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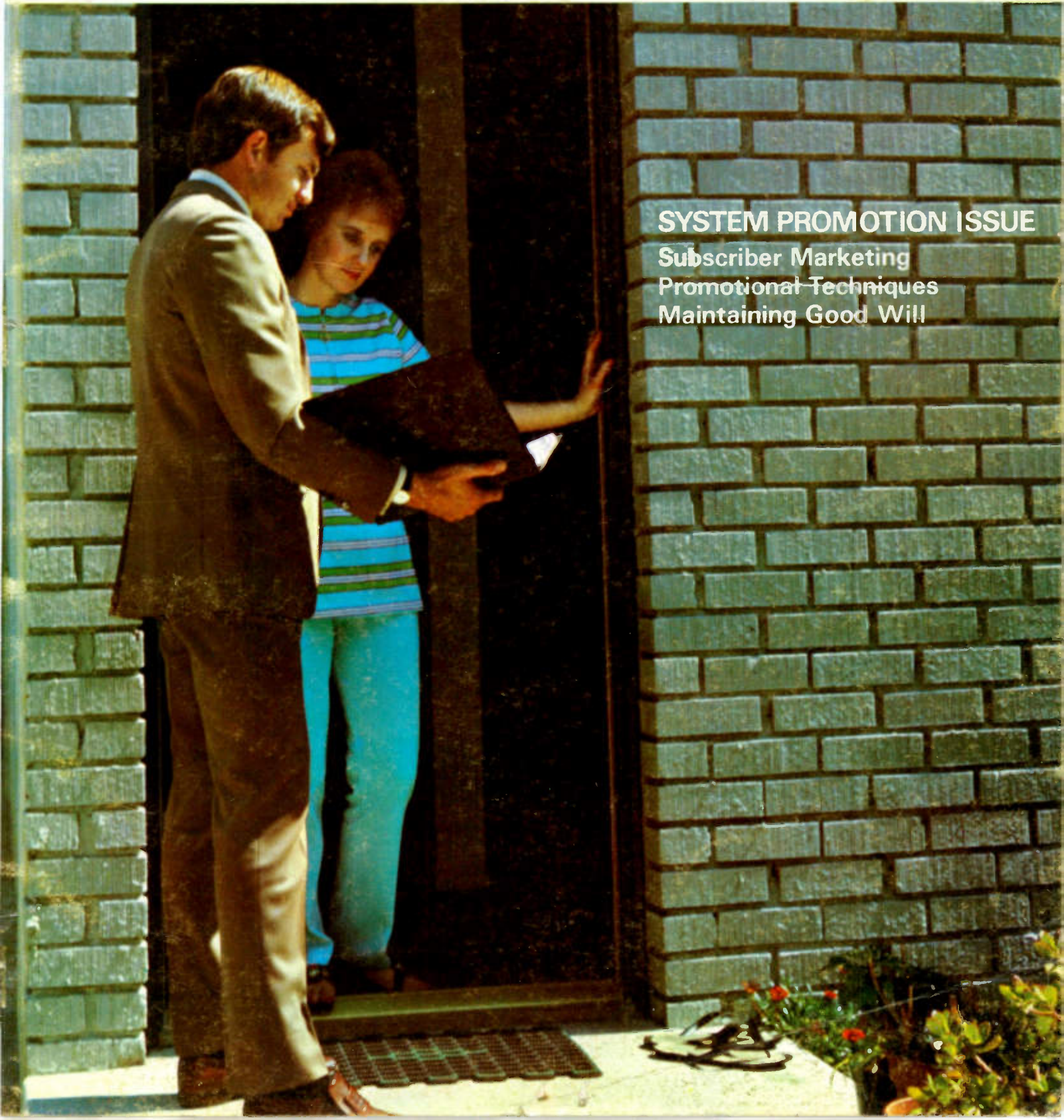
May 1971

TV Communications

The Professional Journal of Cable Television

SYSTEM PROMOTION ISSUE

Subscriber Marketing
Promotional Techniques
Maintaining Good Will



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May 1971, Volume 8, Number 5.

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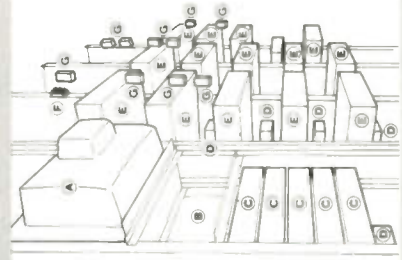
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TV Communications

The Professional Journal of Cable Television

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This Month's Cover...

David Young, representing National Telesystems Corporation, explains the advantages of cable television to a potential subscriber. Building subscriber count is the topic of articles on pages 28 and 49 of this month's magazine. The article on page 76 offers some practical suggestions for keeping that customer happy after he has the cable installed.

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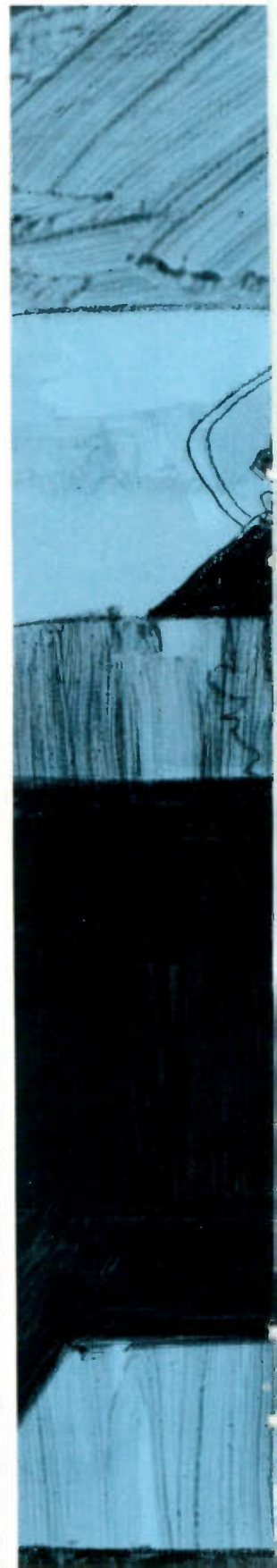
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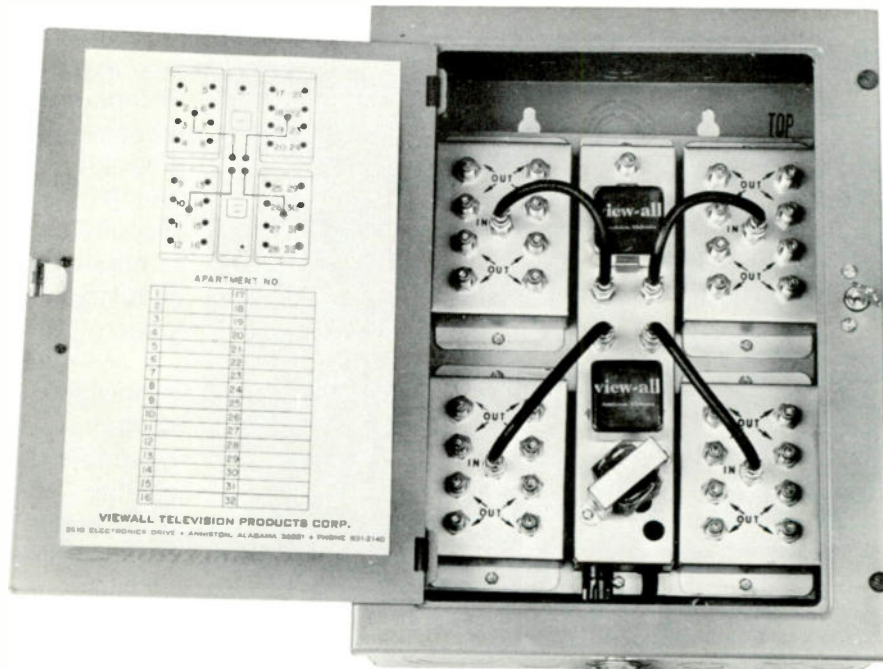
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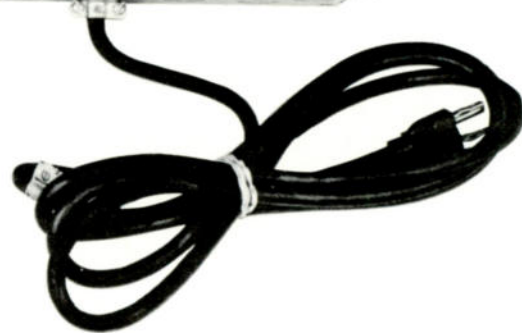
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The TVC Viewpoint

EDITORIAL



Robert A. Searle
Publisher

A Ridiculous Proposal?

As I write this editorial, CATV waits on the eve of a lift on the FCC's restrictions on distant signal importation. Or it sits on the brink of yet another chill in the present deep freeze. At this point, the pendulum could fall either way.

What if cable *doesn't* get distant signals? Does this mean the industry is washed up — that its chances of expanding into most of the nation's television homes are lost?

I don't think so. I think there are alternatives.

And one alternative is for the cable industry to develop its own programming.

"But this has been tried," you say. Yes, it has, but by commercial interests only. In each case, the commercial concern either lacked the understanding of what CATV really needs or the necessary capital to produce the kind of software people will buy.

The market was also virtually non-existent. *Today's* CATV audiences do not constitute a big enough market to support very much program development. But *tomorrow's markets* — the big cities — do.

But before these markets can be wired, we must have marketable programming. That's why we should look seriously at forming a CATV programming cooperative — an association of cablemen who chip into a central fund for the development of

programs exclusively for CATV. The lion's share of the co-op expense should come from multiple system operators — those who stand to gain most.

We've been crying all these years for distant programming. But what people will watch is not necessarily *distant* programming, but *more* programming and more *diverse* and perhaps *better* programming. A CATV co-op could produce or obtain programming at least as good as the country's most successful independents. And unlike the independents, none of it would be programming which has a local interest only in their markets.

A CATV programming network would make it possible for the industry to circumvent the problem of copyright.

As use of CATV net programming grows, national advertising can be solicited to help defray the expense of production and distribution. Eventually, the industry would develop at least two or three channels of specialized programming — a package which most industry sources agree would make CATV marketable to major market viewers. And small operators would be able to share in the co-op and buy programming at a cost they could afford to pay.

Is this a ridiculous proposal? I don't think so. Your reactions are welcomed.

Perspective

on the news



B. Milton Bryan
Executive Editor

NCTA money problems could spawn a rebuild in the association dues structure. Continuing trend toward major MSO mergers hurts NCTA revenues, even though overall subscriber numbers and new member systems continue to increase. There's not much relief in sight for NCTA on any other horizon, since mergers of multiple system operators can be expected to continue. Another major combine is in the making right now, according to industry sources, and can be expected within the next next couple of months.

Bigs continue to gobble up the small, as CATV business takes on a new hue. As forecast on this page months ago, the mom and pop's and the smaller MSO's such as Centre Video are being absorbed right and left by the larger, more monied organizations. Trend will continue, but new bigs will spring up as the top market franchises are handed out. If one company lands the Chicago franchise, for instance, it could soon be larger -- in terms of subscriber number -- than most of today's MSO's.

Money problem is not a new dilemma for NCTA, of course. Staff men have complained frequently about the shortage of personnel and the lack of available funds for much-needed programs. Don't be surprised to see another staffer follow the lead of Sam Street, Bruce Lovett, and Norm Penwell.

Although NCTA is not guilty of paying pauper's wages, the money seems to be a bit greener in the industry itself -- a phenomenon common to all trade associations, whose key men are in touch with the industry -- and its job opportunities. The heat of the battle is no time to have your generals pull out, so let's hope Mr. Taverner and the NCTA Board keep on taking care of the top echelon.

CATV continues to attract attention in national business and consumer press -- exposure which can only aid the industry as it moves into additional communities around the country. Recent feature articles on cable have appeared in Business Week (March 27), Ramparts (April), and TV Guide. The Business Week cover story was entitled "The Networks Shrug Off Their New Competitors." The April 3-9 issue of TV Guide featured Irv Kahn in Part I of "Do You Know What's Going To Happen to Cable TV."

FCC is asking Congress for budget increase for CATV Bureau of nearly \$100,000 next year. Request is part of total agency request of almost \$30 million -- an increase of \$3.8 million over the current year. The CATV Bureau would receive a staff increase of nine man-years under the new budget request.

New Jersey cablemen gave a good account of themselves at recent hearing on PUC bill in their state, despite sensationalistic testimony on alleged franchise "shakedowns." Appearing on behalf of cable were NCTA's Gary Christensen, Jerrold's Robert Beisswenger, Time-Life's Edgar Smith and D. C. attorney Jack Mathews. Possible preemption of all cable regulation at the federal level was a major point made by cable interests.

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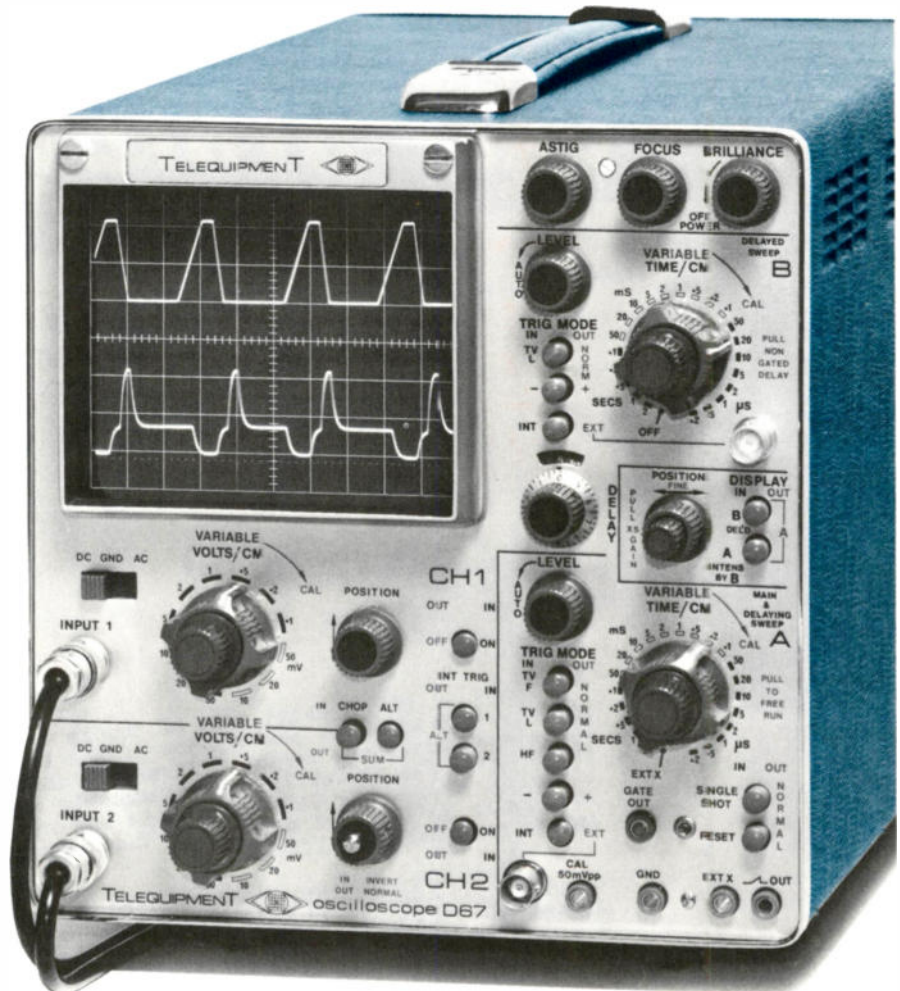
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March 10, 1971

Mr. I. A. Faye, Vice President
AEL Communications Corporation
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Dear Irv:

This is just a short note of thanks to let you know how happy we are with the performance of the AEL Superband amplifiers and converters in the CATV system that AEL designed and installed. Its reliability is remarkable and in the findings of Walter Wydro, our CATV Consultant who recently inspected it, the system is "as good and better than other systems using the latest push pull amplifiers".

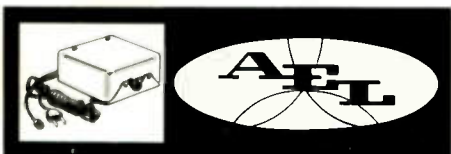
During the past two winter months (much snow, rain, abrupt temperature changes) we have not had to put a screwdriver to the system and it has held levels within "spec" and has ticked like a clock, putting out beautiful pictures, thus giving us a chance to devote most of our energies to hooking up customers.

Without a doubt the Coatesville system is a success and is everything you and your people told us it would be at the start of our association. We now deliver 16 channels to the homes with a single cable.

Good luck with Superband. I look forward to seeing you soon.

Sincerely,

Louis N. Seltzer
Louis N. Seltzer
President



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LETTERS

Plaudits for Don Andersson

Dear Don:

Having just finished reading your article in the March issue of *TV Communications Magazine*, I am compelled to write to you with an expression of gratitude. Both Bill Tynan and I feel that your article was the most factual, realistic appraisal of the local origination advertising picture that either of us has ever seen.

It's an absolute joy to see a few hard facts dropped into the buckets full of blue sky that we're accustomed to having dished out to us by the trade press.

John W. P. Mooney, Gen. Mgr.
High Fidelity Cable Television
Great Barrington, Mass.

The above letter was sent by Mooney to TVC author Don Andersson, in response to his article entitled "Experienced Perspective on the Origination Bug." Mooney's comment about "buckets full of blue sky" is a point well taken. The problem is one of an information shortage.

There are very few hard facts available on the subject of cable advertising, so contributing authors are driven to futuristic guess work when they address the subject. For this reason, Andersson's article was especially welcomed. — Ed.

Dear Milt:

Bravo for Don Andersson's honest appraisal of local origination as it really is! Candid discussions such as Don's do a great service to your readers... and will hasten the discovery of local programming's appropriate role in cable television.

Local origination definitely holds the potential for advertising revenues and measurable audiences. But let's not kid ourselves about how much and how soon.

Stanley M. Searle
Pan-American Cablevision, Inc.
Denver, Colorado

New Brochure Available

Dear Stu:

It was a pleasure talking to you via phone regarding the handling of news releases submitted to your publication.

Thank you, too, for filling me in on the broader aspects of your publication's policies and proce-

dures. May I also request that you forward me guideline information about writing articles for your publication.

John Oresic
Marketing & Public Relations
Suffolk Cablevision
Patchogue, N. Y.

A brochure on "How To Write for TVC" is on its way, John. Others who are interested in preparing articles, etc. for TVC are welcome to a copy. — Ed.


Frequency Study Group

Dear Bob:

The IEEE Cable Television Task Force has formed a subcommittee to prepare a technical report on recommended frequency plans to be used on cable television systems. In an effort to obtain as wide a variety of useful inputs, we would appreciate any publicity your publication might be able to give this effort.

J. J. O'Neill
National Academy of Eng.
2101 Constitution Ave., N. W.
Washington, D. C. 20418

Archer S. Taylor is the chairman of the Cable Television Task Force of the IEEE. Readers who are interested in the above mentioned subcommittee should write to the address above. — Ed. TVC



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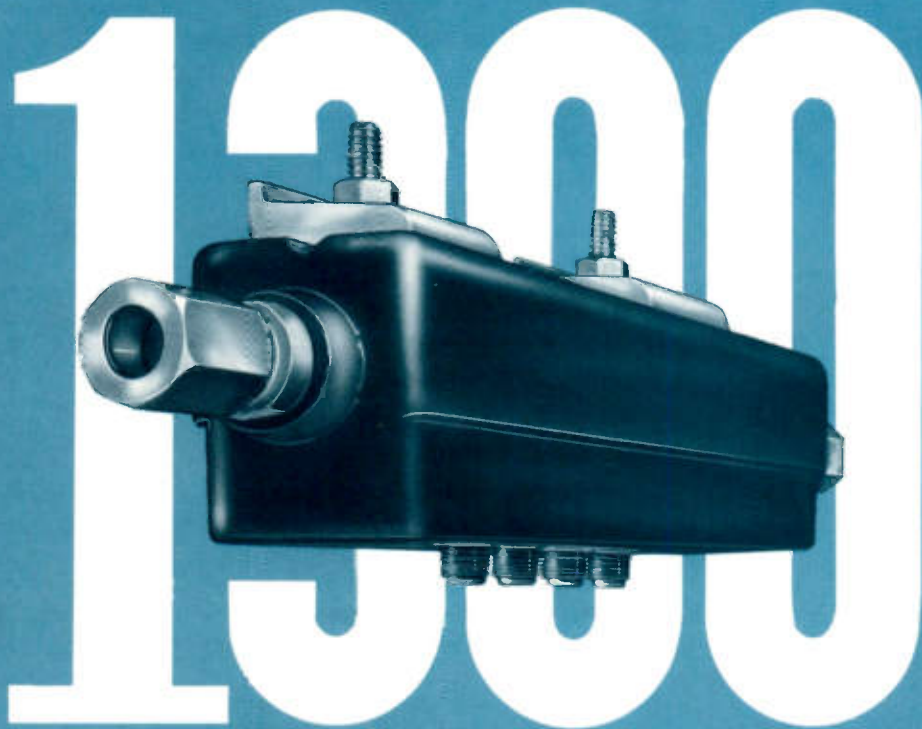
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Management Guidelines

D. Stuart MacPhail
Managing Editor



How To Run a Meeting

Last month we reviewed the steps involved in setting up effective meetings. Having determined if it is a tell, sell or solve meeting, and having determined what you want to accomplish ... consider these hints for running the meeting successfully.

Be sure to emphasize promptness. Whenever possible, the best policy is to ignore latecomers. Make no attempt to bring them up to date. This is one of the best ways to cure chronic tardiness.

Capture the group's interest in the first few minutes or they start to doodle. The burden rests with the leader; he should play his part to the hilt just as an actor does. A relaxed, informal style is the most productive. Greet people by first name as they come in, make small talk as they settle down.

As soon as everyone is ready to begin, be sure to welcome the group as a whole; this clearly establishes your role as host. Plunge right into the purpose and objectives of the meeting. State goals concisely; preferably emphasize them by writing on a blackboard. Use dramatic effects, a film or recording, colorful diagrams or some other audio-visual aid.

Once you have outlined the objective, throw the ball to the group. Ask debatable questions, avoiding those that can be

answered with just "yes" or "no." Ask three or four people the same question. To assure full answers, clamp down on interruptions. Don't hesitate to rephrase anybody's answer in the interest of brevity and clarity. But be sure to keep the same thought.

While many of your questions will come spontaneously from the discussion, don't push your luck. Think up some good questions before the meeting and fire them into the discussion when things slow down.

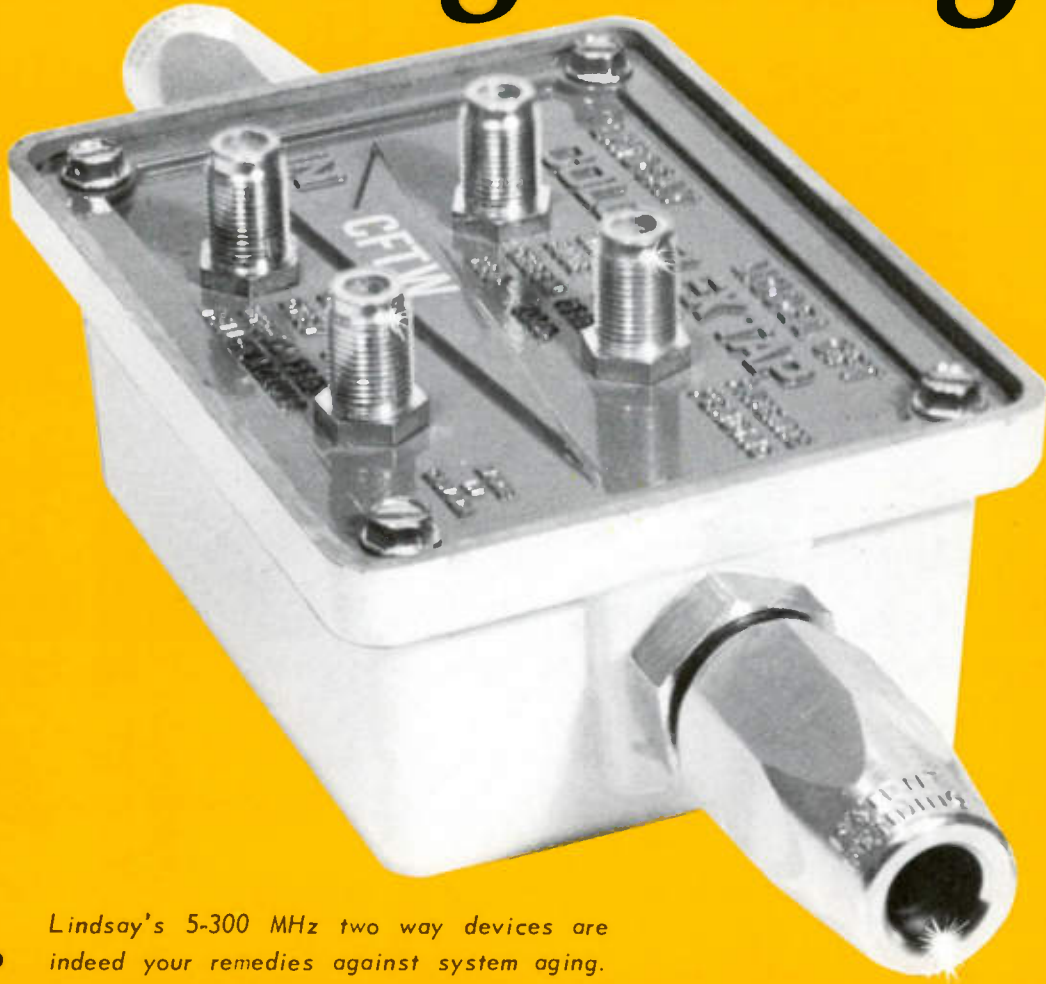
Disagreements are healthy. If there isn't a single dissenting voice in your meeting, the chances are that some of the people are too uninterested to care or else the group is loaded with yes-men.

When one topic is exhausted, make a thirty second summary and move on. Summaries act as a score-card and let everyone know exactly where you are in the meeting.

The most important part of the meeting is the end. After all of the decisions, solutions, and conclusions have been discussed, it is still up to the leader to solidify the results. Whatever the decisions were, be sure to repeat them and hammer them home to the group. Otherwise you'll be saying, "Thank you for coming, gentlemen," to a lot of men who are uncertain as to what was decided.

FVC

Let us keep you from growing old



Rx. Lindsay's 5-300 MHz two way devices are indeed your remedies against system aging. The best cure is prevention. You can save your system(s) from growing old by installing the most advanced equipment available.

The New Lindsay COLORFLEX CFTW 5-300 directional tap specifications are so good, they exceed present and future system demands by wide safety margins.

In addition to COLORFLEX taps we offer many advanced products for system upgrading: directional couplers, splitters, power inserters, sub-lo filters, amplifiers, etc.

The specifications for these devices are outstanding. For instance, our LS2EW power passing splitter has typically 29dBRL on all ports and 34dB isolation, 5-300MHz (of course). In your own system dare you, should you settle for less? We can supply you with the components that will assure your system's high performance. All our equipment is designed to easily pass FCC/CRTC regulations.

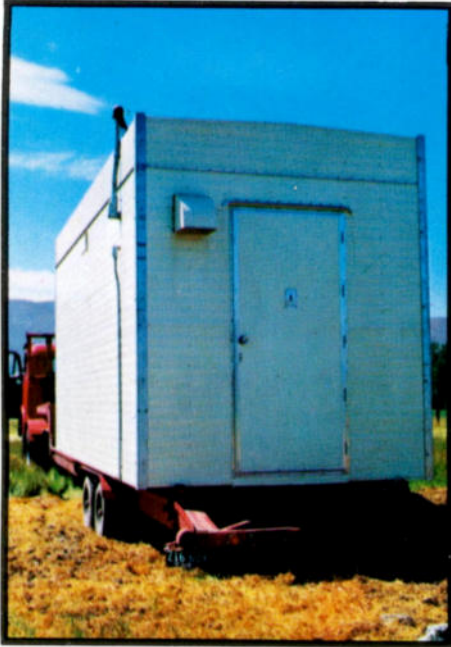
For your cable system's well being and your own ease of mind - its time for a checkup. Find out about the lowest priced, best quality 5 to 300 MHz equipment by taking a moment to phone or write us for further information.

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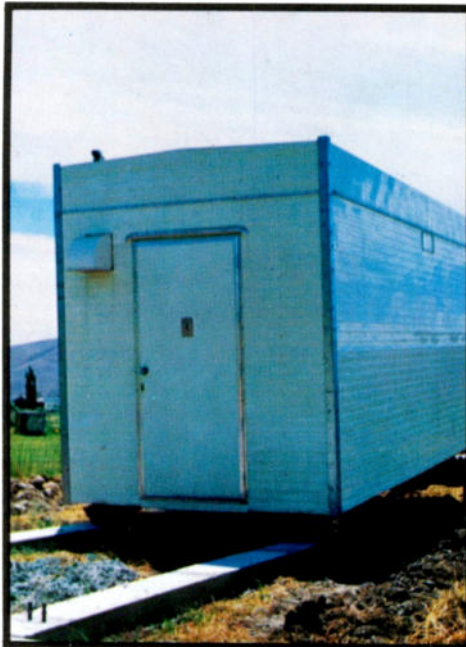
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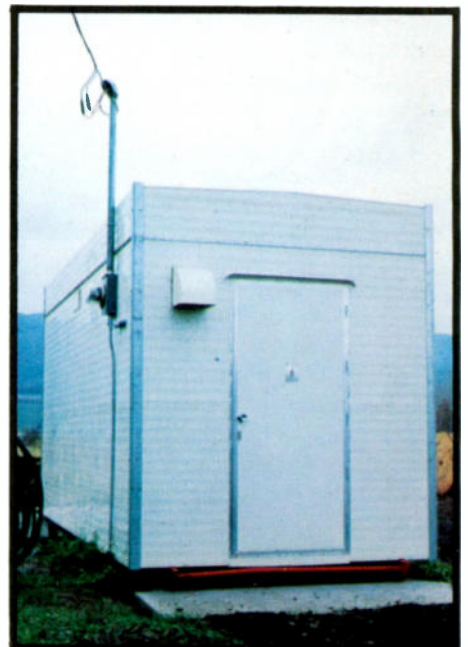
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BOLT IT DOWN!

It took just 90 minutes to finish the job at West Valley Cablevision's new plant in Yakima, Washington. And the same convenience, economy, and quality can be built into your system with a new MOBILT Head-End Building from Fort Worth Tower Company. Designed expressly to house CATV and microwave electronic equipment, MOBILTS withstand any climate or location problem . . . house electronic equipment according to the most rigid standards.

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Your MOBILT can be ready to work for you in minutes. You have no rig-up delays on arrival because your building comes with supporting I-beams. Simply drop on your site, connect the service inlet, and you're in business.

■ REDUCED COST AND WAITING TIME

MOBILTS save you time and money because complete wiring is installed at the factory. Unlike conventional buildings,

equipment can be delivered with it rather than installed on location.

■ QUALITY CONSTRUCTION

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.

■ FAST DELIVERY

No matter what the weather conditions, site or local labor situations, MOBILTS offer fast delivery and uniformity. We promise delivery on time.

Many options are available in size, outside finish, wiring and ventilation. You owe it to yourself to write for full specifications on these rugged, versatile head-end buildings. You'll find one exactly suited to your needs . . . at an economical price.



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CATV News Briefs

A Summary of News from CATV, the Newsweekly of Cable Television

FCC Nearing Answer on CATV?: At TVC press time, no word on progress toward a Third Report and Order on CATV. FCC was scheduled to meet on April 15 to discuss cable policy . . . meeting never came off . . . more "urgent" matters pushed CATV to bottom of agenda. Several FCC staff groups are working on cable policy suggestions. Comprehensive program for cable regulation may be long way off . . . even if Commission settles on a general direction within next week or two. (CATV 4/26 p3, 6)

CRTC Launches into Cable Hearings: Several hundred briefs from cable operators, broadcasters, citizen groups, actors and musicians unions and politicians were filed with CRTC as major Canadian CATV hearings got under way on April 25. Topic is proposed regulations . . . first in 19-year history of Canadian CATV. Meanwhile, Quebec, one of Canada's ten provinces, has challenged federal jurisdiction of CATV . . . promised CATV legislation . . . Supreme Court test case may result. Quarter of Canada's 400 cable systems are in Quebec. (CATV 4/19 p6 and 7)

LVO Cable Files Application for Satellite System Earth Stations: LVO, Network Affiliates Association and Twin County were granted permission to file late for proposed earth stations. All applications now in. No quick decision expected. LVO filed for five earth stations to receive domestic satellite signals. Proposals have also been filed by: ComSat, RCA Global Communications, MCI-Lockheed, General Systems and Hughes, Western Union, Western TeleCommunications, TelePrompTer, Fairchild Hiller, AT&T/Comsat and Hawaiian Telephone Co. (CATV 4/19 p3)

NCTA Files Satellite Comments: Filing supports FCC authorization of one or more satellite systems as soon as possible . . . endorsed competition between satellite systems . . . gave opinions on rate structures . . . used filing to again underscore importance of CATV development in major markets. (CATV 4/12 p5, 6)

Simpler Programming Logging Asked for CATV: NCTA and a group of CATV system owners have asked FCC to simplify its proposed cablecasting logging requirements . . . meanwhile, network ABC asked FCC to require more information. System operators (including Cox, Buckeye, Athena, Jerrold and National TransVideo) pointed out that CATV operations are substantially different from broadcasting . . . therefore logging requirements should be different . . . requested that requirement be placed only on systems that are required to originate. (CATV 4/19 p6, 7)

Anti-CATV Effort Is Just a Delay Tactic, Says Broadcaster: "Those arguing against the wired nation concept are only accomplishing a holding action," said William Ryan, president of Florida Assn. of Broadcasters at recent meeting of American Women in Radio and Television. Talk entitled "Reflections on the Next Twenty Years of Broadcasting" predicted most of nation will be wired for CATV within 20 years . . . but over-the-air TV stations will remain basically the same. (CATV 4/19 p7)

Reception for Congressional Aides a Success: NCTA hosted a reception at the Madison Hotel in Washington during April . . . about 200 legal and administrative aides attended. More than 100 House offices and more than 50 Senate offices were represented . . . CATV industry was outlined to them . . . current status of federal regs was explained. (CATV 4/26 p7)

Programming Conference Drew Top Speakers: Late April program confab sponsored by NCTA featured FCC Commissioner Thomas J. Houser, Barry Zorthian of Time-Life Broadcast, Stock Helfrich of NAB and Geoffrey Nathanson of Optical Systems Corp. It was first time Houser, FCC's newest Commissioner, had spoken to a CATV

CATV News Briefs

industry group. He suggested that regulation of CATV along the lines of common carriers "remains a viable alternative for Commission consideration." He labeled his own remarks as "speculative," but said cable operators should see such regulation as having certain benefits. (CATV 4/5 p24, 4/12 p9 and 5/3 p3)

Another Petition Muddles Viacom Case: Second Circuit Court of Appeals, New York, is considering appeal by CBS against FCC order which holds up spin-off of Viacom. FCC continues to study Viacom case . . . and California courts still have the case instigated by Marino Iacopi and other minor stockholders. Group of motion picture producers (led by Columbia Pictures) has submitted second petition to enter case against Viacom. (CATV 4/5 p20)

Texas Assn. Draws 400 to Confab: Texas Cable Television Association spring convention in Dallas (April 7-9) boasted nearly 40 manufacturer exhibits, featured "The Texas CATV United States Open and Amateur Golf Championship of the World." ATC's Doug Dittrick tied with CPI's Talbert Foster, then won a toss for the championship. Dick Loftus, Amvideo, addressed luncheon. Mel Gilbert is new president; Erwin Sharp is vice president; Johnny Mankin, Sr. continues as executive sec.; Hurshel Tyler is associate director. (CATV 4/19 p3, 6)

Southern Convention Attended by More Than 200: Southern Cable Television Association convention in Memphis (April 4-6) featured FCC's Robert Wells, Representative Torbert Macdonald, FCC Bureau Chief Sol Schildhouse and Don Taverner. B.M. "Bud" Tibshirany was elected SCTA president; W.E. Wade, vice president; Alvin Wood, sec.-treas. (CATV 4/12 p3, 19)

Lewiston-Auburn, Maine System Loses Distant Signal: Cable Vision Inc. had been carrying WABI from Bangor, Maine since before 1966 . . . but FCC voted to deny carriage since the system had never sought a waiver. Burch: carriage of signal "is consistent with the public interest" . . . but he voted to deny with comment "adherence to our rules by cable television systems must be demanded by this agency particularly in view of the many complaints by broadcasters of the cavalier attitude of many CATV systems . . . rules must be administered even-handedly." Until waiver is sought and obtained . . . no more WABI. (CATV 4/5 p18)

Systems Win Approval for Distant Signals: Group Cable Co. (California) has been authorized to bring five distant signals to its systems. Carthage (Missouri) Cablevision, Inc. can bring in a distant educational station, leapfrogging a closer ETV. Jackson County (Ohio) Cable was okayed to import three signals. (CATV 4/19 p5)

Gans Wins "Grandfather" Rights for Five Signals: Pennsylvania cable operator Joseph Gans has won right to continue carrying three Philadelphia and two New York stations . . . but lost a decision to carry five others. Basis for decision revolved around carriage before 1966. (CATV 4/19 p9, 10)

FCC Orders All Channels To Cease Importation: All Channels Cable TV of Lafayette, Louisiana has been ordered by an FCC hearing examiner to stop importing three signals. Signals in question come from Lake Charles, La. and Beaumont, Texas. According to the FCC order, All Channels is apparently observing carriage and non-duplication requirements . . . but violates top-100 rules which prohibit importing signals beyond grade B contours without a public interest showing. (CATV 4/12 p7)

Court Rules Against Franchise Depreciation: CATV system owners cannot take deductions for depreciation of a municipal franchise, according to a ruling by the United States Tax Court. Two systems operated by Liberty Television in Oregon lost to the IRS in a case involving 1963, '64 and '65 tax returns. (CATV 4/26 p7)

Frontier Broadcasting Ordered To Divest Fast: FCC told FB it will not accept plan for FB to divest itself of Cheyenne, Wyo. TV station by August, 1973. Since FB owns only TV, only AM, only daily newspaper, one of two FMs and cable system in Cheyenne . . . FCC said it is "imperative" to take swift action . . . six months should be "adequate" said FCC. (CATV 4/26 p8)

Bucks County Has Reported to FCC on Commercial Substitution: Bucks County Cable TV, serving Falls Township, Pa., submitted a second progress report to CATV Bureau. Report says "commercial substitution is practical," NY Vs refuse to cooperate, local Us offer only "grudging cooperation," no customer complaints received. (CATV 4/5 p24)

FCC To Check Causes of TV Interference: Commission has instituted a formal inquiry into all sources of TV signal interference . . . including CATV. AMST had asked FCC to form advisory committee to assist in solving interference problems . . . but FCC said a formal inquiry would be a more "expeditious" approach. (CATV 4/5 p7)

Zenith Buys UHF for Pay-TV Outlet: Zenith Radio Corporation has announced a purchase agreement to buy LA television station KWHY (channel 22). Zenith chairman Joseph Wright said Los Angeles is expected to be one of the first three markets for over-the-air pay TV using Zenith's Phonevision systems (CATV 4/5 p7)

FCC Sets Rules for College Radio Via CATV: Student station at Clarkson College of Technology (WNTC) has been authorized to have its signal carried by Antenna Systems, Inc., the cable system serving Massena-Canton-Potsdam area of New York. FCC stipulated that students must live by same rules as regularly licensed broadcasters. (CATV 4/19 p5)

Rocky Mountain Broadcasters Request Radio-CATV Rulemaking: RMB Assn. has petitioned FCC for rules forbidding CATV systems to import distant radio signals . . . to "protect free radio." RMBA urged total ban of distant radio or required carriage of all local signals and restrictions on imports. (CATV 4/26 p5, 6)

System Gives Employees Shortened Work Week: Amherst (N.Y.) Cablevision has announced that all their service personnel will operate on a ten-hour, four-day week. Schedule is designed so that every other week employees will have four consecutive days off. (CATV 4/26 p20)

New Cable-Related Firms Announced: Richard P. Doherty's TV Radio Management Corp. and BGW Associates, Inc. consulting team have formed "consortium" to offer services including cable system planning, sales, marketing consultation . . . headquarters at 1735 DeSales St., Washington, D.C. Century Cable Communications, Inc., newly organized by a group of CATV veterans, will acquire and develop CATV franchises. H. Lee Druckman, Richard G. Laventhol, Henry R. Goldstein and Ronald R. Morriss are principals. (CATV 4/5 p6 and 4/12 p5)

New Jersey Cablemen Speak Out on PUC Bill: A one-day hearing on a bill that would put N.J. cable systems under public utility rule was marked by facts and figures from cable people . . . and sensational stories about "franchise shakedowns" from others. Representative from one MSO said his firm would not put venture capital into any state with PUC regs. N.J. League of Municipalities and N.J. Junior Chamber supported cable interests. (CATV 4/26 p3)

Filing Time Extended in Program Proceeding: Comment deadlines on FCC proposal to make non-network programming available to UHF's and CATV have been extended. New dates: May 17 for comments, June 17 for replies. Proceeding which started January 13 seeks to reduce impact of long, exclusive program contracts. (CATV 4/29 p7)

CATV News Briefs

Cypress Communications Has New Home: MSO Cypress Communications Corporation and Harriscop Broadcasting Corporation moved a short distance to new quarters at 10880 Wilshire Boulevard, Los Angeles, California 90024. New phone number is (213) 475-8555. (CATV 4/19 p5)

Athena Has Announced CATV Scrambler System: Athena Communications Corporation will market-test a new scrambling and unscrambling system, EnDe-Code, to subscribers this fall. Two all solid-state devices will be used with special program package. (CATV 4/19 p7)

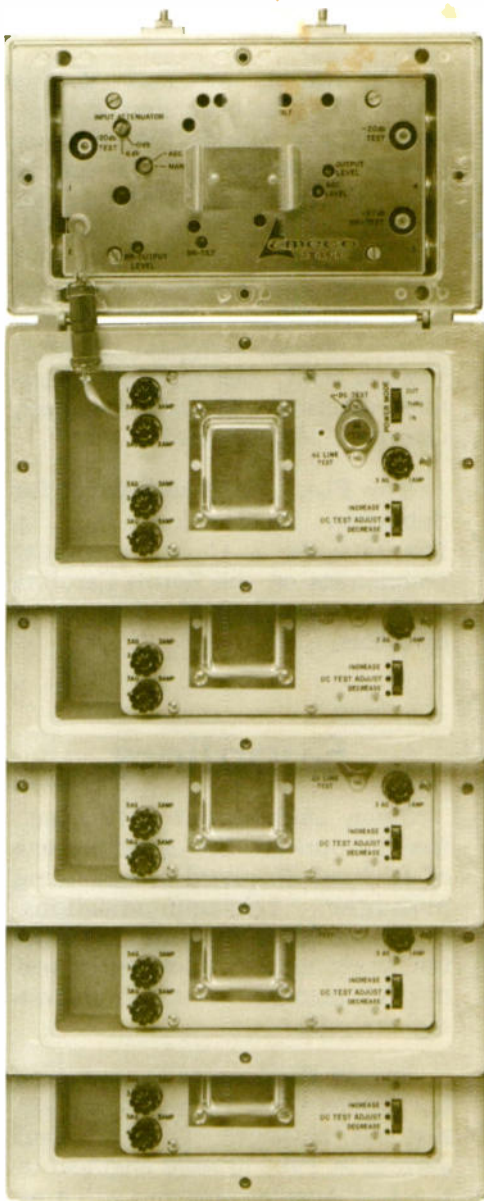
Theta-Com Receives FCC Type Acceptance: Amplitude Modulation Link (AML) 12 GHz microwave equipment, developed for CATV local distribution service, was granted necessary FCC blessing on April 23. First Theta-Com multi-channel microwave equipment for CATV use was installed in 1968. FCC type acceptance now means Theta-Com can begin selling AML system equipment. (CATV 5/3 p5)

School Offers New CATV-Related Courses: International Correspondence Schools of Scranton, Pa. has added two new CATV-related courses to its 1971 curriculum. They are a "Cable TV Installer" course and a "Solid State Electronics" course. (CATV 4/19 p11)

Commission Details Origination Rules: A recently released Memorandum Opinion and Order from FCC rejects adverse impact on TV by cablecasting . . . and has further explained what size CATV systems must originate programming. HB Cable (California) asked for a stay on requirement to originate . . . said local CATV programming would have adverse economic impact on small-market TV stations. Commission rejected argument. On question as to definition of "CATV system," FCC said that at least for time being, it will adhere to its "community-by-community" definition of systems . . . regardless of number of communities served by one head-end, each is a separate system. (CATV 4/12 p5)

Action in the Franchise Arena: The following communities have all granted CATV franchises recently: Burney and Johnson Park, Calif.; New Castle, Del.; Hialeah, Fla.; Canton and Round Lake Beach Village, Ill.; Scottsburg, Ind.; Shawnee, Kan.; Stoneham, Mass.; Seaside Heights, N.J.; Catskill, Guilderland, Huntington, Northport Village, Poughkeepsie, Orleans and Warrensburg, N.Y.; Etna, Grindstone and LaBelle, Pa.; Knox County, Tenn.; Daingerfield and Lone Star, Tex.; and Chesapeake, W. Va. Recent FCC notifications indicate that CATV service is also planned for Charleston, Ark.; San Bruno, Calif. (where construction is already under way on the municipally-owned system); Fellsmere, Miami Springs and Sebastian, Fla.; Aurora, Greendale and Lawrenceburg, Ind.; Winslow, Me.; Essexville, Mich.; Moss Point and Pascagoula, Miss.; Sandusky, Ohio; Allison, Allison II, Archbald Borough, Cardale, Colonial 4, Fairbank, Filbert, Herbert and Republic, Pa.; Bruceton and Gleason, Tenn.; and Grand Saline, Tex. Biddeford, Maine has terminated an LVO Cable franchise. Newport Beach, Calif. has transferred the FCB Cablevision franchise to TelePrompTer. New system construction has started at Carson and Fremont, Calif.; Haxtun, Colo.; Kewanee, Ill.; Peterborough, N.H.; and Port Orchard, Wash. (CATV April editions)

Financial Developments Affecting CATV: Cablecom-General has reported revenues up 18%, net income up 21% and cash funds generated up 26% for three months ended February 28, 1971 (over 1970). Communications Properties, Inc. first quarter (ending January 31) income rose 13% although net income was down compared to same period a year ago. CATV and microwave services of Tele-Communications, Inc. showed a total revenue increase of 44% for the year ended December, 1970. Lamb Communications profits for the nine months ending February 28 were up 32% over the like prior period. FCB Cablevision has completed an \$11 million, long-term financing agreement with Teachers Insurance and Annuity Association. Canada's largest MSO, Maclean-Hunter Cable TV Limited, has issued its first annual report since becoming a publicly-owned company. Revenues reportedly increased 60% in 1970 over 1969. (CATV April editions)



AMECO'S PII SERIES AMPLIFIERS ARE ALL ALIKE*

***Modular . . . Exceptionally Stable . . . Excellent Cross Mod . . . Low Noise . . . Built-in Bridging Tap . . . Extra Surge Protection . . . Ten Combinations of MGC, Bridger and AGC plus Line Extenders!**

Ameco PII Amplifiers and Extenders give you reliable operation under all weather conditions. They are easily installed and set-up through a series of non-critical adjustments. The excellent specifications including low noise figure at normal gain and extremely low cross-mod coupled with circuits that automatically control both gain and slope assure you and your subscribers of optimum system picture quality. Stability? Just set 'em and forget 'em. Your men don't have to go out several times each year to reset levels. Ameco amps are stable from -40° to $+140^{\circ}$ F!

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	TRUNK AMPLIFIER† Models PII-M, PII-AP, PII-AC, PII-ABP, PII-ABC, PII-MB	Bridge Section of TRUNK AMPLIFIER Models PII-ABP, PII-ABC, PII-MB	BRIDGER AMPLIFIER Model PII-B	LINE EXTENDER Model PII-LE	"Mini-Amp" LINE EXTENDER Model PMA
Bandwidth	50 to 260 MHz ± 0.25 dB	50 to 260 MHz ± 0.5 dB	50 to 260 MHz ± 0.5 dB	50 to 260 MHz ± 0.5 dB	50 to 260 MHz ± 0.5 dB
Cross Mod Ratio*	-90 dB @ +32 dBmV	-72 dB @ +38 dBmV	-72 dB @ +38 dBmV	-72 dB @ +38 dBmV	-57 dB @ +45 dBmV
Noise Figure, Max.	10 dB, Ch. 13	—	10 dB, Ch. 13**	10 dB, Ch. 13	12 dB, Ch. 13
Input Level (Typical)	+10 dBmV @ Ch. 13	—	+5 to +32 dBmV @ Ch. 13	+18 dBmV	+20 to +33 dBmV @ Ch. 13
Spacing (Typical)	22 dB @ Ch. 13	—	0 to 17 dB @ Ch. 13 from last preceding amplifier	14 dB of cable @ Ch. 13 plus 6 dB tap-loss (flat)	5 dB of cable @ Ch. 13 plus 7 dB tap-loss (flat)

*12 synchronously modulated channels, 5 dB block tilt, per NCTA standards. **Direct input, no directional coupler or equalizer. †Models PII-M, PII-AP and PII-AC have built-in bridger output tap, 10 dB down from trunk output level.



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FOCUS

... On People

Systems

The board of directors of Sterling Manhattan Cable Television has elected Charles D. Snider and Irwin B. Polinsky as vice president-chief engineer and vice president, counsel, respectively. William J. Lamb has been named president of the firm. Lamb resigned as senior vice president of Educational Broadcasting Corporation to assume the post with Sterling.

Mrs. Morgan Murphy, widow of the recently deceased broadcast-cable veteran, has been elected president of The Evening Telegram's cable subsidiaries in the San Francisco Bay area. Murphy originally established and developed the systems and it is felt Mrs. Murphy's election will ensure continuation of his corporate policies.

Joe Simmons has been named Eastern Regional Manager for American Cable Television, Inc. Simmons joined ACT in 1965 and most recently served as assistant regional manager.



Mr. Polinsky



Mr. Snider

Robert Piquet has been appointed engineering supervisor for Vikoa of Canada. Piquet's CATV experience includes positions with Montreal and Quebec City systems, and with Intelmex in Mexico City.

Peninsula Cable Television Co. has named Dale McComb project engineer at Sunnyvale Cablevision in California. McComb comes to Sunnyvale from Pueblo, Colo., where he had similar responsibilities with Pueblo TV Power.

New system engineer for TM Communications Co. of Florida is Alan Shiel, an 18-year cable television veteran. Shiel will manage the Hillsborough County area cable system for the company.

Sheldon W. Searle has been named director of systems engineering for Pan-American Cablevision, newly-formed cable operating company based in Denver. Searle was one of the founders of West Valley Cablevision, Inc. Yakima, Wash., and served as president of West Valley before selling his interests to Columbia Broadcasting System.

Bill Harris, of Fort Walton Beach, Fla. has been elected president of the Florida CATV Association at the annual meeting in Palm Beach Shores. Other officers elected include: Tom Gilchrist, vice president; Vern Coolidge, vice president; Jim Hall, vice president; Jack Bradshaw, secretary-treasurer; Leonard Gregory, director; Vernon Gill, director; Ed Bergman, director; and Clark Swanson, chairman of the board.

Don Fissel, chief technician for Suburban Cablevision Inc. in Bennettsville, S. C., will represent technicians on the South Carolina CATV Association's board of directors.


Suppliers

Cinch Divisions of TRW, Inc., has announced the appointment of Richard Shepherd as marketing manager, telecommunications. Shepherd has been with Cinch for ten years and most recently was district manager of the Syracuse regional office.

Jerold Electronics Corporation has named Cecil Turner as western regional manager. Turner joined Jerold in 1969 as sales engineer in the Los Angeles area and will now have charge of the company's western regional office in Redwood City, California.

Professional

G. Norman Penwell resigned as NCTA's director of engineering to accept a position with Malarkey, Taylor & Associates, a CATV consulting firm based in Washington. Penwell has actively represented the cable industry and the association before the FCC, and various CATV and engineering organizations, since joining NCTA in 1968.

Thomas G. Shack, Jr., Washington, D. C. communications attorney, has given up his partnership with the firm of Smith, Pepper, Shack and L'Heureux and established law offices in the nation's capital. 



This Machine and One Monitor Gives You Six Monitors

If you have 2-6 television cameras in your closed-circuit surveillance system — you only need one monitor!

The TSA 7-1 Automatic Video Sequential Switcher will feed, in sequence, the output of up to six cameras through one monitor.

Set the viewing time for each camera from 2 to 10 seconds. You'll get sharp camera change-over with no flicker or distortion. Push the "stop" button to hold one scene as long as you desire. Then release to continue the normal viewing sequence.

The 701 gives you the capability of six television monitors at less than 1/6 the cost

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... and it's happening now with **EiE Two-Way**. A complete system capability that is compatible for new construction or readily inter-faced with your existing cable system. Everything from the head-end to subscriber's set, including a rugged line of trunk, bridger-trunk, distribution amplifiers, modulators and a new shielded, coaxial A/B switch.

All of the amplifiers are designed with built in, **Two-Way** capability. Your system, therefore, is capable of providing **Two-Way** communication between the head-end and the subscribers, further opening the way for "Remote" local origination, security and TV channel monitoring, high speed data transmission, utility meter reading, subscriber interactive terminals.

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A Penetrating Look At Subscriber Marketing

This in-depth look at the art of winning new subscribers is designed to aid system managers as they weigh the virtues of "do-it-yourself" versus the marketing specialist approach.

Subscriber marketing in one form or another goes back as far as the earliest cable operations. To be sure some time was to pass before any real organized sales campaign was actually developed.

Many enterprising operators devised ways to increase the saturation on their system. The usual classic methods, such as newspaper and radio ads, were

tried. Some even sent out door-to-door salesmen.

The first effort of this type to reach any sizable proportions was by telephone calls.

The first independent effort that this author recalls was that of the Reuben Donnelly Corporation. These programs were surprisingly successful and proved that the independent marketing firm would soon be as necessary to the development of the cable industry as the construction contractor is.

During the eight or ten years since these primitive beginnings, many sophisticated and highly successful sales programs have been developed both by cable operators and by specialized marketing firms. One of the first plans to successfully attack the subscriber sales resistance was conceived by the late Fred Weber.

sell cable subscriptions. Naturally this plan had its limitations and could not serve the needs of every cable operator or, for that matter, of every community.

A few such programs had to fail before it became obvious that the socio-economic structure of an area must be considered when planning a selling technique. For example, communities are made up of particular ethnic groups. In many cases these people, because of a given cultural background, may tend to resent a hard sell approach. Other areas may have a high percentage of professional people, again requiring a special approach.

Before a sales campaign is launched, it is paramount that a careful survey be conducted. A variety of questions must be answered. The cable operator will need to know the viewing habits of his potential subscribers. He must have an understanding of the economic situation in the community.

All of the ingredients must be added to the mix before it will be clear what form the plan must take. One successful subscriber marketing firm has had good results with highly characterized special mailing pieces. Often these use a play on words, with the name of the cable company. For example, the campaign designed by CATV Marketing, Inc. for Mission Cable used, what else, a

ABOUT THE AUTHOR



Robert C. Hilliard is vice president in charge of subscriber marketing for National Telesystems Corporation. Bob built and operated his first system in 1955. He has been active in virtually every phase of CATV work since. His background in system management lends valuable perspective to the alternative approaches to building subscriber count.

Fred Weber's Treasure Chest

Fred placed a ten dollar bill in a treasure chest that was locked with a special padlock. Keys were attached to a door hanger and passed out among the potential subscribers. One in 50 would unlock the box and benefit the keyholder with the cash rewards.

The success of this plan established unequivocally the viability of the door-to-door campaign to

“Mission Impossible” theme.

Several mystery mailers, consisting of a folder card replica of a foreign agent type, some photos and finally a special instruction record was used to wind up the pitch. This was followed by an energetic door-to-door sales team that added 13,000 new accounts to the 31,000 already existing.

Of the many possible promotional methods, there is little doubt that a mail-out to soften the market, followed by a door-to-door sales effort, is the ultimate. It may well be that due to economic limitations the operator may have to settle for less than perfection. In cases such as this, there are many pieces of promotional software available.

Many ad companies prepare and sell mats for use in the local newspapers. For radio spots there are usually very adept people on the staff of the local station that understand the community tastes and can write the sort of copy to do the job.

Promotional “Know How” Determines Effectiveness

All the subtleties of advertising apply to promoting cable. For example mail-outs are immeasurably more effective if addressed by hand to the homeowner by name and sent in special high quality colored envelopes. Effectiveness is reduced with the use of



OUR
MONEY
helped
put
the
ABLE
in
CABLE

What can we do for you?

If we financed CATV when it was only a dream, won't we say "yes" to your financing needs? Whether you require \$100,000 . . . \$1,000,000 or much more, we'll be glad to lend you both the funds and . . . the knowledge we've acquired from 10 years of having provided the "money to make money" to more than 20% of the CATV systems in the country. Phone collect today: Ask for Gail Oldfather or Ed Zukerman.

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white envelopes, typed gummed labels and, finally, envelopes addressed to "occupant."

One inescapable fact about selling cable subscriptions — Mohammed must go to the mountain. Any promotional which requires initiative on the part of the public will be failure, or at best a minimal success.

I have grown to believe, after several years of observation, that selling cable subscriptions is no different than selling houses. The very best job will be done by a full time professional marketing firm.

If the system is new, these companies will come in and organize the entire sales plan, complete with all publicity and promotional activity. Many of the new systems are so large that it will take years to complete marketing efforts. For this reason, lavish "Grand Opening" ceremonies may cost far too much to warrant their use.

Only a relatively small portion of the system can really benefit from the initial sales scheme effectively. By the time the rest of the plant is ready to accept hook-ups, the impetus of the grand opening has been dissipated.

Do-It-Yourself Marketing Efforts

In any event, setting up an in-house marketing organization has both advantages and disadvantages. One main advantage that appeals to most operators is the apparent saving in closure costs. As a general rule, the commission paid to the employee-salesman is higher than a contract sales firm would pay. To some degree, this encourages the salesman to work hard to get sales.

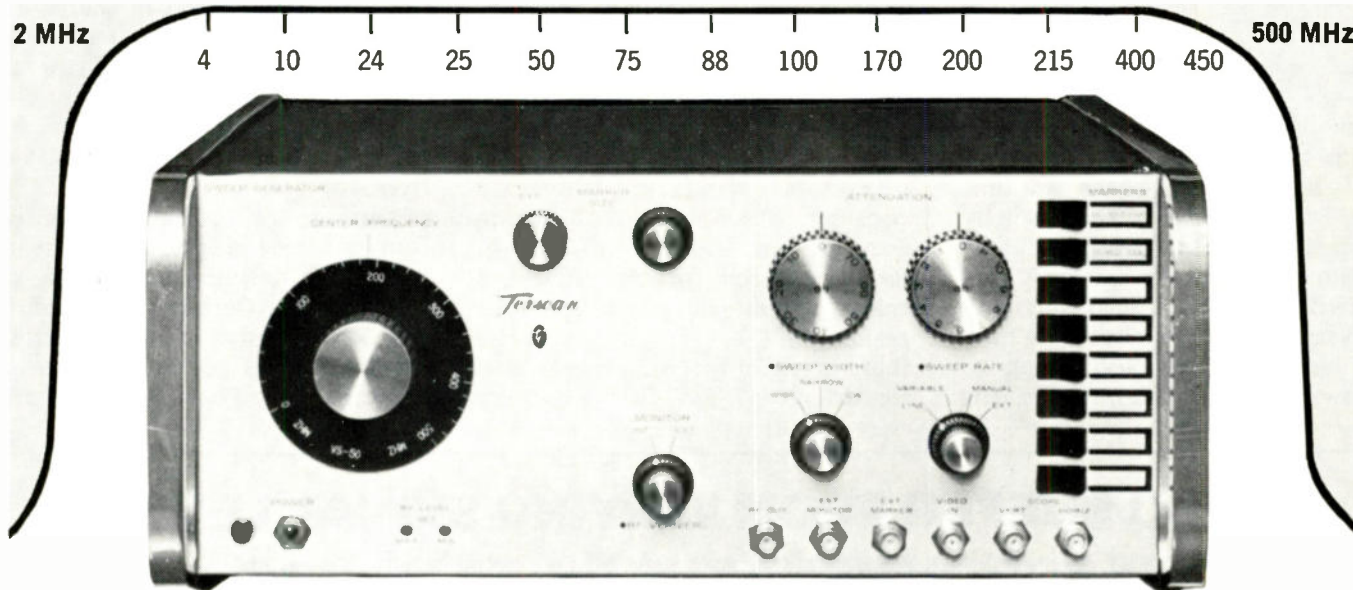
There is also the advantage of having the sales program administered by the system's management organization. Thus there is an opportunity for very close coordination and tight regulation of all related activities such as hook-ups, trouble calls, public relations, etc. One other obvious plus is that these campaigns are nearly always high calibre, low key approaches, so that alienation of the community rarely occurs.

If an in-house effort was, in

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SPECIFICATIONS

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Output Impedance	50 ohms or 75 ohms
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A variety of standard and specialized advertising brochures and card mailers are available for subscriber marketing.

fact, organized to extract the fullest potential out of the market, it would be difficult to compete with it. In the main though, these programs are not that well directed. What usually happens is that the party in charge of the sales program has only one or two ideas and though they may be very good ones, he finds himself searching for something to throw in as an encore after the

first or second pass through the system.

A few months of low yield activity such as this can run up a sizable bill in salaries and services. More often than not, he is unable to obtain really qualified salesmen. The people available to him are poorly trained and have varying degrees of motivation. Even in large systems, it is difficult to keep enthusiasm up when the selling effort is dragged out over a long period, as is almost invariably the case in the system-operated sales operation. This is true because if a full scale selling activity were mounted, the job would be done in a couple of months . . . and there would be no job left for the sales manager.

There also seems to be an obvious situation that I find most operators will not honestly consider. That is the real closure cost of an in-house effort. In doing research for this article, I called several sales managers for major MSO's. To my surprise there were only two general cost figures given. The first was very

low, averaging around \$7 per closure. The second was about \$45 with a few ranging as high as \$70.

I must conclude from this that the \$7 figure has not taken all costs into account (such as creative costs, general and administrative, revenue from sales the system didn't get, and the like).

The Independent Marketing Company

The obvious advantage of bringing in an independent marketing company is that maximum saturation can be obtained in the shortest possible time. For one thing, since there are several firms to choose from the operator can select one whose sales philosophy is in tune with company objectives.

During the contract negotiations a set of ground rules can be put down defining parameters of the program. Certain check points can be established, and a reporting system set up to verify achievement of these goals. Salesmen for

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these firms are usually on straight commission, and must get sales to exist. Also, the cable company is generally guaranteed against loss within the first month or two, so that a firm sale must be made, or both the sales company and the salesman stand to lose their commission.

The management of these firms usually has built up a history of success in the field. From the experience of a variety of selling situations, these marketing people can design a program which will extract a larger number of subscribers. Because of rigid program control, this can also be done at any predetermined rate, so that saturation levels can be obtained in the shortest possible time.

These many plusses are, unfortunately, offset by a few minuses. In some communities there are strong ethnic influences, such that instant analysis of their ways could result in conclusions that would be disastrous in a sales campaign. Long association and a conscious effort at understanding may be required before an accept-

able approach could be developed.

No program is any better than the management and the related control systems that regulate it. An operator contracting with an outside marketing company must assure himself that he has carefully chosen a company with a proven track record... a company that is adequately financed and has demonstrated integrity in its dealings. These facets can rarely be obtained at the bargain counter.

One important thing to remember: whatever a group of new subscribers costs you is inconsequential when you consider that, in the final analysis, it is the subscriber himself who is paying the cost of his own acquisition.

In other words, the revenue derived from that new account is money you never had, so paying out 3 or 4 months' worth of fees for a continuing income to infinity is a mighty attractive offer.

Modern marketing firms will generally conduct an in-depth market analysis. Experience with a

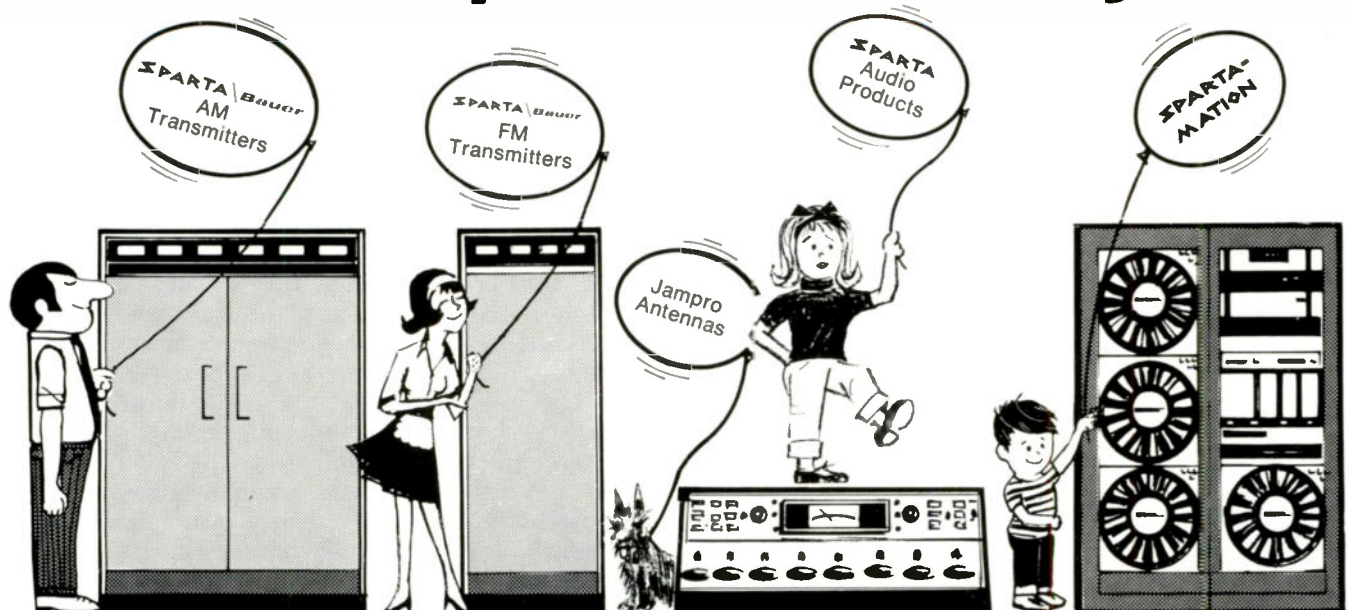


"The Mission Impossible" theme designed by CATV Marketing Co. for Mission Cable in San Diego, California.

wide variety of situations has taught them the technique of evaluating the pertinent elements of sales resistance and how best to overcome them.

As a rule the marketing firm will employ specially designed computer programs that will collect and analyze demographic and socio-economic information pertinent to the eventual sales effort.

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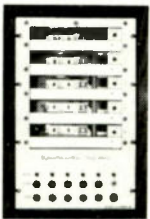


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A continuing sales audit keeps the sales management constantly appraised of sales performance and general progress of the campaign. Thus, almost instant adjustment is possible.

The sales company generally employs sophisticated formal and on-the-job training programs for its people. They will generally transfer a key group of specialists into any particular market area as needed.

Thus, the operator of the cable company has at his disposal a nucleus of top flight personnel, a completely coordinated and organized sales plan, a total market analysis and the necessary software program to assure the maximum number of sales, the highest possible retention ratio and the least amount of effort on his part.

Consider All Factors When Comparing Costs

Recently, in a broadcast and cable periodical, a comparison of an in-house campaign and a professional program was made. The cable operator gave a television set away as a prize to the top salesman. The sales personnel were members of the local "Dads" club. The eventual cost of all prizes, mail-outs and newspaper ads came to about \$13 per sale. This effort was followed by a professional marketing firm who charged \$16.50 for all costs for each net sale gained.

Superficially this appears to make a case for the local program. However, in the first case, if one added the normal general and administrative costs for the in-house program, it would far exceed the \$16.50 figure. Furthermore with 40 "dads" selling, plus all call-ins, only about 100 sales were actually made. On the other hand the professional team added 600 new subscribers.

There are several important lessons to be learned here. For example, if one assumes that at least six months went by before the system manager finally realized that he could not reach saturation without help, we must conclude the delay cost him \$5 x 600 x 6 for a grand total loss of

\$18,000 in revenue he might just as well have had.

When you call in the pro's, they will deliver a pre-determined number of subscribers and at a predetermined rate, and usually they will manage the entire acquisition of these new accounts on a turnkey basis.

Not to over simplify, but one can literally order the number of new accounts he wants, within the framework of his existing wired potential and the level of measured sales resistance in his market.

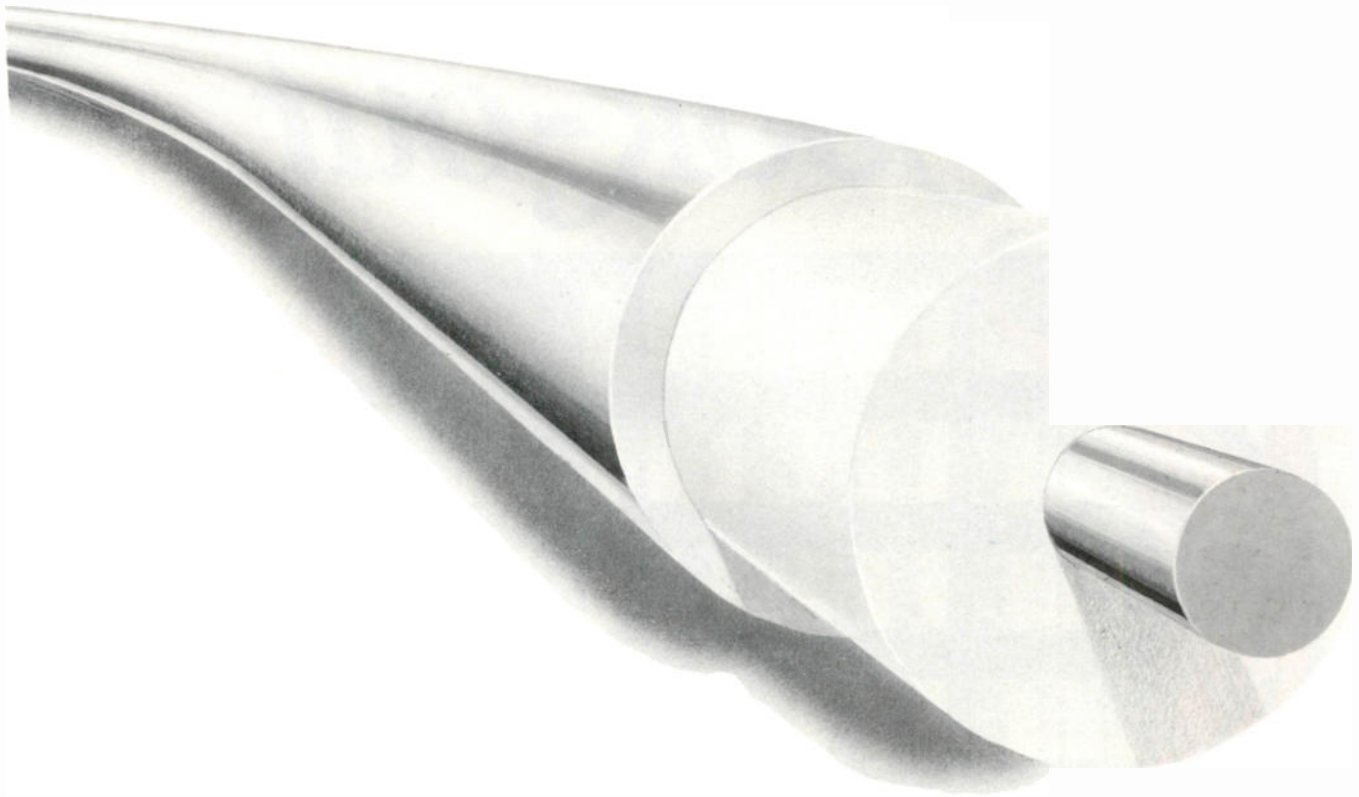
In summation, it is clear that if an operator has unsold accounts in his system, and has exhausted his own ideas, he has absolutely nothing to lose and everything to gain by facing the fact... and calling in help.

Even the brand new system would be far better off to turn the sales effort over to the professionals. The over-all cost is related to actual sales, so it follows that by dedicating the easy ones to the sales company, you pay less for the hard ones. But once again, let me emphasize that the chief advantage of a well coordinated market program is that both sales and hookups can be predicted and delivered. Saturation occurs when the survey said it would. The advantage of being able to cut back installation forces and settle down to a simple maintenance routine can be achieved months (or even years) ahead of anything an attritional collection system could attain.

Incidentally, since cable construction should be based on saleability, it seems logical that before putting out a king-sized investment in plant, the operator should hire a good sales firm to size up the market and determine what degree of saturation can be expected when and if the system is built.

There are many other services a sales firm can render, but generally speaking, if you have any remaining potential in your system, plan to build a new one, add on to the old one, or indulge in any activity related to getting new subscribers, these experts can save you a great deal of time, energy and finally, money. TVC

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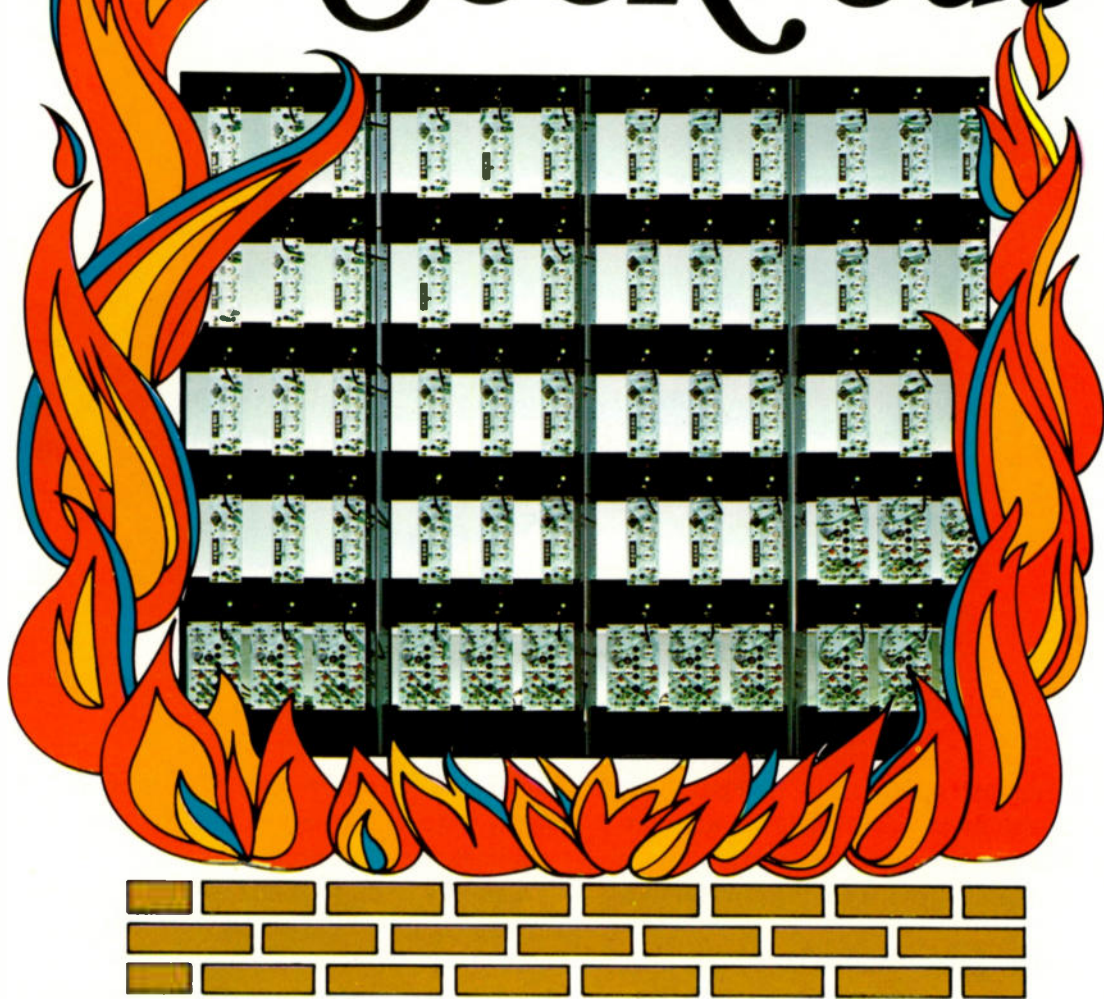
TYPE	O.D. (NOM.) CONDUCTOR	O.D. (NOM.) DIELECTRIC	OVERALL O.D. (NOM.)		NET WEIGHT LB. PER M FT.
			UNJACKETED	JACKETED	
TA-4	.0752	.362	.412	—	78
TA-4J*	.0752	.362	.412	.480	100
TA-5	.098	.450	.500	—	102
TA-5J*	.098	.450	.500	.575	132
TA-8	.146	.690	.750	—	218
TA-8J*	.146	.690	.750	.850	274

ATTENUATION IN DECIBELS PER 100 FEET

CHANNEL	2	3	4	5	6	7	8	9	10	11	12	13
TA-4, TA-4J	.77	.82	.86	.93	.96	1.46	1.49	1.51	1.54	1.56	1.59	1.61
TA-5, TA-5J	.63	.68	.71	.74	.79	1.12	1.15	1.17	1.20	1.22	1.24	1.26
TA-8, TA-8J	.42	.44	.47	.51	.53	.80	.81	.82	.84	.85	.87	.89

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OPINION

FROM THE INDUSTRY



Thomas C. Dowden holds the responsibilities of vice president, director of development and secretary for Cox Cable Communications, the second largest MSO in the U. S.

Cox Origination Experiments Reveal Economic Facts of Life

By requiring program origination as a matter of regulatory policy, the FCC has conceded that CATV is an important part of our communications system. But it would seem that the FCC was arbitrary in fixing 3,500 subscribers as the minimum base for local origination.

We certainly don't know yet how many subscribers will constitute the necessary base for economic success in local origination. 3,500 may be too low. All cable systems may not be able to support local origination. A government-imposed mathematical formula for programming cannot change the economic facts of life in the CATV business.

The cable industry has learned something from the broadcasting industry that applies here — that the economic viability of a radio or television station determines the extent of meaningful programming the broadcaster can provide. Or, to put it another way, it's an interesting circle — you must have the programming, to get the audience, to attract the advertiser, to get the money, to supply the programming, to get the audience — and round you go.

This is a point that has apparently escaped some people at the FCC. A system must become established as a viable business before it can be expected to contribute much in the way of programming. And since viability of a cable operation today depends almost entirely on the carriage of local *and* so-called "distant" signals, we will never see large-scale programming on cable until the impasse on federal regulations is resolved.

What the FCC must do now is give CATV the freedom to grow, to reach its maturity. The marketplace will determine the extent of the growth of CATV, and thus, local origination.

Our company's experience in Lakewood, Ohio two years ago, publicized recently by the Rand study, was that local program origination, by itself, does not attract subscribers. Our company still holds to this position, although we have learned that local origination helps to retain subscribers once they are on the system.

The real story of Lakewood, however, is that we would still be programming extensively there had we

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been allowed to carry "distant" signals which could have given us the base of subscribers needed. The fact we were not allowed to sell advertising in Lakewood also hurt our chances of success, but not as much as the restriction on signal carriage.

The FCC origination ruling affects Cox Cable Communications in sixteen locations ranging from San Diego, California, to Lock Haven, Pennsylvania; from Aberdeen, Washington to Ocala, Florida.

Our Basic Philosophy: CATV Is Not a Television Station

Chalking the Lakewood failure up to experience, we decided last year to start programming in four of our markets in order to get first-hand knowledge of the new problems involved.

Our basic philosophy was and is: CATV is not a television station. It must not be operated like one, and it must not program like one. It has its own local function to perform, so its approach to programming must be to meet this new need. And we feel that program origination must be self-supporting.

We chose Lewistown, Pennsylvania, because its market characteristics are similar to those in the majority of towns where we operate. Lewistown, with 7,000 CATV subscribers, has no TV station of its own; the people depend on CATV for their basic television service; the system is highly saturated; and the economic climate is such that advertising sales should be good. We started in Lewistown in June, 1970, with a minimum package of origination equipment, and a minimum schedule of programming, mostly local news.

The system manager and system personnel were responsible for local origination. We learned right away that a so-called "minimum" approach — equipment, personnel, and programming — could not provide us any answers. We have upgraded the equipment, hired a full-time director/salesman, and expanded the programming.

A Program Need Was Found; Now the System Is Breaking Even

Lewistown is now approaching the break-even point. This is due in part because we found a real programming need and set about to serve that need. On all the stations that come into Lewistown, there is no late movie, only talk shows. Lewistown is a three-shift town, a lot of people are up late and a lot of people would simply rather see moving, talking movies than people sitting and just talking.

So we bought a package of inexpensive movies — believe it or not — Italian-made westerns with English dubbed in. They are pretty bad, but we could afford them and 25 different local sponsors bought them. So far, the sponsors are getting results. Now — our next step is to up-grade the movies, expand our original programming, and hopefully keep the sponsors happy by getting further advertising results for them.

In San Diego, with almost 50,000 subscribers, we started off with a more efficient package of equip-

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						MOUNTING
CB						POLE CHANNEL BRACKET FOR LOW POLE MTG.
PD						PEDESTAL Surface Mtg (UNGD System)
HD						HEAVY DUTY TAB FOR HIGH POLE MTG.
						CABINET TYPE
MA						WITH METER ADAPTOR AND POWER CO. TEST BLOCK
NA						WITH POWER CO. TEST BLOCK NO METER ADAPTOR
SC						NO POWER CO. TEST BLOCK NO METER ADAPTOR
UG						FLUSH GROUND LEVEL (Underground System)
NC						NO CABINET
						OUTPUT VOLTAGE (REGULATED)
30R						30V @ 12A
35R						35V @ 10A
60R						60V @ 9A 30V @ 9A (XFMR TAPS)
						(UNREGULATED)
30U						30V @ 12A
35U						35V @ 10A
60U						60V @ 9A 30V @ 9A (XFMR TAPS)
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N						NORMAL (AC TO AC)
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ment; trained production, engineering and sales personnel; and a more extensive format of programming.

San Diego is a different ball game because it's a major television market. We are competing directly with the three network stations in the market . . . and the tendency is to spend too much on programs and production in order to compete.

Our biggest job is to stick to our basic philosophy: don't develop a show if you can't sell it, for we are not trying to build a program base which will eventually attract advertisers. Again, that is the broadcasters' way and is an easy trap for a CATV operator to fall into.

San Diego has yet to prove itself — but we are very encouraged thus far. In addition to local origination, we are also providing access to the San Diego Area Instructional Television Authority (ten hours weekly) and to ethnic minority programming (21 hours weekly) on a common carrier, leased channel basis.

In Lock Haven, Pennsylvania, another approach was used. We arranged with an outside production firm to program the system. In this test, we hoped to learn if a system with a minimum number of subscribers (4,500) could become a successful local origination operation. The outside production firm provided the equipment, the programming and the sales effort.

Initial results looked good, but they didn't last and the production firm has notified us that it will not continue the contract. This experience cost us nothing, in cash, but we learned that the available advertising dollar was not sufficient to support any real programming effort on a sustaining basis. We will now revert to minimum program requirements in Lock Haven — all purely public service — and absorb the costs involved, even though this is contrary to our basic philosophy.

The Warner Robins Experiment With Young & Rubicam Ad Agency

Our most ambitious project to date has been a joint venture with Young & Rubicam, the second largest advertising agency in the world. Because of the nature of this association, we decided to depart somewhat from our programming philosophy and create a format which will take time to gain viewer and advertiser interest. We have completed six months of experimentation in Warner Robins, Georgia, a system with 7,000 subscribers.

Cox Cable furnished the facilities, people and over-all supervision and both firms shared equally the responsibility for program development and advertising sales. We also shared equally the revenues.

This was the first such test of its kind, and resulted from many talks we had with several New York agencies and clients who have an increasing interest in CATV. We are presently talking to other New York agencies and national advertisers concerning other programming/advertising projects in Cox systems. We think these contacts are good since new sources of national advertising dollars will eventually play an

important role in CATV origination.

We are programming 28 hours weekly in Warner Robins, as a continuation of plans established under the joint venture. While ambitious, we think the programming is good, for it combines local involvement in entertainment as well as public service programs. Thirteen hours each week is live originations, eleven of which are taped and repeated in other time periods. Only 2½ hours each week is film from outside sources which is used mainly as a production bridge.

Biggest problems have been in three areas. First, the initial sales effort suffered because our newly hired salesman became so enamoured of the glamour of studio production he forgot to sell. We made a change in that area and sales began to pick up. At this writing, we are billing approximately \$1,000 monthly, all of which are local ad dollars.

Second, with Y&R in New York, Cox Cable in Atlanta, and the local manager in Warner Robins, the problem of communications and the question of final authority were inevitable. But these problems resolved themselves in time.

Third, our CATV personnel found themselves involved in a new atmosphere — this required considerable adjustment — and this adjustment was slow in coming. However, once the system people became more familiar with programming, the two activities began to mesh.

The results are amazing. Everyone is pulling in the same direction and we have every reason to believe that this system, using an intensely local programming approach, stands an excellent chance of being an economic and community success.

On the positive side, we set a program budget of \$3,000 a month and we are staying within budget with the exception of some early, non-recurring promotional and survey expenses. Our goal, of course, is to keep the expenses stabilized in the neighborhood of \$3,000 while increasing the advertising sales curve.

Insofar as the programming itself, we are creating excitement locally. For instance, George Jessel was guest of the local Chamber of Commerce recently. We carried the banquet live — taped it for replay — and sold it both times. The answering service logged 300 calls wanting to know more about the time the program was to be scheduled. Our other programming centers around local subjects ranging from a Mayor's Report (sold for 13 weeks) to a children's program which is booked up two months in advance with eager participants.

The four experiments have resulted in a number of findings. Where possible, substitute innovation for money. For example, don't be taken in with arguments about the need for color equipment (in the beginning at least) and mass appeal, "slick" programming. Don't overhire. You do not need a person for every slot (audio man, video engineer, floorman, etc.). Salaries are the biggest operating item so keep them down by using part-time people.

Each system seems to have some characteristics different from every other system. We feel that we, in Atlanta, cannot develop a program package for

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Aberdeen, Washington, that will work in Ocala, Florida. Each system must program to meet its peculiar needs. We can coordinate and ride herd on our basic company approach and philosophy from Atlanta, but eventually these local origination outlets must become a part of the system operation and function almost autonomously.

The local manager is in a tough spot. If he devotes too much time to programming, the running of the system will suffer. If he devotes too much time to the system, the programming and sales effort will suffer. The local manager has to learn to utilize new management skills.

Finally, we learned that you cannot let an outsider do your full programming job for you. *You* won't be satisfied and neither will your *customers*.

Avoid the Extremes When It Comes to Origination

Some companies in our industry have done more in local origination than Cox Cable. Unfortunately, we all know that some in our industry are dragging their feet about local origination. I think if a company — or system — goes to either extreme, the results are going to be negative.

Obviously, the operator who never tries local origination will never know its potential. Plus, I think our industry, collectively, will suffer if there is widespread feet-dragging. We have been saying for several years that CATV has a vital role to play in

programming to the needs of its communities.

While Cox Cable doesn't particularly like the mandatory nature of the FCC ruling, we also believe the industry has an obligation to develop this potential within the bounds of good business guidelines. Thus, the other extreme. If we go overboard by trying to compete with broadcasters — in equipment, studios, people and programming — the results will invariably be negative.

There is just no way to hire a broadcast staff and equip a \$50,000 studio with a \$100,000 package of color equipment to cablecast expensive syndicated product and make any money in a market where the top radio spot goes for \$3.50. There is a middle ground between these two extremes and we think it holds the most promise for success in local origination.

I would like to be able to report that Cox Cable has solid evidence to show that local origination of programming can pay its way. We don't at this point. We do have some encouraging signs in this direction and maybe in a few months a discernible trend will appear.

In the meantime, we feel the experience we are gaining in this area will have great future value, for beyond local origination lie all the revenue-producing facets of CATV yet to be developed. We won't get to these new profit centers overnight and exposure to local origination now will provide that necessary transition to the great new world of cable communications that we all believe is out there. TVC

Yes! Highest Quality
**COAX CABLE
CONNECTORS**
at low cost



Gilbert's Diamond-G Coaxial Cable Connectors are CATV's standard for quality and performance under all operating conditions. High volume production is the key to their low cost. The units illustrated are but three of hundreds carried in stock:

ALUMINUM CABLE CONNECTORS

RG-59/U CABLE CONNECTORS

RG-11/U CABLE CONNECTORS

CORRUGATED COPPER SHIELD CABLE CONNECTORS

and

CABLE TERMINATIONS

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CABLE EXPANDING TOOLS

Write us, whatever your cable connector or accessory need. There's a complete catalog for the asking.



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A NEW KIND OF LDS FOR CATV

**Highlights in the development of the first
microwave system for local distribution service.**

1965

We developed the first multi-channel VHF/LDS on a single suppressed microwave carrier for CATV use.

1966

We were authorized by FCC to make experimental tests in the 18 GHz band.

1967

We demonstrated our experimental LDS system in actual operation at the NCTA show.

1968

We put the first LDS system into continuous subscriber service in New York City in the 18 GHz band.

1969

We successfully petitioned FCC for establishment of rules and allocation of frequencies for LDS service in the 12 GHz band.

1970

We completed the redesign of pre-production hardware in the 12 GHz band.

1971

We applied to FCC in March for a 12 GHz equipment type acceptance. We initiated production and expanded our facilities into our new 50,000-square-foot Los Angeles headquarters.

**FCC TYPE ACCEPTANCE
GRANTED APRIL 23, 1971**

THETA-COM

Master-Planned CATV For a Master-Planned City

The cable system at Irvine, California is totally underground from studio to subscriber. It is dovetailing its facilities and services to complement "The City of Tomorrow."

For the past 100 years, one-fifth of Orange County, California has been called The Irvine Ranch. This, the last of the big California Rancheros, is now giving way to a dramatic, master-planned urbanization program, on a scale unequaled anywhere else in America.

Master-planned right along with the development of the new City of Irvine is a unique, totally underground CATV system. The system, Community Cablevision Company, is a wholly-owned subsidiary of The Irvine Company.

Encompassing 17,000 acres, with an ultimate population expected to be 430,000; the new City of Irvine, California, within thirty years, will be the largest totally planned city on the North American continent.

Consisting of flatlands, coastal and inland hills, the now unincorporated territory is 45 miles south of Los Angeles and 26 miles north of the Western White House in San Clemente.

Officials at The Irvine Company say that the City of Irvine will be a model city, reflecting unparalleled

control over the quality of environment through the implementation of unique planning concepts. These include a 33-mile network of "environmental corridors," where most major non-residential facilities — from parks to business centers — will be located.

In total, the new City of Irvine will be about twice the size of San Francisco and three times the size of Manhattan Island.

All Utilities Are Underground

It is anticipated that the new city will comprise more than two dozen residential "villages," each with its own neighborhood park and shopping center.

And, a major stipulation in the land deeds designed to preserve clean, uncluttered residential areas, is that no rooftop TV antennas of any kind will be installed, and all utility wiring and cables will be underground.

This deed stipulation, in addition to possibly creating the beginning of the end of unsightly TV antennas, also creates a natural market for the cable



The local origination studio for the Community Cablevision system is "underground" . . . just like the rest of the system. It is located on the lower level of one of the highrise buildings in Irvine's Fashion Island.

operator, Community Cablevision Company.

According to Eugene R. Moon, general manager of Community Cablevision Company, "As each of the planned Irvine 'villages' is developed, our CATV distribution cables are dedicated simultaneously with the telephone and other utility services. Each home is then pre-wired with cable service outlets, ready for hook-up as individual new homeowners move in.

"Over 3,500 CATV customers are presently being serviced by the system," explains Moon, "and, by the year 2000, we'll have a community network of over 100,000 subscribers within the 130 square miles of the city complex. In planning for this future development with totally underground plant, we will have about 1,200 miles of total plant."

According to Tom Britton, chief engineer for CCC, "The active and passive equipment for the Irvine system has been planned in close cooperation with Anaconda Electronics. Within the 109,000 feet of trunk line we utilize only 36 Anaconda Electronics' amplifiers. The flexibility of our system is greatly increased through the use of Anaconda Electronics'

modulators in the head-end because of their capability to provide all three functions of modulation: for conventional signals, microwave, and for local program origination."

Throughout the three-year history of the master-planned project, Anaconda Electronics and Community Cablevision Company engineers have cooperated jointly in the testing and evaluation of the components and instrumentation. "We have obtained literally trouble-free operation during this period," reports Tom. "And, from this initial installation phase, we plan to carry out the same operating procedures throughout the expansion of the entire system."

Twelve "Distant" Signals Are Carried

Twelve television and ten FM radio signals from Los Angeles and San Diego stations are picked up and fed into the distribution system. Local origination programming is high on the list of priorities at CCC.

BENAVAC MARK II THE MOST VERSATILE CHANNEL PROCESSOR AVAILABLE TODAY!



86 INPUTS:

4 SUB CHANNELS T7-T10
12 VHF CHANNELS 2-13
70 UHF CHANNELS 14-83,

30 OUTPUTS:

12 VHF CHANNELS 2-13
9 MIDBAND CHANNELS A-I
9 SUPER-HIGH CHANNELS J-R

AUTOMATIC CHANNEL SWITCHING

Input jack on rear of cabinet for standby channel - automatically switched when primary channel goes off the air.

PRICE AND DELIVERY INFORMATION AVAILABLE THROUGH MAJOR CATV DISTRIBUTORS OR WRITE DIRECTLY TO:



**BENCO TELEVISION
ASSOCIATES**
27 TABER ROAD
REXDALE, ONTARIO, CANADA

Situated in the heart of one of the most active coastal water sports and boating centers, Newport Beach, CCC brings its audience a variety of local ocean-oriented activities.

Destined to be one of the most outstanding cultural and educational areas in all of Southern California, the new City of Irvine will generate unlimited opportunities for community participation in local programming.

Planned closed-circuit television services to and from the University of California at Irvine and the anticipated 70 elementary schools, 16 junior high schools, 8 high schools and 2 junior colleges is also planned.

Also incorporated into the system are special closed-circuit surveillance channels for monitoring key entrances and special remote operations. Video cable has been installed between CCC's studio control room and several nearby stores within a large shopping center . . . for future live shopping by TV. At the same time, cable links an FM radio studio with the CCC studio for live video news. A golf course and tennis club have also been wired for live tennis and golf matches.

The City of Irvine, California, may well become the model city for centuries to come . . . blending residential, commercial and industry with a liberal, balanced natural environment. The wideband communications facilities of Community Cablevision Company will be the communications link throughout this planned "City of Tomorrow." TVC

New low-cost, high performance Crane/Manlift

Use the new Scott Midland Rotadraulic 8S-2(CR) as a crane or as a manlift. Down haul ball and swivel hook is quickly and easily interchangeable with fiberglass aerial buckets. Provides up to 9,000 lbs. lift capacity. Dual controls are operable from either side. Two boom sections, one hydraulically telescoping; provides 25 foot horizontal reach fully extended. Boom rotation is 360° continuous. For more complete information write or phone:

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Division of A-T-O, Inc.
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Phone (716) 685-3131



Olympia, Washington, knows more about TV viewing than New York City.

Olympia has CableGuide.

A unique new service that is now available to all CATV systems. It offers the ultimate in accurate, up-to-the-minute program listings. Right where they belong. On the TV screen.

CableGuide has other features, too. Like local news, public service information, and advertising revenue.

Best of all, the CATV operator doesn't have to lift a finger.

Telecable, a CATV operator in Olympia, Washington, recently joined the CableGuide ranks. They'll soon be another CableGuide success story. Like GT&E Communications, Inc., Edmonds, Washington and Cowlitz Cableview Co., Longview, Washington.

We think CableGuide is the most innovative thing to hit cable television since the cable.

We'd like to tell you more about it. Write us at CableGuide, 938 Denny Building, Seattle, Washington 98121. Or give us a call: (206) MA 2-1052.



Dave Warmuth
President





Fail-Safe

Develop a leaky connector with gas-filled Spirafil II® coax...and it's still waterproof.

Pressurized SPIRAFIL II air-dielectric coax is a permanent solution to the moisture problem in CATV lines. If a leak occurs, moisture is forced out...not drawn in. What's more, just a few psi give you a positive check on the mechanical integrity of an installation before it is buried or set in place.

SPIRAFIL II also solves the problem of too many cascading amplifiers on long runs. It has considerably less attenuation than equivalent size foam coax...lets you run longer lines for increased coverage from a single antenna head without using microwave links. Then too, SPIRAFIL II has the best return

loss characteristic in the industry (32 dB worst point from 5 to 220 megahertz).

In regards to costs, SPIRAFIL II costs even less than foam cable in some instances. For example, you can use 1/2" SPIRAFIL II in place of 3/4" foam (attenuation is about the same for both) and save about 20% on cable costs. Pressurization is a non-recurring cost that averages only \$30 per mile.

For full details, contact one of our local sales offices . . . or Phelps Dodge Communications Company, 60 Dodge Avenue, North Haven, Conn. 06473. (203 239-3311)

Phelps Dodge coax for every CATV need. Exclusive SPIRAFIL II air-dielectric for lowest loss...and FOAMFLEX, the original foam-dielectric cable. Both at competitive prices.



**phelps
dodge**
Communications Company

Use Sales Promotion To Add Subscribers

The system operator who plans ahead can make full use of promotional techniques to reach potential subscribers. Keep the following ideas in mind when laying out promotional plans.

By Frank S. Turner

Sales promotion alone obviously cannot make a CATV system successful. However, without the skillful employment of this business tool, your organization will grind along much more slowly than if lubricated with promotion oil.

Successful CATV leaders realize that policies and practices which work well in other industries can be adapted beneficially to the CATV field.

As with any business operation, it makes things easier if a definite plan is set up and followed. Here is a simple, effective plan for ensuring that you benefit as much as possible from sales promotion's lubricating power.

Determine What To Promote

This may sound redundant, but it isn't. While you are only promoting one basic service, in effect you can and should be promoting a variety of consumer benefits. For example, here are several possible advantages you might want to stress in your promotion activities:

Better TV reception. This is obvious to you, but are all your prospective subscribers really aware of the vast difference between cable reception and antenna reception?

Try to dramatize the advantage. You might want to make use of the old but still effective "before and after" photo or artwork sequence to really show just what the difference is.

As with all promotion, sometimes we get too close to the trees to really see the forest. Benefits which seem ridiculously clear to you may not be so obvious to your prospects.

Removal of unsightly individual antennas. Most homeowners are rightly concerned with how their biggest investment — their homes — look to others. You have a definite selling point here . . . especially with today's increased emphasis on the environment of our communities. This is another area where actually showing the difference — perhaps an aerial photo of one neighborhood laced with home antennas, another without any due to CATV — can be very impressive.

Lack of antenna maintenance. Do your prospective subscribers really understand that once they hook up to your system, they won't have to maintain or be responsible for an antenna or any other equipment needed to get clear, powerful pictures to their TV sets? Show them, through a sample of your contract, or any other printed means, that this is really a fact. And if you happen to be located in an area where windstorms can cause havoc with power lines and antennas, underscore the advantages of letting your firm eliminate these problems for them.

Exposure to channels not now received. You may or may not be actively involved in your own programming. Regardless, your CATV system lets subscribers pull in channels and programs which they definitely cannot do without your cable. If you do offer some of your own programming, this is obviously a strong benefit to be stressed. Show samples of recent program offerings to illustrate just what this programming can mean.

Special cable offerings. If your system carries any special services, these are "naturals" to stress in your promotional efforts. Many cable systems now offer audio services such as FM reception and/or background music channels. A few systems are also

beginning to add international shortwave signals for their subscribers. If your system does not offer such services, you might consider the installation of audio services as a valid promotional expense or "investment."

Maybe your system offers a stock report channel, a continuous news or weather channel. Be sure to capitalize on any such special channels . . . and underscore the subscriber-benefits involved.

Reduced TV set maintenance costs. One nationally-advertised series of "diagnostic centers" for television set repair service has done some study on the costs of owning a television set. Their figures indicate that the average color television receiver costs \$70 per year for upkeep maintenance . . . and this does not include amortization of the purchase cost.

TV sets that are constantly required to bring in weak signals have a tendency to require servicing more often. The repair firm mentioned above suggests that the introduction of strong signals to the TV set (for instance via cable) can reduce set upkeep costs by an estimated 25%.

These are just a few of the advantages you can offer, of course. It is normally best to pick out just one or two of your key benefits, and stress them heavily, at least for a period of time. After a few months exposure to a couple of reasons, you might want to move on to other reasons. Don't overwhelm prospective subscribers with all your ammunition at one time. And remember, people tend to have

remarkably short memory spans; what seems overdone to you may be still rare to them.

Analyze Where To Promote

You have a whole world of promotional media to use. But, unless you're an exception, you don't have a whole world of promotional money. So you must exercise judgment and pick out the medium or media which will make your dollars go farthest.

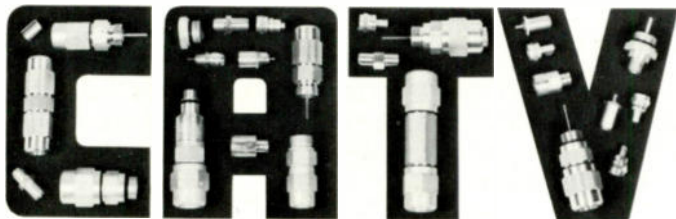
Your particular marketing situation and your system's ability to grow will determine where you promote. But, don't just do what you've always done, or what other systems are doing, unless that represents the best choice.

While the number of media is considerable, you may find it helps to break down the major types into two broad categories:

Internal media are those you have full control over. They include such items as direct mail, envelope stuffers (sometimes present customers are your best source of new customers), display material which you display on or in your own building, signs on company trucks and salesmen's cars, and so on.

Everything else, including newspapers, radio, television, billboards, directories, magazines, and year-books, would be considered external media.

Neither category is necessarily better. It all depends on your objectives. With internal media, you have almost complete control over copy and the manner in which it is presented. While you have copy



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LRC Precision Aluminum Cable Connectors feature . . . captive ferrules . . . O Rings . . . positive stop assembly . . . fewer assembly parts. We also manufacture a complete line of F series. Complete facilities provide maximum service for both standard items and custom engineered requirements.

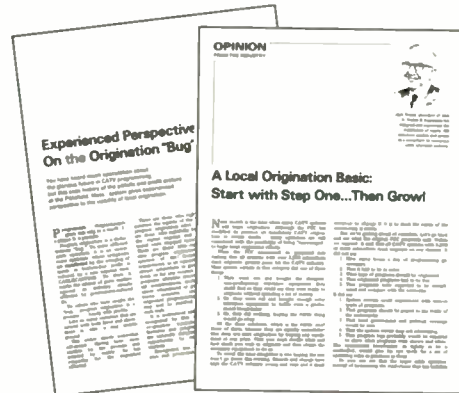
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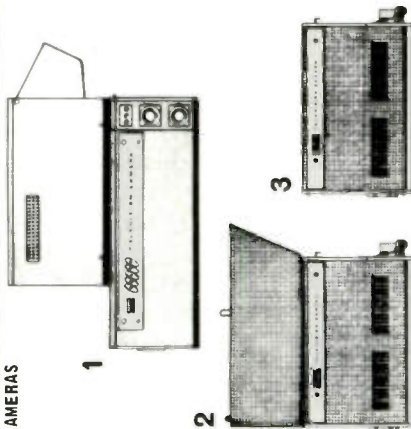
USE REPRINTS FOR

- Promotion Packages
- Hand out Material
- Direct Mail
- Conventions
- Public Relations

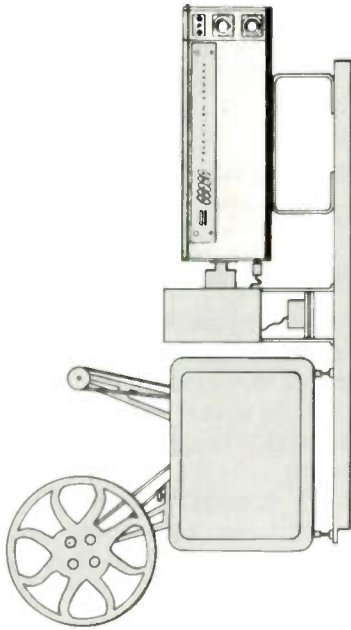
It's so easy. Just call us (303/761-3770), and we'll send you all the reprints you need for a small charge. Ask for Leslie Hoffman.

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CAMERAS



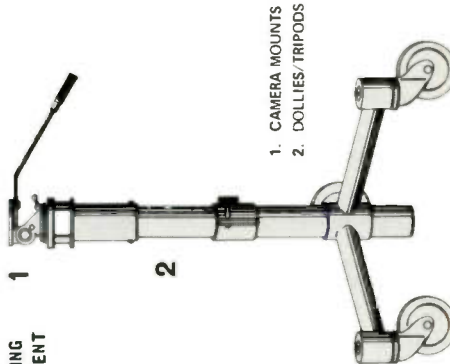
FILM CHAIN



LENSES



MOUNTING EQUIPMENT



1. CAMERA MOUNTS
2. DOLLIES/TRIPODS

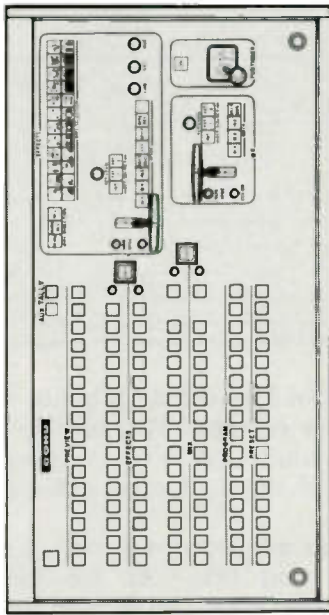
CAMERAS

1. BROADCAST COLOR CAMERA W/VIEWFINDER
2. MONOCHROME CAMERA W/VIEWFINDER
3. SELF-CONTAINED PLUMBICON CAMERA

LENSES

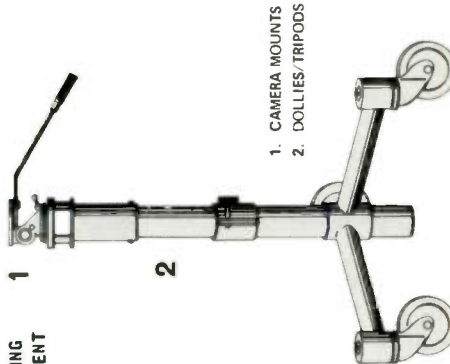
1. PUSHROD ZOOM
2. MOTORIZED ZOOM
3. FIXED FOCAL LENGTH

VIDEO SWITCHING



PRODUCTION AND DISTRIBUTION SWITCHERS

MOUNTING EQUIPMENT



1. CAMERA MOUNTS
2. DOLLIES/TRIPODS

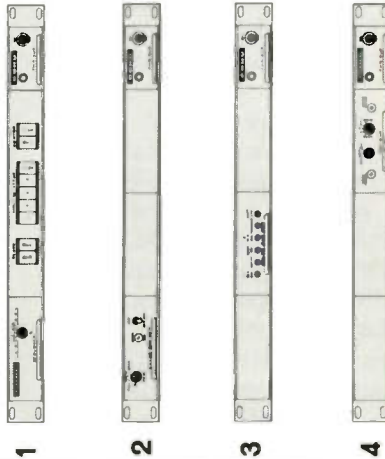
CAMERAS

1. BROADCAST COLOR CAMERA W/VIEWFINDER
2. MONOCHROME CAMERA W/VIEWFINDER
3. SELF-CONTAINED PLUMBICON CAMERA

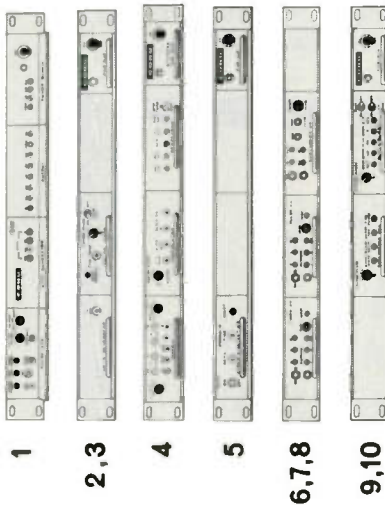
LENSES

1. PUSHROD ZOOM
2. MOTORIZED ZOOM
3. FIXED FOCAL LENGTH

VIDEO TEST



VIDEO PROCESSING



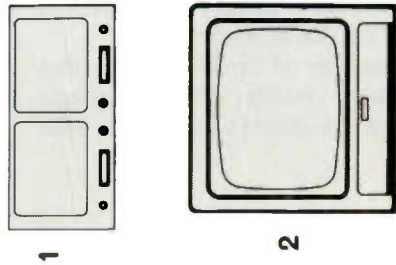
VIDEO TEST

1. VIDEO MULTIPLEXER
2. COLOR BAR GENERATOR
3. COLOR BAR ENCODER
4. OOT-BAR GENERATOR

VIDEO PROCESSING

1. COLOR SYNC GENERATOR
2. DRIVE GENERATOR
3. COLOR LOCK
4. COLOR VIDEO ENCODER
5. CHROMA DETECTOR
6. VIDEO DISTRIBUTION AMPLIFIER
7. PULSE DISTRIBUTION AMPLIFIER
8. SUBCARRIER DISTRIBUTION AMPLIFIER
9. BACKGROUND GENERATOR
10. BLACK BURST GENERATOR

MONITORING



MONITORING

1. DUAL 9-INCH PREVIEW
2. PROGRAM; 14 - 17 - 21 - 23 INCH

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control in the external media, there is normally very little you can do about the surrounding copy material or the physical appearance of the medium.

In most cases a combination of both internal and external media will give best results. The important thing, in both cases, is to be consistent in the benefits you stress.

Analyze When To Promote

The calendar has twelve months...and each month is a little different from every other month. Don't overlook this factor when compiling your plan on when to promote.

Broadly speaking, there are three points which should be considered when solving this problem.

Climate. The weather will dictate to a considerable degree the interest your prospects have in your service. During summer months TV viewing falls off. Thus, there will probably be less demand then for a CATV service. Spring months — depending on your location — may show similar tendencies.

Conversely, in areas such as southern California and Florida, where the climate is almost static year around, you may be able to drum up business just as easily in July as in January.

Calendar. Few people are in the mood for a CATV pitch on December 24th. While the point of looking at the calendar can be overdone (you could legitimately sit down and come up with theoretically good

Table I:
Monthly Promotion Budget.
For month of _____, 197__

Week Ending	New Subs		Budget		Service Features To Promote			
	Actual Last	Est. This	Last	This	News- paper	Dir. Mail	TV	Radio
_____	_____	_____	\$ _____	\$ _____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
Totals for Month _____								

reasons why each of the 365 days is not a good time for bringing in new business) it does help to consider when your promotional ads should appear, and the probable frames of mind of most prospects at that time.

Customs. Is your marketing area one in which most people pack up and take off for long summer vacations? Obviously then you should go lightly on promotional activities at that time. Or, because of a high proportion of hunters and fishermen, are those seasons a time when husbands are just not in the mood to discuss a CATV service?

Nearly every area in the U.S. observes some distinctive customs, and you should carefully consider those effective in your area before you finalize sales promotion plans.

How Much Should You Spend?

That's almost like the question asked Abe Lincoln about how long a man's legs should be. His answer: "Long enough to reach the ground."

Similarly, you should spend enough to do the job you've set for yourself, always within the limits of your budget, of course.

There is no single correct answer. Newer CATV system managers tend to rely more on a fixed percentage of gross business, whereas those with more experience seem happier basing their estimates of necessary expenditures on intuition.

Either approach is acceptable if it works.

You can obtain information from various sources on what other CATV systems invest in advertising and promotion, and this may help you to make your decision. Statistics are most easily gained from talks with other CATV people at trade conferences.

Once you have your percentage figure worked out, it often helps to use a form to plan ahead. This makes you think about the problem objectively.

Table I is part of a sample form which some CATV system managers have used to good advantage. A copy should be compiled for each month of the year, and you should adhere to it as closely as possible. The classifications of media under "Service Features To Promote" can obviously be extended as necessary.

Apply the four points outlined above, use and rely on the suggested form, and your CATV system will have an improved probability of rolling along smoothly, on well-oiled promotion wheels. rvc

CATV
system managers

Announcing a new computerized service for Cable Television Systems which insures rapid and accurate recovery of accounts receivable — GTE Data Services CATV Management Information Service.

Simple to operate — nothing complex — nothing technical. This service gives you improved cash flow, better customer relations, more efficient management — also, all the information you need to add subscribers and reach your system potential.

Gain all of the advantages of automated data processing without investment in equipment and overhead. For more information call or write today.

Another service for better management from . . .

GTE DATA SERVICES
INCORPORATED

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A part of General Telephone & Electronics
Telephone: (813) 877-8021

Now available. From Kaiser CATV.

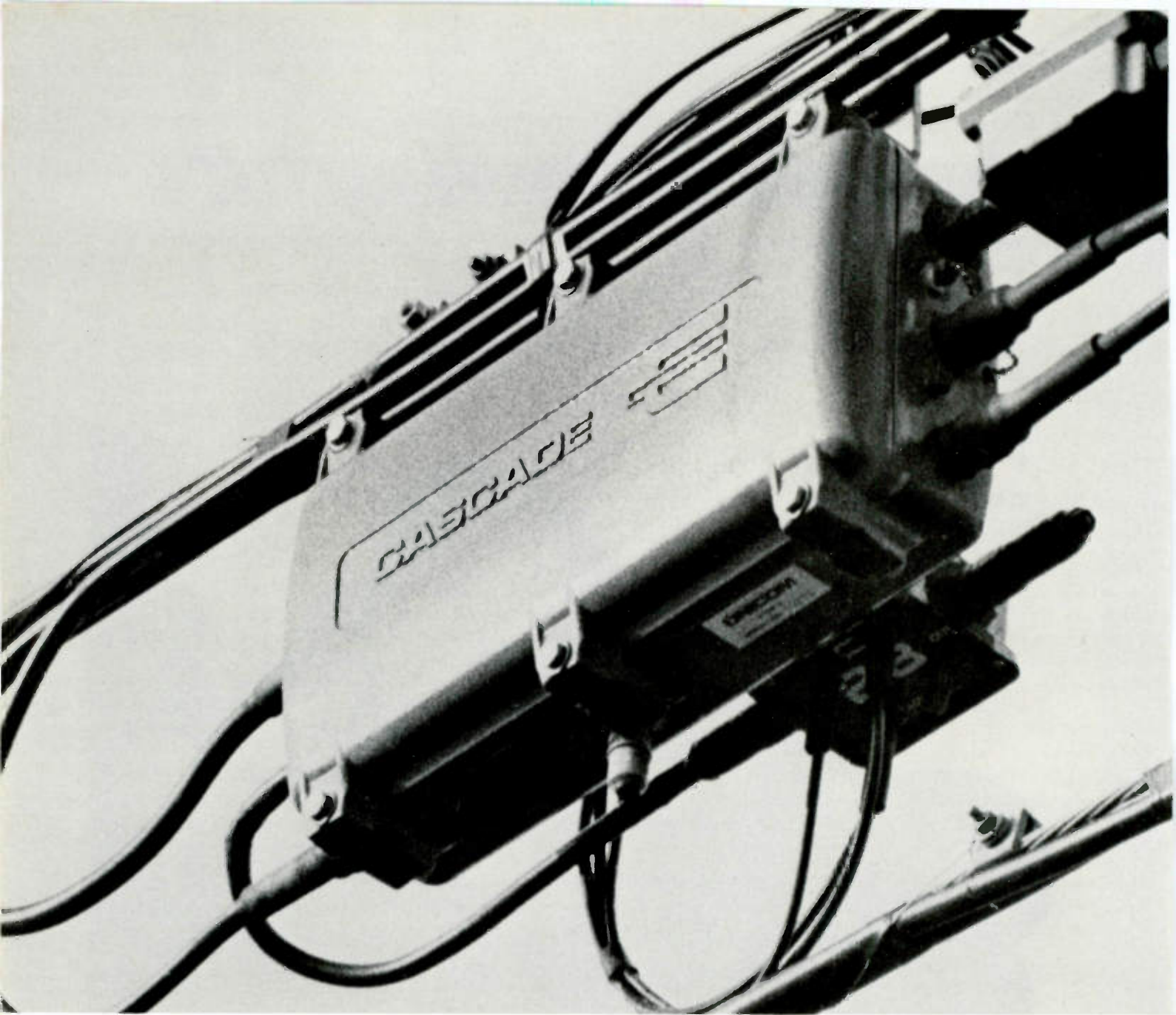
Yes, our new million-dollar cable plant in Phoenix is now in operation and producing coaxial and house drop cable with the world's most modern equipment.

Now we can provide just about everything for the modern CATV plant. Write for our just-off-the-press cable spec sheets. And, if you don't already have it, the complete kit of Kaiser CATV product and service literature. It's a step in the right direction... toward maximum profits.

Phoenician COAXIAL CABLE



Division of Kaiser Aerospace & Electronics Corporation
P.O. Box 9728, Phoenix, Arizona 85020, Phone (602) 944-4411



this amplifier is pushing and pulling monitored signals in opposite directions simultaneously along the cable*

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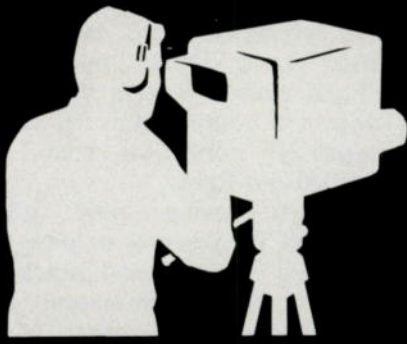
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"the CATV people you can rely on"



STUDIO

Technology

A special monthly section devoted to TV programming operations in small studios

Set Up Procedures For TV Production

You have decided to originate programs . . . you selected and installed the equipment . . . and your people are trained. Now is the time to establish a pre-production routine.

*By Jack A. Rickel
Communications Consultant*

In the early days of television, setting up equipment for a production was a formidable task. At least once a day, every camera had to be completely aligned and adjusted.

Now we have stable, solid-state circuits and camera tubes which are both more sensitive and less critical. Less expensive cameras are designed to operate for days or weeks with only occasional touch-up. Complex color cameras now practically set themselves up and at least one even diagnoses faults automatically. The "good, old days" are gone but seldom mourned.

Still, we have a way to go before setting up is reduced to

turning on the power. This would be possible only if every scene, every slide, every film had the same contrast range and over-all brightness (and color balance, if we are using color). But such requirements would be seriously limiting, and would make for awfully dull video. The same also applies to audio, though it is less critical.

Prior to the production of any program, live or tape, there should be some simple pre-production count down. In Table I we've listed the basic steps which apply to any origination facility except the most simple, one-camera, one-mike operation.

This is the sort of check list

that should be familiar to all technicians and operating personnel in an origination studio. When a crew consists of two or more people, one should have the responsibility of seeing that everything is checked.

Turn On All Equipment

If everything is not already on, it should be turned on and quickly checked. Then if something is found to be malfunctioning, or worse yet, not working at all, there may be time to do something about it. For instance, a microphone might be dead. Another could be substituted; a

broken connection found and repaired; or the program reorganized to use fewer mikes.

When doing a remote production, an initial check is doubly important. Replacement parts or the forgotten adapter cable is much further away.

Any item of equipment with a tube in it, even a transistorized camera, or monitor, should be left on once it is turned on. The life of the filaments in the tube is shortened greatly when turned off and on more than necessary.

Set Up Lighting

When lights need to be set up or re-adjusted, do so before camera set-up. Then a test pattern can be placed on the set so cameras can be adjusted for actual lighting conditions. If no test pattern is available, the scene itself can be used. Final trimming of lights can be done after cameras are adjusted.

Balance the Cameras

When two or more cameras are to be used, especially on the same scene, they must be balanced. Basically, this means that if two cameras are side-by-side and pointed at the same scene, you should be able to switch between

Table I. Production Count Down Check List.

5. Turn On All Equipment
4. Set Up Lighting
3. Balance Cameras and Preview the Visuals
2. Check the Audio
1. Test Recording

BLAST-OFF!

them and not notice any particular difference in the pictures. If the pictures are reasonably similar, in brightness, contrast, etc. under these conditions, then minor differences probably will be unnoticeable during production when switching between a medium shot and a close-up or shots of two different subjects.

Consider what might happen if cameras were not closely balanced. Camera 1 is on a medium front shot of a person and camera 2 is on a closeup profile of the same person. When the director switches from 1 to 2, the difference in picture quality may make the audience wonder, at least for a few moments, if this is not a different person.

Modern cameras seldom require a full alignment. This is usually done when new cameras are first put in service, or when repairs or maintenance are done. Operating adjustments are brightness (pedestal or black level), contrast (gain), beam, target, and iris (f/stop).

If the beam focus knob is exposed where someone might touch it, it should be checked too, though it is normally stable enough not to require frequent adjustment.

Ideally, these adjustments should be made using a waveform monitor or oscilloscope with the cameras focused on a test pattern, and lenses at the same stop. To set up a film chain camera and balance it against studio cameras, a standard test slide or film should be used.

Different cameras have different characteristics, but generally speaking, extreme settings should be avoided. Controls interact with

each other to some extent, so that a high setting of one may require a low setting of one or more others. This could leave you with no "head room" during the production, to compensate for an unexpected condition such as a burned out light.

When using new graphic material on camera, or new slides or films, it is a good practice to preview them. Someone might want to show a chart or map which is very bright or glossy. This might be good for, say, a lecture, but for television would require readjusting camera or lights. Slides and films, especially those not shot and processed professionally for television, often vary considerably in contrast and brightness.

All this may sound complicated and time consuming, but when it is an established routine, it takes only a few minutes and is well worth the effort.

Check the Audio

There must be an enormous number of man hours lost, and otherwise good productions ruined because no one thought to check microphones and other sound sources beforehand. Audio seems so simple that in the chaos normally preceding a production it is neglected until the last moment and given only the briefest check.

Then in the middle of the program, the audio man brings in some music only to find he has the wrong selection. Or the mike he thought was all right is distorted. At best, this sort of thing detracts from the quality of a program, and can require a re-take or cause you to lose a live event.

The audio man, or someone responsible for audio, should set up all mikes and check each under expected conditions. He should spot check other sources, such as records, tapes, cartridges and sound films. This way he can be sure he has the right source, on the right mixer channel, at the right level.

He may also discover for instance, that a tape has something on it immediately after the part to be played during the program. Then he knows to fade out

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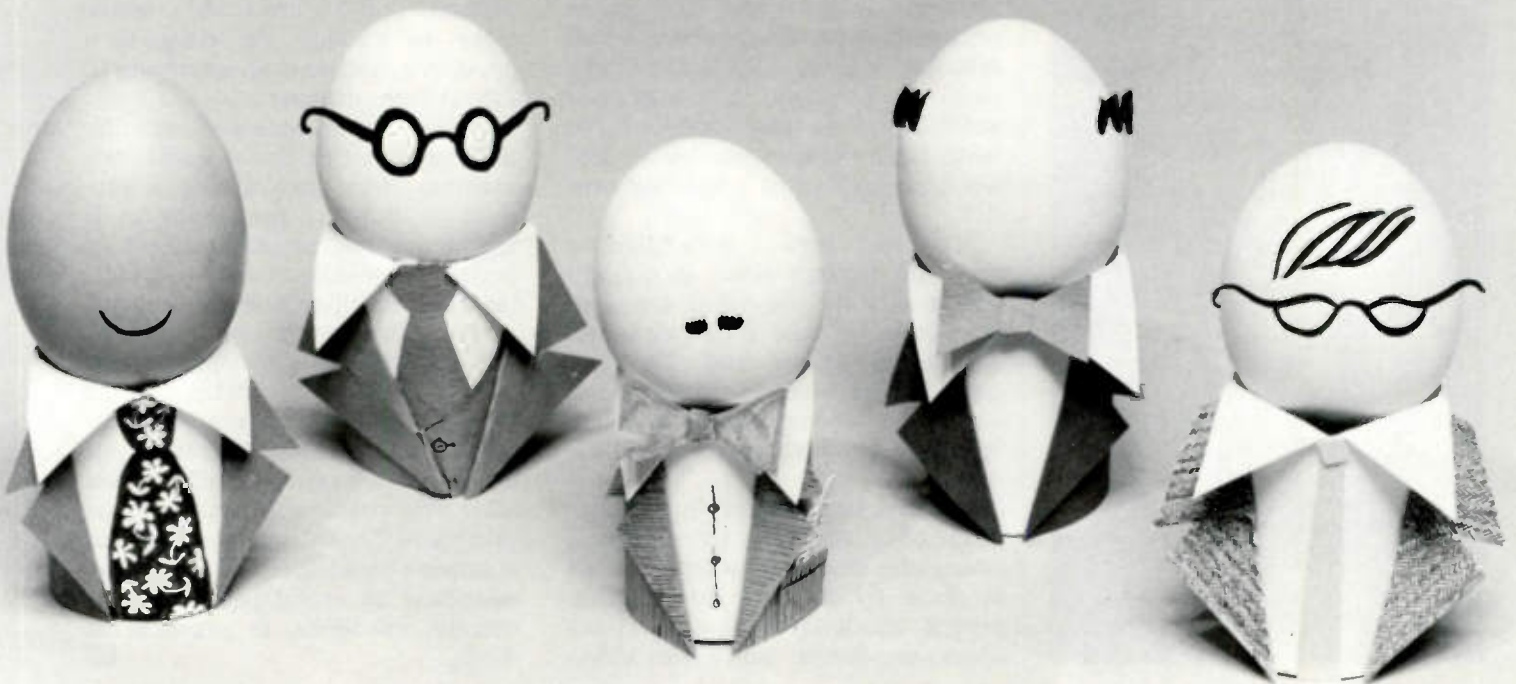
- 1953 Messenger Mounting
- 1953 Cable Powering
- 1954 Pilot controlled automatic level control system
- 1965 Use of integrated circuits
- 1966 High output solid state equipment
- 1968 Use of modulated pilots
- 1969 Use of heat fins on castings
- 1970 UHF Converter with crystal oven and Schottky mixer

Not bad for a bunch of eggheads!

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STUDIO

— Technology

the recorder quickly so the next part is not heard.

A viewer is listening to, but not usually conscious of, audio. However, it only takes a minor mistake to turn his attention from the picture to the sound, or rather, from the program content to the mechanics of production.

Make a Test Recording

Before video tape recording a program, there are several things which can help insure a good recording.

- (1) Check the tape to be used. Run it through the machine at fast forward and rewind while looking for wrinkles or other damage. Sometimes you can even hear a damaged section of tape as it runs through. (This need not be done immediately before recording).
- (2) Clean all heads *exactly* as the recorder manual describes. Use only those cleaning fluids recommended.
- (3) Check input level settings, video and audio.
- (4) Just before recording the program, make a short test recording, video and audio, and play it back.

This final step can serve several purposes in addition to testing the recorder. When making the test recording have someone hold a card in front of a camera giving the program title, date and nominal length, and any other pertinent data. Then record a half minute or more of a test pattern and, if available, a continuous audio tone at peak level. Then, leave this recording on the head of the tape instead of recording over it.

The first part is equivalent to the film makers slate. It quickly and positively identifies the program even if tape boxes or labels are mixed up or lost. The test pattern and tone give a playback operator convenient reference levels by which to make his adjustments.

Finally, immediately before the start of a program there should always be black, silent leader. This is done by starting the VTR in record mode with audio mixer channels down and the video

switcher faded to or punched-up on black. The only signal the VTR is recording is composite sync. Let the machine roll for at least ten seconds, then fade up quickly on picture and sound.

Most VTRs do not require this long a time to stabilize; two seconds might be adequate. But if this tape is to be stored for a while or played back on a different VTR, the extra time may be essential to assure stable lock-up and tracking before the program begins.

The Routine Is Important

What we have described is typical of pre-production activities in a wide range of television studios, and on remote productions. In a large broadcast or network studio, there may be dozens of people: camera technicians, telecine (VTR and film chain) techniques, lighting crew, audio man.

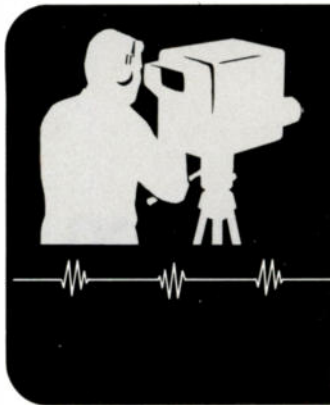
In a small operation, two or three people may have to wear all these hats and more. Then it is easy to overlook or shortcut many details that do not seem really essential.

But, without meaning to slight the importance of program content, it is careful attention to detail which adds polish to television production. When everything is properly set up, adjusted, and checked beforehand, the director and his crew can concentrate on making the program a good one, rather than on trying to save it from disaster.

Thus we recommend specific assignment of duties to each crew member, not only during a production, but also for setting up. It might even be helpful to have an actual checklist until everyone becomes familiar with the routine.

As a final word, it should be mentioned that a post-production routine is also a good idea. Setting up for a production is a lot easier if everything was properly put away and all cables neatly coiled after the previous production. A cameraman who has to search for a missing headset is wasting time he could be using to set up his camera, set lights, or practice his shots.

TVG



STUDIO
Equipment

A special monthly section devoted to TV programming operations in small studios

A Console/Storage Unit For Video Recording Equipment

Developed by the Jack C. Coffey Co., Inc., of 104 Lakeview Ave., Waukegan, Illinois, the Luxor VTR Console, model 700, is designed to afford maximum flexibility for use with all video tape recorders and VTR systems.

Leading the list of special features is the advantage of securing the VTR, components and accessories under lock and key. For access to the VTR, simply unlock and raise the top door. The recorder, which remains in operating position at all times, is conveniently ready to use. The monitor, placed inside the lower locking doors when not in use, is



positioned for use in the most convenient location immediately above the VTR for easy and proper operation at eye-level.

In addition to a storage area with an adjustable shelf for the camera, tape reels, cables and other accessories; permanent rack-mounting rails for installation of rack-mounted components are also located inside the lower doors. The rack mounting rails are pre-drilled and are positioned 19" apart.

Five-inch ball-bearing swivel casters, each with locking brakes, ease movement over such varied surfaces as carpeting, cables, door jams and uneven floors.

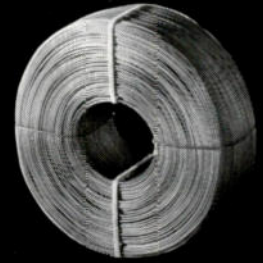
Designed to assure proper ventilation, there is ample space to facilitate normal cooling of the VTR. Appropriately spaced louvered vents on the back side increase efficiency of normal cooling.

Often overlooked, acoustics can be all important. The inside of the upper portion is coated with a sound deadening material to help prevent recorder noise from being picked up by the microphone. A hinged power cord access door, positioned on the back side of the unit, provides easy access to the connectors and cables.

The Luxor VTR Console is constructed of all-welded, heavy-gauge steel and finished in a two-tone charcoal texture. It is priced at \$368. TVC

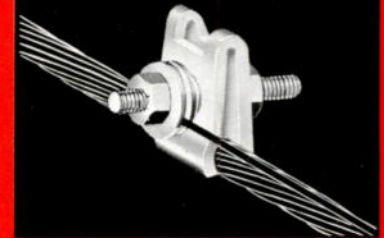
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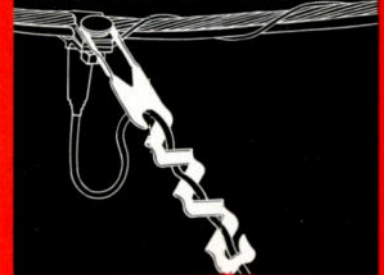
AISI Type 430 quality stainless steel. Superior resistance to corrosion under normal conditions. Fully annealed and coiled with wax coated finish.

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Permanent termination for lashing wire at the pole. Aluminum alloy plates fit and hold 1/4" strand. Hot dipped galvanized washers and nut hold lashing wire.

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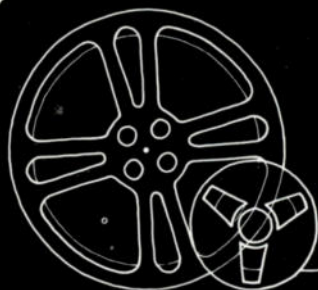
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* Cable TV Art



CATV Programming

software news and tips

CableGuide Is on the Grow

TVC readers have no doubt seen ads for CableGuide over the past few months. Their current advertising message is on page 47 of this issue.

After about six months of "in-depth research," Dave Warmuth, president of CableGuide, reports that the firm will be ready for nationwide service within weeks. At this writing, the firm is completing contractual agreements for a mutual venture with one of the largest aero-space manufacturing firms in the country. The venture will result in "the very first electronic network of CATV systems," according to Warmuth.

CableGuide offers a service of local news and local TV program listings. The listings and news come to the CATV subscriber via cable on an unused channel, 24-hours a day. CableGuide hires a local person to feed in the local news . . . and TV listings are tailor-made to include only the channels offered by the cable system (including locally originated programming).

Warmuth, a genial guy who is addicted to the word "Righto," is well qualified to develop the CableGuide service. He was regional manager for *TV Guide* for sixteen years. He currently has three systems using the service, two more under contract and seven others "all but signed." "We're shooting for 20 new systems per month for the rest of this year," says Warmuth. Currently working with systems in Washington, the firm will next concentrate on

California and then the New England states.

Admittedly, the CableGuide service offers visual data only (no pictures), but it is hard to see how any other system could fulfill FCC wishes for "local programming" at any lower price. Ten minutes out of every hour are dedicated to local news, announcements, school news, local school lunch menus, club activities and happenings at city hall . . . and it comes to the cable operator as a complete service (not just equipment that the cable operator must program himself).

CableGuide charges a flat \$500 per system per month. The cable operator even has pretty good odds at getting that money back. Warmuth provides someone to sell low-cost advertising on that channel, and he splits ad revenues with the system operator.

It would be a real plus, even if the only benefit to the system operator was a cost-free additional service to motivate additional subscribers. However, Warmuth claims system operators can expect substantial income from the shared ad revenues.

Origination Fish Story

Do you have an unused channel you would like to program 24-hours a day for pennies? Bristol Cablevision (Bristol, Tenn.) has an answer.

System manager Ed Bookout

Film production made easy.

You can learn the language of film overnight, if you know one word: Kodak.

Kodak can show you the ease of originating film programs, economically, with a 16mm camera, a film splicer, and a simple viewer for editing. And one trained man can handle it all.

Where do you process your film? Initially, you can take advantage of the hundreds of processing labs across the country, as well as the many television stations that accept outside work. Later, depending on the requirements of your CATV system, you can consider the profitability of installing your own mini-processor.

Then all you need is a film projector to get your film on the air. At the same time, it opens the door to a whole range of filmed programming from national, regional, and local sources.

But the easiest step of all is your first: a call to Kodak. Let the people who know film best show you how to get the best out of film. And the most out of your investment.

EASTMAN KODAK COMPANY

Atlanta: 404/351-6510; Chicago: 312/654-5300; Dallas: 214/351-3221;
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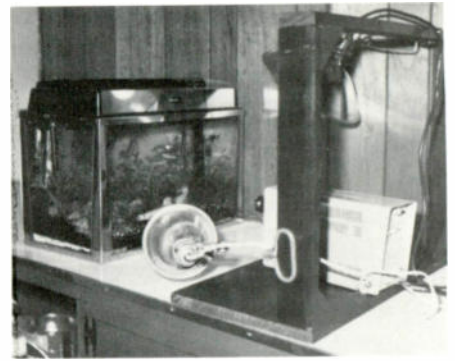
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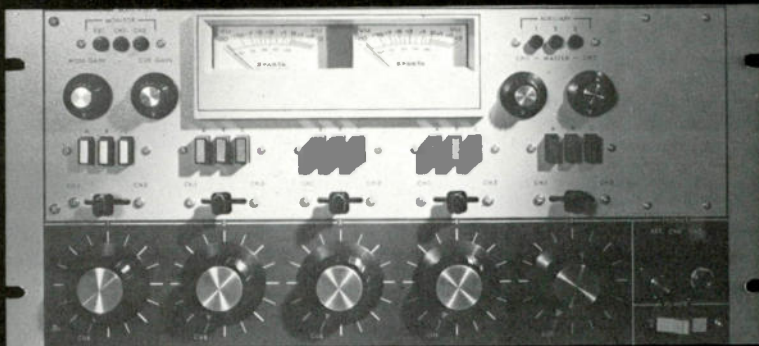


reports that he has set up a unique "filler" for unused channels and channels that must be temporarily blanked-out to avoid non-duplication conflicts with local TV stations. He has a camera facing the side of an aquarium of tropical fish so that viewers can watch the fish and enjoy soft background music.

He uses a \$60 aquarium (but advises that a smaller unit worth about \$20 would be okay), a filtering system, a display of rocks, vegetation and a sunken ship with an air-activated paddle wheel. Bookout says, "This particularly appeals to young children and older people who may be confined to their homes. Larger fish are a necessity. Small Neons, Bloodfins, etc. are beautiful in person, but do not reproduce on the screen in black and white vivid enough to enjoy."

A \$450 b/w camera is used with an audio/video modulator and FM tuner. Lighting presented a particularly frustrating problem for Bookout at first, because the lights tended to reflect off the glass aquarium onto the camera lens. He now uses clamp-on light sockets with reflector hoods (about \$1.98 each) and soft white 100 watt bulbs, mounted at 45 degree angles. He warns to watch out not to let the aquarium get hot from the lights... the fish like to keep their cool when on camera!

LOCAL ORIENTATION MADE EASY



Run the program down the line while doing production work. The new A-16R dual channel audio console has five mixers handling three inputs each. The fifteen inputs have push-button selectors. A removable front panel is provided for custom needs. The A-16R uses only 8 3/4" standard rack space or comes with handsome custom cabinet as an option. Learn how much more this console can do for you. \$1,250.



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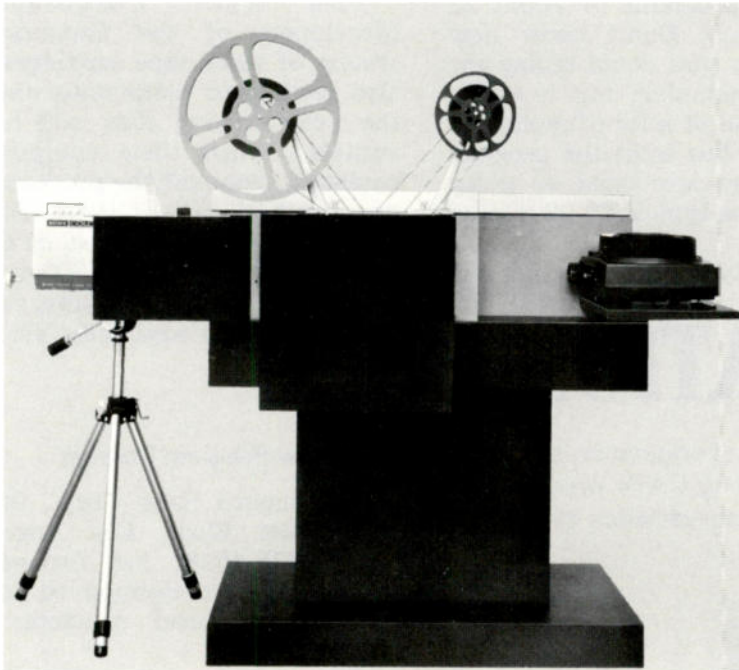
A DIVISION OF COMPUTER EQUIPMENT CORPORATION

EVR and CATV Programming

CBS and Motorola people would like to get their EVR Teleplayer units into cable systems... as their answer to low cost local origination. Although about

MEDIA-PLEX™

Film/Graphics System



Non-critical system. Color or monochrome camera can be rolled up or removed without realignment.

Three-projector inputs plus graphics input (live stage).

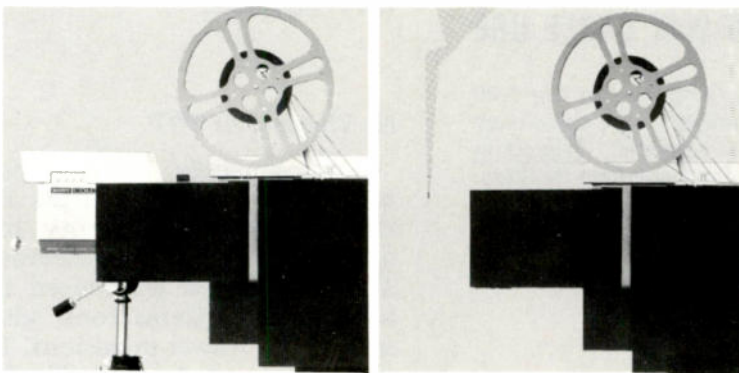
Operable by non-technical personnel.

High resolution, Professional quality output. Modestly priced.

Proprietary optical design permits combination of up to three projector inputs and one graphics input (live stage). Light level control provides switching, fading, dissolving, or superimposition of inputs. Slides or films can be titled through control of light levels and use of graphics or live stage.

The Media-Plex will accept any combination of 16mm, Super 8 or slide projectors as modified by AV Systems, so that additional projector functions may be added any time after original purchase. The system is simple and has no moving parts, hence it is extremely reliable. A rack-mountable remote control panel can be located up to 100 ft. from the system. Use of this panel permits an untrained operator to originate continuous film and graphics programming unaided.

The Media-Plex system will accept monochrome or color cameras without modification.



AV Systems Inc.

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Telephone (516) 671-8010



a dozen cable systems are reported to have Teleplayers on order, TVC knows of no system that has one. However, even if systems had the Teleplayer units, there are very few pieces of programming currently available on the new format.

A recent CBS news release announces a new 600-title EVR cassette catalog. Unfortunately only a portion of those titles are currently available . . . and only a limited number of those will be of interest to the cablecaster.

For instance, you could buy their "Discovering Music" package that includes 9 EVR color cassettes, an ETV player and a color monitor for \$2,300. You would have nine programs of about 22 minutes each. Don't know how many times you could replay the same programming, but it would take a whale of a lot of replays to pay for it. Just want the program alone? They are listed at about \$200 for the typical 20-22 minute cassette.

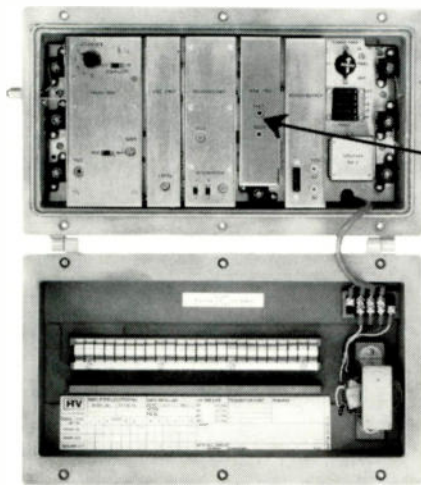
It is likely the ETV format will

eventually offer a wide variety of program materials . . . and rental libraries will develop. But that time is down the road *many* months.

The Avco Corporation (developers of the Cartrivision system of video tape cartridges) is also starting to make noise about the programming they will have available when their equipment begins to come off the production line the first part of 1972. They, too, currently have a list of 600 titles. Obviously, those 600 titles are rather meaningless today, since they don't offer equipment yet.

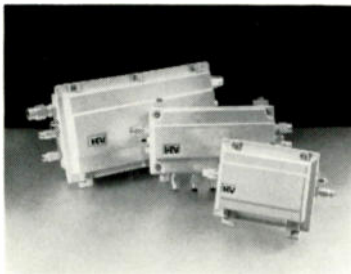
LOCAL ORIGINATION?

USE THE HTV L-20-L AMPLIFIER to transport local origination signals to the head end on the same cable that is carrying CATV programs. Can also be used for CCTV, for schools, banks, surveillance systems and other broadband communications.



Sub VHF amplifier or Jumper Module. (Separation filters under base plate.)

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Two New Program Sources

TV Cinema Sales Corp., 9255 W. Sunset Blvd., Los Angeles, (213) 273-4018, has formed a cable television division to offer taped and filmed programs to cablecasters.

The company offers 653 taped programs (600 of which are in color). They include "Buck Owens Ranch Show," "That's Show Biz," "Outdoor Sportsman" and "Spunky and Tadpole" cartoons.

Brandon Films, Inc. and Fleetwood Films, Inc. (working together as a part of the Crowell Collier and Macmillan film group) have set up a department to lease films to cable systems and TV stations.

The new department is headed by Joel Jacobson. They are located at 30 MacQuesten Parkway South, Mt. Vernon, New York, (914) 664-5051.

No Waivers for TPT

Approximately fifty systems have requested waiver of the FCC rules regarding mandatory local origination. However, TelePromp-ter Corporation announced that none of its systems took advantage of the waiver provisions. TPT said that as of April 1, 63 of its systems were doing some form of locally originated programming.

The FCC granted Cox Cablevision a six-month extension to begin cablecasting on its Macon, Georgia system.

TVC



ORIGINATING?

Local origination promises to be the key to profits and high audience interest. NCTI's new course, PROGRAM ORIGINATION BASICS, is designed to give the system operator or technician the information necessary to achieve a high degree of technical competence in local origination production.

The course consists of an introduction plus six lessons, a total of 250 pages of information with over 100 detailed illustrations. All lessons will be graded and returned to the student. A certificate of completion will be issued upon successful completion of the course.

COURSE OUTLINE:

I. TALK WITH THE INSTRUCTOR (INTRODUCTION)

II. TV SYSTEM FUNDAMENTALS
Basic Components of the Television System
Electronic Analysis of Television
The National Television Complex

III. FUNDAMENTALS OF TELEVISION
Television Broadcasting
Television Station Equipment
Transmitter and Receiver

IV. TELEVISION SIGNAL ANALYSIS
General
Types and Functions of Synchronizing Pulses
Composite Signal Characteristics
Synchronization Signal Encoding
Synchronizing Pulse Standards

V. TV CAMERAS

Factors of Camera Selection
Electronic Analysis of Television Cameras
Camera Setup
Camera Control Units
Maintenance
Repair

VI. VIDEO SWITCHING

Video Signal Synchronization
Video Switching
Video Recording
Studio Film Chains

VII. TV PRODUCTION


Lenses
Microphones
Basic Lighting Techniques
CATV Production
Summary

The complete course, including instruction, grading, and diploma costs, is being offered at an introductory price of \$95.00, with a 10% discount granted on all orders of 10 or more. All requests for enrollment should specify the individual to whom the course is to be assigned.

"The success of local origination will rely largely on the ability of the system and its technical staff to provide programming of professional quality to an audience whose judgment may be far more demanding than that of the FCC."



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Our simple, no-nonsense warranty says, "The seller warrants that Model AB-1000 Series Directional Taps shall be free from destructive corrosion which in any way interferes with their mechanical or electrical performance in normal use for a period of five years from date of shipment from its factory."

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We can make this unusual warranty because the Versatap body is wrought 6061-T6 Aluminum. This unique body construction coupled with compatible aluminum and stainless steel fittings makes it totally weatherproof—impervious to corrosion from high humidity, salt spray, and exceptional moisture underground. Even temperature variations won't affect its values. The Versatap also brings you the versatility of tilted strip line construction or flat hybrid construction which permits uniform signal level at each set location, 2-way systems capabilities, and many other features. Write for catalogs covering the Versatap and the complete line of Cunningham/Aqua CATV equipment. Cunningham Corporation, 10 Carriage Street, Honeoye Falls, New York 14472. Phone (716) 624-2000.

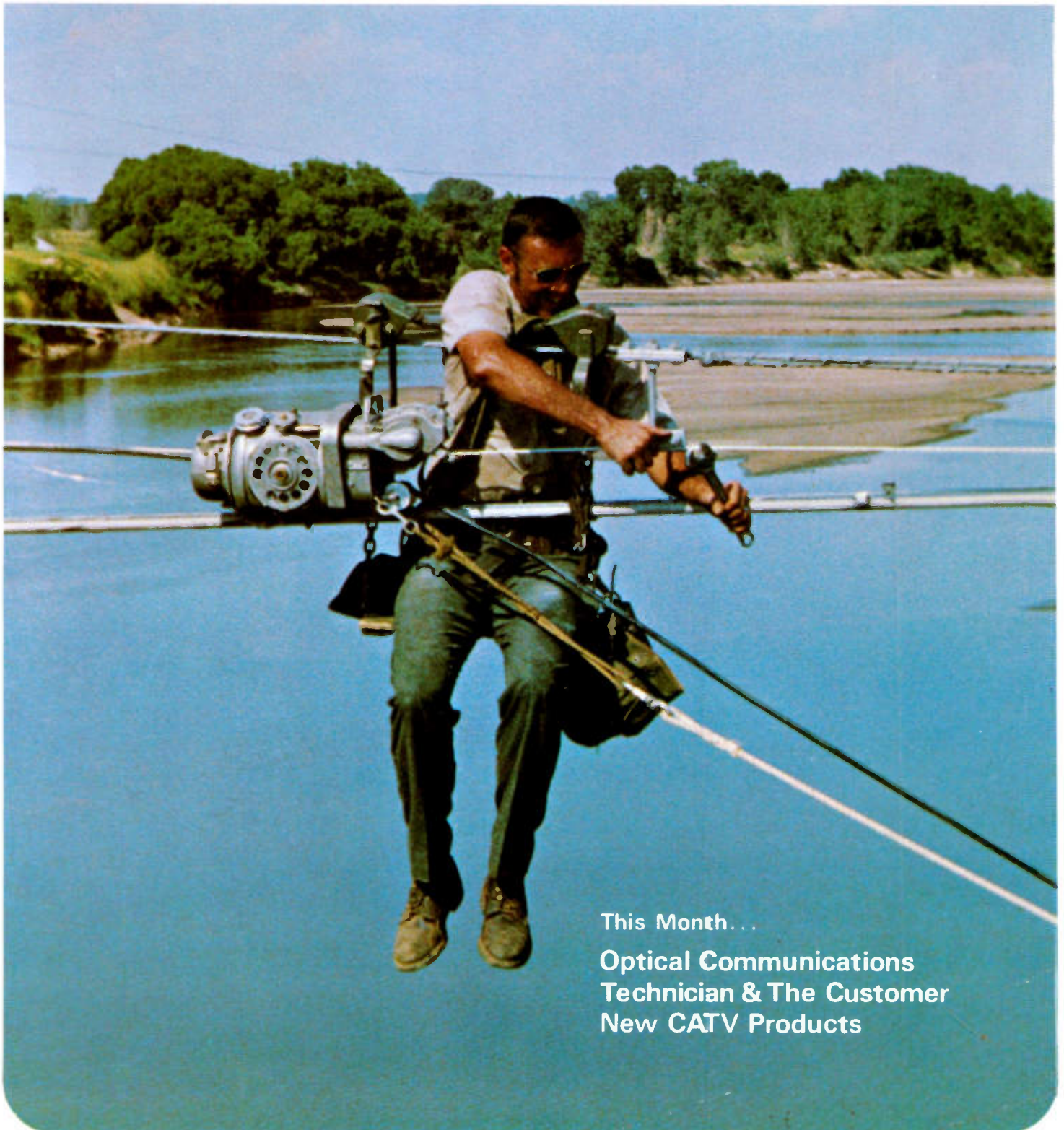
Cunningham Corporation 

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May 1971

TV Communications

CATV Technician



This Month...

**Optical Communications
Technician & The Customer
New CATV Products**

High above the Arkansas River, Ronald Jenkins of the Ponca City, Oklahoma cable system adjusts the lashing gear during 800 foot crossing with new service line.



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BELDEN 8228 75 ohm, 82-channel DUOFOIL® Coax 100% Sweep Tested

The lowest loss of any 0.242" O.D., 75 ohm coaxial cable, by actual comparative laboratory test. Every length sweep tested to insure satisfactory performance. No signal degradation due to fallout resulting from periodicity. See table at bottom of page.

Lightest weight for its size of similar 75 ohm coaxial cable.

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2.5 lbs./100 ft.	3.5 lbs./100 ft.	3.4 lbs./100 ft.	8.2 lbs./100 ft.

Spiral wrapped drain wires provide more equal distribution stresses when flexed for longer service life, preservation of impedance values. Small diameter for space-saving installation in conduits (only 0.242" O.D.)

Easy to install: Terminates with standard F-type connectors (Foam RG 6/U size connector with RG 59/U size crimp ring). Available in 100, 500 and 1000 ft. spools or 500 ft. Convert-a-pak (black, white or rose-gray colors). Call your Belden distributor about test sample orders, or send us your bulk quantity order: Belden Corporation, P.O. Box 5070-A, Chicago, Illinois 60680. Phone: (312) ES 8-1000.

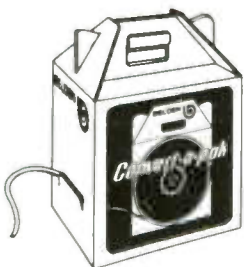
8228 BELDEN DUOFOIL



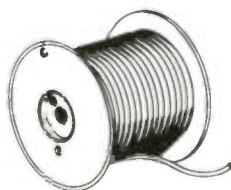
- A: JACKET—Black all weather PVC .030 nominal wall with a .242" nominal O.D.
- B: DIELECTRIC—Low loss cellular polyethylene with a .180" nominal O.D.
- C: CONDUCTOR—18 AWG solid, annealed bare copper.
- D: DRAIN WIRES—4—28 AWG soft tinned copperweld conductors applied spirally and positioned uniformly around the circumference of the shield.
- E: SHIELD—Belden DUOFOIL 100% shield is a polyester film with aluminum lamination on both outside surfaces.



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8-4-9

MC	Nom. Attenuation per 100 feet			
	Belden 8228 db loss	RG-59/U db loss	Foam RG-59/U db loss	Foam RG-11/U db loss
50	1.5	2.4	2.1	1.0
100	2.1	3.4	2.9	1.5
200	3.1	4.9	4.1	2.2
300	3.8	6.1	5.1	2.8
400	4.5	7.1	5.8	3.3
500	5.0	7.9	6.5	3.7
600	5.5	8.9	7.1	4.1
700	6.0	9.6	7.7	4.5
800	6.5	10.3	8.2	4.9
900	6.9	11.1	8.7	5.2

Optical Communications And the CATV Industry

Beams of light between optical communication links may be the answer to missing CATV transmission paths where cable costs are prohibitive or microwave channels are not available.

Recent developments in the data communications field may have spawned a new alternative for short-range transmission in the CATV industry. Because of certain problems associated with cable and microwave transmission, many of which are common to video, audio, and data transmission, new approaches have been sought.

With advances in laser technology and light emitting diodes (LED), systems designers began to build optical communications equipment. These are no longer a laboratory curiosity, but have become operational.¹

This article describes some of the relative advantages and disadvantages of cable, microwave and optical systems, discusses where each is best suited in

an overall system design and describes the principles of operation of optical communications.

Optical communications systems, like microwave systems, transmit information through the atmosphere. (Eventually, the light signal will pass through a pipe buried underground, or through fiber optics, or in some sort of enclosed wave guide.)

Consequently, both microwave and optical systems are affected adversely by adverse weather conditions. There are, however, a number of conditions under which a CATV operator might choose a wireless system in lieu of cable, or to augment existing cable facilities.

Conditions under which short-haul transmission systems are desirable include those where there are natural barriers to cable, such as rivers or freeways.

In the city, the cost of burying cable through city streets can be avoided. The dense population in a city makes it particularly well suited to transmit information between rooftops.

In outlying areas that are too sparsely populated and too far from the central system to justify cable construction and maintenance costs, over-the-air transmission systems can again provide a practical alternative.

Other applications for wireless systems might include the short hop where a CATV town lies close to a microwave route.

With the growth of the CATV industry, in areas besides traditional CATV transmission and program origination, there may be services that encompass home computer transactions which involve high speed data transmission. For this service, cableless systems can be expected to transmit fewer errors since they are not subject to "hits" on the line. They also

ABOUT THE AUTHOR

Herbert F. Rikelman is president of General Communications Systems, Inc., a newly formed manufacturer of short-haul communications equipment. He has BS and MS degrees in Electrical Engineering from New York's City College and the University of Southern California. He previously was president of University Instruments Corporation.



require less costly interface electronics such as digital-to-analog converters and line equalizers, which are required with cable.

While some of the applications listed here are areas where a wireless system might be used in lieu of cable, the advantages and disadvantages must be analyzed in each specific case. Such advantages as lower cost, ease of installation, and improved signal reception are relative, and must be evaluated for each specific installation and measured against the advantages of cable.

If, after this evaluation, the CATV systems designer decides he does not want to use cable, he has several choices open to him.

Microwave can be used by the CATV industry for either signal relay purposes (with a typical range of 35 miles), or for intra-system use, such as local distribution service (LDS). Optical communications links can only be used for intra-system use.

For the CATV operator choosing microwave, he can either operate a system for his own use in the CARS band (12.7 to 12.95 GHz), or apply for common carrier authorization, or use one of the miscellaneous common carriers.

For those companies seeking authorization to build their own systems in the common carrier band, the most complicated and expensive choice, FCC licensing might be difficult, since the rules are changing. In areas where there is frequency congestion, common carriers will be required to shift from the 4 GHz and 6 GHz bands to 11 GHz and 12

GHz. These units cost more, and evidence indicates they have lower reliability over long path lengths.

Optical vs. Microwave

So far optical and microwave transmission systems have been lumped together as cableless systems. There are, however, important differences. As has been mentioned earlier, only the intra-system use of microwave may be compared with optical communications links.

The most significant difference between microwave and optical links is beam spreading. Because of the wide cone angle and subsequent signal spreading of a microwave transmitted beam, FCC licensing is required.² For a CARS band system, the FCC has ruled that the 3 dB beamwidth of the transmitting antenna cannot exceed 3 degrees. By comparison, the beamwidth of an optical system may be a few milliradians.

Because of its wide beamwidth, microwave path selection must be done with extreme care. At microwave frequencies most objects are good reflectors. Therefore care must be taken to avoid buildings within a certain ellipse between transmitter and receiver. Referring to Figure 1, component B, which is reflected off a building, will arrive at the receiver slightly later than component A. This "multipath" effect produces ghosting in the received signal.

The only consideration in site selection for an optical link is line-of-sight. Not only is there a very

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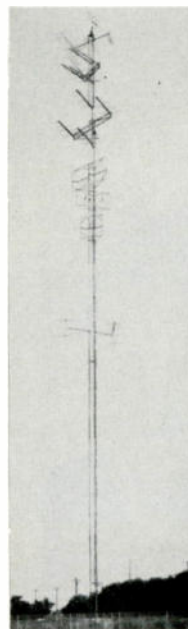
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narrow beam, but at optical frequencies* most objects are poor reflectors (except for flat mirrors).

Another consideration in choosing short-haul microwave is the potential existence of a crosstalk problem. This occurs when the side lobes of other transmitted beams in the area are received. Crosstalk isn't any problem at all for optical systems since receiver acceptance angles can be made very narrow, and side lobes are very low in power. For example, two receivers could be side by side, with their transmitters spaced only one degree apart. Under this arrangement, one system would have no effect on the other, even if operated at the same frequency.

All optical systems commercially available today that use incoherent light have solid-state signal sources. Recently, Bell Telephone Laboratory engineers produced a room temperature CW laser diode. This development might mean that some day high-speed laser communications systems might also have solid-state sources.

Presently the most common type of transmitter in a microwave link uses a klystron tube. These tubes have lifetimes of 10,000-15,000 hours. Solid-state sources have typical lifetimes of 100,000 hours. Although solid-state microwave sources are now available (viz. Gunn and avalanche oscillators and frequency multipliers) they are noisier than klystrons, have less power output, and are more difficult to frequency modulate.

Prices for short-haul microwave and optical communications systems are today roughly comparable. For example, a one-way, single-channel system with audio costs in the \$7,000 to \$10,000 range. It will not be long, however, before prices of optical systems will be lowered, as their usage becomes more widely accepted and economies of volume production can be obtained.

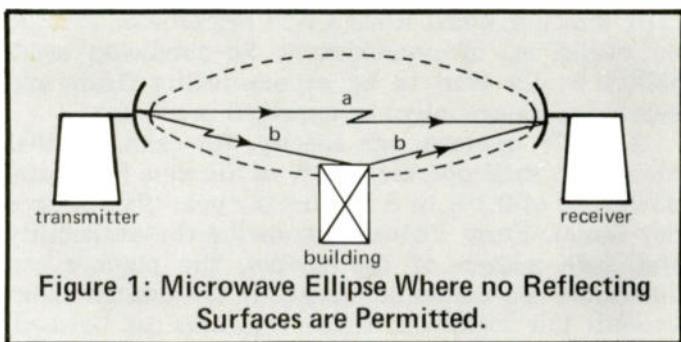
In general, the advantages of an optical communications link for short range transmission of video, audio, or data include the following: (1) Improved signal reception with a high S/N ratio, no crosstalk and the elimination of the multipath problem; (2) No FCC license in required; (3) Present and future low price of equipment; (4) Solid-state reliability; (5) Ease of installation; (6) Portability; (7) Path selection simplicity.

Principles of Operation

The basic elements of an optical communications system are a transmitter (which consists of some light producing device such as a light emitting diode) a lens system (or parabolic reflectors) to focus the light, and electronic drive circuitry. The receiver consists of lenses (or reflectors), a photodetector which converts the variations in light intensity into electrical signals, and associated electronics.

In operation, the transmitter is aimed at the receiver. (For optical systems using LEDs, open

*A common light-emitting diode is gallium arsenide, which emits light at a wavelength of about 9,000 angstroms, or 333,000 GHz.



beams can be safely transmitted.) The diameter of the beam at the receiver should be somewhat greater than the diameter of the receiver itself, since air turbulence, vibrations of the mounting structure, and inaccurate pointing can degrade the signal.

The receiver must contain automatic gain control (AGC) to prevent saturation from variations in illumination due to changes from bad weather to good, or from night to day. The system must be enclosed in a way so that the optical elements are protected from snow and dust.

Because of the high frequency of optical systems, the usable bandwidth is high, large quantities of information can be transmitted. At present, however, a major problem has been that of superimposing the information onto (i.e. modulating) the light beam. Modulating a laser can take racks of equipment. This is one of the reasons for interest in the new solid-state laser diode, which can be modulated directly.

For systems using incoherent light emitting diodes, a variety of modulation techniques are available. The simplest and most common is to amplitude modulate the light. For digital communications links, the light intensity is either full on or full off. For analog systems (like video) the light intensity is proportional to the input signal. (It should be noted that a video signal can be sampled and sent digitally.)

Possible Problems

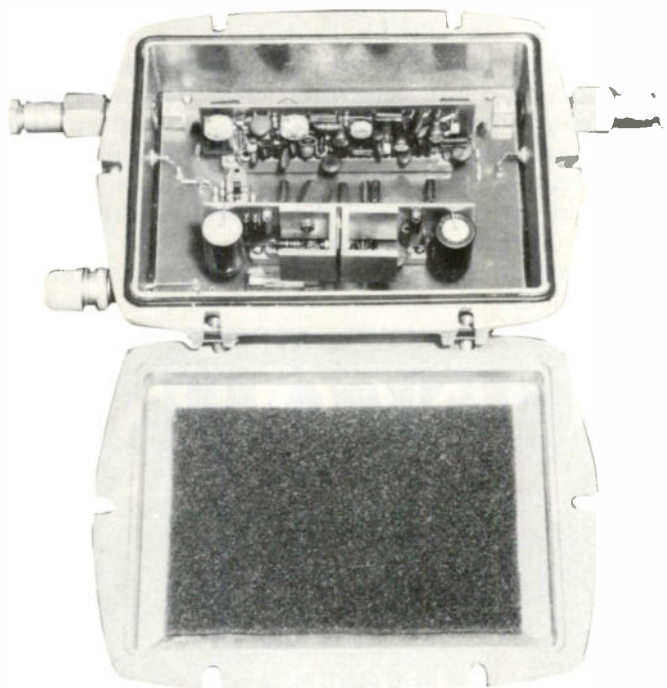
Required transmission range and signal availability should be of primary concern to anyone interested in using an optical communications link. Availability refers to the percent of time service is uninterrupted by bad weather conditions. The availability of a system depends upon the distance between the transmitter and receiver (range) and the region of the country in which the unit is located.

While microwave is affected by heavy rainfall, optical systems are most affected by snow and fog. Rain absorbs and scatters the microwave signal. Snow and fog can reduce optical signal visibility until the receiver can no longer detect a signal.

The attenuation of a light beam through the atmosphere can be corrected to a certain degree. The correction requires designing the optical links with enough excess signal, "fade margin," to account for fades caused by bad weather. More than enough signal is made available on a bright sunny day, so that sufficient signal will be available on days with poor visibility. To accommodate this change in signal

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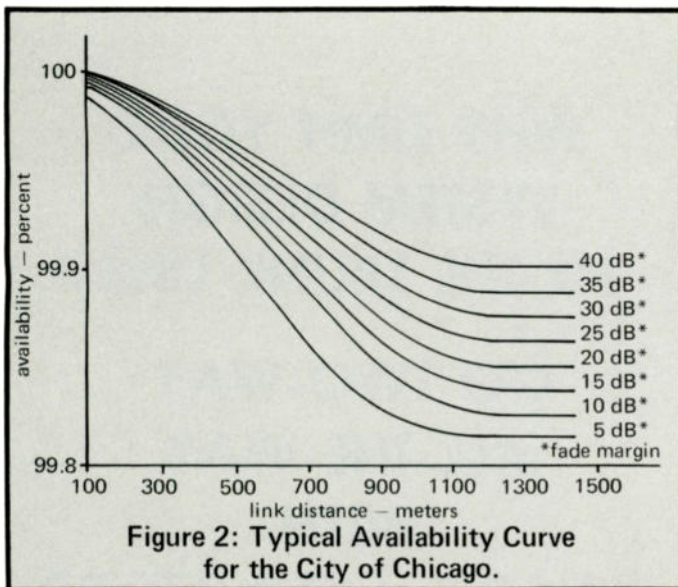


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requires that the optical link contain AGC circuitry in the receiver.

An optical system which can operate in all weather conditions has not been built yet. However, for a given range, geographical location, and given fade margin, the expected year round availability of a system can be predicted. Curves such as the one shown in Figure 2 can be generated from U.S. Weather Bureau data. From these data it has also been found that the lowest visibility occurs in the

early morning hours when CATV transmission would be negligible, or non-existent. So predicted availability would tend to be a conservative figure and better experience might be expected in practice.

A CATV operator can specify, for example, that his system shall operate 99.9% of the time for a total downtime of 0.1%, or 8.8 hours per year (24 hour per day basis). From Figure 2, knowing the availability and fade margin of the system, the planner can determine his maximum range. If the desired range exceeds this maximum range, repeaters can be used. Formulas as well as graphic techniques relating link distance and availability have been determined.³

A Look Into the Future

The wide bandwidth inherent in optical communications systems will allow many channels to be transmitted over a single link, once some of the technological problems are overcome. These problems include improved modulation techniques, and improved light emitters.

Semiconductor manufacturers, recognizing a growing need by the communications industry, will make improved emitters and detectors. Most LEDs available today have been developed because of the need for display devices. Greater brightness in the light emitters and more efficient detectors will provide greater range and improved signal-to-noise.

Light emitting diodes of different frequencies will be packaged as an array. Hence, information could be LEDs would be automatically selected as "windows" changed with weather, thus greatly improving availability. LEDs would be automatically selected as "windows" changed with weather, thus greatly improving availability.

Optical communications links of the future will not only have greater range, bandwidth, and improved availability, but will be available at a lower cost. Current prices which are competitive with microwave are based on unit costs. As quantity buying takes place, economies of scale are certain to occur.

There is little doubt that, in the future, optical links will find increasing acceptance by the CATV industry as a practical alternative to cables and microwave. TVC

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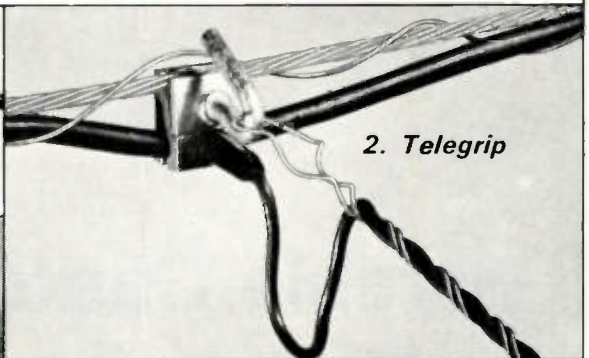
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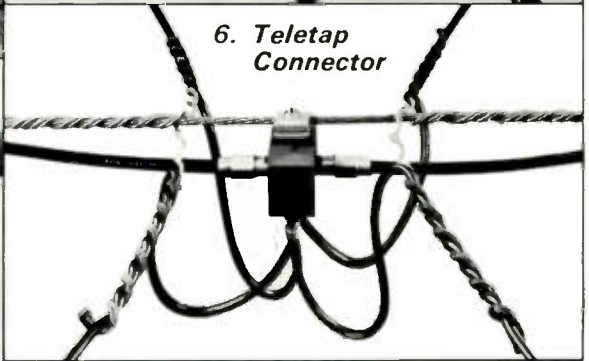
2. Telegrip



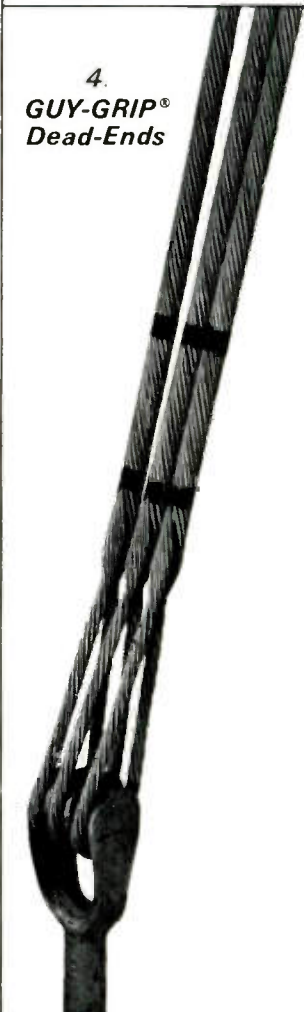
3. False Dead-Ends



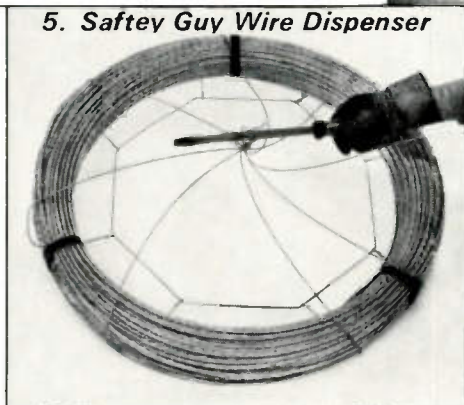
6. Teletap Connector



4. **GUY-GRIP®**
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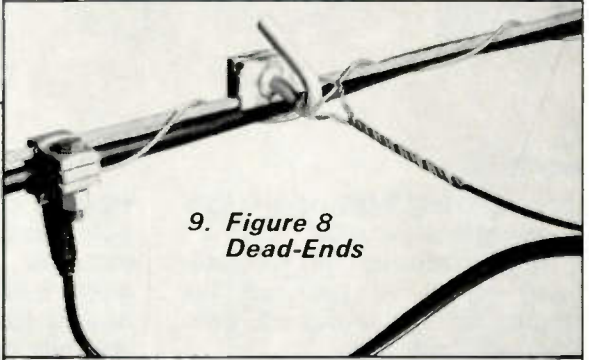
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9. **Figure 8**
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8 Dead-Ends. Inexpensive trouble-free dead-end, for use on Figure 8 coaxial messenger. **10. Preformed Stainless Steel Dead-Ends.** Custom design dead-end for use with foam type RG 59/U coaxial wire.

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Favorable Customer Relations: Your Technician Is the Key

Once you get that subscriber signed up, don't lose him through misunderstandings with technical personnel. Here are some tips for maintaining good will even when the customer's TV set is the cause of poor television reception.

By Brad Prowse

Approximately 80% of a CATV technician's trouble calls turn out to be customer set problems . . . and trying to convince the customer his TV is out of order can be a difficult task.

By using tact, courtesy and a small portable TV set, the job can be done without antagonizing the customer or bringing any ill will to the CATV system that serves him.

All trouble calls, whether they end up being a cable problem or a customer set problem, should start the same way. The technician, with a smile and a cheerful greeting, arrives at the customer's door and identifies himself.

He should be neatly dressed and present as pleasing a personality as he can. His previous call may have had him wading through a swamp,

fighting off alligators to climb a pole and change out a line extender. However, the customer doesn't know this and he will take note if the tech is out of sorts and shabbily dressed.

Referring to the customer as "Sir" or "Ma'm" is a courtesy appreciated by most patrons. This can be modified if a customer turns out to be a sweet young thing with big blue eyes or some kid left behind to let you in the house. But starting out this way helps to make that all important first impression.

On entering the home make sure your boots are clean and be careful not to hit walls, doorways, furniture, etc. with your belt or hand tools. Take in enough equipment to meet most normal situations. This should include a signal strength meter, a small portable TV set and belt tools. I put an extra transformer in my pocket and a small box of fittings in my

tool pouch. Going back to the vehicle for a meter or a screwdriver is time consuming and isn't going to impress the customer with your efficiency.

The first thing I do on being shown the customer's set is plug in my portable TV to get it warming up. Then I turn on the customer's set, and remove the cable from the transformer. This gives me a chance to see that the transformer isn't damaged and that it's connected to the correct terminals.

It's surprising what a customer can end up hooking the leads to if he happens to remove the transformer for some reason. TV repairmen aren't exempt from this boo-boo either.

Next I check the signal strength to eliminate overly strong or weak signals that could cause ghosts, bars, overloading, etc. If I can't find anything wrong with the cable I can be pretty sure the problem is in the customer's set.

The author, Brad Prowse, is the chief technician for Gold Hills Cable TV, Grass Valley, California. A graduate of RETS Electronic Schools in Oakland, California, he entered CATV work in 1966 with Western Microwave in Montana.



Author Brad Prowse uses a splitter to run both the test set and the customer's set at the same time, to best illustrate to the customer that the trouble is located in his set. Photo courtesy Gold Hills Cable TV, division of Nation Wide Cablevision.

To check this out, I hook the cable to my portable, going through the channels and showing the customer the quality of the pictures. When I place the cable on his set the customer should be starting to realize the trouble is with his TV and not the cable system.

If the trouble is a simple one, say a sync circuit out of adjustment or the fine tuning off, you can reset it, briefly explain what to do in the future to correct it, and leave. But if the problem is serious, you may be in for an argument from the customer.

He might tell you his set has just been worked on (meaning anytime in the last two years), or that it has to be the cable because his brother-in-law across town has the same problem.

The best thing to do is to show the customer the pictures received on your set again. By now I generally have a pretty good idea

of what's wrong and I explain what may have to be done to correct it. In some instances a technician can explain that there is nothing the cable can do to cause the particular problem on hand.

As an example, if the customer's screen is dark, remove the cable from your set to show that an absence of signal produces a white raster in a normal set. If the customer has a second set on the cable it can be used as an indicator of the good signal available. But if this second set is also shot, you better have a test TV set handy or you'll have to do some tall talking to convince him the cable isn't at fault.

In any case, I find the real key to my convincing the customer usually lies in the little test TV I bring in with me. Though it costs only about half that of a signal strength meter, in some ways it's more valuable.

While the technician could hardly get along without the meter, it means nothing to the customer. However, the little portable TV can show him there is a signal present that will produce good pictures on a set that is in proper order.

Good will is important to a CATV system. The head office gains nothing by having a disgruntled customer who feels the technician representing that system sold him a bill of goods on the condition of his set. But most customers will accept the fact their set is at fault if they can see positive proof of the good reception available.

It's a case of one picture on the test set being worth a thousand words of explanation by the technician. And it might be worth twice that many words that a customer *won't* be saying against the system because he realizes his set is in need of repairs.

PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

BENCO HAS NEW BAND PASS FILTER

Benco Television Associates, 27 Taber Rd., Rexdale, Ont., announces a 19" relay rack version of the BPF-B. Designated BPF-C, this unit has all the proven features of the older model in a new package only 1-23/32" high. CATV operators price \$80.00 in single quantities.

Benco Television Associates has announced the closing of its Jacksonville, Florida office. All repairs, including Warranty Repairs, will be looked after by Gracomp Inc. and should be sent to 3419 Bills Rd., Jacksonville, Florida 32207.



TWO PORT TAP UNIT NOW OFFERED BY C-COR

C-COR Electronics, 60 Decibel Road, State College, Pa. 16801, is now offering a two-port tap unit for low density



applications. The unit was developed at the request of several customers in the South and has the same nominal specifications as a four-port tap but offers a

cost reduction over the more commonly used four-port tap.

Selling price is \$9.25 each in quantities of 1,000 and the availability is from stock.

LRC INTRODUCES CATV ALUMINUM CONNECTORS

LRC Electronics, Inc., 901 South Ave., Horseheads, New York 14845, has begun production of CATV aluminum cable connectors at its facility here.

The company is manufacturing a complete series of entry and splice fittings. The parts feature captive ferrules . . . O ring seals . . . positive stop assembly and fewer assembly parts. The splice fitting features a micro press seized center conductor.

Also in production are adapters for aluminum cable to "F" series requirements. Complete parts are available for both polystyrene and polyethylene foam insulated cables.

JERROLD OFFERS NEW FIXED ATTENUATOR PADS

Jerrold Electronics Corporation, 401 Walnut Street, Philadelphia, Pa. 19105, has introduced a new line of fixed attenuator pads designed especially for 75-ohm all-channel TV distribution systems.

The attenuators are available in Models PDA-1, PDA-3, PDA-6, PDA-10 and PDA-20, the model number indicating the attenuation in dB. The PDA Series of attenuators use a resistive tee-network, are considered ideal for in-line use, and all models cover the application range from DC to 890 MHz. Fittings on the attenuators are type F-61A with a universal center clutch that adapts to RG-59 through CAC-11 cable sizes. All models can be cascaded with the use of Jerrold F-71 male coupling connectors.

Specifications include: Return loss: 21 dB, VSWR: 1.2:1, Impedance: 75 ohms.

The PDA attenuators, overall length 2½", are all-channel replacements for the earlier PDL models.

CATV LINE SPLITTER INTRODUCED BY ENTRON

Entron, Inc., 2141 Industrial Parkway, Silver Spring, Md. 20904, has introduced a new series of line splitters for RF coaxial transmission systems and CATV systems operating in the frequency range of 10 MHz to 300 MHz.

The two-way (model SLS-2) and three-way (model SLS-3) line splitters provide for the impedance-matched splitting of trunk or distribution cable. Return loss is better than 20 dB and



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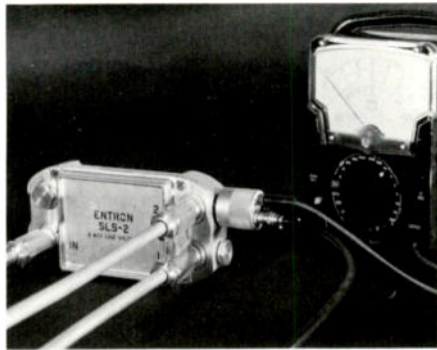
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isolation better than 25 dB.

The units have input and output test points which enable signal levels to be monitored throughout the cable system. The devices are designed to accept Entron's TP-4 test probe.

The splitters are part of Entron's new Spectramax product line and feature weather-resistant die-cast aluminum housings, standard 5/8-24 entrance ports, snap-in modules for ease of installation and maintenance, and a new universal seizing device suitable for underground or aerial mounting.

LAMPKIN INTRODUCES NEW TEST EQUIPMENT

Type 107A Digital Frequency Meter/Synthesizer/Signal Generator has been introduced by Lampkin Laboratories, Inc., Dept. 263, 8400 Ninth Ave. N.W., Bradenton, Fla. 33505. Aimed primarily at the mobile-radio maintenance field, the instrument has many other applications. It is completely solid-state, operates from either 12V DC or 115V AC, and weighs 22 pounds.

As a heterodyne frequency meter, the 107A will measure carrier frequencies of nearby transmitters, or signals picked up on a receiver, either AM, FM, TV, SSB, or CW. Coverage on FCC-assigned frequencies is continuous from 10 KHz to above 500 MHz. Guaranteed accuracy in the field, independent of WWV, is considerably better than 0.0001% (1 part per million). Readout is better than 0.00002%. Zero-beat is indicated by an internal speaker and a panel voltmeter; or by optional headphones or remote speaker.

As a synthesizer, any frequency from below 1,000 Hz to 9,999.9 Hz, can be generated, in steps of 100 Hz, phase-locked to the internal crystal standard.

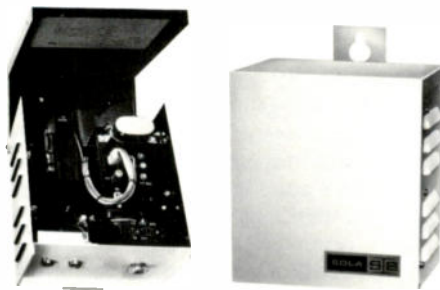


Voltage output level is 1.0-volt rms down to 0.0005-volt, continuous and calibrated, into 50-ohm load or greater. Price is \$2,150.00.

SOLA INTRODUCES NEW CATV POWER SUPPLIES

A new line of power supplies, designed specifically for use in CATV systems, has been introduced recently by Sola Electric, 1717 Busse Road, Elk Grove Village, Illinois.

The power supply equipment, available in any voltage and current rating, is built around a constant-voltage transformer that steps down and regulates voltage. Other features, such as circuit breakers, lightning arrestors and switches can be supplied as required. Special output connectors may also be specified to facilitate installation.



The power supply units are housed in a weatherproof enclosure and are suitable for pole mounting. Advantages of the constant-voltage power supply include protection of solid-state devices, maintenance of voltage for consistent signal and amplification, and surge protection.

TESTRON'S UNIVERSAL POWER OUTLET BOXES

Testron, Inc., Box 48237, Chicago, Illinois 60648, is marketing compact, universal outlet boxes which make 115



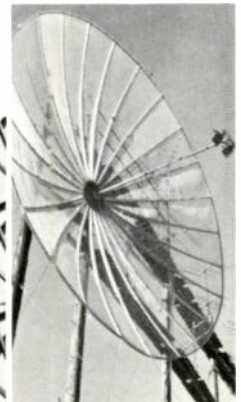
volts AC available at convenient receptacles for powering prototypes, experimental equipment, sub-assemblies, components or anything else which doesn't have a standard plug. Special connectors easily accept a wide variety of wires, cords, probs, etc. up to 16 AWG diameter. Conservatively rated at 3 amperes @ 115 volts. Applications include schools, labs, production lines

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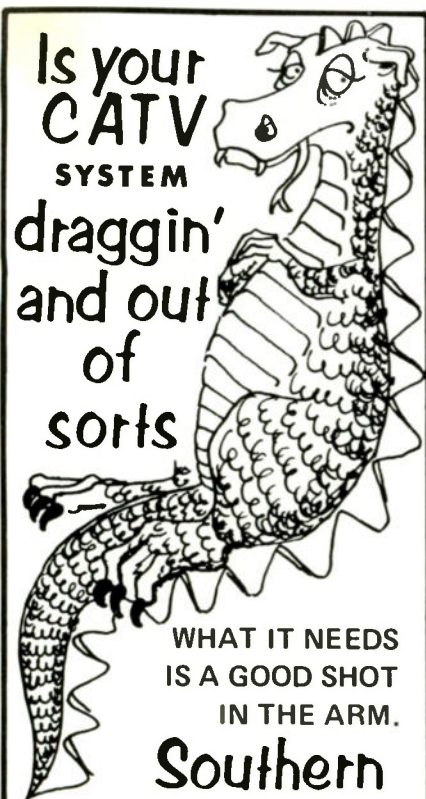
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and many other industrial uses requiring a temporary power connection. Patented "Zip-Clip" receptacle-connectors, are deeply recessed and color coded to provide maximum protection against accidental shock.

Eight models to choose from . . . two and three conductor units with various options are available from stock.

CABLE-METER SYSTEMS' CATV MONITORING DEVICE

Cable-Meter Systems of California, Inc., 2625 Via Anacapa, Palos Verdes Estates, Calif. 90274, is marketing a CATV monitoring device, called the CMTV-3 cable meter. The unit consists of two main components, the outside meter housing and the TV set control box.

The outside meter controls the passing and blocking of RF signals and meters time. Service is used by the subscriber with a digital time lapse meter. The TV control unit, which is mounted back of each TV set, is used to actuate the meter and signal control unit outside the subscriber's house. The unit can be supplied with or without an outside antenna switch.

This system is powered by a 24-volt power supply. Prices and further information are available on request.

T-C SPECIALTIES OFFERS NEW DOOR KNOB HANGERS

T-C Specialties Co., P.O. Box 192, Coudersport, Pennsylvania 16915, well-known for their coupon books and related products, now has door knob hangers. Four stock designs with your



No. 4-3A



No. 4-3B

imprint or special layouts available. Free samples upon request.

NEW CAMERA FOR HIGH QUALITY IN LOW LIGHT

The first color broadcast quality television camera to use the new Tivicon tube, offering fine colorimetry and

permitting operation at less than half the normal light level requirement, has been introduced by International Video Corporation, 675 Almanor Ave., Sunnyvale, Calif. 94086, for cable television.

The new Tivicon tube, used in the red channel of the IVC-500, is matched with Plumbicon tubes in the green and blue channels. With the Tivicon tube in the red channel the IVC-500 has twice the sensitivity of conventional Plumbicon cameras. Typical 300-foot candle studio lighting levels are reduced to under 150-foot candles.



The Tivicon tube is a recent development in silicon tube technology from Texas Instruments, Inc. and is manufactured in the U.S. It has all the performance features of the Plumbicon tube, including the same gamma spectrum. It is seven times more sensitive in the red region than the Plumbicon tube with a spectral response to 700 nanometers.

The IVC-500 offers the same operating features as the widely used IVC-300A including 2000-foot cable compensation, horizontal and vertical image enhancement, negative registration displays and adjustable gamma.

KLIEGL OFFERS WIDE ANGLE MODEL

A new U. L. listed theatrical and television luminaire which provides a 27 degree field angle has been introduced by Kliegl Bros., Inc., 32-32 48th Ave., Long Island City, New York 11101.

The new unit, rated at 1,000 watts, is one of a series of Klieglights, or ellipsoidal reflector spotlights. This fixture, model 1357/6W, is designed to provide a wide-angle but intense field of light. Dual 6-inch diameter heat resisting piano-convex lenses are used in the optical system. The unit is equipped with a "C" clamp for hanging from pipes of up to two inches diameter.

Equipped with an EHS 1,000 watt, 500 hour tungsten halogen lamp, the model 1357/6W produces a field angle of 27 degrees which equals or exceeds 68,000 candle power. The new instrument sells for \$160.

IVC

Calendar

MAY

4-6—Pennsylvania Community Antenna Television Association spring meeting will be held at the Marriot Hotel in Philadelphia, Pa. Thomas J. Houser will be speaker at Tuesday night banquet. For more information, contact John Rigas, PCATA president, (814) 274-9631.

5-7—California Community Television Association spring meeting will be held at the Senator Hotel in Sacramento, California. For further information, contact Walter Kaitz, CCTA exec. sec., (415) 582-5881 or 351-8768.

11-37 Systems from Minnesota will be represented at a meeting at the Hyatt Inn Towne Motel, Minneapolis, Minn. for the purpose of forming a state association. For further information, contact K.T. McHugo, 210 E. Walnut, Mankato, Minn. (507) 345-6474.

17—FCC cross-ownership proceedings: Comments are due this day from all interested parties, except NAB and ANPA. Deadline moved from February 15.

17—FCC proposal to make more non-network programming available to UHF and CATV: Comments are due this day from all interested parties. Original deadline was March 3.

JUNE

3-5—CCTA Cablecasting Seminar will be held at Palm Desert, Calif. Registration limited to fifty. For further information, contact Tony Acone, chairman, 74-175 El Paseo, Palm Desert, Calif. 92260 (714) 346-8157.

8-10—Ohio Cable TV Association convention (rescheduled from April 21-23) at the Sheraton Columbus Hotel, Columbus, Ohio. For more information, contact Jack P. Rubins, convention chairman, 196 S. Main Street, Marion, Ohio 43302 (614) 383-6781.

17—FCC proposal to make more non-network programming available to UHF and CATV: Reply comments are due this day from all interested parties.

18—FCC cross-ownership proceedings: Reply comments are due this day from all interested parties. Deadline moved from March 15.

JULY

6-9—National Cable Television Association Annual Convention at the Sheraton Park Hotel and the Shoreham Hotel in Washington, D.C. For more information, contact NCTA (202) 466-8111.

AUGUST

16-19—Rocky Mountain Cable Television Association and Mid-America CATV Association joint meeting at the Antlers Hotel in Colorado Springs, Colorado. For more information, contact Al M. Carollo, Jr., RMCTA president, P.O. Box 631, Green River, Wyo. 82935 (307) 682-4303.

NOTE: If you have a listing to be included in this calendar, please send them (as early as possible) to Stuart MacPhail, 1900 West Yale, Englewood, Colo. 80110. All CATV-related events and important dates will be listed.

rvc

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"MEN WORKING" Safety-Flex signs are available in 30" x 30" and 36" x 36" sizes with optical bead reflective or non-reflective surface. An adapter kit permits use of these signs with existing standard A frames. "UTILITY CONSTRUCTION AHEAD" signs, measuring 48" x 48", are furnished with an optical bead reflective surface for optimum visibility day or night.

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FOR SALE—BUCKET TRUCK

Hallline ladder on 1970 Dodge chassis with Powers-American body. Slightly used. New cost was \$11,600. Price negotiable. Full description on request. Write box T271-1.

WANTED

TelePrompTer of Mobile Cable TV is looking for technical personnel with electronics background. Experience preferred in CATV, television stations, or radio. Other experience in the electronic industry will be considered. Mail resume to Leo O. Levisay, 3257 Moffat Road, Mobile, Alabama 36607 or telephone 471-6236.

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Excellent opportunity with California based growth company for ambitious, experienced CATV salesman to introduce and sell newly designed system test equipment. Applicant must have thorough knowledge of CATV systems and possess five years experience selling CATV equipment. Degree desired. Send resume to Box T571-2. Confidential.

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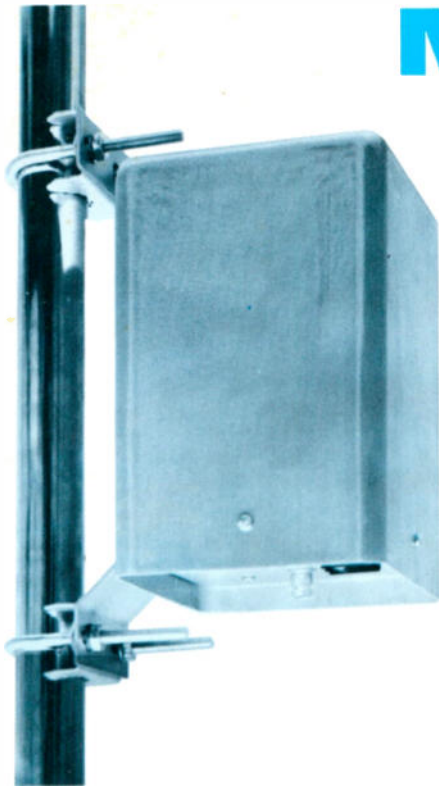
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This problem can be solved, to a degree, by placing a broadband UHF amplifier directly adjacent to the antenna with which the signal is amplified prior to transmitting it down the cable to the receiver. This assures a strong signal at the receiver end of the cable.

A much more desirable solution, however, is to place the tuner, converter and IF amplifier sections of the receiver at the antenna location, with the

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The DYNAIR FT-4BU Fixed Tuner is housed in two separate packages. A formed aluminum housing which has a universal pole-mounting bracket contains the tuner, converter and IF amplifier sections. It has a terminal strip for the 300-ohm antenna input and a BNC connector for the IF output to the lead-in cable. The second package consists of a plug-in module which replaces the standard tuner of a DYNAIR RX-4B "DYNA-TUNE" Television Demodulator. The plug-in module contains automatic frequency control circuitry which assures a stable signal. A switch is provided on its front panel for selection of either automatic or manual frequency control. An AFC tuning adjustment is also mounted on the front panel. The antenna lead-in from the pole-mounted tuner is applied

to the SO-239 connector on the rear panel of the DYNA-TUNE which is normally used for the VHF antenna connectors.

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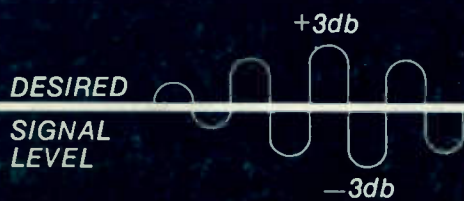
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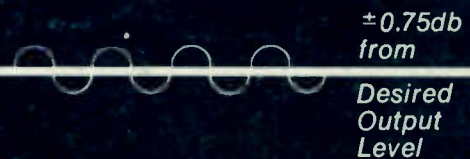
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2. AGC circuit samples output signal, detects level changes and sends corresponding control voltage to reduce or increase Amplifier gain.



4. Long time constant of AGC circuit does not respond to short term signal variations, reacting only to cable attenuation changes caused by temperature.



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