



January 1968

TV Communications

The Professional Journal of Cable Television

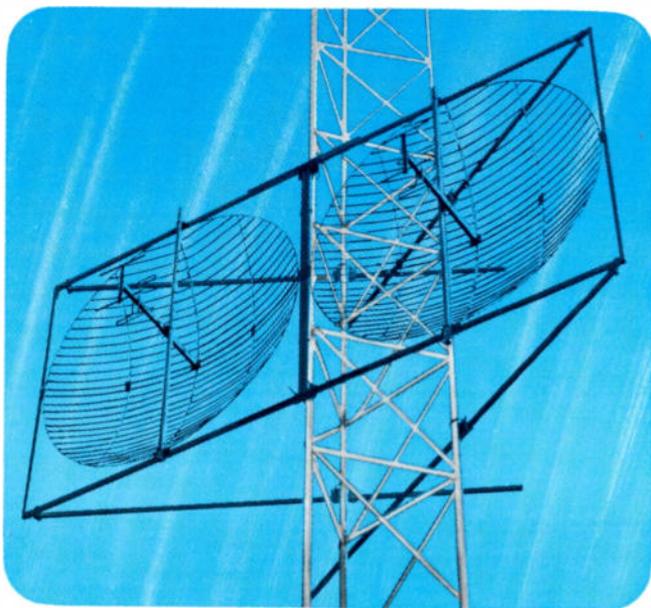


In This Issue . . .

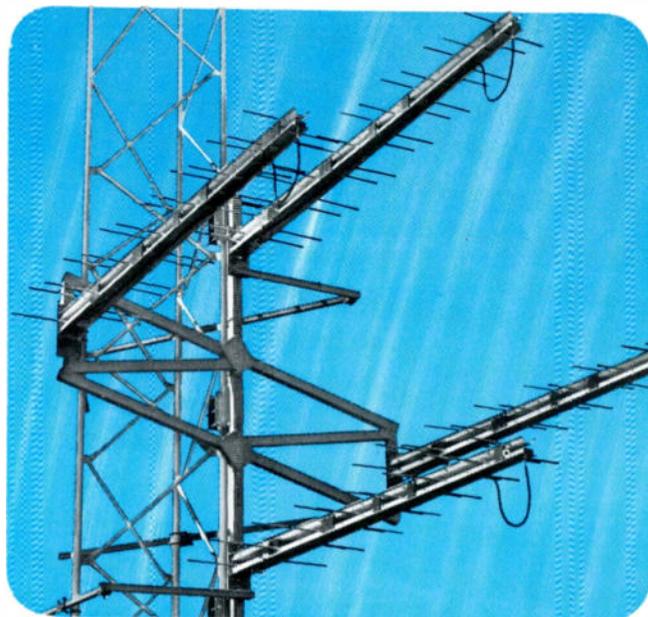
Coming—Cable TV Week
Successful CATV Pre-Sales
Index to 1967 Articles

Foul weather friends for every CATV need

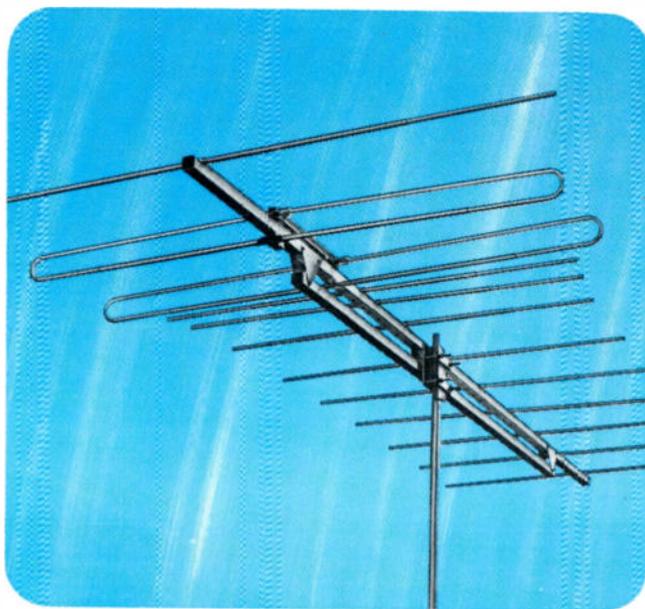
Jerrold CATV Antennas provide exceptionally high gain, flat response and low return loss . . . fair weather or foul . . . year after year . . . for one major reason. Jerrold Antennas are prepared for the worst kind of weather. Years of experience—and extensive environmental testing—prove it.



Parabeam Broad-band UHF Antennas consist of modular packages of small grid-type dishes that offer only 1/10th the wind load of solid surface dishes claiming equivalent gain. What's more the grid-type construction does not require the large structural back-up members that contribute to wind load.



Color Caprain Broad-band VHF Antennas, for instance, withstand 100 mph winds with no ice or 70 mph winds with one inch of radial ice. You get vibration-resistant construction, weather-sealed feed points and lo-Q feed transmission lines that make degradation of the signal due to ice practically nil.

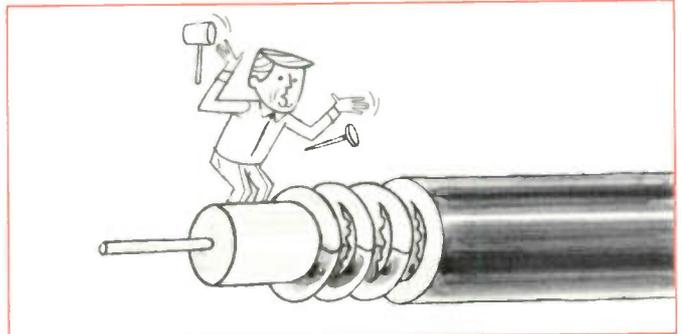
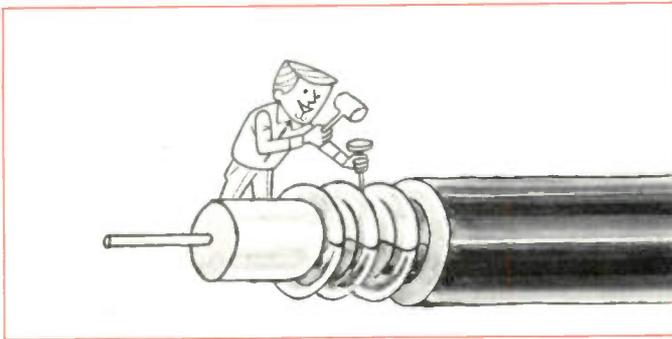


Imperial and Super Imperial Yagi Antennas—the low-cost way to get high performance from distant VHF and FM stations—feature heavy-duty elements, "strong-back" dual crossarm construction and vibration dampeners. These high-gain antennas are as tough as gales.

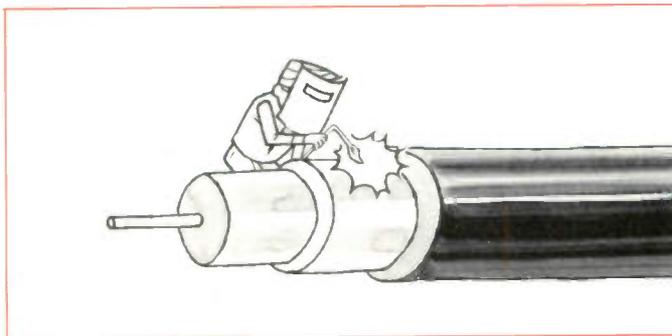
Assure every subscriber of crystal-clear black-and-white or true living color pictures. Insist on CATV antennas that can weather any storm . . . without disappointing your customers. Write or call for more information on Jerrold CATV Antennas. CATV Systems Division, Jerrold Electronics Corporation, 401 Walnut St., Philadelphia, Pa. 19105. Phone: (215) 925-9870, TWX 710-670-0263.

JERROLD FIRST IN CATV

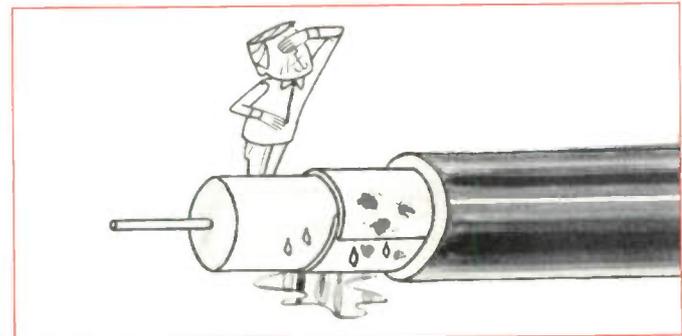
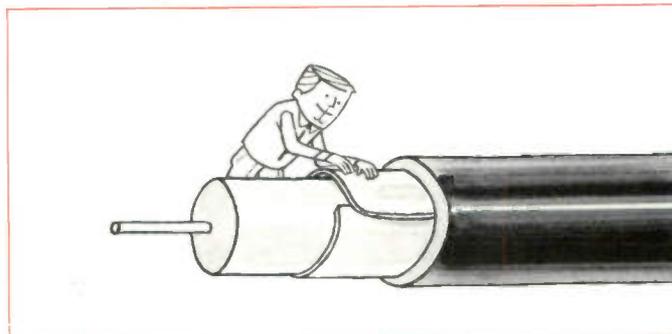
What's better than solid seamless aluminum sheathed cable?



THEY TRIED TAPE-WRAPPED CORRUGATED COPPER — BUT IT CRACKED.



THEY TRIED WELDED HOT ALUMINUM — BUT IT ABSORBED WATER — AND SOMETIMES SPLIT IN HALF.



THEY TRIED HERMETICALLY SEALED WRAPPED OVERLAPS — BUT WATER VAPOR CAUSED ALUMINUM OXIDATION — AND IT RADIATED.



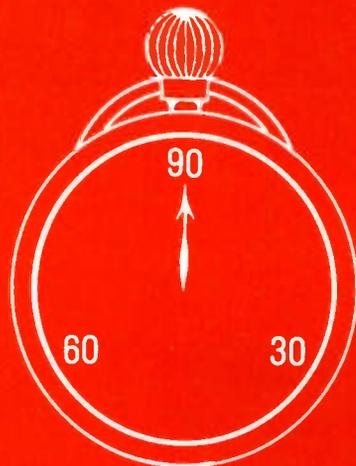
NOTHING . . . IS BETTER THAN SOLID SEAMLESS ALUMINUM SHEATHED VIKAL CABLE. IT PROVIDES HIGHEST RETURN LOSS AND LOWEST ATTENUATION. COMPRESSION OF TUBE OVER FOAM PROVIDES NON-HYGROSCOPIC SEAL. EACH REEL IS SHIPPED WITH A TAG SHOWING SWEEP TEST RESULTS. (NOTARIZED AFFIDAVIT ON REQUEST.) AVAILABLE BARE: VK 1412 (.412), VK 1500 (.500) OR VK 1750 (.750); JACKETED: VK 1412 J, VK 1500 J OR VK 1750 J; AND JACKETED WITH FIGURE 8 MESSENGER: VK 1412 JM, VK 1500 JM OR VK 1750 JM. TO ORDER VIKAL, CALL US COLLECT.



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**Build and Install New 50 Mile
CATV System in Less Than 90 Days.**

Solution:

Entron!

When a CATV franchisee was recently given a completion deadline of less than 90 days to put a new system "on the air," Entron accepted the challenge to design, engineer and install the new 50-mile turnkey operation.

The reason Entron was chosen is...to quote the system spokesman..."that we were convinced Entron **COULD BE COUNTED ON** to meet the tight time schedule with quality equipment."

They also liked these other CATV exclusives from Entron:

E Automatic Gain Control (AGC) at every mainline location, which controls the level of the TV signal.

Dual Pilot Carrier, to automatically equalize the TV signal.

Every piece of equipment has been pre-tested.

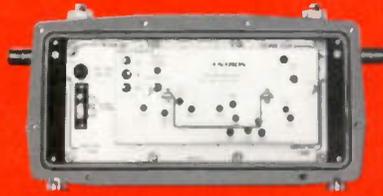
We're proud of our complete line of solid state products...and we continue to improve our equipment so that you can be assured of the most advanced state-of-the-art configuration.

Call us...and **COUNT ON US**...to give you the best products and services...from a multee to a turnkey.



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A Solid State **ENTRON** Line



Trunkline Amplifier R-6T

25 db, operational gain, ALC. Switchable input pads, fullwave 30-v ac power supply. Remote-powered, through cable.



VHF Preamplifier P-1

Low-noise antenna preamp, all-solid-state, temperature-compensated cable-powered. Gain is 33 db, low band; 26 db, high band.



Distribution/Terminating Amplifier D-2

Single input, up to four outputs. Used at end of distribution or trunk line for additional feeder lines. Operating level is 35 dbmv on each of four outputs.



Intermediate Bridging Amplifier B-3

Inserted in the trunkline, provides up to four distribution outputs. Variable pads on input for flexibility of installation. Operating level is 35 dbmv on four outputs.



Combination Trunkline Bridging Amplifier RB-6T

Up to four outputs. Operating level of bridging module is 35 dbmv on each of four outputs.



Low-cost Line Extender Amplifier E-6C

27 db gain, 10 db gain control, operating level is 42 dbmv.



Remote Power Insertion Unit RPU

Weatherproof. Provides duplexing 30 Vac or dc capability to cable-power remotely located amplifiers.

Representatives...

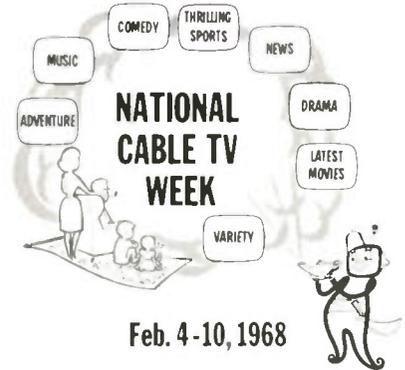
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 Chicago, Illinois—Mr. Hugh BuchananPhone (312)246-7660
 Darien, Connecticut—Mr. L. Glenn LittlejohnPhone (203)655-4421
 San Francisco, California—Mr. Don WyckoffPhone (408)739-4618

The Most Respected Name in CATV

IN THIS ISSUE

Cable Week's Coming

The second observance of National Cable TV Week is at hand, and judging from the success of last year's inaugural promotion and the efforts of NCTA in preparation for this year's promotion, it promises to do a lot for CATV — both



Feb. 4-10, 1968

locally and on a national basis. Beginning on page 36, *TV Communications* presents a look at what's in store for the industry, and a review of last year's successful Cable TV Week promotions.

A Successful Florida Launch

Achieving 30 percent saturation after pre-sales and a grand opening requires considerable planning and professional management throughout the promotion. Then consider working in a three-station market, and collecting the full \$15 installation fee from every subscriber — including those signing up in advance. Starting on page 40, we see some of the imaginative, colorful strategy used by Martin County Cable Company to achieve these initial subscriber sales results in Stuart, Florida.

For Your Convenience

Beginning on page 60 of this issue is a complete Topical Index of all feature articles published by *TV Communications* in 1967. This reference listing up-dates the index published in the January, 1967 issue.

Our Cover: Proclaiming the merits of Cable TV Week to Senator Birch Bayh (center) are NCTA President Frederick Ford and Logansport (Ind.) TV Cable Company Manager Frank P. Delia. The Hoosier Senator has shown a glowing interest in CATV, and addressed a regional operators' meeting last spring. (*TV Communications* pays \$20 for color photos submitted by readers and selected for publication. Materials returned on request.)

TV Communications

The Professional Journal of Cable Television

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CABLE



Provide your cable crews with the easiest-to-install coaxial cable: And obtain the finest appearing CATV cable plant. SEALMETIC™ coaxial cable by Anaconda Wire and Cable Co. will actually reduce your cable installation costs by 15%.

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provide an invisible 75 ohm junction your customers won't see on their screens — and they're perfectly matched to Sealmatic cable.

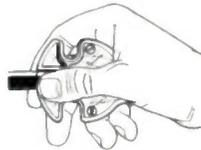


and exclusive sealmatic

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the exclusive Sealmatic cable connector tool and sleeve inserter



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cut the outer conductor

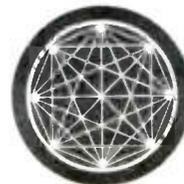


pull it off



drive home the exclusive Sealcon sleeve

QUALITY CONNECTIONS IN LESS THAN 60 SECONDS. Two ingenious tools make Sealmatic/Sealcon connections fast, easy, and consistent. Specifically designed for the job, the cable connector tool and sleeve inserter are simple to use and they really work. They assure the best, most uniform connections in the industry.



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The TVC Viewpoint

EDITORIAL



All That Glitters...

By R. H. Huston, reprinted from *CATV Weekly*

Either the process of securing a cable franchise has gotten completely out of perspective or your editor has flipped his ever lovin' lid.

In Illinois, an applicant says he will turn all of the profits over to a youth organization to operate his cable plant on a non-profit basis if the city will only give him a franchise.

In Colorado, the telephone company says as the law now stands they can build a leaseback for anyone who has the scratch without permission from the city fathers. While in Florida, one city council is demanding an *additional* ten per cent of the gross from a cable system that is already paying six per cent (while neighboring systems are paying anywhere from two per cent to nothing). On top of that, the city is making the additional ten per cent retroactive to 1964!

And here comes the latest from California. Witness the following suggested

"formula" sent out to all parties interested in securing a franchise by the city manager of Rohnert Park:

<i>Annual Receipts</i>	<i>Payment to City</i>
On the first \$50,000	5%
On the next \$25,000	10%
On the next \$25,000	15%
On the next \$25,000	20%
Gross Receipts over \$125,000	25%

When questioned about his suggested bid the city manager said he had heard other cities were getting as high as 35 per cent, but he had patterned his formula after a city in Southern California that was more the size of Rohnert Park. We don't quarrel with the city manager. He is just doing his job and looking out for the best interests of the city.

Our quarrel is with franchise seekers who are giving NAB and AMST the ammunition to blast cable television as a "gold mine above ground."

Important National Project

A tremendous amount of ground-work is evident in the National Cable TV Week kits which were mailed a few weeks ago. And the decision to mail these kits to all cable operators — not just members — reflected mature judgment on the part of NCTA leaders. Cable TV Week Chairman Sandford Randolph and the Washington office staff are to be commended for spearheading this very worthwhile national project.

Cable television operators should take full advantage of the materials which have been supplied. Clearly, there are ideas and aids which can be adapted to every single cable-served community in the land. In the face of myriad threats and challenges,

the cable television industry can be aided immeasurably by an improved public image and by public awareness of what cable TV is all about.

We have stated it in these columns many times before — but it bears saying again: keep selling your customers. Even after they are subscribers to your cable service, remember to sell them on its benefits and educate them to both the virtues and the complexities of the cable service upon which they rely.

One of these days the cable industry will need all the friends it can possibly muster . . . and National Cable TV Week is one excellent means of making new friends.

Stan Searle



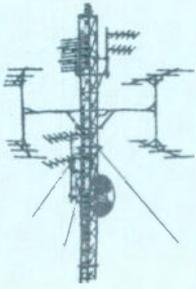
**WHEN YOU GO LOCAL ORINATION...
YOU NEED SUPERIOR'S VIDEO PAIRS!**

Superior Video Pairs are *balanced pairs*, individually shielded, that eliminate AC hum and maintain studio-quality picture transmission. So, for high-definition television transmission from studio to head-end, from remote pick-up points to head-end or from remote pick-ups to studio to head-end . . . insist on Superior Video Pairs. Flexible Video Pairs for patchcords and flexible video leads also available.

Write or call for information and prices to
Superior Sales and Service Division P. O. Box 2327 Hickory, North Carolina 28601 Phone 704/328-2171

Frequency vs. Attenuation	
Frequency	db/100ft. @ 68°F
3 MHz	2.8
5 MHz	3.7
10 MHz	5.2
15 MHz	6.4





CATV Industry PERSPECTIVE

1968 will be a year of change for the cable television industry. The Supreme Court decision to review the adverse lower court decision (*Fortnightly vs. United Artists*) was the first real ray of light for cable operators in years--so far as copyright liability is concerned. But questions of "whether" and "how much" copyright liability still face operators--and the final resolution will precipitate change and adjustment in the CATV business, no matter which way the decision goes. If no liability is assessed cable operators will renew expansion efforts and pursue marginal markets with new enthusiasm. If either the high court or Congress affirms copyright fees, cable television owners will have to adjust to the costs and complexities of the long-dreaded process of "paying for product."

Cabling of major cities is likely to be accelerated by any kind of copyright fee decision. (Some operators say they will gladly settle for any reasonable fee schedule; they just want to know "what the numbers will be.") But others, especially in small communities on major market fringes, could be forced to shut down. Thus the "adjustment" to copyright payments--if they come--could range from gearing up for growth to preparing for bankruptcy.

Lawyers for Fortnightly and NCTA are optimistic about chances of a major "reprieve" at the hands of the U. S. Supreme Court. Congress would still be under pressure to pass a CATV copyright law. But a favorable court ruling would alleviate need for haste and also provide an ideal backdrop for moderate legislation.

Both cable operators and broadcasters, in growing numbers, are becoming impatient with their respective trade associations. As more and more broadcasters become cable owners, their tolerance diminishes for the time-worn anti-CATV line of the National Association of Broadcasters. Cable operators, meanwhile, are just naturally weary from too many years of too many problems and too few victories. The paid professionals who staff the Washington offices of the trade groups naturally bear the brunt of such discontent. Look for pressure on NAB staff to moderate attitudes toward cable television. . . and pressure on NCTA staff to include a more effective effort on Capitol Hill among its numerous "member services."

Entry of telephone companies into CATV will accelerate during 1968. Even if federal anti-trust action hinders the two "giant independents," General Telephone and United Utilities, there are dozens of other big telcos and hundreds of small ones with both the money and inclination to expand in CATV. In spite of inculcated cable industry resentment, telephone companies are in a natural position to string the coaxial cables in communities they already serve. The trend is irreversible--although the degree of telco involvement in the major cities will depend largely on whether big cable companies and broadcasters establish cable operations in these markets first.



CATV Directory

OF EQUIPMENT, SERVICES, & MANUFACTURERS

NOW AVAILABLE

The most complete, most detailed, most useful directory of CATV equipment, services and manufacturers ever published. This beautifully bound, 180-page reference is your guide to all the products and services your system requires. Beginning with a complete listing of all suppliers of CATV products and services, the following listing sections are arranged in easy-to-use order:

- Antennas, Towers and Head-End Buildings
- Head-End Electronic Equipment
- Distribution Equipment
- Transmission Lines, Connectors, Fittings and Accessories
- Construction Materials and Equipment
- Local Origination and Studio Equipment
- CATV Test Equipment
- CATV Services
- Microwave Antennas and Equipment
- Communications Attorneys

Put this indispensable reference book to work for you in new-system construction, expansion and rebuild . . . to learn about the latest developments in CATV equipment . . . to acquire all CATV services from system design to subscriber promotion. The all-new 1968 CATV Directory of Equipment, Services and Manufacturers is a valuable CATV management and purchasing tool for you. Put a copy on your desk for quick reference in 1968. It's available now . . . and it's just \$6.95. (Save one dollar! Just \$5.95 if check accompanies your order.) Order your copies today!

Gentlemen:

Please send _____ copies of the new 1968 CATV Directory of Equipment, Services and Manufacturers immediately.

Name

Address

City

State

Type of Business

Zip

\$6.95 ea. - Please Bill Me

\$5.95 ea. - Full Price if Check Enclosed

TV Communications

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CABLECASTER™

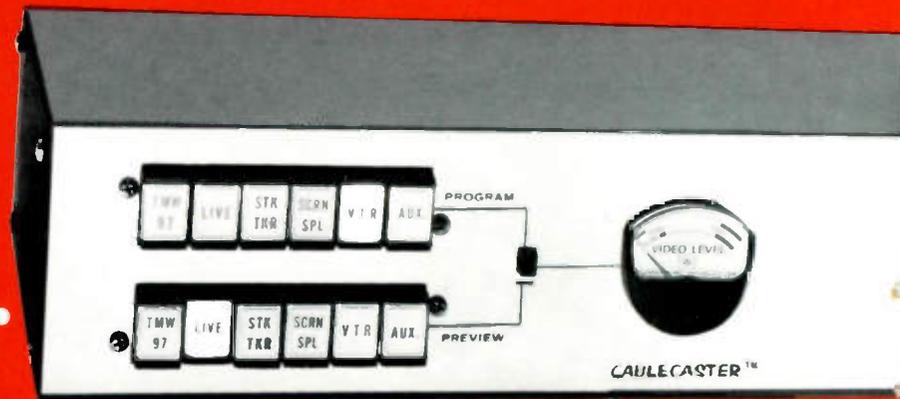
MODEL TMV-600 **Video Control Center**

Without it, you have video sources.
With it, you have a television production system!

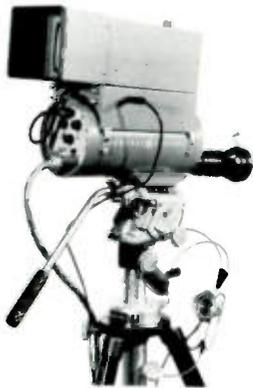
TeleMation-furnished cameras, old or new, are easily converted to full broadcast specs. Your subscribers will praise the crisp, roll-free picture quality.

Your personnel will applaud the professional ease of operation and extended usefulness of the system concept.

Systematic planning with compatible components is the way to start. The CABLECASTER® concept is the way to orderly growth — the way to maximum utilization — the way to excellence in program origination.



Live Cameras



In CABLECASTER® systems inexpensive industrial cameras with TeleMation modifications are converted to full broadcast specifications. Yet they will instantly revert to self-contained 2:1 interlace operation if fitted with TeleMation's industrial sync generator. All cameras are automatically synchronized for smooth professional switching. A single cable carries all signals and power, adding greatly to the appearance and convenience of operation.

WEATHER CHANNEL™ '97'



Pat. Pending

CATV operators can now take full advantage of the many plus features of the TMW-97 WEATHER CHANNEL® ... remote mirror positioning, remote slide change, 16 mm film accessory, and split screen presentations are all easily accomplished. Your WEATHER CHANNEL® old or new is converted to broadcast specs when operated with a TMV-600 video control center using EIA sync.

where experience powers pace-setting products!

The most significant development ever for CATV program origination



Features —

- Solid-state, synchronous vertical interval switching
- EIA or Synchronous Industrial scanning
- Separate program and preview busses— six inputs
- Cameras convertible to self-contained operation
- Built-in video level meter and gain and pedestal controls
- Desk-top mounting for one-man operation

Write or phone collect today for expert planning assistance.
Request Form TPB-90 for complete technical data.



* Trademark Telemation



Non-Duplication Switcher

The split-minute switching capability of the TMP-205 provides automatic transient free switching when remotely controlling the TMV-600 video control center.



Video Tape Recorders

The "VTR" output of the TMV-600 can be switched to either preview or program switcher buss, permitting recording sessions without disturbing "on-air" operation. Video outputs of each VTR connect to separate switcher inputs.



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NEWS CHANNEL®, the exciting 24-hour-a-day AP news service may be CABLECASTER® modified for integration with other local origination equipment or for split screen presentation with stock ticker service. Also facilitates automatic presentation of locally produced news.



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Salt Lake City, Utah 84115
Telephone (801) 486-7564

U.S. Patent No. 3,320,363 / Canadian Patent Pending

LETTERS

RADIO SPOTS PRODUCED

● We would like permission to reprint the article "Local Radio Advertising" by Virgil Evans, which appeared in the May, 1967 issue of TVC. We are planning to run the article in our *Bulletin* in conjunction with our new radio spots produced by Mel Blanc Associates. Sam Street, Director of Convention & Field Services NCTA

We've heard the Mel Blanc radio productions done for CATV and they are excellent. We are happy to assist NCTA in promoting this worthwhile service to operators.

FAR OUT RESPONSES

● Perhaps you'll be interested in seeing one of the many responses we received as a result of our advertisement in your May issue.

It's from an engineer in Siberia! We know that TVC enjoys broad readership in the hinterlands of the CATV industry—but we really weren't prepared for this one!



Incidentally, there were also a lot of letters from the U.S.A., and our promotional materials are now being used across the country. Thanks to TVC for the help. Peter B. Schust Toppino-Golden-Schust Phoenix, Arizona.

● Thank you very much for sending us the copy of your article "CATV for Large Cities." I beg you please to feel free to contact me, if I can be of any assistance to you here in Argentina. Luis Maria Perfilio TeleSistema Argentino Buenos Aires, Argentina

DESK SETS HANDY

● Many thanks for your lovely desk set. I assure you that it will see proper use. Best regards for the coming season. Melvin A. Goldberg WHJB Cablevision, Inc. Greensburg, Pennsylvania

● Thank you very much for the desk set. It will be most useful in my work. Harvey Thackerson, Manager Southern Television Systems Corp. Ranger, Texas

You are most welcome, gentlemen, as are the hundreds of other CATV'ers who took time to participate in TVC's National Cablecasting Survey last fall. TVC

ASTROSCAT Designed/Priced for CATV

JUST THE DISH FOR —

VHF

- Eliminates co-channel interference through high directivity and controllable nulls
- Excellent front/back ratios
- Single, multiple channel and broadband feeds

UHF

- Highest gain at UHF frequencies
- Sharp directivity
- Multiple channel and broadband feeds

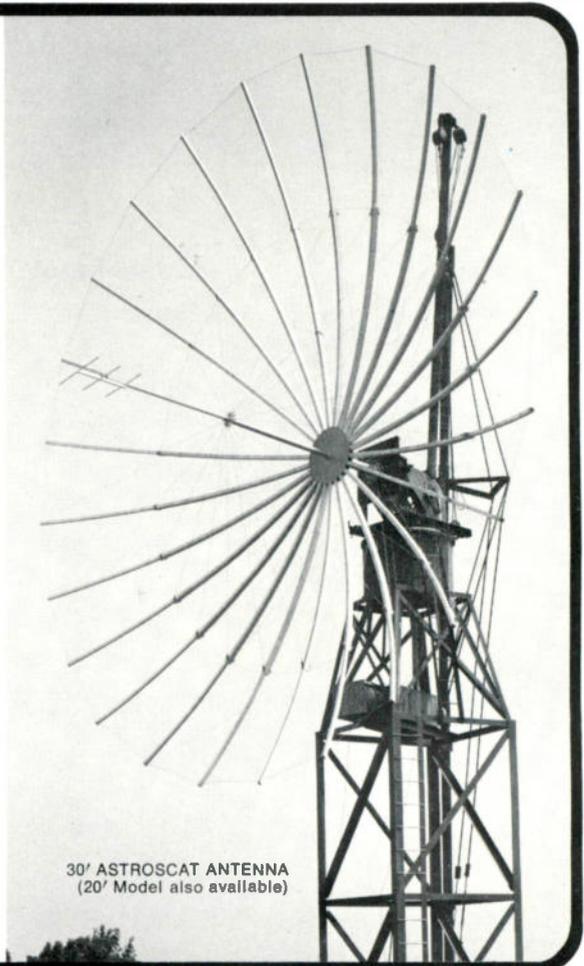
Tower-top mounting of the rugged ASTROSCAT permits optimum reception results. Specially designed for CATV applications, it may be used simultaneously for VHF and UHF channels and can receive from more than one direction. Both its performance characteristics and construction detail reflect RF Systems' extensive experience in designing and producing antennas for industrial and military systems.

CATV-YAGI antennas, educational television, broadcast antennas and towers are also described in RF Systems literature available on request.

RF SYSTEMS, INC.

Industrial Antenna Division

155 King Street • Cohasset, Massachusetts 02025
(617) 383-1200

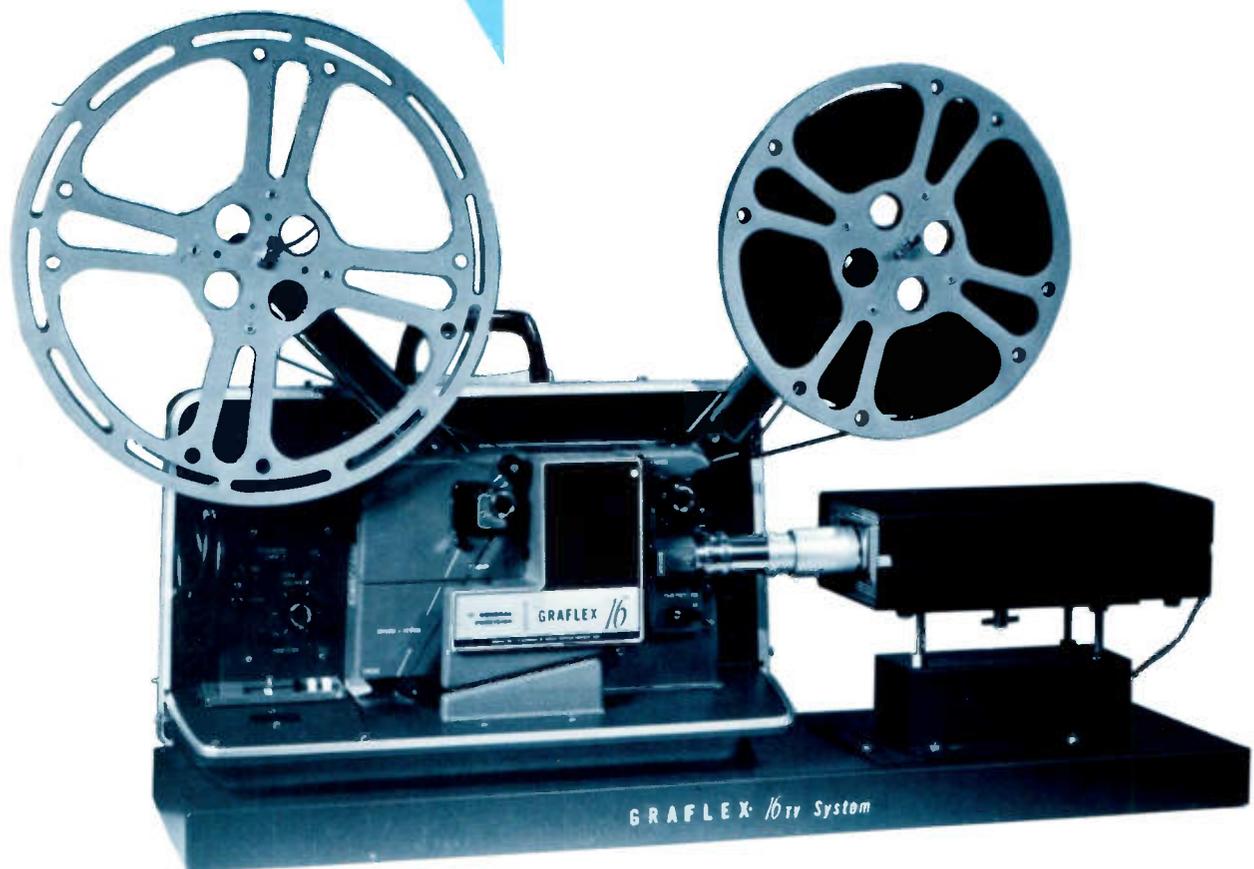


30' ASTROSCAT ANTENNA
(20' Model also available)

**NOW FEATURED
BY R. H. TYLER—**

**Graflex "16" TV Projector
and AFCC TRANSISTORIZED CAMERA**

A PERFECT FILM-CHAIN MATCH!



**Give your subscribers
feature films about sci-
ence • sports • travel •
health • education • farm-
ing • nature • art • indus-
try • homemaking . . . and
Hollywood features!**

Many sources of films and programming services are available, both paid and unpaid. Check the "CATV Services" section of the 1968 CATV Directory of Equipment, Services & Manufacturers.

This great new film-chain from R. H. Tyler provides a prime way to build subscriber interest and hook-ups through local origination. Any variety of 16mm films may be programmed with highest picture quality, at very low cost.

Put this top performance unit to work for you, building up your subscriber count. It's the **economical** way to provide high-interest local origination programming. Write or call for complete details.

\$1795
READY TO OPERATE

• FILM SIZE: 16mm • REEL CAPACITY: 2,000 feet • REWIND: Power operated without reel or belt change. • REVERSE OPERATION: Single lever controls reverse without stopping projector. • CONTROLS—PUSH BUTTONS: Control starting, stopping; normal and high brightness; on-off.

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COMPANY**

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SPECIFICATIONS:

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FM (94-108 MHz) at FM Output.....	2.0 db (Maximum)
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Connectors —75 ohm type "F"	



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This top quality, impact resistant set matching transformer can be personalized with your brand name in larger quantities. Write for special money saving prices.

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CATV MANAGEMENT CORNER

The Small Business

When an industry such as ours is in a period of expansion, a multitude of management sins can be covered up by increased hookups and the demand for the services you provide. Yet, in spite of the mushrooming growth of cable television, nothing grows forever, and although the overall future of CATV is bright, the number of business failures due to lack of management insight and ability will undoubtedly rise in the future. As operating costs grow larger and larger, profit margins may grow smaller and smaller and may begin to reflect some of the poor management practices which go unseen today.

It would be wise for us to consider the history of small businesses in general and to take heed so that we are not beset by some of the same sins.

The odds are that only one in five small businesses will survive for more than ten years. In fact, the average age of 4,500,000 firms in this country is only seven years. Three hundred fifty thousand small businesses will go broke this year and another 370,000 will change hands. Despite these hazards, some 400,000 new ones are likely to take the plunge in the next 12 months.

Dun and Bradstreet, the master scorekeeper of business failures, has found that more than nine out of ten small business failures were caused by lack of experience or incompetence. The newspaper ads which show businesses offered for sale "for reasons of health" are often deceptive; poor health accounted for only 2.5 percent of the failures. A major factor that accounts for numerous failures is the fact that the small businessman generally operates on the "owner decides all" principle. He feels he must know more about engineering than his engineer, and more about accounting than his accountant. Since he insists on making all the decisions himself, he has fewer strong, competent people to help him. Those who stay on are passive and dependent. The wise manager tries to "train himself out of a job," that is, he constantly strives to delegate certain of his responsibilities to competent employees. It doesn't take long to discover that a growing business makes new demands on its management, and if the business is to keep on growing, the manager must drop old responsibilities so he can assume new ones.

Good management ensures that the leadership of the firm is one that makes things happen, sets goals and moves his team towards them. Management isn't a passive art, it's a dynamic one which stirs people to do better things than they thought they could. The job of management is to get common men to do uncommon things. It focuses on profit and growth, since these are the best indicators of performance for a CATV operation. It sets budgets and targets before people, and provides them with tools, equipment, facilities and training to get the job done. TVC

Introducing the most versatile vidicon camera ever built – Cohu's new 3200 series!



IT'S A CCTV CAMERA – completely self-contained. Just add a single coaxial cable to any video monitor and it's ready to operate. Want high resolution? Plug in one of four optional integrated-circuit sync generator boards for 525-, 729-, 873-, or 945-line scan patterns.



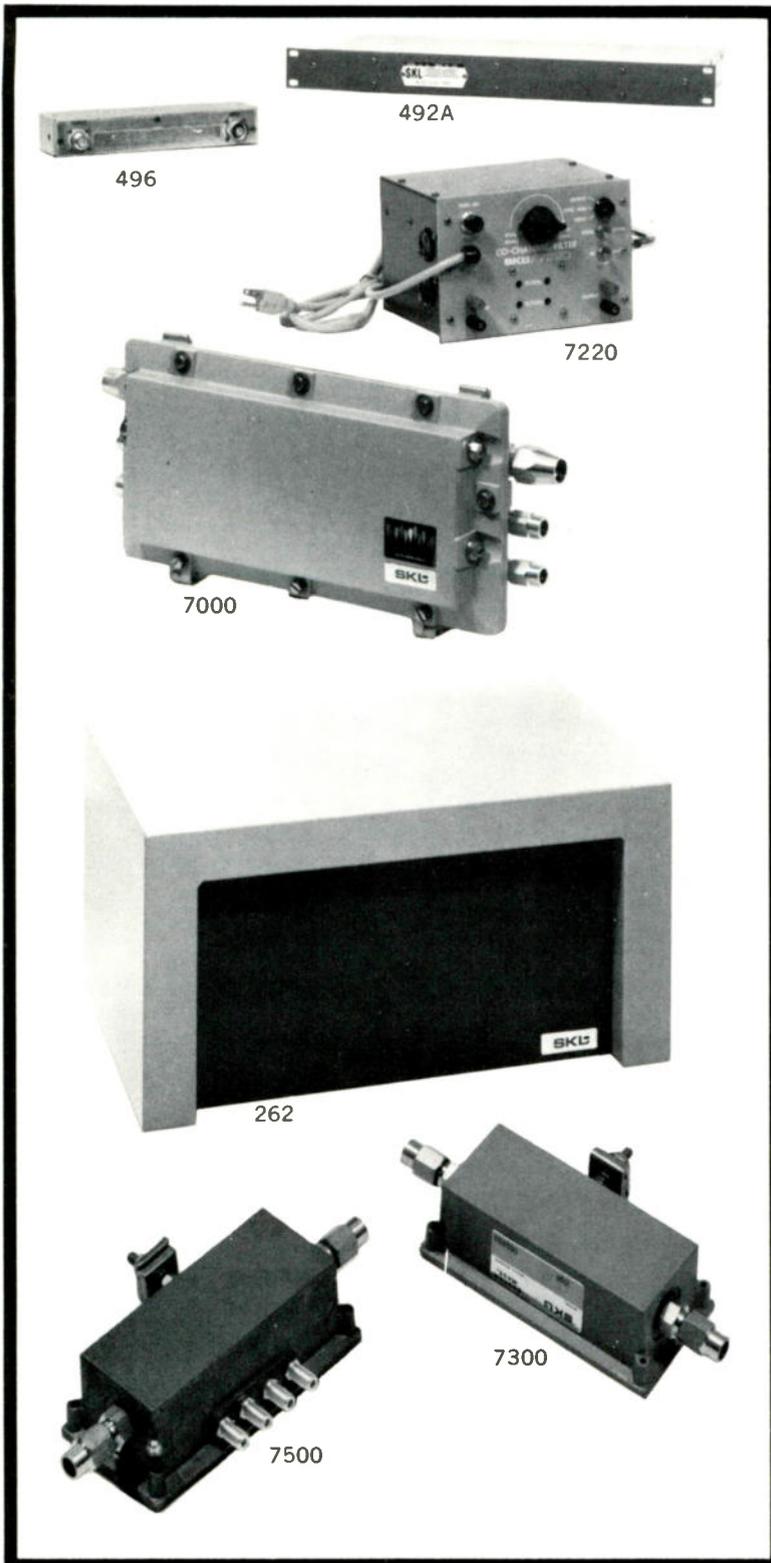
IT'S A BROADCAST CAMERA, TOO! Add a "mounts-in-minutes" 5-inch viewfinder and the Cohu 3200 is ideal for studio, education, or remote applications. An optional film chain adapter further enhances its versatility and provides all necessary remote controls.

For prices, delivery and full details, contact Cohu engineering representatives in major cities throughout the United States and Canada.



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7220 CO-CHANNEL FILTER

Co-channel problems? Not when you use the SKL/7220 Co-Channel Filter and the time-saving SKL/7222 Cable Switch Box for adjusting co-channel interference right out of the picture.

7000 SERIES TRUNK, BRIDGING AND DISTRIBUTION AMPLIFIERS

Looking for reliable, trouble-free CATV transmission? SKL/7000 is the choice of discriminating, experienced system operators. Color, black-and-white, FM, local origination register with sparkling clarity. Choice of ten models that cover every possible trunk and distribution application.

262 HIGH-LEVEL DISTRIBUTION AMPLIFIER

Want to saturate a distribution area at the lowest cost per subscriber? — then SKL/262 is for you. One 262 can drive 600 — or more — TV sets. And after that, you can still add line extension amplifiers for even greater coverage.

7300 LINE EXTENSION AMPLIFIER

SKL/7300 has everything a line extension amplifier needs — plenty of gain and output capability, plug-in pads, wide-range gain and tilt controls, low cross-modulation, flexibility that fits it into any system.

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SUPREME COURT TO HEAR COPYRIGHT CASE

After cablemen had a real scare from the office of the Solicitor General, the Supreme Court has reaffirmed its decision to grant a hearing to the copyright case involving Fortnightly Corporation and United Artists Television, Inc. In the case, tagged number 618, Fortnightly is appealing a copyright infringement decision affirmed by the U.S. Court of Appeals in New York.

The Supreme Court granted certiorari December 4 and set the case for hearing immediately after the Court's consideration of Cases 363 and 428, which involve the U.S. and Midwest Television Inc. versus Southwestern Cable Corp. In the order, the Court also gave NCTA permission to file a brief as amicus curiae, and in a concluding statement, invited the Solicitor General, Erwin Griswold, to file a brief expressing the views of the United States.

Cable advocates were shocked when Griswold sent a memorandum to the Court suggesting that the case not be considered at this time. "We deem it appropriate," he said, "to bring to the Court's attention circumstances which may argue against present review of the difficult issues involved." Defending his recommendation for abstention, Griswold held that a settlement of the case by the Supreme Court would hamper current negotiations going on between cable, copyright, and broadcast interests, and thus affect pending legislation which is expected to follow industry leaders' reports. "Those efforts," Griswold said, "will probably be arrested by the pendency of the case here." His reasons: "Neither side is likely to be willing to forego the significant advantage a favorable ruling by this court would confer in the eventual compromise negotiations. Thus, in our view, the decision here would not be finally determinative of the overall controversy, but would serve only to upset the balance, delaying and perhaps impeding Congressional resolution of the problem."

Both parties in the litigation objected to the Solicitor General's recommendation, United Artists asking the Court to either proceed as announced or to revoke its acceptance of the case altogether. Fortnightly lawyers contested Griswold's reasoning saying, "There is no assurance when or if Congress will act."

Fortunately, the Supreme Court justices replied to the Solicitor General's suggestion with a simple, "Motion denied." This order put scheduled arguments back on track for March 8. Many interpret this as a significant break-through for cable television.

COMMISSIONER LEE GUILTY OF EX PARTE?

What could prove to be a case of ex parte contact by mail on the part of FCC Commissioner Robert E. Lee was recently uncovered by *CATV Weekly* editor, Robert H. Huston. Involved in the case are Austin UHF station (KHFI-TV) and Capital Cable Company, also of Austin. Arthur Scheiner, legal counsel for KHFI, made a suggestion to Commissioner Lee which, if followed, would prove beneficial to Scheiner's client. It appears that the suggestion was warmly received.

Some time ago, KHFI-TV, through their legal representative, Wilner, Scheiner and Greeley, asked Capital Cable (owned 51% by President Johnson) for carriage and non-duplication protection. Since KHFI carries a variety of programs from all three networks, Capital Cable replied that such protection would be impossible, immediately filed a petition for waiver of carriage through their legal representative, Harry M. Plotkin, and took their place at the end of the long waiting line of waiver requests now before the Commission.

It appears that Mr. Scheiner was not content to wait, however, in that he sent a letter to UHF advocate, Robert E. Lee, suggesting that cases involving UHF stations be moved to the front of the line. Scheiner sent a copy of the letter to Plotkin, but he didn't send the letter to other FCC Commissioners, nor did he enter his suggestion as a formal filing with the Commission.

Late News (Continued)

On December 22, Plotkin wrote the Secretary of the Commission, Ben F. Waple, on behalf of Capital Cable, objecting to the letter from Scheiner. (Plotkin's letter was accompanied by 20 extra copies for distribution at the Commission.) According to Plotkin's objection, Scheiner's letter tended "to put an individual commissioner in an invidious position. The implication of the letter seems to be that since Commissioner Lee has a well-earned reputation of promoting the utilization of the UHF television spectrum he will bend his individual efforts to persuade his colleagues on the Commission . . . which can benefit KHFI-TV . . .

"This is an unworthy approach. If KHFI-TV has any confidence in the merits of its proposal, it should follow the usual procedure of filing a formal petition with the Commission . . . so that all interested parties can present their point of view."

Meanwhile, unbeknown to everyone involved, Commissioner Lee had replied to Mr. Scheiner in a confidential letter dated December 6, saying:

"Thanks so much for your letter of November 28, 1967, concerning the possibilities of setting up a priority processing line for UHF waiver requests.

"Chairman Hyde has indicated to me that he has some ideas consistent with your thoughts and I think we can look for some discussion at the Commission level in a short time."

No copies of the letter were sent to the other parties involved, including the other Commissioners.

AD HOC COMMITTEE FINISHES REPORT

The ad hoc group of cable and broadcast operators which has been working to resolve copyright differences has finished its report and will now make its recommendations to the NAB and the NCTA. What the two associations do will have a vital effect on whether or not there is copyright legislation on CATV this year. If there is no legislation, the upcoming copyright decision by the Supreme Court will be the law. The ad hoc committee worked out ten areas of agreement (some minor ones specifying more work needed) and left two big issues open for further work. The two issues still to be settled have to do with program origination and exclusivity. No decision has been made as yet regarding the effects of local origination on copyright obligations in respect to carriage of station signals. Regarding exclusivity, the unanswered question is whether not carriage of outside signals in underserved areas, pursuant to compulsory copyright license, should be subject to restrictions contained in broadcaster-copyright contracts.

The ad hoc group has met four times since July, working on a Congressional request to agree on suggestions for a new law. Another group of cablemen and copyright owners are working on the same problem from the contract standpoint.

TELEPROMPTER CORPORATION GETS TRENTON FRANCHISE

The city council of Trenton has named TelePrompter recipient of the CATV franchise for the New Jersey city of 110,000. A city clerk's spokesman said an enabling ordinance was still to be passed but that terms specified a 20-channel system with a 5 per cent fee to the city, a \$9.95 installation charge to subscribers and \$5.00 monthly service charge. The system is the twenty-sixth for TelePrompter, which owns systems ranging from Hawaii to New York, and serves more than 100,000 subscribers across the country.

An initial subscribership figure of 7,000 has been set for Trenton, with the potential estimate set at 35,000. Spencer-Kennedy equipment is to be used, according to the filing with the city clerk.

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Through Kaiser's superior engineering and design, the Standard Phoenician Series can carry 8 extra channels in the mid band without signal degradation and at the same distribution cost. To you this means that if you should ever need more than 12 channels, you can add them to your Kaiser Phoenician System without the usual layout changes, "factory adjustments" or module additions that can spiral costs upward.



If you're like most system operators, you have no immediate need for those 8 extra channels. However, smart operators are going with Kaiser and getting 20 channel capability right now at the same low cost as a 12 channel system, and they are set to go to the additional channels when the need arises.



Kaiser's Phoenician Series has been proved in the lab and in the field. It is now in operation in many successful systems.



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More Power for CATV Task Force?

A proposal which would delegate decision-making power to the CATV Task Force will probably be considered by the FCC early this month. The proposal, which has been postponed for some time, would permit the Task Force to decide on hearing waivers for systems in top-100 markets which serve communities removed from the central city 20 miles or more. As things stand, the Commission handles these itself, but has a tremendous backlog. The idea to delegate this authority has been advanced as a way to handle this backlog of waiver applications.

There were 171 such requests waiting six months or more at the end of August. In the six months ended Oct. 31, the Commission put out approximately 18 orders on these cases, including procedural moves dealing with petitions to reconsider previous

orders or to speed up action on petitions pending. Some 10 waivers were granted, nearly all in metropolitan fringe communities, where the Commission decided that broadcasting would not be affected.

The mileage idea was first attributed to Commissioner Robert T. Bartley. Bartley, who does not believe in the cable rules, apparently has been working for compromise in an area where Commission decisions indicate that the rules have resulted in more restraint on CATV than intended.

The idea of a mileage criterion from a Commissioner is new and is liable to be fought hard. Rep. James A. Mackay (D-Ga.) introduced a bill with similar suggestions during the CATV hearings in the spring of 1966 and got nowhere. However, since then the backlog of CATV business at the FCC has become monumental.

Cities to Regulate Spectrum?

In a message to the NAB fall conference in Boston, Commissioner Nicholas Johnson voiced the proposal that metropolitan areas should be in charge of communications within the city boundaries. Noting the cluster of communications facilities in cities, he observed, "The FCC ought to be engaged in frequency management on a city-by-city basis rather than a national basis." He suggested that the FCC wouldn't have to do the managing, that cities themselves might well take over. Right now the FCC needs an Office of Urban communications, he thinks.

Land mobile radio is so congested in cities "that we could usefully double the amount of frequency space available," but at a 20 per cent a year growth rate, "we would

be, within five short years, back in precisely the same bind we are today."

The Broadcasters present got a good taste of the potential of CATV as the commissioner commented about present methods of sending and receiving information saying, "Cable television adds yet another dimension: 3,000,000 homes with capacity to receive 12 or 20 channels of television by wire. And we are told that comparable cable capability can bring us facsimile printing of newspapers and books, closed circuit television (for talking by 'picturephone' or shopping), banking by telephone, teaching machines or computer consoles tied into regional computer facilities, and mail delivery."

"Saturday Review" Publishes Johnson Article on CATV

FCC Commissioner Nicholas Johnson, who has already urged the cable community to get into programming, recently outlined his vision of the home communications center of the future to the nearly 400,000 readers of *Saturday Review*. In the article, entitled "CATV: Promise and Peril", the Commissioner outlined the impact of CATV from two viewpoints: the impact of cable on today's television, and the impact of CATV on the communications of the future. When asked about the article, Johnson remarked that the issues in CATV "are among the most important issues before our country right now, and I think the more widespread public understanding there is, the better."

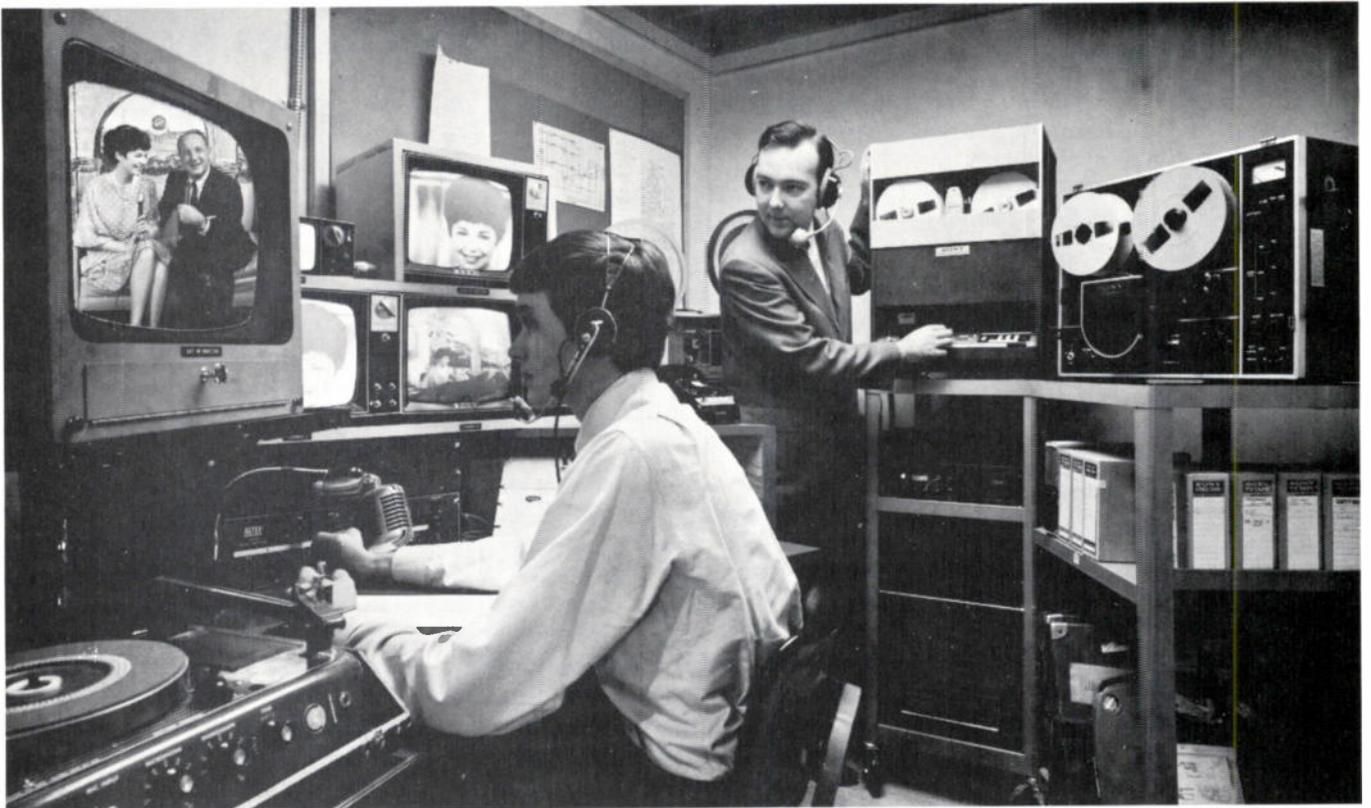


Commissioner Johnson

On the "promise" side of CATV, the article lists both programming for non-mass tastes and technology for new home communications. "A decade or two hence, CATV could prove vital to the nation's communications system," he wrote. And in passing, "Further, it might be a vigorous and useful check on the big telephone monopolies."

The Commissioner went on to say, "The startling rise of cable television threatens to undermine the economic structure of the communications industry. It has already loosened a bit of the political cement which has for so long blunted effective regulatory control of that industry."

(News continued on page 24)



CLOSES THE CIRCUIT

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Nestled in a corner of Clubhouse No. 1 at Leisure World, the all-adult community in Laguna Hills, California, is a CATV station that boasts the world's largest single-cable audience.

More than 11,000 subscribers watch Channel 6 as it beams programs of information, education and entertainment over a \$1.5 million cable during its 30 weekly broadcasting hours.

In a studio that is unique in arrangement and design, station producer/director Thom Keith, program coordinator Elizabeth Livingston and technical director Dane Keller handle all station chores. Six Sony monitors are part of the specially-designed console. All taping is done on Sony BV 120U and EV-200 Videocorders.*

"Stars" of the basic programs are residents of the community and members of the administrative staff. Lively ex-actress Hope Sansbury and Director of Community Relations and former songster Harry Babbitt are regular features on Channel 6. Programming on a variety of subjects is taped for replay and exchanged with Leisure World's sister CATV station in Walnut Creek, California.

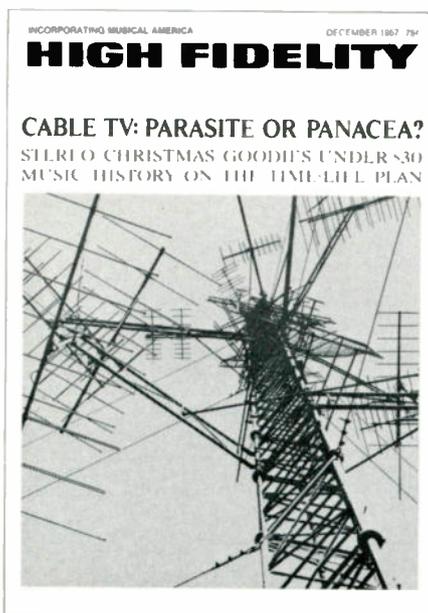
Says producer Keith, "We've designed and specified the equipment here specifically to apply to the situation. All anyone needs to become a TV mogul in a station like this are Sony Videocorders and some Sony monitors...and away you go!"

To find out how you can close the circuit on a CATV installation... and make it a profitable operation...write or call us today.

For complete details on this application, ask for APB 105.

CATV Featured in High Fidelity Magazine

The history, workings and possible future capabilities of cable television received a thorough investigation in the cover story of the December issue of *High Fidelity* magazine. The story, written by free-lance writer Robert Angus, is entitled "Cable TV: Parasite or Panacea?" Its general conclusion is that CATV is neither, but rather a growing new communications medium that has a place in today's world alongside existing media. The cover illustration, shown here, is a line cut of the High Fidelity Cable Television tower in Great Barrington, Mass. The system is a subsidiary of Billboard Publications,



Shown is the cover of the December issue of *High Fidelity* magazine, in which cable TV is described as neither "parasite nor panacea."

Inc., publisher of *High Fidelity* which has a circulation of 140,000.

The story traces cable television from its origins in Lansford, Pa., to the present-day undertaking of wiring Manhattan for CATV. It also explores cable television's copyright problems and its trials and tribulations with the FCC, drawing a sharp distinction between broadcasters and CATV operators. Local origination is also explored at some length in the article, with Angus reaching the conclusion that cable television fulfills a real need in this area by dealing with purely local events.

FCC Summary of Activities Available

"The FCC in Fiscal 1967: A Summary Of Activities," is the title of pre-annual-report brochure issued recently, highlighting CATV along with broadcast and common carrier regulation. This was the year the Commission issued CATV rules, was upheld in one district appeals court, was partially set aside in another and went to the Supreme Court with the San Diego case.

In the brochure, a section on CATV states, "Almost 5,000,000 viewers, in 2,679 communities, receive programs via CATV. The average CATV system serves 1,350 subscribers. The largest system has over 19,000 customers." Apparently these are updated figures, since the number of communities is larger than one in a fiscal 1967 survey.

The CATV Task Force has received 276 requests to bring in distant signals, 176 during fiscal 1967 and 90 that have been acted on, according to the report. Carriage and exclusivity rules

brought in 398 petitions; 156 were acted on.

Litigation of all Commission regulation entailed 99 Federal court proceedings, 30 of them pending at the beginning of the year, 69 brought during the year and 33 pending at the close of the fiscal year, including the San Diego Supreme Court appeal, which was the only FCC petition for acceptance there. The Commission was upheld in 28 of the year's appeals and reversed in 4.

A chronology lists creation of the CATV Task Force on Aug. 19, 1966; issuance of a CATV data inquiry form Sept. 30; an order to Black Mountain Telecable Inc. to cease operating systems in Dallas Borough, Dallas Township and Kingston Township, Pa., on Nov. 30; denial of reconsideration of the CATV Second Report & Order but modification of rules on Jan. 6, 1967; affirmation by the D. C. Federal Appeals Court in the jurisdictional appeal by Buckeye Cablevision on June 30.

FCC Rebuffs Southwestern Cable

Southwestern Cable Co., San Diego, California, recently met with a resounding "no" when it attempted to obtain FCC permission to expand its boundaries. The negative ruling is in effect until a final decision is reached on the effects of cable on San Diego local broadcasting. Southwestern petitioned the FCC to lift a restriction on expansion that the Commission imposed in July 1966, pointing to an initial decision in October that held that CATV expansion would not affect the market. The FCC said the initial decision, still subject to exceptions, was not "sufficient ground for modification" of the restricting order.

Southwestern said the order meant "irreparable injury and hardship." Legal costs have reached \$55,000 for a company capitalized at \$150,000, according to an affidavit by Richard A. Moore, president of Southwestern Cable, who called this "an enormous bur-

den for a company our small size." The Commission, in rebuttal, cited net earnings of "almost \$2,000" for the first quarter of 1967, compared with losses for the years 1965 and 1966. "It thus appears that Southwestern's position is improving rather than deteriorating, and that no new injury has been shown" the commissioner said (Lee Loevinger dissenting). They did offer to give "prompt consideration" of any deterioration of Southwestern's condition during the rest of the proceeding.

The restraints on expansion had been vacated last spring by the Ninth Circuit U.S. Court of Appeals in San Francisco, but this mandate was stayed, and now the FCC has taken the case to the Supreme Court in a move to test its jurisdiction.

Midwest Television Inc. (KFMB-TV), San Diego, contested the latest Southwestern petition.

(News continued on page 26)



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Five Propose to Offer Service to Boise

Five firms recently submitted bids for establishing a CATV system in Boise, Idaho. Boise, a city of almost 65,000, is considered by many as one of the outstanding out-of-the-top-100 franchises left.

Idaho Cablevision Inc., owned by broadcasting executive Jack Kent Cooke offered the city an initial fee of \$25,000 and seven and a half per cent of the firm's gross profit operating revenue.

Treasure Valley Cablevision Inc., listing James Roark and Lyle Cobbs, Boise, as incorporators, offered to pay the city five per cent of its gross profit operating revenue.

KBOI and KTVB, Boise's two commercial stations, submitted a proposal for an initial first-year fee to be paid to the city of \$7,500. The percentage of gross profit operating revenue to be paid to the city would be based on a sliding scale, according to their proposals.

GenCoE, Inc., headed by NCTA Board Chairman Jack Crosby, offered to pay the city fees under three separate plans. One plan would be a payment of \$52,500 plus a quarterly payment of three and one-half per cent of gross revenue. The other plans include a payment of \$12,500 plus a quarterly payment of five and one-fourth percent of gross revenue and \$2,500 plus a quarterly payment of four per cent of the first \$500,000 gross revenue and six per cent of gross revenue above \$500,000.

Valley Cable Television Corp., owned by John P. Wolfe, whose address was listed as Mountain Home, listed an initial fee to be paid to the city of \$25,250. The firm offered to pay to the city per centage of revenue of five per cent for the first 1,500 customers and seven and one-half per cent for those after this figure.

FCC Translator Plan Opposed

Comments filed recently in response to the FCC's proposal to liberalize translator ownership, power, and program origination rules indicate that hardly anyone approves of the plan. Included among those dissenting are broadcasters, who are supposed to benefit from the proposal. The National Association of Broadcasters and others supported some of the translator expansion but opposed program origination and what Meredith Broadcasting Co. calls "proposals which seek to convert translators into a kind of substandard regular television service."

The NCTA and Mountain States Video Inc. both put down the translator proposals as "piecemeal" action that should be held off until the FCC fits CATV into the national picture. Mountain States called it an "economic protectionist practice designed to exclude or retard on service." Jerrold Electronics Corp. asked the FCC to consider long-term implications of making translators a "competitive

weapon in broadcast-CATV relationship." For local programming, CATV has financial and technical advantages, free of "problems of frequency tolerance, bandwidth and other technical requirements germane to translator operation," Jerrold said. Triangle Publications Inc. also cited the interference problem, saying, "The television art itself is threatened."

The National TV Translator Association, called for unleashing translators and containing CATV. "The FCC through its present rules," the president, Judge Nat Allen, wrote, "is continuing the expansion of CATV and the curtailing of development of free broadcast TV." Even he conceded, though, that there ought to be curbs on translator programming: "Translators should be allowed to originate locally but only on command of the 'mother broadcast station'." If the proposals go through, members of the National TV Translator Association will be allowed to have financial support from stations.

FCC to By-Pass Review Board in San Diego Case

The FCC will by-pass its review board to weigh initial decisions by hearing examiner Chester F. Naumowicz in the San Diego distant signals case. This will speed up action but observers who regard the review board treatment of CATV as "very fair" are disappointed to miss this step. Regulations permit the FCC to by-pass the review board in cases involving "a novel or important issue of law or policy." The hearing examiner recommended that the restrictions imposed by the FCC on distant signals be lifted in San Diego so that Los Angeles signals could be imported.

Denver Telco Ready to Enter Franchise Agreement

Mountain States Telephone Co. is now ready to enter into a contract with Lawrence C. Phipps III, for use of its Denver poles to provide CATV service. Robert J. Pringle, Colorado vice president and general manager of the telephone company, said, "Phipps is farther down the path with us than any other applicant. We are ready to go ahead with Phipps as soon as he has fulfilled the financial obligations required for an operation of this type."



Pictured here is Miss Debra Dene Barnes, Miss America of 1968, taking a lesson in cable television program origination from Universal Cable Vision cameraman, Jim Stewart. They are pictured at Cypress Gardens in Winter Haven, Florida. This was Miss America's first exposure to cable TV.

Councilman Irving Hook, who has spearheaded the city council's deliberations on CATV over the past year, had this to say, "We have a number of applicants who want to provide CATV. We are thinking in terms of choosing one applicant, and it will be six to nine months before we reach a decision." Other applicants planning to furnish CATV service for Denver are: Mountain States Video Inc., Western Telecable Corp. of Pueblo, and Cosmopolitan Denver TV.

Phipps alone claims he will not need anything more than routine clearance by the FCC, since he does not intend to import distant signals, but only to offer improved reception of local signals. The other applicants are promising to deliver a number of independent stations from Southern California for which there is a questionable demand.

Reeves to Acquire Huntsville Cable Systems

J. Drayton Hastie, President of Reeves Broadcasting Corporation of New York, announced an agree-

ment to purchase Huntsville (Alabama) TV Cable and T & G Cable Co., Inc. both of which are local firms. Reeves recently acquired Television Distribution System, Inc. also of Huntsville. The three cable systems are to be redesigned and combined technically and will be the third largest CATV system in the nation with a potential of 33,000 subscribers. Engineering and construction is expected to start shortly and upon completion the system will represent a \$5,000,000 investment.

William O. Neal, President and Manager of Huntsville TV Cable and T & G Cable Co., Inc., stated that the systems will be purchased by an exchange of stock and that the purchase should be finalized in the near future. He also stated that subscribers will benefit greatly from the combination of all three systems as the new system will have 20 channel capability, weather information, AP News service, FM music and many other features. He said that a combined office will enable the staff to more efficiently serve subscribers. Hazard E.

Reeves, Chairman of the Board of Reeves Broadcasting, stated that Neal will be retained by them as a CATV consultant.

With the acquisition of the 3 Huntsville firms, Reeves' holdings increased to 15 cable systems which serve over 30,000 subscribers. Reeves also owns 2 AM radio stations, 2 FM stations, and 2 TV stations, holding a construction permit for a third. They also have studios in New York where they do film and video tape processing work for the TV networks and motion picture studios.

Fifty Reply to FCC Inquiry

Some 50 CATV operators have replied to the FCC questionnaire on problems brought on by the Commission's non-duplication rulings. More than half report that they are not providing exclusivity and that they are not being faced with non-duplication demands from stations.

A good many operators took advantage of the questionnaire and used it as an opportunity to let the

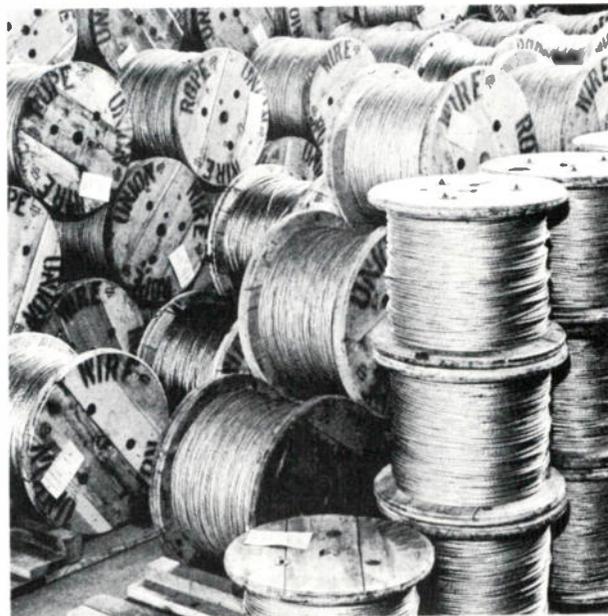
(Continued on next news page)

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Call Pruzan at 206-624-6505 when you want strand. Ask for Al Hohenthal; he's our strand specialist. He'll take your order and get it on its way, now, quote prices, or furnish any other information you may want.

Quality strand for messenger, guying, extra long spans, or special applications, in stock and ready for immediate shipment.



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FCC know how the rules are complicating business. One operator remarked about subscriber annoyance and the "burden" of switching, adding, "We believe the local TV audience would view the local stations anyhow and that the non-duplication rules are just harassment forced on us by the Washington, D. C., broadcaster lobby." A system that has been painfully affected by the rules said subscribers were "indignant" over loss of two metropolitan stations that had to be replaced because of local duplication. The system submitted a newspaper poll which showed 587 subscribers "for the old channel line-up" against 2 for the new one.

Another operator protested, "The public deserves to be able to choose from as many signals as possible . . . the matter of non-duplication should be dropped."



Miss Pennsylvania, Doris Lausch (right) and Miss Perfect TV, Kathline C. Schmidt of Jerrold Electronics Corporation, helped launch the recent subscriber promotion for the Harrisburg (Pa.) CATV system. Cable-day specials at cooperating merchants and a variety of prizes were offered in the two-week campaign. Mark Weber, manager of Perfect TV Cable Co., a Jerrold-operated system, reported enthusiastic community reception to the promotion, and successful sign-up results.

Hyde and Ford Address NAEB

In a recent message to the National Association of Educational Broadcasters in Denver, FCC Chairman Rosel Hyde said that he was encouraged with the passage of the Public Broadcasting Act in that, through the Act, a half-million

FCC Releases CATV Study Information

"The first in-depth view of CATV" is how the FCC is billing a computerized report based on CATV questionnaires collected in the fall of '66. A 97-page print-out developed by the CATV Task Force went on public file recently, following a Commission decision to issue the report.

The report shows 2,246 communities served by CATV in the U. S. as of Dec. 1, 1966. The Commission noted that there may have been more because not all systems answered the questionnaire. Breakdowns from 25 states with cable TV show Pennsylvania with the most cable communities, 421, and Connecticut with none.

CATV is profiled 11 ways:

by various geographic divisions; by size of community; by number of subscribers; by distant signals; by top 100 TV (ARB) market size, subscriber number and distant signals; by yearly growth rate; by microwave, channel capacity and additional services offered; by distant signals with respect to number of subscribers and by systems with only local signals.

The 1966 report shows that more than half the CATV communities have fewer than 5,000 people. This, the most numerous population category, includes 1,241 cable communities, followed by 382 between 5,000 and 10,000 population, 350 with 10,000-25,000, 102 with 25,000-50,000, 60 with 50,000-100,000 and 27 with 100,000 or more.

dollars will be set aside to study instructional TV-radio. The study is to include CATV as well as broadcast TV, closed circuit TV, fixed and two-way data links and audiovisual materials. Primary provisions of the Act are to give increased financial aid to ETV stations and to set up a Public Broadcasting Corporation for programming. With the first of new annual grants to stations the federal share of matching grants will go up to 75 per cent. (In the past, the grants have been on a 50-50 basis.) Chairman Hyde reviewed the growth of educational radio and TV, noting that, since federal aid to ETV started in 1963, ETV stations have grown from 79 to 149.

At an NAEB panel session on cable TV NCTA's Frederick W. Ford, reminded educators of the close mutual interests they share with cable TV. He described NCTA member services to ensure ETV cooperation and proposed formal liaison, locally and nationally, with ETV. NCTA, Ford said, is "especially sympathetic to the copyright problems faced by educational broadcasters. We are hopeful that any future copyright legislation will permit us to continue to cooperate to the fullest extent with educational broadcasters."

Jurisdiction Being Considered In Pa. Courts

Key questions of jurisdiction have been raised in a Pennsylvania court case where two taxpayers are seeking to halt construction of a cable system in York. The plaintiffs are Arnold and Marion O. Freedman, owners of property at 260 E. Philadelphia St., on which a pole was erected this last summer without their consent. The defendants are the City of York, Susquehanna Broadcasting Co. Inc., trading as Cable TV Co. of York, and Jerrold Electronics Inc.

The three judges hearing the case were at odds about jurisdiction. Judge George W. Atkins saw the issue as a very narrow one, limited to the right of the absentee owners to object to the pole on their property. Judge Robert I. Shadle raised the question of the court's jurisdiction if the FCC really controls CATV, as the plaintiff's counsel contends, or just the channels, as the defense counsel claims.

Defense counsel asked dismissal of the action on the grounds that no wrongful expenditure of tax monies or wasting of public assets has been shown to prove the ordinance unconstitutional nor any continuing trespassing, since the pole is in the city's right-of-way.

Zanesville Rejects 2nd Franchise; Better TV Starts Construction

Zanesville, Ohio voters recently rejected a second cable ordinance by a margin of nearly 2-1. The vote was 2,724 for, 5,372 against. The ordinance would have permitted Zanesville-Muskegon Cable TV to build a cable system under a 15-year arrangement. The decision leaves the field open to Better TV of Zanesville, subsidiary of Vikoa, Inc. of Hoboken, N. J. which was granted a franchise by city council early last year. Theodore Baum, executive vice president of Vikoa, says the company plans to complete construction of the new system early in 1968. He said, "The cable television system will consist of 130 miles of plant serving a potential market of 13,000."

New CATV Firm Established

A new firm, Programming Corporation of America, has been formed to provide CATV operators with programming material, equipment and services which can be used as an aid to local origination. Initially, the programming will consist of more than 800 videotaped feature length motion pictures, of the type and quality shown on broadcast TV. Scheduling of the films is such that the operator will be able to show one new movie every day. Arrangements whereby a Sony Color 120-U VTR can be leased or purchased will be made. Information on the "how to" of local origination will also be made available along with data about national advertising as a revenue source.

President of the new firm is John S. Brunson. He is to be assisted by executive vice-president George W. Gearner and vice-president Charles W. Evans. PCA will headquarter in Houston, Texas.

FCC Says Predicted Contour Is Criterion for Carriage

The FCC is sticking to its "predicted contour" criterion for station carriage in an affirming order that followed a petition for clarification by the CATV Task Force in the Bluefield (W. Va.) Cable Corp. case. In its original

show-cause order on carrying WCYB-TV, Bristol, Va., the Commission said the critical issue is not whether a Grade B signal is received but whether the community is within the Grade B contour. The CATV Task Force said the language departed from policy and a station that does not serve a community over the air is not entitled to carriage. The FCC replied that the rule is clear on predicted contours but any party may make a showing as to "actual contour"

Gitlin to Make Film on CATV

Irving Gitlin Productions Inc., New York, has the National Cable Television Association assignment to do a new color documentary on the industry, a project the board appropriated up to \$50,000 to finance. The film will premiere on TV and before opinion-maker groups during National Cable TV Week, Feb. 4-10. Title and length have not been specified.

(News continued on next page)



Protect Your Head-End Equipment the Reliable Way

Designed expressly to house CATV and microwave electronic equipment, Fort Worth **Mobilt Head-End Buildings** withstand any climate or location problem . . . house electronic equipment according to the most rigid standards. **Mobilts** are available in popular sizes or custom-built . . . yet, surprisingly inexpensive.

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the factory. Unlike conventional building, equipment can be delivered with it rather than installed on location.

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Mobilts are designed expressly to house electronic equipment. Result? Problems like inadequate tightness, poor ventilation and improper sealing of doors are non-existent.

And . . . an absolute minimum of maintenance is required.

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NCTA Okays PR, Financial Projects

NCTA's Executive Committee, recently meeting in Washington, instructed the association's staff to develop plans for three financial seminars to be held early this year, probably in February and March. Possible sites include New York, Chicago and San Francisco. The seminars will be the first sponsored by NCTA since January, 1966.

Blonder-Tongue and Outlet Form New Firm

Outlet Company of Providence, R. I., and Blonder-Tongue Laboratories have announced that the two firms will jointly form a new concern, to be called Com-Cable TV, Inc. With Blonder-Tongue providing management, equipment and technical know-how, and Outlet providing financial backing, the new firm will begin operations with cable systems it has acquired in Sonora, Guerneville and Cloverdale, Calif.

Court Affirms Stations Must Show Cause

The U.S. Court of Appeals for the District of Columbia has served new notice on stations that they need to make a case when fighting CATV. The latest such ruling states that the FCC is to waive a hearing and allow Santa Fe Cablevision to bring outside signals into the Grade A contour area of KOB-TV, Albuquerque.

Hubbard Broadcasting Inc., the station licensee, said the Commission violated its rules requiring a hearing when it gave Santa Fe Cablevision a waiver last Feb. 17. Answering the Hubbard petition for review, the court said the case was similar to the New York case where a waiver was granted to cable companies and microwave operators in the Auburn-Oswego area with Channel 9, Syracuse, protesting. "We do not find the degree of difference sufficient to justify a different result," the appeals court said. In that case the court said the appellant failed to demonstrate the need for a hearing.

Again, as before, the court asked the FCC also to require "greater

factual specificity in petitions for waiver and in the proof, and its decisions should more clearly articulate the public interest considerations on which it determines to waive" rules.

CATV Considered No. 1 Problem

In the Senate Judiciary subcommittee writing new copyright legislation, cable TV is considered number one on a long list of problems, none of which is simple. Negotiating cable and copyright interests, now quietly bargaining, are expected to have legislative suggestions at some time in the near future. After Sen. John L. McClellan (D-Ark.), chairman of the Subcommittee on Patents, Trademarks & Copyrights, introduced the stopgap extension on expiring copyrights (the bill signed earlier this winter), he assured the House subcommittee that his group would seek action on legislation early next session.

New York City Franchises Are Extended

The New York City Board of Estimates recently renewed expiring CATV franchises, with no significant changes. Two-year renewal went to TelePrompter Corporation and Manhattan Cable TV for Lower and Upper Manhattan. Theodore Granik and Westinghouse also got their Riverdale (Bronx) franchise extended.

FCC Proposes to Limit Program Origination

The FCC is proposing to prevent business-radio-service stations from carrying locally originated programming for CATV systems. Explaining the proposed business radio service prohibition on local originations for cable, the Commission said, "With the increasing trend toward program origination by CATV systems, there is a strong likelihood that CATV systems, in ever-growing numbers, will desire radio facilities to transmit such programs" to the cable head-ends. "If we were to make such grants in the 12,200 MC band," the FCC went on, "it would be in derogation of the

action taken in the First Report & Order to conserve that band for non-CATV applicants."

The proposed ruling is not without exceptions, however. Microwave point-to-point radio stations, "grandfathered" in the business radio service until 1971 to relay signals to CATV, would not be affected by the proposal.

City and CATV Concern Battle Telco Over Pole Usage

Whether a telephone company can legally prevent a cable television firm from using telephone poles in a city it serves will be decided as a result of several suits in progress in Bowling Green, Ohio. In one suit Jerrold Electronics Co., which is working for Wood Television Inc., Bowling Green CATV firm, has been sued by Northern Ohio Telephone Co. Early in September, Northern sought a declaratory judgment on a 1965 city ordinance which authorized the city to enter into joint agreement giving Wood-TV the right to string TV cables on city telephone poles. The judgment was sought to determine whether this authorization allows use of Northern Ohio Telephone Co. poles or only city telephone poles. If Wood-TV used only city poles, the network could not cover the entire city, since the municipality uses telco poles, as well as its own, to complete its electric power network.

New CATV Firm Begun

Prospectuses were mailed out recently from HTV Systems, Inc., a company formed by several former Stromberg Carlson executives. The new manufacturer is offering 350,000 shares of stock at \$2 per share. According to the prospectus, the company plans to manufacture CATV equipment, with amplifiers to be produced and sold in the first phase of operations, and specialized CATV test equipment in the second phase. The firm expects to complete development and produce a prototype series of the amplifiers within six months from receipts of the stock offering. General offices are at 210 Boxart St. in Rochester, N. Y. (nvc)

New from TUC

A COMPLETE LOCAL ORIGINATION STUDIO FOR LESS THAN \$10,000

consisting of:

2 — MODEL VF1500 VIEWFINDER CAMERAS including built-in 4-1 Zoom Lenses with Operator controls remoted to rear of camera, 2 way intercom, switchable tally lights, 600 line resolution, bright sharp 5 inch viewfinder, 7735A vidicon
PRICE EACH \$1995.00

2 — STUDIO PEDESTALS with counter-balanced pan/tilt heads
PRICE EACH \$240.00

or

2 — TRIPODS WITH DOLLIES with counterbalanced pan/tilt heads and spring loaded "floating" elevator
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RACK MOUNTED 7 inch Transistorized line monitor
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MONITOR ASSEMBLY — two five inch transistorized Camera Monitors on 19 inch rack panel
PRICE COMPLETE \$675.00

WAVEFORM MONITOR (not shown)
PRICE \$550.00

DUO CAMERA CONTROLS — including Pedestal, Gain, Beam, Target and Focus as well as intercom jack and Master Power Switch
(Price included in camera price)

EIA RS170 SYNC GENERATOR — drives entire system with broadcast quality sync
PRICE \$975.00

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Why wait to add the sales impact of multiple ghost-free, color-picture-perfect channels to your system?

Or to open a new franchise with 25 channel potential?

International Telemeter Corp.'s engineering personnel has the knowledge and experience necessary for you to realize this goal. Now!

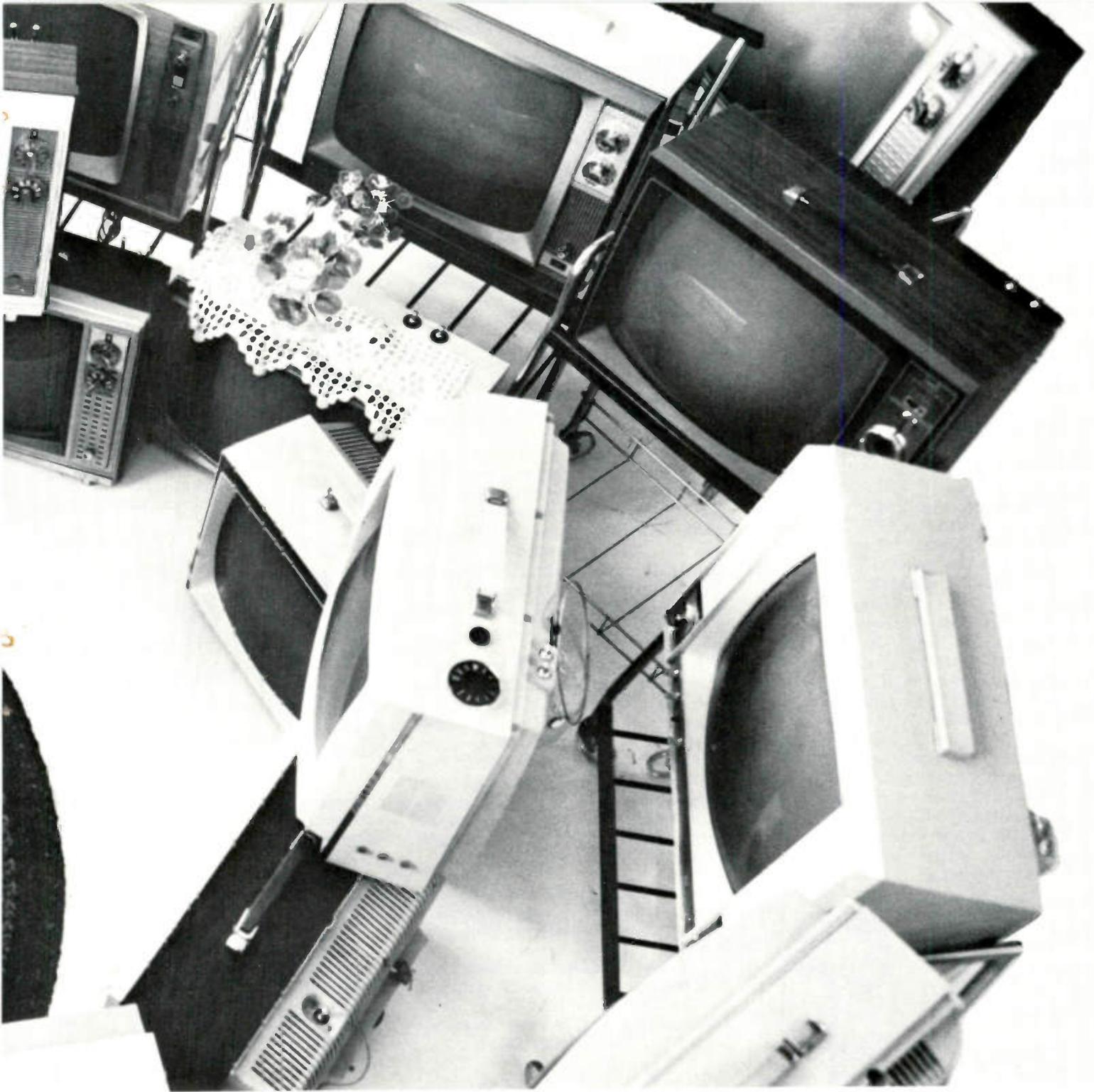
We also have the equipment.

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expander) you can add the potential of 13 new interference-free channels to your present 12 channel system.

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If the idea of 13 new channels appeals to you, but you're having reception problems on your existing 12 channels, check out ITC GAMUT 25.



the profit potential of multi-channel TV?

It gives you up to 13 new, crystal-clear channels and instantly eliminates the ghosts from your existing channels.

And if you're not ready for 13 new channels, but you'd simply like to have your current 12 operating without direct signal interference, ghosts, and flip-slop, then the heavy shielded ITC FOCUS 12 V to V converter is for you.

All three units perform double duty as fully transistorized remote tuners. All three are easy

to buy, easy to sell, and easy to install.

All three are business and profit builders.

And all three are ready now.

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FOCUS

... On People

Systems

Joseph C. Groth, Jr. has been appointed assistant to the vice-president and assistant general manager of the CATV division of the TelePrompTer Corporation.

W. A. Hargan has been elected president of Comac Signal Corp. of Pinole, California.

Announcement was made recently by the CBS Television Services Division of two appointments to the newly formed CBS subsidiary. Appointed to the position of vice-president, CATV operations, was Harvey Struthers. Norman E. Walt, Jr. was made vice-president, CATV development. Struthers, who will manage the company's CATV interests, has been associated with CBS for 27 years and most recently was vice-president, stations services. Walt, who in his new post will have the responsibility for seeking out and developing CATV equity positions for CBS in the United States, was formerly CBS vice-president, special projects.



Mr. Struthers



Mr. Walt

Gail Park, former manager of Warren TV Cable, Warren, Pa., has been appointed new general manager of Coaxial TV Cable and Erie TV Cable Inc., Cambridge Springs, Pa. Derek White succeeds him as manager of Warren TV Cable.

Bill J. Ball, editor of the Neosho Daily News, has been appointed news director of KBTN Radio and Cable Television, Inc. KBTN Radio will enlarge its news coverage of Newton and McDonald Counties in Southwest Missouri and KBTN

Cable Television will soon offer live coverage of area news with on-camera programs.

Charles J. Younger is the new general manager for Quincy Cablevision, Inc. Younger will be responsible for the Quincy and Keokuk operations of the company in Illinois and Iowa.

Albert J. Eicholzer, technical advisor of Jamestown Cablevision, has been appointed manager of New York-Penn Microwave, Inc. Eicholzer will also continue in his responsibilities as chief engineer of New Channels, Inc., Eastern Microwave and WSYR-TV and Radio in Syracuse.

Ralph S. Hatcher will be general manager of Communicable, Inc. and Five Beaches Cable TV, Inc. Ernest Gilmore has been named assistant manager of the systems and will be in charge of subscriber services. James Brooks will be chief engineer and Lee Robinson, chief technician. The two systems serve Cocoa Beach and Canaveral City, Fla.

Alton Gross is the new manager of Intercity TV Corp., Stratford, Texas. He replaces Roger Wootton.

Johnny Mankin has been appointed to the position of manager of the Leesville (La.) Cable Television Co. Mankin was formerly with Ft. Worth Tower Co.

Bruce Wruck of Alexandria, Minn., has been appointed area manager of Minnesota All-Channel Cablevision, Inc.

Leo Levisay has been appointed system manager of TelePrompTer Cable Television of Greenwood, S.C.

Raymond E. Joslin has been named general manager of the Findlay, Ohio CATV system. The system is a subsidiary of Ohio Cablevision Inc.

Denis J. Sette has joined Total Telecable Inc. as chief technician

of Anacortes and Bellingham, Washington, according to William R. Sinkunas, northern division manager.

Robert T. Williams has been employed by the Oklahoma Cable Systems, Inc. in Weatherford, Okla., as manager and chief engineer.

Suppliers

James W. Emmick has been appointed manager, CATV Systems for Anaconda Astrodata Co. He will take over direction of CATV system engineering and construction for the firm. Emmick was most recently a senior engineer at Ameco, Inc. of Phoenix. His background also includes experience in the field of microwave communications and managerial duties in the European electronics industry.



Mr. Emmick



Mr. Siegel

Kenneth P. Siegel has been promoted to the post of divisional sales manager for Craftsman Electronic Products Inc. Siegel, previously a regional manager, will now direct marketing of all CATV products through the company's regional sales managers.

James E. Hayes has been appointed manager of the AstroStructures division for RF Systems, Inc. Mr. Hayes was formerly sales manager for RF Systems in Cohasset, Mass.

Ray M. Unrath has been appointed manager, O.E.M. and distributor sales for TeleMation, Inc., Salt Lake City. In this position he will be responsible for sale of the company's educational and broadcast television products. Unrath previously held the position of marketing manager with the same company.

The appointment of Ernest C. Sisson as national field sales manager of Blonder-Tongue Laboratories, Inc., was announced recently. In his new position, Sisson will be in charge of sales and market

development for Blonder-Tongue products. He will also supervise the company's sales representatives.

John W. Holland has been appointed vice-president of engineering for Amphenol Corp.'s Cable Division. He previously was engineering manager for the Chicago firm.

Francis Taillon has been named sales engineer for the Georgia and Florida area by the CATV Systems Divisions of Jerrold Electronics Corp. Prior to joining Jerrold, Taillon had managed his own electronics business in Westerly, R.I.

Lamar Vosburg has joined Ameco, Inc. as sales representative in the seven-state area of Iowa, Nebraska, the Dakotas, Missouri, Oklahoma, and Colorado. Vosburg has five years experience in the business with Carlsbad (N. Mex.) Cable TV.

Arthur R. Strassenberg has been appointed sales product manager and **Michael H. Wetterer**, sales product specialist, by Amphenol Corp.'s Cable Division. Strassenberg will be responsible for all

products manufactured in the Chicago headquarters plant and the Danville, Ky., facility. Wetterer will direct his sales efforts to the CATV industry.

Arlo Woolery recently resigned his position as president of American Cable Television, Inc., a firm owned by Ameco president Bruce Merrill. Woolery left the position to become the head of Arizona state's property valuation agency.

Professional

Bob Morrison of Great Falls, Montana was elected president of the Montana Cable Television Assn., at the group's annual convention recently. **Steve Schoen** of Helena was named vice-president, and **McLean Clark** of Big Timber was elected secretary-treasurer.

Phillip Baum has recently joined the staff of CATV Weekly magazine as account executive. Baum is a graduate of Oklahoma City University.

Donald E. Witheridge has been appointed editor of publications for the NCTA, President Frederick

W. Ford announced recently. Witheridge joins NCTA after four years as a staff assistant in the public relations department of the Washington Gas Light Co. In his new position, he will edit NCTA's weekly newsletter to members and assist the Director of Public Relations in other editorial activities.



Mr. Baum



Mr. Witheridge

The appointment of **Dr. Harold F. Niven** as vice-president for planning and development of the NAB was announced recently. Niven had been serving as assistant to Mr. Wasilewski, president of the NAB.

W. Marion Palmer has been appointed to the board of directors of the Tennessee Cable Television Association. Palmer is president of two CATV firms. TVC

How good are your contacts?



Everybody knows that dirty contacts on relays, connectors and module board edges cause erratic operation. But what to do about it? Spray them clean—in seconds—with MS-230 Contact Re-Nu. That's what a major broadcasting network prescribes for its member stations. Contact Re-Nu restores full electrical continuity instantly on all types of contacts.

There's probably a can of MS-200 Magnetic Tape Head Cleaner in your control room now. Be sure MS-230 Contact Re-Nu is there too. Write on company letterhead for free 16-oz. sample.



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Increased system participation
and new, colorful materials from NCTA
promise an effective promotion on
both local and national levels

Cable TV Week; Good for Your Image

National Cable TV Week, which the industry will observe for the second time next Feb. 4-10, is proving a doubly effective instrument — both from the standpoint of polishing the CATV image nationally and from that of adding new subscribers in participating systems.

Sandford Randolph, the Clarksburg, West Virginia, CATV veteran who is serving a repeat term as

Cable TV Week chairman, considers the event “the best thing the industry has undertaken in the way of public relations and promotion in the more than 15 years I’ve been around.” And though he says the results of last winter’s observance “were a happy surprise for us all,” he forecasts much greater success for the week just ahead.

“For one thing,” he explains, “there just wasn’t much time for

planning the 1967 week, at either the national or the local system level. Also, a lot of operators were skeptical about the whole idea. They hung back, and they wound up wishing they’d gotten into the swim.” Randolph says one of the best things about Cable TV Week is its flexibility. The National Cable Television Association plans national projects — such as a Wash-

NCTA president Fred Ford (left) and Indiana system manager Frank Delia (right) are shown with Senator Birch Bayh proclaiming the merits of National Cable TV Week. Senator Bayh addressed the Mid-America CATV Association last year, and maintains an interest in the progress of the industry.



ington VIP premiere of its brand new cable TV film — and it makes available advertising mats, promotional materials, news releases and other aids.

But what each operator does in his own community is up to him, and a wide-ranging ingenuity is reflected in some of the activities that were reported after the 1967 Cable TV Week. Randolph cited a sampling of "success stories" for TVC:

In Parkersburg, West Virginia, a mature system with approximately 10,000 subscribers, operator

Charlie Erickson ran a cable TV newspaper supplement, utilizing NCTA materials, and offering a reduced-rate connection special. To his surprise, he added 700 subscribers, and when, a month later, he repeated the Cable TV Week special "by popular request", another 390 customers signed up.

A "Miss Cable TV" contest was conducted at Paris, Illinois, in a series of stages that, in effect, stretched Cable TV Week into a month-long event and involved the entire community in several ways. System manager Mike Carter



NCTA's National Cable TV Week committee is chaired by veteran CATV'er Sandford Randolph.

began by offering prizes for the best letters nominating Miss Cable TV candidates, and then allowed the public to "elect" a winner. The high school Key Club was permitted to sell tickets for a dance, at which the successful candidate was crowned, and on January 30, the first day of Cable TV Week, a local TV station carried an interview with Miss Cable TV on a newscast. The system also ran an eight-page newspaper supplement the same day.

Cable TV Week proved politically useful, too. The Arizona Community Television Association seized the opportunity to present small desktop American flags and CATV information material to all members of the State Legislature. In Vermont, the event coincided with consideration of public service legislation, and Cable TV Week publicity helped to inform the citizens of the state about the nature of CATV service.

A lasting benefit discovered by other operators was improved rela-

TOWN NAME
Joins 2,700 other American Communities in
CELEBRATING
NATIONAL CABLE TV WEEK
Feb. 4-10

Join the over
10 Million Americans
 who now enjoy
the MAGIC of CABLE TV

- CLEARER PICTURES
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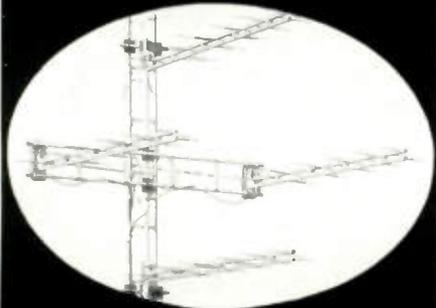
The following stores join in the National Cable TV Week Celebration with these outstanding Values

NCTA has prepared a variety of newspaper mats, such as the one shown above, which are available to all system operators.



NCTA materials include "Certificates of Appreciation" for local presentations.

achieve color-perfect pictures



with the new
LINDSAY PERIODIC YAGIS
and pure
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Install Lindsay Specialty Products at your head-end and put a stop to interference problems. Lindsay CATV products are a must for every system. Rugged, reliable, and attractively priced, they are all custom engineered to assure maximum performance. Benefit by delivering color-perfect pictures to your subscribers with Lindsay Specialty Products. Write today for complete technical data.

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tionships with local appliance dealers, department stores and others who can tie increases in the number of sets they sell directly to CATV service. TelePrompter Corporation, one of the largest multiple system operators, won substantial

channels, truer color. NCTA public relations and promotion kits reached operators in early December, and Sanford Randolph is keeping in touch with systems' progress through a network of volunteer coordinators.

MONDAY EVENING, JANUARY 30, 1967

PARIS, ILLINOIS, DAILY BELLEVILLE

Cardinal Telecable Celebrates National Cable TV Week

Paris Cable TV Is Partner In Growing Field

The three television channels of Cardinal Telecable Network in Paris, which come from local Cable TV, are now being added to the growing field of cable television in the United States.

There are just over 100 cable television systems in the United States, but the Paris Cable TV system is one of the largest in the world. It has 100,000 subscribers and is the largest in the world.

The other two channels of the Paris Cable TV system are also being added to the growing field of cable television in the United States.

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Martha Swackhamer Wins Title



Miss Martha Swackhamer, 23, of St. Louis, has won the title of Miss Cable TV for the year 1966. She was crowned at a contest held in St. Louis.

Carter Tells Of Paris Role In Cable Week

E. M. Carter, manager of Cardinal Telecable Corp., told of his role in the success of Cable TV Week in Paris, Illinois.

Carter said that he was instrumental in the success of Cable TV Week in Paris, Illinois.

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U. S., Russia Sign Treaty On Space Peace

The United States and the Soviet Union have signed a treaty to ensure peace in outer space.

The treaty, known as the Outer Space Treaty, was signed in Moscow, U.S.S.R.

The treaty prohibits the use of outer space for military purposes.

The treaty also prohibits the placement of nuclear weapons in outer space.

The treaty is a landmark agreement in the history of international law.

The treaty is a landmark agreement in the history of international law.

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The treaty is a landmark agreement in the history of international law.

Israel Says Road Mined By Syria After Peace Talks

Israel says a road leading to the Golan Heights has been mined by Syria.

The road was mined after peace talks between Israel and Syria.

The road was mined after peace talks between Israel and Syria.

The road was mined after peace talks between Israel and Syria.

The road was mined after peace talks between Israel and Syria.

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The road was mined after peace talks between Israel and Syria.

Now at PARKWAY

Magnavox
ONCE-A-YEAR FACTORY-AUTHORIZED
ANNUAL SALE

SAVE UP TO \$100 on many magnificent models!

Enjoy the advanced **COLOR TV** that brings you brilliant, true color - **AUTOMATICALLY!**

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COME IN - See and hear our wide selection of magnificent Magnavox TV, open from early 1967

STORE HOURS: 12 NOON TIL 8 P.M.

Parkway
FURNITURE COMPANY
IF WE SELL IT - WE WILL SERVICE IT

Cardinal Telecable Corp. in Paris, Illinois took advantage of Cable TV Week publicity last year by holding a Miss Cable TV contest, as well as by using heavy newspaper schedules. The newspaper coverage shown above indicates system manager E. M. Carter's success in this promotion.

dealer support throughout its systems by picking up 25 percent of the dealer's cost for special Cable TV Week advertising and offering incentives for cable connections sold by the stores and their sales people. TelePrompter's national marketing director, S. M. Freeman, reported that the promotion "was cited by many system managers as being the most effective involvement they ever had with dealers."

The theme of the 1968 Cable TV Week will stress the "magic" of cable TV - clearer pictures, more

"The important thing is that Cable TV Week definitely is a two-way street," Randolph says. "It generates publicity and a favorable image for our industry at the national level while serving, at the same time, as an excellent promotional and community relations event for each system. The fact that it is observed nationally undoubtedly gives each local promotion added impact; but we need the cumulative effect from every community where Cable TV Week is celebrated."

Utility offers you a wide variety of proven CATV tower designs — more than a dozen. But the tower needs of every CATV system are unique. That's where Utility can help you most. Every Utility Tower is individually engineered (and standard designs altered if necessary) to fit your exact requirements. Every tower is fabricated and erected by experts who **know** CATV. The finest materials and professional skills guarantee top performance.

Every Utility Tower is Custom Engineered For You

Result: Nine out of ten customers select Utility repeatedly for all future tower needs. Put this custom-built quality to work in your system . . . call us today.



Utility

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WELCOME

TO THE WONDERFUL-COLORFUL-
WORLD OF CABLE TV

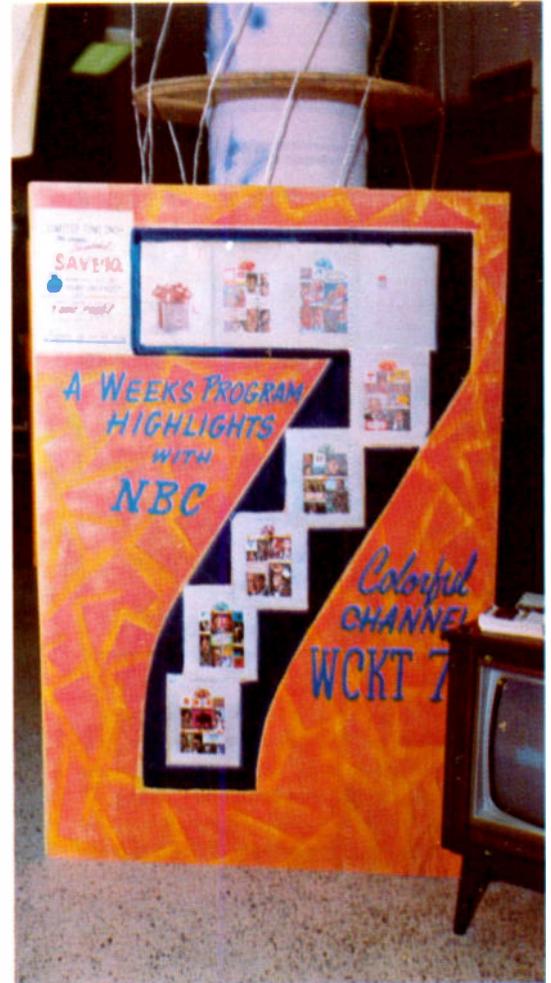


System construction in the towns of Stuart, Jensen Beach, and Rio, Florida, got under way in March, 1967. By October, the 55-mile plant was completed, passing about 3,600 homes in those three communities (about one-third of the population are winter residents, in town only from November through April). The new

CATV firm, Martin County Cable Company, Inc., is situated in a three-channel market, where the local stations are all cherry-pickers; two VHF's and one UHF. The system brings in five Miami signals, three network, one educational, and one independent. With the three locals, and a time/weather service, the cable



At left — the entrance and central display at Martin County Cable's grand opening in Stuart, Fla. Above — another of the colorful, program oriented displays used by the firm. At right — programming highlights on one of the new "cable channels". (Note decoration in background made by stacking empty cable reels.)



SUCCESSFUL PRE-SELLING IS THE KEY TO...

Starting Up With High Saturation

system has a nine-channel offering for potential subscribers.

During the first five months of plant installation, the system promotion efforts consisted of weekly progress reports (with photos) to local newspapers, and a concerted effort to foster good relations with

every contact made in the communities to be served. Pre-selling began in earnest early in August. A schedule of three one-minute radio spots with a jingle format, was begun on a daily basis. In addition, a series of one-half page ads was scheduled for bi-weekly insertion in the local newspapers. And during the first week of



**HAUL
LONG
OR
HAUL
SHORT**

Two ways to get there

Short haul or long haul? Whichever way you go, you'll find one of Collins' microwave systems the best way to relay television programming.

Low differential gain, low phase distortion and excellent linearity of Collins' equipment assure you that the sharpness, clarity, definition and color hues will be faithfully maintained for transmissions sent over hundreds or thousands of miles.

Collins 5-watt i-f heterodyne microwave systems provide the capability for best long haul color television performance.

Collins 1-watt remodulating equipments offer economy for short to medium haul routes.

Both systems are available in either 6-gc or 11-gc frequency bands, and are completely transistorized—except for TWT's or transmit klystrons. Both have new advanced packaging techniques for ease of maintenance.

For technical information, call, wire or write Collins Radio Company, Microwave Marketing, Dallas, Texas, Area Code 214, AD 5-9511.



At right — color TV set prize drawing at Martin County Cable's grand opening: System Manager John Thomas and Mrs. Decker, company secretary, assist movie star Diana Lynn draw the winning name.

Below — photos from the cover of CATV Weekly illustrate "from source to subscriber" theme on one of the firm's displays.



cation card, and postage-paid return envelope, as in the earlier promotion package.

With the system's grand opening set for October 6 and 7, an eight-page newspaper supplement was published on October 5. The supplement showed careful planning and good layout techniques, utilizing several large photos on the first page, as well as feature stories on the grand opening, the background of the cable system, and the many benefits of cable television to the community. Major ads were placed in the supplement by the system's suppliers, including Jerrold Electronics, Times Wire and Cable, and Craftsman Electronic Products.

The two-day Martin County grand opening itself attracted over 1,700 local residents. Some of the displays used in the celebration are illustrated in the accompanying pictures — clearly showing the extensive and imaginative planning which went into this open house. When the results of the pre-sales campaign were tabulated a week after the grand opening, the system had achieved close to one-third saturation, with

all subscribers paying the \$15.00 installation fee!

The subscriber promotion campaign in Martin County did not end with the grand opening event, of course. Supplemental sales programs included distribution of a specially prepared brochure to all local TV dealers. In addition to explaining the advantages of CATV to dealer service firms, this folder contained copies of congratulatory letters previously received from some of the dealers. In addition, a door-to-door sales campaign utilizing a colorful flip-chart is planned to promote additional subscribers. Telephone solicitations are also planned to sell the more difficult customers, as the system's saturation increases. Other continuing promotional activities include regular appearances at fraternal and service clubs, not forgetting those local ladies' organizations. City and county officials are also being kept informed of the system's progress — in the words of system manager John Thomas, "They granted us the franchise, so we intend to make them experts at least on our progress." A continuing program of press releases and special reports to the telecasters carried on the system round out the continuing promotional effort in Martin County.

The sales pieces and promotions as well as the colorful displays used at the grand opening were all designed by Martin County General Manager, John Thomas, using a variety of available materials as well as many ideas created for his system's specific needs. The use of a "Future Construction Map" display, for example, resulted in over 300 inquiries from residents living just outside the cable area — providing system management with a valuable guide as to potential system expansion.

John sums up the pre-sales success in Martin County this way, "We sold the sizzle, not the steak. We sold the entertainment value of greater choice . . . with the theme of color programming featured throughout the campaign. Our object was to pre-sell as many subscribers as we could reasonably make drops for, and we are very happy with the results."

In a three-station market, achieving one-third saturation from pre-sales and grand opening activities are results which would please even the most optimistic system operator.

TVC

What is this lift called 'S'?

Unbreakable rotation drive system employs patented rubber-to-steel friction design. Never requires adjustment — virtually impervious to wear.

Separate engine generator (standard equipment) delivers safe, reliable electric power for boom operation and for power tools.

Single torsion bar of forged alloy steel resists side-loading pressures by transferring boom loads to the vehicle axle.

Aerial basket rests beside cab in travel position. At job site, operator selects tools from storage area and steps directly into basket from van interior. No need to enter the street. Dual safety brake-lock systems secure vehicle while driver/operator mans the basket.

Three direction-oriented toggle switches control boom movements. Optional single omnidirectional control initiates boom travel in any direction or combination of directions in response to light hand pressure.

Self-leveling aerial basket workshop provides full-depth entrance door for easy access, recessed door lock and safety chain, weather-proof grounded electrical outlet for power tools. Load rating, 300 lbs.

Main boom and tubular extension boom construction assures maximum strength-to-weight ratio. Inner boom telescopes on sealed ball bearings. Working heights to 36 feet available, horizontal reaches to 24 feet (to outer edge of basket).

Boom overhang eliminated! Heel rotates fully within the van framework.

Compact "Step-Van" houses revolutionary new "stress-cone" boom support structure and drive systems. Unitized construction of extension, rotation, and elevation drive assemblies facilitates replacement and repair. Roomy van interior provides ample storage space.



These are the high points of "S," TELSTA's revolutionary Tel-E-Van — a high-production, one-man aerial workshop on wheels. Available now at prices comparable to powered-ladder trucks and small hydraulic lifts. Write today for complete information.

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TELSTA CORPORATION
A DIVISION OF GENERAL CABLE CORPORATION

Cascade Electronics Ltd.

Cascade Electronics began operations in October, 1965, with development of a high-quality line extender as the first order of business. Designers of that unit and other early Cascade products included industry veterans who knew the cable business from top to bottom. This investment in



In Cascade's Systems Engineering Department, a designer prepares a system layout. Drafting of strand maps is done by a group of young ladies well skilled in their task.

CATV design experience left little doubt that the firm's founders planned a serious and immediate entry into the manufacture of distribution equipment. First shipments of the line extender were made in February, 1966 — followed five months later by initial shipments of Cascade trunk amplifiers. By the end of that year, the young Canadian firm had shipped nearly \$1 million worth of CATV components.

Some Engineering "Firsts"

This "instant" sales volume can be attributed to several factors, one of which is the solid-state modular design which Cascade's engineers came up with. A common housing with a common intercon-

necting circuit board was developed for use in all trunk, bridger, termination and combination amplifier locations. This represented a "first" in the industry at that time. And Cascade's engineers recall spending many 18-hour days perfecting an interconnecting board which would function universally with all the alternate modules needed for trunk low- and high-gain bridging, trunk termination, and combination amplifiers.

Another feature which Cascade introduced in their amplifier line, and which remains unique to their gear, is the thermistor-actuated Temperature Level Control. This technique uses thermistor probes at every trunk station to compensate for variation in cable attenuation due to temperature change — eliminating the use of conventional AGC in Cascade trunk systems. Both the Temperature



After all components have been attached to the circuit boards, they receive a preliminary inspection for physical construction (shown above) then go through electronic tests, before reaching the next stage of amplifier assembly.

Level Control technique and the use of a common housing and interconnecting board are still basic to Cascade's amplifier designs, and are found in their newest series, called "Phase Two" amplifiers.

Touring the Assembly Line

As with most modern production facilities, Cascade's manufacturing procedure begins and ends with quality control. First stop for components arriving at Cascade is a statistical sampling (to acceptance quality level) by quality control personnel under Hugh Mitchell.

From there, components are moved to either the machine shop (in the case of housings and hardware); to the printed circuit production area; or to the assembly line for installation on the circuit boards. All of these areas are under the management of Sydney Gomm, a brisk Englishman with long years of production management and printed circuit experience to his credit.

Glass-epoxy circuit boards are produced in Cascade's own photo-etch laboratory. Etching is accomplished with sophisticated automatic equipment — present circuit board production capacity on Cascade's equipment is about 18,000 boards of various types per month. After trimming, the boards are drilled for attachment of components.

On the assembly line proper, components are positioned on the boards by groups of workers under constant supervision (one supervisor for each nine assemblers). With all components in place, the boards pass through

talk about one stop shopping!

From Program Origination through the end passive device (matching transformers) Gesco can supply your every need in CATV. In addition to the products of the General Electric Company, we also market in depth the following complementary product offerings:

KAISER CATV, TIMES WIRE & CABLE, TELEMA-TION, INC. (all products), CRAFTSMAN ELECTRONICS, PREFORMED, BLACKBURN, JOSLYN, OLIVER, PORCELAIN PRODUCTS, ROHN, COPPERWELD, ADVANCE INDUSTRIES, VIKOA, GENERAL MACHINE PRODUCTS,—plus many other manufacturers of quality equipment.

Products coupled with integrity, experience, and competitive pricing from the completely integrated Gesco package.

For Program Origination be sure to see a demonstration of the new G. E. Professional Video Tape Recorder Model 2-30.

Gesco sells and stocks CATV components, for further information write to:

**GENERAL  ELECTRIC
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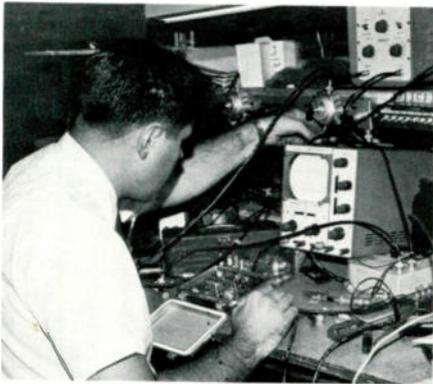
A DIVISION OF GENERAL ELECTRIC COMPANY

CATV SALES OPERATION, 401 E. HUNTING PARK AVENUE, PHILADELPHIA, PENNA. 19124



a wave-soldering process and ultrasonic cleaning. Then comes another physical inspection point before each board is checked for electronic performance in the Test and Alignment Department.

After testing, the boards are moved back to the assembly area for installation into the amplifier



Joe Zarowny, who heads test and alignment operations, is shown aligning a lowband line extender.

housings . . . which are, in turn, given the final production touches before final tests and alignment as completed units. At this point, final level settings are made — and quality control personnel are very much in evidence as the skilled test and alignment technicians prepare the amplifiers and other units for movement to final inspection and shipping.

Nationwide Marketing

Sales manager for Cascade is R. Pat Brown, who directs the firm's seven salesmen covering the U.S., as well as Canadian sales. His staff is backed up by warehouse operations in Harrisburg, Pennsylvania, Santa Rosa, California, and Montreal, Quebec, as well as in Vancouver, B.C. Dick Yearick directs Cascade's sales efforts in the eastern U.S., working out of Harrisburg, while Phil Colone works out of Oneonta, New York, and Mason Hamilton headquarters in Decatur, Alabama. In the western states, Jon Westfield heads up sales operations out of Broomfield, Colorado, with Joe Derocher headquartering in Tacoma, Washington; Tom Goodall in Rohnert Park, California; and Steve Richey in Orange, California. Cascade's active promotional efforts are under the direction of Donald W. Steele.

A major part of Cascade's customer service program is devoted to the efforts of the Systems Engineering Department under the direction of Alan Shiel. Aided by information collected by field engineers and supplied by the system operator, the designers prepare detailed system maps and specifications. Optimum equipment performance, of course, depends upon careful system design, thus the emphasis placed upon it by equipment manufacturers is not surprising.

Behind It All

Associated with Cascade are the companies of the Vancouver Cablevision Group, which operates a number of CATV systems (including the world's largest), and Fred Welsh Antenna Systems, a major



Final assembly of directional taps includes putting self-tapping screws in the lid, and installing the tap legs and terminators on the base of the unit.

distributor of CATV equipment. Syd Welsh, B. J. "Bud" Shepard, and Garth Pither form the group's highly respected leadership (a group of such stature as to attract CBS to join them in the networks' first major move into cable system ownership). Chief executive at Cascade is J. A. Spencer. The Cascade Electronics organization was founded, states its management, because of the immediate local need for solid-state distribution equipment.

In supplying MSOs as large as the Vancouver Cablevision Group, a substantial output capability is the first requirement, and this was equally a consideration in planning a manufacturing arm. This need

for "instant production volume" created a unique approach to Cascade's founding. First, several seasoned CATV engineers, with solid-state amplifier designs already to their credit, were transplanted from the U.S. Second, Cascade began operations in a 56,000 square-foot plant — although the initial staff consisted of the engineering personnel only! This allowed for tremendous growth of production operations, without the need for continual moves into larger quarters or splitting of operations into several plants as is often done in the fast-growing CATV manufacturing business. And although production has increased steadily, and continues to swell Cascade's output, plant expansion remains a simple matter of installing suitable partitions and equipment in the several thousand square feet not yet in use.

Cascade Electronics, after less than two years of equipment production, has established itself as a substantial supplier of CATV equipment, and as a force to be reckoned with, both in marketing and in advanced engineering techniques. And the future of Cascade, as with most electronics manufacturers, depends heavily upon the results of their research and development efforts. It almost goes without saying, therefore, that a visit to the Cascade R & D Department reveals a number of surprises . . . and a number of well-guarded "black boxes" which may lead to even more surprising technology in the future. TV



Victor Tarbutton (standing) and Phil Allman are shown testing an amplifier design in the R & D department.

new, improved, now better than ever...



SPECIFICATIONS

- FREQUENCIES — all TV and FM channels
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Benefit from **complete** reliability and accuracy with the improved FM-1 Field Strength Meter. This rugged new model has been designed specifically for CATV systems. . . gives you unsurpassed quality, accuracy and ease of operation. Special features include a new fiber glass printed circuit board, and a completely transistorized system using all-silicon semi-conductors and silicon transistors to assure long term circuit stability. Shielding is

throughout and complete. Tuning is now easier. . . Log scale is easy-to-read. Dial lamps may be switched on or off as needed; uses separate C-cells for power. Rugged construction. . . completely portable. . . padded all-leather carrying case. The new FM-1 Field Strength Meter is your answer to highly accurate field measurements. . . yet the economical price remains the same. Write us today for complete information.

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Lustrous, non-glare metallic finish and tailored-to-the-

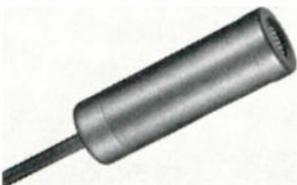
hand dimensions provide striking on-camera appearance and superior handability. Specially reinforced machined-steel case front is designed to take abuse that would ruin other microphones—you can drop it on its nose without damage to the internal structure! Efficient windscreen and front end are *quickly* and *easily* removable for cleaning.

Best of all, it is priced competitively with conventional "workhorse" microphones. Why not check out an SM60 now? See your Shure Professional Products Distributor, or contact Mr. Robert Carr, Manager of Professional Products Division, Shure Brothers, Inc., 222 Hartrey Ave., Evanston, Ill. 60204—Phone 312 - 328-9000.

SHURE SM60

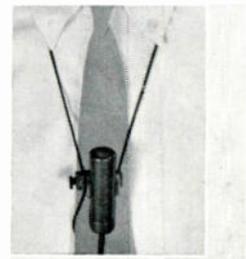
VERSATILE OMNIDIRECTIONAL DYNAMIC MICROPHONE

THE LAST WORD IN WEARABLE LAVALIER MICROPHONES . . . BY SHURE



Specifically designed for radio, TV, motion pictures . . . matches well in sound with stand or desk mounted units. Smoothly-contoured, machined-steel case and recessed grille for minimum clothing noise. Exclusive snap-in mounting of microphone for greater convenience, security. "Positive Lock" lavalier goes on in an instant—provides simple, noiseless position adjustment. Extra-flexible, kink-free rubber cable is easily replaceable.

MODEL SM51 DYNAMIC LAVALIER



Dual Cable Construction For More Than 12 Channels

By Mac Ferguson
Vice President and Chief Engineer
Philadelphia Community Antenna Television Co.

One of the more important criteria when considering what type of CATV plant to install in a metropolitan market such as Philadelphia is that it must have flexibility. Such a system must be capable of providing channel space for all the CATV services that are available today and also must have the facility of being easily expanded to make channel space available for the new services that are being developed. The type of system that can readily meet this requirement of wide range flexibility is the dual cable type.

A dual cable system is one in which the coaxial cable, amplifiers, and associated passive gear necessary for a conventional cable system are duplicated. The two separate systems are lashed to a common supporting messenger strand thus sharing the same hardware and anchoring equipment.

There are advantages and disadvantages with either a dual cable system or the single cable converter type. For example, one disadvantage with a dual cable system is that it cannot be connected to an existing master antenna system such as those encountered in a motel or apartment house. Here it will be necessary to install a completely new system in order to provide the additional cable needed and to prevent cross talk from developing between cables having less than 100% shielding.

The many advantages of a dual cable system will far outweigh the relatively few disadvantages. The dual cable system:

(1) has twice the channel space capability over the single cable type.

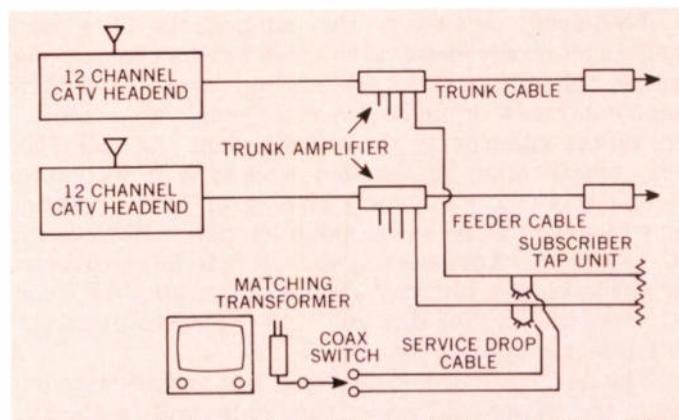


Figure 1: Diagram of Dual Cable System Layout CATV System.

ABOUT THE AUTHOR



Mac Ferguson entered CATV in 1951. He assisted in the construction and operation of the CATV system in Tyler, Texas (now one of the largest) and, has held engineering and management positions with Philco, Jerrold Electronics Corp. and Television Communications Corp., Inc. He is now Vice President and Chief Engineer of Philadelphia Community Antenna Television Company, a subsidiary of Bulletin Co. PCATV holds franchises to provide CATV service to 190,000 households in Philadelphia and surrounding markets. Other PCATV systems include Cable TV of Santa Barbara, California with 15,000 subscribers and Sarasota-Venice, Florida with 4,500 subscribers.

(2) can accommodate two complete spectrums.
(3) can easily be changed to a converter type at any time . . . before, during, or after construction.
(4) affords the capability of reversing the amplifiers on one cable, thus facilitating two-way communications.
(5) does not impair the operation of "channel clickers" or remote control devices for the television set.
(6) benefits the subscriber by delivering up to 24 channels of television to his conventional TV set with the simple flick of a switch.
(7) practically eliminates the "in the home" service problem associated with "top of the set" converters.

As a case in point, consider the Levittown, Pennsylvania system, which is currently under construction. This system is located approximately 18 miles northeast of the television transmitters in Philadelphia and some 64 miles southwest of the New York City television transmitters. There are a total of 16 Grade B or better television signals over this area. These consist of New York City channels 2, 4, 5, 7, 9, 11, and 13; Philadelphia area channels 3, 6, 10, 12, 17, 29, 35, 48; and also ETV channel 39 from Allentown, Pennsylvania. Installing a dual cable system here allows for the channel capability necessary to accommodate all of the above stations and in addition there will be some channels left over for local programming use.

Due to the proximity of the three VHF television stations located in Philadelphia (channels 3, 6, and 10),

NOW **2** WESTERN SALES CENTERS TO BETTER SERVE YOU



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For 15 years CATV EQUIPMENT COMPANY has been the experienced CATV supplier of the West. Always offering a complete variety of equipment for every system requirement . . . specializing in getting orders to you fast.

Now CATV EQUIPMENT COMPANY has two one-stop equipment headquarters . . . "better service for the CATV industry." Regardless of needs, we'll recommend and supply you, using our 15 years of successful business experience as guidelines . . . and we'll do it at reasonable prices.



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San Rafael, Calif. 94903
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it is anticipated that three channels on each of the cables will be rendered unusable by direct pick-up interference. There is also a VHF channel 12 educational station that serves the Philadelphia area; however, its transmitter is located near Pitman, New Jersey, which is 36 miles south of the area to be served, and it is not likely that there will be any direct pick-up interference from this station. Therefore, when the system is completed it will be able to accommodate 18 channels of television plus two complete FM bands. As you can see, this channel space capability satisfies the present channel requirements quite well.

The amplifiers and associated components in the Levittown system are the wide band type that can accommodate up to 20 channels in the octave between 120 mcs. and 240 mcs. Therefore, with appropriate head-end modifications and by adding "top of the set" converters, the dual cable system capacity can be increased to 40 channels!

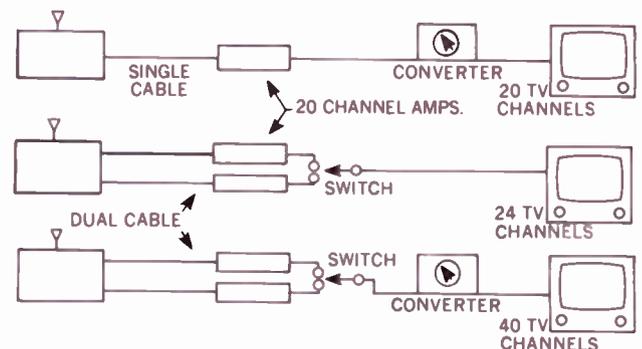
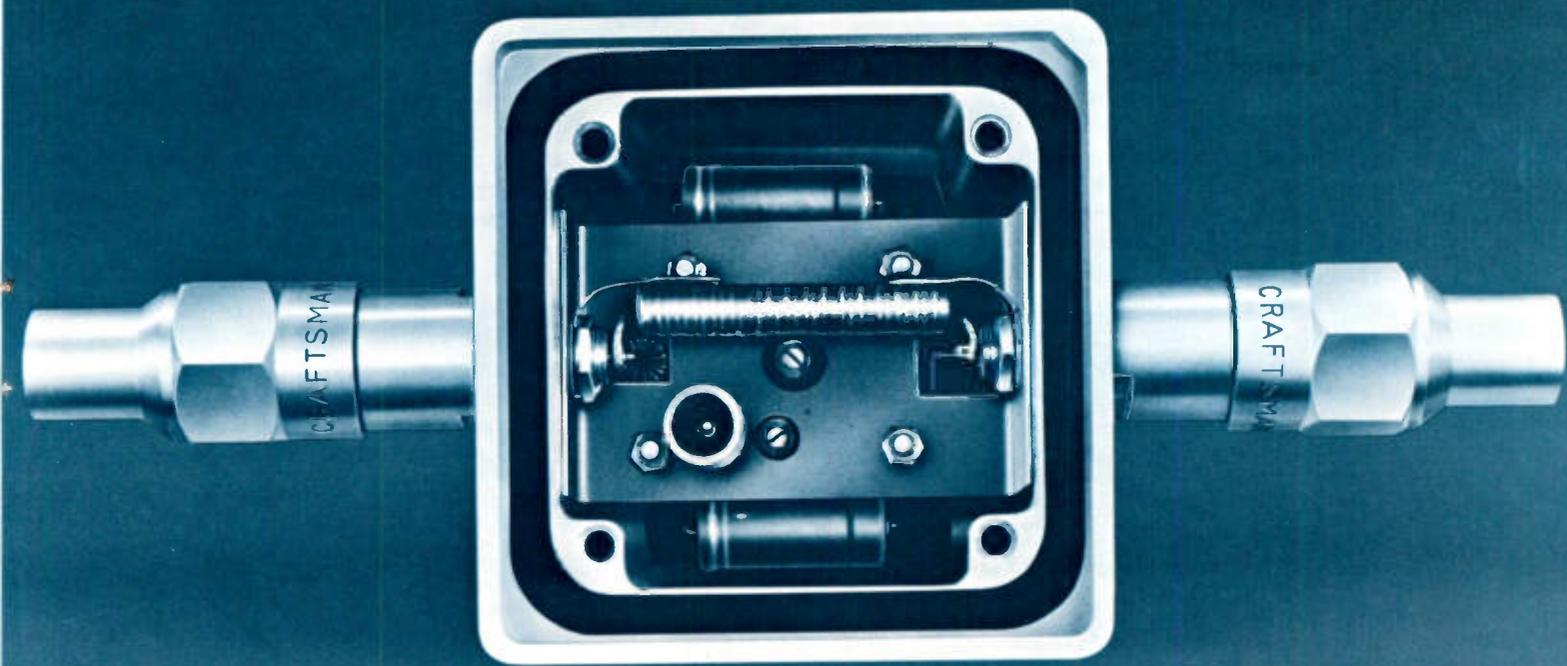


Figure 2: Diagram of Set-top Converter Application in Single and Dual Cable Systems.

Locating a source of supply for the coaxial switch that is a vital part of a dual cable system proved to be quite a challenge. At the time the search began, the switches that were available on the market meeting the technical specifications proved to be too expensive and beyond budget. However, after a two-year search to locate a manufacturer willing to make a special switch specifically designed for dual cable service, final arrangements are now completed with Amphenol Corporation of Danbury, Connecticut. The cross talk specification for this switch is -55 dB at 216 MHz as guaranteed by Amphenol.

Technically speaking, the components of a dual cable system are identical to those for the conventional single cable 12-channel system and as a result there aren't any new equipment service problems generated inside the home or by the outside plant. Actually, the only specification for the dual cable type of system for which there is not a long history of field operating experience is its cross talk characteristic. However, in the case of the Levittown system, it is to be constructed under a turnkey contract and all the major CATV contractors bidding for this job were willing to guarantee a cross talk specification of -70 dB.

The dual housedrop cables and equipment extending from the feeder cables into the homes will be the system operator's responsibility. Here, it is planned to use coaxial cable having 100% shielding (RG 59/U type



Within weeks after we ran the announcement ad on our new Modular Amplifier Tap that solves those long drop problems, we were sold out for the next fourteen months.

This is Ad Number Two.
Our man in production
said we could run it.

craftsman

with a thin copper sheet cigarette wrap in addition to the usual woven braid) for the service drops in order to eliminate any possibility for cross talk to be introduced. In order to learn more about the idiosyncrasies of dual cable system operation, a test system was constructed and has been in operation for better than six months, providing 15 channels of television service to ten homes near Salem, New Jersey, utilizing the equipment and arrangements as described above. The reports and observations to date have been most satisfactory.

The manufacture of customized components for dual cable systems will result in reduced installation costs. For example, the dual amplifiers, splitters, and directional couplers could be designed to share common housing; the switch design could be modified to include the matching transformer; the dual service drop cables could be integrated, etc.

The development of the single cable converter type system will probably move along at a rather rapid rate now that multi-channel systems are more in demand. The concept of building a more than 12 channel system using standard plus non-standard frequency allocations and "top of the set" converters has been bantered about for a number of years. However, until just recently little had been done to develop a composite system of compatible components; i.e. head-end processing equipment, line amplifiers, and converter devices designed to work together in a complete system. There have been reports from some system operators using the converter type systems that "in the home" service problems have developed due to instability of the local

oscillator in the converter and misadjustment by the customer when attempting to tune the converter while changing channels.

Just as with any new design concept, it is quite likely that there will be significant advancement in the state of the art regarding the converter approach to multi-channel operation in the initial years of its operation.

On first look, it would appear that the dual cable system would be substantially more expensive to install and operate; however, the subscriber installation cost of the converter type system considerably exceeds the subscriber installation cost for a dual cable system. It is necessary to consider not only the initial subscriber installation, but also the second, third, and additional outlets; each of these requiring separate converters.

Pro-forma financial projections have been prepared on the dual cable system versus the single cable type using a 20-channel converter, and they reveal that by the time the system has become 50% saturated with subscribers the construction and operating cost for either type of system is approximately the same. The relative expense of building and operating one type of system versus the other is a function of the density (homes/mile) of the area to be served. The more homes per mile of plant connected to the dual cable system, the more economical its construction and operation become as compared to the single cable converter type.

Therefore, over the years, it is possible to install and operate the dual cable system that will offer far greater flexibility than could ever be realized with any other type for the same outlay in cash.

TVC

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(A unique, flexible underground plastic conduit)

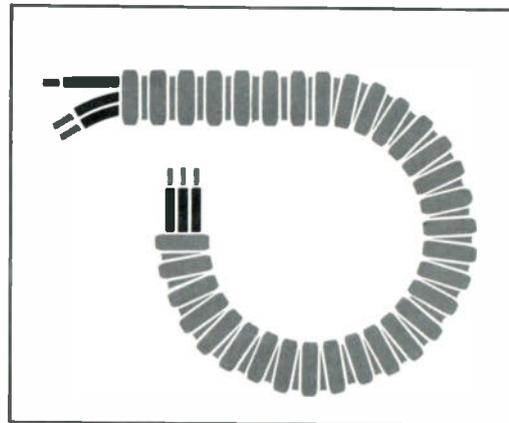
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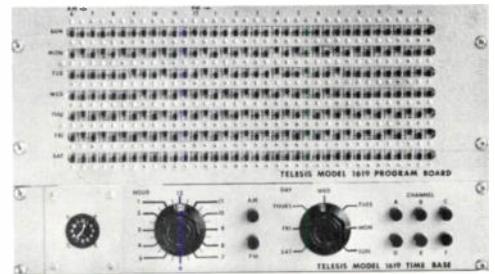
Weight: 15# per hundred feet. Price in Coils: \$15.40 per hundred feet. Price on Non-returnable Wooden Reels: \$19.65 per hundred feet. (Prices F.O.B. shipping point. Truck load quantities prepaid.) Heat-Shrink Couplings: \$1.00 each. Shipping Points: Seattle, Washington; Middletown, Delaware; San Leandro, California. Phone or write for complete catalog and CORFLO sample. 1 1/2", 2" and 3" diameter also available.

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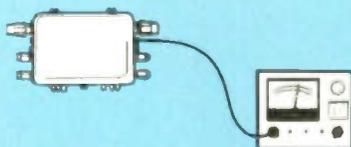
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Are your levels on the level?

Your field strength meter is designed to read the level of signals fed to it through a short length of RG-59. The setup shown is the usual method . . . just hook it to the test point and take the readings.



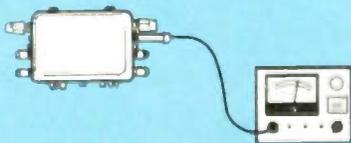
TIP No. 1:

Arrange to take your readings near mid-scale, where your meter is most readable and most accurate.

Ever notice that a slight change in the length of the RG-59 changes the reading? Gremlins, in the form of "standing waves", often appear because the jumper is not providing a proper termination to the test point. Here's a simple solution that will get your test point measurement error down to a fraction of one db:

TIP No. 2:

Use an external 10db resistive pad at the test point (ahead of the FSM cable).



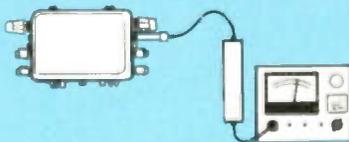
*10db Test Pad: In the interest of accurate level setting, we have made up a small quantity of 10db pads, complete with standard push-on fitting. If you would like one, just drop us a line. Price: \$4.50.

The pad is an inexpensive addition (see below*), but it provides a proper impedance match at the input end, so that what goes in the coax at the amplifier comes out at the meter. Assuming 20db test points, your reading will now be 30db down, but you'll have a matched jumper and get accurate readings with any reasonable length of cable.

Checking input and output usually means changing ranges on the FSM, and here's where another error can creep in. Meters often vary a couple of db from one range to another.

TIP No. 3:

Calibrate and use your meter on the -20db range. Use an external variable attenuator to read higher levels.



On amplifier inputs, using the 10db pad, your meter will read somewhere near mid-scale on the -20db range. On outputs, switch in attenuation to match amplifier gain and leave the FSM unchanged.

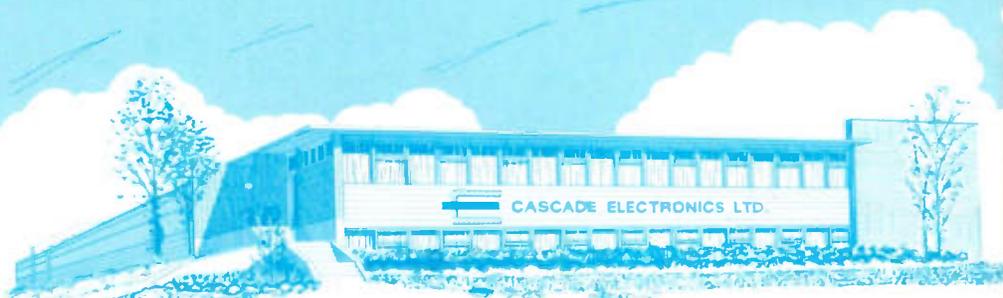
Accurate measurements are the foundation of system performance. Keep your levels on the level

CELX: THE PRACTICAL LINE EXTENDER

There are lots of line extenders around, and some of them cost less than \$58.50. Check the features you want:

- Hermetically - sealed cast housing
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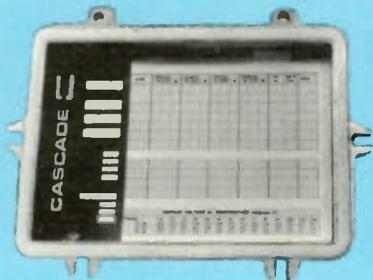
No other line extender near the price meets these specifications and provides 15db operational gain at Channel 13. Wherever you need a boost from +20dbmv to +35dbmv, and want a sophisticated unit that doesn't cut corners, the Cascade CELX-1/15 does it for only \$58.50



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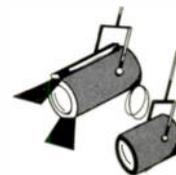
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Case Histories of Successful Cablecasting



All-Round Programming

Athens (Tennessee) TV Cable is going after cablecasting in a big way. The eleven-month old system utilizes not only a "Weather-Scan" unit, but also a full complement of local origination gear for cablecasts on the local channel all week long.

The programming day is launched at 9:15 with a 15-minute devotion from one of the members of the local ministerial association. At 9:30, a homemakers' variety show is cabled, and features things of particular interest to the community's housewives. Free films* are shown from 10:00 to 10:30 and are followed by two additional short programs particularly for housewives. In these programs, local business personnel present both a 15-minute program on beauty hints and a 15-minute program on cooking. An arrangement has been made whereby a local merchant provides the system with facilities for a complete kitchen, in exchange for the advertising it brings him. At 11:00 Athens Cable offers its viewers a 30-minute children's program featuring sing-along records, stories, and cartoons. The channel is then blacked out until 6:30 p.m., at which time the kiddies' program is repeated by video tape. From 7:00 until 7:30 viewers can watch a local variety show devoted to items of local interest.

At 7:30 the system launches into an evening program of unspecified length, featuring a variety of local events of high interest to Athens residents. Included are local high school and college athletic events. All home games are shown live over cable and all road games are videotaped and shown at a later date. Special county and city council

*See "Free Films for Cablecasting", page 45, October TV Communications.

meetings are covered live in this time period and in many cases are previewed with videotaped information regarding the issues.

In addition to regular weekly programming, Athens Cable offers special programming for Sunday afternoon. At 1:00 each Sunday, subscribers are able to see videotaped worship services. The services of local churches are taped on



Shown readying film chain are Athens TV Cable men Harry Nause, chief engineer, and Ray Joseph, manager. The firm is actively involved in developing an extensive local origination channel.

a rotating basis, with each congregation having a chance for its services to be seen on cable. On Sunday afternoons video tapes of all sports events which took place in the preceding week are shown.

Athens TV Cable is now in the process of expanding its local origination studio to accommodate even more programming planned for the future. A 16mm projector, two VTRs, three monitors, two video amplifiers, two microphones and two video switchers are included in the system's present cablecasting studio, as well as a truck used exclusively for videotaping.

This service-minded system is out to please its 800 subscribers and appears to be doing a bang-up job. Hopes are that many more of the 4,200 families in the area will soon be on cable, and with local interest programming such as this, there is little doubt that drops will be made to virtually every house in Athens.

Cablecasting A Variety Show

Community service programming heads the list of priorities in possible subjects for local origination. Setting the pace in this area is High Fidelity Cable Television of Great Barrington, Mass. High Fidelity, which serves the towns of Great Barrington, Stockbridge, Lee and Lenox in the southwest corner of the state, netted \$1,830 for the Southern Berkshire Community Fund in a special three-hour benefit program cablecast recently. The program was cablecast live and on video tape from 7:30 to 10:30 p.m. over Cable Channel 2, High Fidelity's local origination channel. It followed a "telethon" format and featured three bands, folk and semi-classical singers, folk dances and singalongs. Fourteen acts and 11 messages from agencies participating in the Community Fund were presented during the program.

General Manager Warren B. Syer feels strongly that the cable system, situated in a semi-rural area that makes it unlikely that any local television station will be established in the foreseeable future, has an obligation to supply local television facilities for its subscribers, insofar as it is technically feasible to do so. Initial programming efforts are concentrating heavily on local news and public affairs presentations.

TVC

Index of 1967 Articles

A Topical Listing of Features

The following listings include all feature articles which have appeared in TV Communications in the previous 12 issues (January through December, 1967). Articles are listed alphabetically by title under the appropriate category, along with a brief statement of content, author's name, issue, and page number. Copies of back issues are available upon request at \$1.00 each. (For a complete listing of articles published prior to 1967, see the January, 1967 issue of TV Communications, page 60). This index will be up-dated in January of each succeeding year.

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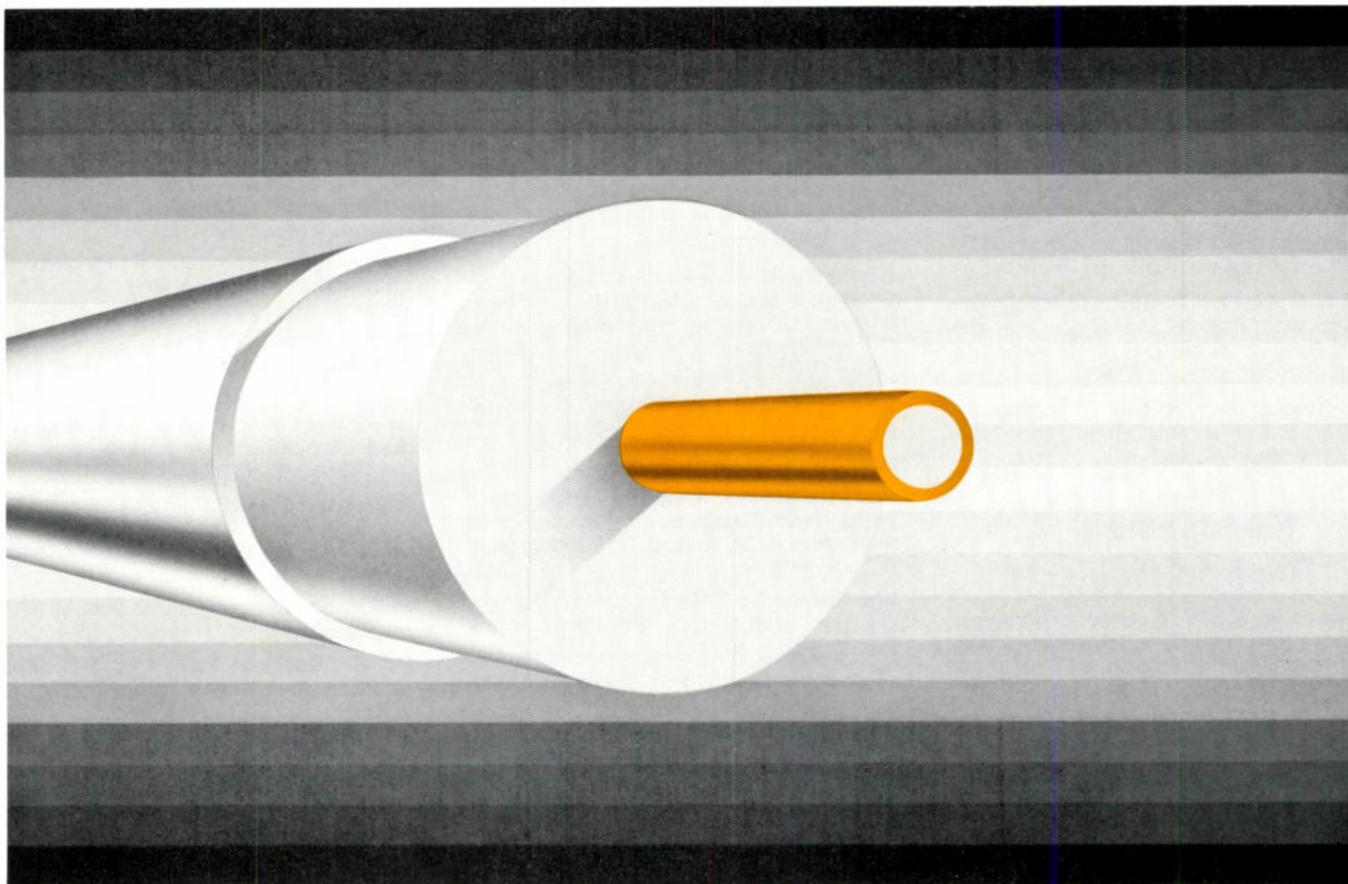
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Multi-Media Promotion Programs: Organizing a well-balanced promotional effort; Peter B. Schust; May, p. 54.

National Cable TV Week: The campaign behind NCTA's first annual event; Barry Crickmer; January, p. 36.

Newspaper Advertising: Utilizing print media for subscriber promotions; Samuel Henry; May, p. 48.

Paving the Way for Painless System Conversion: Protecting subscriber relations while modifying system; John Monroe; December, p. 52.

Philosophy of Promotions: Selling basics for CATV; Robert H. Huston; May, p. 34.

PR Art Contest Pays Off: Report on publicity program in Valdosta, Georgia; John Raines; August, p. 68.

Producing More Effective Newspaper Advertising Layouts: Promotion pointers for managers; Samuel J. Henry; November, p. 51.

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The Promotional Value of a Community Channel: Case history of Springfield, Illinois, cablecasting success; Ira Kamen; May, p. 58.

Reaching the Housewife with Subscriber Promotion Campaigns: Promotional ideas; E. K. Ganley; November, p. 76.

Selling with Sight and Sound: Report on Daniels Management's new audio-visual subscriber sales technique; staff feature; August, p. 36.

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Automatic Equalization as a Factor in System Level Control: Engineering report; A.W. Bridgett; September, p. 94.

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- Cable System Test Chamber:** Special report on Tele-Vue systems' climate chamber for evaluating complete distribution systems and components; I. Switzer; July, p. 44.
- Catel CATV's Transistorized FM Modulator:** Report on a new product design; February, p. 72.
- CATV and the Spectrum Analyzer:** Explanation for technicians; I. Switzer; December, p. 74.
- CATV Transmission Lines, Part I:** Basics for system technicians; Gay Kleykamp; March, p. 57.
- CATV Transmission Lines, Part II:** Basics for system technicians; Gay Kleykamp; April, p. 80.
- Characteristics of Field Strength Meters:** Technical explanation; Fred J. Schultz and J. Glaab; June, p. 100.
- Continuous Signal Monitoring with Vertical-Interval Test Signals:** Engineering report; Ralph R. Reiser and Richard E. Monnier; November, p. 40.
- Copper-Clad Aluminum; New Money Saver for CATV Cables?:** Report on new material for cable conductor; Harry Friedman; April, p. 66.
- Finding Shorts and Opens:** Practical report for technicians; John S. Warner; January, p. 67.
- Head-End Processing: Heterodyne versus Demodulator-Modulator:** Engineering report; Gaylord G. Rogeness; October, p. 75.
- Laser Distribution for CATV:** Report on Laser Link's proposed technique and tests; staff feature; November, p. 48.
- Maintenance and Operation of Videotape Recording Equipment:** A primer for cablecasters; Jim Cook; October, p. 55.
- Microwave Passive Repeaters:** Data on installing, aligning, and maintaining equipment; Ray D. Thrower; May, p. 71.
- Mid-Band CA-TVI: Real or Imagined Problem:** Comments on system engineering techniques; Philip D. Hamlin; December, p. 71.
- The Mid-Band Technique for Multi-Channel Systems:** Report on 19-channel operation using standard 12-channel Kaiser CATV equipment; Gay Kleykamp; September, p. 54.
- Modified SECAM System for Originations with Sony VTR's:** Engineering report; Jan van Hemert; December, p. 37.
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- NCTA Convention Product Report:** Special report and analysis of products introduced and displayed at annual convention; I. Switzer; August, p. 75.
- The New TV Curves; What They Mean for CATV:** Report on proposed changes in FCC's computation of station contours; E. Harold Munn, Jr.; March, p. 31.
- Output Capability and Gain in CATV Amplifiers:** Engineering report; Jacob Shekel; January, p. 68.
- Remote Head-End Links:** Control functions, telemetry and voice communications between head-end and cable office; Leo G. Sands; June, p. 95.
- The Safety Amplifier:** CATV safety pointers; Dennis Marmon; January, p. 73.
- The Search for CATV Technical Standards:** Analysis of industry's need for accepted standards; Archer S. Taylor; November, p. 86.
- Signal Propagation Theory for Cable System Technicians:** Engineering report; T. D. Smith; November, p. 81.
- So You Want to Go Microwave:** Evaluation of advantages and problems; Richard N. Lawrence; June, p. 66.
- Splicing with Heat Shrinks:** Report on using new materials for CATV construction; April, p. 77.
- Standardization for CATV Cables?:** Comments on the need for common terminology; Sidney A. Mills; September, p. 85.
- Symbol Standardization for CATV System Layout:** Suggested industry standards; William L. Ross; June, p. 50.
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- Vest Pocket CATV System:** Description of CATV-MATV design; Leonard Cohen; February, p. 69.
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- Industry Profile: Amphenol Corp.'s Cable Division:** Staff feature; February, p. 62.
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- Industry Profile: Spencer-Kennedy Labs:** Staff feature; March, p. 48.
- Industry Profile: TelePrompTer Corporation:** Staff feature; June, p. 53.
- Lakeland's \$1 Million Turnkey:** Report on Lakeland, Florida, system installation; Joy Diegel; September, p. 38.
- Laser Distribution for CATV:** Report on Laser Link's proposed technique and tests; staff feature; November, p. 48.
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- NCTA Convention Report: What Happened in Chicago:** Special staff roundup on annual convention, speeches, awards, activities; August, p. 42.
- The New TV Curves; What They Mean for CATV:** Report on proposed changes in FCC's computation of station contours; E. Harold Munn, Jr.; March, p. 31.
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- The Role of Cable Television in Our Changing American Society:** Comments on the future of wired communications; John P. Campbell; October, p. 34.
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- The ABC-ITT Merger; How CATV Fits In:** A review and analysis; staff feature; April, p. 70.
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- Connecticut Franchise Map:** Locations of new franchises for state's first cable systems; staff feature; June, p. 86.
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- The EVR and CATV:** Potential effect of CBS electronic video recorder on cable industry; Charles Wigutow; October, p. 72.
- Flying CATV Pioneer:** A profile of Jim Davidson's career in CATV and in

cessful system operation; staff feature; S. S. Street; March, p. 44.

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Texas Operators Produce Multi-System Cablecasts: Report on successful distribution of legislative panel program; staff feature; June, p. 78.

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Weather Radar for CATV Origination: Report on new equipment and techniques; staff feature; July, p. 103.

Special Supplements, Issues & Sections

Aviation in the CATV Industry: Special emphasis topic in February issue.

Cablecasting: Special emphasis topic in October issue.

CATV Buyer's Guide for Local Origination Equipment: Special listings of all cablecasting equipment available for CATV applications; staff feature; October, p. 46.

CATV Construction: Special emphasis topic in April and September issues.

CATV Construction Contractors: Special reference listing; April, p. 56.

CATV Construction Contractors: Special reference listing; September, p. 40.

Head-Ends: Special emphasis on CATV antennas, microwave for CATV, towers, and electronic head-end equipment. November issue.

National Cablecasting Survey; Results and Analysis: Results and conclusions from TV Communications' survey of system operators; staff feature; October, p. 37.

NCTA Convention Photo Edition: Special souvenir edition published separately in August with complete photo coverage of Chicago convention.

NCTA Convention Preview: Special re-

port on 1967 annual convention; June, p. 36.

NCTA Convention Reports: Special staff review and analysis of all aspects of 1967 industry trade show in Chicago. August issue.

Subscriber Promotion Techniques: Special emphasis topic in May issue.

Topical Index to Articles: 1964-1966: Guide to past TV Communications articles for Volumes 1 through 111; January, p. 60.

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The Anti-CATV Club: Comments on the forces opposing the cable television industry; August, p. 8.

Can the FCC Handle the Job?: Comments on the need for space-age regulation of modern communications industries; September, p. 8.

Confused Copyright Position: Comments on NCTA's modified stand before Congress; March, p. 8.

ETV Needs CATV: Comments on the relationship between educational and cable television; July, p. 10.

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Subject to Reason: Comments on the benefits to the cable television industry of having a Task Force at the FCC; February, p. 8.

Time for Facts — Not Fears: Comments on Commissioner Kenneth Cox and his approach to CATV; June, p. 8.

Viewer Mail Unwelcome: Comments on FCC's attitude toward viewers' mail to Congress and Commission; July, p. 10.

What's It all About?: Comments on the nature and future of wired entertainment services; November, p. 8. (FVC)

Calendar

JANUARY 12-13. The annual meeting of the Rocky Mountain Cable Television Association will be held at the Holiday Inn, Albuquerque, New Mexico.

JANUARY 22-23. The NCTA Executive Committee will meet in Washington, D.C.

FEBRUARY 4-10. National Cable TV Week.

MARCH 18-20. The NCTA Board of Directors meeting will be held. Meeting place to be announced.

MARCH 24-26. The Southern CATV Association will hold its Spring Meeting in Atlanta, Ga., at the Callaway Gardens.

MAY 7-8. The NCTA Executive Committee will hold a meeting in Washington.

JUNE 3-5. The NCTA Board of Directors will meet — place to be announced.

JUNE 30-JULY 3. The 17th Annual Convention of the NCTA will be held in Boston, Mass., at the Sheraton-Boston. (FVC)

System Sales

Huntsville, Ala. — **Reeves Broadcasting** has announced an agreement to purchase **Huntsville TV Cable and T & G Cable Co.**, both of which are Huntsville firms. These new acquisitions, when added to the recently acquired **Television Distribution System, Inc.**, also of Huntsville, will comprise the third largest CATV system in the nation and will have a subscriber potential of 33,000. Reeves Broadcasting has announced plans to redesign all three systems.

Los Angeles, Calif. — **Clear Cable**, a northern Los Angeles cable system, has been purchased by **WGN Televents, Inc.**, a subsidiary of WGN Continental Broadcasting Co.

International Falls, Minn. — **Minnesota Telephone Co.**, a member of the Continental Telephone Co., recently announced the purchase of the **International TV Cable Corp.** A 10-year franchise granted earlier this year stipulates that the system be rebuilt, and according to Leo Cassico, manager of Minnesota Tel. Co., engineering surveys will be under way soon.

Shavertown, Pa. — **Back Mountain TeleCable** has been purchased by **Robert J. Barni and John Roskowski**, former manager of the Williamsport cable TV system recently purchased by Milton J. Shapp. (FVC)

FINANCIAL REPORTS

Anaconda Co. sales for the quarter ending Sept. 30, 1967, were \$239,256,000 as compared with sales of \$327,651,000 for the same period last year. Per share earnings were \$.75 for this year and \$1.74 for last year, with net incomes at \$16,339,000 and \$38,205,000 for the two years respectively. Net income figures are before depletion of metal mines. Also reported were figures for the nine months ending Sept. 30. Per share income was \$3.62 as compared with \$4.59 for last year. Sales for the nine months totaled \$838,727,000 as compared with sales for last year of \$928,086,000. Net income was \$79,124,000 for the 1967 period and \$100,499,000 for the 1966 period.

Vikoa, Inc. has released quarter earnings for the period ending Sept. 30, 1967. Per share earnings for the quarter were \$.13 per share as compared with \$.21 for the same period last year. Incomes for the two periods were \$176,000 for 1967 and

\$277,510 for 1966. Sales were \$3,858,000 for 1967 and \$3,582,160 for 1966. Also reported were the figures for the first nine months of 1967. Per share earnings for this period were \$.31 on a net income of \$414,000 as compared with \$.61 per share on a net income of \$835,039 last year. Sales for the two periods were \$10,313,788 for 1967 and \$11,657,583 for 1966.

TelePrompTer Corp. reported revenues of \$4,906,961 and net earnings of \$719,505 for the nine months ending Sept. 30. The 1967 results compared with revenues of \$4,803,628 and net earnings of \$702,172 during the first nine months of 1966. On a per share basis, earnings were \$.82 per share for the 1967 period, compared with \$.85 for 1966.

Reeves Broadcasting Corp. reports nine months per share earnings of \$.30 for the period ending Sept.

30, 1967. Per share earnings for the same period last year were \$.32 on a net income of \$521,500. Net income for this year was \$554,000.

Phelps Dodge Corp. reports per share earnings of \$.44 for the quarter ending Sept. 30 as compared with per share earnings of \$1.61 for the same period last year. (Earning figures are based on net income before depletion). Sales for the quarter were \$92,843,014 for 1967 and \$124,142,212 for 1966. Net income after depletion is \$4,393,464 or \$.43 per share for the 1967 period and \$16,191,184 for 1966.

Bartell Media Corp. reports per share earnings of \$.12 for the quarter ending Sept. 30. This compares with \$.12 for the same period last year. Net income for the two periods was \$247,280 and \$235,547 for 1967 and 1966 respectively. Sales for this year totaled \$8,352,218 as compared with \$7,855,601 for last year. Also reported were figures for the nine months ending Sept. 30. Per share earnings for that period were shown at \$.22 as compared with \$.34 for last year, with net income at \$447,436 for the present year and at \$651,018 for last year. Sales for the 1967 period were \$23,513,737 as compared with \$22,630,707 for the 1966 period. TVC

Construction Reports

Eureka, Calif. — Humboldt Bay Video Co. will begin delivery of San Francisco television programming to the Eureka area in the near future. Microwave facilities will bring signals to the city. The company has announced the selection of Anaconda Astrodata to provide the turnkey installation.

San Francisco, Calif. — Western Cable, recently franchised by South San Francisco, has now opened its offices. After some 18 months of study by the city council, South San Francisco granted the franchise for the system which will service the city's pockets of poor reception.

Atchison, Kan. — Atchison Cablevision, Inc., has chosen Jerrold Electronics Corp. to string the cable for its

12-channel system in Atchison. The system will have 20-channel capability.

Hoisington, Great Bend, and Larned, Kansas — The system for these three Kansas communities should be in operation early this month. It is to be owned by Cobb and Associates, of which Grover Cobb is president.

Pittsburg, Kan. — KSEK Cablevision has had Jerrold crews working seven days a week to complete hook-ups. Construction has already been completed and operation is expected soon.

South Haven, Mich. — About 350 trial customers have been on the system in South Haven for 3 months and service is now available to all residents. General Telephone & Electronics Communications, Inc., was the installer.

Beaver, Pa. — The new Steel Valley Cablevision system, presently under construction here will soon be

energized according to the parent company, Centre Video of State College and Harold Gerstner, sales manager for Steel Valley Cablevision.

Cheraw, S. C. — Manager Larry Lewis announced completion of construction in November. The system is affiliated with Jefferson-Carolina Cablevision Co.

Walla Walla, Wash. — H & B Communications Corp. has been granted FCC approval to carry signals of CHEK, Victoria, B. C., and KTNT, Tacoma-Seattle, on its Walla Walla CATV system. The installation of new cable in the local system is now under way and will provide up to 12 channels, whereas the former installation provided five channels.

Charleston, W. Va. — Capitol Cablevision expects construction to begin soon on their Charleston system. The contract has been awarded to Ameco, Inc. TVC

January 1968

TV Communications

CATV Technician



Ponca City, Okla. system manager Marion Patten removes amplifier module.

Passive Head-end Lash-ups • Building a Reel Stand • Cable Design Parameters

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to match 75 ohms! □ Pruzan Company is pleased to show here just a few of the many items you'll find helpful and economical in reaching a new high quality in test labs for your system.



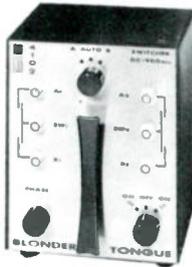
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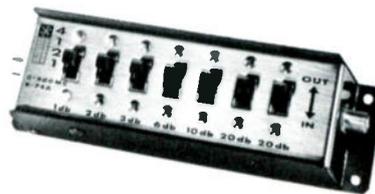
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A New Approach to Passive Head-end Lash-ups

By Robert Bilodeau
Director of Field Engineering
Jerrold Electronics Corporation

Popular demand for the advantages afforded by cable television has resulted in a tremendous increase in not only the number but also the size and complexity of CATV distribution systems. And as distribution systems increase in size, better head-end performance becomes an absolute necessity.

Modern head-end equipment has kept pace with the advances in distribution equipment. Antennas are more ruggedly constructed and better designed for distant station reception. Microwave links and equipment bring in signals originating hundreds of miles away. Mast-mounted pre-amplifiers provide higher output capability with better noise figures than ever before. Single-channel signal processing units, such as Jerrold Channel Commanders, completely process incoming signals from antenna down-leads or other sources and provide pin-point control of signal levels at the units' outputs. These processing units are a far cry from the conglomeration of relatively simple single-channel strip amplifiers used in the earliest of system head-ends. Yet, the passive lash-up used to interconnect the outputs of these modern, sophisticated processing units is often as archaic as the strip amplifiers which preceded them.

The Bridging-Thru Lash-Up

The traditional bridging-thru lash-up technique dates back to single-channel strip amplifier head-ends, yet it is commonly used at the present time to interconnect modern equipment. Figure 1 illustrates this method of interconnecting the respective outputs of ten signal processing units and two television modulators to form a single output for a 12-channel head-end.

Note that the outputs of non-adjacent channels in both the hi and lo bands are directly connected to each other. The outputs of the groups of non-adjacent channels thus formed within each band are fed to a splitter/combiner and mixed to form a single output from each band. The output from the lo band is fed via an inline attenuator (providing 3 dB block tilt) to the lo side of the lo-hi coupler. The output from the hi-band is fed directly to the hi side of the lo-hi coupler. The output of the lo-hi coupler is, of course, the 12-channel output of the entire head-end. Note also that the output of the crystal-controlled carrier generator (used as an AGC reference) is introduced via a directional-coupler and that a test point is provided via a similar

device. This represents an early application of the directivity of the directional-coupler circuit to isolate RF levels from independent sources.

Inherent Defects in the Bridging-Thru Lash-Up

The bridging-thru lash-up technique inevitably produces a small amount of cross-modulation in the final combined output. The output of any given channel in either the hi or lo band is looking directly into the output stages of the channels with which it is bridged (i.e., Channel 7 sees 9, 11 and 13; and Channel 4 sees 2 and 6, etc.). When the full output of combined channels appears at each other's output stage, a small amount of cross-channel distortion occurs. Measurements have recently been made (using new measuring techniques) of cross-mod or 3rd-order distortion between -80 dB and -75 dB on the output of typical head-ends using the bridging-thru lash-up. This means that, theoretically, several doubles have already been reached in cascadeability and the system following would have to be derated by a compensating amount.

A second drawback is that the removal of any one of the signal processing devices affects the performance

About the Author



Bob Bilodeau has been Director of Field Engineering for the CATV Systems Division of the Jerrold Electronics Corporation since July, 1966. In this capacity he directs and supervises the Division's Field Engineering force in performing the various proof-of-performance tests on new systems and other field engineering and customer support services to existing systems. Prior to joining Jerrold, Bilodeau was for two years a CATV engineering consultant and contractor. Before that, he was part owner and operator of the cable system in Adams and North Adams, Massachusetts from 1955 to 1963. This system was founded in 1951 by an early pioneer of CATV in New England — his father, Wilfred Bilodeau. (His father is credited with filing a petition with the Massachusetts State Legislature in 1950, which, when acted upon, made CATV legally permissible in that state.) Bob Bilodeau is a graduate engineer from the University of Massachusetts, holding a BSEE degree.

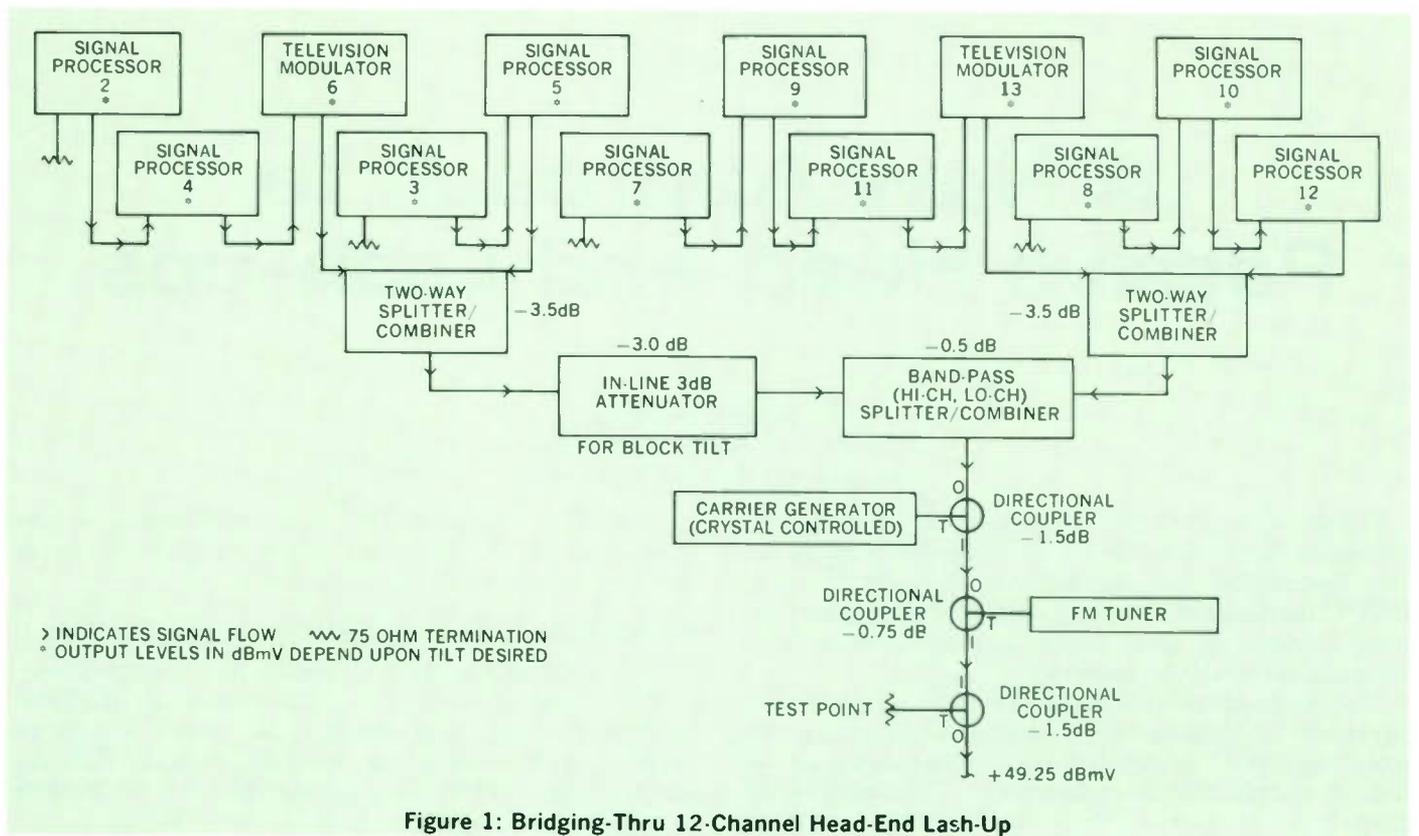


Figure 1: Bridging-Thru 12-Channel Head-End Lash-Up

of all the others, since the electrical characteristics of the output of the group to which it belongs are necessarily changed. By the same token, the addition of any signal processing device automatically changes the performance and response of the whole lash-up.

A third defect is that a sequential arrangement of signal processing devices within the equipment rack is very inconvenient for harnessing.

Another defect is that the output match of each of the signal processing units is a function of a number

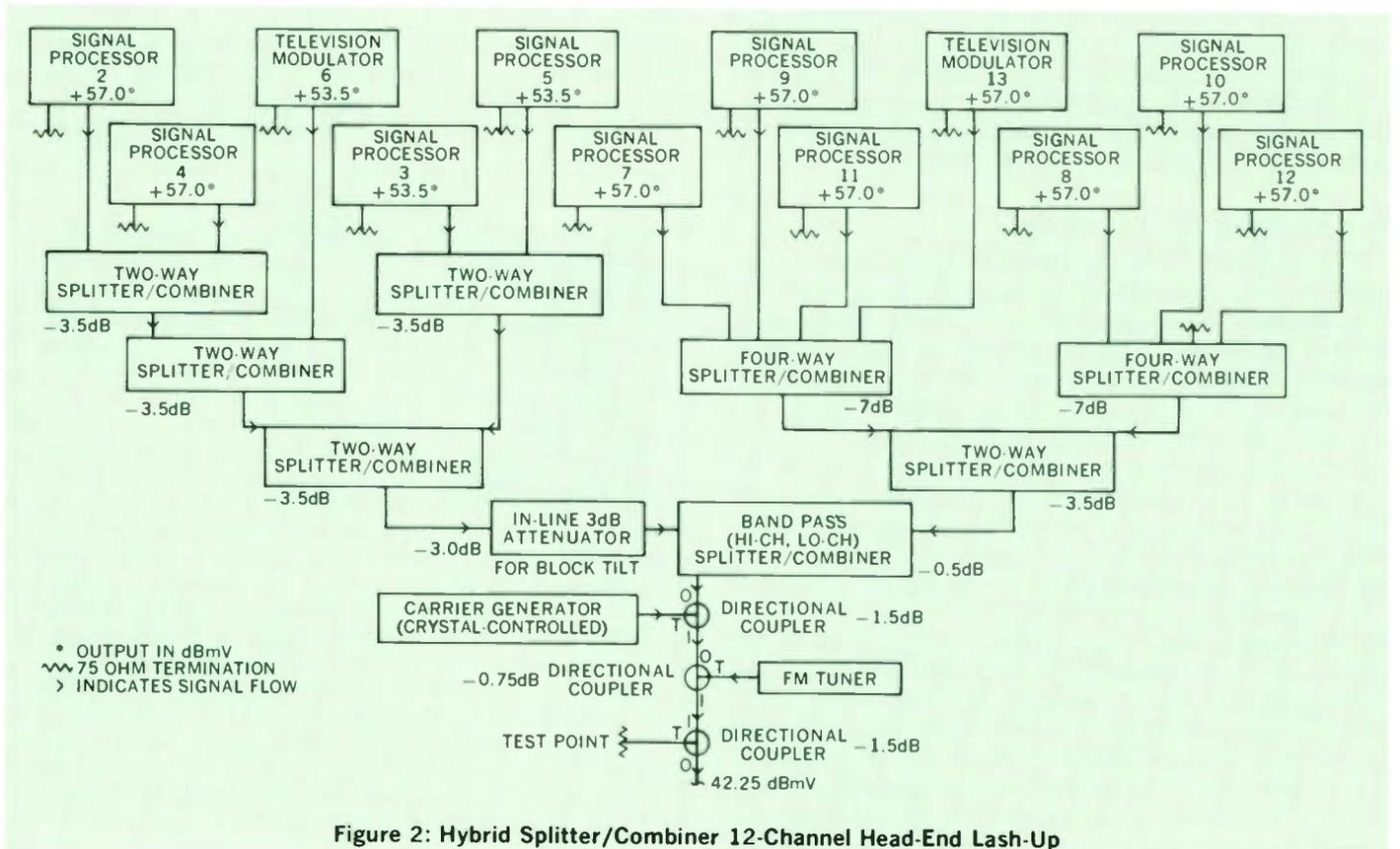


Figure 2: Hybrid Splitter/Combiner 12-Channel Head-End Lash-Up

of variables. These include tube aging within each unit, length of connecting jumpers, and even the shutting down of the equipment itself. The factors that affect match also affect RF response, and maintaining good response with equipment change-out is essential.

Consider too, that with any dual output device, match at each port usually is a compromise. Within any group of devices connected together by a bridging-thru lash-up only an occasional output looks into the more ideal load of a terminator. The load on all other ports of devices within the group are subject to interaction. A certain amount of de-tuning and response changes is inevitable with the bridging-thru lash-up.

Finally, the measurement of signal levels at the output of any single signal processing unit must be made at a test point location or arrived at by calculation. This hampers head-end maintenance to a certain extent.

The Hybrid Splitter/Combiner Lash-Up

A major fault in the bridging-thru lash-up is corrected in the hybrid splitter/combiner lash-up shown in Figure 2. In this approach, used in some of the more recent head-end installations, each signal processing device now is limited to a single-ended output. This provides a better means for optimizing the output of the individual unit, and the interconnection of groups of devices takes advantage of the inherent isolation and match values of the hybrid splitter/combiner.

However, there is still the grouping of the signal processing devices with all the attendant disadvantages that already have been discussed with reference to the bridging-thru lash-up.

Note that the head-end output capability is 7 dBmV less with the hybrid splitter/combiner lash-up than was afforded by the bridging-thru lash-up. However, the quality (due to higher isolation and better match of the signals at the output of a head-end using the hybrid splitter/combiner lash-up) is sufficiently better to more than offset this seeming disadvantage.

The Directional-Coupler Lash-Up

The employment of the back-matched directional-coupler, with its high isolation between tap and output terminals, low insertion loss between input and output, and excellent match at all terminals, as an integral part of the passive lash-up is the key to the over-all efficiency of the directional-coupler lash-up technique.

Figure 3 illustrates the use of a directional-coupler tap as an integral part of the passive lash-up of a single

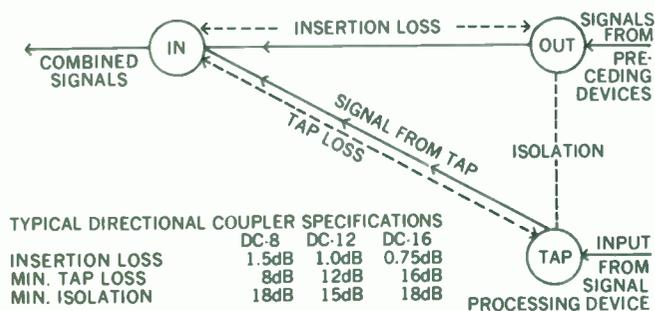
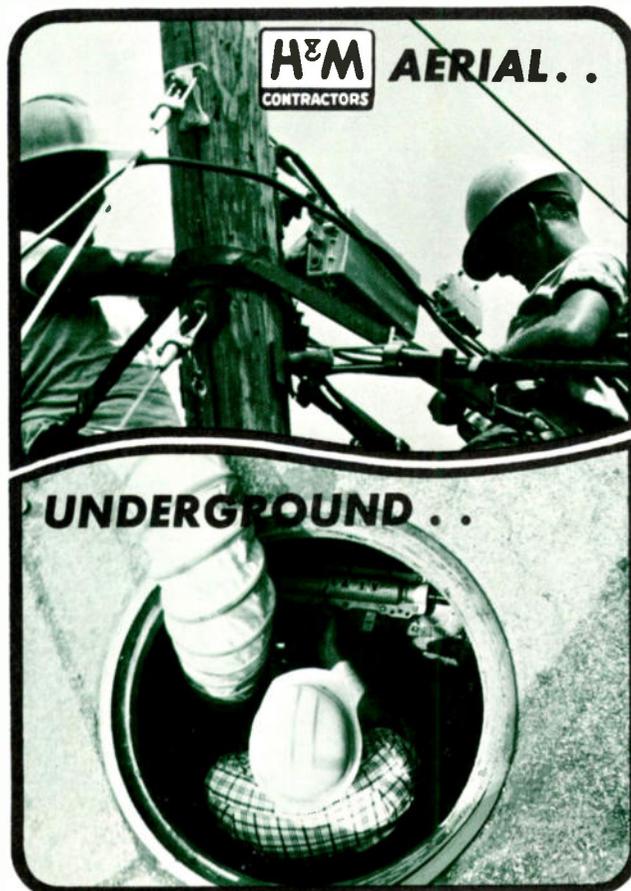


Figure 3: Directional Couplers (As Used in Head-End Lash-Up)



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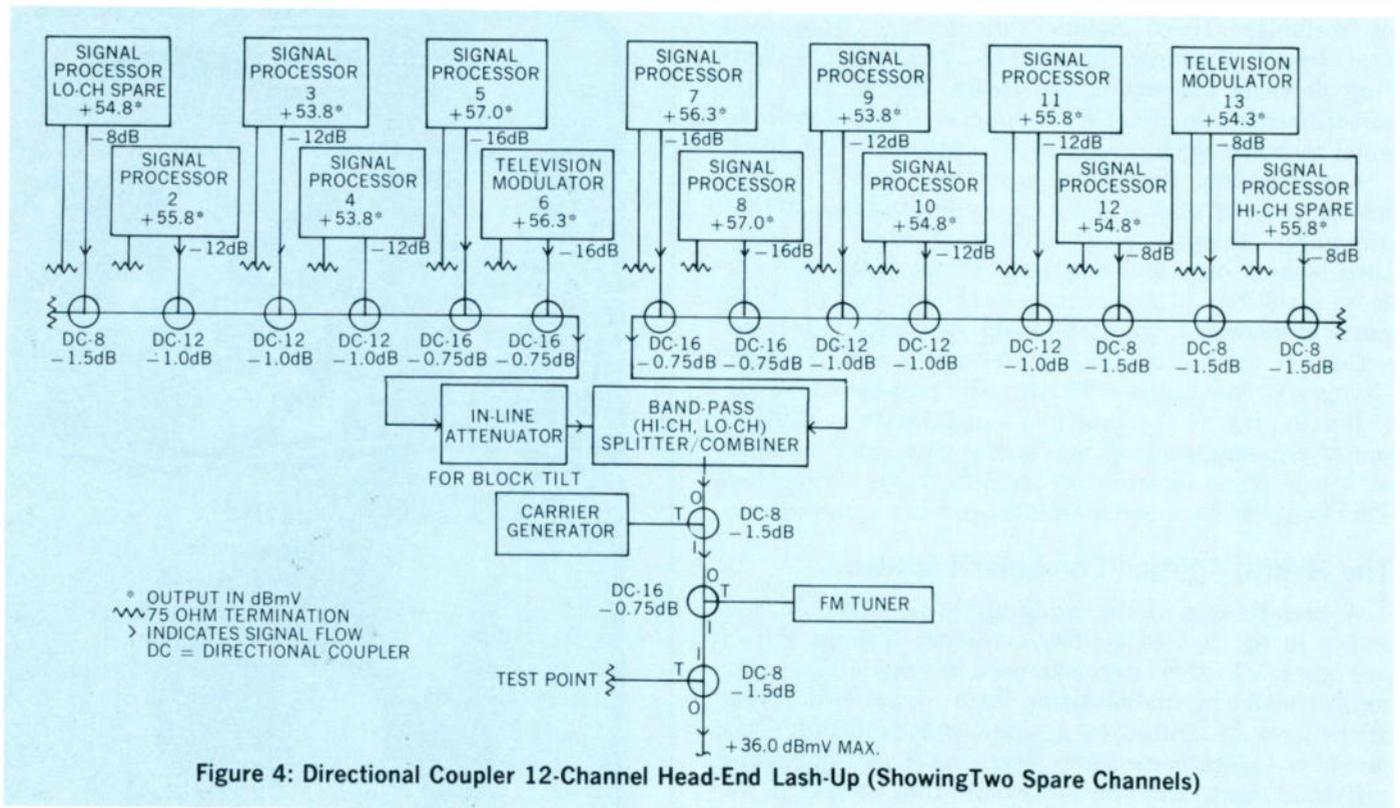
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signal processing device. Three different isolation values of this tap, 8 dB, 12 dB, and 16 dB, are used in a typical 12-channel head-end directional-coupler lash-

up. The specifications included in Figure 3 refer specifically to Jerrold directional-couplers, Models DC-8, 12 and 16.

A complete 12-channel head-end lash-up including two unused spare channels (one for the hi and the other for the lo-band) is shown in Figure 4.

The results of using the directional-coupler lash-up in the very latest of system head-ends have been most gratifying. Head-end performance is improved appreciably and hence, so is the over-all capability of the distribution system fed by the head-end.

Complete Isolation of Individual Signal Processing Units

The most striking feature of the lash-up shown in Figure 4 is that every signal processing unit is isolated from every other unit. The grouping that was common to either of the other lash-ups discussed, together with the attendant disadvantages, no longer is necessary.

The combined tap plus back isolation values afforded by the directional-coupler insures that very high isolation (30 dB or better) exists between any two outputs (see Figure 4) of the signal processing units. The interconnecting loops which existed between groups in either of the other lash-ups discussed are non-existent. Residual head-end cross-modulation is reduced to insignificance as a result of this isolation.

Since each signal processing unit is isolated from every other unit, the tuning and response of one is unaffected by changes in any of the other units.

Individual Unit Adjustment and Placement of Frequency Devices

The output levels of any one signal processing unit can be tested and/or adjusted without affecting any

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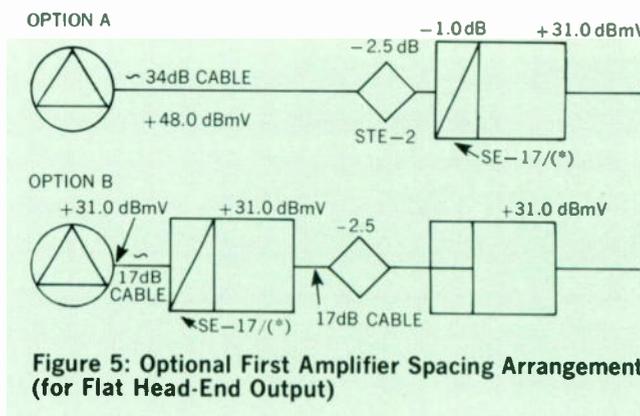
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other unit. If band-pass filters or other frequency selective devices are to be used, they can be inserted between the channel output and the directional-coupler input. By re-establishing the band-pass of the Hi-Lo coupler the local oscillator levels can be reduced to insignificance. This would be critical if the mid-band spectrum or a portion of the spectrum above 216 MHz were considered for use. It is, of course, possible to arrange one continuous chain of signal processing units without the band selective coupler; but then, all of the oscillator frequencies would be present at some level in the final product.

Any individual signal processing unit can be taken out of operation without affecting any other unit. Terminating the open tap is not necessary, but recommended for best performance.



Idle (diversity switching) equipment can be hooked-up into the system as a non-functioning unit without affecting the operation of the functioning elements. In case of failure, or in an emergency, the idle equipment can be cut into the system without shutting down the operation or changing the characteristics of any other unit. With proper switch isolation, output switching can be accomplished easily between the channel output and the directional-coupler tap. The spare units indicated in Figure 4 could be activated in this manner for program selection or standby service.

The new technique facilitates a more logical and orderly arrangement of the processing units and other head-end equipment in the rack because the channels can be arranged in sequential order.

Simplicity of Head-End Lash-Up

The directional-coupler lash-up is particularly adaptable to the latest design philosophy relating to the insertion of equalization for the head-end run at the first amplifier location. Equalization at this point permits a flat head-end output. Systems operators are familiar with the difficulty in obtaining a tilted head-end output by the manipulation of signal levels and selection of pads within the harness to obtain the desired slope.

Figure 5 illustrates two first amplifier spacing arrangements for a flat head-end output. Note that in using the directional-coupler lash-up with a flat head-end output, the only external padding required is that for inserting block tilt. If a lower output than

the 36 dBmV indicated value is required as per Figure 5, option B. this can be accomplished by an across-the-board level change or insertion of a plug-in attenuator at the first amplifier input.

The directional-coupler lash-up is specifically designed to take care of head-ends with twenty-channel capability. Figure 4 illustrates a chain of eight signal processing units on the hi side including a non-functioning spare unit. However, a dual ten-channel arrangement with hybrid mixing would yield a net worse case of 21.0 dB path loss, indicating that the 31 dBmV level required for option B (Figure 5) still would remain possible.

At the present time, it is quite feasible to provide a standard 12-channel lash-up harness for all head-end conditions. The neatness and space saving afforded by such a harness are clearly shown in Figure 6.

Output Capability

Figure 4 shows that the output capability achieved when using the directional-coupler lash-up is reduced by approximately 13 dB from that achieved with a bridging-thru lash-up. This is the cumulative result of the directional-coupler insertion losses along the

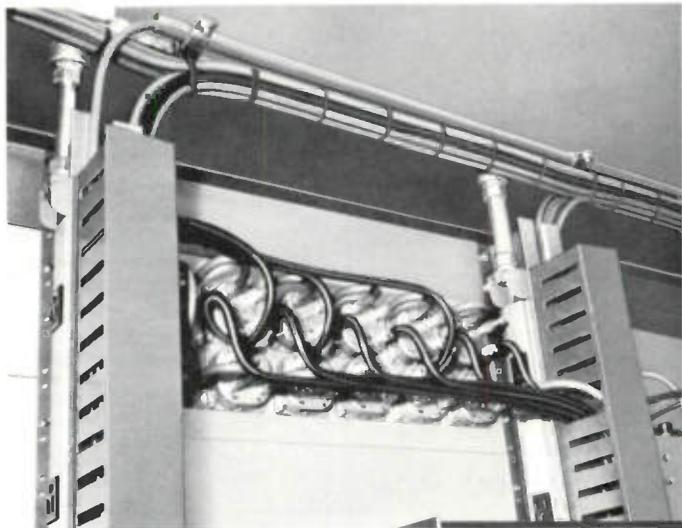


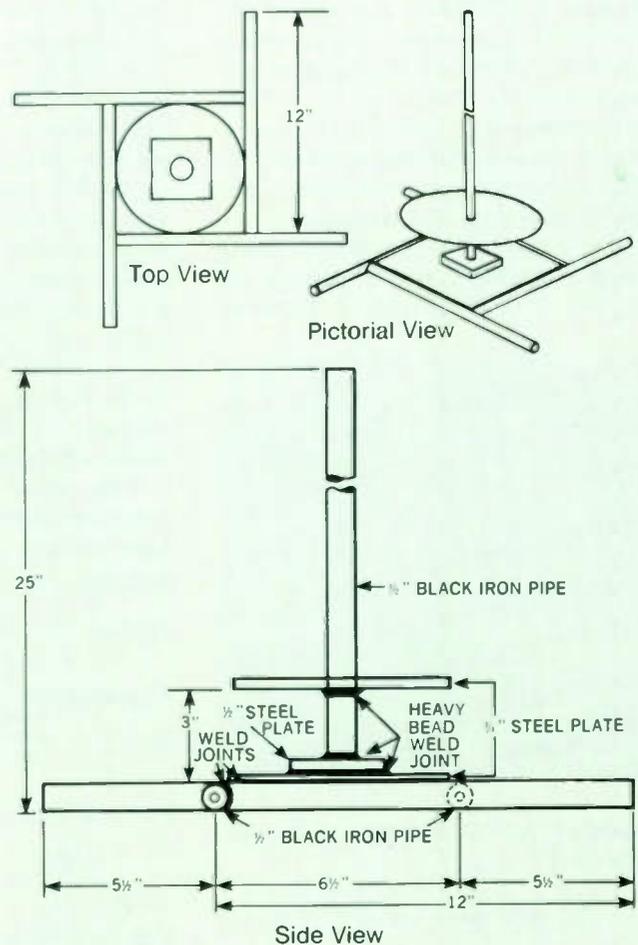
Figure 6: Directional Couplers Rack-Mounted for 12-Channel Head-End.

line in the lash-up together with the isolation loss value of the particular coupler for each specific channel. In fact, the actual assignment of directional-coupler values (Figure 4) is predicated on a desire to keep the active device outputs within a narrow range of levels that are the best compromise between spurious beat generation and local oscillator levels appearing in (or near) the final product. (An acceptable output range for Channel Commanders lies between 48 dBmV and 57 dBmV.) The reduced output capability afforded by the directional-coupler lash-up is indeed an advantage since the best possible quality of signal output is achieved. Limiting the maximum device output to 57 dBmV at the point of highest path loss (16.7 dB) yields a minimum device output of 53.8 dBmV for the minimum path. Other output levels can be calculated by subtracting path loss differentials from the 57 dBmV level (or the highest level used). TVC

Construction Plans for . . . A Handy Reel Stand

Shown here are drawings of a cable reel stand designed by Allen W. Mason, Draftsman for Clearview of (Dublin) Georgia. He estimates that the simple construction will cost no more than about \$10. The reel stand has no moving parts, and the weight of the cable acts as a brake.

Clearview of Georgia has several dozen of the devices in use, and has ordered more, reports Mr. Mason. The economical units can be built locally, and should prove useful additions to many system operations.



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Electrical Design Parameters Of Coax for CATV Applications

By E. Mark Wolf, Chief Engineer, Communications Products Div. Anaconda Wire and Cable Company

Coaxial cables for radio frequency applications are one of the few cable types which can be rather precisely designed from theoretical equations. It is believed to be both interesting and informative to examine these equations and the limitations they impose on design and performance of the cables.

Let us look first at the relatively simple equation which completely defines the dimensional relation-

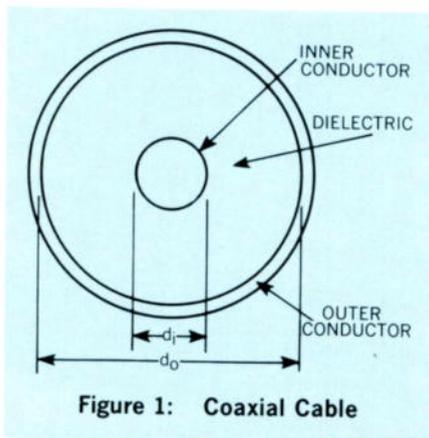


Figure 1: Coaxial Cable

ships of the cable components (see Figure 1):

$$Z_0 = \frac{138.2}{\sqrt{\epsilon}} \log \frac{d_o}{d_i} \quad (1)$$

Where:

Z_0 = Characteristic Impedance of the cable in ohms

ϵ = Dielectric constant of the dielectric

d_o = Diameter over the dielectric in inches

d_i = Diameter of the inner conductor in inches

Even a cursory examination of this equation reveals that the designer actually has very little choice in arriving at a cable construction,

once the characteristic impedance has been specified. Once he chooses the dielectric, which fixes the value of ϵ , the d_o/d_i ratio has been literally "carved in stone." His only other choice is overall diameter. If we use this equation, for example, to design coaxial cable for CATV use, Z_0 must be 75 ohms. The two most widely used dielectrics for such cables have been solid polyethylene, having a dielectric constant (ϵ) of 2.30, and foamed polyethylene, with $\epsilon = 1.50$. To make 75 ohm cable with solid polyethylene, d_o/d_i must be 6.6; with foamed polyethylene it must be 4.6.

Two other parameters are also established once Z_0 and ϵ have been chosen:

$$\text{Velocity of propagation, } V_p \text{ in percent} = \frac{1}{\sqrt{\epsilon}} \times 100 \quad (2)$$

$$\text{Capacitance, } C, \text{ in picofarads per ft.} = \frac{7.36\epsilon}{\log d_o/d_i} \quad (3)$$

For solid polyethylene,

$$V_p = 66\% \\ C = 20.5 \text{ pf/ft}$$

For foamed polyethylene,

$$V_p = 81.5\% \\ C = 16.6 \text{ pf/ft}$$

With Z_0 and ϵ fixed, C is no longer a function of cable diameter, and is a constant value for all sizes, as can readily be seen from the following equation derived directly from (1) and (3):

$$C \text{ in pf/ft} = 1016 \frac{\sqrt{\epsilon}}{Z_0} \quad (4)$$

If these were the only characteristics of importance in coaxial

cable design, the problems would indeed be simple and the choices few. Fortunately, or unfortunately, depending upon the point of view, there are other more complex characteristics to be considered. One of these is cable attenuation, or loss. This is a linear function of cable length, and a more complex function of both frequency and tempera-

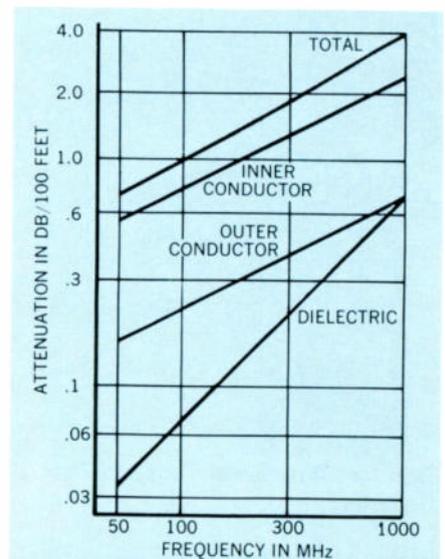


Figure 2: Attenuation vs. Frequency 412 Sealmetec CATV Cable Type SLM-AL.

ture. It is usually expressed in decibels (dB) per unit length at a stated frequency and temperature.

The basic equation for attenuation at radio frequencies is:

$$\alpha = 8.68 \left[\frac{R}{2Z_0} + \frac{GZ_0}{2} \right] \quad (5)$$

Where:

α = Cable attenuation in dB/1000 ft

R = Effective loop resistance in ohms/1000 ft

Z_0 = Characteristic Impedance in ohms
 G = Insulation leakage conductance in ohms/1000 ft

is the ohmic resistance of the path through which RF current flows in the inner conductor plus that for the outer conductor. Due to the

(see following discussion). G is an expression of leakage conductance, which is also a function of frequency. We can simplify the equation somewhat by confining our interest to CATV cables, whose characteristic Impedance (Z_0) is 75 ohms. Further maneuvering and substitution makes the equation like this:

$$\alpha = 0.00439 \frac{\sqrt{\rho_i f}}{d_i} + 0.00439 \frac{\sqrt{\rho_o f}}{d_o} + 1.5047 \frac{f D \epsilon}{\log \frac{d_o}{d_i}} \quad (6)$$

Where:

- α = Total cable attenuation in dB/100 ft
- ρ_i = Resistivity of inner conductor in microhm-cm
- ρ_o = Resistivity of outer conductor in microhm-cm
- f = Frequency in megaHertz
- d = Diameter of inner conductor in inches
- d_o = Diameter over dielectric in inches
- D = Dissipation factor of dielectric

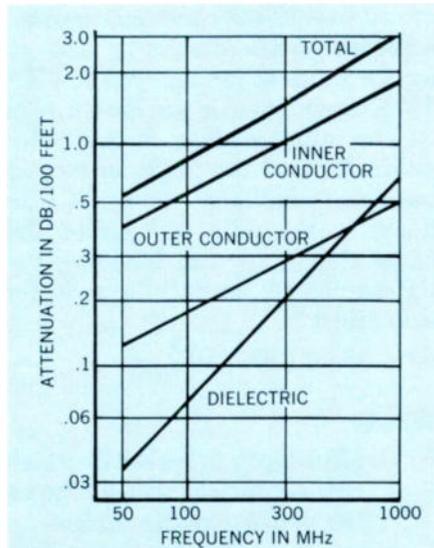


Figure 3: Attenuation vs. Frequency 500 Sealmetic CATV Cable Type SLM-AL.

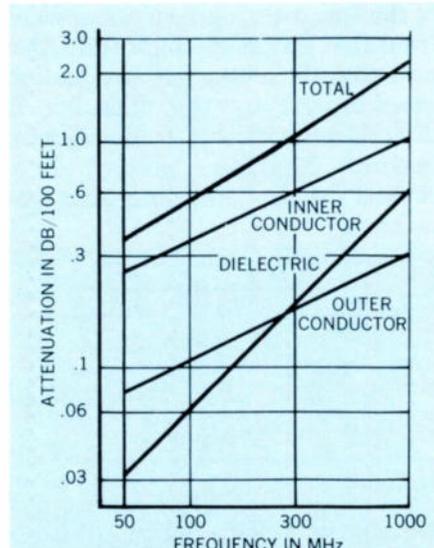


Figure 4: Attenuation vs. Frequency 750 Sealmetic CATV Cable Type SLM-AL.

This equation doesn't look too complicated, but neither does it help us very much in this form. R

phenomenon of skin effect, the cross sectional areas of these two paths are functions of frequency

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ϵ = Dielectric constant of dielectric

This is really not as bad as it looks, and is most useful to the cable designer. Attenuation is shown here to be the sum of three terms. The first term is the portion of total attenuation attributable to the inner conductor, the second term is that portion attributable to the outer conductor, and the third term is the contribution to total

square root of frequency. Here is one reason why, for our CATV cables, the attenuation vs. frequency graph on log log paper shows as a straight line at the lower end of the spectrum, and curves upward from that line at the high end. Also note that the amount of attenuation contributed by the dielectric is directly proportional to dissipation factor. Foamed polyethylene coaxial cables, depending upon the

Skin effect has a profound influence on cable performance, and hence on cable design. In a coaxial cable, skin effect causes the RF current in the two conductors to crowd toward the conductor surface adjacent to the dielectric. The effect becomes so pronounced at VHF TV channel frequencies that a skin on the outer surface of the inner conductor and the inner surface of the outer conductor, about .001 in. thick, is the only portion of the metal that is used in handling the RF signal. A useful formula for skin effect is:

$$(7) \quad \delta = 1.98 \times 10^{-3} \frac{\sqrt{\rho}}{f}$$

Where:

δ = Skin depth in inches at which current density is 0.368 times the density at the surface

ρ = Resistivity in microhm-cm

f = Frequency in megaHertz

Table 2 gives calculated values of δ over the frequency range 10 - 300 MHz, for copper and aluminum inner or outer conductors in coaxial cable.

	50 MHz		100 MHz		220 MHz		500 MHz	
	db/100'	%	db/100'	%	db/100'	%	db/100'	%
412 CABLE								
INNER COND.	.538	74.3	.761	72.8	1.130	70.6	1.703	67.4
OUTER COND.	.153	21.1	.217	20.8	.322	20.1	.486	19.2
DIELECTRIC	.033	4.6	.067	6.4	.149	9.3	.339	13.4
TOTAL	.724	100.0	1.045	100.0	1.601	100.0	2.528	100.0
500 CABLE								
INNER COND.	.414	73.4	.585	71.4	.869	68.6	1.310	64.8
OUTER COND.	.118	20.9	.167	20.4	.248	19.6	.374	18.5
DIELECTRIC	.033	5.7	.067	8.2	.149	11.8	.339	16.7
TOTAL	.565	100.0	.819	100.0	1.266	100.0	2.023	100.0
750 CABLE								
INNER COND.	.279	71.4	.395	68.8	.585	64.9	.883	59.9
OUTER COND.	.079	20.2	.112	19.5	.167	18.6	.252	17.1
DIELECTRIC	.033	8.4	.067	11.7	.149	16.5	.339	23.0
TOTAL	.391	100.0	.574	100.0	.901	100.0	1.474	100.0

Table I Calculated Attenuation @ 68F for Sealmetic CATV Cable SLM-AL

attenuation made by the dielectric. If we are going to examine this expression in detail, it will be useful to understand the relative magnitudes of the three terms. Table I has been calculated for the three popular sizes of CATV cable, assuming a construction with copper inner conductor, aluminum outer conductor, and foamed polyethylene ($\epsilon = 1.50$) dielectric. Figures 2, 3, and 4 present this information in graphical form. Note that from the smallest cable size at the low end of the frequency spectrum to the largest size at the high end, the effect of dielectric loss ranges from 4.6% to 23% of the total cable attenuation.

Now let us examine equation (6) and the values calculated from it shown in Table 2. Note that the amount of attenuation contributed by the dielectric is *not* a function of cable size, and that it is directly proportional to frequency. At any given frequency this quantity is the same for all cable sizes, and it doubles with each octave of frequency. The first two terms, on the other hand, are proportional to the

materials used and the manner in which they are processed, can have dissipation factors ranging from 0.0001 to 0.0008. This is one reason why some cables perform reasonably well at low frequencies but exhibit abnormally high attenuation at higher frequencies. It also indicates that very possibly dissipation factor requirements will need to be added to our specifications if the cables are to be used for frequencies much above the present VHF TV channels.

It is scarcely surprising to note from equation (6) that the attenuation contributed by the inner and outer conductors is sensitive to both resistivity (ρ) and conductor size (d). It may, however, be of interest to observe that these two portions of the cable attenuation are proportional to the square root of resistivity, and therefore not as sensitive to the conductivity of the conductors as might have been assumed. It is also revealing to note that conductor-contributed losses are inversely proportional to conductor diameters, rather than areas. This is due to skin effect.

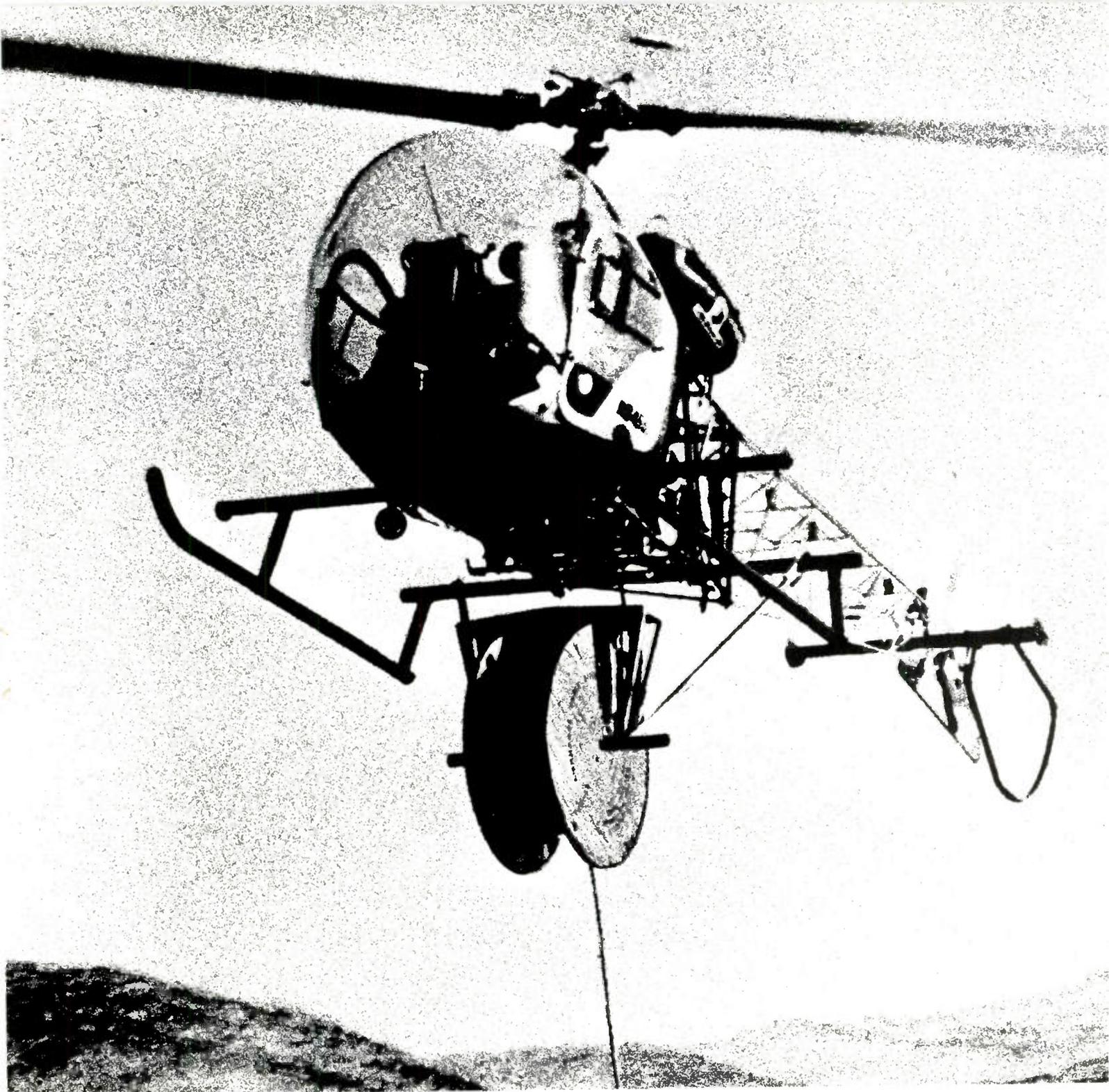
FREQUENCY (MHz)	COPPER § IN INCHES	ALUMINUM § IN INCHES
10	0.00082	0.00105
30	0.00047	0.00060
50	0.00036	0.00047
100	0.00025	0.00033
200	0.00018	0.00023
250	0.00016	0.00021
300	0.00015	0.00019

Table II Skin Effect

It is usually considered that a metal skin equal to three times the value δ is all the conductor that is useful. This is why copperclad or silverplated metals work so satisfactorily as conductors in CATV cables. Of course the conductors may be needed for other purposes, such as to carry 60 Hz power for cable powering of repeaters, in which case other design parameters must be taken into account.

It is hoped that this brief discussion of electrical design parameters for coaxial cable will aid in achieving better understanding of the mathematical relationships which exist among the various electrical characteristics of CATV cable.

(TVC)



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AMPHENOL

PRODUCT REVIEW

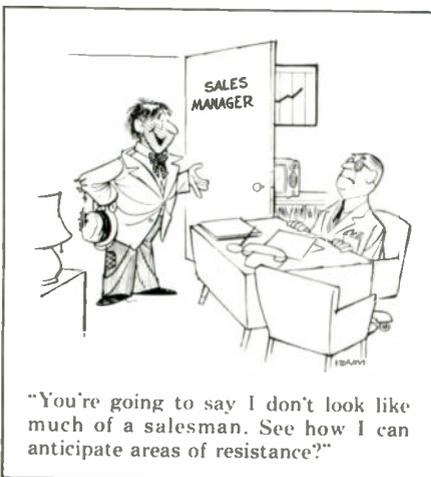
NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

NEW TRUNKLINE AMPLIFIERS

A new series of trunkline amplifiers has been announced by Cascade Electronics, Ltd. The Phase Two series features a trunk amplifier, low and high gain bridgers, a combination amplifier, and a terminal distribution amplifier, all of which are to be in production soon. The units are housed in a weather and radiation-proof aluminum housing, equipped with stainless steel hardware and new connectors. All new plug-in modules are fitted into cast aluminum guide



blocks which have spring fingers designed to provide large-area contact with the heat-sink surface. Also featured is a new "switching mode" power supply module which is said to maintain constant output through a 22-32 volt AC input range. Excess supply voltage is "switched off" during part of the AC cycle instead of being dissipated, a factor which is said to reduce power consumption, keep operating temperature down, and extend powering range and capability since only the needed current is drawn. A temperature level control



"You're going to say I don't look like much of a salesman. See how I can anticipate areas of resistance?"

responds to a sensing thermistor which is epoxy-potted in a Mil-spec Amphenol fitting. An accessory test probe containing AF attenuation and DC isolation components is also featured.

For further information on this new product contact Cascade Electronics, Ltd., Port Moody, British Columbia.

VTR CONTROL PANEL

A new unit, designed to provide VTR users with a special effects apparatus, has been announced by Concord Electronics Corporation. The unit, designated TCP-1, contains built-in switching and controls to title, fade, flare fade, and superimpose images from a two or three camera system. The unit can be used with multiple camera systems which employ an external sync generator, but the manufacturer states that no external sync is necessary when the unit is used in conjunction with the Concord MTC 18 camera. The panel includes



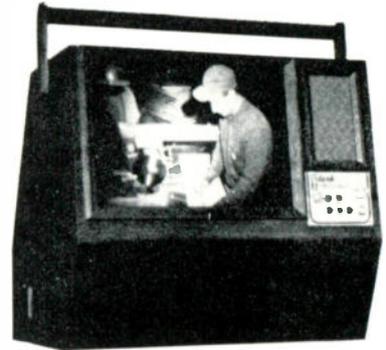
video inputs for up to three cameras, and a video output for connection to a video tape recorder. Also featured is auxiliary provision for tally light, microphone, or other desired connections between the panel operator and cameras. The TCP-1 sells for less than \$150.00, weighs three pounds, and measures 7 1/2" x 5 1/2" x 3 1/2".

For further information on this new product contact Concord Communications Systems Division, Concord Electronics Corporation, 1935 Armacost Avenue, Los Angeles, Calif.

DOOR-TO-DOOR SALES AID

A new self-contained audio-visual display unit has been recently announced by Lark Pictronics. The unit, called the Lark Daylight Projector,

features a record and playback tape recorder with plug-in slide sync button, low impedance microphone and Kodak Carousel 800 projector. The 270 square inch screen is plastic bonded on glass and forms an even

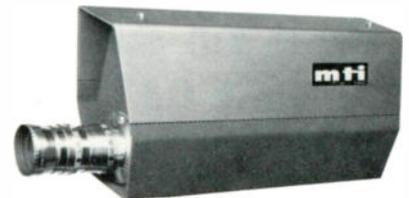


image, according to the manufacturer. The Kodak projector is equipped with a 3" wide-angle lens and has a slide capacity capable of handling 80, 35mm slides. The tape recorder utilizes a tape cartridge that plays through the end of the show and then is at the beginning for repeating the sequence. Up to 35 minutes can be programmed per tape. A Shure, low impedance microphone with on/off switch completes the audio input requirements. Switchcraft controls including power on, tape start, focusing of picture and slide forward and reverse controls are all located outside the console.

For further information on this new product contact Lark Pictronics, 301 North 13th, Billings, Montana 59101.

NEW PRODUCTS FROM MTI

A new vidicon camera and video monitor have been recently introduced by Maryland Telecommunications, Inc. The solid-state camera unit designated Model VC-11, features 600-line resolution. It also has a protection feature which utilizes vertical and horizontal sampling to apply cutoff bias to the vidicon in the event of sweep failure. Other specifications given by the manufacturer are: scanning rate — standard with random interlace; sweep linearity — greater than 2% over the full area; video



output — 1.0 volt p-p black negative with sync equal to 30%; output impedance — 75 ohms; input power — 100 to 130 VAC, 60 Hz, less than 20 W.; operating temperature — 0 °F to

115 °F; weight — 9 lbs.; lens mount — standard "C" mount for a single 16mm lens. The unit sells for \$795.00 less vidicon tube, and for \$924.50 with MTI type V-220 vidicon tube.

The new video monitor, designated Model VM-218, is solid-state and features 800-line resolution, according to the manufacturer. Other specifications are given as follows: scanning frequency — 525/30 frames/sec at 60 Hz field rate or 625/25 frames/sec at 50 Hz field rate (CCIR); sweep linearity — within 1% of picture height, 2% overall; video input signal — black negative, 0.25 volt p-p non-composite for 50 volts at kinescope (cut-off); bandwidth — 10 MHz; input power —



55 VA at 120/240 volts, 50 to 400 Hz, fused at 1 ampere; voltage regulation — low voltage is said to meet all specifications while varying line voltage from 100 to 130 volts at any rate, while high voltage is ultor voltage regulated within plus or minus 2% for beam current from 0 to 300 microamperes; screen brightness — capable of at least 100 footlamberts with 800 lines resolution; DC restoration — 100% or 0, sync tip clamp, switch selectable; video input impedance — high impedance (2.2 megohms in parallel with 15pF) or terminated into 75 ohms, switch selectable; external

sync — 1 to 100 volts, negative, with composite or separate sync, switch selectable; focusing is electrostatic and deflection is electromagnetic. The kinescope is a 9" GE-ET44X100 bonded face (9VP4 type). The VM-218 is available in four models, with prices ranging from \$415.00 to \$450.00.

For further information on these new products contact Maryland Telecommunications, Inc., York and Video Roads, Cockeysville, Maryland 21030.

COUPON PERFORATOR

A payment coupon perforator, designated Model 374, has recently been introduced by Cummins Corporation. The device is said to be capable of gang-punching twelve payment coupons and accompanying inserted pages with 15 numeric characters in a single machine stroke. The manufacturer reports that figures are legible to customers, tellers, and the reading heads of ODP readers and ODPS scanners.

For more information on this new product contact Cummins-Chicago Corp., 4740 N. Ravenswood Ave., Chicago, Ill. 60640.

NEW FAIRCHILD CAMERAS

A new series of closed-circuit television cameras has been introduced by the Fairchild Space and Defense Systems Division of Fairchild Camera and Instrument Corporation. The four-camera TC-177 line is designed so that the basic TV camera can be converted to more advanced configurations as desired to meet specific applications requirements. The model TC-177 camera is a self-contained, crystal-controlled, random interlaced unit with 12 MHz bandwidth and 800-line

resolution, according to the manufacturer. It has 4,000:1 automatic light compensation and adjustable aperture correction. Optional features include RF output, 900-line resolution kit, and 2:1 industrial interlace board.

For further information on these new products contact Fairchild Space and Defense Systems, 300 Robbins Lane, Syosset, L. I., New York 11791.

PITMAN ADDS TO POLECAT

Pitman Manufacturing Co. has announced that boom controls, a hydraulic jib-crossarm, and a one-man personnel bucket are available as accessories for its Series 55 Pole-



cat digger-derrick. The insulated jib and crossarm can be used as a jib parallel to the ground for approximately 5 ft. of extra horizontal reach or it can be hydraulically tilted to in-line with boom for approximately 7 ft. of extra vertical reach. The unit can be stored on top of boom when not in use, and has a 500 lb. capacity.

For more information on this new product contact Pitman Manufacturing Co., Grandview, Mo. TVC

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TV Communications pays \$20 for color photos used on the magazine's front cover. Any CATV-related subject matter considered; send color transparencies (2 1/4" square or larger) or color prints (with negative if possible). All materials returned on request. Send to Milt Bryan, Assistant Editor, TV Communications, 207 N.E. 38th, Oklahoma City, Oklahoma 73105.

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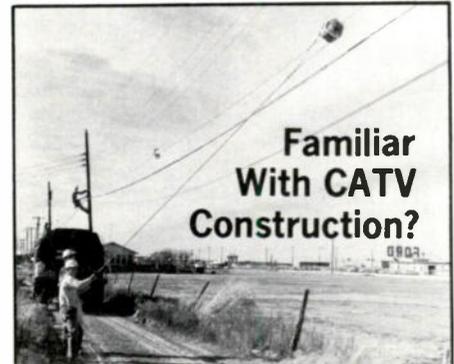
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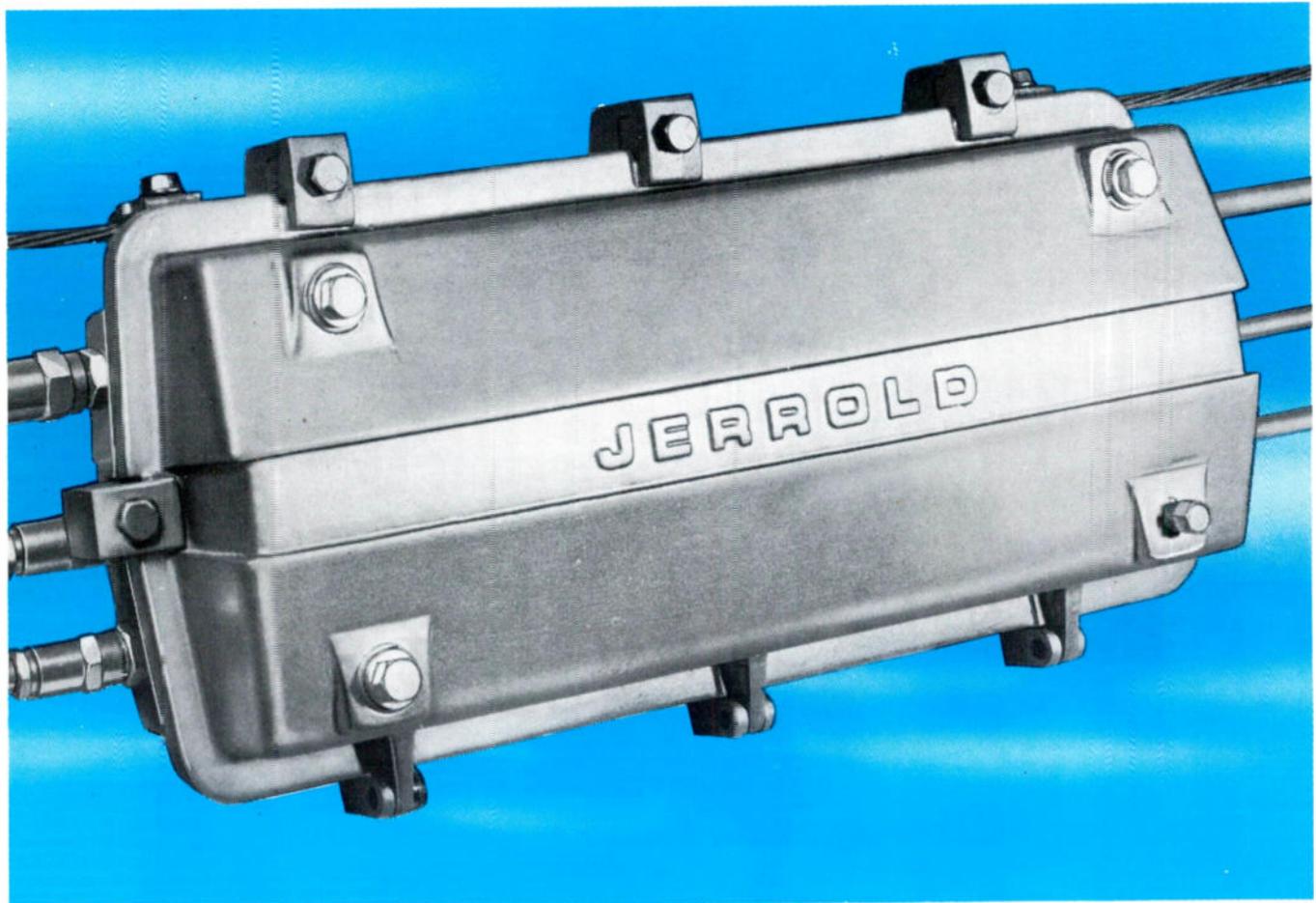
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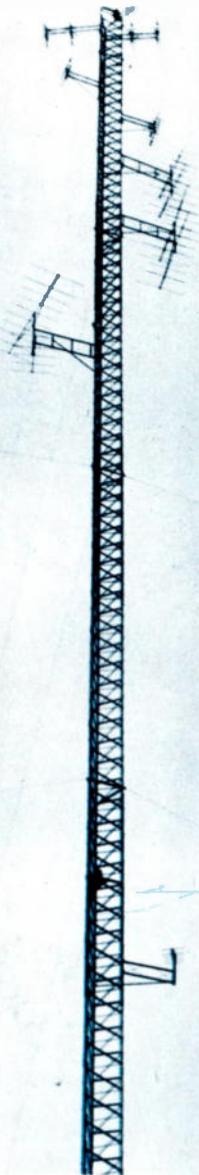
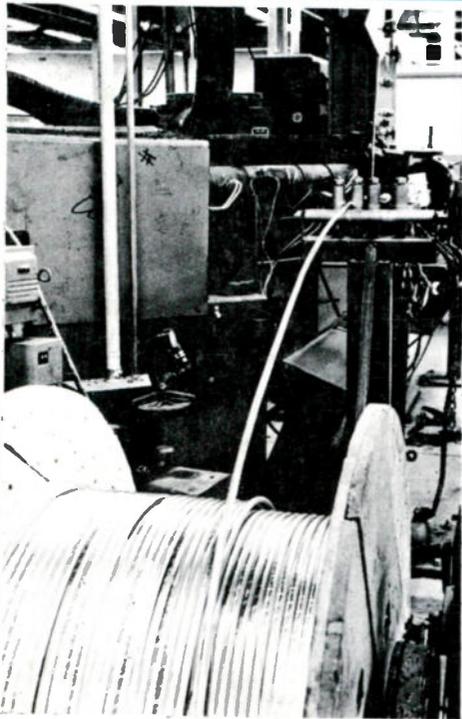
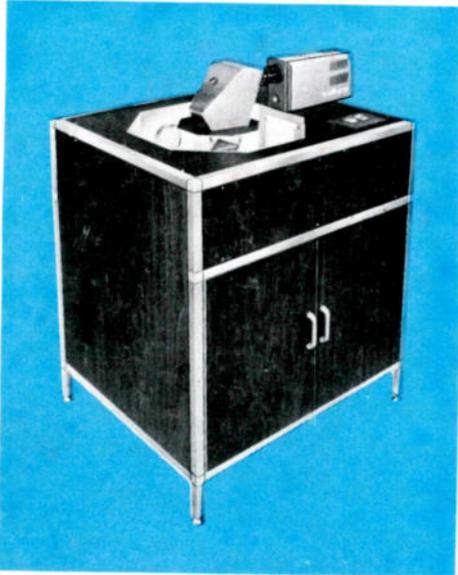
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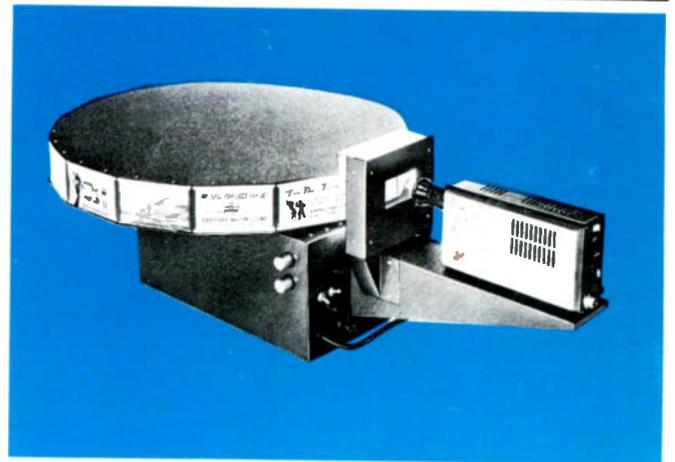
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