August 1964

TV & Communications

IN THIS ISSUE

SPECIAL REPORT ON GAB'S CATV AND PAY-TV MEETING

NEW JERROLD ★ MINUTEMAN IV ★

...first multi-output pressure tap!

Model MT-4*

Positive all-around match lets you deliver FULL PICTURE QUALITY ALL THE WAY TO THE RECEIVER

Heart of the new "Minuteman IV"—the new toroidal-design transformer insert.

Why should all the technical improvements in CATV head-end, trunk-line equipment, and cable go down the drain when signals reach the feeder lines? JERROLD says they shouldn't! And JERROLD has done something about it!

The new "Minuteman IV" quad pressure tap lets you maintain top-quality color and b&w pictures on all 12 channels, without standing-wave mismatch, which has long been the bugaboo of CATV men at the point of tap-off. Especially in systems carrying both high and low bands, "Minuteman IV" prevents the low-channel signal degradation that often ruins color reception.

Greatly improved electrical characteristics, added to snap-on simplicity of installation, give the "Minuteman IV" the kind of performance you need . . . to get full value from new low-loss aluminum-sheath cable . . . to cascade line-extender amplifiers . . . and, most important, to deliver the consistently fine pictures your subscribers demand.

Call or write for complete information.

Features:

- Very low insertion loss (as low as 0.1 db)
- New toroidal-design transformer insert
- Silver-plated contact pin
- Back match at each outlet 16 db min.
- Line match 21 db min. (1.20 VSWR)
- Isolation between outputs 18 db min.
- Color-banded for easy identification from ground level
- No cutting of cable
- Quick, easy installation
- Completely weatherproof housing

*Available in various attenuation values and for use with type JT-404, JT-408, JT1412, JT-1412-J, and JT-1500 cable.

JERROLD ELECTRONICS

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Area Code 412
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DENVER 22, COLO.
2110 South Ash Street
Area Code 303
756-6283

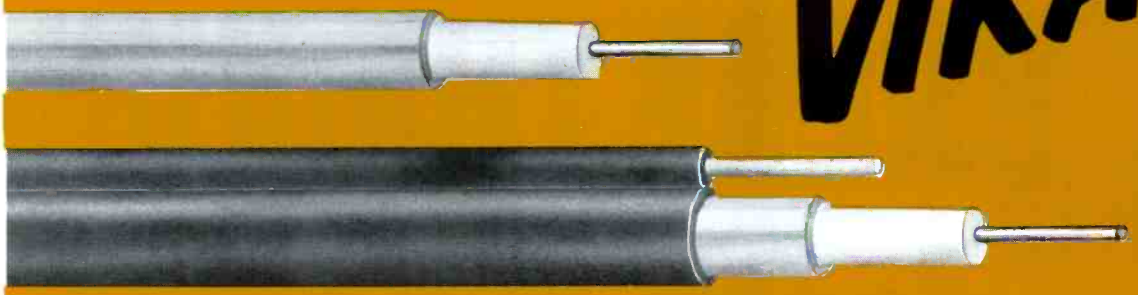
DALLAS, TEXAS
4924 Greenville Ave.
Area Code 214
368-1911

SAN CARLOS, CALIF.
1042 Terminal Way
Area Code 415
593-8273

YAKIMA, WASH.
Ward Building
1 N. First Street
Area Code 509
248-1717

VIKING

VIKAL

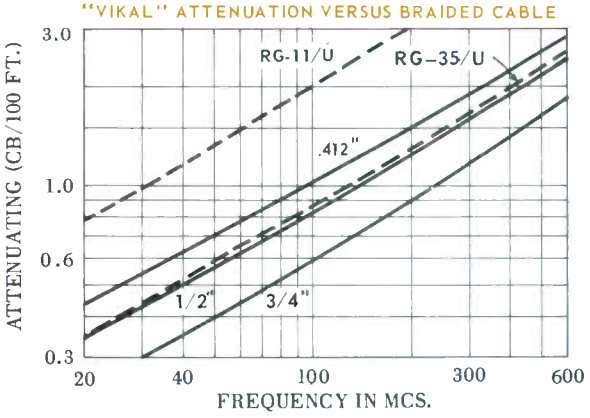


AVAILABLE WITH BUILT-IN MESSENGER

ALUMINUM SHEATHED COAXIAL CABLES and FITTINGS

- SEMI-FLEXIBLE
- LOW ATTENUATION
- LONG LIFE
- EXCELLENT VSWR vs. FREQUENCY
- MINIMAL RADIATION
- LIGHT WEIGHT
- NO PRESSURIZATION
- HIGH PHASE STABILITY
- UNIFORM ELECTRICAL LENGTH CHARACTERISTICS
- EXCELLENT ATTENUATION vs FREQUENCY
- AVAILABLE IN LENGHTS OF OVER 1000 FEET

"VIKAL" ATTENUATION VERSUS BRAIDED CABLE



VK-1750: ¾" Lowest Loss Trunk Line Reduces the Number of Cascaded Amplifiers

VK-1500: ½" 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)

Solid Copper Center Conductor

Unicellular Foamed Polyethylene Dielectric

Aluminum Outer Sheath

OPTIONAL: Available With A High Molecular Weight Polyethylene Jacket (Resistant to Outdoor Weathering)

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

To ENGINEERS and TECHNICIANS... *IDEAS WANTED!*
Will pay for ideas for new items or improvements on present products to better serve the CATV Industry. Submit your ideas to us for immediate evaluation.

VIKING

830 Monroe Street, Hoboken, New Jersey • Call Us Collect: New York: (212) WH 3-5793, Hoboken: (201) OL 6-2020

PLEASE INSERT THIS SHEET IN YOUR CATALOGUE

DRAMATIC BREAKTHROUGH

IN LOW-COST BUILDINGS

The development of Geon, a new high-strength rigid vinyl, has made it possible to produce extremely versatile pre-fabricated buildings at very low cost. Specifications of the new Rodun structures reveal their usefulness in dozens of applications, such as CATV Head-End equipment buildings, microwave relay stations, remote transmitters and commercial buildings. Modules are available as small as 4' x 4' with no limit on maximum size of structure.

Quickly erected, pre-fabricated units are constructed of rigid-vinyl corrugated panels with framework of extruded aluminum alloy. Simple, one-day erection requires only screw-driver, wrenches and drill. These lightweight buildings are secured to foundation by anchor bolts, per "South Florida Building Code." Roof will take a live load of 20 lbs./s.f. Tensile strength of vinyl walls and roof is 7,500 psi, with compressive strength of 9,400 psi. Flame resistent properties add extra protection for your equipment and property (self-extinguishing per UL Report R4754, 7-15-63).

LOW THERMAL CONDUCTIVITY

Ideal for extreme climatic conditions, the walls and roof of Geon rigid-vinyl have a thermal conductivity factor of only 1.3 BTU/s.f./hr./ F/in. In fact, this material was especially developed for tropical housing capable of withstanding heavy winds, extreme heat, humidity and rain. (Geon will not rust or rot and is not subject to insect attack or fading.) The glossy surface of the tough rigid-vinyl reflects the sun's rays, maintaining a low interior temperature.

All of these properties are equally valuable whether in a 4' x 4' transmitter shack or a 20' x 80' retail or service facility. And the savings are just as great, proportionately, in either type of application.

Intercontinental Industries Inc.

2241 NW 40 — SUITE 203-M OKLAHOMA CTY. OKLAHOMA

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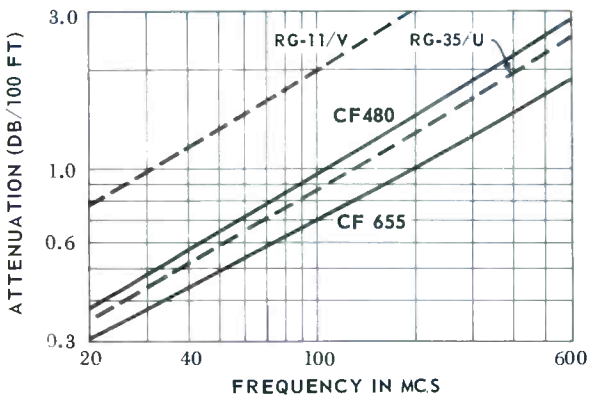
COPPAFLEX

AVAILABLE WITH BUILT-IN MESSENGER

CORRUGATED COPPER SHIELD COAXIAL CABLES and FITTINGS

- FLEXIBLE
- LOW ATTENUATION
- EXCELLENT FREQUENCY RESPONSE
- MINIMAL RADIATION
- LIGHT WEIGHT
- ATTENUATION UNIFORMITY
- LONG OPERATING LIFE LOW COST
- STANDARD REEL LENGTHS: 3,000 FEET – CF-480 & CF-655

"COPPAFLEX" ATTENUATION VERSUS BRAIDED CABLE



OPTIONAL: .480" & .655" cables are available with integral messenger wire (0.109" galv. steel, 1800 lb. minimum breaking strength is standard).

EACH REEL 100% SWEEP TESTED

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

Solid copper center conductor

Unicellular foamed polyethylene dielectric.

5 mil (0.005") corrugated copper shield longitudinally applied.

Jacket of high molecular weight polyethylene (resistant to outdoor weathering)

To ENGINEERS and TECHNICIANS... *IDEAS WANTED!*
Will pay for ideas for new items or improvements on present products to better serve the CATV Industry. Submit your ideas to us for immediate evaluation.

VIKING

830 Monroe Street, Hoboken, New Jersey • Call Us Collect: New York: (212) WH 3-5793, Hoboken: (201) OL 6-2020

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AUGUST 1964
Volume 1 — Number 8

TV & COMMUNICATIONS

Published By COMMUNICATIONS PUBLISHING CORPORATION – P.O. Box 63992, Okla. City 6, Okla.

EDITORIAL

A host of opponents and critics are mounting a campaign to bring community antennas under Federal regulation. Some broadcasters link CATV with Pay-TV and want to regulate them both. The NAB admits that Pay-TV and CATV are not the same thing . . . but calls one an "enigma" and the other a "dilemma"! NAB wants CATV regulated and flatly opposes Pay-TV, regulated or otherwise! TAME wants increased regulation of all forms of television except broadcast.

At the Georgia Association of Broadcasters' August 4 conference on CATV and pay television, a battery of broadcast-oriented speakers faced heavily outnumbered representatives of CATV and Pay-TV.

The forum was enlightening and, we believe, productive. Many broadcasters came away with a better understanding of CATV—and how industry representatives regard broadcast and pay television interests. Just as important to the CATV owner, however, is what the broadcasters, FCC and the TAME group had to say about CATV!

The GAB meeting afforded us an excellent opportunity to learn just where CATV opponents stand—and what their motives and objectives are. We are sharing some of this information with you, through an extensive report in this issue. We urge you to read it.

You probably won't sympathize with Mr. Putnam, who claims that CATV operators lie to him and about him. Nor are you likely to applaud Mr. Leslie's view that "CATV is not compatible with the growth of UHF," or Mr. Jacob's statement that CATV operators have been "running roughshod" over the objections of broadcasters, FCC, and the Congress.

If you disagree with these views it is important to you—and your industry—to hear and analyze them. The future of CATV may depend upon whether or not system owners are interested enough to listen to their opponents. Prudent CATV operators will keep themselves well informed during this critical period.

Stanley M. Searle

IN THIS ISSUE:

CIRCULATION: TV & Communications is circulated through United States and foreign mails on the tenth day of each month, to individuals and firms dealing in products and services for closed circuit and community antenna television, television broadcast, and mirowave. Circulation is both paid and controlled. A detailed circulation breakdown by reader occupation is available upon request.

SUBSCRIPTIONS: TV & Communications subscription rates in the North American continent is $5.00 per year for surface mail. Subscription outside continental North America are $6.50 per year, remittances to be made by bank money order or check, negotiable in United States banks. TV & Communications is published 12 times per year.

ADVERTISING: Commercial display advertising is accepted from manufacturers and suppliers of electronics equipment and allied services, at the discretion of TV & Communications management. Advertising rate card and circulation breakdown are available upon request.

TV & COMMUNICATIONS (title registered at U. S. Post Office). Second-class postage paid at Oklahoma City, Okla. Subscribers should allow six weeks for change of address.

ADVERTISING REPRESENTATIVE for New York City: Milliard Associates, Inc., 2 West 45th Street, New York 36, New York - Ph. MU 4-0349.

PUBLISHERS: Patrick T. Pogue and Stanley M. Searle.

GENERAL OFFICES
1839 N. W. 16th (P.O. Box 63992) Oklahoma City 6, Oklahoma (405) JAckson 8-3523

Your KEY to the ultimate in CATV ...from start to finish!

ENGINEERING

From a staff of skilled draftsmen who will map the course of action . . . to an experienced construction crew who will install the unsurpassed Ameco equipment . . . to a group of highly trained technicians who will "fire up" your system . . . Ameco is tops!

EQUIPMENT

First and finest . . . Ameco . . . truly the recognized leader . . . truly the pacesetter of the entire CATV industry. Proven in research . . . proven in production . . . proven in the field in over 50% of the nation's cable systems!

MICROWAVE

Another important plus that points up the completeness of the services offered by Ameco is microwave transmission. Increasingly important to cable system operation . . . Ameco's Antennavision Service Company has become a major factor in this field.

FINANCING

First in the CATV industry to offer a wide spectrum of long-term finance plans . . . Ameco has financing to suit your situation be it turnkey or equipment . . . an extension . . . a rebuild . . . or a new system.

SERVICE

The one and only company in the cable field that cares enough about you and your cable system to provide doorstep delivery. See it . . . try it . . . buy it . . . from Ameco's "Salesmobile" truck.

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AC 503 232-7051

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News SPECTRUM

TELEPROMPTER OBTAINS $4 MILLION UNSECURED LOAN

Capital for community system expansion, to the tune of $4 million, has been loaned to TelePrompTer Corp. by The Chase Manhattan Bank and Franklin National Bank. In New York, Irving B. Kahn, Chairman and President of the firm, said the long-term borrowing will help to assure continued healthy growth of TelePrompTer by facilitating expansion, primarily through acquisition and development of community television

Kahn reported that TelePrompTer will utilize a substantial portion of the funds to immediately retire most of its outstanding debt, with the balance added to working capital.

Bruce Merrill, new NCTA Chairman commented that the loan marks a "major milestone" in the development of the cable television industry. He said, "By granting TelePrompTer the same unsecured credit commonly extended to other types of stable business enterprises, these two leading banking institutions have recognized that our industry is coming of age as a sound investment opportunity."

TelePrompTer is currently considering several acquisitions, in addition to the 14 systems which now serve its 46,000 subscribers.

NOWACZEK LEAVES NCTA

Frank Nowaczek has resigned his position as NCTA Director of Research to join TeleSystems Corporation, Glenside, Pennsylvania. Mr. Nowaczek will be Assistant to *Fred Lieberman*, President of TeleSystems.

Serving NCTA for five years, Mr. Nowaczek has been administrative assistant, Research Director and has served as administrative head of the Washington office in the absence of an NCTA president. His resignation becomes effective September 1.

FIRST ALL-SILICON CATV SYSTEM DELIVERS TV TO COCOA BEACH

Construction is now underway in Cocoa Beach, Florida of the CATV industry's first all-silicon transistorized system, according to Dr. Byron S. Clair, president of Westbury CATV Corporation, Mt. Vernon, New York. Superior temperature stability is cited as an advantage of the silicon circuitry.

Jay Demming, president of Commicable, Inc., which awarded the con-

NCTA FILES REPLY COMMENTS OPPOSING PROPOSED CATV MICROWAVE RULE MAKING

Earlier this month the NCTA filed rely comments in opposition to the FCC's proposed CATV/Microwave rulemaking, Dockets No. 14895 and 15233. NCTA claims broadcasters' contentions that CATV systems have inflicted economic hardship on local television stations are without basis in fact.

The reply comments were filed in response to the Commission's proposed rules to govern grants in the Business Radio and Common Carrier Microwave Service where community antenna systems are served. A key provision of the proposed rules is the requirement that a CATV would have to agree not to duplicate the programing, for a period of 15 days before and after telecast, of any station within whose Grade A service area the system renders service. The interim requirement which required the same non-duplication by systems within the Grade B contour of a station was recently discontinued by the Commission.

Claiming that there exists "no urgent need" for the protection of local broadcast stations by microwave-served CATVs, NCTA asked the Commission to "announce that with respect to microwave applications which are intended to serve CATV systems, a protest from television broadcast stations will be entertained only if there is a strong prima facie case presented, indicating injury to the public interest." The Association comments also reiterated the position taken in its earlier filing that Commission control over microwave-served CATV's be on a "case-by-case" basis.

NCTA cautioned the Commission to "proceed cautiously" should it "take the risk of curtailing multiple service to the subscribing members of the public through the issuance of general rules." If rules are adopted, says NCTA, the Commission should "attempt the approach of simultaneous non-duplication within 15 miles of the principal city to which the TV station is assigned . . . rather than resort to a more radical remedy, leaving any relief beyond this to a case-by-case approach." Furthermore, the NCTA submittal emphasized, a remedy should only be afforded a broadcast station "upon proof of need," and that the complaint of a broadcaster should be considered only with respect to the station's "precarious financial situation." The NCTA reply comments single out and strongly reprimand Springfield Television Corporation, operator of New England UHF television stations. Comments filed by the firm with the FCC alleged that CATV systems in the coverage area of its station WRLP, Greenfield, Mass., were having a detrimental economic effect upon the station.

Based upon information taken from FCC files, the NCTA contends that the station is in sound financial condition, along with WWLP, Springfield, the parent station of the Greenfield satellite. NCTA comments state that the Springfield's statements are "entirely at odds with the facts" and that the station has "unfairly attempted to place the responsibility for its derelictions on the CATV systems operating within its service area."

Significantly, Springfield broadcasting's own advertising promotions claimed a coverage "bonus" in the 11 community antenna systems which carry its signals. Meanwhile the station pleads "adverse economic impact" to the Commission. NCTA points out that during 1963 only seven other UHF stations, besides WWLP, had revenues over one million dollars. The NCTA concludes that in view of its "burgeoning prosperity, Springfield's allegations of economic hardship ring quite hollow."

tract, stated that "Cocoa Beach residents currently receive spotty reception on only three channels. This new 12-channel system will not only provide a sharp, clear picture, but also increase the program selection of area viewers."

NEW CATV MICROWAVE PROPOSED

A new 12700-12950 mc microwave service for community antenna systems has been proposed by the FCC. (TV&C, June 1964). The "Community Antenna Relay Service" (CAR) would be administered by the Broadcast Bureau. The proposal would provide for narrow band (12.5 mc) operation without overlap of sidebands.

A second proposal would permit wideband operation (as under present 25 mc spacing) but would provide for 12.5 mc spacing between asignable frequencies for overlapping sideband modulation. The proposal states that each CAR licensee would be limited to the use of 10 frequency assignments in serving any CATV system, unless a special showing were made to the Commission.

CAR licensees would be required to adhere to new technical standards, intended to make it possible to "provide twice as many video channels in the same amount of allocated spectrum space as presently is practicable."

There would be no limitation on the number of CAR authorizations which a single licensee could hold. However, technical requirements would preclude a licensee from preempting all CAR frequencies in any one place. Interconnection of CAR facilities, and the servicing of more than one CATV would be permitted but not required.

Under the proposal, an applicant for common carrier facilities in the Domestic Point-to-Point Microwave Radio Service with plans to serve a CATV system would be required to show that at least 50% of his proposed customers were unrelated to the applicant, and that they would utilize at least half of the service he provided. New common carrier facilities serving CATV's would be authorized only in the 10700-11700 mc band if they served routes up to 400 miles. Those with routes of 400 to 600 miles would be accepted in the 59259-6425 mc band, but only if they could show that the other band could not be used. It is also proposed that common carriers using the 10700-11700 mc band for CATV service would have to use equipment capable of maintaining suitable frequency stability.

COVER PHOTO — Supplied through the courtesy of Jerrold Electronics Corp. See page 33 for special article on this leading CATV manufacturer and system operator.

FREDERICKSBURG, VA. GETS CATV

On Friday, August 14, a new CATV system opened in Fredericksburg, Virginia. Subscribers to the system will be able to receive 9 TV channels from stations in Washington, D. C., Richmond and Baltimore, plus educational TV from Alexandria, Virginia.

Channels received by the new firm, Cablevision of Fredericksburg, are WMAR, WBAL and WJZ in Baltimore; WRC, WTTG, WMAL and WTOP in Washington, D. C.; WTVR and WRVA in Richmond, Va. Also WETA (educational) in Alexandria, Va. Entron, Inc., Silver Springs, Md., is supplier of the broadband equipment for the new community system.

SYSTEM TRANSACTIONS

Daniels & Associates has announced the sale of the CATV system in Perry, Fla. formerly owned by Mr. H. E. Jackson. The operation serves more than 350 subscribers. Florida Video, Inc. purchased the community system for an undisclosed price in what was reported to be the 73rd sale handled by Daniels & Associates in the last four years.

Robert J. Tarleton has acquired a new community antenna interest in Titusville, Pa. The Titusville Cable Co., headed by Arthur D. Carlson, has been sold to Tarleton's firm for an undisclosed amount. The CATV serves more than 1500 subscribers.

$15 MILLION PAY-TV LAUNCHED

Pay-television franchises for Miami, Atlanta, Houston and Dallas have been granted by Paramount Pictures Corp. Plans have been announced by International Telemeter, a Paramount subsidiary, to reach a minimum of 75,000 homes in each of the four areas. Operations are slated to begin in the fall of 1965.

Home Theatres, Inc. holds the franchises for Houston and Dallas. President of the firm is John W. Allyn, a partner in Francis I. du Pont & Co. Holding the Miami franchise is Florida Home Theatres Corp., headed by

Budd Mayer, president of a food brokerage firm. And Home Theatres of Georgia, Inc. has the Atlanta franchise. Jack Rice is president.

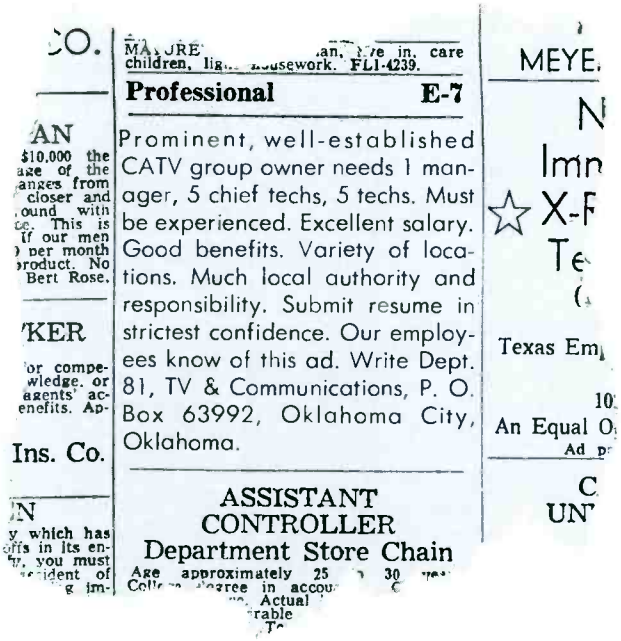
Stockholders in the Texas Pay-TV firm, along with Allyn, include actor John Wayne, Winthrop Rockefeller and C. Hamilton Moses, president of Midwest Video Corp., holder of a Telemeter franchise for Little Rock, Ark.

Telemeter has operated a Pay-TV system near Toronto for more than three years, utilizing cable transmission.

JERROLD GETS J-JACKS PATENT

The U.S. Patent Office has issued a patent on the Jerrold J-Jacks System, the "first single-cable, dual-function distribution system for master antenna and closed-circuit television," according to Robert H. Beisswenger, Vice President and General Manager of Jerrold.

The J-Jacks system provides outlets to which cameras or receivers can be attached interchangeably through a simple plug-in unit. Applications include schools, hospitals, industrial plants and military establishments.



LETTERS

Editor:

We consider your publication a most useful, informative one. I would recommend, though, that you try to work up some sort of classified advertising section, as appears in *Broadcasting Magazine*, for the purpose of buying and selling systems and equipment; and for the purpose of informing the trade as to the availability of employment opportunities for various individuals who wish employment and for those who are seeking employees.

Howard Warshaw
Highlands Cable Television Corp.
Sebring, Florida

• *Howard, we are seriously considering expanding our classified section to perform the services you suggest. Thank you for your recommendation.*

Editor:

Would you send me the name and address of the company that carries the Utilift that is pictured in your July issue on page 22.

If you wish you can notify them to send me literature and prices. . . . .

Leon Reed
Reed's TV Cable System
Wellsboro, Pa.

• *Leon, we are forwarding your letter on to TeleSystems Corporation, 113 South Easton Road, Glenside, Pennsylvania, manufacturers of the Utilift.*

Editor:

Your magazine used to cover other subjects besides Cable TV, namely TV translators, etc. If you do not cover this subject now, please transfer my subscription to the two-way communications publication.

Roy G. Rickles
Rickles Electronics & Communications
Gadsden, Alabama

• *Roy, we will be happy to transfer your subscription to COMMUNICACTIONS Magazine. TV & COMMUNICATIONS does not cover TV translators .. . we did, however, assume the subscription liabilities for a magazine that (some two years ago) covered that subject along with CATV.*

SEE FOR YOURSELF

how — and where

SUPERIOR

"Cell-O-Air" Coaxial Cable

with "Coppergard"

Outperforms the others more and more

The mechanical and electrical advantages of Superior's Cell-O-Air Coaxial Cable with Coppergard offer you up to 20% lower attenuation and far better long term transmission stability. Solid tubular Coppergard corrugated 5-mil copper shield provides positive protection against radiation leakage. Corrugations permit hand bending up to acceptable limit of 20 times the cable diameter, to assure maximum flexibility without fracturing shield.

"We . . . like the Superior Cable we have used so far which was 4920 feeder and 4930 trunk."

"Superior Cable #4920 has been in the air five months . . . there's a great amount of salt in the air and high annual rainfall. Loss measurements showed .906 DB/100' on Ch. 6 and 1.54 DB/100' on Ch. 13. Additional attenuation due to aging, both channels, is approximately 3/10 of 1% over published specs . . . and, over the five month period, the additional attenuation is linear. Superior 4920 cable is far superior."

"During the past 12 months we have installed more than 1,600,000 feet of Superior 4920 Coppergard Coaxial. Of the total footage you supplied, no reels were rejected because of electrical integrity or cable quality or workmanship. You will be interested to learn that 4920 delivers far more in performance than you ever claimed for it."

HICKORY BRAND®

ELECTRONIC WIRES AND CABLES

Write for the name of the company nearest you where Superior Cell-O-Air Coaxial Cable with "Coppergard" is installed.

Manufactured by

SUPERIOR CABLE

Superior Cable Corporation • Hickory, North Carolina

FOCUS
...On Progress

HANSEN NAMED CHIEF ENGINEER AT PHELPS DODGE

Jerry F. Hansen has been appointed Chief Engineer of Phelps Dodge Electronic Products Corporation according to an announcement by *H. W. Jones, III*, Vice President.

In his most recent position with Edgerton, Germeshausen and Grier, Mr. Hansen was Project Section Head for weapons test diagnostic installation. While serving with Autonetics and Northrop Aircraft, he acquired an extensive background in quality verification testing, environmental testing, and system design.

Mr. Hansen received a B.S. (M.E.) degree from the University of Idaho, and belongs to American Society of Mechanical Engineers and National Society of Professional Engineers. He is a registered professional engineer in California, Nevada and Idaho.

KUSHNER NAMED AT JERROLD

The newly appointed Sales Manager for Jerrold's Industrial Products Division is *Mr. Alvin E. Kushner*. The promotion climaxes a 12 year association with *Jerrold Electronics Corporation* as Mr. Kushner moves up from the post of Southeastern Regional Manager for the company's Distributor Sales Division. He has also served as a field engineer, previously, with Jerrolds CATV division.

VIKING SALES REP APPOINTED

Dean Schaeffer has been appointed as field sales representative for Viking Cable Company, Hoboken, New Jersey. Mr. Schaeffer has been in the industry since 1952 and most recently with Telco. He will represent Viking in a sales capacity in the Pennsylvania and West Virginia areas.

AMECO PROMOTES

Reorganization of the technical department of Ameco, Inc. has resulted in two major changes according to Bruce Merrill, President of the Phoenix, Arizona company.

Bill Rheinfelder, recognized for his research background in the solid-state field and author of several articles and books on solid-state, has been named Director of Research and Development for Ameco. Mr. Merrill reported that Mr. Rheinfelder's department will be doubled in both personnel and laboratory size as the company steps up efforts in the research field.

Rheinfelder

Nelson

The second major change is the appointment of *Donn Nelson* as Assistant Director of Technical Operations under the new set-up. Formerly head of Test and Alignment, Nelson will work closely with new product development as well as field operations.

Additions to the contract sales force have been made with *Ed Andrews* named to represent the company in the northeast and *Joe Murphy* in the northwest. Andrews is known in the CATV field having been a representative for a cable equipment manufacturer for a number of years. Murphy joins Ameco after sales experience with an antenna manufacturer.

NEW CATV FIRM NAMES OFFICERS, DIRECTORS

President-Elect of the newly formed CATV Company, Meredith-Avco, Incorporated, has been announced. *Frank Fogarty* will head the company recently organized to operate Community Antenna Television Systems.

Other officers elected were *Arthur Rasmussen*, Vice President; *H. Y. Engeldinger*, Treasurer, and *Gordon Tuttle*, Secretary.

Mr. Fogarty is Executive Vice President and Mr. Engeldinger is Treasurer of Meredith Broadcasting Company. Mr. Rasmussen is Financial Vice President and Mr. Tuttle Assistant General Counsel and Secretary of Avco Corporation.

Directors elected were *Payson Hall*, President of Meredith Broadcasting and Executive Vice President of Meredith Publishing Company; *John Murphy*, President of Crosley Broadcasting Corporation. Other directors include Fogarty, Rasmussen, Engeldinger and Tuttle.

Formed July 1, Meredith-Avco's present operations are centered in the Cape Kennedy area of Florida.

C-COR NAMES CHIEF ENGINEER

The new Chief Engineer for *C-COR Electronics, Inc.*, is *Mr. George P. Dixon*. The position includes responsibility for all engineering activity, including design, development and testing of a complete line of solid state and tube amplifiers. Prior to this appointment, Mr. Dixon was Chief Engineer at Nuclear Research Corp.; Engineering Manager of Electronics Instrument

Div., Burroughs Corp., and Chief Electronic Engineer for Bristol Engineering Corporation. Previously he had held various positions with El-Tronics, Inc., Westinghouse Electric Corp., Bendix Radio and the U.S. Naval Research Laboratory in Washington, D.C. □

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G. A. B. "SERTS" CONFERENCE

Southern hospitality was the byword of the 3rd Annual Southeast Radio-TV Seminar in the progressive and very TV-minded southern city of Atlanta, Georgia.

The meeting, sponsored by the Georgia Association of Broadcasters, got underway with a social gathering at the Riviera Motel. It was an opportunity for broadcasters, lawyers, CATV owners, Pay-TV advocates, etc. to get acquainted and re-acquainted. We enjoyed meeting many of the key people involved in the pros and cons of recent television problems.

After the social hour, we adjourned with Vernon Kohlhaas, Washington Attorney; Frank Nowaczek, NCTA; Ed Kelly and Al Warren, TV Digest; Kyle W. Huddle, Television Cable Corporation, Kingsport, Tennessee, and several others to Dale's Cellar for a very delicious dinner and provocative conversation.

The Seminar officially got underway when Charles Doss, WROM (Rome, Ga.) and President of GAB, called the meeting to order.

First speaker of the morning session was John Pinto, Vice-President of RKO General Phonevision. His talk (plus graphic stories on how broadcasters, like anyone else, can be dissatisfied with the status quo) brought an enthusiastic round of applause (and laughter) from opponents and proponents of CATV and Pay-TV.

William Putnam, President of WRLP-TV, WWLP, WWOR, was next on the program and had the apparent backing of many broadcasters as he presented his views on why "Some Broadcasters Don't Like CATV."

Terry Lee, Storer Broadcasting Co., was to present the opposite view. However, he was unable to attend and Andrew G. Haley, Washington Attorney, filled in. Mr. Haley brought attendees up to date on the recent KLIX decision by the U.S. Court of Appeals.

Max Paglin, Washington Attorney and former FCC General Counsel, then presented his views on the merging of TV and CATV. He likened the merger to a set of railroad tracks—the merging of TV and CATV "is at an optical joining point." Mr. Paglin told of the "vital role to be played in the future of TV both by CATV and other forms of 'free' TV." The future of TV lies in the nature and scope of programming, he asserted, the public is not satisfied with 1 or 2 channels and is now willing to pay for multi-channel coverage.

"Although CATV started as a homegrown grass roots cable conduit, it has now grown beyond the wildest dreams of its '49ers." Mr. Paglin continued, emphasizing that "CATV is here to stay," and reminded broadcasters that they can now get into it. He also urged CATV operators to become broadcasters themselves. The attorney pointed out that CATV has the opportunity to become a real public service by becoming an integral part of the community. TV and CATV combined "can now become a real communicator" and provide TV service in the public interest, he told the forum.

General Counsel for NCTA, Robert L'Heureux, quickly covered the main points of his talk "CATV & Pay-TV As We See It." He then deviated from his prepared talk to rebut the earlier claims and accusations against CATV by William Putnam. The Association lawyer pointed out that although Mr. Putnam openly attacks CATV, he advocated it in his advertising as extended coverage.

Mr. L'Heureux's comments brought both objections and accolades. The meeting was out of control only momentarily, however, as Herb Jacobs addressed the chair and suggested that the remainder of the speeches be confined to the topics assigned and prepared. "It was my understanding that rebuttals should be withheld until the afternoon question and answer session." Mr. Doss agreed and cautioned the remaining speakers to follow the planned program.

Next on the agenda was Morton Leslie, Acting Chairman of TAME, presenting "The TAME Views." Mr. Leslie reported that TAME is very much opposed to CATV and Pay-TV (wired), however, he stated that the organization does not want to put CATV out of business . . . just wants

Charles Doss (l) receives **Illegitimi Non Carborundum** from Herb Jacobs.


Andrew G. Haley, Washington Attorney, reports KLIX decision.


Al Ricci, Keene, N. H. discusses TV "politics" with Vernon Kohlhaas at social.

it regulated. (In the question and answer session he urged broadcasters to "use their own systems . . . to educate the public" in their efforts to fight CATV.)

William Carlisle, Vice President of Station Services for NAB, reported on how "NAB Views CATV and Pay-TV." He indicated that NAB favors CATV (under certain conditions) and opposes Pay-TV.

Hilburt Slosberg, Associate General Counsel, Federal Communications Commission, presented generalized FCC views on CATV and Pay-TV. He reiterated Fred Ford's views on all forms of TV providing service in the best interest of the public (per Ford's talk at NCTA convention). He explained that it is difficult to define the Commissioners' views on CATV—"We have seven pairs of eyes"—it is difficult to focus them on one viewpoint. He further pointed out that the Commission has a problem not only with focusing 7 pairs of eyes upon a single viewpoint, but that CATV is growing and expanding so rapidly, they must focus upon the future as well.

The attorney said that viewers see TV not as a technical or legal definition of wired or radio transmissions but as a picture on a TV screen. Everyone agrees to the "need of a comprehensive regulatory scheme." The regulatory scheme is necessary to achieve harmonious relation. Multi-channel operation is here, fully established. FCC proposed non-duplication to lessen impact of CATV upon local stations. The question of time (15 days before/after) is open and comments are requested. If CATV retains its power to alter signal, it is conceivable, Slosberg maintains, that section 315 (equal time) could be violated. And the FCC must consider public interest.

A new common carrier service has been proposed—designed for (CATV) self-owned microwaves to take them out of FCC and put them in separate frequencies. The "Commission earnestly solicits all information and comments" that the industry submits, "to achieve maximum utility of scarce frequencies." CATV is an adjunct to broadcast TV and should be under the broadcast services, according to the FCC counselor. The Commission is looking on the California STV efforts with interest and "can make judgments only on the information we can obtain," Mr. Slosberg concluded.

Eugene Cogan of McCann-Marschalk, Atlanta, detailed the advertiser's views on CATV. Advertiser is in favor of CATV and Pay-TV as an extension of broadcast. Airwaves belong to United States, not to any individual or company and should be regulated by a federal agency, he claimed. Every known form of broadcasting should be permitted to exist, in his view. "Just because people live in a valley or on a mountain should they be denied the privilege of culture" and other advantages offered by TV? "People will spend money to appeal to their particular tastes" and will certainly pay to select programs of their choice. The term "Pay-TV," Mr. Cogan said, "is discriminatory . . . all TV is pay . . . TV sets are not free" and "the electricity bill goes up when the TV is turned on."

The next speaker, Vernon C. Kohlhaas, related the lawyer's viewpoint—basically identical to FCC—all TV must work together. He stated that broadcasters must embrace Pay-CATV as supplementary sources of programming and revenue.

Bruce Merrill, NCTA, noted that nowhere in he program did GAB include "our boss, John Q. Public." The public wants a picture on his TV screen—he doesn't care how it gets there.

Herb Jacobs, President of TV Stations, Inc., complimented GAB for its "guts to bring topics out in the open" and presented President Doss with a framed rendition of Don Quixote charging forward on his not-so-gallant steed with a flag unfurled behind bearing the inscription "Illigitimi Non Carborundum."

When the meeting reconvened after luncheon, Mr. Doss introduced the panel made up of presidents of state broadcast associations and the question and answer session began.

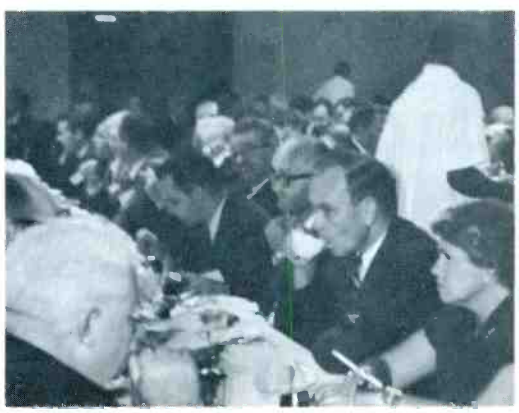
The hot, humid Georgia weather then began to take its toll on tempers. Assertions were made and objected to—counter claims were made and denied. Several times the moderator requested cooperation from those present.

Finally, Southern hospitality prevailed (plus the fact that many panel members had airline schedules to meet) and the Seminar ended on a friendly note.

OBSERVATIONS: Although attendees agreed that no real solutions to the problems discussed were reached, it was conceded by all that GAB had gone a long way to provide a vehicle to reach the solutions.

Many people (including broadcasters) were concerned because so many of the speakers apparently had assumed that *all* broadcasters were against CATV. Of course, the trend is in the opposite direction, with more and more broadcasters looking upon CATV with favor as many station owners openly seek CATV ownership.

Frank Nowaczek, NCTA, at social hour.



Controversy, conversation and coffee featured at SERTS conference.

Max Paglin responds during question-answer session.

Associate General Counsel Hilburt represents FCC at GAB.

G.A.B.

Question... ...Answer

The following transcript is taken from a tape recording of the question and answer session at the SERTS conference. Only the most pertinent questions and replies are recorded due to lack of space. Moderator is Charles Ross.

"Joe Walters representing Kentucky Broadcasters Association: If it is all right for community antenna systems to rebroadcast television stations, wouldn't it be equally all right for television stations to rebroadcast subscription television stations . . . should it work both ways?"

"Vernon Kohlhaas: The act itself takes care of the question you raise because one station cannot rebroadcast the programs of another. . . . The act does not prohibit a CATV from picking up another program."

"Joe, do you have a reply?" (Charles Doss)

"Yes, I know that is true, but to keep it on an equal basis, if the community antenna systems help more people get more programs, wouldn't the television stations help those people over the valley from Los Angeles get more programs—just buy one set and rebroadcast the subscription TV systems—change the act so you can do that."

"Mr. Kohlhaas, do you have a comment?" (Doss)

"Well, there he is going into a question of policy and there are proposals to amend 325 to prohibit CATV from picking up programs from broadcasters without their consent—I've never heard the reverse argued."

"Robert L'Heureaux, Washington, D. C.: That is part of the answer, but not all. The Communications Act of '34 is amended to prohibit a broadcaster from rebroadcasting the programs of another broadcaster—That's just a technicality there, seeing that we were not declared to be broadcasters. There is . . . nothing in the Communications Act that would prohibit a broadcaster specifically from picking up a Pay-TV program for instance if he has permission of the Pay-Television. In other words, you can originate as broadcasters anything you want—anything you can buy. Now why is it that CATV as you raised the question does not pay? You realize that in the southern district of New York there is a case being considered brought by United Artists Corporation against us and the courts will decide there if we do have to pay or not so it's still an open question. The Communications Act says nothing about it, but whether we have to by law is another question."

"Any other comments?" (Doss)

"I'm Dick Biddle from WOWL-TV in Florence, Muscle Shoals, Alabama. This is a little sidelight to this whole meeting, but while you broadcasters who are here in the interest of trying to solve a problem or at least to understand it are squabbling among yourselves, the newspaper, our number one competitor, is having a field day. And, I think that Pay-TV with the big money interests behind it has done a real fine job of getting a public-relations story out of the public. But, the broadcasters haven't gotten the opportunity through the print media and they aren't even using their own medium to explain to the public exactly what the broadcasters' point of view is if there is any unanimity in the view. So it is my suggestion to Bill Carlisle and NAB that they redouble their public-relations effort on behalf of broadcasters to tell our side of the story as opposed to Pay-TV."

"Thank you Dick, I think we have an answer for you over here." (Doss)

"I'm Bill Carlisle. I went out to California last month . . . to talk to every broadcaster I could . . . to make one thing very clear, that we weren't seeking to guide their policies. . . . Nor to try to get them to oppose the Pat Weaver proposition out there. What I suggested to them was that perhaps they could give full exposure to both sides of the Pay-TV issue. I emphasized both sides, with the theory, as I said this morning, that an informed public could then make up its own mind. Thus, Dick, I don't know what you would have us do beyond that. . . . I think that if this is important to us, we will find ways to expose these issues to the public."

"Who will find them, Bill?" (Biddle)

"The broadcasters—licensees. We can give all the guidance, we can send speeches out, we can get into print in all sorts of ways. The only other way to reach the people, it would seem to me, would be to do something that many people in this industry would object to and that is, as Herb Jacobs suggested in Chicago, to raise a gigantic war chest and then perhaps go into the newspapers . . . to try to exploit or explore these issues."

"Morton Leslie, TAME. This matter the gentleman from Alabama has raised, getting information over to the general public has been something that has been . . . one of the difficult things we've had to overcome. We in the technical side . . . essentially the receiving antenna and the distributors and television technicians . . . very often we are guilty of something which quite possibly the broadcasters are equally guilty of and that is not seeing the trees for the forest or the reverse. . . . The average individual looks upon television, upon his TV set, upon CATV and upon antennas with a profound degree of completely. He looks upon this with no greater clarity than he might his own body. Any one of us as television authorities, myself included, could walk to someone down Peachtree street that just has a pair of rabbit ears, or antenna or even a CATV subscriber and say to him, we'll give you better TV or we'll give you more TV or we'll give you this or that. And, as an authority, they may not quite reach in their pocket and buy your message but they will listen. Mr. Merrill had made a statement that is very close to my own thinking, not so much that I agree with him, but the fact that, in substance, it is a very, very important problem which should be aired. That is the idea or principal that I've heard so many times—'Let the public make a choice, let the public decide what it wants.' . . . the public, Mr. Merrill and gentlemen, can't make that choice. . . . Not that they're ignorant, NO! It's Just that this whole idea of TV, antennas and the technology behind it is over their heads. . . . I say to the broadcasters within the framework of the law and within the framework of good practice and ethics, use your own facilities to get this message to the individuals. Not to sell or not to disguise or not to do anything other than to just say 'this is free TV and this is this.' There are any number of approaches you can take. And, sure, the newspaper may be your competitor but if it's a matter of getting an important message which is important to you over to a group which maybe the newspaper can accomplish, we who are in the TV and are allied to broadcasting—we use the newspapers too—in a lot of cases to the express advantage of the broadcaster."

NAB Views on CATV and Pay Television

Remarks by William Carlisle, NAB Vice President, before the Southeast Radio-TV Seminar

"Your (GAB) printed program makes Siamese Twins of CATV and Pay Television, joining them together by subtitle as 'Broadcasting's Dilemma of the Decade.' We are speaking instead of two separate problems, the dilemma of community antenna on the one hand and the enigma of Pay Television on the other. The Board of Directors of the NAB—as well as the blue ribbon Future of Television in America Committee of the NAB—have both sought always to keep them separate in their deliberations. . . . They have common characteristics in that each system charges the consumer money for the reception of programs on his television receiver. But CATV, strictly defined, is simply a transmission or relay system—picking up signals from near and afar and delivering those signals by wire or cable to the subscriber's home. This is a physical service and it is for this service that the consumer pays his monthly fee. Pay Television, on the other hand, is defined as 'any wireless, wired or cable facility transmitting or distributing programs into the home on a fee basis *which are not in the first instance broadcast for reception by the public without charge.*"

"NAB recognizes that CATV is here to stay, that it is a potent force, an attractive investment for broadcast and non-broadcast capital, a benefit to many broadcasters, a plague on certain other broadcasters, and an industry with a healthy growth potential. The Association's concern has always been with the *uncontrolled* growth of CATV. NAB is determined to make every effort to assure that CATV enjoys an *orderly* growth. We only oppose CATV when we see damage being done (or apparently about to be done) to the development of the nationwide VHF and UHF advertiser-supported free television system as envisioned in the FCC's 6th Report and Order . . . a burgeoning CATV complex, absent any rules or regulations for its development, can do injury to the allocations plan and can inhibit the appearance of local live television stations. . . .

"Then, entirely aside from the damage uncontrolled CATV can do to the nation's free television growth, NAB seeks also to insure that CATV does not become a vehicle for the emergence of a nationwide inter-connected web of wired pay television systems.

". . . (NAB) feels that some form of legislation must be secured in the next session of Congress to give the Commission a degree of control over CATV . . . situations wherein local signals are degraded, local stations are left off the cable, programs are simultaneously duplicated, audiences are unduly fractionalized, and harm is done to free local television with corresponding harm to the public. It

would place non-microwave-fed CATV's on the same basis, regulation-wise, as microwave-fed systems. . . . Broadcasters have no wish to impose any more controls over CATV operators than are necessary to reach the broad aims I have recited . . . the NAB Television Board asked the Committee and the NAB staff to use the interim period before the next (Congressional) session to prepare legislation in final form. It also authorized expenditure of substantial funds for a further CATV study, looking to a further filing with the FCC. I should make it clear that our Board finalized on no specific legislative language as of this date. It is perhaps within the realm of hope that the NAB, the NCTA and the FCC can reason together and agree upon legislation which . . . would make passage far easier in the next session of Congress.

"With respect to Pay Television, NAB opposes it . . . the concept of Pay Television is contrary to the public interest. NAB's opposition, as you know, was recently expanded to include wired Pay-TV as well as Pay-TV by wireless.

". . . The public has spent billions of dollars on television sets, money spent with the expectation that the only additional or continuing cost would be for normal set maintenance and operation. We are opposed to Pay Television because it would break faith with the public and would create a class system in television based upon family ability to buy programs, much the *same* programs that are now free. We oppose Pay Television because it is inherently hypocritical whenever it glibly promises the public, for example that there "will never be any commercials"; or when it seeks to convince the public that it will aim only at small, enthusiastic groups of opera and ballet lovers, ignoring mass audiences where obviously the real potential for money-making lies; we oppose Pay Television because it claims it will only 'supplement' free television and may not affect the public's free fare at all, for we claim it will instead *supplant* free TV.

". . . Mass appeal sports are already disappearing from the free picture tube and will soon be available only through the coin box if these people have their way; we oppose Pay Television because it threatens both the public and the free broadcaster who serves the public with the siphoning off of free TV's only commodity: its talent. . . . Pay Television will be able to offer an enormous financial bonanza to talent . . . and who could be blamed among them for making the inevitable switch? . . . this siphoning off of mass appeal programming would seriously impair free television's ability to use money thus derived for . . . its enormous service to the viewing public.

"If we are wrong—if our free industry became convinced that Pay Television is what the public really wants . . . I suspect that many licensees and, of course, the networks, would participate in Pay-TV to protect their very substantial investments. . . .

"To sum up, I quote our Executive Vice President, Vince Wasilewski, who, in California to debate Pat Weaver, told their audience this: 'If television had started on a pay basis (which is something that was proposed in its infancy) and it subsequently became free—that would be progress. But for television, which has become a nationwide institution on a free, advertiser-supported basis, to become "pay" is the antithesis—it is in fact, retrogression.'"

Putnam vs. CATV

William Putnam, President, WRLP-TV, WWLP, WWOR, Springfield, Mass. tells GAB forum why "Some Broadcasters Don't Like CATV" . . .

". . .Apparently someone feels I don't like community antennas. Well, now that's not quite so: a true community antenna is a fine idea. The only problem is that I don't know of any such thing. . . .

Putnam: Lied about and lied to?

"Community antennas are seldom, if ever, community propositions, although a good number of them started out that way, or at least so the initial subscribers were led to think. However, when some of them have tried to withdraw, they found that what they had done instead was to make capital contributions towards an enterprise which somebody actually owned, which in most cases, and to avoid the payment of income taxes, has been sold two or more times to various out-of-town interests. To me, that's hardly a "community" enterprise.

"Now there is nothing sacred about distribution of television signals by broadcasting as opposed to the dissemination of a somewhat similar service by wire. If people are content to patronize the one service and not the other, that's fine . . . the rub comes because law of our land has developed to the point that one form of visual electronic communications is subject to intensive regulation and another form is not. This is manifestly unfair. . . .

". . . My position on so-called community antennas is that the rules governing one form of electronic transmission should be the same as those governing the other. This is nice legal fiction that the air waves belong to the public — and hence the public should central their use. . . . That fiction falls apart as a means of segregating cable TV from free TV, when one considers the many uses of public rights of way by cables and, of course, the interstate transmission of CATV—and I don't mean publicly licensed microwaves, I mean service cables across state lines.

"If a broadcaster is subjected to certain limits on what he may or may not exhibit . . . is required to pay ASCAP fees, so should the other communicator. At WRLP we don't pay ASCAP any more. I don't see why we should pay if cables don't—so I don't. If a broadcaster is required to account for his actions, or lack of actions, before a Federal Commission,

so should the other communicator.

"It is high time we gave up this silly fiction that a community antenna operator is a mere passive part of the television picture, for he is anything but. His actions can and in fact have brought on the death of many television broadcasters throughout this nation. He can turn them on or turn them off, and he doesn't have to answer to anyone—as he knows only too well. A station's signal can look good or look poor on his cable depending on how hard he wants to try. I know that, and you know that. A station can be added or subtracted from a cable very rapidly if the right noises are made to the right people; and almost any of us who are broadcasters are willing to pay—under the table if necessary—to get viewers. . . .

"We broadcasters went into business, most of us anyway, to make a little money. Some of us try to be proud of what we're doing. Presumably we set out to provide a reasonable amount of value for our viewers in terms of true service to the community, development of local enterprise, promotion of local needs, etc. We are required to do this if we want to stay in business. For Uncle Sam, in the person of Uncle Bill (Henry) is always looking over our shoulder, even if we don't have a little initial incentive, of our own.

"Our debate is between the merits of wire TV for which the viewer must pay, or free television for which the advertiser will pay. And please don't let us be confused into believing that if the advertiser doesn't pay, he will then lower his prices. An advertiser must advertise . . . his sales costs are ultimately paid by the same consumer. Thus, today's cable viewer has to pay both these costs and is going to continue to pay double for a long, long time.

"Now in some areas there is no argument, for if any reasonable service is to be received, some sort of extensive antenna system is obviously necessary. It would be nice, however, if those who ran these things were also willing to admit that they made a reasonable or even substantial profit. After all, there's nothing wrong with being in on a good thing. . . . The wrong thing is the deceit that has grown up on the subject. The wrong thing is the persistent lies that are told like—community antennas have not driven broadcasters off the air. This is the greatest lie. Many stations have been closed down or have seriously curtailed their service because of community antennas, and this is happening today. Let us tell the truth. Let's admit that community antennas are good money making properties. Let's admit that community antennas are also destroying local free television service. They could be good money makers and have no conflict with local free television operations; but somehow—and for reasons I honestly don't understand, community antenna operators have a distinct and unexplainable dislike for local stations, not just stations run by troublesome persons like myself but all smaller and locally oriented services.

"I have done a little research on cable economics—I find that visible operating costs in one community of 10,000 souls run to somewhat under $40,000 per year including all overhead and operating income runs to somewhat over $100,000. Now, these are unaudited figures because no cable operator ever lets a broadcaster look at his books and even if he did, from my experience with these people they might not reflect the truth; for I have been lied about and lied to by almost every cable operator of consequence I have ever met. The true "community" antenna operator is probably a pretty basic guy—but like I said—I've never met one."

Morton Leslie, Acting Chairman of the Television Accessory Manufacturers Institute, exposes GABSERTS forum to . . .

"The

". . . Aside from those early systems which performed the unmistakable function of bringing television enjoyment to difficult and impossible areas, CATV imposes upon the set owner not only unnecessary program duplication, but the ultimate reality that he is saddled with a life-long monthly charge. . . . Even the most complex receiving antenna system is by far in the long run least expensive, more generally trouble-free and in the main, more to the liking of its owner. . . . The area of greatest importance is just how the indiscriminate spread of CATV will affect TV's growth and the public interest.

"We regard it axiomatic that television's future and continued prosperity is linked to the growth of UHF . . . CATV is not compatible with the growth of UHF. No wary investor will build a UHF plant so long as he must contend not only with normal local competition, but re-transmitted signals from some other marketing area. In Utica, New York. the applicant for Channel 54 will withdraw his application if CATV is franchised. An executive in Zanesville, Ohio's Channel 18 informed TAME that the refusal by two CATV systems to include his programming may force him out of business. The Mansfield, Ohio city council was informed by a group that they will apply for and build Channel 36 at a 1/3 million dollar cost if they will deny the pending CATV franchise request. Charlotte, North Caro-

TAME View"

lina will soon have its third TV station, a UHF, now that the tide of public opinion is in opposition to a CATV franchise. . . .

"CATV cannot exist without the broadcaster. It is dependent upon a free off-the-air signal which today it takes without asking. . . . It admittedly provides an extension of service for one TV station into an area where the FCC original allocations plan may not have intended it to reach. In more and more cases a second and sometimes a third station is subjected to a form of competition that did not exist when it originally filed for a license and commenced construction. The Communications Act specifically prevents a broadcaster from extension of services without Commission approval. Thus, the paradox emerges. A CATV operator conducting his business outside the jurisdiction of the Communications Act may actually do what is illegal for the broadcaster!

". . . Is there a solution? We believe so. TAME is proposing that necessary amendments to the Communications Act of 1934 be adopted bringing CATV under the jurisdiction of the FCC. Among a number of additions and changes is the inclusion of a Section 302 which makes the construction and operation of a CATV system re-transmitting off-the-air material for a charge, subject to the full provisions of the Act.

"An area of profound confusion and complexity focuses on the qualifications of lower municipalities to pass on the feasibility of CATV. . . . The oftentimes bullish effort of the group seeking a CATV franchise will becloud the full effect of their application through the introduction of highly technical material which is so often over the heads of those who must make a judgment. . . . The usual representations that their citizenry will enjoy better TV, more TV, have one or two music channels, no longer require unsightly antennas—are some of time tested half-truths utilized. When city councils are involved with similar technical matters in other fields, it is usual for them to retain a local consulting expert. . . . Somehow in the area of Community Antenna Systems, they have relied in the main upon the contentions and arguments of the applicant! . . . The decision as to whether a CATV system will benefit a community or not must come from a body who with knowledge and fairness will decide in the public interest—the Federal Communication Commission. Only they can weigh its effect upon local VHF's and the growth of UHF. . . .

"Nowhere in our thinking or actions have we advocated outlawing CATV. Nor do we wish to impede the system of free enterprise. In yet untried applications, this medium may yet grow and find a place in our television entertainment scheme. But CATV is altogether too closely linked to broadcasting and the broadcaster not to be a part of the same set of ground rules to which he is subjected. It's insecurity and rootlessness can only be offset by thus legitimizing its existence.

"There are many also who feel that CATV's search for a rich existence is closely allied to Pay TV or Subscription TV. Certainly from a technical viewpoint this is possible . . . and taking into consideration the obvious tremendous income potential, I don't believe that conversion costs will pose any determent. We know of at least three large CATV companies who are actively pursuing the establishment of Pay-TV in various parts of the country.

"By whatever label they employ, CATV and Pay-TV are closely related and must be included in any nationwide or network Pay-TV master plan. . . . If Pay-TV must come, it should be as a controlled "mix" with Free TV. The FCC through its control of CATV would be in the pivotal position . . . of establishing some pattern or proportion of Pay-TV and Free TV . . . (and) can thus safeguard Free TV, the broadcaster and the people.

"To the broadcaster who is also active in the CATV field, we offer little criticism, only the observation that he is a businessman wearing two hats. . . .

"TAME finds itself at this juncture in the role of disseminating information and aid not only to those members of our own industry, but allied groups as well. . . . We recognize the important role that the National Association of Broadcasters will play in determining the future of CATV; and we ask that all broadacsters make their views known to its officers, directors and staff. Somewhere amid the scores of these expressions will come legislation thoroughly grounded in theory and workable in practice."

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Designed to "drop in" alongside a present low band amplifier. Main trunk cable is removed from the present low band amplifier and connected to the drop-in amplifier. Jumpers are installed from present amplifier to the Holt drop-in unit.

This extremely reliable amplifier gives you low noise input, high output, excellent SWR output, built-in automatic gain control and AC power regulation. Dual output. and variable tilt are also features of this unit. The H-BB-AGC DI-50 is built for continuous commercial service. Also available in manually controlled model at extremely economical price.

SPECIFICATIONS:

Bandwidth	173 to 217 mc
Input Impedance	75 ohms
Output Impedance	75 ohms
Output SWR	1.15 to 1
Tilt	3 to 6 db Variable
Control	Manual or AGC
Input	10 to 15 db
Output	50 db above 1000 MV,
Gain	50 db
Power Consumption	65 watts
Response	Linear plus or minus .5 db
Noise Figure	8.5 db
Tube Complement	1-6AW8, 1-6922, 2-8113 or 2-6CY5, 1-7984 1-8233

A Product of Unique Design

BIGGER PROFITS FOR YOU

CATV are designed by HOLT

pansion, replacement
ect . . . be sure of the
y of your amplifiers.
FREE catalog available
of superior community

HOLT Model LH-BA4-50

BRIDGING AMPLIFIER

Designed to drive four feeder or trunk lines, with up to 12 channels, from a main trunk line cable. An amazing feature of this new compact and ruggedly constructed unit is the wide bandpass—with minimum of tubes and minimized operating cost. Low initial cost, too!

Features include wide bandpass, channels 2 to 13, variable tilts, low and high band operation and matched inputs. Holt engineers have designed this Bridging Amplifier for long-term commercial operation where both economy and excellent stability are required. Power drain is very low.

SPECIFICATIONS:

Frequency range	53 to 108 mc and 173 to 217 mc
Gain 12 db	Ch. 6 and Ch. 13
Input Impedance	75 ohms
Output channel 6	75 ohms
Channels	2 to 13
Output channel 6	40 db
Output channel 13	46 db (Channel Apart) 7, 9, 11, 13
Power consumption	40 watts
Power requirements	115 V., 50 to 60 cycles
Size	5 X 7 X 7 inches
Tube complement	2-8113 or 2-6CY5, 1-7788, 1-8233

Holt Electronic Research

COMPLETE COMMUNITY TELEVISION SYSTEMS AND ACCESSORIES

Main Street • New Boston, Pa. 17958 • Area Code 717 Phone 773-1370

Excerpts from remarks before GAB:

Pay-TV and the Broadcaster's Future

John H. Pinto
RKO General Phonevision Company

"From the two years of actual experience we have had in Hardford I believe that Pay-TV can be the greatest opportunity ever offered for increasing the profit and the effectiveness of the broadcast industry.

"RKO General is a leading television and radio independent. Our stations cover 6 of the nation's top 10 markets. Our New York radio station WOR is the number one station in the country. Many of the dollars which our stations earn us are being invested in the Hartford project. We are neither stupid, nor naive. If for one instant we believed that Pay-TV would either destroy or replace our highly profitable commercial business, we never would have undertaken this experiment in the first place. . . .

"We are presently a leading color broadcaster. Because we are prevented from buying additional stations, we looked for other ways to expand our business. We believe Pay-TV may be the answer. Today, there are over 51 million television homes. Tonight the sets in half of them will be dark principally because their owners don't care for what is being offered. Pay-TV may be a way to bring these people back by offering them additional viewing opportunities.

"But we don't think those opportunities will *supplant* commercial TV viewing. The average weekly viewing is now over 40 hours per family. In Hartford our Subscription TV families spend about 3 hours a week watching our pay programs. It is therefore obvious that their viewing is purely supplemental to commercial TV viewing in exactly the same way they might supplement TV entertainment by going out once a week to the theatre or concert hall. We anticipate that home Pay-TV in whatever form it takes will compete with outside box-office attractions far more than with commercial television.

"But if Pay-TV won't steal viewers, will it steal programs and talent? The way to sure failure is to schedule at a fee what is now seen *free*. In Hartford today we program current motion pictures, specials and sports, none of which are available on commercial TV. The sports we show are Championship fights otherwise available only in theatres, and major league basketball and hockey games from New York's Madison Square Garden and Boston Garden. In time I believe all major sports will go the Pay-TV route. However, those sports which are on commercial TV provide the only programming for which a viewer pays outside the home and sees free inside the home. Even without home Pay-TV these events will leave commercial television. The cost is already becoming prohibitive and the theatre owners, those great preservers of your right to free TV, are using all possible means to bring sports events to *theatre* Pay-TV—and they want those events *exclusively*."

Pinto: RKO "prepared"

"We don't believe that *talent* will desert commercial TV as some fear but, rather, expand to fill the needs of this new medium.

"What about commercials? I do not believe they will ever be part of Pay-TV. The chief reason is not because we are prevented from commercials by the FCC but rather because of the economics. A commercial broadcaster gets about a penny a home for a commercial. A Pay-TV operation gets closer to a dollar a home per program. Therefore, the small added commercial income provided by tacking commercials on Pay-TV programs would not be worth the anger it might arouse. . . .

"But if Pay-TV is not bad, why are the networks and the National Association of Broadcasters so set against it? First, because they are yet to be convinced of the facts as we have experienced them in 2 years of operation in Hartford, and second, they are judging this new fashioned concept on an old fashioned basis. The pay out on Pay-TV does not as I implied earlier depend upon constant viewing. Two shows or 3 hours a week are all that is needed to return a good profit at a large number of subscribing homes. In Hartford today if our subscribers saw every original program presented each week, they could spend up to 10 or 12 dollars. This would be uneconomical for them and we never could survive if we expected that type of spending. It's interesting to note that the NAB says its present position is not "inalterable" and that the networks will be interested in participating if Pay-TV does catch on. In other words it's sinful but popularity can make it clean.

"It is highly probable that Pay-TV will effect a raft of great and good broadcast changes that will outweigh any possible evils to your business. It will add new jobs in all business and talent areas and will greatly increase the financial power of the entire broadcast industry. Tom O'Neil, Chairman of General Tire and of RKO General, estimates that one day Pay-TV will take in $75.00 a year or more from its homes as against the $25.00 a year that these homes are worth today to commercial TV. He believes that Pay-TV may increase the Gross National Product by 8 billion dollars. Now if he's even half right, that would increase the potential value of every broadcast man in this room by a considerable margin. . . . Whether Pay-TV uses lines or air, you and your stations have the facilities, locations and experience to move into this field—either in addition to or in place of your present broadcast business.

"We never have and should not now seek the security of the status quo. Everything new is not per se dangerous to us. As it was with radio and television, the *public* will cast the vote *for* Pay-TV or *against* it. If the vote is 'no' there is no threat to the broadcast business as we know it. If the vote is 'yes' we hope to be prepared to take advantage of the opportunity."

Herb Jacobs' assessment of the Broadcast, CATV and Pay-TV scene . . .

"Through the Eyes of the People"

Editor's Note: Mr. Jacobs is President of TV Stations, Inc., New York, N.Y. The following quotes are excerpted from his remarks before the Georgia Association of Broadcasters' August 4 meeting of the Southeast Radio-TV Seminar. Mr. Jacobs opened his talk by congratulating GAB for having the "guts to bring the topics out in the open."

"If we ever expect to solve our problems amicably, let's call a spade a spade and admit, at least to ourselves, that our aims are all the same . . . a larger slice of the prize. And, it might help to clear the air a bit, if we assessed our own positions through the eyes of the sure loser—The People.

"The Theater Exhibitor is against all forms of Pay-TV in the home, and would like to see it erased . . . so only he would have access to the prize, through Theater TV.

"The Accessory Manufacturer is against everything via cable, and would like to see it outlawed . . . because it destroys his market.

"The Pay-TV Entrepreneur is against all forms of regulation, under the banner of free enterprise. But free for whom, certainly not The People. . . . His artistic triumphs but economic flops will be paid for by the patrons of popular programs. . . . Pay-TV is stil counting on subsidy to defray the cost of minority whims but will change sponsors, from the wealthy to the masses, who are far from well heeled —some switch.

"For years now, the CATV operators have practiced free enterprise and rugged individualism, by running roughshod over objection of the Broadcaster tied by regulation, a Commission rendered equally impotent by lack of authority and an indifferent Congress. Time was when CATV would claim to be nothing more than a 'Lil Ole Antenna.' They don't use that one anymore since they've become too numerous to pussy-foot—too successful to cry poor-mouth—and too obvious to claim to be benefactors of poor souls not able to receive a single signal . . . since their latest ambitions include poor souls not able to receive more than seven free signals. This, I might add, has finally been noticed by the uninstructed Commission, the uninterested Congress, and unconcerned Broadcaster organizations.

"The Networks are consistent on all points of self interest. Their position is—they are against Pay-TV, if it fails. And to prove their neutrality, one has an option to purchase a CATV system. They are also pursuing the question of program copyright, after all these years. But no one has yet made it clear to whom the programs will be supplied, if they win the copyright suit. They are, of course, violently against regulation in any form, perhaps because they are the most vulnerable to it.

"The only contestant in this race for the spoils, who has not displayed the unity or consistency needed to win, is the Broadcaster . . . a dual personality whose support is measured in terms of pro or anti CATV. . . . The split in his ranks has damaged the effectiveness of his own associations, to represent with authority, any point of view on these issues. And his double standard is confusing Congress and the Commission.

"In addition, many who would ordinarily support his position have been scared off by the utterances of some public officials, who have admonished the industry not to seek regulation . . . because it might backfire. Well, I for one, refuse to believe that any public official, elected or appointed, would dare to take a stand other than in The Peoples' interest. . . . The ultimate decision will be made in The Peoples' interest.

"Four years ago, in January of 1960, as a guest speaker before the CATV operators, in Washington, D.C., at their NCTA convention, I said, 'You are now in the growth stage of a most dynamic business. All that is needed, to achieve the heights to which you are destined, is for you to stop fighting small windmills. Purge yourselves of the only ghost that can upset your bright future, the senseless arguments with the Broadcaster can only hurt us all. The CATV question will and must ultimately be settled on the basis of public interest, rather than self interest.' I still believe it and the CATV operators believe it because it all came true.

"Since the NAB convention in April, the ranks of the anti-CATV Broadcasters have been rapidly diminishing. All of you have read about the gold rush. But I can tell you, from first hand experience, there are far more whose intentions have not been publicized.

"And I am also consistent about Subscription TV. Four years ago, in the same address to NCTA, I said: 'I make no claim that Subscription TV is good for the public—but I can see it coming as well as you can. You will have to stop fighting the Broadcaster, who will keep your plants going ten hours a day, so you can devote your time and energies to promoting your evening extravaganzes — where you can really cash in.' I still believe it, and Pay-TV via cable is here today. And, I don't think that any CATV operator or Broadcaster looking into it, could deny that the thought of a hookup with Pay-TV hadn't crossed his mind.

"But if Pay-TV is going to be that easy to come by, because there are enough . . . who want it, let's give it to them. But first, let's protect the interest of the majority. Therefore, it is the duty of Congress and the Commission to protect all of the people. . . . But it's your job as Broadcasters to see that it is done. And it can only be done by putting all broadcasting, free and pay, under one roof.

"Whether you or your opponents want it or not, some kind of regulation will be passed. Therefore, it's not only your duty but your right to see to it that such legislation is framed favorable to your own (broadcasters') special interests. And, if your present organizations cannot speak out, with authority, for your cause, without

damaging themselves, then form one that will—for this issue only. . . .

"It's long overdue for the Broadcaster to become a militant competitor, for his own self interest. . . . his present vacillating platform is lackluster, marrowless and inconsistent. It represents that he is against Pay-TV but does not advocate its regulation or outlawing because he believes in the system of free enterprise . . . which is inconsistent, since it also urges the regulation of CATV. What is needed is a strong attractive program that offers not only protection of investment but an opportunity to share in the prize, if there is one.

"It's time for you to begin thinking like businessmen and recognize the fact that you are in a dog eat dog fight . . . that you have competitors—strong competitors—greedy competitors and shrewd competitors. It's time for you to recognize . . . that hundreds of millions of dollars annually ride in this race.

"You say you're against Pay-TV because it's bad for The People and you . . . but by refusing to fight for its regulation or eradication, you are guaranteeing its success and The People will be saddled with it.

"If cable Pay-TV succeeds you're out of it and so are your major attractions. Why not then change your stand and advocate that over-the-air Pay-TV be given full approval to develop. . . . After all, the over-the-air Pay-TV advocates are Broadcasters and you would only be supporting your own.

"By taking that tack you'd have nothing to lose and . . . would be the natural recipients of its rewards. And the spectrum allocations administered by the FCC would assure Pay-TV's orderly growth and give you the opportunity you need to become well entrenched.

"You would close your own ranks, because the Broadcaster with CATV affiliations would be in the best position of his life—he'd have it made no matter who won, and you couldn't lose either—because your cause would be in the interest of all The People.

"And if you don't want to do it for yourselves . . . do it for The People. Because Pay-TV over-the-air offers the only protection of their welfare, a point that would be hard for Congress and the Commission to overlook."

Summary of NCTA Chairman's remarks of GAB Atlanta Conference attendees:

"The Public Wants . . ."

Speaking last on a panel of twelve persons at the GAB meeting, NCTA Chairman Bruce Merrill delivered a talk that was typical of his style and personality. Concise, direct and, through it all, good-natured.

Reflecting that about twelve years ago he didn't even know what CATV stood for, Merrill suggested to broadcasters present the possibility of their entering CATV—rather than opposing it. He characterized the average CATV system as "serving the public, making a profit, remaining in business for one reason—the public wants it to remain in business."

Merrill: Plenty of room and reason . . .

A key point made by Mr. Merrill is that CATV represents the public reaching up for better viewing—rather than broadcasters reaching down for more audience. "CATV is a receiving service," he asserted, ". . . a *one-way* pipeline that eliminates the need for unsightly and unpopular roof-top antennas. CATV solves the broadcast reception problems caused by distance, terrain and man-made interference. CATV is removing the inequities created by the government's inadequate allocation tables."

Community antenna systems "can make it possible for every home in the U.S. to receive a greater variety of television signals than can now be received off the air in L.A. or New York," Merrill said.

On the subject of Pay-TV, the Arizonian told his audience that "CATV is not technically or philosophically compatible wth Pay-TV as presently proposed." The only similarity between the two services, he said, is that "they will owe their very existence to one thing—they will be giving the public something they do not now have . . . something they are willing to pay for, a greater variety of television entertainment than they can get "off the air," and free of off the air reception problems. Of Pay-TV, CATV and Broadcast-TV, Merrill says, "There is plenty of room and reason for all three services to survive, grow and prosper."

The public, he said, doesn't care "one little bit" what broadcasters think of CATV. "The public knows what the public wants and is willing to pay for these wants," he continued, adding that, "The forces that can deny these wants are misguided regulators."

"Here lies the heart of this meeting," Mr. Merrill declared, ". . . the public 'wants.' The sooner we recognize this one fact and keep it foremost in all discussions and considerations, the sooner all our problems will be resolved.

"No matter what we say today . . . the public, in the final analysis, will have *their* say. We will rise or fall at their marketplace—and so it should be—so it must be, in America."

In closing comments Merrill challenged his listeners to yield to the public "wants," admonishing TAME proponents to "discontinue this farce of trying to equate the sale of antennas to the public welfare."

"Instead of a city council battle, why not secure your own permit and become a CATV'er?" he asked.

"Instead of a war chest, why not use the money to enter the field? To give the public what it wants."

CATV is growing at an increasing rate but has still reached only 5% of its potential, Mr. Merrill said. Speaking for the National Community Television Association he told those attending the Atlanta conference, "I extend the right hand of friendship and bid you warm welcome. We'd be proud to have you join our industry."

DIRECT SELLING FOR CATV

by
J. Fred Weber
TeleSystems Corporation

It has been proven that if you build a better mouse trap, the world will not beat a path to your door. It takes advertising, lots of it, to make the buying public aware of your product. Properly done, advertising will sell cable service. Unfortunately, it will not sell all your potential subscribers. Roughly 30% to 40% of your potential is not affected by advertising specials, direct mail, etc. This is the hard core of prospects in your town that resists all types of advertising. This type of prospect requires a direct approach, face to face selling.

You have a gold mine in your system. You have picked up all the large nuggets that were lying about and now you are down to the flour gold which is just as valuable but harder to mine. Your cable runs past countless homes that are not on your cable system. The only way that you are going to make customers of these prospects is to call on them door-to-door.

Direct selling does two things. In the first place, it increases the number of subscribers on your system and, secondly, it educates this same hard core as to the real truth about the advantages of cable service. If a direct selling program is carefully planned and executed, you should be able to pick up anywhere from 30% to 40% of those you actually interview among this resistant group. These prospects can be called on during the day or in the evening. We have found that 30% of our sales are made during the day; the housewife buys the cable without consulting her husband. 70% of sales are made on call-backs, by appointment only, during the evening when husband and wife are together.

Here are some of the objections we have found to be most common in interviewing thousands of non-subscribers from coast to coast.

1. "Can't afford it!"
2. "I get as good or better reception from my antenna."
3. "My children watch too much television as it is."
4. "We don't watch TV very much and feel that it is not worth the money."
5. "Not interested!"

All other objections are variations of these reasons. Let's take them one at a time.

The prospect says, "Can't afford it!" In most cases, they *can* afford it! Break your monthly service charge down to a daily rate. Assuming that your monthly charge is $5.00, multiply by twelve and divide by 365 equals roughly 16¢ per day. Strange as it seems, they can afford 16¢ a day but not $5.00 per month. Mention the monthly charge only once during an interview and from there on, quote 16¢ a day. It can easily be shown that no matter what they spent the 16¢ for, it cannot buy as much entertainment or enjoyment for the entire family as investing it in the cable. As an example, take a family of four and divide this 16¢ among them. What in the world can you buy for 4¢ today? Can these people afford 4¢ a day, per person, for entertainment—you bet they can!

The prospect says, "I get as good or better reception with my antenna." If this is really true, he doesn't need this service. But it's not true. In many cases, he believes he does get better reception than the cable and here are some of the reasons he thinks so. He has watched TV at a neighbor's house who had the cable and the picture was far from good. His picture was better by comparison. What he doesn't know is that the TV set needed adjustment

J. Fred Weber, a veteran of 20 years in direct sales, is Sales Manager for TeleSystems Corporation. For 15 years he was District Sales Manager for Century Metalcraft Corporation, a national direct sales organization. Three national sales records were broken under his command at Century.
Weber transferred to Philadelphia where he managed a sales organization of over 200 people. Fred Lieberman, President of neighboring TeleSystems Corporation, convinced Weber to join the growing cable ssytems company. As a result, TeleSystems' new subscribers multiplied rapidly.
Out of Weber's experience came the idea and the development of the "Aida Sales Promotion Plan." It was so successful that it wasn't long before other systems across the country wanted Aida to aid them. Since then, Aida has added thousands of connections to systems in every part of the U. S.

or repairs. Sometimes the situation is reversed. A neighbor visits him and tells him not to go on the cable because cable television is inferior. He may be a disgruntled customer who has gone out of his way to knock the cable. This cable installation will never be sold until a representative of the cable company explains the facts. He will not come to you for this information. You must go to him.

The prospect says, "My children watch too much television." This statement could cover a host of objections. Ask the prospect, *"Mrs. why do you say that?"* This forces her to be specific. The objections could be poor programming; won't do their homework; won't go to bed; they should read more, etc. Agree with the prospect that this could be a problem —but here is how the cable can help her. The cable will give the children a greater variety of good programs. By controlling both the programs and the time spent watching, wonders can be accomplished. If the homework isn't done—no television. Dishes not washed—no television. Instead of aggravating herself and becoming upset, all she need do is flick the switch and the job is done.

Is it worth 16¢ a day to be rid of these frustrating problems? Most parents aren't aware of the complete educational value of television. Show me a pre-school child who is a TV fan and I'll show you a child who has a greater vocabulary than the child who sees little TV.

Although the parents have never been in France, Russia or South America, their school and pre-school children have been there via the television screen. They know how these people live, dress and eat. They have visited every major city in every country in the world. They have visited with the rich and the poor.

When history is made, these children are there. When the astronauts landed, they were on the battleship that picked them up. These same children sometimes amaze their parents with knowledge that even the elders do not possess. This knowledge is gained through television. Not all programs are good programs. Television, like all good things, should be controlled. With the cable, you have the privilege of picking and choosing the right programs for your children; not only to entertain, but also to educate them. Is this worth 16¢ a day? I'm sure we will get agreement on the answer.

The prospect says, "We don't watch TV very much." The answer here is simple. *"Mr. & Mrs. Prospect, if you only watch television two hours a day, and are able to select only two good programs, isn't the cable still a bargain at 8¢ an hour plus all the other features the cable provides."*

The prospect says, "Not interested." This, again, is very simple to answer. *"Mrs. Prospect, I know you are not interested, that is why I'm here. Please let me step in and explain what the cable is and what it is not. What it does and what it does not do. It takes just a few moments and you are under no obligation.*

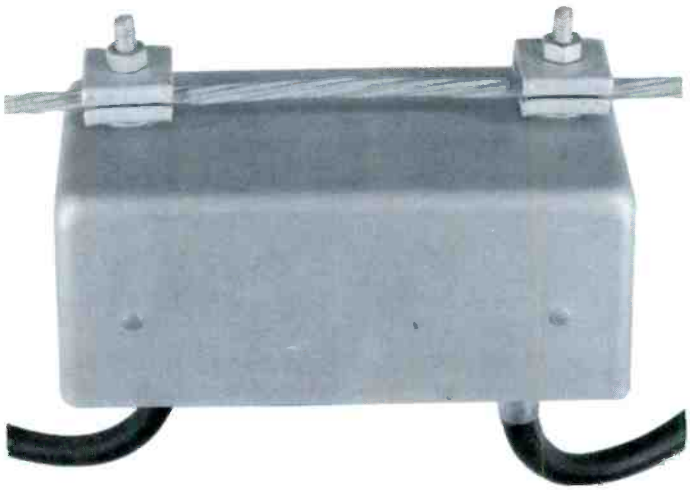
It is a good idea to run some sort of a special during a direct sales campaign, such as cutting the installation cost in half and giving a month's free service. In most cases, the entire cost of the campaign is wiped out at the time of sale because you have collected half of the installation charge plus the second month's service. Remember that this is not a free trial offer but it is an actual sale where money changes hands.

If you are not considering a direct sale program, you are missing a good bet and you are not working your gold mine properly. Thousands of connections have been picked up with this method of selling in the past two years. While this article does not go into specifics, it is meant to give you some thoughts about the direct selling route. A book would be needed to do justice to your direct selling program. If you have any doubts about personally putting together a direct selling package, the job can be done professionally at very little cost.

If you believe in the service you have to sell, if you are enthusiastic about it, if you can use the extra income—then your prospects should be met face to face and be told the cable story. Give your prospects a good reason for buying; give them an inducement to buy it now. You will find that direct selling is easy if you work it hard—but hard if you try to work it easy. The cable is there —the prospects are there—if you put yourself there—you will be amazed at the results. □

TRA-215 TRANSISTORIZED CATV

All-Band Line Extender



TRA-215

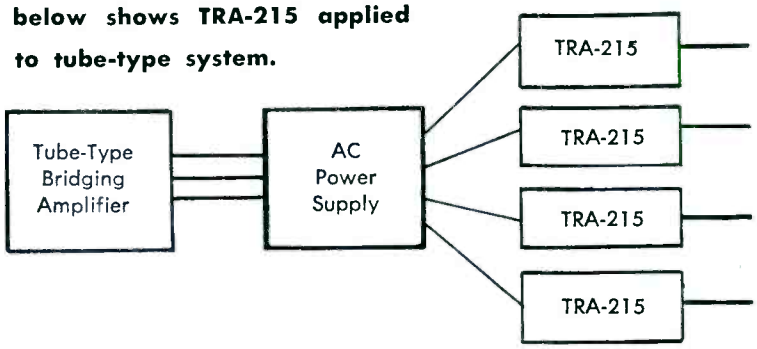
The CAS TRA-215 All-Band Line Extender employs the unique CAS distributed output, which provides the best output capabilities (45db max.) of any Extender on the market today.

To further utilize these output capabilities the TRA-215 can be used as a distribution amplifier by driving a 2 or 4 way splitter.

Separate Tilt & Gain controls plus high output levels make it possible to CASCADE the TRA-215.

OVER 500 TRA-215's NOW IN SERVICE IN AUSTIN, TEXAS

THE TRA-215 may be used with either tube or solid-state trunk line equipment. Block diagram below shows TRA-215 applied to tube-type system.



FEATURES

- COMPLETELY TRANSISTORIZED
- WIDE BANDWIDTH (40-220 MC)
- MAXIMUM OUTPUT
- CABLE POWERED
- WEATHER PROOF STRAND MOUNTING ENCLOSURE
- 20 db GAIN
  TRANSISTORIZED CIRCUIT CUTS OPERATIONAL EXPENSE MANY TIMES OVER

NEW! HIGH OUTPUT LEVEL SOLID STATE TRUNK AND DISTRIBUTION AMPLIFIER — ALL-BAND TRANSISTOR BREAKTHROUGH! CAS MODEL TRA-220

CAS MFG. CO

P. O. DRAWER B • MINERAL WELLS, TEXAS • FA 5-5124

IMPEDANCE UNIFORMITY IN COAXIAL CABLE

by
David E. Karrmann, Staff Engineer
Times Wire and Cable Division

Looking ahead in providing quality systems with long life and trying to meet new standards for the industry, I would like to discuss what we think to be a very critical characteristic of cable itself. This is the impedance uniformity. Impedance uniformity should be measured by a return loss method. Many people measure the impedance uniformity of their cable by sweeping it for attenuation uniformity. An attenuation uniformity sweep will give an output that will show a level suckout at a particular frequency where there is a mismatch within the cable. Now in general, in trying to measure attenuation, you are limited to a few tenths of a db of accuracy. A few tenths of a db of accuracy in attenuation could be related to a VSWR of about 1.5 to 1. This type of VSWR would represent a rather poor return loss quality from the cable, actually about 14 db. We think the cable should have a much higher quality than this and we propose using return loss sweep as a quality measurement. We sweep the cable for return loss using a return loss bridge. These bridges can have a dynamic range of 50 to 55 db which enables us to read impedance uniformities in the vicinity of 1.01 to 1 or better.

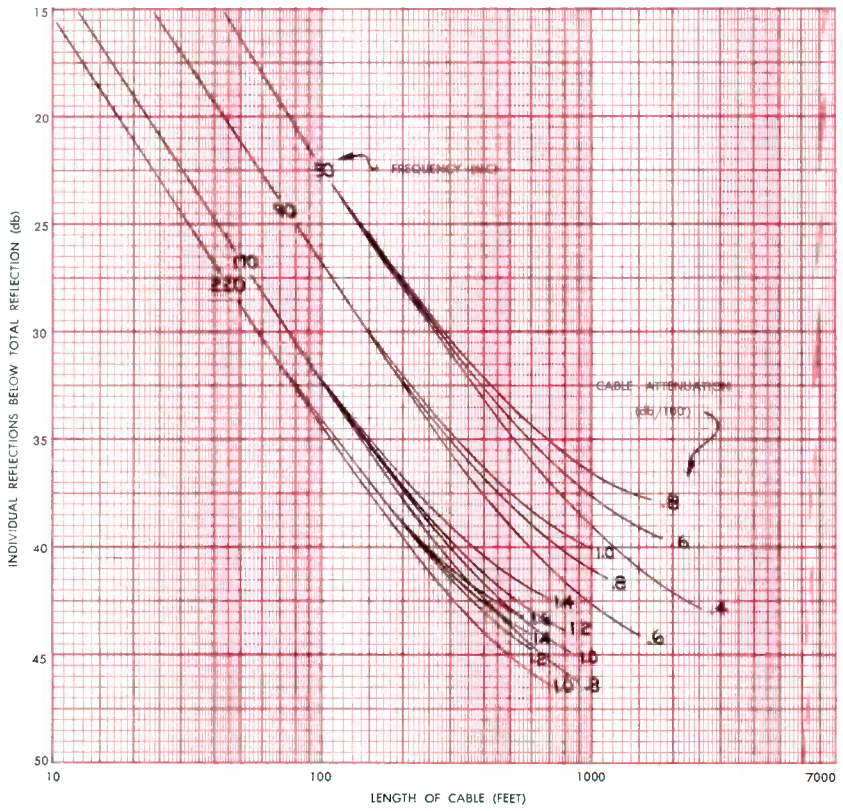
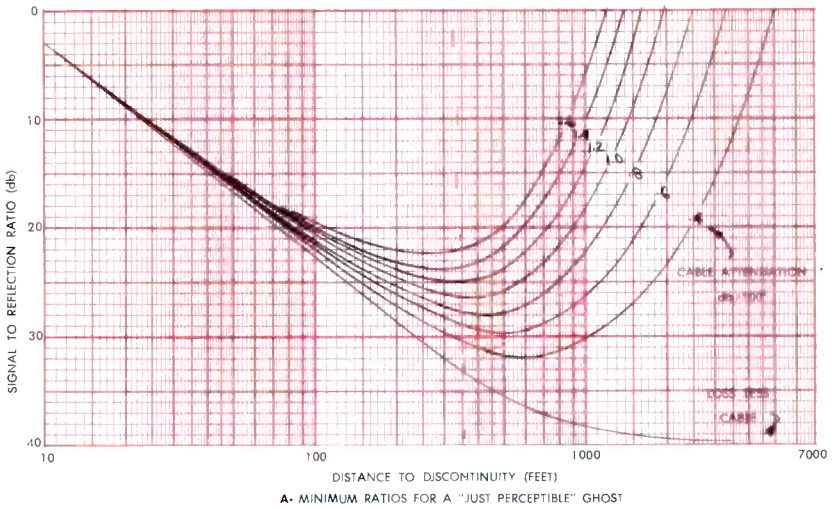


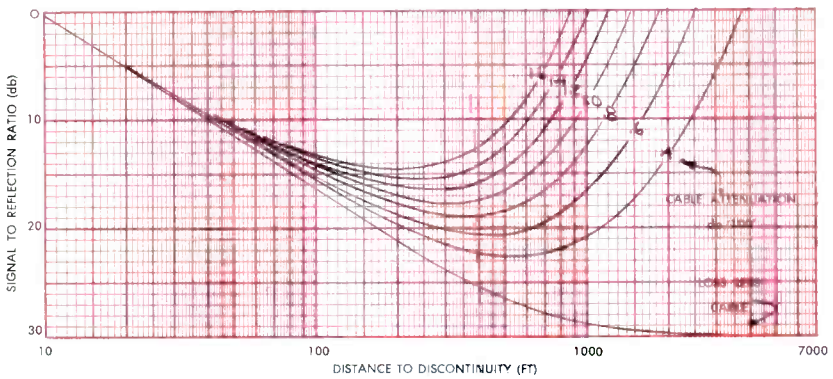
FIGURE 1. Relationships of total reflected signals to individual reflections at each discontinuity.

Before proceeding let us define return loss. The return loss of a cable is the db difference between a signal applied to a cable and the signal which reflects back out the same end of the cable. This measurement is made by connecting a terminated length of cable to be evaluated to an impedance bridge (such as the Jerrold KSB-75) and sweeping the cable from 50 to 220 mc and observing the reflected signal on an oscilloscope. A marker generator and variable attenuator are used to measure the frequency and amplitude of any spike in the pattern of the returned signal. The effective VSWR at that frequency can be found from Figure C.

A return loss spike represents a unique situation within the cable, in that there are many little structural discontinuities, each of which are reasonably small and are located a half wave length apart at the frequency of the spike. The reflections from each of these discontinuities sum together to form the relatively large total re-



A- MINIMUM RATIOS FOR A "JUST PERCEPTIBLE" GHOST



B- MINIMUM RATIOS FOR A "JUST ACCEPTABLE" GHOST

FIGURE 2. Signal to reflection ratios as a function of cable attenuation and location of reflection point for cellular polyethylene dielectric coaxial cables.

CALCULATION PROCEDURE

I. Critical S/R vs. Location for "Just Perceptible" or "Just Acceptable" Ghosts.

The tolerable S/R for time delays of up to 9 usec were taken from Figure A. These delays were converted to feet of cable, taking into consideration the two-way transmission time.

$$\text{Cable Length (ft.)} = \text{Delay (usec)} \times \frac{1\ (\text{ft.})}{.0025\ (\text{usec})}$$

Since this tolerable S/R is at the viewing point, it can be increased by twice the cable attenuation to the reflection point under study.

$$\text{S/R (min. at A)} = \text{S/R (tolerable)} + 2\left(\frac{\text{A (ft.)}}{100} \times \alpha G \frac{\text{db}}{100\ \text{ft.}}\right)$$

Example: Min. S/R at 500' of JT1500 at 90 mcs for just perceptible ghost.

$$\text{Delay} = \text{Cable Length (ft.)} \times .0025 \frac{\text{usec}}{\text{ft.}}$$

$$\text{Delay} = 1.25\ \text{usec}$$

$$\text{S/R (Min.)} = 36\ \text{db} + 2\ (5 \times .8\ \text{db}/100\ \text{ft.}) = 28\ \text{db}$$

II. Total S/R or Return Loss (RL) for the Sum of Many Small Reflections for L Feet of Cable at Frequency F.

$$\text{RL Total} = \sum_{0}^{L} rl_1 + (rl_2 + 2S\alpha G) + \ldots + (rl_n + 2S(n-1)\alpha G)$$

where rl_n = return loss of each discontinuity

S = separation between each discontinuity

$$S = \frac{984 \times .81}{2F}$$

F = Frequency in mcs

αG = attenuation at F in db/ft.

Each term in this expression is evaluated and then summed by the use of Figure 3. The summation is continued until the nth term is no longer visible in the total.

III. Return Loss vs. Ghost Effect.

The critical portion of each attenuation level was selected from Figure 1 and the S/R noted. The total increase in S/R for the summation of the discontinuities in 800 ft. (2 usec) of cable at the frequency under study was taken from Figure 2.

The sum of these equals the max. tolerable S/R of each discontinuity. The total increase in the summation over 1000 feet is read from Figure 2. The difference between the individual max. and the increase per 1000 ft. is the maximum RL that can be tolerated for a 1000 ft. cable.

Max. RL = (Critical S/R + Increase in S/R for 800 ft. summation) − Increase in S/R for summation of total cable.

flection. At other frequencies the little reflections will add with a random phase relationship, canceling each other, and therefore not being visible in the trace of reflected signal.

This measurement of return loss can be translated into a degree of picture degradation. Since return loss is a measurement of a reflected signal within a cable, and since a ghost is a reflection as viewed on a TV receiver, there is obviously a distinct relationship between these characteristics.

For the purpose of this work, we have taken the assumption that the reflection coefficients of all the discontinuities are equal, and therefore the reflections of all discontinuities are equal at the point of reflection. This is a justified assumption, in that they are generally introduced by a repetitive fault in the manufacturing process, the sharpness of the reflection spike is indicative of a cascaded fault, and even if the amplitudes of the individual discontinuities are not equal, the averaging effect of the summation makes this error negligible.

Obviously, the frequency of a return loss spike is a function of the spacing, and there are, therefore, a discrete number of discontinuities within a given length of line. The size of the cable and the frequency of the spike under study will control the attenuation between the individual reflections and hence the reinforcement of the first reflection by subsequent reflections. These phenomena have been taken into consideration in calculating the set of curves shown in figure 1. This figure presents the magnitude of each individual discon-

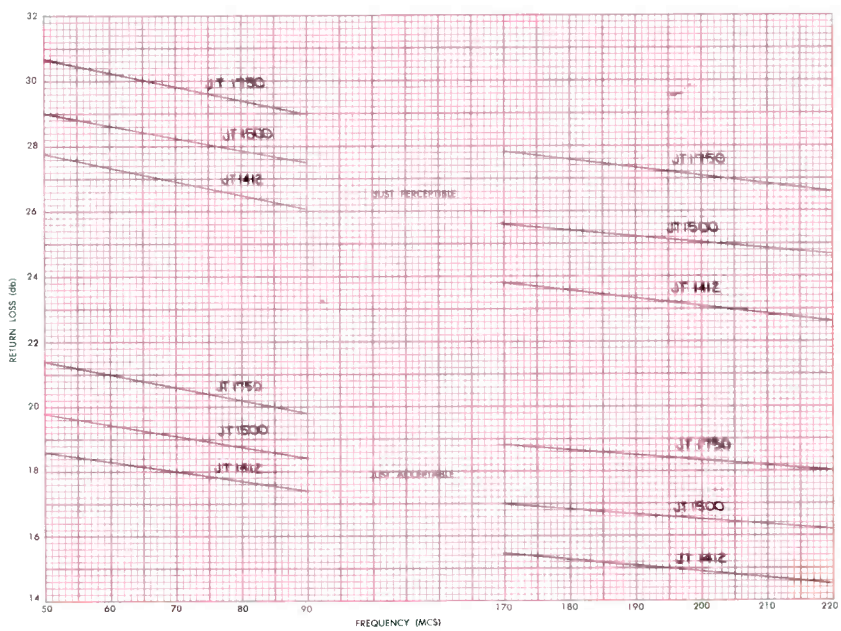


FIGURE 3. Return loss VS Picture degradation

tinuity compared to the magnitude of the effective total as indicated by the return loss measurement for cellular polyethylene dielectric cables. The curves are presented as a function of attenuation at a given frequency rather than a particular physical size to increase the flexibility in extrapolation of data for all cellular cable constructions. For cables longer than those shown on Figure 1, the lowest number indicated should be taken, as reflections from points beyond that length are individually so small compared to the total, and are attenuated so greatly, they do not further increase the total reflection. Figure B shows the relationship between two unequal signals when they are added.

We must now take into consideration the effect of delay time on the perceptibility of reflections as viewed on TV screen. Figure A shows the relationships between the reflection magnitude and its delay relative to the desired signal for a "just perceptible" ghost. The larger reflection which can be tolerated with short delays is due to the loss in picture resolution of two closely spaced signals.

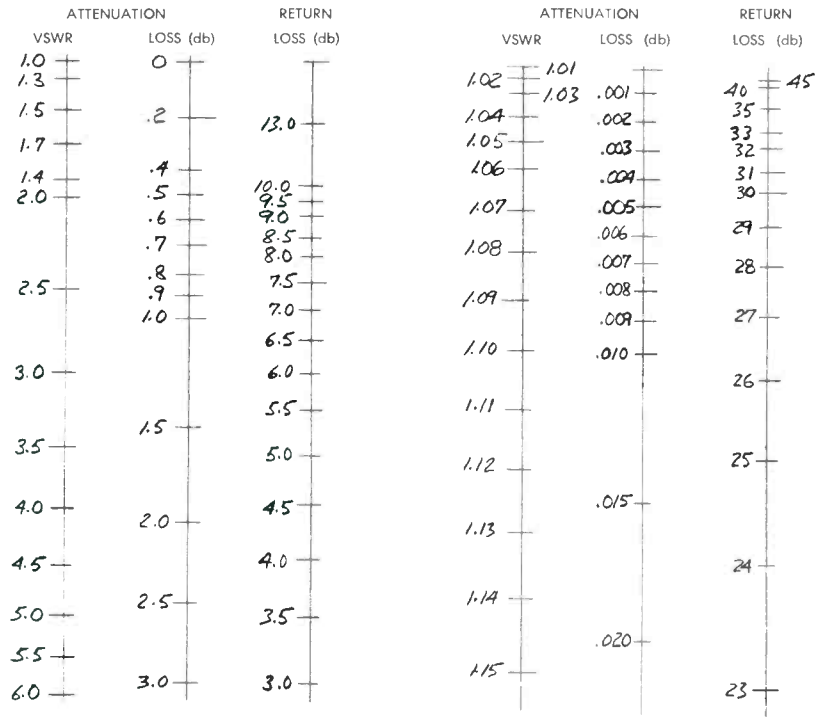


FIGURE C. VSWR NOMAGRAPHS

In considering reflections coming from a cable, the attenuation of the reflections must be considered. A reflection coming from any point in the cable will be delayed and attenuated by twice the transit time to the point of reflection. Taking the attenuation of the reflection and the relationship of amplitude and delay in mind, the critical point in a cable was found.

Figures 2A and 2B show the minimum signal to reflection ratios at the point of reflection for a "just perceptible" or "just acceptable" ghost. Again the curves are plotted as a function of attenuation for full flexibility in consideration of various cable sizes and constructions as well as operating frequency.

We can now convert our "return loss" measurement into picture degradation with the aid of the relationships established in Figures 1 and 2. By summing the individual reflections over a 2 microsecond delay time centered at the critical point of the cable, the magnitude of the resulting picture degradation can be calcualted as a function of the signal to reflect in ratio as measured by a return loss sweep. This has been done and the results are shown in Figure 3 as minimum return loss at any channel for several typical cables.

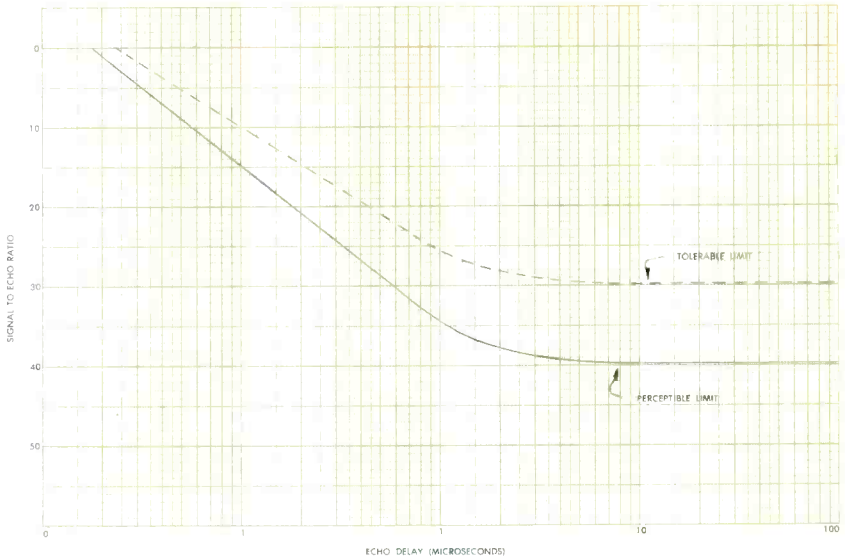


FIGURE A. Approximate tolerances of echo amplitude as a function of echo delay.

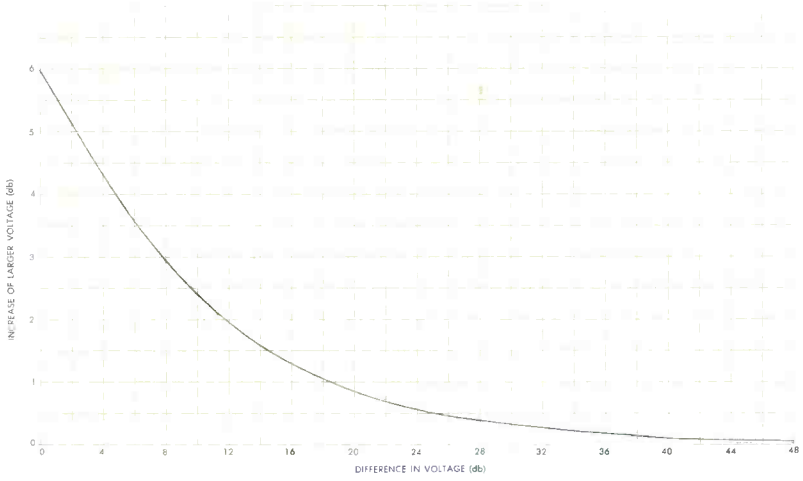


FIGURE B. Addition of two unequal signals

It must be kept in mind that this discussion includes only the effect of the discontinuities within the cable and that there will probably be other impedance mismatches in the system (taps, in and output matches to amplifiers, connectors, and splices) which will introduce additional ghost degradation. Therefore, a return loss specification of 26 db at Channel 2 with a weighting factor of 3 db per octave appears to be a minimum quality level for a system which is slightly better than "just acceptable." A system designed for the highest picture quality should incorporate 30 db return loss cable.

Although the degradation introduced by devices inserted in the line often is considered more significant than the effect of the cable, the overall long term performance is certainly improved by at least starting with good cable in the system, cable which will still provide top quality when the degradation introduced by other system components is reduced by advances in the state of the art. □

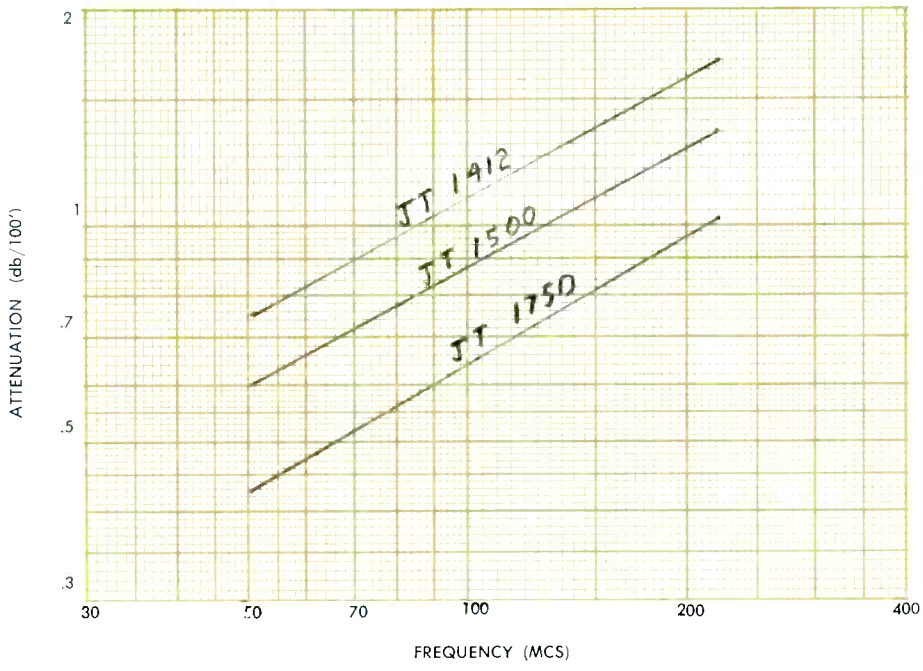


FIGURE D. Attenuation characteristics of aluminum sheath coaxial cables.

Acknowledgement:

The author wishes to thank Mr. Ken Simons for the information used to set the signal to ghost ratio versus delay for a minimum acceptable standard.

Blonder: CATV Operators Should Enter UHF Broadcasting Field

I. S. Blonder

I. S. "Ike" Blonder, long known as one of the most outspoken and far-sighted men in CATV, lived up to his reputation in recent comments to community antenna operators. Participating in a panel discussion along with FCC Commissioner Robert E. Lee, Blonder-Tongue's Board Chairman told CATV operators attending the NCTA convention that they should "apply for and operate the UHF stations in their areas, rather than compete with broadcasters assigned to their territories." According to Blonder, this course represents the only avenue for survival of CATV operations in some areas.

"Instead of fighting UHF, the moment has arrived for CATVers to join broadcasters as partners in the entertainment business, he said. "Otherwise, the continued growth of UHF will further shrink the territory open to community antenna operations."

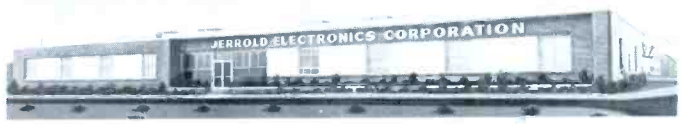
CATV was characterized by Mr. Blonder as "a passive antenna network comforted by a warm welcome in the fringe areas. A plus business with minimal conflicts until it encroached on the assigned territory of the broadcasters." He pointed out that broadcasting is the lowest cost method known for disseminating entertainment and education to the mass public.

Since CATV does not completely saturate any area, the B-T executive suggests that the system operators utilize their already developed technical skills to bring educational, public service and commercial television programming to their areas through UHF broadcast facilities. His specific advice for implementing the move is to "solicit private and government funds to broadcast general interest programs and commercial operations may grow so that the total operation becomes profitable. Combine public welfare with commercial interests. Ask for the microwave facilities to carry the networks on your cable to supplement public service and pay the bills."

The combined effects of population growth and the all-channel law will turn such proposed UHF projects into profitable business ventures according to Mr. Blonder. Citing the original challenge of CATV to fill the gaps in TV coverage across the nation, he declared that "the new challenge for CATV is educational TV and public service broadcasting." □

TV&C STAFF REPORT ON

JERROLD



This year the NCTA Convention was held in Philadelphia, a city with a rich and colorful history. An extra highlight for visitors to the annual CATV association meeting was an opportunity to visit Jerrold Electronics Corporation, a company with about as much history in the CATV business as it is possible to have in this young industry!

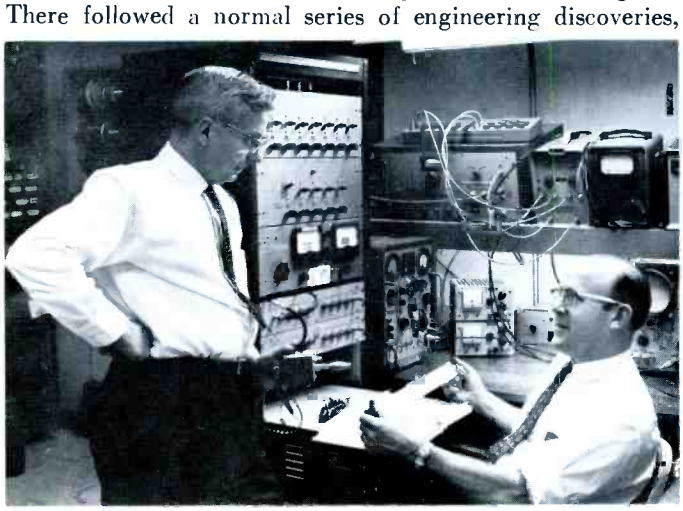
We were privileged to enjoy a complete tour of both Philadelphia facilities of this 16-year-old corporation, the largest manufacturer of equipment for cable television.

Bob Beisswenger, Jerrold's Vice President and General Manager arranged for the tour. Sel Kremer was our host and guide for the trip through Jerrold's big downtown plant and suburban research laboratory. A veteran of a dozen years with Jerrold, Sel is in charge of advertising and public relations. His first-hand account of Jerrold's lively growth began with the story of how the company got its start.

Milton J. Shapp, Board Chairman and President of Jerrold Electronics Corporation.

In April of 1948, Milton Jerrold Shapp left the U. S. Army. A graduate of Case Institute of Technology, Milt was well qualified for the position which he chose—as a manufacturer's "rep." That arrangement didn't last very long, however, because Milt Shapp soon discovered the promise . . . and the problems . . . of television.

The need for some sort of distribution system to feed the many television sets of apartment house residents from a single antenna was the first challenge which Mr. Shapp tackled. Starting Jerrold Electronics Corporation with $500 capitalization, he went to work on a small "boster" to improve television signals. There followed a normal series of engineering discoveries, trials and errors. But the result was a very effective product.



Hank Arbeiter, Vice President, and Ken Simons, Chief Engineer, confer on a new product at the Huntingdon Valley Laboratories.

The time was right; the need was great. Profits from the boosters soon enabled the fledgling corporation, still operating in small quarters with a handful of employees, to fully research the master antenna concept.

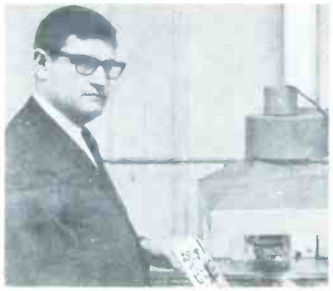
Equipment for apartment houses, hotels, motels, department stores, schools and military installations was soon being turned out for a ready and growing market. Then, in 1950, Bob Tarleton and George Bright decided to try to bring a television signal to Lansford, Pennsylvania, more than seventy miles from Philadelphia and surrounded by mountains. They asked Jerrold to help solve the problem.

Using the equipment designed for apartment house TV distribution, Jerrold engineers built one of the nation's first community antenna systems. A tower, some MATV amplifiers and a cable . . . the beginnings of a billion dollar industry! The equipment used at Lansford became the basis for a line of strip amplifiers for CATV, and within two years Jerrold's primary attention was focused on the community antenna business.

The fifties saw Jerrold expansion in CATV. An engineering research laboratory was opened in 1954 at Huntingdon Valley, twenty miles north of the company's big plant in downtown Philadelphia. Engineering objectives were clearly defined as equipment markets were developed. It was a "growing up" period for CATV—and an era of organization, orientation and implementation for Jerrold.

In 1961 a landmark of technical and business achievement was reached when Jerrold began construction of some of the largest systems in CATV history. Up to that time CATV systems rarely embodied more than 50 miles of system plant. Communities of 100-200,000 population were now being considered by financial investors and Jerrold saw the need to furnish these groups with the construction means and unified technical capability to handle systems engineering and construction for the really large communities. Today Jerrold usually has over a dozen systems under construction at any one time, many of which are in the 125 to 200 mile category.

Company growth has precipitated the formation of the Jerrold Corporation with Jerrold Electronics as the main subsidiary and the addition of three other subsidiaries by acquisition. They are Technical Appliance Corporation (TACO), Harmon-Kardon and Pilot Radio. The largest of the three is Jerrold Electronics which, in turn, is composed of five divisions: Community Antenna Systems Division, Community Operations Division, Distributor Sales Division, Industrial Products Division and Communication Systems Division.



Sel Kremer examines circuit board for line extender in front of dip-soldering equipment.

Careful quality control is practiced through all stages of manufacture.

JEC's largest division is the Community Systems Division, which sells equipment, engineering and construction services to the CATV market. This division has increased in size by 500% since 1958. Specializing in "turnkey" operations, Jerrold has constructed well over fifty such community systems to date.

One of the distinguishing features of Jerrold Electronics among CATV manufacturers and construction firms is its versatility. Equipment manufactured includes a complete line of tube-type equipment plus newly introduced solid-state all-band distribution equipment. TACO builds a line

Technician uses microscope to inspect small part assemblies.

Miniature parts are examined with a Micro Projector.

of ruggedized yagis and microwave antennas as well as exotic special purpose antennas. And complete microwave systems for CATV and communications applications are also built by Jerrold, along with several pieces of sophisticated test equipment.

Engineering capabilities include every phase of community antenna television—from equipment design to actually hooking up the individual subscriber!

Illustrative of JEC's progressive and imaginative marketing approach are substantial orders received for main-line amplifiers and other components for Pay-TV. Western Electric is purchasing Jerrold equipment for Pacific Tele-

phone and Telegraph Company and Automatic Electric is purchasing amplifiers and accessories for General Telephone. STV systems in Los Angeles, San Francisco and Santa Monica, California are using the Jerrold units.

Viewing first-hand the impressive Jerrold manufacturing and engineering plants, we gained the strong impression of a purposeful, well-directed enterprise. Consistent quality control techniques are exercised to assure dependability of current products—while an energetic team of engineers and technicians are busy looking for "a better way" through some new type of equipment.

Skilled women build sub-assemblies in large production area.

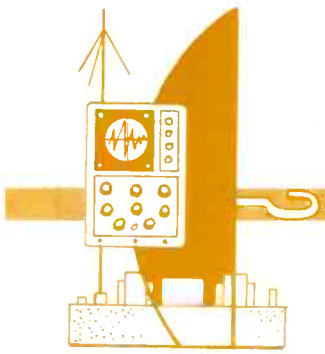
Jerrold Electronics Corporation employs over 600 people and occupies more than 110,000 sq. ft. of engineering and office space. Jerrold claims the largest sales and service staff of any CATV supplier, with over 80 sales and field personnel involved exclusively in this area. Particular emphasis is placed on a "total service" concept by Jerrold management and field representatives. Several regional sales offices are maintained by the company to keep an active, full-time field force in every part of the country.

Key personnel involved in Jerrold's CATV oriented operations are Milton J. Shapp, President and Board Chairman; Robert H. Beisswenger, Corporate Vice President and General Manager of JEC; Lee Zemnick, Manager of Community Systems Division; Elmer Metz, Sales Manager of Community Systems Division; Ken Simons, Chief Engineer at JEC Laboratory and Frank Ragone who heads the Community Development Section.

Modern office techniques characterize Jerrold operation.

Channel Commander microwave

Milt Shapp retired from active management of Jerrold in 1961 to become engaged in public service and various civic projects. He reassumed leadership in June of last year and is currently spearheading the company's forceful programs of manufacturing, construction and operation in the community antenna industry. It was Mr. Shapp's initiative and foresight that created a little company sixteen years ago; and it seems logical to believe that the multi-million dollar complex to which that little company grew will continue to prosper and grow under the leadership of Milton J. Shapp and his very capable supporting staff. □



PRODUCT REVIEW

VHF AND FM PREAMPLIFIERS

Single channel preamplifiers for CATV and MATV systems have been announced by Blonder-Tongue Laboratories, Inc. Called the Cablemaster series, model CMA, the units are available for all VHF channels. A model CMA-FM has been designed to cover the entire FM band.

The Cablemaster is enclosed in weatherproof cast aluminum housing and can be mast-mounted anywhere. B-T describes the unit as a low noise preamplifier, offering excellent bandpass flatness. This enables it to provide excellent color reception.

The new CMA is remotely powered with 18 to 20 vdc and has a minimum gain of 22 db on channels 2 through 13. The CMA-FM has a minimum gain of 18 db. For information contact **Blonder-Tongue Labs, Inc., 9 Alling St., Newark 2, N. J.**

DORNE AND MARGOLIN INTRODUCES LOG PERIODIC ANTENNA

A new Linearly-Polarized log periodic antenna which operates throughout the frequency range of 550 mc to 10,750 mc has been introduced by Dorne and Margolin, Inc.

Specially designed for use in testing operations, the DM SE-1 Test Antenna is particularly well suited for field tests of broadband equipment, which previously have required the utilization of several standard horns. The unit achieves a minimum gain of 6.0 db with respect to isotropic throughout the band.

Ruggedly constructed and economically priced, the DM SE-1 is supplied with a coaxial connecting cable and a tripod mounting assembly which facilitates adjustments of position and polarization.

Dorne and Margolin, Inc. with plants at 29 New York Avenue, Westbury, L.I., N.Y. and in Chatsworth, California will furnish prices and technical details upon request.

NEW ENTRON LOW-HIGH BAND EXTENDER AMPLIFIER

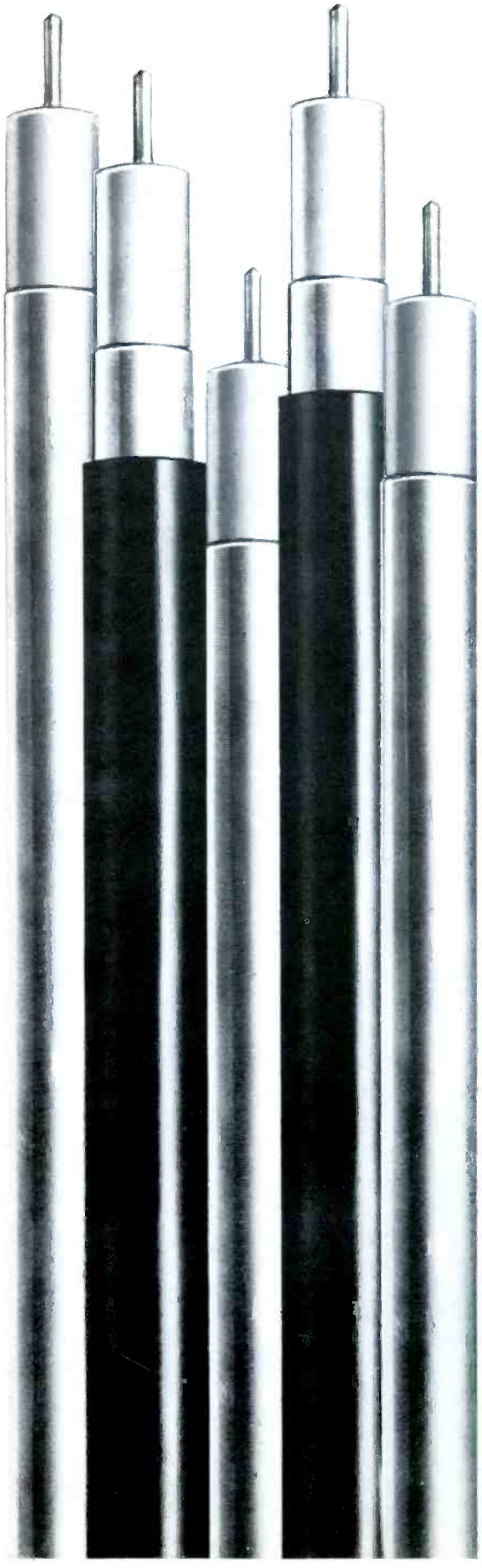
A new extender amplifier designed to feed low and high VHF and FM band signals into a transmission line is being offered by Entron, Inc., according to Ed Shafer, Vice President.

Designated as Model LHE 501 R, the unit has two output terminals; one is used to extend feeder lines; the second (-20db), may be used to split the line or feed a distribution amplifier. The well-matched input terminal makes the LHE suitable for use as a bridging amplifier when combined with a directional coupler.

Other features include separate low and high band gain and tilt controls, flat frequency response, long life silicon rectifiers, 10,000-hour tubes and highly reliable compactrons throughout. Full particulars can be obtained from **Entron, INC., 2141 Industrial Parkway, Silver Springs, Md.**

MINIATURE CCTV CAMERA INCLUDES SOUND PICKUP EQUIPMENT

The new GBC camera model AE-50 is a one-piece 9-lb transistorized unit incorporating its own power supply as well as a sensitive and efficient sound circuit. A conventional 1/4" coaxial cable running from the camera to the antenna leads of a television receiver or a video monitor completes the hookup. The AE-50 has a built-in automatic light compensator to take full advantage of changing light conditions. The unit comes with a 25mm f/1.4 lens. Additional lenses are available for wide-angle viewing, telephoto or extreme close-ups. Price of the camera is $495. For additional information contact **Dept. HL, GBC America Corporation, 89 Franklin Street, New York, N. Y. 10013.**



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

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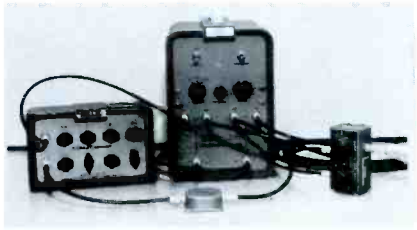
2. Is the cable self sealing when tapped?
3. What is the guaranteed maximum attenuation?
4. Will it produce an acceptable color TV picture?
5. Does it give 26 db minimum return loss guarantee (Required for minimum ghosting)?
6. Will the quality be the same 5 years from installation?
7. Will the cable 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.



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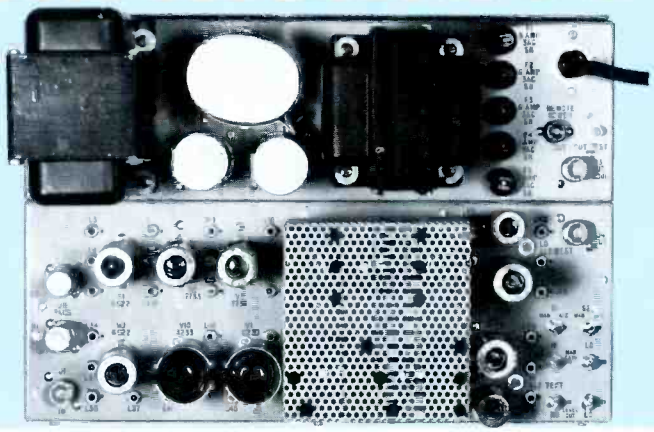

entron's LHR-45 repeater amplifier is the ultimate.

This is the high gain, high output level amplifier of all future CATV systems. It has many superior characteristics compared to any other CATV repeater amplifier available. Automatic level controlled low and high bands, including full FM, are combined in the LHR in one single chassis. The LHR's high power handling ability extends the mileage of CATV systems and improves picture quality. Frequency response is flat (if aligned through cable); input and output are matched; there are separate high-low band gain and tilt controls, and input attenuators. The LHR is equipped with a regulating transformer for gain stability under varying line voltage conditions, and for the increase of tube reliability as it keeps filament and cathode temperatures constant. For complete information and specifications on this advanced amplifier, the LHR-45, write to:

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NEW!

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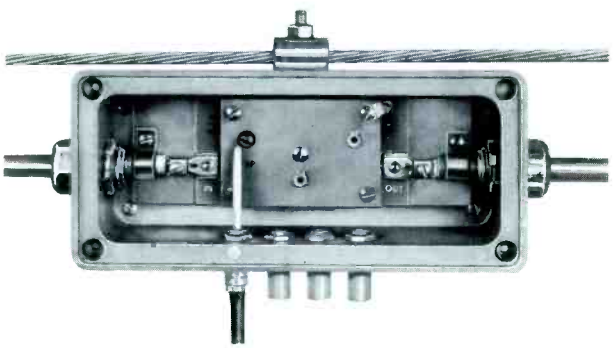

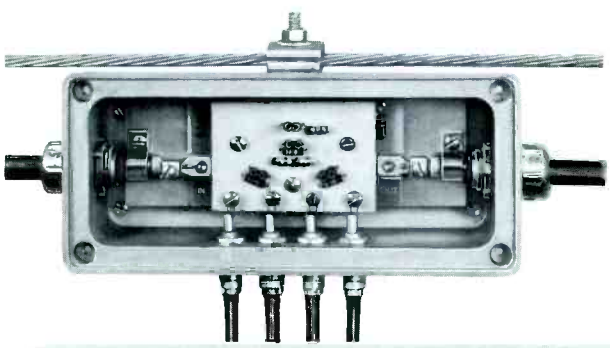

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Retaining the electrically superior directional coupler principle in a compact printed circuit tap and tap adder combination, SKL Multitaps are available in values of 10, 16 or 22 db tap loss. They mount easily to the messenger strand, and their adjustable input and output fittings accommodate any feeder cables from ⅜" to ½" 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 alf 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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