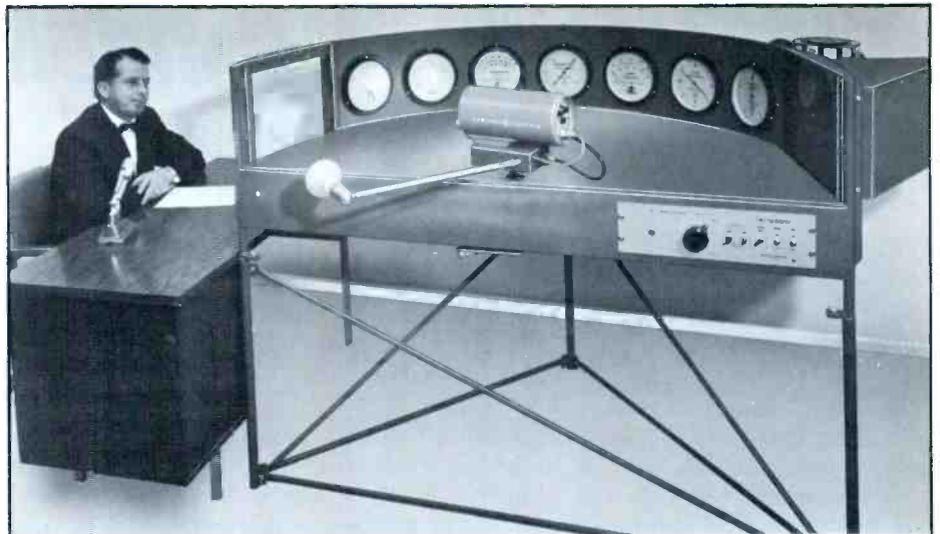
It is clear that the predictions made in 1958-59, supported in the Cox Report and repeated ad nauseum since by the NAB and other opponents of CATV *have not come to pass*. By this time the reason must be obvious: *there has been no significant economic impact of CATV systems on television station operation as to adversely affect the latter's continued operation.*

Community antenna systems have not created the conditions of hardship for broadcasting that would make CATV operation inimical to the public interest. On the other hand, during the past 14 years it has demonstrated, in well over 1,500 systems, that the public wants and is willing to pay for this service.

CATV Deserves FCC Support

It's about time that the FCC either stopped writing letters like those sent

(Continued on page 38)



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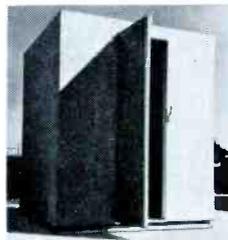


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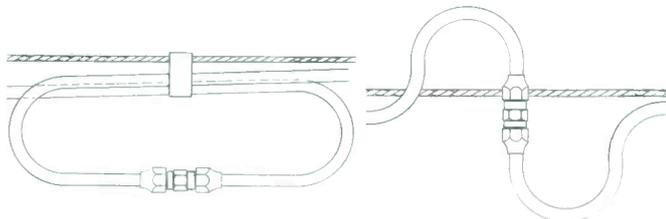
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INSTALLING ALUMINUM SHEATH

By ROBERT L. COWART
THEODORE BAUM
ROBERT E. BAUM

Many problems have been encountered in the installation of aluminum cable because proper installation procedures have not been followed. The purpose of this article is to detail the proper handling and installation procedures in order to fully utilize the superior characteristics of aluminum sheathed coaxial cables.

Acknowledging the wide range of differential expansion of the materials used in aluminum cable, manufacturers normally compress the dielectric as the sheath is put on. The reason for this compression is to increase the friction between the dielectric material and the aluminum sheath so as to minimize the effects of differential expansion. These instructions are designed to further increase the frictional force by the use of prescribed loops and stress reliefs.



CABLE SPLICE (CONNECTOR) ARRANGEMENTS
FIGURE 1

Due to the greater rigidity of aluminum, sheathed cable may acquire a permanent set. The cable should be handled as carefully as possible in order to reduce bending or kinking, as all bends and kinks must be removed prior to lashing the cable to the messenger. If these bends and kinks are not removed, then there exists the possibility of snagging of the aluminum by the nose of the lashing machine as the lasher approaches a kink. This is a very serious problem. One method that will help reduce the possibility of snagging is to fabricate a cable straightener to be used at the head of the lashing machine. The cable straightener is made from a hardwood two by four approximately two feet in length with a flare section in the wood, similar to

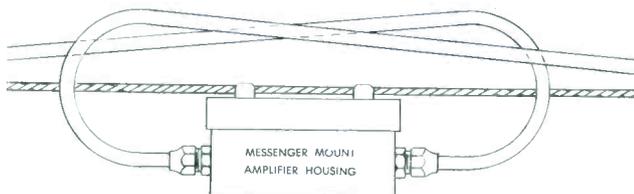


FIGURE 2

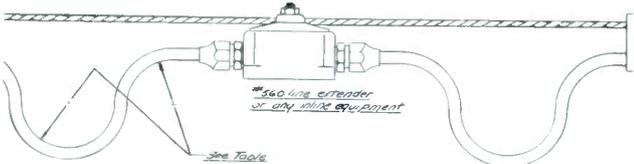


FIGURE 3

CABLE SIZE	RADIUS
1/2"	4"
3/4" JACKET	5"
3/8"	3"
3/8" JACKET	5"

a funnel, to allow the gross deformities to be removed immediately ahead of the lashing machine.

Another common problem is the stretching of the aluminum jacket as the cable is removed from the spool. This most commonly occurs when a cable pulling grip, such as a "kellem" grip, is used and the cable is pulled around a corner with too small a radius. The proper procedure for turning a 90° corner is to use a minimum of six cable blocks per corner which can be conveniently attached to stakes, trailer or truck bumpers placed at the corners. The desirable radius for a 90° turn during cable pull-out is approximately ten feet, and even then, extreme care should be used so that excessive pulling force does not stretch the aluminum. Troubles due to this initial pulling strain are characterized by slippages near the pulled end after a significant change in temperature has occurred. The clue that jacket elongation was responsible is the fact that the slippage will be unequal from the pulled point back toward the supply spool.

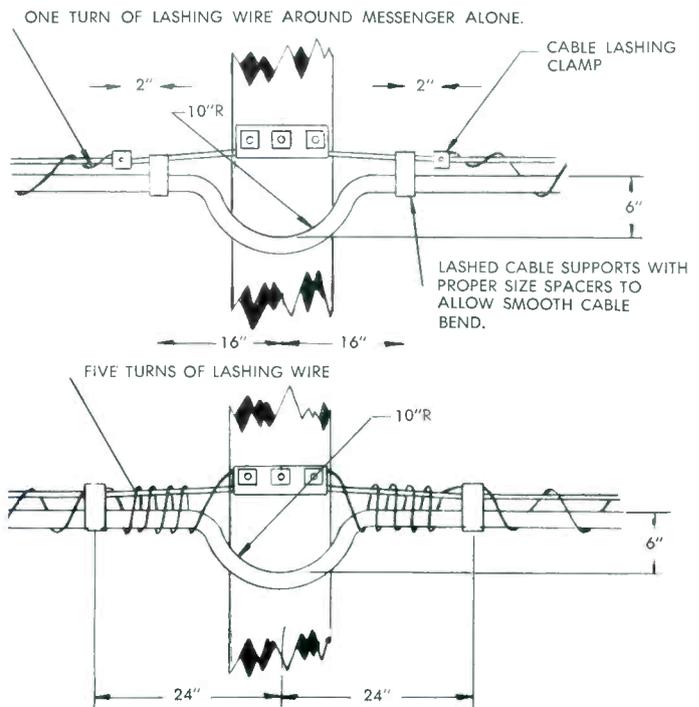


FIGURE 4 POLE SUPPORT ARRANGEMENTS

It is impossible to install aluminum cable without stressing it in some manner. Thus, it is the purpose of stress relief loops, and loops at every point at which a cable is cut, to add increased friction and to add into the specific length of cable a section which can act as a reservoir from which the aluminum can shrink and consequently reduce connector pull out. Another benefit of these loops is to provide clearance for hardware which might abrade the jacket.

Figures 1 through 4 are drawings indicating the proper

method of splicing and pole attachments incorporating stress relief loops.

In order to standardize the practices of aluminum cable usage, loop forming tools are available to insure that all stress relief loops are uniform in size and to insure that they will offer a maximum protection against pullouts during extreme temperature changes. Only stainless steel lashing wire and stainless steel straps should be used with aluminum sheathed cable. The use of any other wire, straps or spacers will undoubtedly result in galvanic action and ultimately may lead to the development of a pin hole through the sheath.

Many companies prefer to use all plastic spacers of the required length to make a smoother bending radius of the cable at the pole attachment or splice.

Current Bell system practices are to turn the lashing machine five times on each side of the pole in order to secure the lashing wire and to discontinue the usage of cable supports and clamps. Experience has shown either method to be entirely satisfactory.

In the event that new devices are added to the line such as directional couplers, splitters, etc., it will be necessary to again provide strain reliefs as if it were an original installation.

To accomplish this, an additional section should be spliced in so as to provide the necessary cable to make the loops. This is detailed in Figures 5 and 6.

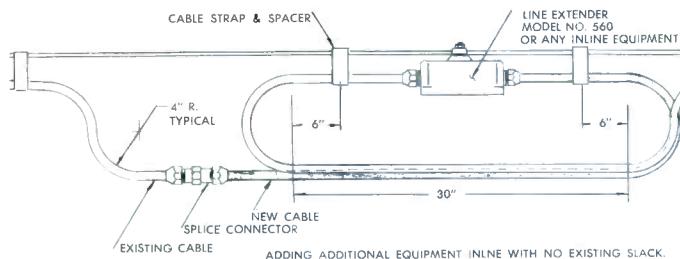


FIGURE 5

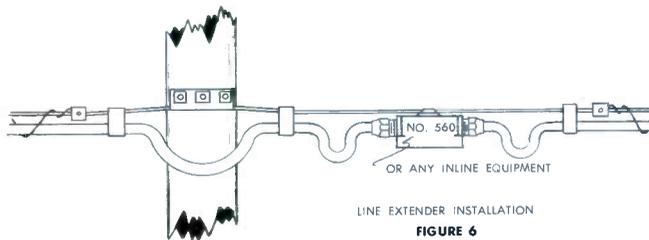


FIGURE 6

As a summary, the following points are the most important guides to be used:

A. Consider all points at which the cable is cut, or terminated, as the area requiring loops. The loops must be made on both sides of the cut and at the point of termination.

B. As equipment is added to the existing line, a section must be spliced in so as to provide for the additional required cable for the stress loops.

C. Do not stress cable by over-pulling.

D. Do not kink.

E. Do not transport spools on edge. Always lay spools flat during moving to prevent tools, etc., from deforming the aluminum. □

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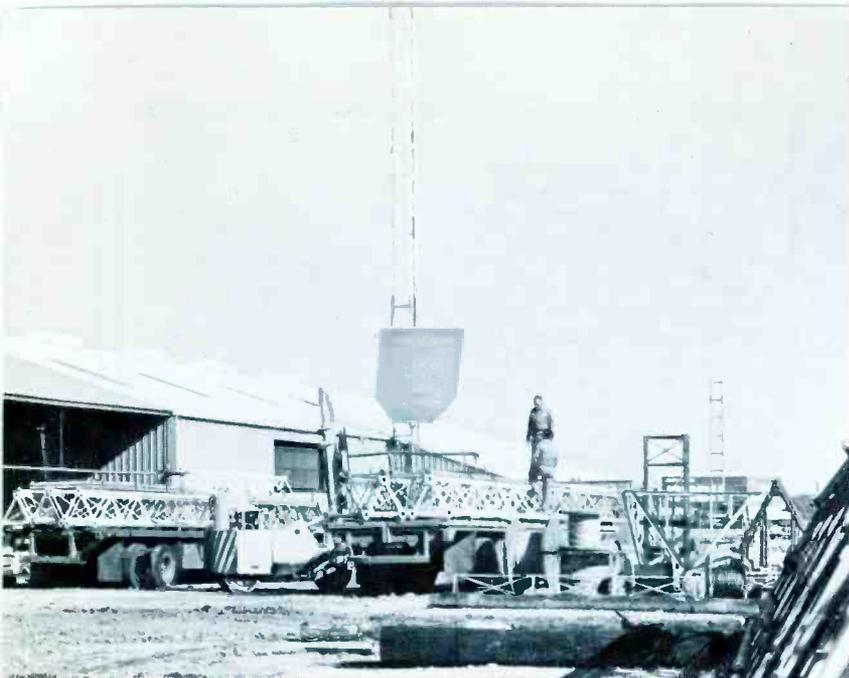
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TV&C VISITS

FORT WORTH TOWER

We discovered the real meaning of Indian Summer as our Mooney touched down at Meacham Field in Ft. Worth, Texas. The sun was shining warmly, the temperature was in the 70's and we could see touches of green lingering in the grass and on the trees.

Ft. Worth, like everything in Texas, is big. The impressive downtown section loomed off to our right as the Ft. Worth Tower Company staff car sped us over super highways to our destination. And, the Ft. Worth Tower Company plant was every bit as impressive as we'd imagined.

Bob Laird, our escort, introduced us to a very attractive receptionist who, in turn, notified company president Tommy Moore of our arrival. Then the red carpet was rolled out.

The exuberant Tommy Moore greeted us with vigorous handshakes and after introductions were completed, we settled down to discuss the history of Ft. Worth Tower.

A NEIGHBORHOOD OPERATION

While we were awaiting the arrival of Allen C. "Al" Tilton, Operational Manager, and during our discussion of his company's history, the Ft. Worth President displayed a most complete collection of photographs. The excellent selection of pictures (most of which Tommy had taken himself) told the story of numerous installations and answered many of our questions. They didn't tell how Ft.



James Carlson and Bob Laird check specifications on reflector design.

Worth Tower got its start, so we asked Mr. Moore.

After returning from active duty during World War II, Tommy put his knowledge and experience—much of it gained in the Texas oilfields—to a more profitable use. He established Ft. Worth Tower Company to manufacture and install custom towers for microwave, television, two-way communications, AM-FM radio and later CATV.

Tommy told of his ambitions to build the best towers and to provide the best service in the tower industry. He noted that he does not want his company to become the biggest in the industry; he wants it to remain small enough



Tommy Moore frequently delivers urgent orders in FWT plane.

“to render an honest service and present the best product manufacturable!”

The philosophy of that young company has paid well as Ft. Worth Tower has prospered from a \$15,000 a year operation only seven years ago to its present stature that is recognized throughout the tower industry, with a gross revenue reportedly better than \$200,000 per month. This progress and growth would indicate that Tommy has lived up to his belief in building the best towers and providing the best service for the tower manufacturing and erecting industry.

REQUIREMENTS ARE STRINGENT

Tommy told us of the many and varied installations of Ft. Worth Tower since its meager beginning. These included microwave and two-way towers for public safety

installations, towers for small and large television stations and many CATV sites including the well-known installation at Waycross, Georgia. He noted that Ft. Worth has manufactured towers up to 400' for these installations.

During lunch at the famous Six Flags Inn, we learned many interesting facts about the Texas manufacturing and tower installation company. And, we learned much about tower construction.

Al Tilton (who also directs research for Ft. Worth Tower) has been in the tower business since 1937 and joined FWT last October. He pointed out many vital requirements in manufacturing and installing towers that we had previously taken for granted. Most of us know of the stringent requirements FAA has established for tower height, lighting, painting and so forth. But what about tower maintenance?

Ft. Worth offers a 5-year service policy that includes complete repainting once during the service period. The contract also includes a yearly check of all guy attachments, re-torque all bolts, check tower for plumbness, check flasher timing and then provide a written inspection report. With this service, Tommy said, "the life of a tower can be increased by as much as 40%."

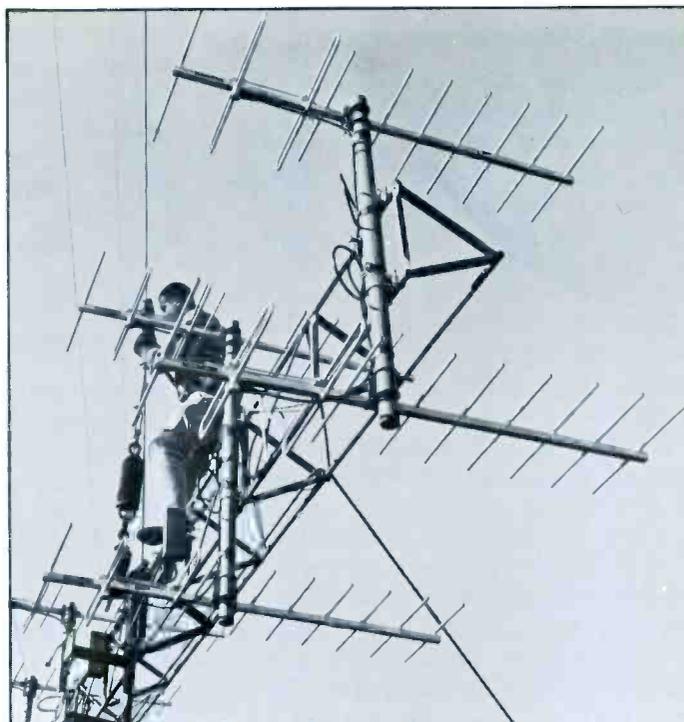
Another challenge in tower manufacturing is transportation. This is probably one of the most difficult and expensive of problems facing a tower manufacturer. The massive size of the tower sections prohibits shipping them by rail or air. And commercial freight rates are generally too high. Ft. Worth Tower has solved transportation problems with a fleet of trucks and a twin engine airplane.

The acquisition of trucks, however, is only the beginning. Almost every state has different laws, restrictions and taxes. The fleet of Ft. Worth Tower trucks must not only carry several state tags but must be prepared to satisfy the requirements of size, weight, speed, length, lighting, etc. for any state. And, maintenance of the trucks is no easy task.

DESIGNS AND DEVELOPMENTS FOR FUTURE

After a very pleasant lunch, we returned to the plant and continued our interviews. We learned of the many new developments and designs that are in progress and in the planning stage.

Continued on page 42



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(Past, present, future continued)

to Tifton, Georgia, Salinas, California and Bakersfield, California, raising issues about CATV that don't exist and casting doubt on the value of CATV service, or find evidence to support the issues it raises. The insinuations contained in these FCC letters place the CATV industry in the awkward position of either attacking the Commission for its actions, or remaining silent, and by this silence acquiescing to the accuracy of the statements.

It might be well, instead, for the FCC to advise city councils in one-station TV areas, that CATV, rather than bringing harm to the public, has, in fact, forced many broadcasters to improve programming, in order to maintain their share of the cable-viewing audience. A review of programming offered by stations in CATV areas before and after the cable was installed proves this point conclusively. The data is in the FCC files.

TV Allocations and Market Areas

Now let me turn to the subject of market areas. Back in 1948, the FCC established its first television allocations program. At that time, engineers predicted that TV signals would not travel more than 35 miles.

Therefore, with 13 VHF channels available, it was possible to allocate five stations in the Albany-Schenectady-Troy area, five in Boston, four in Detroit, four in Jackson, Mississippi, etc. After the first stations began televising, it was discovered that someone had goofed. The frequencies assigned to Channel 1 proved unsatisfactory. Stations had been spaced too close because TV signals carried greater distances than anticipated. To prevent chaos, a freeze on new allocations was imposed by the FCC.

In 1952, when the new allocations program was adopted, only 12 VHF channels were assigned and spacing between stations on the same frequencies was increased. Now only one VHF channel was assigned to Albany-Schenectady-Troy; four to Boston; three to Detroit; one to Jackson. VHF allocations for Pennsylvania cities such as Easton, Harrisburg, Reading, Scranton-Wilkes-Barre and York were dropped completely, and UHF channels substituted.

The assignment of TV channels took into account population densities, but

did not follow a pattern for establishing market areas. For example, the only logical reason for moving Harrisburg's original allocation of Channel 8 to Lancaster, was the fact that Lancaster was on the air with Channel 4 before the freeze was imposed. No one seriously contends that by allocating a UHF channel instead of a VHF this represented an equivalent market area for a broadcaster.

The Market Area Twist

Time passes on. The reasons for the adoption of a particular policy are often forgotten or overlooked. Worse, they are sometimes twisted to suit one's convenience. Now, arguments are being raised by learned people, who should know better, that *market areas* of TV stations *as allocated* by the FCC must be protected from invasion by outside signals.

By what stretch of the imagination—other than to establish an unwarranted monopoly—can any TV broadcaster claim the rights to a market area?

In establishing radio allocations, the FCC deliberately assigned clear channels to some high power stations whose programs, heard in every market in the nation, carry advertising in direct competition with local radio stations.

No FCC or court decision has ever held that a radio or TV station is licensed to serve an area as an economic unit.

A TV broadcaster has no more right to have his market protected from competition than does a newspaper, a movie house or a corner drugstore, unless it can be shown that this protection serves the public interest—not merely the broadcaster's desire for increased profits.

Any TV set owner has the right to pick up any television signals that are broadcast anywhere. The fact that he lives too far from a particular station to pick up the signals on his own antenna is no reason to deny him the right to receive these signals through other means.

For example, what legal authority exists to deny a resident of Chicago the right to watch WOR-TV when he can easily tune in WOR radio?

Nonetheless, this authority has been assumed by the FCC simply by controlling grants of microwave licenses.

Technically, microwave is nothing more than an invisible cable that in

many cases is easier, and less costly, to install and maintain than regular cable.

That microwave is considered in the same category as wire by the FCC is shown by the tariffs which permit a common carrier to charge for the use of microwave on a mileage basis despite the fact that often the capital and operating costs for supplying service for 5, 10 or 20 mile hops are identical.

Granted, the FCC has the authority to establish rules for the use of microwave since this service utilizes the public spectrum. But, is the public in Chicago being protected if a CATV system is denied the use of microwave to bring in TV programs from New York that are desired, but not now available in Chicago?

Is the public anywhere being harmed if this is done?

Is it not time that the FCC enforce the time honored phrase "public interest, convenience and necessity" as it has been enforced so often in the past, and assist rather than impede the progress of CATV where public interest considerations are clear?

Proposed Regulation of CATV

The FCC seeks regulations to guide the growth of CATV. I do not find this objectionable; providing the purpose is indeed to guide the growth of CATV and not to control or throttle its growth.

However, regulation won't solve the CATV controversy. It will merely introduce a new set of ground rules around which the battle will rage.

In this regard, it must be kept in mind that broadcasting is regulated solely because it uses public spectrum, whereas, CATV systems use private cables. It does not follow that CATV should be regulated because it purportedly competes with broadcasting, any more than companies that sell fuel oil should be regulated because they compete with gas and electric companies in supplying home heating materials.

In determining the type of regulation that is acceptable, the question must be asked: Who is to benefit from the regulations? The television accessory manufacturers? The networks? The FCC? CATV operators? The public? Or who else?

Let's not bandy words. For pocket-book reasons, TAME would like to *control* the growth of CATV. So would

ABC and the NAB. The type of regulation they have suggested in documents submitted to the FCC is punitive, and they know it.

Nonetheless, speaking on behalf of my company, and not for the CATV industry, here is a program for regulation of CATV that would be acceptable.

1. Simultaneous non-duplication of programs in cities where there is only one TV broadcaster. The operation of two TV stations in a city should make non-duplication of programs unnecessary to protect the public from loss of local broadcasting.
2. The signals of all local stations, UHF and VHF, should be carried on the CATV system without degradation of picture quality.
3. In the spirit of the proposals advanced by Commissioner Ford last June, the FCC should relax its requirements for operation of UHF stations and adjust its allocation plan so that a CATV operator in a small town, not now served by a local broadcaster, can construct and operate a UHF station.

4. CATV systems should not insert advertising of any nature into the broadcast programs it picks up and distributes to its subscribers.
5. There should be no holdback of microwave for CATV use and no relegation of CATV microwave to second class status.

Legislation To Help Rural TV

In addition to the suggested program for regulation, one piece of legislation is urgently needed to permit CATV to provide a truly remarkable service in rural areas.

The REA law should be amended by Congress, to permit companies similar to rural electric and rural telephone companies to borrow funds to install cable systems for distribution of television signals on the same basis that money is now borrowed for installation and modernization of power and telephone systems.

It would then be economically feasible in rural areas to install CATV systems that would not only bring multi-channel television into all farm homes, but in addition, special educational programs, weather and crop

reports could be provided via closed circuit at very little additional cost.

To my way of thinking, this is even a more thrilling frontier for CATV to cross in the near future than the wiring of major cities. I hope that those who have shed so many tears on behalf of the rights of rural dwellers to enjoy television will join the fight to implement this program.

Conclusion

The future of all TV is very bright, but CATV can well be a star unto itself.

Most of the homes in this country will be wired for television before the industry reaches a point of saturation.

CATV, along with low priced home video tape recorders, will revolutionize concepts for television programming.

There is much to be gained by supporting the expansion of CATV. And, there is much to be lost by trying to stem the tide, for I give you odds that Congress, when it assembles all the facts, will not halt it. □

The material contained in the above article was presented by Mr. Shapp as an address before the Federal Communications Bar Association at the National Press Club in Washington, D. C. in December.

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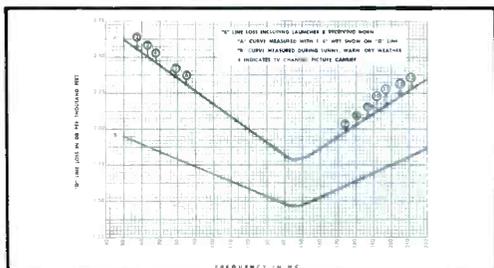
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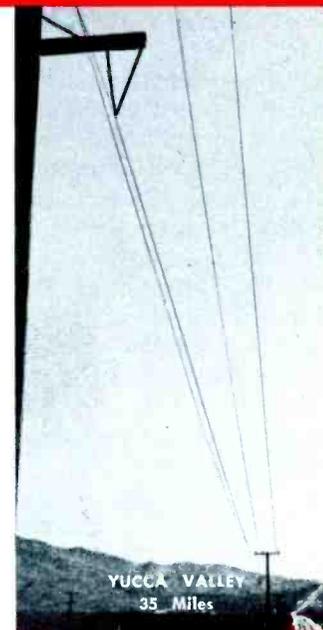


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Continued from page 16

nounced by TelePrompTer Corp.

Mr. Wilson will take charge of engineering operations in TelePrompTer's 16 CATV systems throughout the U.S. TelePrompTer systems serve approximately 60,000 subscribers.

Caywood C. Cooley, Jr., General Manager of TelePrompTer Corporation's Community Antenna Division, said: "Mr. Wilson has had a hand in virtually all the development and improvement of CATV equipment during a period when the industry has made some of its greatest technological strides."

"In fact, he has a very broad experience in every phase of television engineering, including transmitter, studio and microwave as well as CATV."

Mr. Wilson was field engineer for Jerrold Electronics Corporation for approximately 11 years, during which he was involved with design, installation and maintenance of more than 200 community antenna television systems throughout the United States.

For the past 18 months, Mr. Wilson was associated with Lear-Siegler Service, Inc., in charge of installation and maintenance of program selector devices for Subscription Television, Inc., in the San Francisco area.

SUPERIOR CABLE COMPANY'S NEW PLANT

Superior Cable Corporation's new Brownwood Division wire and cable plant is located at Brownwood, Texas (Dec. TV & Communications). Dedicated December 10, the 60,000 square foot facility is already manufacturing telephone and communications cable and is expected to reach full production by mid-January.

Mayor W. C. Monroe of Brownwood, Texas delivers the dedication address at the opening of Superior Cable Corporation's new Brownwood Division. Left to right—L. Gray Beck, executive vice-president of Southwestern States Telephone Company; Ernest Morris, president of the Brownwood Chamber of Commerce; W. Lyle and

H. JAMES CARTER ADVERTISING AND PUBLICATIONS DIRECTOR

H. James Carter was appointed advertising and publications director for Entron, Inc., manufacturers of community, master and educational TV equipment, announced *Robert J. McGeehan*, President.



Mr. Carter was formerly publications administrator for RCA's Data Systems Center in Bethesda, Maryland. From 1959 to 1962 he was employed by Entron as a publications executive. He also served as manager of the Publications Section of Litton Industries in College Park, Maryland, from 1957 to 1959.

A graduate of Tri-State College of Engineering, Mr. Carter received his

BSEE in 1940. He is a senior member of the Institute of Electrical and Electronic Engineers.

FAIRCHILD NAMES REP

The appointment of *Photo & Sound Company* to handle Fairchild's audio visual line in the state of California has been announced by *Nat Myers*, Director of Communications Products and Services, for the Industrial Products Division of Fairchild Camera and Instrument Corporation.

Photo & Sound Company is headquartered in San Francisco and will market Fairchild's complete line of industrial audio visual equipment including the AV-400 8mm rear screen projector, Mark IV rear screen projector with its automatic loading 8mm MoviePak cartridge and the Mark V automatic front screen projector.

NEW VIKING SALES REPRESENTATIVE

Viking Cable Company of Hoboken, New Jersey has announced the appointment of *William Ewling* as Technical Sales Representative. He will be officed in Los Angeles where Viking will have complete warehouse and service facilities.

According to *Robert Baum* at Viking headquarters, the new west coast facility will make possible individual service to systems in California, Oregon and Washington.

Before joining Viking, Ewling was associated with Jutco, with duties similar to those now performed for Viking Cable Company.

AMECO ANNOUNCES PERSONNEL CHANGES

Bill Bryant of Decatur, Alabama, who has been tech-rep. for Ameco, Inc. for over a year, has become Southeastern Sales Representative. As a sales representative his primary interest will be in turnkey, rebuild and financing.

Don Atchison, also of Decatur, who has been working in the Decatur Cable System, is taking Bill Bryant's place as tech-rep., covering the Southeastern United States. Atchison joins the Ameco Salesmobile staff with a strong background in system construction and as a technician with a great deal of experience in cable troubleshooting.

William Asip of New York City has recently joined Ameco and will assume the duties of Northeastern Sales Representative covering the territory now covered by Salesmobile Territory Nos. 3 and 4. The states he will work in



president in charge of sales for Superior Cable; Mayor Monroe; and James E. Webb, plant manager of the new division.



include Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware and Maryland. His duties will involve turnkey, bill-of-materials and financing.

Phillip Colone, Jr. has become a part of the Ameco Salesmobile organization, taking *Joseph Choquette's* place as sales representative covering the New England states. Colone resides in Oneonta, New York. Choquette will remain with the Ameco organization taking over the newly acquired Ameco properties in Endicott, Endicott-Union and Endwell, New York.

KUZMINSKY APPOINTED DIRECTOR OF ADVANCED ENGINEERING FOR ENTRON, INC.

Irving Kuzminsky has been named Director of Advanced Engineering for Entron, Inc., manufacturers of community, master and educational TV equipment.

Mr. Kuzminsky, having over nine years of experience in the development of CATV equipment, will direct the company's long range engineering programs. He was formerly with General Electric Company in Bethesda, Maryland serving as a consulting analyst for electronic system design.



He received his BSEE from the University of Maryland and completed graduate work in electrical engineering also at the University of Maryland and the University of California.

Mr. Kuzminsky is a member of IEEE Professional Technical Group on Circuit Theory.

THOMAS MOVES TO LOUISIANA CATV

John Thomas, formerly with Tele-Prompter Corp., has affiliated with Daniels and Associates. Mr. Thomas is now General Manager of Louisiana

CATV Inc., a recent Daniels acquisition.

Louisiana CATV is a system in Monroe and West Monroe, La. Mr. Thomas reports plans to expand the system with approximately 130 miles of aluminum and solid state equipment.

AMECO APPOINTS DUANE CRIST

Duane Crist has been named assistant treasurer of Ameco, Inc., Phoenix, Arizona, according to *Bruce Merrill*, President.



Crist graduated from Mt. Union College, Alliance, Ohio, as a business administration major, after which he spent four years in the Navy. Prior to joining Ameco, he worked for three years in the loan department of City Savings Bank and Trust Co., Alliance. He spent about five years in general insurance and was treasurer of the Robertson Heating Supply Co., of Alliance for five years. Crist was also general credit manager for the Sugardale Provision Co. of Canton, Ohio for a period of six years.

WILLIAMS NAMED TO COLLINS BOARD

E. A. Williams, Vice President-Control and Finance, was named to fill the unexpired term of *L. E. Bessemer* on the board of directors of Collins Radio Company.

In announcing the appointment, *Arthur A. Collins*, President, stated: "the appointment of the company's principal financial officer to the board is in accord with the importance of modern techniques of financial administration and control to the success of operations."

Williams joined the company 15 years ago and was appointed a vice president in 1961. A certified public

accountant, he holds a master's degree in business administration from the Stanford University Graduate School of Business and a bachelor of science degree from the University of Connecticut.

Prior to joining Collins, he was associated with Haskins & Sells and L. H. Penny & Co., both CPA firms in San Francisco.

Williams is a member of the Financial Executives Institute, American Institute of CPA's and National Association of Accountants.

TWIST CO. REPS SARKES TARZIAN

John G. Twist Company, located in Chicago, Illinois has been appointed sales representative for Sarkes Tarzian Inc., Semiconductor Division.

According to *S. Niciejewski*, sales manager of the Semiconductor Division, the Twist organization will call on both distributor and OEM accounts in northern Illinois and southern Wisconsin.

Sarkes Tarzian Inc. manufactures a complete line of selenium and silicon rectifiers and zener diodes, all of which will be handled by the newly-appointed rep firm.

SONY NAMES A VICE PRESIDENT FOR ITS VIDEOFLIGHT SUBSIDIARY

The appointment of *Harry Bowmaster* as Vice President of Videoflight, Inc., subsidiary of Sony Corporation of America, New York, was announced by *Bruce L. Birchard*, President.

Mr. Bowmaster will direct all operations of the company and be responsible for all of its technical services. Videoflight is engaged in the transfer of motion pictures to video tape for airplane passenger communication and entertainment. American Airlines is using the Sony system under the name, "Astrovision."

Mr. Bowmaster has been with Sony's industrial products division for the last one and a half years. Prior to joining Sony, he was a sales engineer for 2 years with Visual Electronics.

PENNSYLVANIA OFFICE

Mr. Richard Yearick, Manager for Ameco Inc., announced that the new Ameco office is now open at 2136 Market Street, Camp Hill, Pennsylvania.

The new location provides four times the space of the former location.

ELECTRONICS ENGINEER

For CATV Program

Exceptional growth opportunity for highly imaginative and capable engineer to spark CATV program of nationally prominent company with established stable position of leadership in its industry. CATV experience and a solid background in electronics essential.

Duties will include:

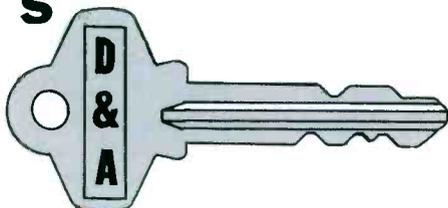
- Overseeing surveys of signal strength measurement
- Evaluation of subcontractors equipment
- Selection of compatible CATV equipment
- Approving plans of consulting engineers and installation contractors
- Control of engineering services

If qualified, you will work as KEY MAN on the team to project this pioneering company into forefront of growing CATV industry.

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Continued from page 37

Ft. Worth Tower has designed a new CATV tower that, according to Moore, "will revolutionize the tower transportation and shipping industry." This new tower comes in three basic forms. It can be shipped completely assembled which is the current procedure. It can be shipped with the facings welded; technicians assemble and bolt the legs on at the location. The third method is to ship it totally disassembled. Technicians bolt the facing members together then bolt (or weld) the legs.

Another new development at FWT is conical towers. These were developed as part of a governmental research program for Ling-Temco-Vaught.

Ft. Worth Tower will open a new galvanizing plant and simultaneously introduce a new line of small towers for communications use in February. Mr. Moore said that "Galvanizing is getting to be an almost absolute requirement." More and more companies who are purchasing towers are requiring longer life from them and galvanizing will provide a much greater life span of the metal.

TOUR OF PLANT

James H. Carlson, chief design and stress engineer, escorted us into the plant drafting department and pointed out several blueprints and scale models of micro-wave towers and reflectors in the design stage. The Ft. Worth Tower executives then took us on a very interesting tour of the physical plant.

Covering several acres, the FWT plant was well located—just off the Ft. Worth Turnpike. It is divided into five primary sections. First we visited the testing area where the new CATV tower was being tested. We quickly covered the storage area, then went to the shipping area where we witnessed the loading of a 350' tower that would provide several thousands of people with a better television picture via cable.

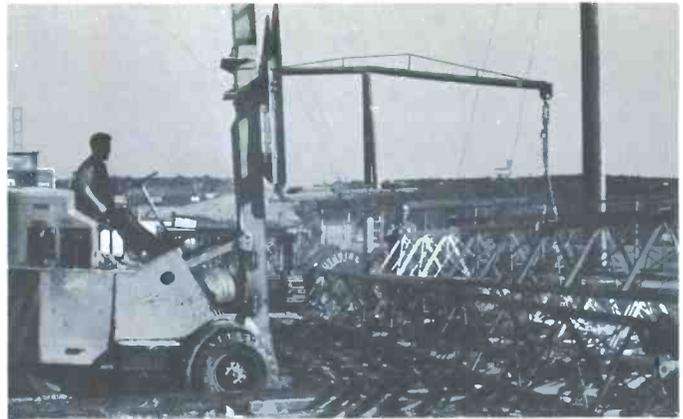


Test area is for checking tower strength, stress.

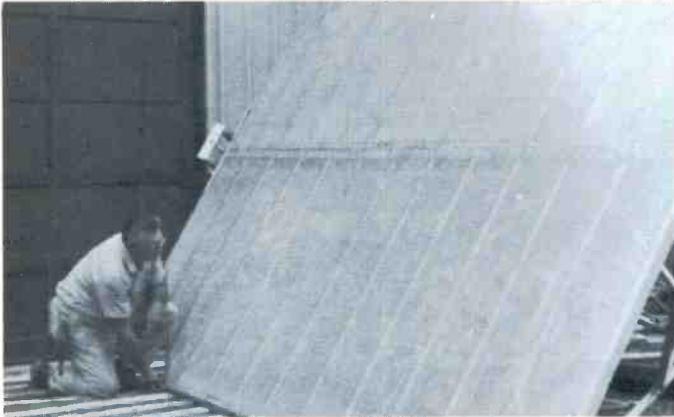
The tower assembly area provided a great deal of interest. Workers were in the process of building a small tapered tower for a special order. There were also several reflectors under construction. Al noted that the reflectors were very precisely measured for flatness (FWT reflectors have a tolerance of 1/8" over the entire surface, Tommy told us later).

After visiting the painting area, we adjourned to the administrative offices where we met Betty Jo (Mrs.) Moore.

We questioned Tommy about the products now being constructed by Ft. Worth Tower and were surprised at the number of items available. In addition to towers for the purposes mentioned above, and reflectors, FWT has guy accessories including cable clamps, screw pin shackles, thimbles and anchor bars; antenna booms specially de-



Shipping department loads 350' tower for transporting to location.



FWT technician checking microwave reflectors.

signed for co-channel and quarter wave spacing; base insulators; power units for elevators; concrete portable buildings; obstruction lights, and code beacons.

Tommy listed the services that are available from FWT. They include the maintenance program, leasing, financing (at bank rates), specialty construction and now galvanizing.

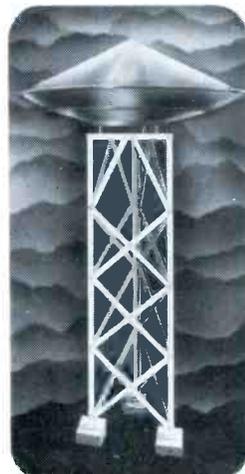
As Al drove us back to Meacham Field, our thoughts replayed the events and activities of the day. We were truly impressed that a man as busy as Tommy Moore and a company as progressive as Ft. Worth Tower would take time out to escort us as they did.

Then we realized we had just experienced a working company policy—a company "large enough to participate in any project . . . yet small enough that the details of a project do not get lost in a department." □

MICROFLECT ANTENNA MOUNTS



Microflect 12, 8 and 4 ft. Swing Pipe Towers for any pipe mounted parabolic antenna up to and including 10 ft. diameter. Completely versatile and adjustable in all planes, regardless of foundation orientation. Write for engineering drawings.



Microflect Stub Towers for all parabolic antennas up to and including 10 ft. diameter. Four models; 12', 9'-2", 6'-4" and 3'-6". Write for engineering drawings. Microflect also manufactures a quality line of ground mounted, and roof mounted, self supporting towers for any antenna mounting configuration. Let us quote on your requirements.



PASSIVE REPEATERS Microflectors are the standard of the microwave industry. Advanced techniques in design, construction and erection . . . reliability and performance . . . are but a few of the reasons why communications systems designers prefer and specify Microflect.



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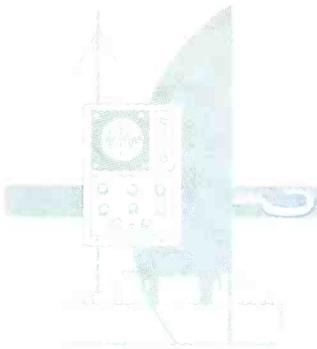
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PRODUCT REVIEW

THE LATEST IN AMPLIFIERS FROM AMECO

Ameco, Inc. has developed "a greatly improved Amplifier," according to Bruce Merrill, President of the corporation. The company states that this Etched Circuit Solid-State ATM-70 Amplifier features many outstanding improvements. ATM-70 uses less power, has a lower noise figure, provides higher output, wider temperature range and greater cascading capability.

Etched circuitry makes the amplifier more uniform than hand wiring, and input and output test points, so that its performance can be checked without taking the amplifier out of service. It is hermetically sealed, weatherproofing the unit. Made of lightweight aluminum, the unit is also non-corrosive, has inline housing thereby eliminating jumper cables, a precision fit cover which can be removed easily with only a screwdriver and is messenger mounted. Its universal lashing clamp fits all popular sizes.

For further information on the ATM-70 write to: **Ameco, Inc., P.O. Box 11326, Phoenix, Arizona 85017.**

NEW ALL-BAND TRA-200

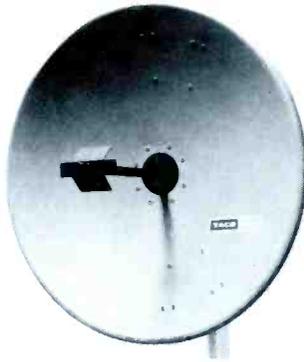
CAS Manufacturing Co. has announced the newest addition to their expanded line of All-Band transistorized gear for the CATV industry. The unit, **TRA-200**, has been specifically designed for those "end of line places where 10 to 14 db gain is needed.

This 24 vac cable powered amplifier, with input match, high output capability and wide bandwidth (40-216 mc) also features flat stable response and is easily installed using UHF connectors. "Just cut the line and splice it in." The introductory price is \$27.50 net, and it is available from **CAS Manufacturing Co., 400 North Oak, Mineral Wells, Texas.**

TACO ANNOUNCES NEW RECEIVING ANTENNA FOR ETV

Technical Appliance Corporation has added to its line a two foot parabolic receiving antenna covering the frequencies between 2500 and 2690 megacycles. This is the band recently assigned to Educational Television use.

The EPA-2 antenna uses a dipole element to achieve lowest VSWR (1.3:1 max.) across the entire band. Gain of the antenna is a minimum 21 db relative to a linear isotropic radiator. Polarization may be either vertical or horizontal.

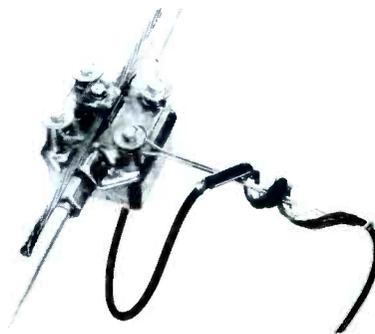


The EPA-2 is a ruggedized, high performance antenna. For further information on this or other TACO ETV antennas, write to **Defense and Industrial Division, TACO, Sherburne, New York.**

"MULTEE" TAPOFF OFFERED BY ENTRON

A new "Multee" tapoff is available from Entron, Inc., manufacturer of community TV equipment, according to Heinz Blum, Vice President, Engineering.

This new Entron unit (MT Series) is engineered to accommodate four house-drop taps and still maintain excellent VSWR and low insertion loss.



The "Multee" is supplied with UHF or complete aluminum flare fittings for the throughline and with threaded tap-off fittings. Contact **Entron, Inc., Silver Spring, Maryland**, for specifications and prices.

The fully weatherproof "Multee" has a strand mounting clamp for easy installation. Through-line match and back-match is reported to be excellent for all band color. It also features low insertion loss (0.3 db average); seven attenuation values, and high isolation between tapoffs.

SADELCO ANNOUNCES UHF ADAPTOR FOR A FIELD STRENGTH METER

A new adaptor, Model UA-1, has been introduced by **SADELCO, Inc., 601 West 26th Street, New York, N.Y.** The unit converts the SADELCO FS-2 Field Strength Meter to UHF operation.

The UA-1 is described by Harry L. Sadel of SADELCO as "unique in that it is the first time that such a product has been made available anywhere." He also notes that it can be used with the FS-2 "or any other make of VHF-TV Field Strength Meter." The UA-1 will work with most meters without requiring modification.



FS-2

UA-1

The adaptor is a low noise, high accuracy (plus or minus 2 db) UHF receiver that is individually calibrated for field strength measurements. It is completely self-contained with its own regulated battery supply. Features include tuneable plug-in probing antenna, 3 transistors and 2 diodes, built-in battery meter, UHF 300 to 75 ohm matching transformer and holding bar for quick snap-on facility. Price of the UA-1 is \$120.

To order the UA-1, write to SADELCO.

BLONDER-TONGUE INTRODUCES SOLID STATE UHF-TO-VHF CONVERTER

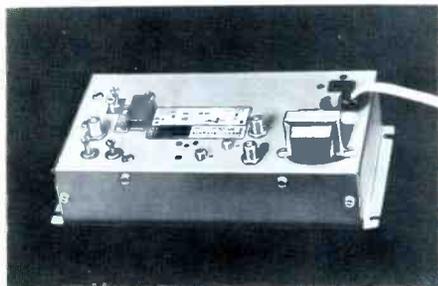
A new solid state UHF to VHF converter, which amplifies as well as converts the signal, has been introduced by **Blonder-Tongue Labs, 9 Alling Street, Newark, New Jersey.** The converter is designed for use in master antenna TV systems.

Called the UC-3, the new converter offers high stability, easy installation and low maintenance cost. Net price is \$131.50.

According to Tom Shea, Blonder-Tongue MATV product manager, solid state circuitry in the UC-3 offers the advantage of no oscillator tube. Performance reliability is further heightened

by the elimination of tube-aging problems.

A built-in voltage regulated power supply cuts drift, giving better fringe performance and a better picture with



less power. A low noise mixer diode and IF amplifier transistor is used to pick up weak signals and provide snow-free reception. Fine and course oscillator trimmers make field touch-up simple.

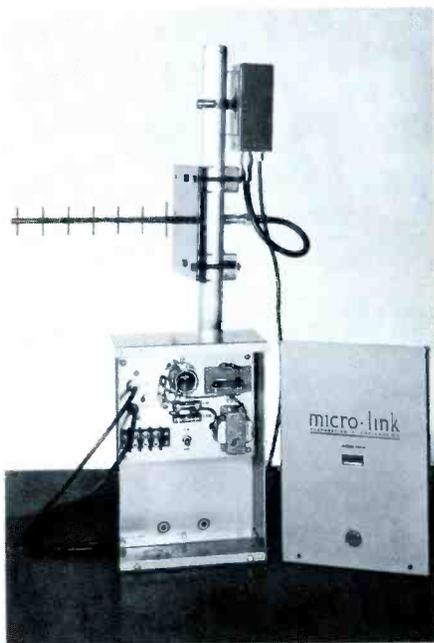
Additional details on the UC-3 can be obtained from Blonder-Tongue.

MICRO-LINK ANNOUNCES CE-5

The Micro-Link Corporation announces the availability of a Model CE-5 receiving converter. This new development provides "state of the art" reception for up to 5 program channels via 2500 mc Instructional Television, a new educational service recently allocated by the Federal Communications Commission.

Two piece construction of the CE-5 consists of a mast mounted converter and associated indoor mounted power supply. The converter is completely weatherproof, lightweight (3 pounds), and is provided with necessary mounting hardware. A single coaxial cable supplies power and signal transmission between converter and power supply. The equipment has all solid state circuitry.

Technical specifications of the CE-5

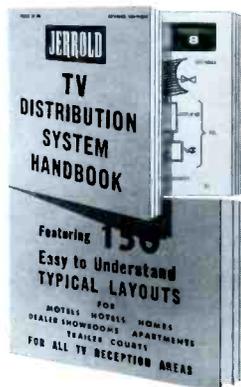


include an input frequency range of 2500 to 2686 mc, an output frequency of 168 to 222 mc, and noise figure of less than 13 db. Input impedance is set at 50 ohms—output at 75 ohms. Frequency stability of .005% or better is obtained through crystal control.

The CE-5 Receiving Converter presents a new dimension in 2500 mc Instructional Television. Priced at \$800, the CE-5 is available for immediate delivery from **The Micro-Link Corp., 1355 Marconi Boulevard, Copiague, L.I., N.Y.** Also available is a planning guide for use in 2500 mc.

JERROLD OFFERS NEW TV SYSTEM HANDBOOK

A new guide to Master TV antenna systems has been introduced by Jerrold Electronics. Called the "TV Distribution Systems Handbook," it features 150 typical layouts. Systems are included for motels, hotels, homes, dealer showrooms, apartment and trailer courts.



The booklet is designed primarily for TV technicians who want to break into the lucrative Master TV field. It gives practical installation and servicing hints, as well as all necessary design theory.

You can get the book by sending \$1 to **Jerrold Electronics Corporation, 15th & Lehigh Avenue, Philadelphia, Penna.**

MATV LITERATURE FOR REAL ESTATE MANAGERS AND BUILDERS

In an effort to help answer many questions raised about Master Antenna Television (MATV) by real estate management and builders, Blonder-Tongue Labs. has produced a set of literature covering system surveys, equipment, and quality and maintenance of installations.

Included in the material, available free through Blonder-Tongue franchised installers, are pictures and descriptions of major MATV installations, a booklet describing the steps in planning and installing MATV, and information explaining the feasibility of such systems.

Further information may be obtained from: **Blonder-Tongue Labs., 9 Alling Street, Newark, N.J. 07102.**

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Rate for classifieds is \$1.00 per line or fraction thereof for advertising which, in our opinion, is obviously of a non-commercial nature. A charge of \$20.00 per column inch (2 1/4" col.) is made to all commercial advertisers. Deadline for receipt of copy, 1st of preceding month.

HAVE FRANCHISE for CATV in city of 25,000 Microwave application filed with FCC. Will sell interest or maybe all. Reply Box 207 Paducah, Texas or Call Manager Area Code 817-492-3678.

FRANCHISES WANTED. Will pay cash for secure CATV franchises in Washington, Oregon, Kansas and Oklahoma. Small systems will be considered. Send details, including population, subscriber potential, terms of franchise and pole agreement to: **Dept. 115-TV & Communications Box 63992 - Oklahoma City, Okla.**

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Technical Sales Representatives to operate out of California, Texas and Southeastern U.S. All applications will be held in strict confidence. Forward your application to:

Robert Baum,

**Viking Cable Company
Hoboken, New Jersey
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CATV consulting, management, engineering and construction. TV Cameras, closed circuit television installation. Twelve years in CATV.

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INTER-OFFICE

MEMO

TO: Jim Davidson, President
Davco Electronics Corp.

DATE: 12/8/64

This morning we made 21 shipments to CATV operators in 14 states!

Three phone orders were from customers who wanted a Field Strength meter...FAST! All three meters left on the 1:45 bus. One went to Louisiana, another to Mississippi and the other to Missouri.

In addition, we sent a sweep generator to Alabama, a Rolatape Measuring Wheel to Texas, 750 Matching Transformers, 2 LHR-45 and 4 LHD-404R Entron Amplifiers, 16,000' of 4920 Superior Cable, and 70,000' RG-59/u. Yesterday a Model "C" Cable lasher, another power hole digger, and a host of hook-up materials were shipped. (ALL FROM STOCK)

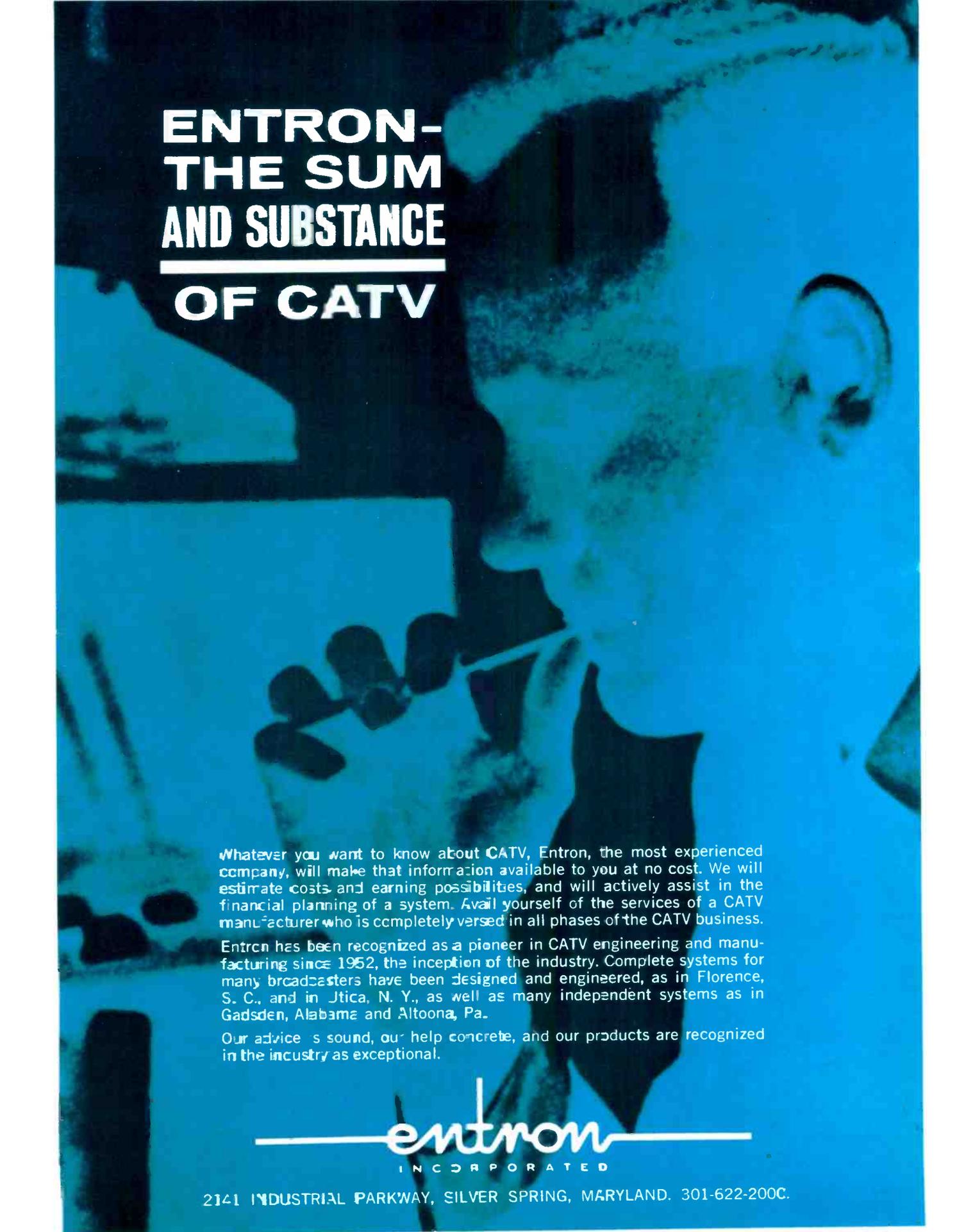
I know you are interested in knowing how well our "IN STOCK" policy is serving our customers.

Kim Sanford

SALES MANAGER

DAVCO ELECTRONICS CORPORATION

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Entron has been recognized as a pioneer in CATV engineering and manufacturing since 1952, the inception of the industry. Complete systems for many broadcasters have been designed and engineered, as in Florence, S. C., and in Utica, N. Y., as well as many independent systems as in Gadsden, Alabama and Altoona, Pa.

Our advice is sound, our help concrete, and our products are recognized in the industry as exceptional.


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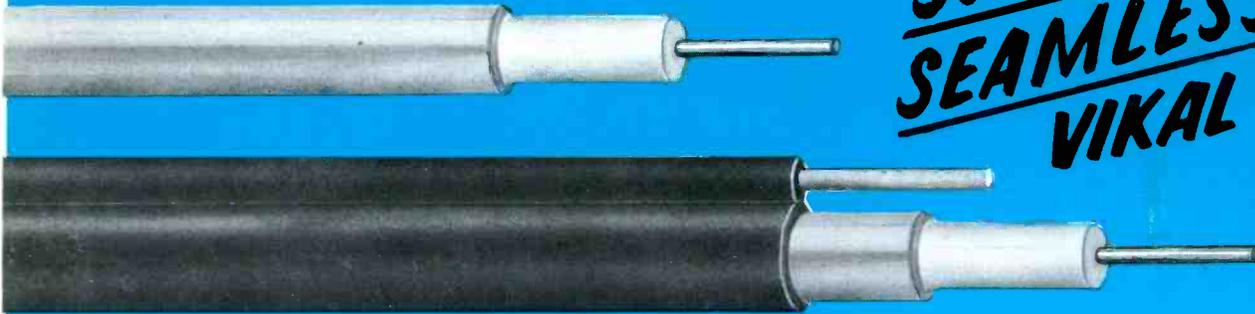
viking



TECHNICAL BULLETIN and
ENGINEERING SPECIFICATIONS

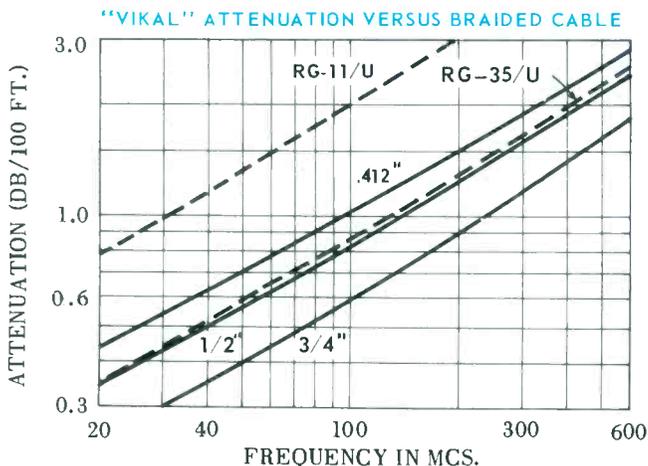
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WITH
BUILT-IN
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VK-1750: 1/4" Lowest Loss Trunk Line Reduces the Number of Cascaded Amplifiers

VK-1500: 1/2" All Purpose Trunk-Feeder Cable

VK-1412: .412" Low Loss Feeder Cable

EACH REEL 100% SWEEP TESTED

(CH. 2 THRU CH. 13 : 54-216 MCS)

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Unicellular Foamed Polyethylene Dielectric

Aluminum Outer Sheath

OPTIONAL: Available With A High Molecular Weight Polyethylene Jacket (Resistant to Outdoor Weathering) Ideal for Direct Burial.

OPTIONAL: Cables Are Available With Integral Messenger Wire (0.109" Galv. Steel, 1800 Lb. Minimum Breaking Strength Is Standard)

OPTIONAL: Available With Super Heavy Molecular Weight Polyethylene Jacket to Withstand Extreme or Unusual Weather Conditions. Also for Direct Burial Where A Heavier Jacket Would Be Desirable.

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