December 1968

TV Communications

The Professional Journal of Cable Television

In This Issue...

Automated Billing
CATV Studio Lighting
Pressurized Cable

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the quickest, most accurate way to check CATV equipment response from 1 MHz to 300 MHz

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Make sure your CATV system is up to par with the new Jerrold Solid-State RF Test Set Model TS-300-7F. Ask your Jerrold CATV salesman for more information. Or write, phone, or TWX, Jerrold Electronics Corporation, CATV Systems Division, 401 Walnut Street, Philadelphia, Pa. 19105. Phone: (215) 925-9870. TWX: 710-670-0263.

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Alan Varden
Director of Engineering
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September 19, 1968

Mr. Robert Baum
Vikoa, Inc.
400 Ninth Avenue
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Dear Bob:

I would like to take this opportunity to say how much Vikoa's coaxial cable, Futura series amplifiers, and passive equipment has helped our operations.

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We are now sending our technicians through your training school and have been thoroughly pleased with not only their increased system knowledge, but in depth technicial ability to maintain our future systems.

Again, let me personally thank all your organization for intense care, handling, and attentiveness to our system needs.

You are truly the "House that service built" and will continue to grow because of this.

Sincerely yours,

Jefferson-Carolina Corporation

Alan Varden
Director of Engineering

AV:b&c

THE HOUSE THAT SERVICE BUILT

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Write: Vikoa, Inc., 400 Ninth Street, Hoboken, N.J. 07030. Or call collect: N.Y. (212) 943-5793, N.J. (201) 656-2020.

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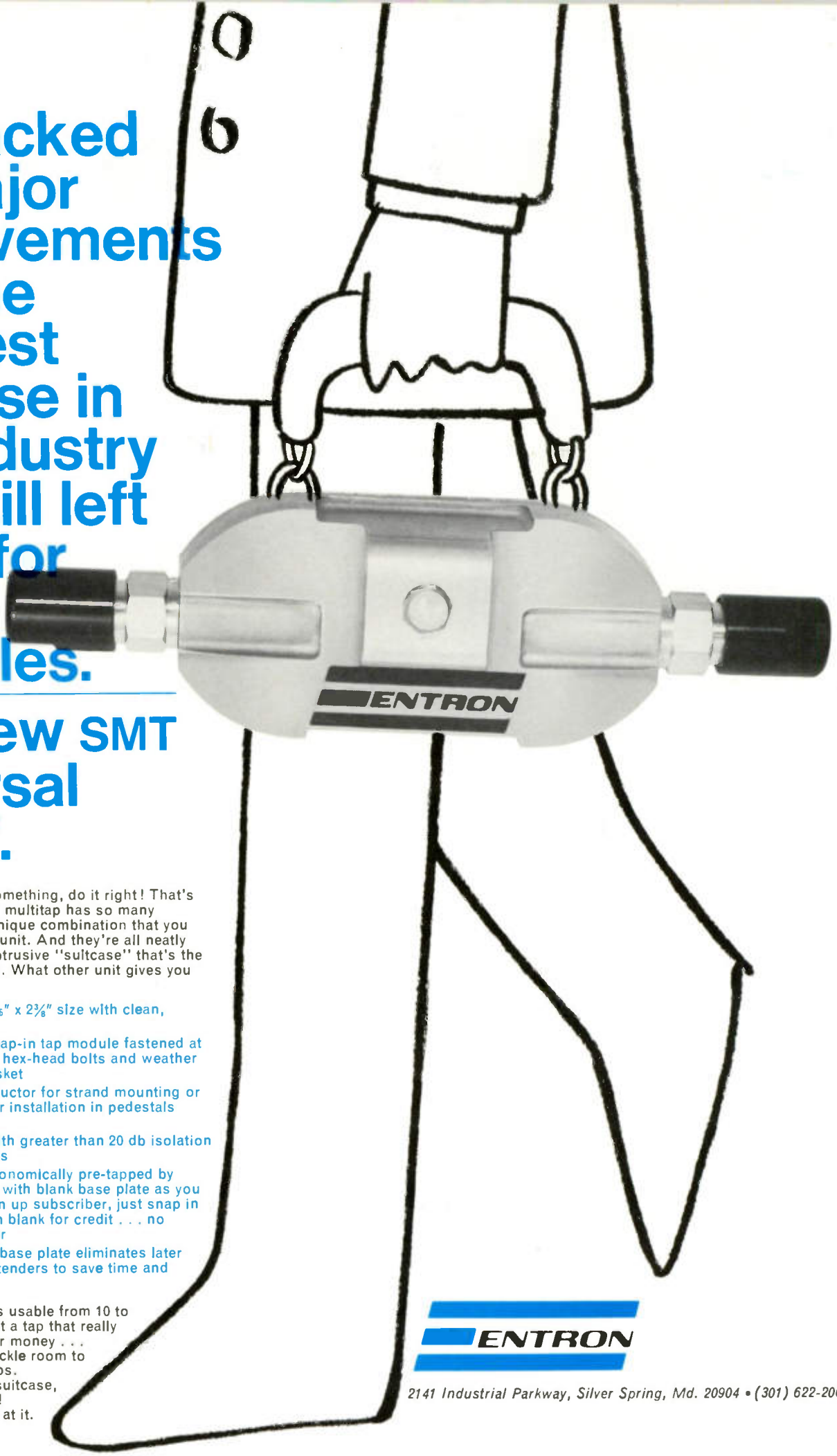

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If you're going to do something, do it right! That's why Entron's new SMT multitap has so many important features, a unique combination that you won't find in any other unit. And they're all neatly packed in a sleek, unobtrusive "suitcase" that's the easiest yet to work with. What other unit gives you all these extra values?

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IN THIS ISSUE

Some Collective Ideas

Subscriber invoicing problems can be significantly reduced when the new coupon billing or computerized billing systems are applied to CATV. The article beginning on page 42 shows how a "staggered" monthly billing program combined with coupon books has netted a significant savings in time and money for system operator W. E. Wade. For larger systems, computerized billing is now available. For details, see the article beginning on page 46 of this issue.

It's Part of Your Image

The special staff article beginning on page 54 outlines basic ideas for good office front appearance. Several photographs of exemplary office operations are also featured.

The Bright, Professional Touch

Beginning on page 48 of this issue is part one of a comprehensive treatise on the basics of CATV studio lighting. Professional looking cablecasts require top quality lighting. The first installment of this article describes the various types of lighting equipment which can be used. Part two, to be published next month, will deal with the other components of a complete lighting system.

Promoting Your Own Interests

Two articles in this issue deal with advertising and promotion. In his article beginning on page 56, author Craig Janes provides some concrete ideas for the CATV operator who wishes to evaluate the effectiveness of his advertising program. On page 62, Flagstaff, Arizona cableman Bob Cowley outlines the steps necessary to build an effective public relations program for your cable system.

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The Professional Journal of Cable Television

CATV TECHNICIAN SECTION

DEPARTMENTS

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The TVC Viewpoint

EDITORIAL

Stanley M. Searle
Editor

"Brick Walls... Futile Ritual"

About the only things that Nicholas Johnson and Sol Schildhause have in common are that both work at the FCC and both made speeches in California last month. But in their unrelated talks, the two Commission spokesmen defined the complex bureaucratic obstacle which confronts CATV.

Schildhause, addressing cablemen in San Diego, declared that UHF stations "need cable help in broadening their audiences,"—but pointed out that "it is easy (for the FCC) to rationalize a restrictive CATV program . . ." on the assumption that cable systems *might* have an adverse impact on UHF.

Referring to efforts to disprove the economic impact theory, Schildhause stated that, "Brick walls being what they are, there's no point in repeated performances of the same futile ritual. A new direction is indicated."

The reason, of course, for the futility of the cable industry's arguments is that the Commission is totally dominated by wealthy VHF broadcasters.

Commissioner Nicholas Johnson told a Los Angeles broadcaster audience, "You've always had a majority at the FCC and you always will . . ." The power possessed by broadcasters has risen "beyond check . . . by any institution in our country today—the President, the Congress, the FCC, the academic institutions," Johnson stated. In short, "you've got them captured," he said, referring to the Commission.

So, there's the twofold problem. An FCC that has been "captured" by the powerful broadcast industry, according to Commissioner Johnson—and dedicated to forcing the expansion of UHF broadcasting, according to Schildhause.

So far, the situation has been most convenient—for VHF broadcast interests. Cable television has been thwarted on the grounds of protecting potential UHF operations . . . *but* little else has been done to advance the V's potential UHF competitors.

In his San Diego speech, CATV Task Force Chief Schildhause suggested CATV-broadcaster cooperation to bring about a government subsidy for UHF stations. This, he predicted, might break the impasse which has arisen over alleged impact of CATV upon UHF. While lacking enthusiasm for government subsidy of commercial broadcasting, we must yield to the Task Force Chief's reasoning on at least two counts.

First, there is no question that cable operators are indeed up against a brick wall at the Commission.

Secondly, as Schildhause emphasized, "There is nothing in the development of UHF which can be anything but beneficial for the cable industry."

Viewing the remarks of Commissioner Johnson and Sol Schildhause, we have to agree with the Task Force Chief. A *new direction is indicated.* Some creative thinking on the part of cable television operators—and interested legislators—is urgently needed.

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Perspective

on the news

Robert A. Searle
Executive Editor

In an election race as close as the one just past, there's widespread speculation on the effect of TV in creating a winner. Broadcast's already substantial role in this area can only expand...and that's even more the case with CATV's role. For the first time, presidential candidates organized a CATV campaign: and politicians are respectful of the 4.5 million and 3.5 million CATV viewers reached by president-elect Nixon and vice president Humphrey respectively. Many systems, too, did an outstanding job of presenting candidates and issues at the local level--an effort that not only emphasizes the public service cablecasting ideal but wins legislative friends for the industry.

The elections, however, did not change the federal Congressional face as far as cable operators are concerned. Figures to keep an eye on in the 91st Congress are Sen. Warren Magnuson (D-Wash.) who heads the Senate Commerce Committee and Appropriations Subcommittee that deals with FCC funds; Communications Subcommittee Chairman John Pastore (D.-R.I.); Rep. Harley Staggers (D-W. Va.) who heads the House Commerce Committee; Rep. Torbert Macdonald (D-Mass.), Chairman of the Communications Subcommittee, and Rep. John Dingell (D-Mich.) who heads the Small Business Subcommittee which deals with the FCC and frequently with CATV-related matters. Dingell, along with other Congressional colleagues, is deeply concerned with multiple ownership, mergers, etc., might well instigate move on cable-broadcast cross-ownership.

No question that the single most important Congressman these days in the eyes of cablemen is Sen. John McClellan, Chairman of Copyright Subcommittee. It's his move next, now that he has position papers from interested parties on possible CATV copyright liability under the next copyright law. Broadcasters and motion picture people have proved obdurate despite months of negotiations and hopeful statements of progress. But the mood has changed since the last copyright bill passed the House, and using copyright as the lever by which to control and stunt the growth of cable television no longer seems a reasonable goal for anti-CATV forces, especially now that a representative of the Copyright Office has admitted that the "trigger" provisions of the proposed bill (provisions under which certain actions such as local origination would "trigger" full liability), are less appropriate as legislation than as policy decisions from the FCC.

The FCC Commissioners, forced to come to grips with cable TV issues, are taking a longer, harder look at the problems. There are few indications of what will come of recently staged "think-tank" on the topic--but their calling in high-powered objective experts on telecommunications is evidence that commissioners may be trying for a real solution, not just a freeze.

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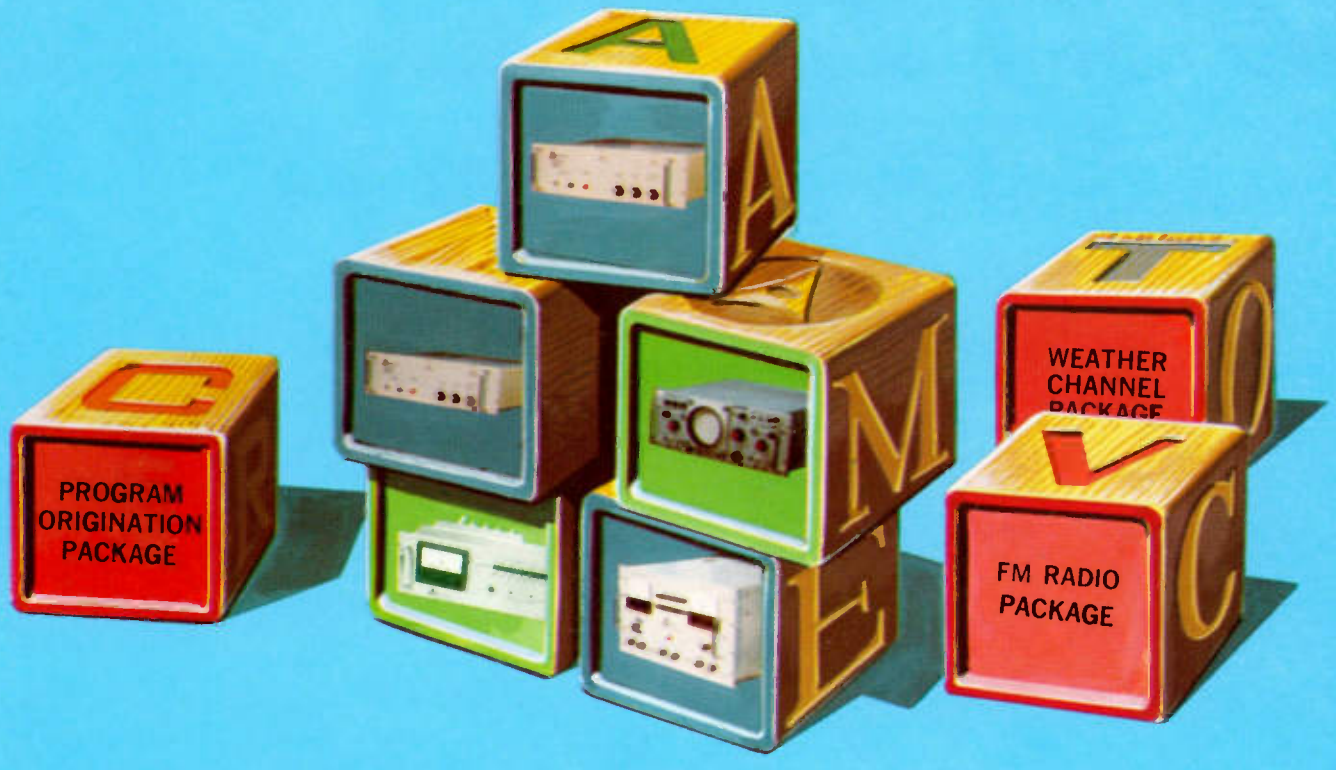

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Construction Reports

Northeastern States

Haverhill, Mass., Stan-Fran, construction begins soon.... **Derry and Salem, N.H.,** Derry Cable, SKL awarded construction contract.... **Greene, N.Y.,** Greene Cablevision, educational channel added.... **Coal Hollow and Toby, Pa.,** Toby Valley, construction underway, 6 channels.... **Oil City, Pa.,** Oil City Cable, rebuild nearing completion, 12 channels.

Mid-Western States

Crawfordsville, Ind., Community Cable, Vikoa awarded construction contract; construction begun.... **Jasper, Ind.,** Dubois Cablevision, formed company for production on local origination channel.... **LuVerne, Iowa,** hook-ups begun; grand opening November 16.... **Dodge City, Kansas,** Dodge City CATV, nearing completion, 9 channels, local origination.

Coshocton, Ohio, Tower Antennas, rebuilding nearing completion, 10 channels.... **Xenia, Ohio,** Xenia Cable, first house drops soon, 11 channels.... **Zanesville, Ohio,** Better Television, completed, 5,000 subscribers.... **Pierre, So. Dak.,** Pierre Cable, house drops being made; microwave tower under construction.

Southern States

Moulton, Ala., Lawrence Co., tower up, head-end construction begins soon.... **Prattville, Ala.,** Prattville Cablevision, house drops, 500 subscribers.... **Brinkley, Ark.,** tower construction to begin.... **Bentonville, Ark.,** Bentonville Cable, new tower, 9 channels.... **Mt. View, Ark.,** Mt. View Telephone, Davco awarded turnkey.

Dawson Springs, Ky., Dawson Springs Cable, cable up, in operation soon.... **Middlesboro, Ky.,** Middlesboro Cable, ready to install house drops; 10 channels. **Avalon, Sea Isle City and Stone Harbor, No. Car,** National Cable, construction begun, 9 channels.

Orangeburg, So. Car., Orangeburg Cable, system energized, 9 channels.... **Tullahoma, Tenn.,** Coffee County, tower completed soon, 9 channels.... **Washington County, Tenn.,** SKL awarded turnkey.... **Austin, Tex.,** Capital, construction underway.... **Anson, Tex.,** Cable Electronics, nearing completion, 7 channels.... **Fairfield and Teague, Tex.,** Cen-Tex, operational shortly, 9 channels.

Western Mountain States

Ajo, Ariz., Ajo TV, construction on new tower to begin soon.... **Leisure World, Calif.,** Pacific Cable, nearing completion.... **Mission Viejo, Calif.,** Cablevision, improvements being made, new tower in.... **Tracy, Calif.,** GE, operational by Thanksgiving.... **Vacaville, Calif.,** GE, system completed, 12 channels, 15-20 FM.

Springfield, Colo., General Communications, will completely rebuild system.... **Billings, Mont.,** Montana Video, construction begins soon, 8 channels plus numerous public services.

Canadian Systems

Campbell River, B.C., Campbell River TV, $50,000 rebuild nearing completion.... **Fredericton, N. Brunswick,** City Cablevision, extensive rebuilding underway.... **Wallaceburg, Ont.,** tower and parabolic screen under construction. TVC

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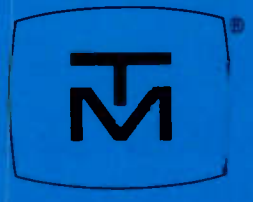

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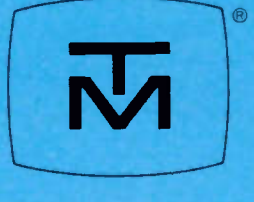

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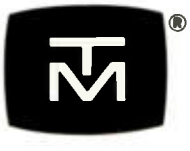

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Management Guidelines

Patrick T. Pogue

A Good Manager: Employees' Viewpoint

What makes a good manager? In the eyes of his men, the ideal manager has many of the virtues, such as fairness, that one would expect; he is, moreover, a highly competent worker himself. He prefers to avoid extensive mixing with employees; he does not overdo in trying to help workers with their personality problems; and he is not "all sweetness and light"—he can get tough when the situation demands it.

These traits are the highlights of a composite portrait that came out of interviews with 110 hourly paid workers in different companies. The interviews were conducted off the job; the men knew that what they said would be kept in strict confidence. The cable system manager can learn much from the characteristics mentioned by these employees.

Although men vary in their individual desires and needs, there seem to be universal traits every employee expects of a manager. The first factor is personal consideration. In other words, employees want to be treated with courtesy and kindness, and with respect for their individuality.

The other fundamental expectation is that a manager should be impartial and play no favorites. Unless the supervisor is fair, the employees say they do not feel they can count upon fair treatment necessary to their security and peace of mind.

With a few exceptions, employees strongly emphasized the belief that a good supervisor must be technically competent.

The workers interviewed decisively indicated that they wanted their manager to have thorough knowledge of how well each member of the group performed his job.

Associated with the desire for the supervisor to have complete knowledge of his men's job performance is the feeling that he ought to have reasonable control over his work group. There was a general feeling among workers that to be worth respecting as a man, a manager should have the backbone to correct men who need correcting, and to see that his operation is run properly.

The workers in many cases felt a supervisor should avoid over-familiarity. The main reason for this feeling seemed to be that employees tend to feel insecure when supervisor and worker mix socially to any great extent. Such mixing appears to breed suspicion and jealousy because men feel they must compete socially for the boss's favor to protect job interests.

It is natural to expect that, in the worker's eyes, the supervisor's main justification for existence is his ability and willingness to help the worker attain his goals and satisfy his needs. Thus employees said a supervisor should be well informed about the way his men performed their jobs, because only then will a man receive credit for good work. Similarly employees said a foreman should be technically proficient, because this proficiency enabled him to show his men easier ways of doing their jobs. TVC

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FINANCIAL REPORTS

Cox Broadcasting Corp. reports per share earnings of $ .42 for the quarter ending September 30, 1968. This compares with per share earnings of $ .49 for the same period last year. Earnings figures are based on net incomes of $1,218,992 and $1,393,997 for the two periods respectively. Gross revenues were given as $12,838,839 and $11,381,536 for the two periods. Also reported were figures for the 9-month period ending September 30, 1968. Per share earnings for this period were given as $1.66 as compared with $1.96 for the same period last year. Net incomes for the two periods respectively were $4,783,646 and $5,538,663. Gross revenues were given as $40,461,719 for 1968 and $35,638,279 for 1967.

Livingston Oil Company reports per share earnings of $ .10 for the quarter ending August 31, 1968. This compares with per share earnings of $ .05 for the same period last year. Earnings figures are based on net incomes of $546,000 and $284,000 for the two periods respectively. Total revenues were given as $4,313,000 and $4,214,000 for the two periods.

H&B American Corp. reports per share earnings of $ .29 for the year ending July 31, 1968. This compares with per share earnings of $ .29 for the same period last year. Earnings figures are based on net incomes of $901,482 and $783,367 for the two periods respectively. Gross revenues were given as $7,461,849 and $6,424,750 for the two periods.

North American Communications reports per share earnings of $ .55 for the year ending June 30, 1968. This compares with per share earnings of $ .44 for the same period last year. Earnings figures are based on operating revenues of $5,900,000 and $4,500,000 for the two periods respectively. Also reported were figures for the 6-month period ending June 30, 1968. Per share earnings for this period were given as $ .29 as compared with $ .23 for the same period last year. Operating revenues for the two periods respectively were $3,200,000 and $2,400,000.

Kaufman & Broad, Inc. reports per share earnings of $ .48 for the quarter ending August 31, 1968. This compares with per share earnings of $ .37 for the same period last year. Earnings figures are based on net incomes of $720,403 and $509,668 for the two periods respectively. Sales were $22,177,333 for 1968 and $12,612,541 for 1967. Also reported were figures for the 9-month period ending August 31, 1968. Per share earnings for this period were given as $1.21 as compared with $ .98 for the same period last year. Net incomes for the two periods respectively were $1,805,826 and $1,355,581 with sales at $47,384,095 and $32,097,728.

Scientific-Atlanta, Inc. reports per share earnings of $ .14 for the year ending June 30, 1968. This compares with per share earnings of $ .75 for the same period last year. Earnings figures are based on net incomes of $118,000 and $591,000 for the two periods respectively. Sales were $11,012,000 for 1968 and $12,717,000 for 1967.

Gulf & Western Industries reports per share earnings of $3.24 for the year ending July 31, 1968. This compares with per share earnings of $2.76 for the same period last year. Earnings figures are based on net incomes of $68,842,000 and $59,054,000 for the two periods respectively. TVC

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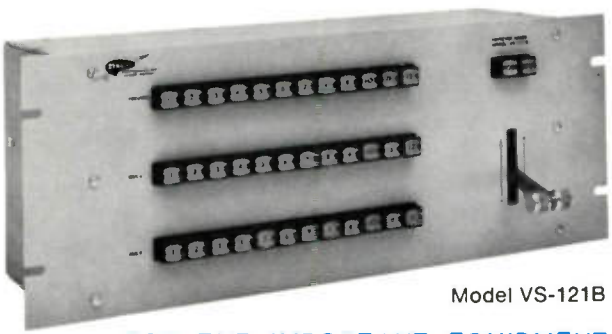

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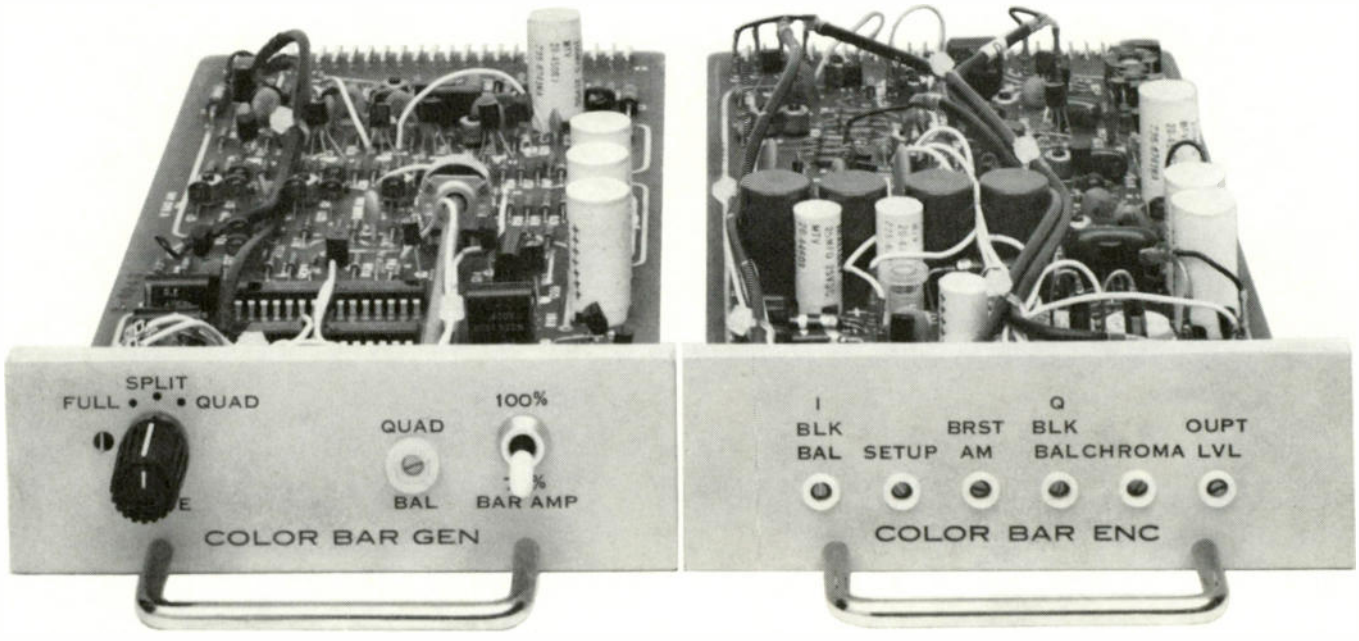

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For specific data on each accessory, contact your local Cohu representative, or call Bob Boulio direct at 714-277-6700 in San Diego. Box 623. San Diego, California 92112. TWX 910-335-1244.

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Late News

OBSERVERS FORECAST ACTION ON CATV

This month has been forecast as critical for CATV at the FCC. Commission observers say the cable television logjam is "about to be dynamited loose," but refuse to predict what the outcome will be. One possibility reported is that Chairman Rosel Hyde will completely freeze some markets, open up others within certain boundaries. But there are numerous other proposals before the Commission, any one of which might shape the expected decision.

SENATE PRESSES FOR COPYRIGHT LAW

With the failure of negotiations between copyright holders and cablemen, Sen. John McClellan's Copyright Subcommittee is faced with much the same stalemate as plagued the last Congress. There is constantly mounting pressure to revise the ancient Copyright Bill--but little chance of doing so without some provision made for CATV.

In hope of forcing a compromise agreement, Sen. McClellan has taken several steps. He has scheduled a closed Senate session January 8 for the parties--a much-modified version of the locked-doors labor-management negotiating sessions. And the Subcommittee's general counsel has requested the Copyright Office to draw up three drafts of a CATV bill to be sent out over Sen. McClellan's signature. When the interested parties meet at the Senate next month, they will present their comments on the three drafts; then the Subcommittee staff will decide on an aggregate version and recommend action.

Focus of disagreement between cablemen on the one hand and broadcasters and copyright holders on the other is the compulsory licensing which NCTA is demanding. Broadcasters favor the complicated liability formula embodied in Section lll of last year's House bill; the film industry's approach is different, but also sets up degrees of liability for various categories of cable systems.

NAB SPEAKERS EMPHASIZE CABLE TV

Speakers at the NAB Fall Conferences have been hammering at the theme of CATV-broadcast relations. At the Atlanta meeting, FCC CATV Task Force head, Sol Schildhause, repeated his earlier caution to broadcasters--that they can only benefit from a unity with cablemen. He also expanded on a suggestion that federal aid to UHF could assure financial stability and growth for U's while freeing the cable industry from the interminable and impossible task of proving that cable systems do not hamper the growth of UHF. He added that federal aid, perhaps in the form of tax relief, would draw large corporations into UHF and strengthen both broadcasting and CATV.

Late News (Continued)

Another Commission representative, Commissioner Kenneth A. Cox, denied to a Cincinnati NAB gathering that he had ever claimed "the CATV industry would 'destroy broadcast television' . . ." He reaffirmed his belief in continued regulation of the industry, but admitted that "our existing regulatory scheme has not worked well and some change must be made." Cox discussed with the broadcasters the factors that have changed since the adoption of the Second Report & Order.

ABC PROPOSES STIFF REGULATORY PLAN

The American Broadcasting Company, as an interested party, has jumped into the fray over CATV regulation. In response to a plea by FCC Chairman Rosel Hyde that all parties help the Commission formulate an overall policy, the giant broadcast network has submitted a proposal that includes banning all distant signals in the top-50 markets, banning all but the most basic program origination and simplifying nonduplication procedures in favor of broadcasters.

In outlining its severe limitations on CATV, ABC contended that "distant signals" should be defined as those outside the Grade A contour of a station rather than the current Commission standard of Grade B. Systems serving the bottom half of the top-100 markets could import distant signals if necessary to provide the three network signals and one independent. If that many Grade A stations serve the market, however, no distant signals would be allowed. In the area of nonduplication, ABC recommended that stations be allowed simply to inform cable systems of what network--rather than what specific programs--they should not duplicate.

Besides submitting the lengthy 47-page proposal to the Commission, ABC sent a letter to Sen. John L. McClellan's Copyright Subcommittee suggesting that Congress should take no action on CATV copyright legislation until the FCC has determined its own policy toward the cable television industry.

PUTNAM WINS PROTECTION AGREEMENT

For the first time, an agreement has been formulated between a broadcaster and a cable system which provides nonduplication for a UHF's syndicated and feature film programming for the full term of the license. Bill Putnam, president of Springfield Television Broadcasting Corp., and fervent anti-cable disciple, announced the agreement with Xenia Cable TV, Inc. for the protection of Putnam's station in Dayton, Ohio.

Putnam has petitioned the FCC for special relief which would provide the unique nonduplication permanently. He claimed the 24-hour ban on duplication was insufficient to protect the UHF outlet in a major market.

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News SPECTRUM

Bell Members War With Cablemen Despite Headquaters' Peace Move

AT&T officials seemed to be trying "white hats" on for size when they announced Bell systems are dropping bans on CATV orgination from pole attachment agreements and leaseback tariffs. A cordial note sounded in the letter from AT&T vice president J. Kenneth Looloian to NCTA president Frederick W. Ford.

Moves on the part of member systems, however, occurring almost simultaneously, did much to dispel the apparently hoped-for "good guy" image. Both Mountain States

Attorney John Cole counsels Rocky Mountain operators on legal recourse against telco.

Telephone Co. and New England Telephone and Telegraph announced drastically hiked rate charges.

Mountain States' pole attachment rate raise applied across the board to cable systems in Colorado, Arizona, Wyoming, Utah, Montana and New Mexico. The new figure is $4, up from $2.50, for a 5-year contract. When asked about the possibility of negotiations, Mt. States representative Paul Harward said, "I don't intend to discuss the matter." But John Cole, Jr., counsel for the Rocky Mountain CATV Association commented, "The most disastrous position they could take is a failure of negotiation because now I think we've got to think about legal action. And that legal action probably would be an anti-trust complaint."

The telephone company attempted to justify its rate increase in a letter to Gene Schneider, president of the Rocky Mountain CATV group. According to the company, Mt. States owns or is attached to two and one-half million poles. The telco arrived at a total yearly cost breakdown for original cost and maintenance expense, then assigned 40% of that cost to CATV, based on space used.

Replying to the telco statement, Schneider contended that figuring back from the telco's figures would mean they were claiming a basic depreciated investment of $111.50 per pole. The investment, Schneider contended, could not be that high for the 35 to 40-foot poles in question.

Although NCTA is attempting to bring about negotiation through the AT&T headquarters in New York, there has been no move toward good faith bargaining yet.

And in New England, a cable system is suing a telco over a rate increase. High Fidelity Cable Television Company, Great Barrington, Mass., charges that its original agreement with New England T&T called for an equivalent price for extension of service to communities adjacent to Great Barrington. When the system proposed extending service to nearby Lenox, however, the telco applied a different rate structure.

"The special rate structure applying to only the town of Lenox," charged the suit, "more than doubles the rates in effect for the equivalent channel service in Great Barrington." As an example, the system said, in Great Barrington the monthly charge for one street mile and 25 drops in $83. The price for Lenox is $200.75.

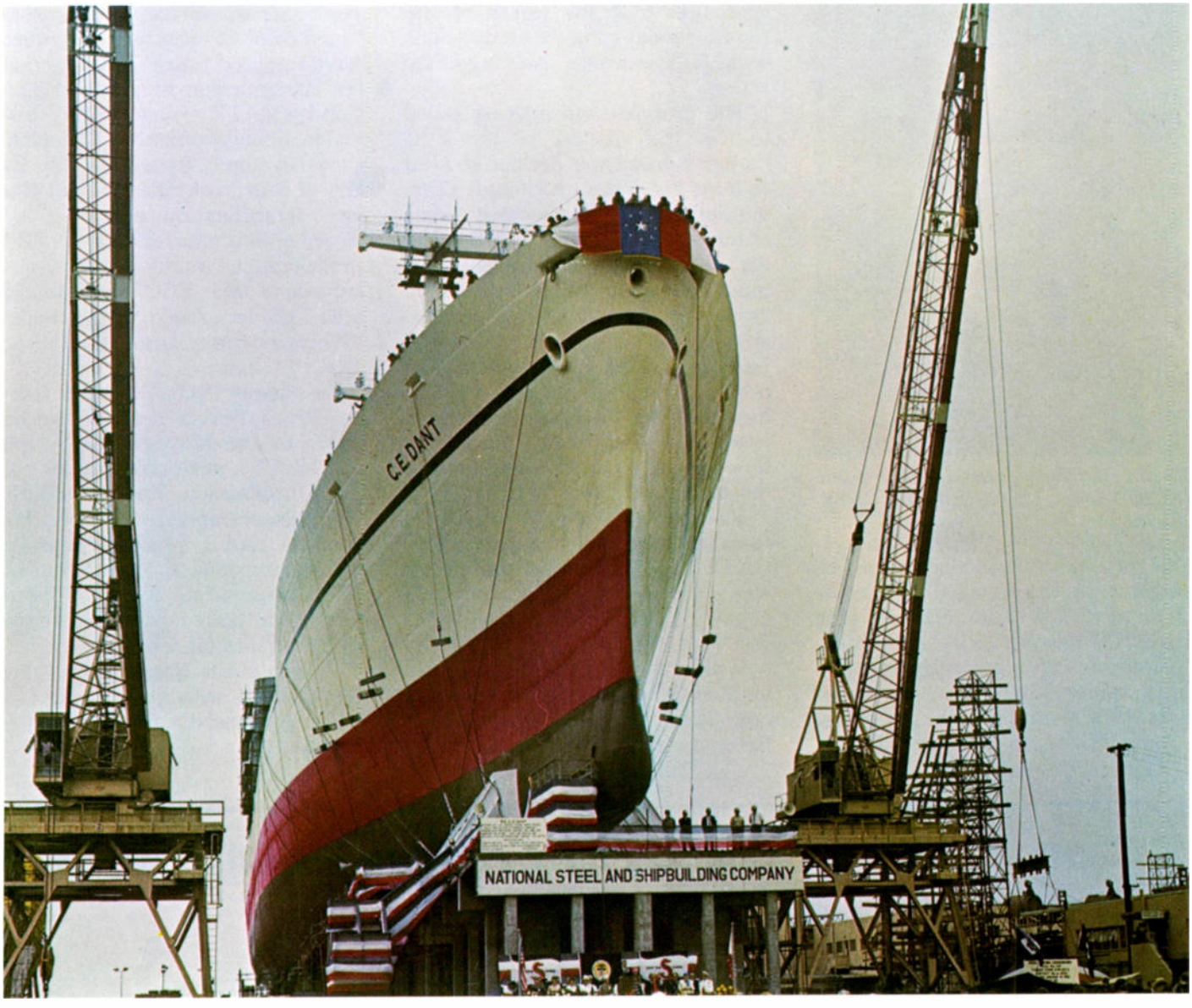
Threats And Hints Endanger Cable Origination In New York City

The nation's largest city has become the battle ground for bitter controversy over cable television local origination; and Mayor John Lindsay's staff in charge of correspondence has had a busy several weeks.

Conflict stems from plans announced months ago by Manhattan Cable TV to originate a series of feature films, to be carried uninterrupted by commercials. Amidst the furor raised by motion picture theater owners over the proposal, the New York City Board of Estimate, which controls CATV operation in New York, called on Manhattan Cable to postpone action until the Board could conduct hearings on the subject of entertainment origination.

Despite cries of "back-door to pay-TV," several straws were bending in a favorable wind for CATV. First, the court denied theater owners petition for in injunction against Manhattan Cable. The *New York Times*, in an analytical article, supported CATV as "free enterprise." And, most significant, the Mayor's Advisory Task Force on CATV and Telecommunications released a report urging that the entire city be wired within the next few years.

But not only New Yorkers were concerned with the imminent Board rulings. Two FCC Commissioners, Cox and Lee, alarmed that city officials might give *carte blanche* to originations, including advertising, drafted a rulemaking proposal to "restrict" CATV origination of advertising. A letter to



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Mayor Lindsay's latest letter is from NCTA's Bruce Lovett, outlining CATV position.

Mayor Lindsay was also drafted to accompany the proposal. The letter reminded New York officials that the FCC has authority over cable television and is presently engaged in "studies (to) clarify the Commission's policies." The message, characterized as a "scare tactic" by one Washington official, was an open hint that the Board of Estimate should come to no decisions on CATV matters pending FCC action.

The proposed rulemaking failed to win the support of the FCC majority, but it was decided to send at least the letter. Although Commissioner James Wadsworth claims to have delivered it to a staff member, the Mayor's assistants say it must have gone astray since they never saw it. And Werner Kamarsky, special assistant to Mayor Lindsay, added, "The reports I've read and copies of the letter that I have seen fail to show me that the letter was inhibitive. I fail to see how this letter can be called a warning to our city government."

But capitol observers continued to call it more than a warning. One CATV spokesman said the "letter was nothing more than a ploy designed to intimidate Mayor Lindsay."

While the FCC letter missed the mailbox, following messages did not. The National Association of Broadcasters referred specifically to the up-coming Board hearing and pointed to the authority of the FCC. "In view of the fact that the courts have reserved to the FCC the matter of regulating program origination by CATV systems using television signals (which would include those systems franchised by the city of New York) it is evident that any determination made by the Board of Estimate relative to CATV programming would necessarily be subject to later FCC action in this area," the letter said. It concluded, "We respectfully urge that no action be taken . . . ."

In answer, NCTA general counsel Bruce Lovett drafted another letter to the Mayor—this setting out NCTA's position on cable program origination. Lovett said the NAB letter represented only Mr. Anello's (NAB general counsel's) self-serving opinion." Lovett added, "It is appropriate for the City of New York to act now in this matter to protect its citizens."

Although the Board of Estimate went ahead with its hearings, it had not released a final opinion at deadline.

Total Telecable Costs Nation Wide $7 Million

Nation Wide Cablevision, Inc., Los Angeles, a wholly-owned subsidiary of Kaufman and Broad, Inc., has signed an agreement to acquire Seattle-based Total Telecable, Inc., and its systems in Washington and Oregon.

Sanford N. Levine, president of Nation Wide, said the stock of Telecable, a privately held company, is being acquired from Richard Evanson, president, and members of the Norton Clapp family for cash exceeding $7 million. He pointed out that the agreement is subject to approval by Kaufman and Broad's directors and banks.

"With this acquisition, Nation Wide becomes the fastest growing major company in the cable TV field," Levine said. By the end of 1968, Nation Wide reports that it will have franchised areas covering 265,000 homes, cable in front of 60,000 homes and 26,500 subscribers. Revenues are reported to be at an annual rate of $2 million and total value of Nation Wide's CATV interests will exceed $20 million.

Levine also announced that Nation Wide has started a major construction program which calls for cabling 40,000 homes a year over the next two years. By the end of 1969, Nation Wide says franchised areas should include 275,000 homes without the acquiring of new franchises or systems. It will have cable in front of 109,000 homes, 42,500 subscribers, and projected revenues at an annual rate of $2.8 million.

Sanford Levine, president of Nation Wide Cablevision, made the official announcement of the pending purchase of Total Telecable systems.

Regulatory Problems Command Attention Of Mid-America Meeting

"CATV will get more study and attention in the next few months than any problem in the history of the FCC. The Commissioners will be getting away by themselves in the very near future to stage a 'think-tank' on cable television. There they will consider the next phase of regulations. But I can tell you now that the name of the game is going to be compromise."

This prediction came from Robert Cahill, legal assistant of FCC Chairman Rosel Hyde, in a speech before the Mid-America CATV Association meeting in Kansas City. Cahill served on a blue-ribbon panel with top CATV attorneys Bruce Lovett, E. Stratford Smith, John D. Matthews and John P. Cole.

Warning that "there will be regulation," Cahill assured the large audience of over 100 that they need have no fear that the FCC will drastically restructure cable television. He stressed that the Commission is "seeking regulatory policies, neither pro nor con CATV," but is trying to fit CATV into the total communications picture in an equitable manner.

Besides the panel, which dealt with such topics as Section 214, commercial origination and the outlook at the FCC, operators and suppliers present heard a taped address by NCTA president Frederick W. Ford and a brief address on cablecasting by Bob Weisberg, president of TeleMation Program Services.

Several NCTA officials were present. Director of Engineering Norman Penwell opened the second-day sessions with a warning that "more and more, CATV is going to have to rely on engineering excellence for its viability." He argued that excellence could be consistently attained only through use of professional engineering planning and services. He also cautioned operators to expect some "standard setting" for performance and picture quality in the near future.

Legislative counsel Chuck Walsh talked to operators about establishing programs for better liaison with legislators; public relations director John Druckenbrod discussed "CATV Week" and other promotional activities; and managing director Wally Briscoe closed the session with a presentation of the film, "Your Man in Washington."

Outgoing and newly elected presidents of the Mid-America Association shake hands as officers and board members look on. From left to right: Fred McElroy, Ken Schuelein, former president Ray Baker, Weldon Johnson, new president Galen Gilbert, John Monroe and Hal Phillips. Other officials of the organization not pictured are Jack Chaney, Bud Williams, Bob Story, Bob Schmidt and Ernest Dixon.

Mid-America members also elected new officers at the second-day sessions. Galen Gilbert of Neosho, Mo. was chosen president; Hal Phillips, Blackwell, Okla., first vice president; Bob Schmidt, Hays, Kan., second vice president; Kenneth Schuelein, Elk City, Okla., secretary-treasurer. New board members are: Bud Williams, Nevada, Mo.; Ernest Dixon, Alva, Okla.; Vernon Wible, Independence, Kans.; and Bob Story, Durant, Okla. Gilbert keynoted his acceptance speech with a plea for increased local origination and a closing of the "technical gap" in the industry.

Schildhause Tells NAB "Cooperate with CATV"

"Goal line stands against cable are not in TV's best interest," Sol Schildhause, chief of the FCC CATV Task Force, told the first National Association of Broadcasters fall conference in New York. Schildhause urged the broadcast industry to join the cable industry in the search for conciliation.

He reviewed the broadcast-CATV dilemma and confirmed that the Commission is re-examining its Second Report and Order, hoping to launch the next phase of regulation. Schildhause outlined his own short-term recommendations, including his proposal that the top-100 market rule should apply only to the top-50 markets; but he said this would only be a stop-gap measure.

Despite all of the talk about "explosiveness" of the cable television industry, Schildhause reminded the audience that CATV is still a small industry and a small-town industry, only perched as of now on the threshold of the big cities.

"Tomorrow is coming, ready or not," he told the broadcast meeting. "Cable and broadcast television are one big business. We have to figure out how to balance it out and make it work together. You have got to come to terms with it,

Commissioner James Wadsworth joins FCC's Schildhause at NAB meeting.

join with the operators to find workable compromises, or get into it yourself. Otherwise you run the risk that solutions will be imposed upon you by forces outside our regulatory circle. And the answers under those circumstances may be neither knowing nor sympathetic."

Another key speaker, FCC Commissioner James J. Wadsworth, told the broadcasters that the Commission frequently lacks deciveness in cases involving major policy issues, and its "vacillation on CATV policy . . . is a classic example."

Wadsworth spoke about the delay of Commission procedures which he said critics term the FCC's "snail-like pace." He told listeners that the Commission's slowness is caused by legal restraints and lack of sufficient funds from Congress.

But he added that the Commission can also get bogged down in "policy decisions of far-reaching consequences where it is difficult to agree on future goals and on the methods to achieve them."

Citing CATV, Wadsworth went on to say: "A sample of failure initially to exert control, CATV also became the cogent example to some critics of subsequent FCC over-reaching."

Congress Gathers Data On Copyright Positions

Once more, the CATV industry's struggles with the complex problems of copyright legislation are coming to the fore as Sen. John McClellan (D-Ark.) and his Copyright Subcommittee gear up to weigh the copyright revision bill when Congress convenes next year.

With CATV at last negotiating from a decisive position of power—resulting from the U.S. Supreme Court decision that CATV under current law is wholly free of copyright liability—the McClellan subcommittee last month began considering submissions from various groups with an interest in how the CATV copyright situation should be resolved.

At deadline, most parties were still holding onto their filings, hoping to know what the others said before going on the Senate record. A subcommittee source said that the music licensing firms (ASCAP, Broadcast Music Inc. and SEASC) and professional sports organizations indicated that they wouldn't file until NCTA, the television networks, the motion picture industry and the National Association of Broadcasters made their positions clear.

One group that wasn't at all shy about filing and making its statement public was NAB, which reiterated its view of CATV as "an auxiliary to free over-the-air television broadcasting." The NAB in general supports putting cable under the copyright law and agreed with the House Judiciary Committee approach decided on last year.

When the Senate Copyright Subcommittee met with motion picture industry representatives, chief film lawyer present was Seymour Peyser of Louis Nizer's New York law firm, representing members of the Motion Pictures Association of America and other picture companies.

Calendar

December 8-11. The 71st Annual Convention of the USITA will be held at the Fountainbleu Hotel in Miami, Fla.

January 9-11, 1969. The Rocky Mountain CATV Assoc. will hold its annual meeting at the Ramada Inn in Phoenix, Ariz.

January 16-18. The Florida CATV Association will meet at Marco Island.

January 17. The Community TV Association of New England will meet at New Hampshire Highway Motel, Concord, New Hampshire.

January 24-25. The Georgia CATV Association will hold its annual meeting at Macon.

March 17-18. The Pacific Northwest CATV Association will hold its annual meeting at the Ridpath Hotel in Spokane, Wash.

March 23-25. The Southern CATV Association will meet at the Monteleone Hotel in New Orleans, La.

April 16-18. The Texas CATV Association will hold its annual meeting at the Marriott in Dallas.

April 21-22. The North Central CATV Association will meet in Minneapolis, Minn.

June 22-25. The NCTA will hold its annual convention at the San Francisco Hilton Hotel in San Francisco.

FCC "Brainstorms" CATV

Members of the FCC set aside several days last month to consider the overall philosophies of CATV regulation. No staff was present, though a handful of disinterested experts was invited to participate. According to reports, no policy papers were under consideration, and none are expected to be issued. With CATV problems high on the Commission's agenda of unresolved policies, however, the theoretical discussions will obviously have a bearing on future regulation.

First hint of the session came from Robert Cahill, legal assistant to FCC Chairman Rosel Hyde, when he addressed the Mid-America CATV meeting (see story this issue). Cahill said, "CATV will get more study and attention in the next few months than any problem in the history of the FCC."

System, Public Benefit From Marathon Cablecast

An Illinois cable system reports outstanding results for both the system and the community from a marathon, 69-hour public service cablecast kicking off the local United Appeal fund-raising drive.

Before "Cable 68" was over, Ottawa TV Cable Company of Ottawa, Ill., had more than 1,130 people before their cameras. Some of the programming was video-taped in advance to make sure there would be something available in the middle of the night and other off-viewing hours, but most of the performance was live, and manager X. W. Mitchell said there were people waiting virtually all the time to take their turn on camera.

The local newspaper helped to get talent by publicizing the show. "After we got enough for the first 24 hours, it started snowballing," Mitchell said. "People in other towns started to hear about 'Cable 68' and offered to take part. One group came all the way from Indiana at its own expense."

ACTS Charges Media Control by Cable TV

In its continuing battle against cable television, the UHF group, All-Channel Television Society, has taken a new tack. The latest ACTS ploy is to try to get the FCC so worried about concentration of mass media control that it will forbid CATV importation of major-market independent television signals beyond their Grade B contour.

In a letter to FCC Chairman Rosel Hyde, with carbon copies to the other six members of the Commission, ACTS general counsel Martin E. Firestone asked that the FCC "initiate a formal *en banc* inquiry into the affect (sic) of CATV carriage of major market independent television stations on the policy underlying the Commission's multiple ownership rules." The ACTS

System manager X.W. Mitchell celebrates success with local celebrities.

thesis is that the larger independents—the prime example used was the New York trio of WNEW-TV, WOR-TV and WPIX-TV—already have considerable power and could never win FCC approval of extending their signals into the areas in which CATV systems carry them.

The FCC is seriously concerned about concentration of media control, and has initiated rulemaking proceedings designed to further limit station ownership. The Commission is also studying whether CATV-broadcast ownership should be controlled, and is obviously open to suggestion.

In its all-out attempt to thwart CATV growth, ACTS told Hyde that "the New York stations because of their carriage by CATV systems will have an influence and impact (however unwittingly or unwantingly endowed) on an unprecedented, indeed, dangerous scale. It takes little imagination to envision the power and influence which could be exercised by WNEW-TV, WOR-TV and WPIX-TV if their present ability to potentially reach some 25 million people is extended by CATV hundreds of miles, into hundred (sic) of cities and towns (including other major population centers, e.g. Philadelphia, Pittsburgh) with populations running into additional millions.

Stockholders Approve H & B's Cooke Acquisition

H & B American Corporation has completed the acquisition of Jack Kent Cooke Incorporated and Continental Cablevision Inc. for 1,600,000 shares of H & B common stock. The stockholders of H & B gave final approval to the acquisition at a special meeting.

H & B owns 38 CATV systems serving approximately 134,000 subscribers in 60 communities and is constructing four additional systems. Jack Kent Cooke Incorporated, through its American Cablevision division, and Continental Cablevision Inc., owns 20 systems serving approximately 82,000 subscribers in 45 communities. The combined companies have 58 operating systems serving 216,000 subscribers in 105 communities.

NCTA Protests Two Telco 214 Applications

Under the interim rules governing processing of 214 applications, NCTA has asked the FCC to deny two petitions by telephone companies for certificates to build leaseback facilities. The group charged that, "Commission approval of two separate 214 applications made by United Telephone Co. of Indiana, Inc., and United Telephone Co. of Ohio . . . would not be in the public interest."

The brief said that the two telcos and United Transmission (who would lease the systems) are all subsidiaries of United Utilities, Inc. NCTA said the FCC has in its possession "evidence reflecting adversely" on the qualifications of United Utilities to furnish CATV service to an affiliated company.

NCTA claimed that United Utilities, "through abuse of its monopolistic position" had gained control over cable service in one Ohio community and had inhibited the development of independent cable

TV service in communities in Missouri and Pennsylvania.

United's record, they said, raised "serious questions of violation of the Antitrust Laws of the United States," adding that the FCC has the "affirmative responsibility to determine whether it is in the public interest to allow any operating subsidiary of United Utilities, Inc. to offer leaseback facilities to an affiliated CATV company . . . "

PCATA Members Hear National Speakers

The Pennsylvania Community Antenna Television Association, at the annual fall meeting in Pittsburgh, heard addresses by FCC's CATV Task Force chief Sol Schildhause, as well as several NCTA officials.

Frederick W. Ford, NCTA president, spoke to the group of 118 at the banquet; and Norman Penwell, director of engineering, and Wally Briscoe, NCTA managing director, also spoke during the two-day session.

At the business meeting, association members re-elected current officers for the coming year: president, Joseph Gans, Cable TV Co. of Hazleton; secretary, Jay Sedwick of Armstrong Utilities, Inc., Butler; treasurer, Art Reagan, Valley TV Cable Co. of Sayre. The only new officer elected for the forthcoming year was John Rigas of Coudersport TV Cable Co., Cutler, who was named vice president.

Cypress Expands in Ohio

Cypress Communications Corp., New York, has purchased the Hardin Cable TV Co., serving Kenton, Ohio, according to Leon Papernow, president of Cypress.

Cypress also announced that it had purchased the minority interest in its subsidiary operating company, Shardco Cablevision, which operates a system at Ottawa, Ohio, and holds franchises for two other Ohio communities. At the same time, it was announced that Shardco had acquired Reynolds Cable TV Corp. which serves Fort Shawnee, Ohio.

According to Papernow, the aggregate price for the transactions was approximately $810,000 in cash. These acquisitions bring to approximately 5,700 the number of subscribers served by Cypress in five Ohio communities—St. Marys, Delphos, Wapakoneta, Fort Shawnee and Kenton.

Don F. Shuler, former minority shareholder and president of Shardco, has joined Cypress as regional manager, responsible for operations in Ohio and Pennsylvania.

Cypress Communications systems serve approximately 44,000 subscribers in five states. A public company since March, 1968, Cypress is presently engaged in an active media acquisition and is also constructing a UHF station to serve the Stockton-Sacramento area of California.

Expert Urges Cable Television, Land Mobile To Join In Common Cause

"A common antagonist, regulator, goal and a means to achieve the goal conjoin to make the CATV and mobile interests natural allies." So writes Arthur Blooston, Washington, D.C. attorney. Blooston and Jeremiah Courtney, with whom he is associated in practice, have been deeply involved in the land mobile radio fight for spectrum space.

In a special report appearing in *CATV Weekly*, November 11, Blooston outlines the possibilities of land mobile and cable television forces joining to achieve their mutual goal: to gain freedom from FCC restrictions on both industries—restrictions primarily concerned with UHF interest and only secondarily with public interest.

The FCC, Blooston says, "has taken the first large step (toward solving land mobile problems) by issuing its proposal to reallocate a part of the UHF television space to the mobile radio services." But before a plan can be adopted pursuant to this proposal, "it may be necessary to relegate to the scrap-heap some long-entrenched concepts and assumptions."

While UHF is cherished by the present Federal Communications Commission, Blooston questions whether additional cable television service would not better "promote maximum television service to all people," at the same time allowing UHF frequencies to be put to better and more immediate use.

Blooston calls for the formation of a joint Land Mobile Communications Council-NCTA committee to formulate and present a common position on three fronts: to the FCC, to the Congress and to the public. Working together, the industries could demonstrate the feasibility of a plan which would eliminate the waste of unused spectrum while best benefiting the public interest. "The results to be produced by such an alliance of CATV and mobile interests," he concludes, "certainly would be greater than the sum of the results which could be secured by individual actions."

Reprints of Arthur Blooston's article, "The Natural Alliance—CATV and Mobile Radio," are available from *TV Communications*, 207 N.E. 38th Street, Oklahoma City, Oklahoma 73105.

New Firm Serves Cable Industry Exclusively

The formation of a new firm, Improved Design Products, Inc., serving the CATV industry exclusively, has been announced by chairman Rear Admiral R. S. Mandelkorn, U.S.N. (Ret.) and president J. H. Scheinman. The company

Chairman Mandelkorn

will specialize in design, marketing and sales of a growing range of products.

Operations will be geared particularly to the development, including financing, of technically oriented CATV equipment manufacturers. As a company policy, the firm will not acquire interests in CATV franchises.

Administrative offices of Improved Design Products, Inc. are at Bel-Air Building, 310 Northern Boulevard, Great Neck, New York 11021. Sales offices and warehouse facilities are located at 4 Armstrong Road, New Hyde Park, New York 11041.

Canada Tightens CATV Ownership Requirements

More than 300 Canadian cable systems are facing tighter Canadian-ownership requirements.

The government, in a move that affects cable TV operators as well as radio and TV broadcasters, has announced that:

All directors and chairmen of corporations engaged in broadcasting in Canada must be Canadians:

eighty percent of the voting stock of any such corporation must be Canadian owned (previously it was 75 percent); forty percent of the total investment (including voting and non-voting shares) must be Canadian owned (there was no similar restriction before).

Secretary of State Gerard Pelletier said the licensees will have a year to comply with the new regulation and extensions beyond that deadline may be granted in exceptional circumstances.

CRTC Proposes Stiff Raise in License Fees

The Canadian Radio and Television Commission has scheduled a hearing in Ottawa for discussion of proposed revised license fees for cable systems and broadcast stations.

The CRTC has proposed that every licensee (for broadcast or CATV licenses) shall pay the CRTC an annual fee based on the firm's gross annual revenue. (Cable systems now pay a $100 flat fee.)

System Sales

The **Milaine Corp., Inc.**, holder of the franchise and pole rights for Kansas City, Kan., has been purchased by **Jerrold Corp.** The system has a potential of approximately 40,000 subscribers.

Malcolm York and **Owen Hannigan** have sold their interests in Houlton TV, Inc., of Houlton, Me., to **E. Nicholas Sanquinetti** and **Richard E. Davis.** The new owners operate systems in New Hampshire, Vermont, and Fredericton, N.B.

Pioneer Valley Cablevision, Inc. has been purchased by **Fred Lieberman** of Glenside, Pa., and **Jack R. Crosby** of Del Rio, Tex. Pioneer Valley operates systems in Greenfield, Shelburne, Turners Falls, Montague, Ware, Palmer and Amherst, all Mass.

Howard Sharpley has sold Twin Valley CATV, serving Hillsdale-Jonesville, Mich., to **Lamb Communications, Inc.** of Toledo, Ohio, for an undisclosed sum.

Cable TV Signal, Inc. of Soldier's Grove, Wisc., has announced acquisition of **International TV Cable Corp.** of International Falls, Minn. Rebuild of the system is planned.

Vikoa, Inc., has announced it has agreed in principle to acquire **Rockland Cablevision, Inc.** of Haverstraw, N.Y.

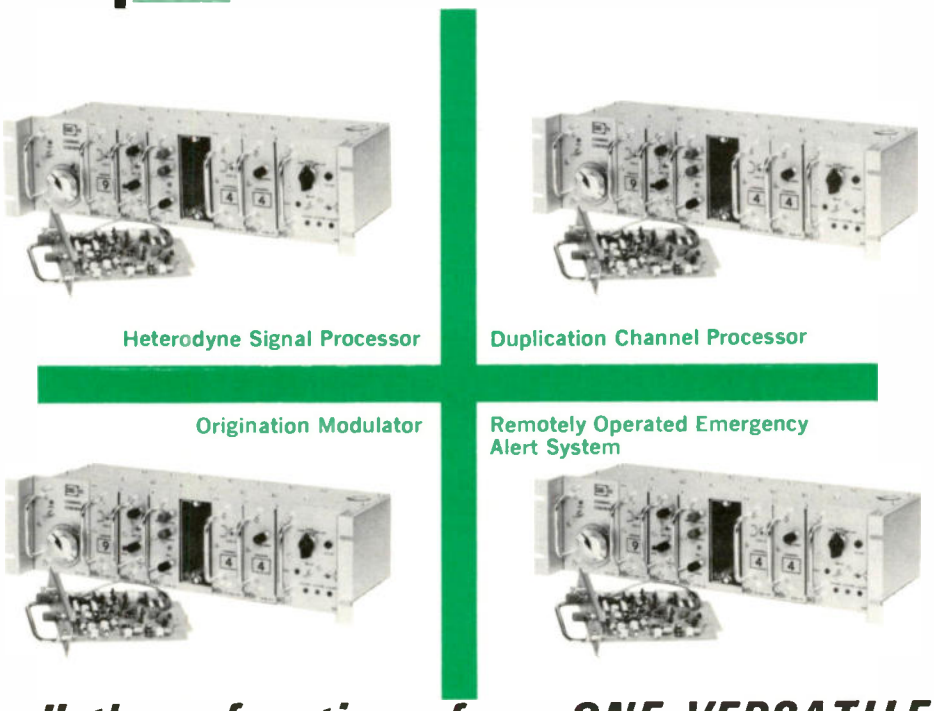
Hardin Cable TV Co., serving Kenton, Ohio, has been purchased by **Cypress Communications Corp.** of New York.

Vikoa, Inc. has contracted to acquire the remaining two-thirds of **Lawrence Cablevision.** Vikoa already owns one-third of the firm which serves approximately 2,500 subscribers in New Castle, Pa.

American Television and Communications Corp. has acquired **Clear Vision TV Co.** and its two subsidiaries which serve Savannah and Union City, Tenn.

Jerrold Corp. has announced the acquisition of **Cablevision of Virginia,** a system serving 3,500 subscribers in Clifton Forge and Covington, Va. TVC

The plus value CATV head-end



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CAS solid state CC-213 Channel Control is . . .

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FOCUS ...On People

Systems

George Green, former vice president and general manager of Jefferson-Carolina Corp., has been named president of Continental CATV, Inc. He succeeds **John Gault** who resigned last month to head Commonwealth United Corporation's entry into CATV.

The election of **Donald N. Frey**, former group vice president and chief operating officer of General Cable Corporation has been announced by **A. Leon Fergenson**. At the same time, Fergenson, who had served as president, was elected chairman of the board and will continue as chief executive officer.

American Television & Communications Corporation president, Monroe M. Rifkin, has announced that **Gerald F. Humphrey** has joined the firm as controller. Humphrey, a certified public accountant, has been controller and treasurer of Silvestri Art Manufacturing Company, subsidiary of Eckman Corp.

James T. Luker has been appointed manager of the Winchester G'TEC Cable system of GT&E Communications, Inc. Luker succeeds **J.C. Woods** who was recently named manager of G'TEC Cable TV in Brownfield, Tex.

Mr. Woods

Mr. Searle

Sheldon W. Searle is president of West Valley Cablevision, which is building a CATV system in unincorporated suburbs of Yakima, Wash. Vice president of the firm is **Charles E. Clements**, cable television consultant and veteran Northwest system operator. Named construction supervisor was **James Stewart**.

James O. Marlowe has been named local manager of Pioneer Valley Cablevision Inc., Amherst, Mass. Marlowe has been with Pioneer since March, 1967 as director of marketing. He was previously vice president in charge of programming at Springfield Television-Broadcasting Corp. and manager of its Ch. 32 station in Greenfield.

Jerrold Electronics has promoted three system managers to serve as district system managers. They are: **Mark Weber** (eastern), **Clarence "Mickey" Ross** (central) and **Erwin Sharp** (western). Weber, former manager of Perfect TV, Inc., Jerrold's largest system, is responsible for the operation of Perfect TV and systems and complexes in Melbourne and Ormond Beach, Fla.; Pleasantville, N.J.; Cortland, Penn Yan and Wellesville, N.Y.; and Petersburg, Va. Ross, former manager of the Ottawa (Ill.) TV Cable Co., Inc. is in charge of the Ottawa system plus systems and complexes at Pontiac and Streator, Ill.; Lafayette, West Lafayette and Logansport, Ind.; Middlesboro, Ky.; and Clifton Forge and Covington, Va. Sharp, formerly manager of McAllen (Tex.) Cable TV, is in charge of the Rio Grande Valley Cable TV complex.

Cecil M. Sansbury, president of Canterbury Cablevision of Columbus, Ohio, has also joined Barcroft Advertising Agency as executive vice president.

The appointment of **Daniel R. Notaro** as general manager of Service Electric Cable TV, Inc., Allentown, Pa., has been announced. Notaro was previously assistant manager of Clear-Pic Cable TV Co., of Easton.

Mobile (Ala.) Cable TV, scheduled to be activated in the near future, has appointed **Leon V. Hance** to their staff as chief engineer.

Earnest E. Bliss Jr. has been named new general manager by Shenango Cable TV, Inc. Bliss, formerly general manager of Houma Cablevision, Inc., succeeds William Perfett. **W. R. "Bo" Bowman**, former CATV promotions manager for Entron, Inc., replaces Bliss as manager at Houma Cablevision. Both the Shenango and Houma systems are operated by Entron, Inc.

Suppliers

F. W. "Derry" Cook has been named advertising manager of Cascade Electronics. He is an experienced advertising man and has held posts with advertising agencies and newspapers in Australia and Canada. Cascade has also promoted **Gerry King** to chief field engineer for U.S.A. and Canada. In this capacity, King will control all field services, provide liaison between customers and the Cascade Engineering Group and assist with Cascade's technician training school program.

Mr. Cook

Mr. Steadman

Berkey-ColorTran, Inc., has announced the appointment of **Loren E. Steadman** as executive vice president. In this new post, Steadman will be responsible for the management and operation of the company. Before joining Berkey-ColorTran, Steadman had been with the Convair Division of General Dynamics Corp. for eleven years in various capacities. Most recently he was manager of television systems/special programs for the division.

The appointment of **Daniel W. Hunter** as manager of engineering has been announced by Henkels & McCoy, Inc., Hunter joined the staff in 1964.

John A. Pranke has joined Kaiser CATV as chief engineer. Formerly with Ameco, Inc., Pranke's background also includes 12 years with Rome Cable. . . . **James C. Scott**

THE MOST IMPORTANT NUMBERS IN A CATV OPERATOR'S DIRECTORY

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POLICE 311-5111

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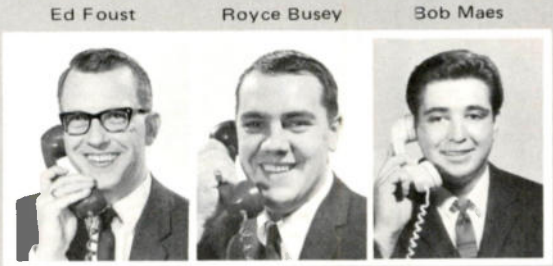
Emergencies are as routine to us as to police and firemen. A dozen times a day we take collect calls for immediate delivery of every conceivable CATV equipment item . . . saving you Western CATV operators the need to stock anything more than you use today . . . saving you the slightest operating delay for lack of a part.

OVERNIGHT DELIVERY SERVICE

The $300,000 stock in our two West Coast warehouses contains every most-needed CATV operation part . . . all lab-tested, professionally pre-evaluated . . . and mere hours from your door. So keep those numbers handy . . .

CALL COLLECT

Ed Foust | Royce Busey | Bob Maes



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CATV EQUIPMENT COMPANY

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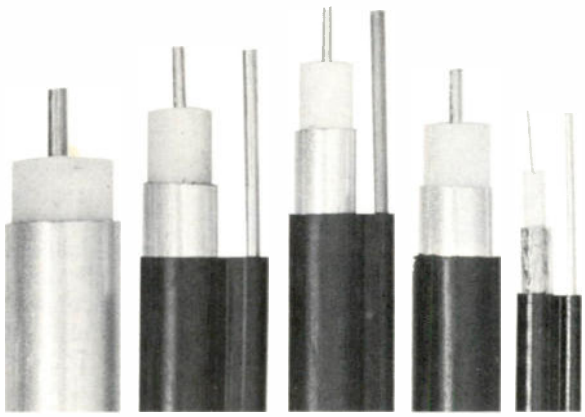
At Berkshire we're celebrating our 17th anniversary in CATV.

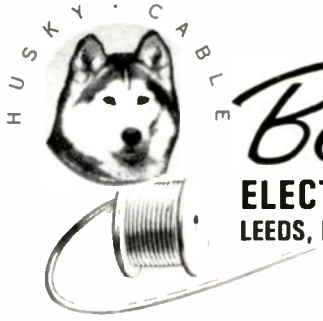


Here are 5 good reasons.

October 1968 marks our 17th year of manufacturing top-notch quality CATV cables, installed in the finest systems in the United States, Alaska, Canada, and five foreign countries. We manufacture a complete line of CATV cables including aluminum, 59/U, 6/U, and 11/U types. Conductors are solid copper, copper covered steel, or copper covered aluminum. We draw and fabricate our own copper in our completely integrated plant. Insulations are solid polyethylene and cellular polyethylene. Jackets are of High Molecular Weight polyethylene, High Density polyethyene, Polyvinyl Chloride, and non-contaminating Polyvinyl Chloride.

We'd like to tell you about the finest coaxial cable available for your system. Contact us . . . you'll receive full information and specifications by return mail, without obligation.

Write or call us!



Berkshire
ELECTRIC CABLE CO.
LEEDS, MASSACHUSETTS 01053
TEL: 413/584-3853
TWX: 710/355-1354

comes to Kaiser as central regional sales manager. Scott's territory will include Texas, New Mexico, Colorado, Louisiana, Arkansas, Oklahoma, Kansas, Missouri, Iowa, Nebraska, Minnesota, North and South Dakota. He will headquarter in Dallas, Tex. Scott came to Kaiser from Louisiana Cable TV, Lake Charles, La., where he was manager . . . . **Ben W. Forte** also has joined Kaiser as area salesman. In this position, Forte will cover Ohio, West Virginia, Illinois, Indiana, Michigan and Wisconsin.

Mr. Pranke

Mr. Faye

American Electronic Laboratories, Inc., has announced the appointment of **I. A. Faye** to the post of director, commercial marketing. Faye has been with AEL for over six years as commercial marketing manager. In his newly created corporate position, he will have full marketing responsibility for AEL's commercial product lines.

Jerrold Electronics Corp., has announced a major realignment in its staff personnel. **Paul Garrison** has moved to General Instrument Co., Jerrold's parent company, to become vice president, corporate development. Garrison will head GI's merger and acquisition team. **Lee Zemnick**, as the new executive vice president of Jerrold, will be responsible for the control and coordination of all operating divisions. **Clark Engle** has been selected field sales manager of the government and industrial division. **Jack O'Neill** has been promoted to manager of systems sales and construction for the educational and communications systems division. With his transfer to company headquarters in Philadelphia, O'Neill's responsibilities will include sale, installation and servicing of turnkey contracts for microwave and instructional television fixed service. O'Neill has been with Jerrold since 1966.

Craftsman Electronic Products, Inc., has appointed **Joseph J. Ostuni** to the position of supervisor of test design in the research and design development center.

Professional

Galen Gilbert, operator of the Neosho, Mo., system, has been chosen president of the Mid-America CATV Association. Other new officers are: first vice president, **Hal Phillips**, Blackwell, Okla.; second vice president, **Bob Schmidt**, Hays, Kans.; and secretary-treasurer, **Kenneth Schuelein**, Elk City, Okla. . . . New board members of the association are: **Bud Williams**, Nevada, Mo.; **Ernest Dixon**, Alva, Okla.; **Vernon Wible**, Independence, Kans.; and **Bob Story**, Durant, Okla.

Roland Hieb has been named executive administrator of National Cable Television Institute (NCTI), which provides correspondence training courses for CATV personnel. He was previously administrative assistant to the president of Los Angeles Baptist College and has held engineering positions. TVC

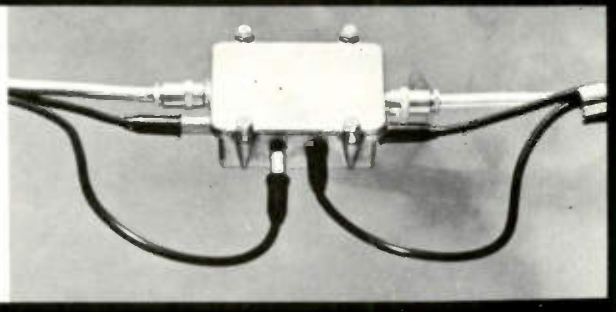
Disconnected drops like this invite cheaters to hook up the connections for free service. The openings to the main cable and the house line let water seep in thus causing damage.

Line-guard No. 1 is inserted between pressure - tap and house drop connector to disconnect service.

LINE-GUARD

Line-guard No. 2 permits removal of the pressure - tap when disconnecting. Since it looks like a normal connection, freeloaders can't cheat.

For multiple-tap situations where the pressure-tap can't be removed, line-guard No. 1 effectively disconnects service, and keeps wires from dangling. Damage from water or corrosion is minimized.



LINE-GUARD WILL SAVE YOU MONEY

12% of your disconnected house drops are reconnected by freeloaders — you lose money.

Hanging disconnected drops let water enter openings causing damage to main cable and house drops.

Line-Guard heads off both these problems.

Line-Guard is a resistor-like device that is installed between the line block and the house drop connections.

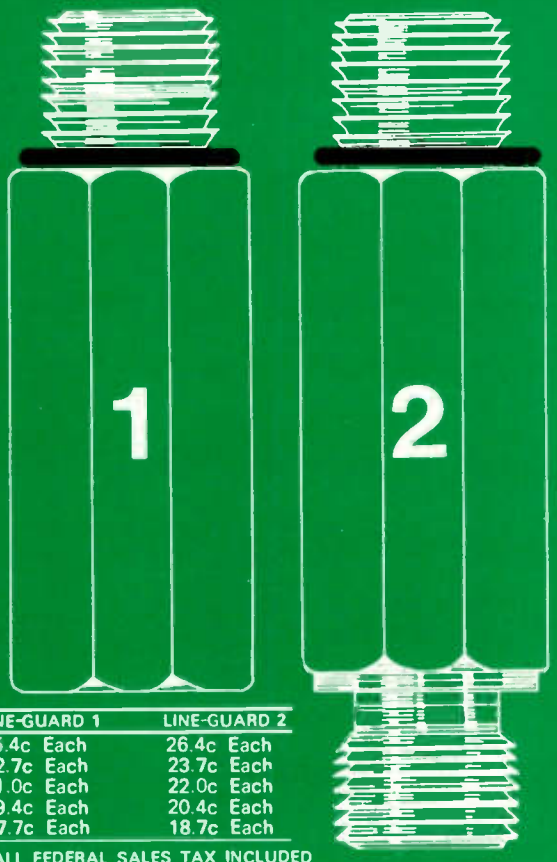
Line-Guard #1 is simply screwed on to the pressure-tap or multi-taps. The house drop screws on to the other end of the Line-Guard, thus not left dangling as a temptation for someone to hook up for free service. Also the openings to the main cable and house drops are sealed by the "O" ring and boot.

Line-Guard #2 is milled at both ends to join the house drop to the line block. This allows removal of the barrel or pressure-tap where service to a home has been discontnued. Since the barrels or pressure-taps are expensive items, Line-Guard #2 can save you a substantial amount of money in capital outlay. Like Line-Guard #1, it stops non-customer freeloading and reduces maintenance costs. To renew service to a home, you simply unscrew the Line-Guard and screw in the pressure-tap.

LINE-GUARD #1 AND LINE-GUARD #2 HAVE BEEN DESIGNED TO FIT ALL STANDARD LINE BLOCK AND HOUSE DROP CONNECTORS. THEY HAVE BEEN TESTED AND PROVEN COMPLETELY EFFECTIVE IN AN ONTARIO PILOT STUDY.

Cut down on your costs and improve your profit margin with Line-Guard. To place your orcer, write to:

Line-Guard
Kelco Engineering Ltd.
21 Heather Crescent
London, Ontario, Canada.



QUANTITIES	LINE-GUARD 1	LINE-GUARD 2
25 - 199	25.4c Each	26.4c Each
200 - 499	22.7c Each	23.7c Each
500 - 999	21.0c Each	22.0c Each
1000 - 1999	19.4c Each	20.4c Each
2000 - Over	17.7c Each	18.7c Each

THE ABOVE PRICES ARE ALL FEDERAL SALES TAX INCLUDED
F.O.B. LONDON, ONTARIO, CANADA. PROVINCIAL SALES TAX EXTRA IF APPLICABLE.

KELCO ENGINEERING LTD.

Staggered Coupon Billing Eases Collection Pains

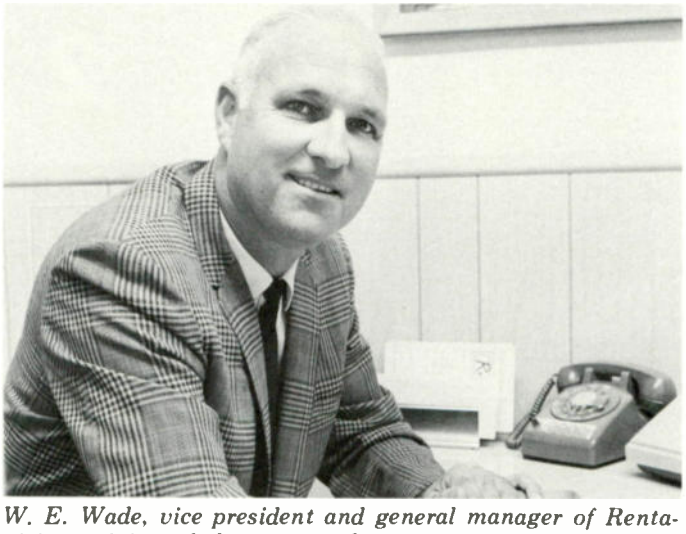
This and the following article describe two relatively new methods for accurate and dependable subscriber billing. As CATV systems grow in size, use of these and other mechanized methods will undoubtedly become more widespread.

By W. E. Wade, Vice President
Rentavision of Brunswick, Inc.
Brunswick, Georgia

Bankers have taught us a lesson at Rentavision of Brunswick, Inc. By following the lead of their consumer credit departments, we have set up a schedule of staggered monthly payments that permits a relatively small office staff to keep pace with a substantial number of growing accounts. As a result, collections have not been permitted to lag.

Traditionally, CATV firms establish their billing procedures so that payments for all accounts are due on the first of each month. If we had adhered to the same policy, it would have been virtually impossible for our three-girl office staff to handle our 4,500 accounts between the first and tenth of every month. And, since it is necessary to continually "work" accounts to insure prompt payments, we probably would have fallen behind in collections, unless we added personnel or paid overtime.

Instead, we patterned our operations after a bank's consumer credit department and established four different due dates—1, 8, 15, and 22. In this way, we can "work" a few accounts at a time and it gives us a week to get in payments.



W. E. Wade, vice president and general manager of Rentavision, originated the staggered payment system patterning the set-up after a bank's consumer credit department.

Rentavision, a subsidiary of Fuqua National, Inc., Augusta, Georgia, is unique in that it is licensed by the City of Brunswick. We also have a lease-back agreement with the Southern Bell Telephone Company. When service is requested by a new subscriber, we notify Southern Bell personnel, who connect the customer to the line. Upon completion of the hook-up, Southern Bell notifies us and we make the final connection that night. At the same time, we collect a $10.00 installation charge and the first month's fee of $4.95. We charge $1.00 for each additional television set.

The following day we set up a ledger card for the account and prepare a 24-month coupon book. Our coupon books are pre-printed and furnished by Allison Coupon Co., an affiliate of Cummins-Chicago Corporation. We selected a 24-payment book so that reissues occur just once every two years. Even if we have a disconnect before the end of the 24-month period the cost to us is just a penny more than a 12-payment book. Also, it permits us to stock just one type of book.

The due date is selected according to installation. If a television set is connected on the 13th, for instance, then the date of the first coupon book payment will be the 15th of the following month.

The due date of each payment, area location of the customer, account number, and payment amount are perforated into the 24-payment coupons in a book by means of a Cummins ODP Perforator. After the perforated information is verified with the other records, the book is mailed to the subscriber.

The coupons are machine-readable as well as visually readable and can be automatically converted to punched cards for entry into a computer. For the time being, however, we are maintaining our accounts

manually. Thus, when the coupons are received with the payments, they are matched to the ledger cards in our files and the amounts are posted.

The coupon books, which are similar in size and shape to payment books issued by banks, serve several purposes:

First, they are a reminder to the subscriber when payments are due. And, since they are handy to carry in a lady's purse, many customers make over-the-counter payments at our downtown Brunswick office. Being a constant reminder, the books also save us the cost of mailing monthly bills, a job which would cost us around $500 every month.

Second, the books give us an opportunity to regularly communicate with our subscribers. On the inside cover, we've printed the office hours and payment instructions. The back cover is a continual reminder that we provide 10-channel coverage. It also provides a number to call for repair service. The inside of the back cover urges subscribers to install additional TV outlets.

On the coupons themselves, we instruct the customers to include a $1.00 late charge if payment is five or more days late. About 10 percent of payments are received with the late charge added. Finally, we have included 20 pre-printed stickers with our name and address for use in mailing payments. Some 30 to 40 percent of the mailed payments have these stickers on the envelopes.

Third, the first 23 coupons in our payment books are a light green, which makes them easier on the eyes of our clerical staff, who work with them every day. The 24th coupon, however, is buff-colored and, on receipt of it, the office staff knows that a new book should be prepared and mailed to the subscriber.

As for the books themselves, purchasing them pre-printed and bound and then filling them in with the perforator costs us 25 to 30 cents each, including the books, the labor and the equipment. Had we selected a system where we assembled our own books and attached and stapled a pre-printed cover, the cost would have been 50 to 60 cents each.

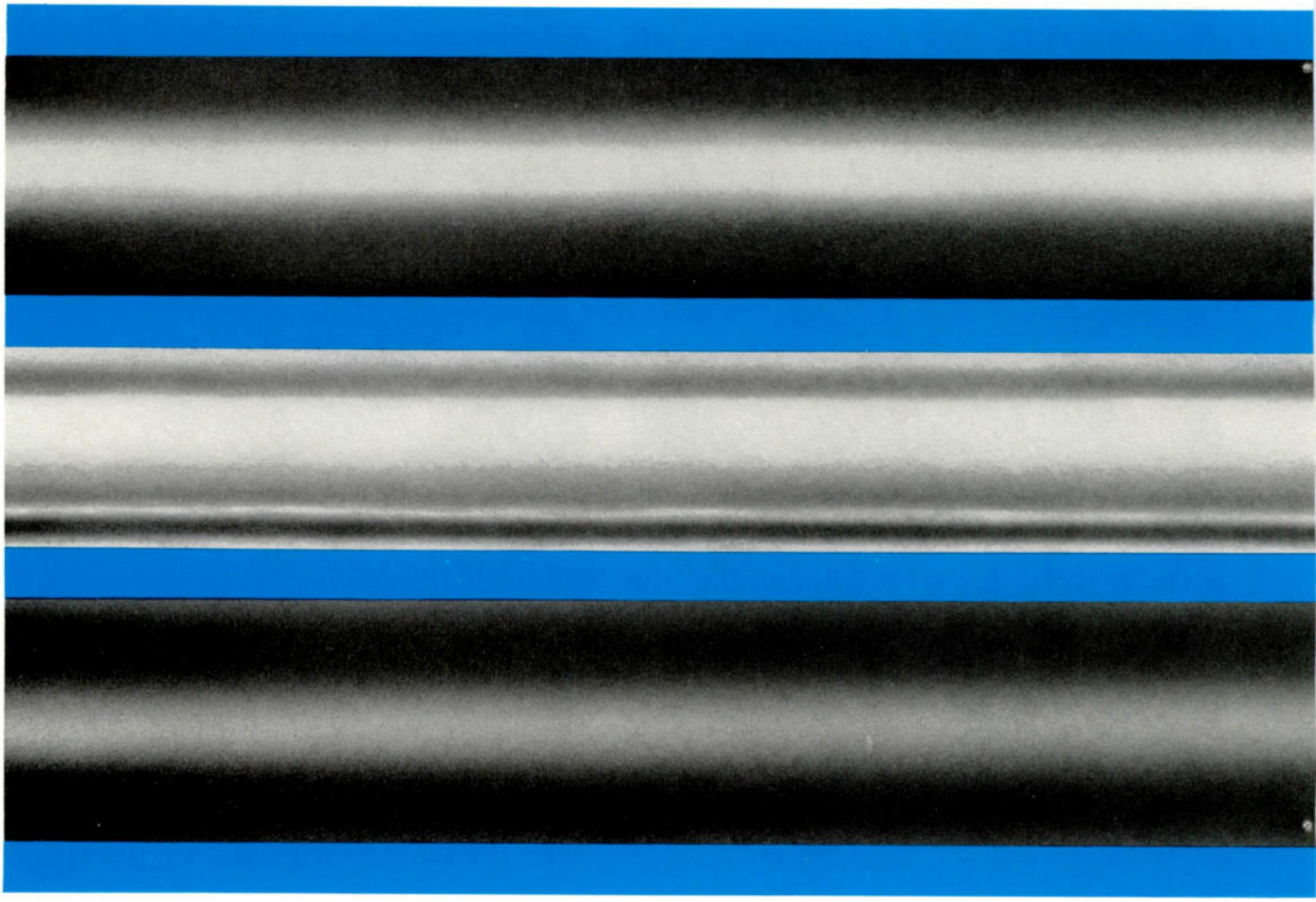
In addition, the combination of the pre-assembled coupon books and the ability to cycle bill is enabling us to process our 4,500 accounts without the peaks and valleys in workloads that usually accompany single due-date systems. We also feel it will help us absorb a steady increase in subscribers. TVC

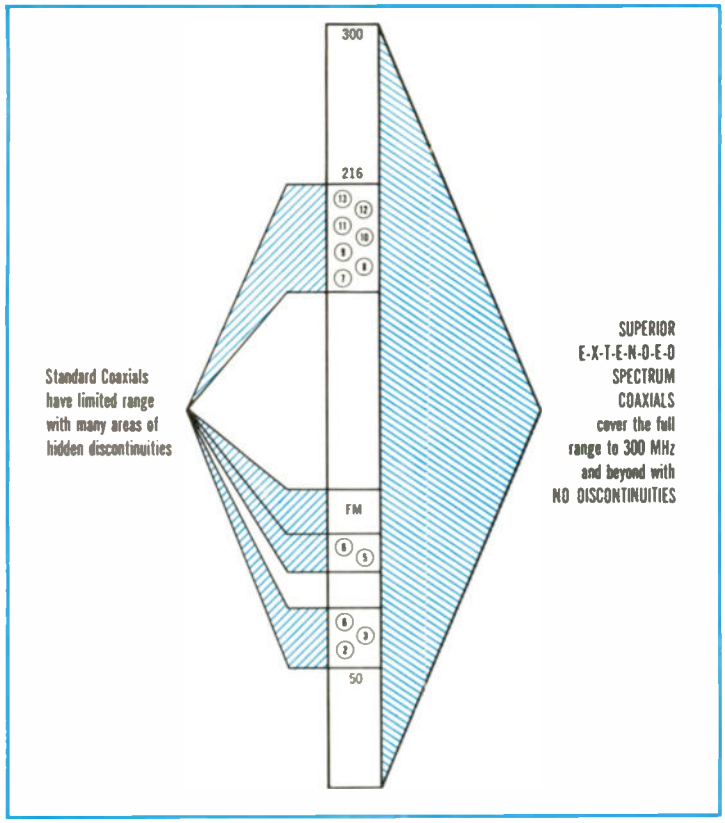
A member of Rentavision's office staff inserts coupon payment book into perforator (top), which gang punches the due date of each payment, area location, account number and payment amount into the 24 coupons.

For each of Rentavision's 4,500 subscribers, there is a ledger card on file. Accounts are cycle billed, enabling the CATV firm to supervise collections effectively with a minimum of clerical labor.

Careful, your income tomorrow may be limited by the cable you install today.

Buy Superior Continental's
E-X-T-E-N-D-E-D
Spectrum Coaxials
and take the lid off!





Because these coaxials cover the continuous range to 300 MHz and beyond with no discontinuities, you get more transmission space than with standard cables.

The additional 84 MHz segment from 216 to 300 MHz, together with full frequency utilization from 216 MHz down, opens up many opportunities for new services when you want to add them.

- **CATV, new channels**
- **ETV and ITV programming**
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Install Superior Continental's Extended Spectrum Coaxials, Coppergard® or Alumagard® aerial or direct burial types. This way, your system won't outgrow the capability of your cable. Means more revenue because you can provide more services, now and later.

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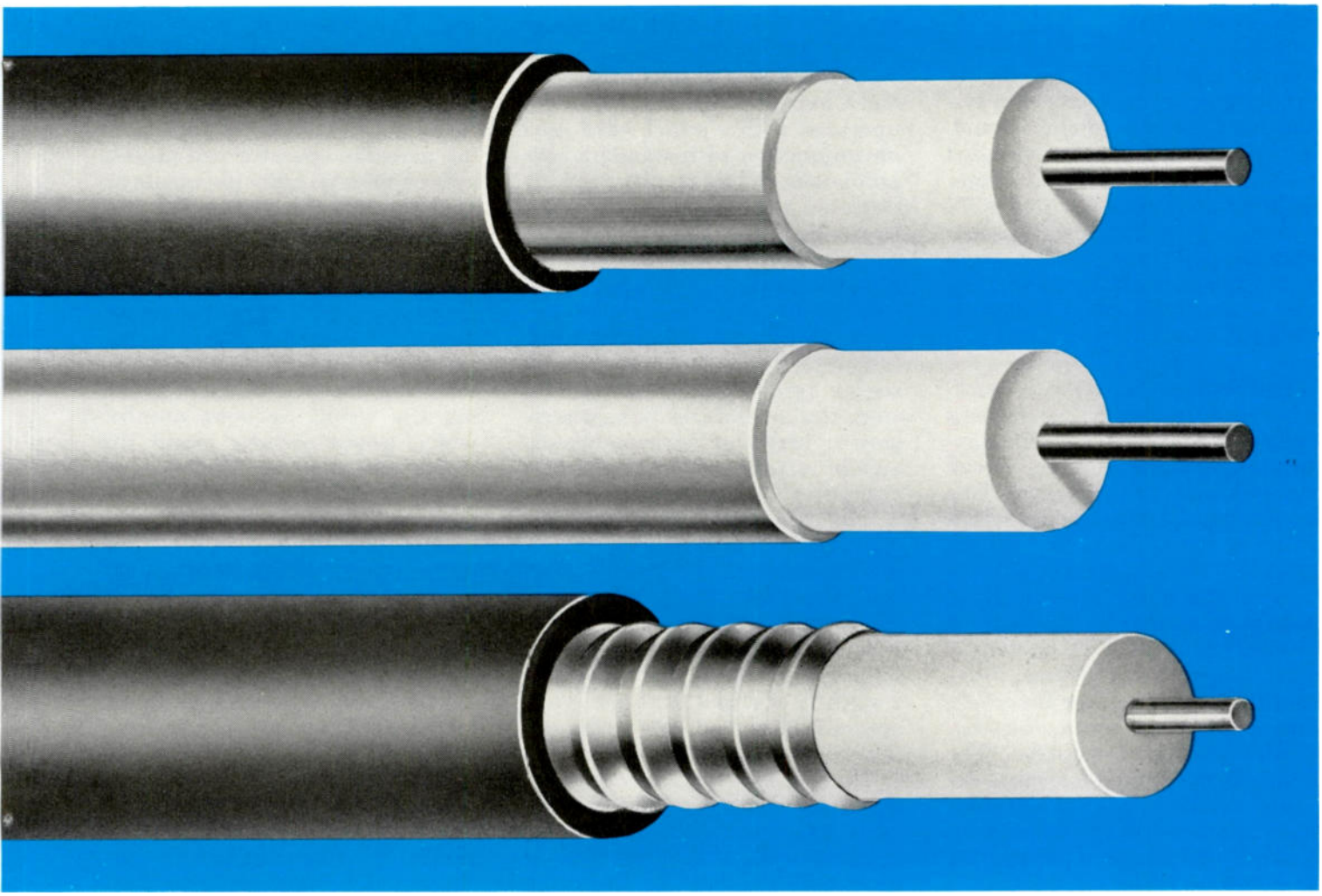


Computerized Billing For CATV Systems

Although the application of computer technology to customer invoicing has become a well established practice, systems designed especially for CATV billing, such as the one described below, are relatively new.

By O. E. Nemitz, President
Computer Research, Inc.

The CATV industry has been beset by one problem after another since its inception. The industry's attention has chiefly been focused on such troubled areas as governmental jurisdiction, copyright, pole usage, and relations with broadcasters.

Behind the scenes, however, is another kind of problem, that of handling accounts receivable systems to take care of the voluminous paper work that has resulted from successful cable operations. Although the pioneers in CATV were expert engineers and specialists in installing the complex, high-performance cable systems, they were often not as adept at designing good accounts receivable systems.

The results often were accounting procedures and billing systems which varied widely from one company to another and an overall lack of standard procedure. This led to a general hodge-podge which included some inefficient procedures.

In response to a request made several years ago by the staff at Centre Video, a CATV system in State College, Pennsylvania, Pittsburgh-based Computer Research, Inc., a computer service bureau, set out to find a solution. The company developed a system designed to offer CATV firms complete accounts receivable control plus a broad range of supporting computer services.

Considering that most industry visionaries foresee great expansion of CATV, (some estimate that within a few years CATV will be serving 69 million homes and earning $1.5 billion a year) it is apparent that the need for a systems approach to accounting procedures will be even more pressing.

As it originated four years ago, the Computer Research system operated with a punch card used in conjunction with standard coupon books. While results were acceptable, the method was subject to the high cost and general inaccuracies normally associated with punch card computer input.

However, the computer has come a long way. Also, within the four years that the Computer Research system has been in operation, the procedures have undergone a series of refinements designed to take advantage of new computer technology.

The resultant system utilizes information obtained from an adding machine by the use of an optical journal reader. This optical journal—a $100,000 machine—has the ability to read ordinary adding machine tapes, printed in a slightly stylized manner, on a specially-designed, low-cost computer input adding machine.

These special machines were designed by Computer Research and built by National Cash Register Company. They are installed in each CATV office for preparing input to the computer and can be used as a standard adding machine when not in use as a computer input device. All that is required to set the system in motion is an adlisting of payments and a corresponding subscriber account number. The tapes are sent to the nearest Computer Research office as they are completed.

Speed is one of the big advantages to the system. A single adding machine operator can process approximately 1,000 payments an hour through this device. The low-cost coupon method of pre-billing subscribers is retained.

One feature of this adding machine is a small, cable-connected box which is an "account number verifier." It has been designed to eliminate the possibility of indexing the wrong account number which would thereby credit the wrong subscriber for the payment. When the operator has indexed an incorrect account number, the adding machine locks, preventing any further operation, and a red light comes on indicating that an error has been made. The machine can be released for continued use only by the correction of the error. Those errors that manage to get on the adding machine tapes are corrected as easily as drawing a line through them.

After Computer Research receives the tapes, the computer assumes the functions of the accounts receivable reporting, ac-

counting and dunning. It is then in a position to issue a number of reports.

The first report, a "payment listing report," is a feedback of the payments that were recorded on the adding machine tapes to the cable system. The report is issued in account number order by payment date and by branch. It shows the amount of payment—subtotals by payment date and totals by branch. It is useful in making corrections before updating the accounts receivable master file.

The second report generated is the actual "master file update report." This report is organized in account number order by branch. It shows the actual payment, the day of the payment and the account that was credited with that payment. Combined with the payment listing report, it provides an almost foolproof method of error detection.

The third report in the system is called the "aged trial balance." Essentially, this shows what bills are out of balance, and includes the name of the subscriber, his account number, his monthly billing rate, and hook-up or other charges which might be included in his account. It also indicates the bills, if any, that are in arrears, as well as those currently due for payment and the total amount paid. It indicates whether these bills are one, two or three months overdue for payment.

Since all reports are presented with totals by branch, multiple system operators have complete information on each branch. Along with this, they have the advantage of using a central accounting office rather than separate branch offices.

One of the unique features of the system is the creation of dun letters for accounts in arrears. The master file is updated three times a month (the cable system operator selects the dates he wishes his file to be updated). As a result, dun letters can be issued three times a month. It works as follows: Typically, a company might decide to have its files updated on the 10th, the 20th and the last day of the month. If a subscriber's account is overdue on the 10th, he will receive a mild reminder prepared by the computer informing him of this situation. If the subscriber is still not paid up by the 20th of the month, he receives a second reminder warning him of impending discontinuance of service. Finally, if he has not paid by the 30th of the month, a notice that service will be discontinued within the next five days is mailed to him.

Since these letters are computer printed, the wording is subject to the discretion of the system operator and may be changed as circumstances warrant. The dun letters can be either mailed by Computer Research directly to the customer, or they can be forwarded to the user for mailing. In addition, it is not necessary that all three dun levels be used by a cable company. Indeed, some of them have elected to use only two, and in some instances, only one of the three is utilized. As these letters are processed, a dun letter listing is prepared which includes all customers to whom dun letters have been issued and the amount in arrears.

As cable television expands throughout the country, this system is expected to be adopted by more and more CATV firms, and to help alleviate one of the internal problems the industry has faced.

Computers, moreover, are not the thousand-leg monsters many people think they are. They have become a vital part of the financial and administrative segments of a modern corporation as well as essential in smoothing the distribution, marketing, manufacturing, research and development phases of company expansion. Ranging from giant installations to simple desk models, they have become a must for sophisticated management. TVC

COLOR IT GREEN . . .

the cash, that is, that we pay for photos of CATV subjects. TV Communications pays $20 for any color photo published as the magazine's front or tech cover subjects.

Photos may include any subject matter related to the cable television industry, and may be submitted in the form of positive transparencies (2¼" square or larger) or as color prints (please include negatives with prints when possible).

Send materials (carefully packaged) to Stan Brooke, Assistant Managing Editor, TV Communications, 207 N. E. 38th Street, Oklahoma City, Oklahoma

Part 1

Basic Lighting Techniques For CATV Programming

Proper lighting is a prime consideration for the production of a first-quality cablecast. It requires careful selection of the correct lighting system and fixtures and the skill to use them well.

By Kenneth M. Palius
Vice President, Berkey ColorTran, Inc.
and Thomas R. Myers
Systems Engineer, RCA

The system operator who would produce truly professional cablecasts must take into account the fact that the television screen is a limited means of expression. It has been given the task of reproducing a three-dimensional experience in the viewer's mind, yet its capacity is limited to only two dimensions. Consequently, the programming technician must depend on optical "tricks" to enable the viewer to perceive a certain amount of realism in that which is seen.

The perception of depth and field is controlled almost entirely by lighting effects. Shadows and highlights, along with relative size, tell us how distant an object is, what its size and shape are, and whether or not it's moving. Lighting may also be used to establish a mood or place emphasis on a performer or object to achieve various dramatic effects. The CATV programming technician cannot produce a top-quality program without careful attention to these and other effects of lighting.

Good lighting is, in fact, the key to accurate television reproduction. Since cable subscribers compare your programming with that of broadcast stations and the networks, it is paramount that good lighting requirements be met. Fortunately, basic lighting skills can be learned in a relatively short time, and can readily be refined with greater experience.

A System Approach to Television Lighting

As a guide to effective television lighting, complete lighting plans for four representative studios are shown later in this article. A systems approach is used in each plan to assure the proper balance of lighting fixtures, control systems, and power distribution equipment.

Each plan is designed to incorporate the latest lighting equipment and to provide for a wide variety of programming. Power distribution, electrical service, and equipment recommendations have been specified for easy, economical expansion to color operation. Highly specialized programming requirements, studios of unusual size or shape, and other special situations may require changes in the equipment.

The Tungsten-Halogen "Quartz" Lamp

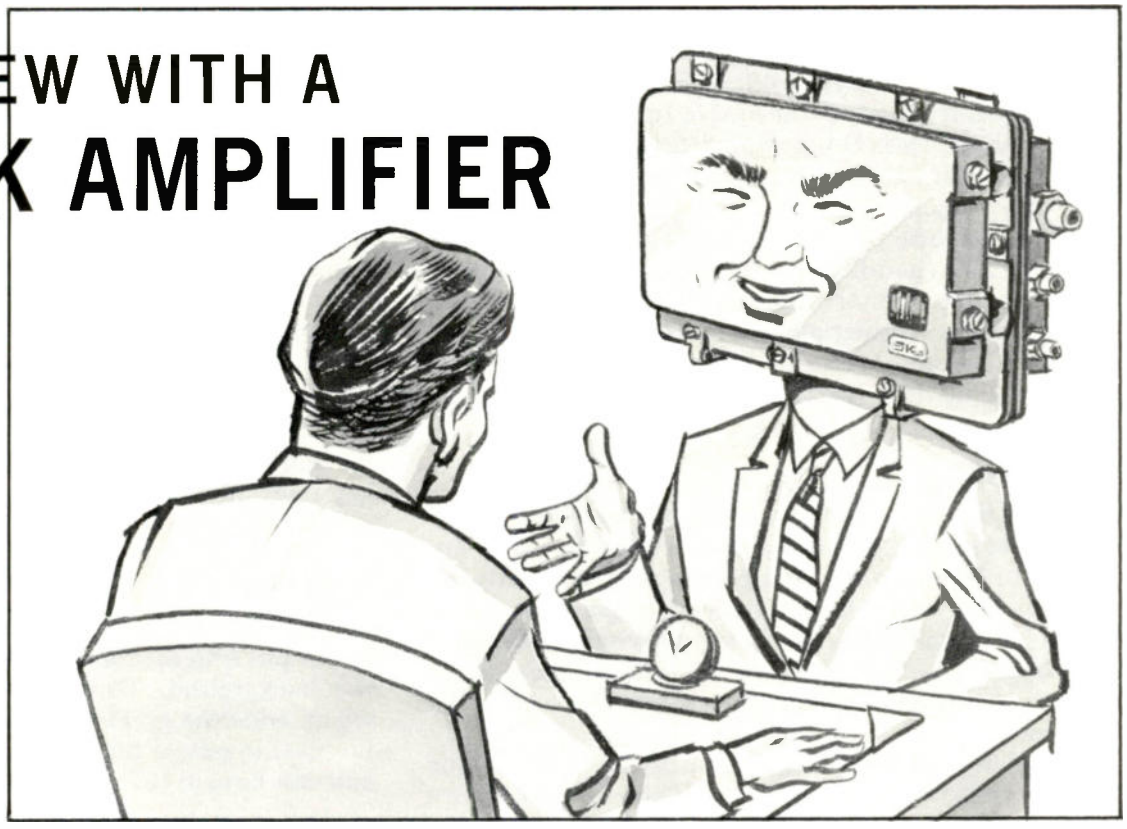
The major advantages of tungsten-halogen "quartz" lamps are that color temperature and light output remain constant throughout the operating life of the lamp. Also, the bulb life is longer than that of an equivalent standard incandescent lamp at a given color temperature.

These new lamps have made possible the design of smaller, lighter, and substantially more efficient lighting fixtures. In many cases, the fixtures are nearly twice as efficient as those using conventional incandescent lamps.

Since the peak sensitivity of vidicon tubes is in the green region of the visible spectrum, lamps with high relative blue-green output (higher Kelvin temperatures) render a better picture. For this reason, 3200-degree Kelvin lamps have been specified for the equipment listed in the studio systems recommendations. While the life of conventional incandescent bulbs is shortened when they are operated at this temperature, single and double-ended tungsten-halogen "quartz" lamps are specifically designed for economical operation at this rating. Although many systems use fluorescent lighting, it is not suitable for quality program production. A hotter, more easily controlled light which can be used to produce highlights and emphasize certain aspects of the set or performers is needed.

The descriptions of television lighting functions presented in this section are not absolutes. Experience and experiment will dictate when the "rules" should be broken.

INTERVIEW WITH A TRUNK AMPLIFIER



Q. Please state your full name.

A. SKL/7037K TRUNK AND BRIDGING AMPLIFIER WITH AUTOMATIC LEVEL AND SLOPE CONTROL.

Q. That's quite a trunkful! What is your job function?

A. WELL, WHENEVER LEVEL AND TILT GET OUT OF LINE, I FLATTEN 'EM.

Q. You mean you have aggressive tendencies?

A. NOT EXACTLY. ACTUALLY, I'M EXCEPTIONALLY STABLE; BUT IF LEVELS AND TILTS STEP OUT OF LINE, I REALLY SOCK IT TO 'EM.

Q. I see. How well can you do your job?

A. YOU MUST BE KIDDING! LOOK, WITH MY TWO PILOTS I CAN STRAIGHTEN OUT ANY LEVEL OR SLOPE CHANGES UP TO 4 dB, CONTROL EVERYTHING FROM 50-220 MHz, WORK IN TEMPERATURES FROM −40°F TO +140°F, DROP INTO ANY SYSTEM . . .

Q. O.K., O.K.! Do you have any problems connected with your work?

A. YES. I GET LONELY.

Q. Lonely? Would you mind explaining?

A. WELL, IT'S LIKE THIS. UNTIL I CAME ALONG, TECHNICIANS USED TO COME OUT TO FONDLE AND ADJUST AMPLIFIERS FOUR OR FIVE TIMES A YEAR, SOMETIMES EVEN MORE OFTEN. AND ME, — THEY JUST CONNECT ME UP AND FORGET ALL ABOUT ME.

Q. Well, from where I sit, that's good.

A. DO YOU MIND IF I ASK YOU A QUESTION?

Q. Not at all.

A. DO I GET THE JOB?

SKL

For more information on the above and other SKL products for better CATV, please write or call us.

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Base Lighting

A base light is characterized as a broad area fill light with very uniform diffusion. It may, under certain circumstances, be desirable to approach a virtually shadowless condition with the base lighting. Typically, soft-lites, scoops, and broads may be used for this purpose.

The uniform diffusion of this type of light makes it especially useful in specialized situations such as lighting a performer with sharp facial features. It is invaluable in lighting glossy objects or items wrapped in plastic. And, due to its low source brightness, it does not distract performers.

Key Lighting

Key lighting is usually described as being "hard" in character, i.e., it casts a distinct shadow and appears to come from a single source. It is usually accomplished with a fixture which is capable of a wide range of beam angle and intensity variation. Barndoor control is also needed, since it is often important to light only those areas of the subject which are to be "keyed."

The key lighting level is normally 25 to 50 percent higher than the base light level. The key light fixture is placed to one side of the camera, thus producing shadows which give depth to an object or performer.

Fill Lighting

Fill light is utilized to control the contrast range which would be too great with the key light alone. It is applied to set areas and set pieces, as well as to performers.

This type of lighting is generally "soft" in nature, and either broads or scoops can be used. The focusing scoops and broads shown in the systems recommendations should have adjustable beam characteristics to provide greater control over spill light and fill-to-key level ratios. Beam intensity of these fixtures may be adjusted by as much as three-to-one. Horizontal spill light may be further controlled with barndoors.

While typical fill light level is approximately two-thirds that of the key, the ratio of fill to key light varies widely with the effect being sought. In a dramatic scene, for example, it may be desirable to use fill light at less than two-thirds of the value of the key light in order to obtain a higher contrast ratio.

Back Lighting

Back lighting is applied from behind a performer or set piece to establish a degree of separation from the background. This lighting function is the one which adds the greatest illusion of depth to the total picture. It puts a highlight on the performer's hair and can be said to "rim light" the subject.

It is important that some degree of barndoor control be available on the fixtures used in back lighting to control the spill light. Further, barndoors prevent the lamps from projecting light directly into the camera lens. The fixture used for backlighting is usually angled rather steeply downward, typically about forty-five degrees.

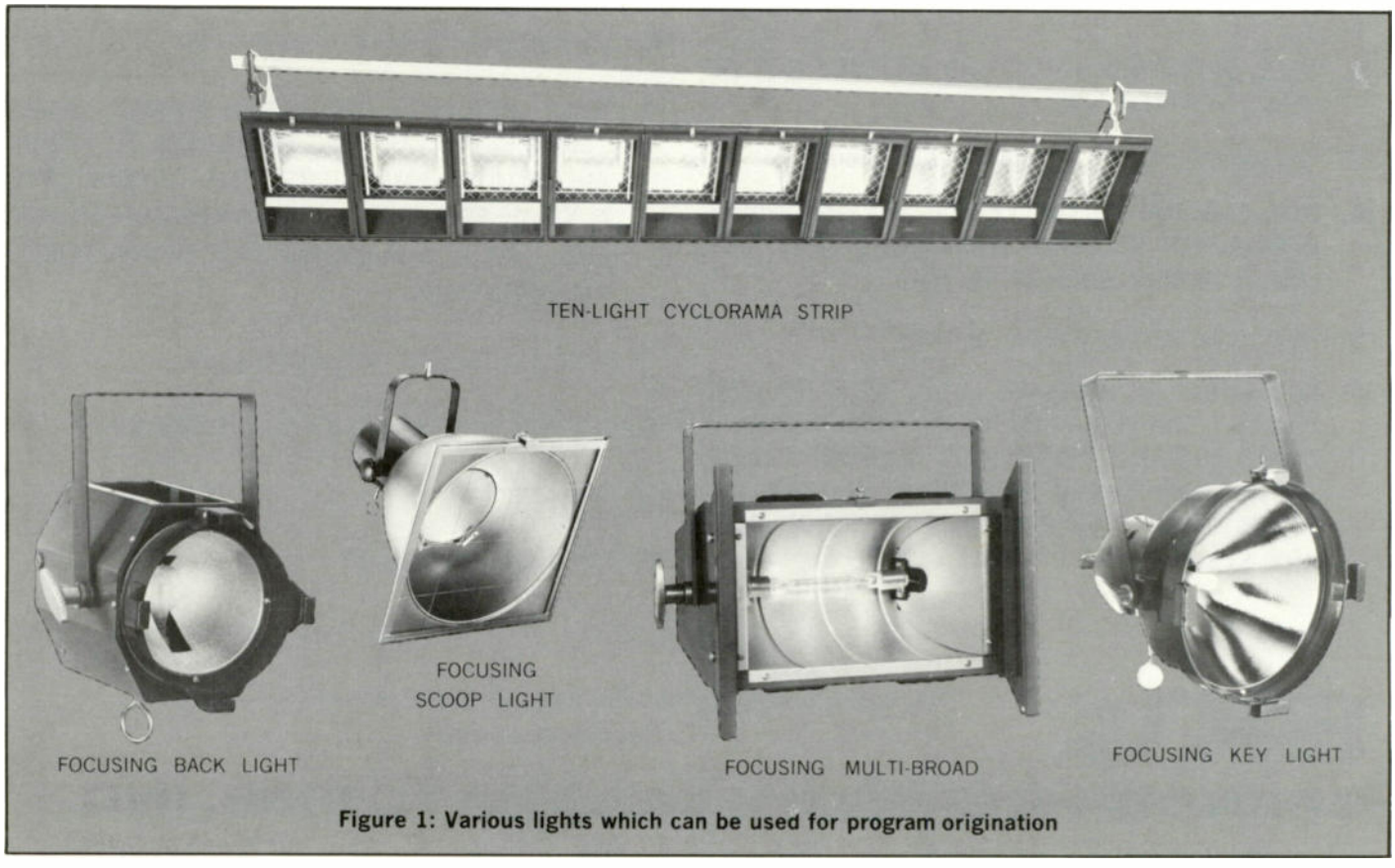
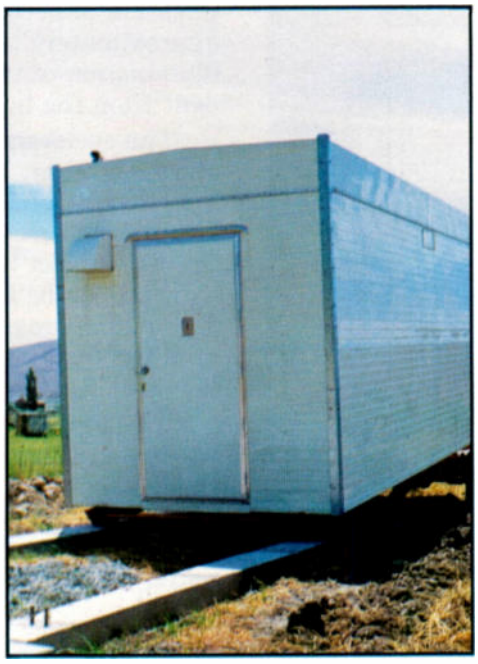


Figure 1: Various lights which can be used for program origination

INSTANT HEAD-END BUILDING

BACK IT UP . . .



SLIDE IT OFF . . .

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.

■ INSTALLED IN MINUTES

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.

Fort Worth Tower Co., Inc.

P.O. BOX 8597 / 5201 BRIDGE STREET / FORT WORTH, TEXAS 76112
FORT WORTH PH. (817) JE 6-5676 • DALLAS PH. (214) AN 4-2822

Backlighting levels may range from one and a half to two times the fill or base light level on the set. This will vary with the specific situation and must be determined through experience.

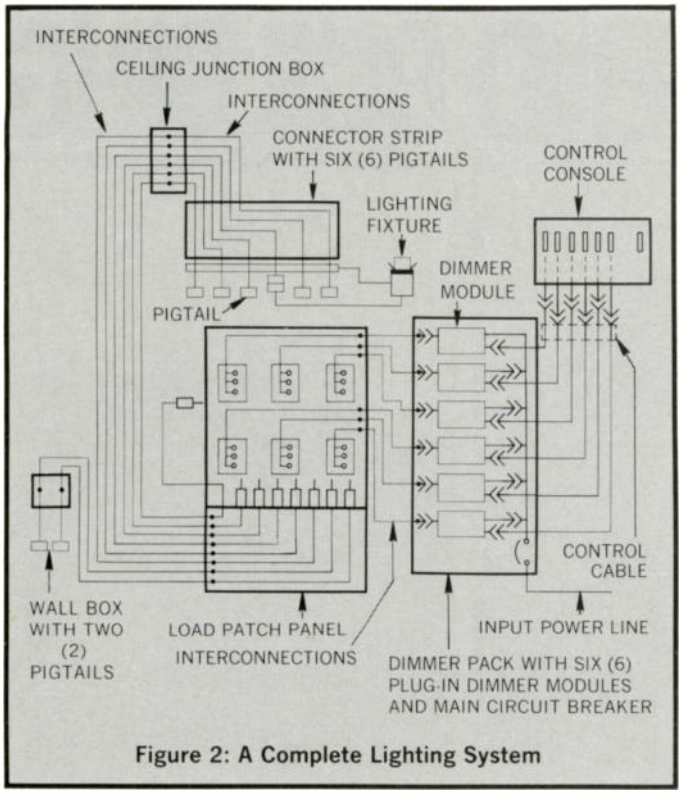


Figure 2: A Complete Lighting System

Set Lighting

Set lighting describes the lighting of individual set pieces, cycloramas and backings. It should be established in terms of the character of the set piece and the effect which is desired. The size, shape, texture, gray scale value, and the mood or effect being sought are some of the elements which help to determine the type of fixture to be used.

The cyclorama or backing light permits the illumination of cycloramas or backings from distances of approximately three feet. This makes it possible for illumination of these surfaces to be virtually independent from the lighting in the rest of the set.

The cyclorama or backing light may be used from above or below. Where it is possible to light from below, it is helpful if a "ground row" can be used to hide the fixtures, unless the set is designed so that the fixture can be concealed without this device. A light pit can be installed below the level of the studio floor and approximately three feet in width. This permits the installation of cyclorama lighting strips below floor level.

The use of these fixtures permits some unusual lighting effects. As an example, if only the cyclorama or backing lights are on, and they are located close to the cyc or backing, performers or set pieces in the foreground are sharply silhouetted against this illuminated surface.

(To be continued next month)

ALPHAMATIC NEWS
gives CATV "news power"

...at home, at work, on the go, wherever people are within reach or range of the television screen, Alphamatic News reaches their special interests—through CATV. Alphamatic News is the unique news-carrying system designed especially for CATV origination.

It brings subscribers an additional value—instantaneous, 24-hour news. You can originate every important announcement of news as it's happening—around the world or around the corner. United Press International news flashes as they come off the wire. New York and American Stock Exchange quotations on a fifteen-minute delayed basis. Your own locally originated messages—all are available to you for your subscribers.

And, as additional selling strength, Alphamatic News keyboard input gives you the potential of paid sponsorship—local advertising with no additional costs to you.

Put this uniquely flexible CATV selling tool, the "news power" of a custom Alphamatic News System, to work for you. Write for details and a complete Alphamatic News selling kit that helps you sell more CATV subscribers.

ALPHAMATIC NEWS LOOKS LIKE THIS ON CATV SUBSCRIBERS' SCREENS –BRINGING NEWS AS IT HAPPENS FROM UPI TO THE NEW YORK STOCK EXCHANGE TO YOUR OWN LOCALLY ORIGINATED MESSAGES.

NYSE–PRICES DELAYED FIFTEEN MINUTES

T	ZE	CBS	N	RCA	PEP
523	3;554	527	2;1122	60	382

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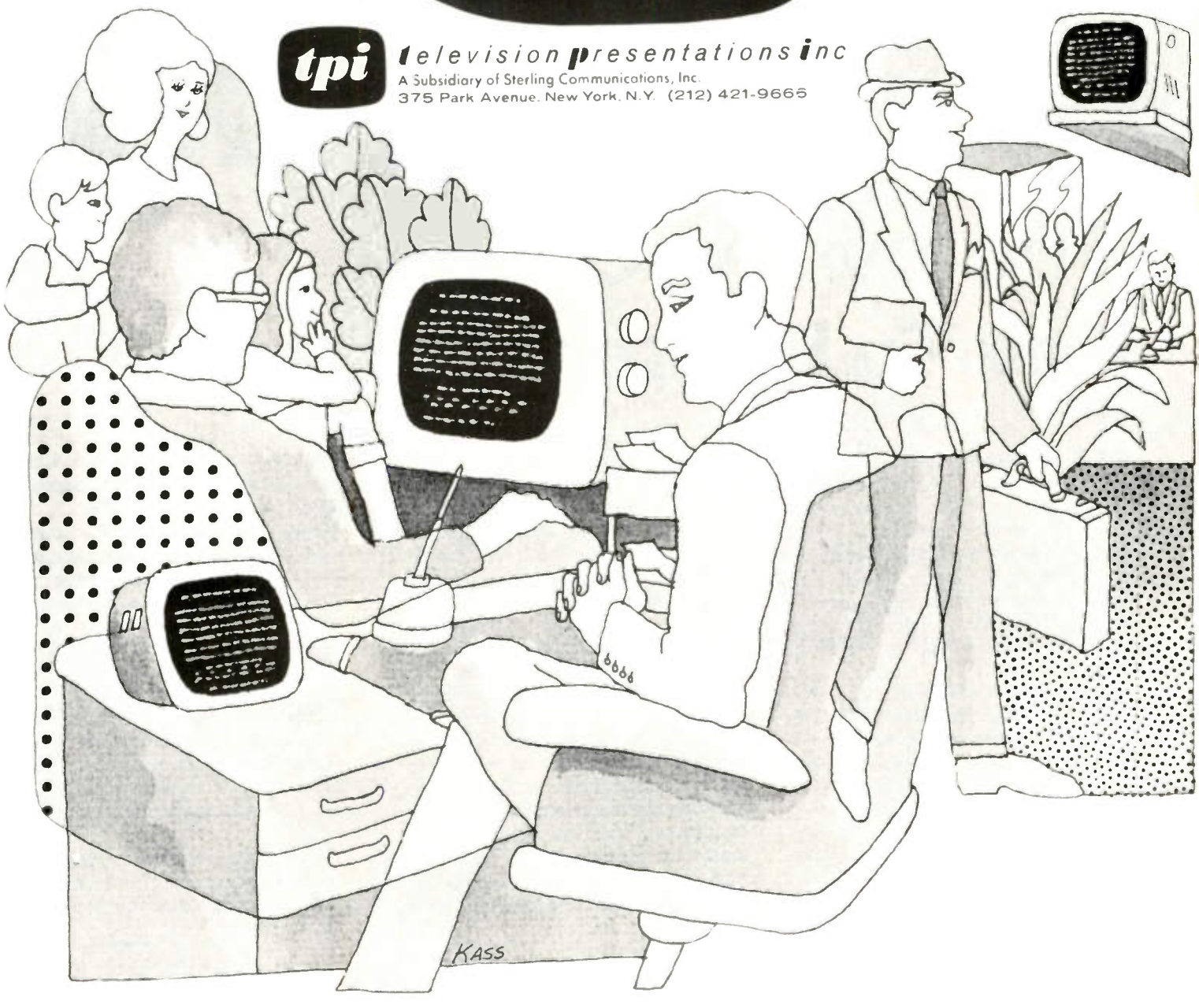
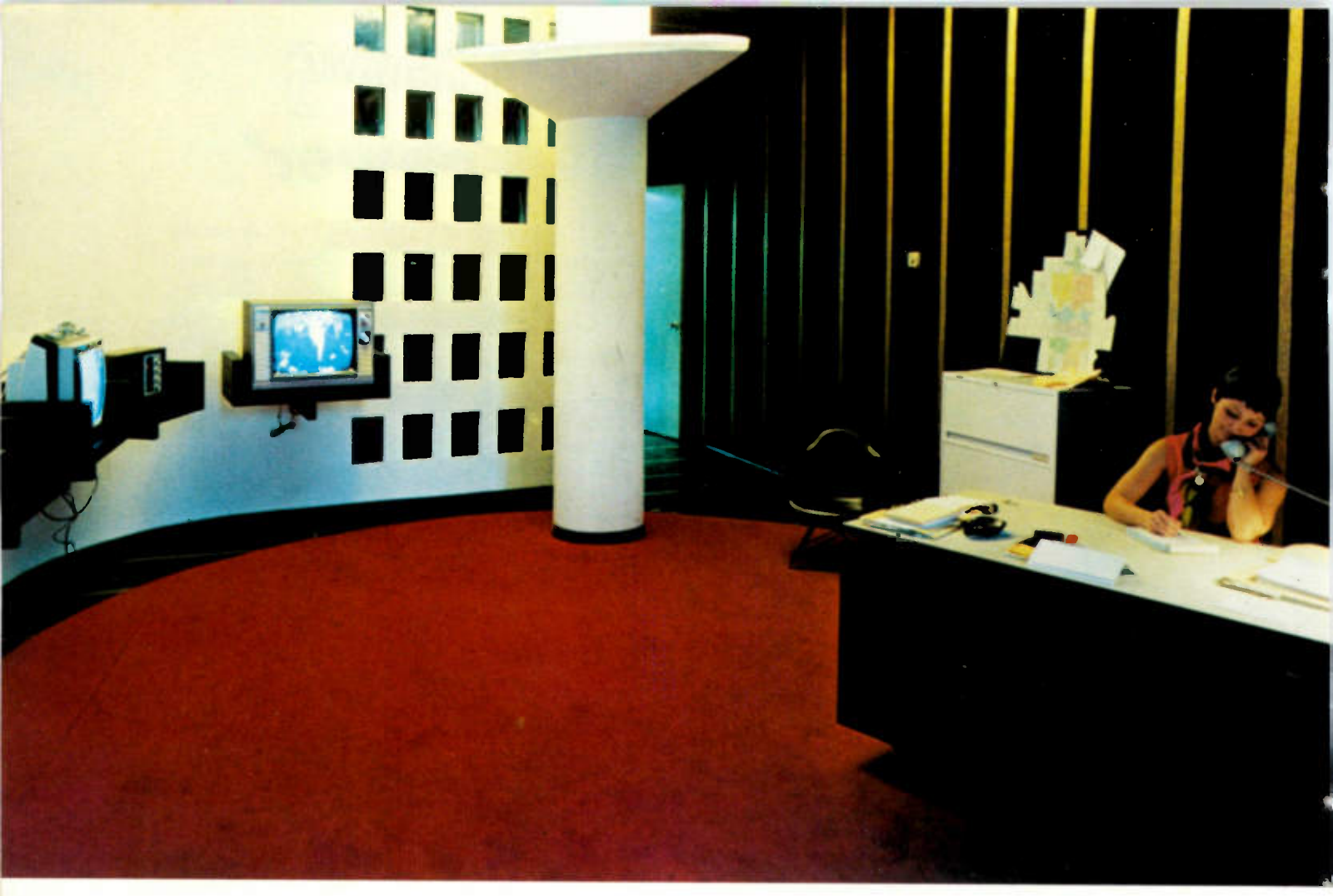




The Inviting Office: Key To System Growth

What is your cable television office besides a place in which to conduct your business, the nerve-center of your enterprise, a necessary, functional facility which you must have? Properly viewed and properly used, your office can become much more . . . it can be one of your most effective merchandising tools.

Aside from yourself and your employees, your physical plant has perhaps the greatest potential impact on the public. The wise, public relations-conscious operator will devote as much thought and planning to his building as he does to his other advertising and merchandising.

In addition to personal satisfaction, a tastefully decorated, pleasant-appearing office will pay big dividends in conveying to the community a prestige image of your service. Present subscribers find it a pleasure to do business in bright, well-furnished surroundings. And potential subscribers—which include nearly every passer-by—will be favorably impressed by distinctive decor and an attractive appearance. It's a fact of business life today that the buying public has been educated to expect modern, efficient, inviting surroundings. Gone are the traditional chilly vault-like banks and the helter-skelter, cluttered corner stores. Businessmen are taking a note from psychologists who know that customers are pre-sold by attractiveness and buy more, and more often in an agreeable setting.

Using your building as a merchandising tool, you can and should feel free to express something of your own personality in its design and decoration. In that way, it will reflect an individuality of its own to the public. But it is good public relations, too, to reflect the "personality" of your area. That is, your building should blend with and complement its neighbors. You want it to be a credit to the community—not a sight-seeing attraction.

If you are building your own office/studio facility, you are, of course in the best possible position.

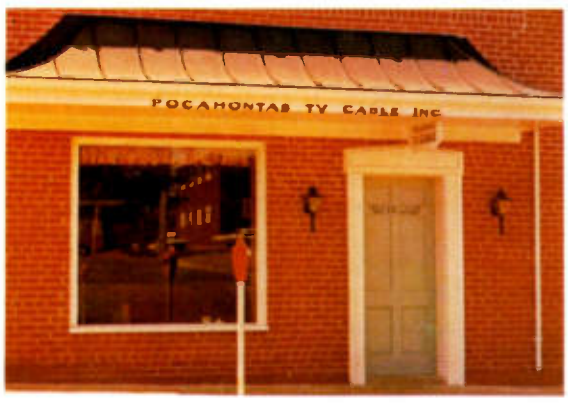
You can then choose your design, color and materials with an eye toward doing the most effective job of merchandising. If you are using an existing building, but are able to remodel extensively, you are still nearly as free to create your own "image" for the public. But even if present plans do not provide the leeway you would like to have—even if you have to settle for an office that falls considerably short of the ideal—there are still relatively inexpensive refurbishings for doors, windows and interiors that will make a distinctive cable office. In the final analysis, you are limited only by your own imagination, taste and wish to please.

Simplicity and wise use of color are blended in the inviting offices of Chatham (Ontario) Cable TV System (left and right).

The Temple, Texas cable office (below top) incorporates a drive-in window, as well as modern design.

A colonial door and matching trim, in addition to a special canopy have transformed the Pocahontas, Ark. cable system office (below bottom).

Wood, glass, and bright accent colors have been utilized extensively in the Colorado Springs, Colo. cable office (below right).



Do Your Ads Pay Off? Measure The Results

How can you be sure you are putting your advertising dollars where they are getting the best results? The following article lists practical pointers which you can use to check your advertising payoff.

By Craig W. Janes

How much good is your advertising actually doing? As with any expenditure which a cable television operator makes, advertising must stand on its own feet and prove its value, or it's money and effort wasted.

Measuring the results of advertising basically means comparing sales volume with advertising costs. Before you get to that stage, however, you have to know what you expect your ads to do.

Most advertising can be divided into one of two basic types: immediate response in terms of new hookups and attitude advertising.

Advertising For Immediate Response

When you use immediate response advertising, that's just what you want: action right now. You want new customers to sign up for your services, or you want existing subscribers to renew their subscriptions. And you want them to do this right now. There are many incentives which you can offer customers for taking action immediately. You could give a simple discount on your charges, or throw in a year's subscription to a TV magazine, or make the initial installation free, or at a reduced fee. Regardless of what incentive you do offer, you must make it clear that the prize is dependent upon the customer or prospect taking action very quickly. If he waits until next week or next month, the incentive will not be available.

Immediate response advertising should be checked frequently to see how it's doing. Preferably, this checking should be done on a daily basis—how many leads or subscribers did we get *today* as a result of advertising—or weekly, if a daily check is too time consuming. Because all advertising has some carry-over effect, you should also check your results for several days after the offer has expired; inevitably you'll get some business then.

Advertising For Changed Attitudes

Attitude advertising is not quite so dynamic. With it you are trying to build business, certainly, but your primary goal is keeping your system's name before the people you want to reach. For example, you could carry on a direct mail campaign to present subscribers. These mailings would likely be low pressure vehicles, mainly intended to keep your company's name in front of subscribers so that when renewal time rolls around they will renew their subscriptions. Remember, it is always easier to *keep* the subscribers than it is to get them back after they have cancelled.

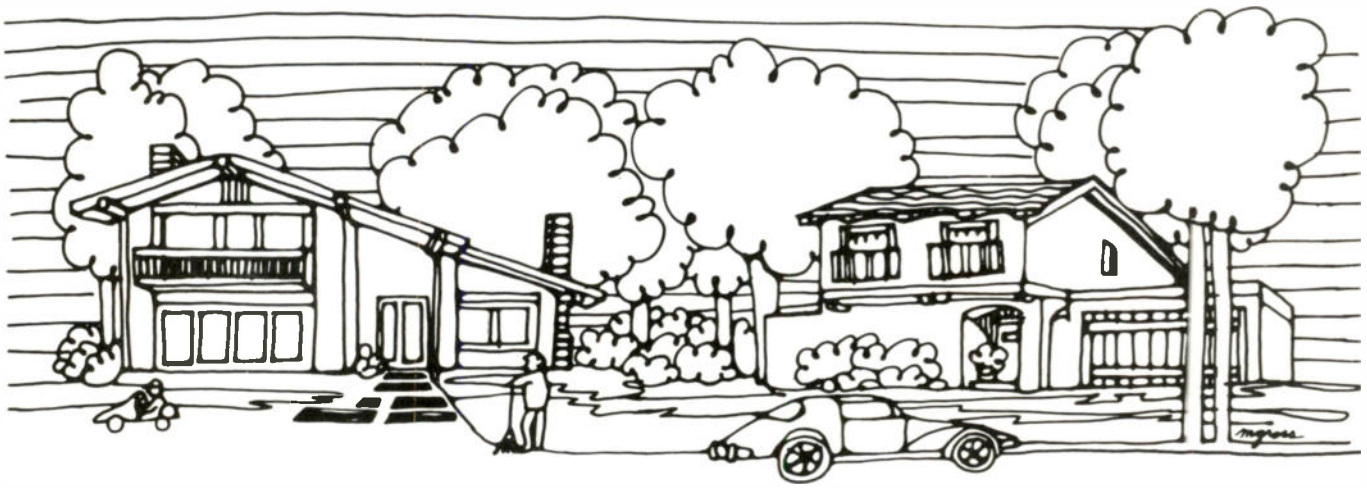
In this category, you might also want to sponsor public relations advertising. This could be used to appeal to local or state legislators to help prevent restrictive laws which would affect your business, or to appeal to municipalities to have them pass the laws necessary for you to begin operations there.

Every Advertisement Should Build Image

These two categories of advertising are not all encompassing, of course. *Every* ad you sponsor should build your image (and thus be an attitude ad), and *every* ad, to some degree, should sell your services (and thus be an immediate response advertisement). The point to keep in mind is that each particular ad should be mainly designed to do one thing well.

It is difficult to measure the effectiveness of attitude advertising. Unlike immediate response promotion, where your phone may begin to ring right after your direct mail circular is delivered or after your radio or TV message is aired, response to attitude adver-

PLASTOID AND NBC GOT TOGETHER ON THE FIRST DUAL CABLE SYSTEM AND VALENCIA GOT THE PICTURE.



There's a whole new community abuilding in California. It's called Valencia! And it is the achievement of an advanced concept in total town planning.

Plastoid helped develop for this town of the future the CATV system of the future: A unique dual coaxial cable system with an extremely wide channel capability.

NABCAT, a National Broadcasting Company community antenna television subsidiary, is installing in Valencia the first underground dual coaxial cable system with a 40 channel capability. Four new types of cable were developed for this system by Plastoid and NABCAT engineers, including Heavy Jacketed aluminum cable for direct burial and Siamese house drop cables.

If you are installing a new CATV system or extending an old one, remember the Valencia story. NABCAT was pioneering the first new dual cable concept. And they chose Plastoid. Find out all the reasons why.

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CORPORATION

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tising may take weeks or even months or years to rear its head. And even when apparent response does occur, how much of it is due to your advertising alone? And how much is due to your salesmen's efforts, or to the personal visits you've made calling on influential government officials?

But just because you can't measure its effectiveness easily is no reason to omit attitude advertising. Just spend an evening watching some of the high cost programs your cable is carrying into the homes of subscribers. You can be sure that the largest advertisers in the country have faith in its value when you see the number of commercials which are pure attitude ads. The companies are trying to build their reputations, not sell specific products.

How to Plan for Results

Success will accrue depending on how well you've planned your advertising. And your success in evaluating your advertising will, to a large degree, depend on the number of points you've used which can later be verified or checked with whatever group of people you're trying to reach, whether it's customers, potential customers or legislators.

Here are some of the points which will make your task of evaluation easier:

Humor can be extremely effective. Unfortunately, it is also the hardest type of advertising copy to write, and if it is not expertly done it will invariably bore or antagonize many of the people you're trying to influence. As a general rule, unless you have an expert humorist on staff, stick to serious messages. Stress the service you have available, your experience, your affiliations. Leave the jokes and puns for parties.

Before you create an ad, *know what you want to accomplish.* Are you trying to boost business, impress your name on prospects, or explain a service charge hike? Keep that purpose in mind as the advertisement is prepared. It's always a temptation to cover a number of things—"We're paying plenty for the space (or time); let's get our money's worth"—but that reasoning hurts your efforts.

If the general concept you're trying to get across is just too complex for easy handling, use a series of ads. Stress *one point* in each ad. For example, if you're trying to explain a healthy hike in cable fees, and this hike is caused by several factors—increased wage costs, higher local taxes, etc.—use one ad exposure for each major point, rather than trying to cover all bases in a single ad.

Clearly identify yourself. In printed ads make sure your logotype or signature is clean and uncluttered; and provide your address and phone number. With radio or TV commercials, allow sufficient time for identification, and spot it through the message so that dial switchers and late arrivals know who's sponsoring the message.

Check for response. Use coupons in your printed ads and keys in your radio-TV commercials. An example of the latter would be to ask prospects to phone Miss Ashton at your office for additional details on a special offer you're promoting. All calls received for Miss Ashton—whether you have such a lady on your staff or not—can reasonably be allocated to a specific message.

How to Test Immediate Response Ads

Coupons brought in. This technique makes it easy to determine just how well a particular ad pulls. If the same ad is running on different dates, or in different publications, key it so you'll be able to separate the replies. Perhaps ads in the Sunday paper are best for you, or maybe ads in the television supplement pull most replies. You won't know until you key the ads. You can use department numbers ("Reply to Desk 23, or Drawer 11, or Dept. 100"), names ("Mail to Miss Brown") or office numbers ("Send this coupon to Ste. 20, or Office No. 66").

Phone or mail requests. Rarely will people use key numbers such as desk or department numbers when phoning or writing. So, if you're offering a pamphlet on your services, give it a title or number, and display this prominently. Most people will ask or write for "Booklet B" or "Date Brochure."

Split runs. Most publications can split your ad. In some of their press runs they will run "Ad A," in the balance "Ad B." This is an excellent way to determine the respective merits of two different types of ads. In "A," for example, you might want to use a coupon which requests one of your salesmen to call. In "B" you might stress that no salesman will call. Many people are wary of being bothered by salesmen, and will not answer coupon ads unless the latter assurance is given. But there are many exceptions, and the people in your system's area may actually prefer talking with a salesman rather than just reading a brochure.

Limited offers. If you have a special offer available for a limited time, and your ads proclaim this, you can gauge effectiveness by the amount of business you do. You might, for instance, offer free installation of your cable for a one-week period, provided the subscriber signs up for a minimum one-year period. You might further specify that this bonus will be given only to those customers who actually request it. It won't be difficult to see how effective your ad was. An advantage of this method is that you can have several different offers running at the same time, sort of a split run situation. In your radio ads, offer a free magazine subscription. In print ads, offer the free installation. By direct mail offer a low-priced TV lamp, and so on. In all offers specify that the buyer must actually request the premium. You'll have an excellent indication of the pulling power of the various media, and because you're making the offers available only to those who ask for them, your promotion costs won't be too high; many customers won't see the various ads and will sign up at the regular rates.

How to Test Attitude Ads

Attitude advertising is generally spread over a longer period than immediate response ads. You try

to measure the results of each ad and the cumulative effect of all ads.

Because immediate response advertising is easiest to measure, you can easily determine sales made by it. The rest of your sales can be said to represent the contribution made by attitude advertising. (Direct business written by salesmen, and not as the results of advertising leads, can also be deducted.)

Make your comparisons according to the same frequency as your attitude ads. If you run them weekly, for example, at the end of the week after the ad appears, compare that week's net business (gross volume less immediate response and salesmen's volume) with sales for the same week a year ago. At the end of the second week, compare your sales with those at the end of the first week as well as year ago figures. Repeat this process each week. This will give you the cumulative value of your attitude advertising as well as the results of single ads.

Remember to make allowances for unusual situations. If a large employer in your area has a shutdown, or suffers a strike, this will affect your new business.

If a specific ad really pulls, try repeating it as long as business volume warrants it. Some large advertisers use the same ad for years before diminishing results make it unprofitable.

Immediate response ads can be tested in a vacuum; they either pull or they don't. But your attitude ads must be checked over a period of time. Each specific ad is a building block in the message you're trying to get across. If you're advertising with skill, your total volume from this type of advertising will climb up almost continually.

Measuring advertising results is not a science. It is as accurate, say, as the television ratings. Both leave quite a bit to be desired. But both are much better than nothing, and, if they do nothing else, they indicate trends before a solitary falling stone turns into an avalanche. And an avalanche of poor advertising can literally bury your cable television system. TVC

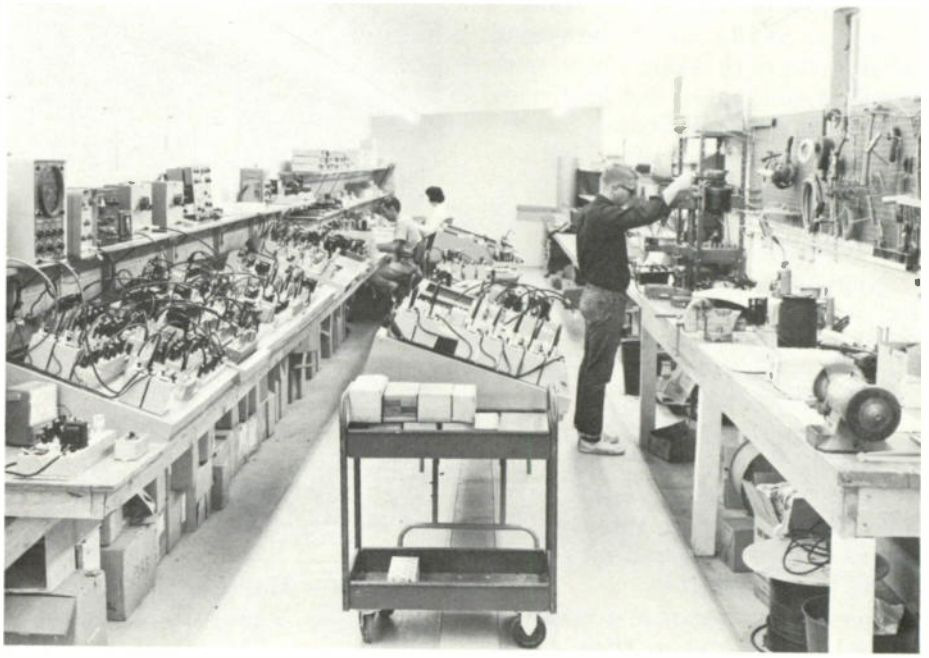
Head-end Packages Custom Made; Custom Shipped

To the list of head-end equipment reviewed in the pages last month must be added the head-end packages produced by Davco Electronics Corporation. While the firm does not manufacture the components, Davco-built head-ends are a distinct product, in use in many systems.

The Batesville, Ark. plant of Davco Electronics Corporation has produced many signal processing systems to order for CATV'ers around the country, and continues to make the assembly and installation of custom designed head-ends a major part of Davco's operations. Having installed one of the first five-channel head-end control units in January, 1955, Jim Davidson's national CATV supply firm now designs and builds equipment packages for head-ends carrying up to 12 channels video plus taped and FM music channels.

A unique aspect of Davco's operation is the use of the firm's twin-engine Aztec aircraft for delivery of assembled head-end equipment racks, as well as the other CATV products marketed by the Batesville-based supplier.

In addition to producing the "Functional Design" head-end packages, the firm also supplies and installs head-end hardware, including towers, antenna arrays, buildings and associated materials. The flexible approach which Davco pioneered in the CATV supply business, that is supplying anything from small accessories to completely installed systems, is also the basis upon which the firm's head-end services operate—an approach for which the firm is well known throughout the industry.



Signal processing equipment is shown being assembled in Davco's plant. Similar equipment is in use at systems throughout the nation.

Davco's "Functional Design" head-end packages are completely assembled and checked out at the Batesville plant. Above is a 12-channel signal processing system which also provides for two taped-music and two FM channels.

Head-end equipment is shown after unloading from Davco aircraft at Grenada, Miss. airport for processing of five video signals in that community.

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Developing Effective Public Relations

Dozens of opportunities to build your system's public image are available. Outlined below are specific methods and techniques which you can use to develop an effective public relations program for your firm.

By Robert E. Cowley
Flagstaff Television and Cable Co.

Much confusion exists in the minds of many system operators concerning the relationship between advertising and public relations. Many do not realize that public relations encompasses *all* methods available for influencing public opinion, and that paid advertising is only *one* of these methods.

Most cable system managers have developed direct advertising programs which are fairly adequate. Effective use of these programs enables them to tell the cable story exactly as they wish and under whatever conditions they desire. Direct advertising is an extensively used and highly necessary medium and provides a direct line of communication between buyer and seller.

Too often, however, the operator who develops an adequate direct advertising program tends to relax, and feels that he is fully utilizing the available methods to "sell" his system to the public. There are many other "indirect" advertising channels to public opinion however, which can prove to be as valuable as ads. The story in the newspaper, the opinion of the editorial, the news item on radio or television, the newspaper picture, all carry their messages deeply into the awareness of the public.

It is surprising that this has not been recognized more widely by cable operators. Systems with advertising budgets of thousands of dollars frequently make little effort to develop any aspect of public relations except paid advertising, and small systems are almost totally devoid of effective P.R. programs.

John Q. Public Is a Rare Bird

What can be done to develop a complete public relations program for your system? First, it must be realized that John Q. Public has several specific characteristics. Those wishing to make effective use of all aspects of P.R. should be aware of these characteristics, and ready to capitalize on them. The average American for instance, reads on a sixth grade level, so concepts must be simply stated and clearly worded. Second, he believes virtually everything he sees in print or hears via communications media *except* obviously paid advertising. He is not a critical reader. The story that appears in the news or feature columns of a respected publication is usually accepted by a reader at its face value. He assumes it has passed the close scrutiny of a capable editor and has received his approval. He assumes that the editor would not have used the story had he had any doubts about it. On the other hand, the material placed in the advertising section is admittedly "axe-grinding" and has been accepted for publication only because it has been paid for by you. Third, John Q. reads or listens only to what interests him. And his interests are determined by four criteria of news value: timeliness—did it just happen or is it last month's news?; proximity—was it close to home?; size—was it very big or very small?; and importance—to "me." Fourth, "one picture is worth at least a thousand words." All of these considerations should be kept in mind when an operator seeks to publicize his system.

Are You Getting "Free" Advertising?

Is the job you're doing in securing free coverage and publicity for your system as effective as possible? To see if this is true, let's combine a short test with some concrete examples of where you, as a system operator, should be receiving *free* coverage.

(1) Did your local newspaper run a series of stories, with pictures, on the construction of your system? Was it covered by the radio station?

(2) Was there newspaper and radio coverage when your system was officially energized or of your grand opening ceremonies?

(3) Were there newspaper and radio stories as you reached subscriber levels? 500, 1000, 2500, etc?

(4) Did stories and pictures appear on the appointment of key personnel? Do they appear now as someone advances within your system?

(5) Do stories of personnel and corporate changes of your parent company appear in your local press, with mention of your system?

(6) As you add new equipment, extend your system, or add channels, do stories appear?

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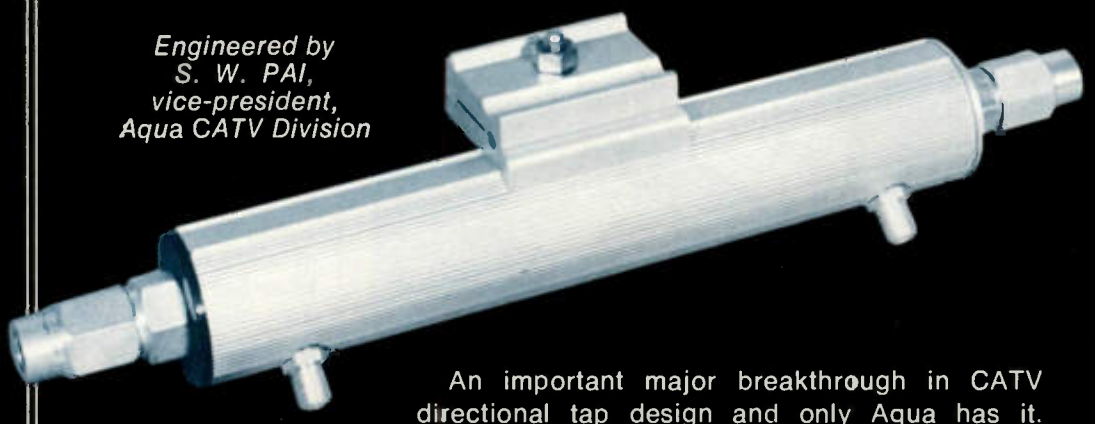
Engineered by S. W. PAI, vice-president, Aqua CATV Division



An important major breakthrough in CATV directional tap design and only Aqua has it. Versatap requires only one model for both metropolitan and rural installations . . . totally weatherproof . . . gives uniform signal level at each set location . . . no conductor pullout . . . no RFI leakage. Two or four ports . . . six values, permanently color-coded for instant identification. Plus many other advantages.

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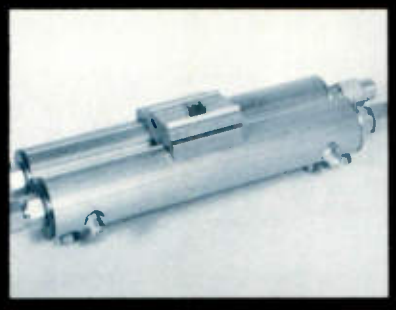
VERSATAP is versatile. Add any desired number of outlets by using two or more Versataps together, end-to-end. No additional mismatch. Anodized slim line housing is only 1½" in diameter, 8¼" long.



VERSATAP DUAL UNIT. Two taps on one support. Cuts cost of installing two wire systems. Eliminates cross talk. Handles up to 19 channels.

Write or phone today for further information about the rapidly growing line of Aqua better engineered, better made, totally reliable CATV products.

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CATV DIVISION

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(7) Do FCC, court or legislative decisions important to CATV appear in local press coverage?

(8) Do important events which your system stages receive at least three spreads in newspaper and on radio (i.e. when plans are announced, just prior to the event, and a follow-up article with pictures)?

(9) Have feature stories on CATV ever appeared in your local press?

(10) Has an editorial on CATV or your system ever appeared?

If the answer to any of these questions is "no," you are not taking full advantage of public relations opportunities.

For Best Results: Work With the Press

To obtain the best possible coverage for your system you must develop both an understanding of, and a close working relationship with, the press of your community. The working relationship will come through continuous personal contact and special treatment afforded newsmen who come to cover any aspect of your system. The understanding of your local press is, however, a primary necessity for the beginning of an improvement program.

There are particular problems and characteristics of local newspapers and radio stations. A working knowledge of these will be of help to you in increasing your press coverage.

Most cable operators will be dealing with so-called "small-town newspapers" and radio stations. It is important to realize that most dailies and stations in cities with populations of 50,000 and under face a serious shortage of staff members. They would prefer to use more local news, but do not have the staff to provide it. So, they rely on "canned," third-rate stories from the wire services to fill their column space or time. They do this, not of choice, but of necessity. They welcome and desire local stories, but must rely on companies and institutions with public relations departments for the majority of such material. Editors realize that a relatively insignificant local story will pull more readership or attention than a more important story half a continent away.

However, in spite of the editor's need and desire for local items, many firms still fail to get their news releases published or broadcast. The rejections are usually due to poor writing. A basic knowledge of radio-newspaper writing is essential to a successful news release program. The lack of staff strength mentioned before, along with constant deadlines, prohibit the reworking or rewriting of most news releases by editors. Either a story is suitable to print or broadcast when received or it ends up in "file 13."

A Word About Commercialism

Too many writers tend to become over-eager in their first news release efforts. The thought of free publicity for their system causes them to include a great deal of commercialism in their press releases. This can be fatal to a release. Editors do not like to be taken advantage of and they can spot a commer-

cialistic item immediately. If you have something newsworthy to say, say it, mention your system by name, and stop. Flowery adjectives or subtle sales messages have no place in news releases. What too few operators realize is that simply keeping their system and personnel before the public is the most valuable advertising possible.

Include good quality, glossy, black and white photos with newspaper releases whenever possible. More readers "read" pictures than stories and editors like them for this reason. Be sure to include caption information for the editor's use. Such information should include the names and titles of persons in the photo and a brief summary of the event or activity in which they are involved.

Keep your releases timely. If something happens today it should be in tomorrow's paper at the latest. Most papers have early morning deadlines, so be careful to help the editor meet them. Old news is no news.

Be Considerate: Coordinate Your Program

In many cases a problem of coordination between radio and newspapers will be encountered. No newspaper editor likes to hear a local item on the 7 a.m. news which he has appearing in that evening's paper. For this reason, it is best to maintain good relations with both segments of the press by releasing prepared stories to newspapers somewhat before broadcasters receive them.

Most small newspapers use prepared editorials from wire and other services. For this reason, some systems have found it possible to prepare editorials for the local paper. Or you might want to use a particularly good editorial from a trade magazine. This is a delicate area, however, and no editorial should be submitted to a newspaper without a prior conference with the newspaper editor and with his full knowledge of what you intend to do. It is also important that the writer's approval be obtained.

How's Your Attitude?

Finally, attitude is a vitally important aspect of working with the press. Never adopt the attitude that you are providing them with an indispensable service. True, you are helping them do their job better, but they are helping you far more by giving you a type of publicity which you could not buy for any amount.

News release type of publicity should be a co-equal partner with paid advertising in a comprehensive public relations program. Both newspaper and radio news editors *are* influenced by your commercial advertising program and will be much more likely to give your release good treatment if you are a regular advertising account.

In addition to paid advertising and a good P.R. program, you need to use other tools such as special promotions, paid public-service advertising, etc. But never feel you have fulfilled your system's public relations potential with only a successful direct advertising campaign. TVC

December 1968

TV Communications

CATV Technician

Underground Plant • Air-Dielectric Coax • Microwave Considerations • 12-80 Channels

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A quick collect call to 206/624-6505 will deliver to your front door products from the leading CATV manufacturers. Products selected by Pruzan to give you the best solution to a particular signal transmission problem.

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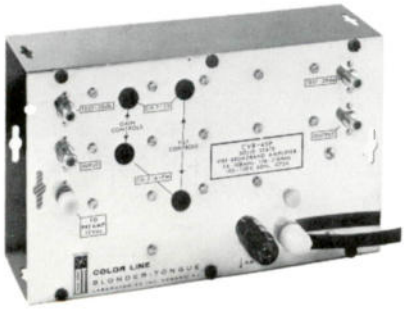
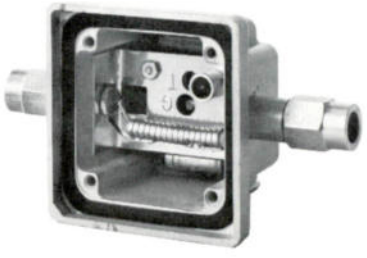
SIGNAL TRANSMISSION PROBLEM SOLVERS



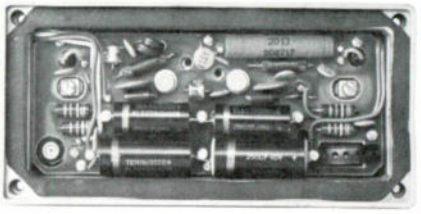
Blonder-Tongue Model CVB-45P

A new, solid-state VHF/FM broad band indoor amplifier with an extremely flat bandpass for best color signal transmission. Tilt and gain controls for low and high bands for more accurate signal balancing. A direct replacement for B-T's MLA-FM and other tube type models, the CVB-45P is designed for continuous use in distribution systems. Specifications: **Bandpass:** 54-108 and 174-216 MHz ±0.5 db. **Gain:** 43 db minimum, channels 2-13 and FM. **Maximum Output:** +56 dbmv (7 channels) for —57 dbmv cross modulation. **Power Requirements:** 117 VAC.



Craftsman Model MAT-18

This modular amplifier tap overcomes signal losses in long drop cables and eliminates the need for additional booster amplifiers. It provides 18 db gain for one output with low insertion loss from the through feeder line. All-channel solid state circuitry provides for one, two, three, or four modular tap outputs. Tap changes are quick and foolproof. .412 through fittings and pole or strand mountings are standard. AM or .500 fittings are available on special order. Specifications: **Gain:** 18 db with one-way module plate; 14 db with two-way module plate; 11 db with three or four-way module plate. **Bandwidth:** 50 MHz to 220 MHz. **Output Capability:** 40 db minimum.



SKL 7300 Line Extender

Use this model for quality color transmission. This sophisticated unit comes housed in a waterproof cast aluminum box. It mounts easily on the messenger and comes equipped with seized-center connectorless fittings for direct insertion of the distribution cable—an installation that takes only minutes. The extraordinary flexibility of the SKL 7300 is facilitated with fixed plug-in pad and wide-range manual gain and tilt controls for precise adjustments. Specifications: **Bandwidth:** 50-220 MHz. **Response Flatness:** +1.0 db. **Gain at 216 MHz:** 24 db minimum.

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The Case For Buried Plant: Some Specific Advantages

Buried plant is traditionally thought of as more expensive than aerial. The following article presents an argument to the contrary, listing several specific financial and technical advantages for going underground.

By Steve Nicol
Engineering Associate
Systems Design Engineering

There are definite financial and technical advantages in the use of buried cable for CATV. Any problems which may be encountered by burying CATV facilities would be outweighed by the technical, economic and safety advantages. The use of vibrating plows and the development of new materials, are gradually bringing costs down.

From an economic standpoint there are two main considerations when designing a CATV trunk system; low first cost (capital cost) and low operation and maintenance cost (annual charges). The simplest way to satisfy these requirements is to keep the number of amplifiers used in a system at a minimum and to provide a cable system which is relatively free of troubles. Annual charges, of course, are made up of taxes, interest, depreciation, maintenance, and administration. The tax, interest and administration charges depend on local conditions and would be constant for either aerial or buried facilities, whereas, the maintenance

TABLE I	Aerial	Buried
Tax	2.0%	2.0%
Interest	6.0%	6.0%
Depreciation	5.8%	3.3%
Maintenance	2.38%	2.03%
Administration	5.0%	5.0%
Total Annual Costs	21.18%	18.33%

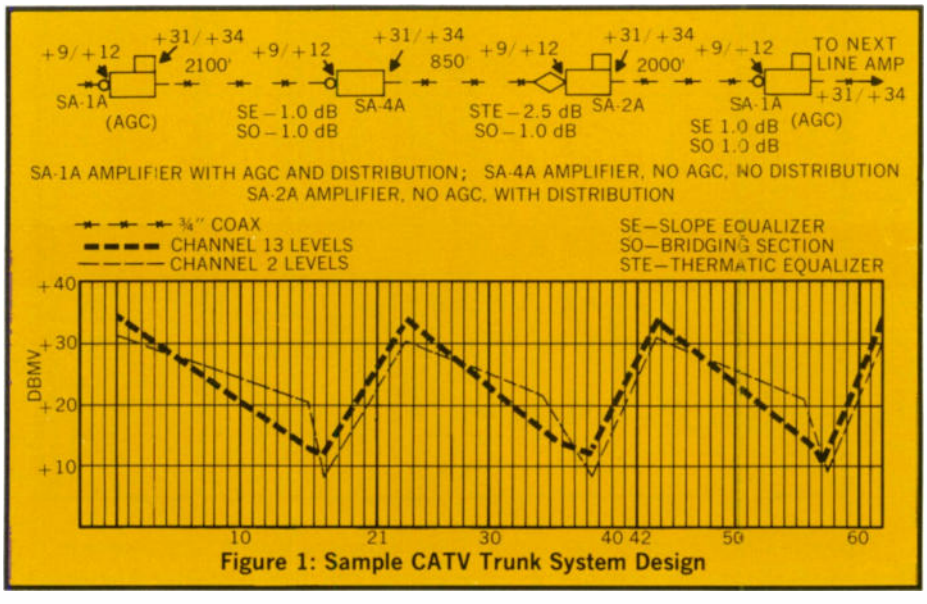

Figure 1: Sample CATV Trunk System Design

TABLE II	Aerial	Buried
a. number of amplifiers in cascade	34	34
b. amplifier gains	+22 dB	+22 dB
c. total gain	748 dB	748 dB
d. equipment insertion losses	168 dB	154 dB*
e. available gain for cable attenuation @ 70°F	580 dB	594 dB
f. % of attenuation change due to temperature fluctuation (.11% per degree F change in temp.)		3.3%
aerial −40°F to +140°F	19.8%	
buried +20°F to +50°F		20.0 dB
g. temperature change in dB (per Graph III)	116 dB	
h. number of agc units required to compensate for "g" @ 8 dB/agc unit	15	3
i. maximum trunk distance @ +140°F (per Graph I) @ +50°F	58 KFT	67.5 KFT 1,980 ft.
j. average distance/section	1,700 ft.	2.8 dB
k. dB advantage/section (temp.)		2 dB
dB advantage/section (insertion loss)		
total dB advantage/section		3.0 dB
l. total advantage in feet/section		300 ft.

* less insertion loss for buried facility as fewer thermatic equalizers required.
"g" shows stability advantage
"k" shows dB advantage
"l" shows distance advantage

nance and depreciation would vary with the type of facility.

The maintenance figures used in this paper were obtained from operating American systems. The annuity depreciation was calculated as follows: Annuity depreciation rate = (future worth to annuity factor) × (100% of first cost − net salvage). Depreciation of buried cable was based on technological obsolescence rather than physical deterioration; whereas the aerial cable depreciation was based on physical deterioration alone. No salvage value was assumed.

Aerial cable was depreciated over a 12 year period and buried cable over 18 years. Table I shows the calculated annual charges for ¾ inch coaxial cable.

In CATV cable transmission systems, cable attenuation and slope changes are the two most important factors requiring compensation. Cable attenuation changes 0.11% per degree F, and has the same effect on cable slope as the changing of the physical length. Temperature compensating amplifiers, thermatic equalizers, and automatic gain control circuits, that have been developed, do an efficient job of restoring the stability of the cable. This loss of stability due to ambient temperature fluctuations would be almost eliminated if the cable were buried.

A disadvantage common to all AGC systems, using a pilot carrier, is that no distinction is made between carrier level variations due to temperature change and those due to a system malfunction. A drop in gain in a defective amplifier would be compensated for by the succeeding AGC unit, resulting in an increase in noise level. If this increase in noise level is not noticed, a defective amplifier may be in the circuit for some time, resulting in a system which is not operating at peak performance.

Figure 1 is a sample section of an aerial trunk system showing normal operating levels. It should be noted that for normal design of aerial systems, every third amplifier requires an AGC unit (SA-1A with AGC). A thermal equalizer (STE), which is usually placed at the input of the amplifier preceding each AGC unit, is required and compensates for approximately 58 dB of cable slope.

When designing a CATV system, the length of the facility, or the number of amplifiers which can be cascaded, is determined by the system's design parameters. To establish the design parameters, the following must be considered: amplifier inputs, amplifier outputs, amplifier gains, signal-to-noise ratio, cross-modulation product hum, phase, echo and stability. By designing a large dedicated system for approximately 70,000 subscribers, it was found that the average 22 dB amplifier section was 1700 feet, for ¾ inch aerial design. This includes cable loss, equipment insertion losses for thermal and slope equalizers, splitters, directional couplers and bridging amplifier losses.

The example being considered here uses 34 amplifiers in cascade. This satisfies our design parameters of 45 dB S/N and 57 dB X-mod figure (these are not overall system parameters but for the trunk portion only). Main line amplifier gains of 22 dB were used, with inputs of +12 dBmv and outputs of +34 dBmv.

The comparison shown in Table

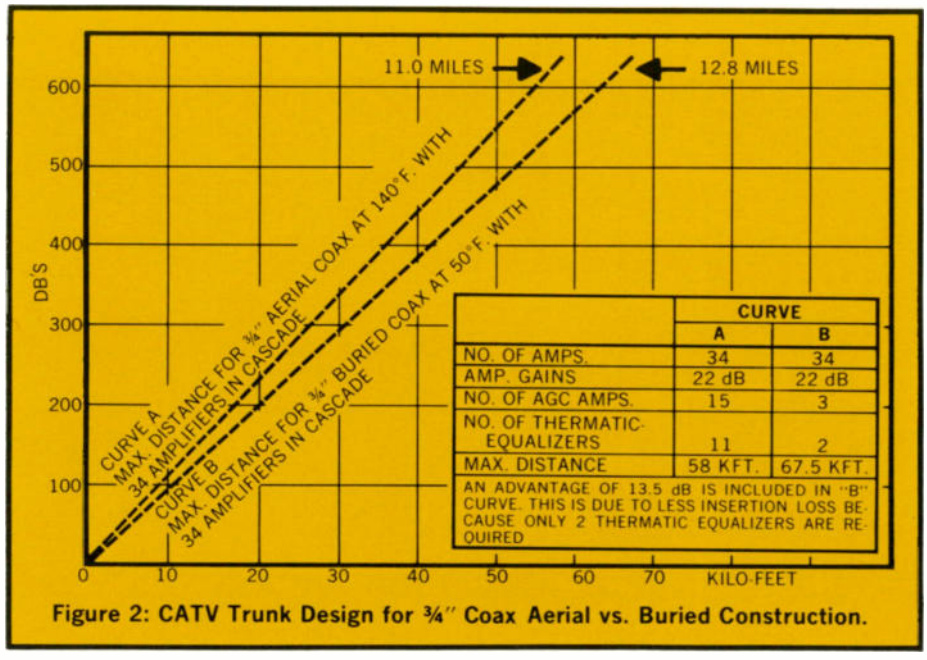

Figure 2: CATV Trunk Design for ¾" Coax Aerial vs. Buried Construction.

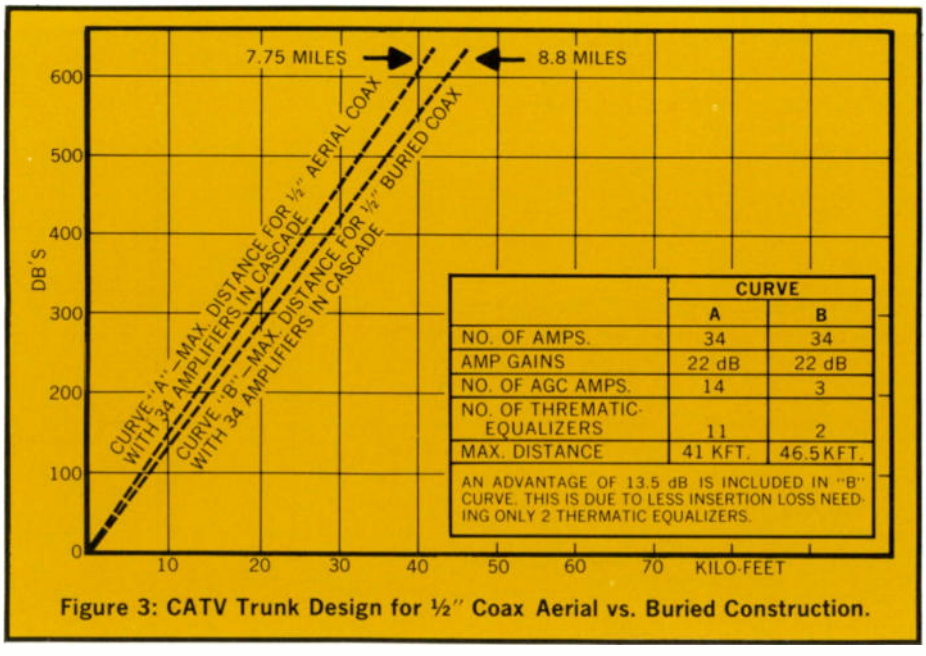

Figure 3: CATV Trunk Design for ½" Coax Aerial vs. Buried Construction.

This was the E-V Model 635. It started a tradition of excellence in dynamic microphones.

This is the new E-V Model 635A. It's better in every way!

Model 635A Dynamic Microphone $82.00 List. (Normal trade discounts apply.)

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During this time, the 635 earned a reputation for toughness and dependability that was unrivalled by other omnidirectional dynamics. And internal changes through the years have kept the 635 well in the forefront of microphone design.

But now the time has come for an all new 635: the Electro-Voice Model 635A. It's slimmer, for easier hand-held use. Lighter, too. With a slip-in mount (or accessory snap-on Model 311 mount) for maximum versatility on desk or floor stands. The new, stronger steel case reduces hum pickup, and offers a matte, satin chromium finish perfect for films or TV.

The new 635A is totally new inside, too—and all for the best. A new four-stage filter keeps "pops" and wind noise out of the sound track, while guarding against dirt and moisture in the microphone, completely eliminating any need for external wind protection. Of course you still get high output (—55db) and smooth, crisp response. And you can still depend on the exclusive E-V Acoustalloy® diaphragm that is guaranteed against failure for life* (it's that tough)!

We expect to see plenty of the "old" 635's in daily use for years. But more and more, the new 635A will take over as the new standard. It's easy to find out why: just ask your E-V Professional Microphone distributor for a free demonstration in your studio. Or write us today for complete data. We'll be proud to tell you how much better the new Model 635A really is!

*The E-V Professional Microphone Guarantee: All E-V professional microphones are guaranteed UNCONDITIONALLY against malfunction for two years from date of purchase. Within this period, Electro-Voice will repair or replace, at no charge, any microphone exhibiting any malfunction, regardless of cause, including accidental abuse. In addition, all E-V microphones are GUARANTEED FOR LIFE against defects in the original workmanship and materials.

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II is for aerial vs. buried ¾ inch cable, over 34 sections, for the above design considerations.

The comparison shown in Figure 2 represents a distance advantage, per section, of 15%. Calculations were also made for ½ inch coax per Figures 3 and 4, curve "A." The computations were, however, not tabulated as the results were the same as for buried ¾ inch coaxial cable. Besides the distance advantage of 15%, we achieve a stability advantage which cannot be measured in dollars.

Since we have now established the spacing per amplifier section, we can now calculate the capital costs for major items of equipment and cable. The calculations shown in Table III are for an eleven mile system which is equivalent to 34 amplifier sections, using ¾ inch aerial cable.

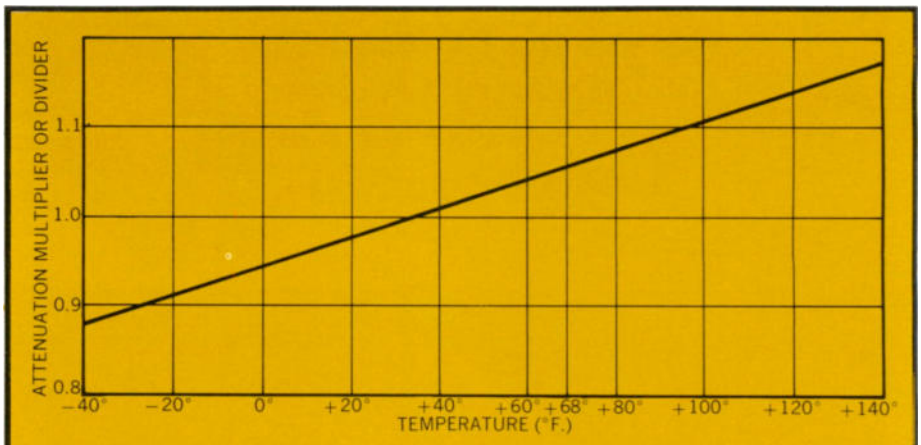
Note that the cost spread per mile, between aerial and buried facilities, for equipment and cable has now narrowed to $410 per mile, whereas, for cable alone the spread is $910.

From the above estimates, using the charges which were established at the beginning of this paper, we can now calculate the Total Annual Charges:

Aerial Facilities: The total annual charges = (annual charge × capital cost) + pole rental/annum. Therefore total A.C. = [(21.8%) × ($5160)] + ($100) = $1190.

Buried Facilities: Total A.C. = (annual charges) × (capital cost) = (18.33%) × ($5570) = $1015.

It can be noted that in a few years, the annual charges for aerial cable, will exceed the initial capital cost advantage. If we again consider stability, cost, safety, maintenance, and depreciation, to plow or not to plow is no longer the question. TVC



¾" Coax @ 1 dB/100' 70°F.		
TEMPERATURE CHANGE	AERIAL −40° TO +140°F.	BURIED +20° TO +50°F.
58 KFT @ −40°F.	580 dB × .88 (from graph) = 510 dB	
@ +20°F.		580 dB × 0.94 (from graph) = 545 dB
@ +140°F.	580 dB × 1.08 (from graph) = 626 dB	
@ +50°F.		580 dB × 0.97 (from graph) = 565 dB
FLUCTUATION IN dB (STABILITY)	116 dB	20 dB
½" Coax @ 1.4 dB/100' 70°F.		
TEMPERATURE CHANGE	AERIAL	BURIED
41 KFT @ −40°F.	(410 × 1.4) × .88 (from graph) = 504 dB	
@ +20°F.		(410 × 1.4) × 0.94 (from graph) = 610 dB
@ +140°F.	(410 × 1.4) × 1.08 (from graph) = 619 dB	
@ +50°F.		(410 × 1.4) × 0.97 (from graph) = 588 dB
FLUCTUATION IN dB (STABILITY)	115 dB	22 dB

Figure 4: Temperature Correction Factor.

TABLE III

	Aerial	Buried	Difference
11 miles ¾" coax	30,700	40,800	
AGC units @ $100	1,300 (15)	270 (3)	
Thermatic equalizers	620	112	
Main line amplifiers	24,000 (34)	20,000 (29)	
Totals for 11 miles	$56,670	$61,182	$4,512
Total per 1 mile (eqpt. & cable)	$ 5,160	$ 5,570	$ 410
Total cable only/mile	$ 2,790	$ 3,700	$ 910

The capital cost of cable/mile was made up of the following items:

(per mile)	Aerial	Buried
*new strand	385	—
¾ inch cable	1,685	2,000
Labor	720	1,700
Totals	$2,790	$3,700

*the strand value was halved as it was assumed that some strand existed.

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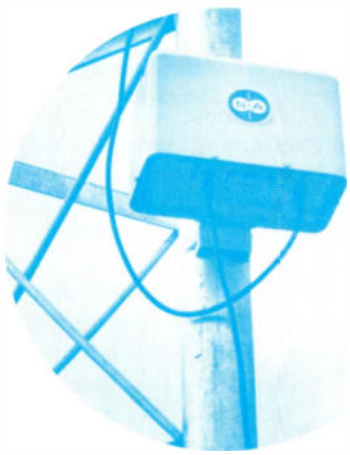

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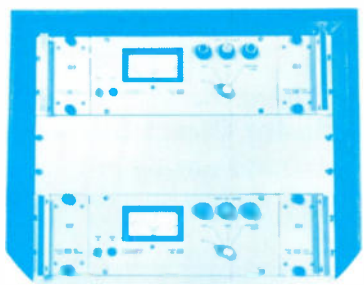

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Pressurized Coaxial Cable For CATV Distribution

Pressurized cable holds great promise for cable television. The advantages gained by its use, especially in underground systems, greatly outweigh the problems encountered with pressurization.

By J. J. Nevin,
Manager Coaxial Cable Division
Phelps Dodge Copper Products Corp.

When considering trends in coaxial cable designs used in the CATV industry, one must consider the use and future of the air dielectric or air spaced cables.

First, one should review the function of coaxial cable in a CATV system. Simply stated, the cable acts as a medium for the distribution of information—at the present time television signals—over a given area. A close analog of the coaxial cable in a CATV system is the water pipe in a water distribution system.

Mechanical And Electrical Properties

The mechanical properties desired in the coaxial cable are: that it be mechanically strong, yet flexible; that it be easy to install; that it be inherently waterproof, and that it be easy to splice or connect. The mechanical properties are mainly dependent on the outer conductor of armor. It then follows that the mechanical properties of an air dielectric cable are going to be similar to those of a foam or a solid dielectric cable since the outer conductor constructions are identical. Air dielectric cable does, however, offer an advantage because it can be pressurized, thus preventing water or moisture problems.

Desirable electrical properties for cable are minimum attenuation per size or per dollar and uniformity, presently expressed in return loss. When electrical properties are considered, the advantage and future of the air dielectric cable becomes apparent. The method of manufacture is such that the uniformity of air dielectric cable is inherently better than that of other types of coaxial cables. At the present time, this return loss characteristic (which is better than foam cables by 3dB to 6dB) is most important in critical trunk lines. In the future, as CATV systems begin to carry information other than television signals, this advantage will assume greater importance.

Lower attenuation is another, perhaps the major advantage of air dielectric cable. Table I shows the significance of the reduced attenuation characteristic of air as compared to foam dielectric cables in a CATV system.

Table I indicates that, for a given outside diameter, amplifier spacing can be increased by 25 percent using air instead of foam dielectric, resulting in a 25% reduction in the number of amplifiers used. Table I also indicates that a ½-inch air cable can do the same job as a ¾-inch foam cable. This fact assumes importance in major cities where rental of duct space is dependent on cable diameter. The same comparison holds for 0.412-inch air and ½-inch foam cables.

Air Dielectric Cable for Direct Burial

It would not be proper to discuss air dielectric cables without

Table I

22dB Amplifier Spacing at Channel 13

Cable	Footage Between Amplifiers	Amplifiers/Mile
1" Air	4,000 ft.	1.32
¾" Air	3,000 ft.	1.76
¾" Foam	2,350 ft.	2.25
½" Air	2,150 ft.	2.35
½" Foam	1,700 ft.	3.1
.412" Air	1,700 ft.	3.1
.412" Foam	1,400 ft.	3.8

some mention of the advantage offered in a direct burial system. The discussion will not cover the mechanical protection or armor which can be used and is available for all types of cable, but will limit itself to the advantage of having a pressurized system underground.

The Problem of Water

When considering the installation of a CATV system in an underground configuration, one of the major problems to be considered is water. While this problem also exists in an aerial installation, it is compounded in a burial system due to the fact that the water has a pressure head behind it. The problems caused by water entering either a cable or connector in an aerial system where no pressure differential exists are well known. The magnitude of the water problem increases tremendously when cable and connectors are subjected to pressures of two to five psi which are common in direct burial systems.

The water problem has caused many operators to decide that the disadvantages due to the moisture problem outweigh the other advantages of buried plant. One solution to this problem is to use air dielectric cable and pressurize the underground plant. By maintaining a positive pressure in the coaxial cable system which is greater than the head pressure of the water in the ground, freedom from water in the system can be assured.

Amplifiers, splitters and taps can also be pressurized. The component connections are designed to allow bypass of the pressurizing agent when the line equipment is opened or removed from the system for maintenance. Thus individual components can be checked without total loss of pressure in the cable system.

Another advantage of a pressurized system, for aerial as well as burial applications, is that connectors can be checked out for proper installation before they are permanently set in place, thus helping to avoid future maintenance problems. The newly-installed connector is pressurized and checked for leaks by the soap bubble or other simple methods. Improperly applied connections can thus be found and corrected at the time of installation, rather than when a failure occurs.

In an unpressurized burial system, waterproofing depends not only on the waterproofing material, but also on the skill of the technicians who apply the connectors and the material. There is no way of knowing how effective the waterproof seal is until a failure occurs, since no practical means exists of checking this seal before it is buried in the ground.

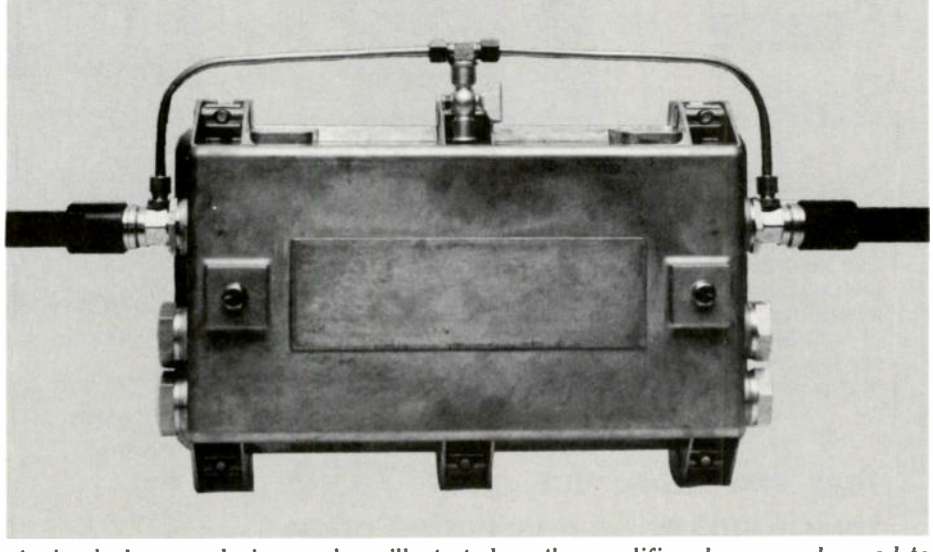
A simple test can be made to demonstrate this problem. Make a splice in a piece of cable, waterproof it and place it in a closed container filled with water. After applying a pressure head to the water for a period of time, check the free ends of the cable for moisture or make an insulation resistance test. This duplicates the environment of a connection in a buried cable plant quite closely.

The Problem Of Ground Heaving

One of the characteristics of direct burial installations frequently overlooked is ground heaving. This is most critical in areas subject to heavy frosting, and should be considered in designing the waterproofing for a cable connection. The waterproofing material must maintain its integrity after being subject to motion due to frost heaving. It is not uncommon for a system to operate for a number of months and then have a rash of failures occur as a result of a breakdown of the waterproofing material due to underground motion. In non-pressurized plants, any such rupture results in the entrance of water through the connector. While it is true that frost heaves can also loosen seals in a pressurized system, water is kept out of the system by the escaping gas. The system stays operational until repairs can be made.

Pressurization Systems

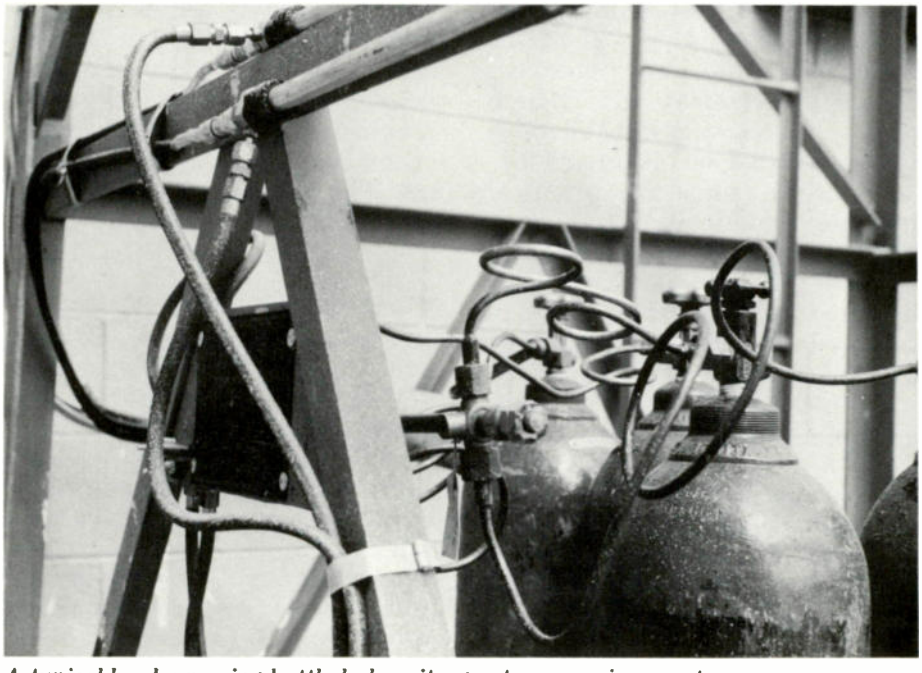
The pressurization systems which are used in a coaxial cable system are very simple. One example is the nitrogen gas method. This method utilizes nitrogen gas stored under high pressure in steel tanks. A standard nitrogen tank will contain 200 cubic feet of gas. The equipment to connect the tanks to the cable system normally consists of copper tubing, a regular valve and two pressure gauges. The cable connectors are equipped with pressurization ports which accept standard fittings. This method is generally used for very short cable runs. As replacement bottles cost approximately four dollars each, it is desirable to have a relatively pressure-tight system. The quantity of nitrogen gas required to pressurize a system to 10 psi can be calculated by multi-



A simple by-pass device, such as illustrated on the amplifier above, can be used to enable the amplifier to be removed without loss of entire system pressure.

plying the normal volume of air for a given cable size by 1.67. For reference, a ½-inch air cable has one cubic foot of air per thousand feet while a one-inch air cable has three cubic feet of air per thousand feet.

Another method which is frequently employed is the dehydrated air method. The dehydration and pressurization of air is accomplished by a mechanical dehydrator. Mechanical dehydrators consist of a dehydrating chamber, a heating unit and an air compressor. The dehydrating chamber contains a moisture-absorbing desiccant and is surrounded by the heating unit which dries the desiccant so that it does not require replacement. The air compressor maintains cable pressure. The dehydrator is connected to the cable with copper tubing. The cable pressure is normally indicated by a gauge on the dehydrator. This method will handle from 10 to 20 miles of cables at a cost of less than five hundred dollars.



A typical hook-up using bottled, dry nitrogen to pressurize a system.

Conclusion

While it is true to date that air dielectric cables have not found general application in the CATV industry, this has been mainly due to their higher cost and to operators' fears of pressurization problems. Now, air cables can be obtained at a lower cost than equivalent foam cables and pressurization is proving to be an advantage rather than a problem. The future of air dielectric is bright. TVC

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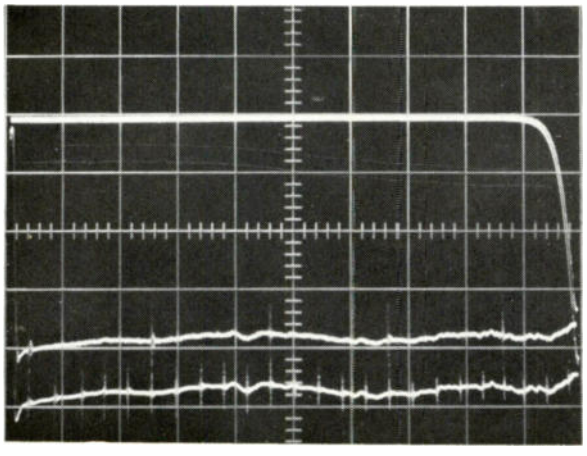

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Unretouched photo of oscilloscope trace showing signal bandwidth of C701 amplifier. Upper trace markers are 50 MHz apart. Lower trace markers, 10 MHz apart.

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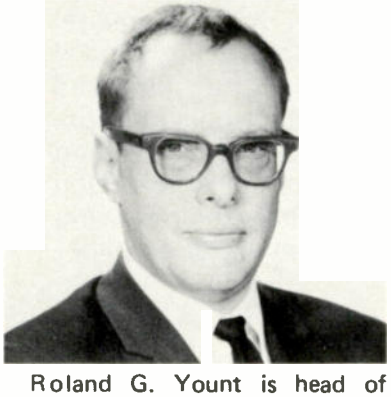
Microwave Methods: Basic Cosiderations

In the following, the author compares the forms of microwave service which apply to CATV and problems unique to each method. Attention to these facts will help you in choosing the best service for your system.

The cable system operator, when faced with bringing in distant television signals, may be somewhat confused because of current rule making and the types of services which are available. The method used to obtain these signals is up to the operator, however, some facts related to equipment, services, quality and reliability should be known. There are several different methods of relaying signals via microwave, and certain problems which can arise.

ABOUT THE AUTHOR



Roland G. Yount is head of Trans Com, Inc. of Denver. He graduated from Arizona State University with a B.S. degree in electronics and is a registered professional engineer. For the first five years of his career he was chief engineer and director of engineering for several television stations in the Southwest including those at Albuquerque, Phoenix and Yuma. He also spent several years as manager of field engineering, systems engineering and sales engineering for Collins Radio Company.

At present visual and aural information is being relayed to CATV systems via common carrier, private user, CARS, and experimental radio distribution systems. The private user's system operating from 12.2 to 12.7 GHz is not considered here since licensing can no longer be obtained.

Common Carrier Systems

The common carrier frequency assignments with sufficient bandwidth to handle visual information and retain adequate resolution are 4, 6 and 11 GHz. Only the 11 GHz spectrum is now available to the miscellaneous common carrier, where previously the 4 and 6 GHz frequencies could be used. However, the 4 and 6 GHz systems can be licensed for power splitting from existing transmitters.

Although limited in spectrum, the microwave common carriers are not limited to poor equipment, since sophisticated remodulating and heterodyne equipment is available at 11 GHz. The remodulating system has been designed for short and medium-haul applications, where the heterodyne system has been designed for medium and long-haul applications. Long-haul equipment would dictate an improved operational condition, that is an improved linearity, envelope delay, differential phase and gain, and propagation reliability with transmitter power up to 10 watts.

The CARS System

The non-common carrier Community Antenna Relay System has been assigned one band which is 12.7 to 12.95 GHz with channel assignments of 25 mc bandwidths. Both spectrum and bandwidth limit the capability of the system for high density and long haul applications. Higher density can be achieved with added isolation in the antenna systems which would improve cross modulation characteristics caused by improper transmitter and receiver frequency separation. Considerable increase in costs will be incurred because of the extra antennas, couplers, waveguide and heavier structures needed to support the antenna system. The common carrier is generally not faced with these problems because of a greater spectrum assignment and a coordinated frequency plan which allows good isolation and expansion capability. The CARS system now is limited to remodulating lower power equipment, which reduces path lengths and limits system lengths.

Amplitude Modulated Link

We jump to 18.0 GHz with the Theta Com Amplitude Modulated Link (AML) television system which is now being used in New York City and also has two links approved for experimental purposes by the Federal Communication Commission. The exact location where these systems will be

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constructed has not been decided. The AML system has been designed for video distribution and relatively short-hop applications with 12 or 24 channel capabilities. Unlike the common carrier and CARS microwave, the VHF or UHF signal is not demodulated, but is converted to the higher band for relay to the distant receiver location and then converted back to the VHF or UHF channels. The system concept lends itself to a very practical urban or rural carrier where other microwave or cable systems may be very costly.

The Quasi Laser

The Quasi Laser Link, with application before the FCC is proposed to operate somewhere around 40 GHz. The system is designed for video distribution with path lengths up to 3 miles and it uses a time division modulation technique with capabilities of 12 or 24 television channels. These channels are not demodulated, being treated the same as Theta Com's AML conversion technique.

Choosing the best service for your particular application is not always an easy problem to solve. However, when reviewing the licensable equipment qualifications, the performance of the common carrier appears to be dominating. Furthermore, the common carrier has specialized in providing services and has the long-term experience of operating and maintaining microwave systems. Small CARS systems have difficulty affording special test equipment which is of the utmost importance for long-term performance. The common carriers can more easily afford the expensive equipment.

The development of CATV, CCTV, etc., may be controlled by the further development of the common carrier. Already microwave common carriers have been limited in growth because of increasing activity with CARS. If CARS growth continues, the microwave picture may end up in a maze of systems without coordination and without growth capabilities which will be detrimental to CATV in future years. TVC

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CEDT 3-4/16	+ 1.5	1.5	17	18	20	20
CEDT 3-4/20	+ 1.5	1	17	18	20	20
CEDT 3-4/24	+ 1.5	1	17	15	20	20
CEDT 3-4/28	+ 1	.75	20	15	20	20
CEDT 3-4/32	+ 1	.75	30	15	20	20

Note: Specifications shown are for the 4 drop CEDT 3-4. Similar figures apply to the 2 drop CEDT 3-2. Measurements, 41/2" x 33/8" x 21/8".

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Fundamental Concepts Of Multi-Channel Systems

In the following, the author outlines basic concepts about 12-80 channel CATV systems. The relative merits of set-top converter systems, dual-cable systems and various single-cable systems are compared.

By Roger Wilson
Director of CATV Engineering
TelePrompTer Corporation

To set the scene for a discussion of 12 to 80 channel systems, some basic and rather obvious statements are in order: (1) Any communication system, of which CATV is just one type, has a certain maximum capacity to transmit information. This capacity is determined by the characteristics of the various components of which the system is constructed. (2) Any communication system has some form of final display device which makes the transmitted information available for human use.

Notice that the final display device is a part of the overall communication system and therefore must be completely compatible with the rest of the system if it is to display all the information transmitted.

Of course, this final display device in a CATV type of communication system is a television receiver selected, purchased, and more or less maintained by a private citizen who is not directly associated with the rest of the communication system. Therefore, one essential and necessary element of the system, which ought to be compatible with other components, is outside the control of the people who build and operate the rest of the system.

It's easy to see that when information is added to a CATV system by adding channels, it should be done in a manner that is compatible with the ability of subscribers' TV receivers to receive the added channels. However, to carry more than 12 channels on a CATV system and maintain compatibility with TV receivers as they are presently constructed would call for distribution in the UHF TV broadcast spectrum from 470 to 890 mc. Such distribution is not practical yet for the large areas CATV systems must cover. Yet, there is solid evidence that more than 12 channels can be carried on a CATV system, by using spectrum space not employed in TV broadcasting, and hence not compatible with TV receivers.

Obviously, something must be altered in this situation, and the subject of alteration must be the CATV system. It must provide every subscriber with a thing commonly called a converter so the channels in the non-standard spectrum can be viewed on the TV receivers served by the system.

Converters cost money to purchase, install, and maintain and many TV viewers don't like the complication of a couple of more knobs in a box whose color doesn't necessarily match the decor of the room it's in. On the other hand, in some localities it may be possible to charge a higher rate for the additional channels provided by the converter, provided the required broadcast channels carried on the CATV system can be viewed without the converter. So much for the problem of adapting the TV receiver to non-broadcast spectrum space.

The matter of carrying more than 12 channels to TV receivers can be accomplished by building two electronically separate but physically parallel CATV systems. If each system had 12 channels in conventional channel position, 24 channels would be available to each subscriber without the use of converters. The subscriber would simply operate a two position switch in order to select either group of 12 channels. Such a system is more costly to install and maintain than a single system, of course, but converters also cost money to install and maintain on the single system.

Single cable systems for 12 to 80 channels fall basically into two categories: single octave systems, in which the top frequency in the spectrum is no more than 2 times the bottom frequency, and one plus octave systems, in which the top frequency is more than 2 times the bottom frequency.

The thing that distinguishes these two types of operation is second order distortion products: the sums and differences of the various combinations of carriers taken two at a time, and second harmonics of

all carriers. In a single octave system these distortion components land above the top frequency and are therefore attenuated by the cutoff of amplifier response. In a one plus octave system, effort is made to make the amplifier sufficiently distortion free to avoid creating the distortion products.

An 80 channel system, with all channels adjacent to conserve amplifier band-width would require $80 \times 6 = 480$ MHz of spectrum space. To maintain a single octave would require a spectrum of 480 to 960 MHz. This is obviously a bit difficult for CATV use at this time. A narrower spectrum (fewer channels) would call for lower frequencies. An example would be 25 channels in the octave from 150 to 300 MHz, which is closer to present reality.

At present a single octave system, in order to achieve a significant amount of channel capacity, cannot use the low band channels 2 through 6, although it can handle channels 7 through 13. This means that in order to provide even the 12 VHF channels to TV receivers, a converter must be supplied each subscriber. Otherwise, only 7 channels, 7 through 13 could be viewed, as all others would be in non-broadcast spectrum space.

A one plus octave system could carry the present 12 VHF channels, making them directly available to subscribers. Additional channels in non-broadcast spectrum could be supplied via a converter with perhaps some fixed increase in the monthly service charge for the additional channels.

Increasing channel capacity of an existing 12 channel system without making all the presently installed amplifiers obsolete might be accomplished by making the existing amplifiers parallel with others and using input/output filters to divide up the spectrum between them. The 12 VHF broadcast channels could be carried as always with converters only necessary for added channels.

Ideally, all TV sets would be sold with tuners that would handle a large number of channels in a spectrum compatible with CATV requirements. Unfortunately the set manufacturers aren't interested in building more expensive tuners in all their sets for the small percentage of their market that CATV presently represents. Also, for quite awhile in the future the spectrum used in CATV work may be changing, thereby making built-in tuners obsolete. This would be to the dismay of the set manufacturers who may have built-in tuners for CATV use. Of course, CATV supplied converters may also be made obsolete in this manner.

The final form an 80 channel cable TV system may take is obscure at present. It may well be constructed of components that are either laboratory curiosities or completely undreamed of as yet.

In the meantime there will no doubt continue to be various approaches to system design for more than 12 channel use. The approaches will be determined by system economics, user acceptance and sources of program material for the additional channels, plus special applications that will develop as time goes by. TVC

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*Amphenol Bonded Cable

	Attenuation (db/ft.) nom.		V.P. NOM.
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For a demonstration, call or write Jack Aylward, Amphenol Cable Division, 6235 S. Harlem Ave., Chicago, Illinois 60638. (312) 586-3000

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PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

AMPEX ONE-INCH TAPE

A new one-inch-wide video tape said to offer improved dropout performance and reduced recorder head wear has been placed on the market by Ampex Corporation. Ampex 161 Series video tape features a new binder formula and is manufactured with new coating and finishing techniques. As a result, recorder head life of up to 1,000 hours is claimed in normal operation. Greater resistance to clogging also is provided by the improved binder formulation. The tape is compatible with all Ampex helical scan, closed circuit videotape recorders using one-inch-wide tape. It is available on a 7-inch plastic reel which holds up to a half-hour of tape; a 9-¾-inch metal reel which holds an hour of tape; and a 9-¾-inch plastic reel which holds an hour of tape. A new accessory offered is a square plastic storage canister for 9-¾-inch reels. Designed for both color and monochrome closed-circuit recording applications, 161 Series tape replaces 147 Series tape in the Ampex line.

For further information on this new product contact Ampex Corporation, 401 Broadway, Redwood City, California 94033, Phone (415) 367-4151.

JERROLD PRODUCES NEW ANTENNA SERIES

New CATV antennas for VHF-TV, UHF-TV and FM radio have been introduced by Jerrold. For VHF, Jerrold has a series of log-periodic, low-band yagis, each designed to provide co-channel rejection for the entire angular range from 90° to 270°. The antennas are said to provide a high gain of 18.5 dBi and have a return loss of 12 dB. Back radiation is more than 20 dB below the gain in the forward direction. The cut-to-channel yagis are compatible with modern CATV systems.

For UHF, the company is producing Model PB-81-BB, an eight-foot dish that includes a trapezoidal-tooth, log-periodic antenna as a broadband UHF feed. The antenna is designed for minimal element displacement under snow and ice loading. It is tuned at the factory and is said to require no re-focusing to cover the UHF band.

For FM, Jerrold now has single- and dual-bay, broad-band antennas.

For further information on these new products contact CATV Systems Division, Jerrold Electronics Corporation, 401 Walnut Street, Philadelphia, Pa. 19105, Phone (215) WA 2-4808.

CATV POWER SUPPLY AND METER COMBINED

All elements of neighborhood pole mounted equipment—meter, power supply, circuit breaker and test block—are said to be combined in a fully-integrated CATV power supply module now made by Glentronics. Advantages

claimed are reduced installation costs (installation time is reduced by 75%), reduced fitting costs, improved pole appearance, and safer climbing for utility linemen. Power supply Model CT 23544 features 110V convenience outlet, input-output test points, and other standard features—all within easy access under the hinged cover of the UL approved utility box.

For further information on this new product contact Glentronics Inc., 748 East Alosta, Glendora, California 91740, Phone (213) 283-5930.

C-COR DEVELOPS NEW 8-PORT TAP

C-COR is offering a 8-port tap unit with new design and specifications. Developed through a contract from a metropolitan CATV operator, the unit is said to feature low insertion loss, high isolation specifications to combat interference problems between TV receivers located in closely-coupled environments, and low cost. A band-pass of 50 MHz to 300 MHz is provided. The unit is priced at $21.95, in quantity.

For further information on this new product contact C-COR Electronics, Inc., 60 Decibel Road, State College, Pennsylvania 16801, Phone (814) 238-2461.

CASCADE ANNOUNCES PAD MODULE PMDT 3/0

Cascade Electronics has announced the marketing of the Pad Module Directional Tap, Series 3, without taps. The Pad Module is designed for system operators who wish to complete their system line, but have yet to complete house connections. The unit will sell for $1.50 and when it becomes necessary to convert to a 2 or 4 point tap, the $1.50 will be credited against the order for tap modules. Of the same "snap-in" configuration as the other 6 modules available for the CEDT Series 3, the P.M. represents an extension of Series 3 directional taps.

For further information on this new product contact Cascade Electronics Ltd., Port Moody, B.C.

CRAIG INTRODUCES NEW COLOR VIDEO RECORDER

The new Craig Model 6403 helical-scan video tape recorder, a color recording rotary two-head system utilizing 1-inch wide longitudinally oriented tape, has been introduced by the Craig Corporation. The unit has a tape speed of 7.5 inches per second, uses 9.5-inch diameter (Standard NAB Hub) reels, and delivers up to 96 minutes recording or playback time on 3600 feet of tape. Craig's 640 is said to record NTSC (National Television

Standards for Color) directly, and play-back color with use of an accessory adapter. Operational features

include a double capstan drive designed to improve picture stability by eliminating horizontal "jitter," and skew control for correcting differences in tape tension and improvement of interchange of tapes from machine to machine. As an added convenience, all functional controls (start, stop, fast forward, play, record and rewind) are engineered for operation with the cover of the unit in place. Other features include recording of audio and video portions independently of each other; built-in remote control capability; slow motion and still picture playback.

For further information on this new product contact Craig Corporation, Products Division, Attention Video Products Department, 2302 E. 15tn Street, Los Angeles, California 90021, Phone (213) 623-2421.

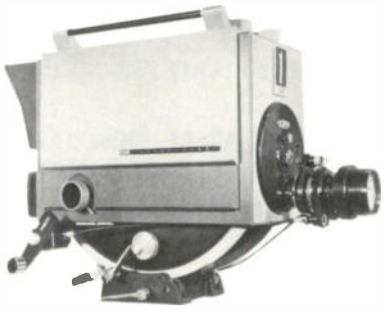
ELTECH ANNOUNCES RIGHT ANGLE CONNECTORS

Eltech Laboratories has announced production of a right angle connector designed to fit flush on amplifier boxes and seal against moisture, air and deteriorating elements. With this connector, coaxial cable enters or leaves amplifier housings in straight up and down lines. Space is said to be saved by eliminating the need for shaping gradual bends in cable at right angle connecting points to avoid kinks. Electrically and mechanically, impedance characteristics are held constant because of the fixed spacing of the coaxial line. Physical attachment is made by a special tool that spins the connector into place.

For further information on this new product contact Eltech Laboratories, Inc., Smithtown, New York.

IMPROVED ZOOM LENS FOR PLUMBICON CAMERA

Zolomatics Corporation has announced the development of a new



Zoom lens for use with black and white Plumbicon television cameras. The lens has a focal range of 22.5-225 mm. (10-1) and a maximum aperture of F/3.5. It is supplied by Zolomatics with the Zoofo rotary controls for operating from the rear of the camera. The company offers neutral density filters as optional items.

For further information on this new product contact Zolomatics Corporation, 941 No. Highland Ave., Hollywood, California 90038, Phone (213) HO 3-2181.

JFD ANNOUNCES NEW MATV FILTERS

Two new filters and a mixer for balancing MATV head-ends have been announced by JFD Electronics. The model 8285 covers the low VHF band. It is supplied factory tuned to channels 2, 4 and 5, however, it can be field tuned to combine any two or three non-adjacent low VHF band channels, including 2. The model 8286 is pretuned to VHF channels 7, 9, 11 and 13, but can be field tuned to any four non-adjacent high VHF band channels. The model 8287 mixing coupler is used to combine the outputs of an 8285 and an 8286 into a single cable. Both high and low band filters are designed to provide at least 15 dB rejection of non-adjacent channels (9 dB from center frequencies), and insertion loss of less

than 1.5 dB. The mixing loss of the 8287 coupler is said to be less than 1.0 dB. The new units are engineered for a variety of uses including combining the outputs of single channel antennas into a single downlead for use with a broadband head-end amplifier; splitting the output of a broadband antenna into separate inputs for single channel amplifiers; and in conjunction with pre-amplifiers and attenuators, balancing the relative signal strengths of channels carried on an MATV system.

For further information on these new products contact JFD Electronics, 15th Avenue at 62nd Street, Brooklyn, N.Y.

TOP MOUNTED COMPARTMENTS FROM PIERCE AUTO

PTM utility compartments for top mounting on pick-up trucks, both fender side and closed side, are available from Pierce Auto Body Works. Mounting kit and instructions are furnished with each unit. Standard lengths of the compartments are 78" and 96" for ½, ¾ ton and compacts, 108" for one ton pick-ups. Each unit has pan type doors with flush paddle lock handles and chain supports. One key locks all doors. Available options include: extra compartments and bumper steps, ladder racks, radio compartments (built into pick-up box), steel tops and sliding steel tops.

For further information on this new product contact Pierce Auto Body Works, Inc., Box 616, Appleton, Wis. 54911, Phone (414) 733-9461.

75 OHM PLAXIAL COAXIAL NOW AVAILABLE FOR CATV

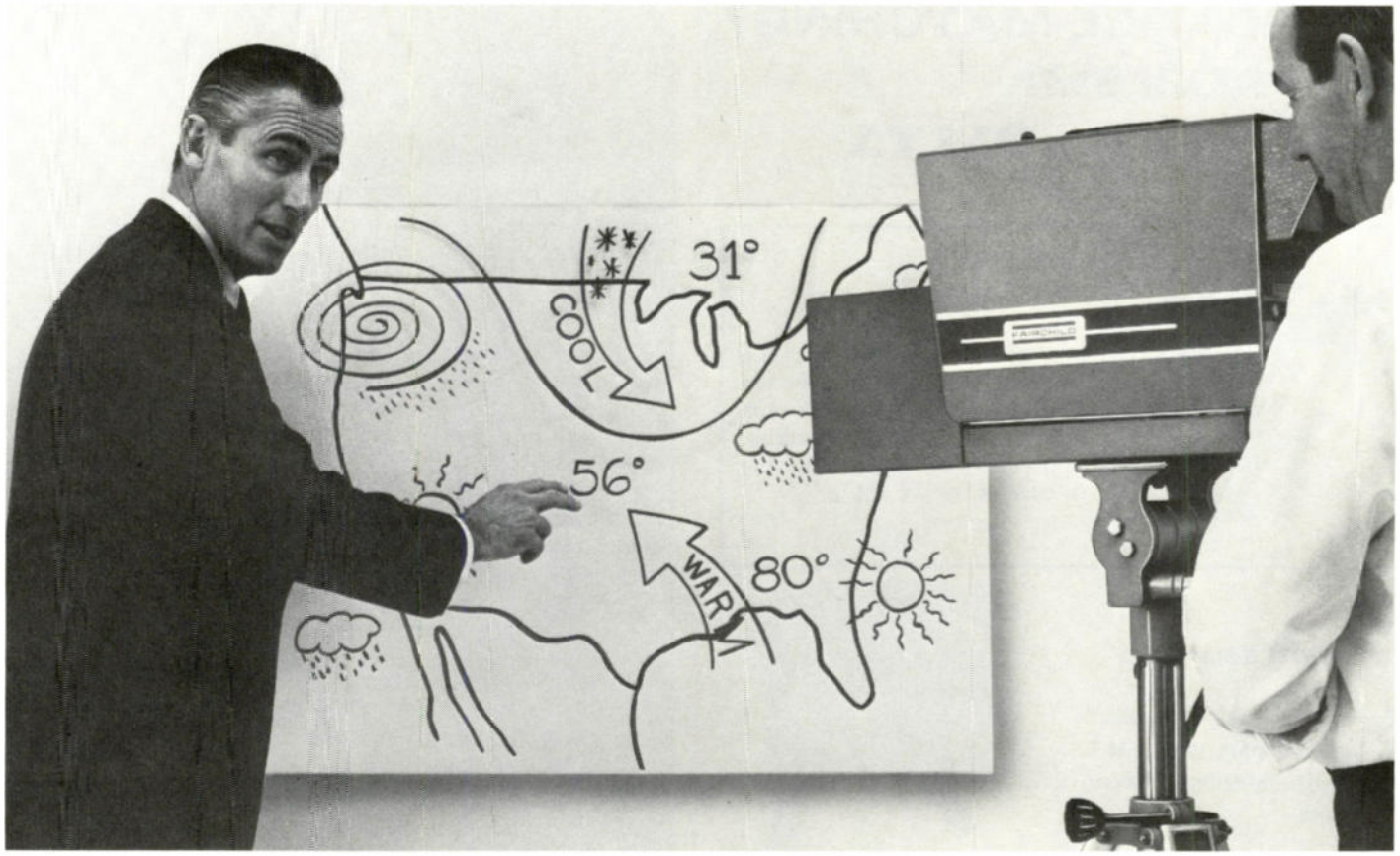
Plaxial coaxial cable with a characteristic impedance of 75 ohms is now available for use in CATV. The new Plaxial type 1-75 cable features a fully-shielded, flexible design. The new type cable is 0.125 inch in diameter and consists of a No. 28 AWG copper center conductor covered by a polyethylene dielectric that is scored with a helical groove designed to improve flexibility. The grooved dielectric is covered, in turn, with a thin, electrodeposited film of copper that serves as the cable's outer conductor. Grooving the dielectric is said to permit the cable to be bent to radii as small as ⅛ inch without cracking the outer copper coating.

For further information on this new product contact Plaxial Cable Department, United-Carr, Inc., 70 Jaconnet Street, Newton Highlands, Mass. 02161.

ILLUMINATED "PANELITE" MESSAGES FROM SIERRA

New wall plates with illuminated messages for television and radio stations have been developed by Sierra Electric. The illuminated units, called Panelites, are installed in standard one-gang outlet boxes, and come with nine standard messages. The units are said to require no special wiring and can be controlled with a standard switch or installed as a permanently burning unit.

For further information on this new product contact Sierra Electric, 15100 S. Figueroa Street, Gardena, California 90247.

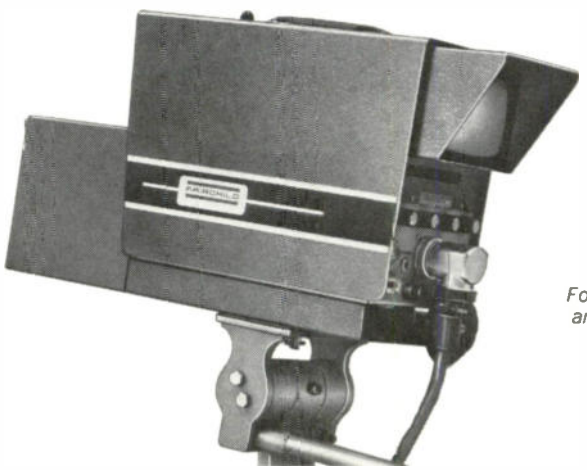


Fairchild's TVF-177 Camera gives this program a network look.

Fairchild TVF-177 viewfinder television camera is the result of recent advances in engineering and Micrologic® circuitry. It produces remarkably stable, crisp, high-contrast pictures—the kind of images that give your programming a network look.

You also get a choice of valuable options with the TVF-177. Its modular design permits you to select from various sync options: random interlace, self-contained 2:1 interlace, externally driven 2:1 interlace or EIA external drive. Other options include a high-resolution module for 8507A vidicons, self-contained R.F. output for standard receiver operations and integrated zoom lens control.

The most remarkable thing about the TVF-177 viewfinder television camera is its price. You'll find it is much lower than any camera that even comes close to its performance.



For specifications and performance data, contact

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Products Literature

The 1968 edition handbook for lighting applications in television, containing complete technical information for the industry in a pocket-sized, simplified form, is available from Sylvania Electric Products, Inc. 730 Third Ave., New York, N.Y. 10017.

Specifications and uses of the Ampex CC-327 closed circuit studio television camera are described in a four-page brochure available from Ampex Corporation, 2201 Lunt Ave., Elk Grove Village, Illinois 60007.

A bulletin describing an instant slide presentation system taking less than five minutes from the taking of a picture to projection has been published by Genarco, Inc., 15-58 127th Street, College Point, New York, 11356.

Two new publications are available from Preformed Line Products Company, P.O. Box 91129, Cleveland, Ohio 44101. Their complete line of buried cable system hardware and data on products for overhead communications are described in a 16-page, illustrated catalog. A two-page, fully-illustrated bulletin is also available describing a reducing splice for permanently joining two strands of different diameter.

A description of the method and use of three TPI converters is the subject of a new brochure from Television Presentations, 375 Park Avenue, New York, New York 10022.

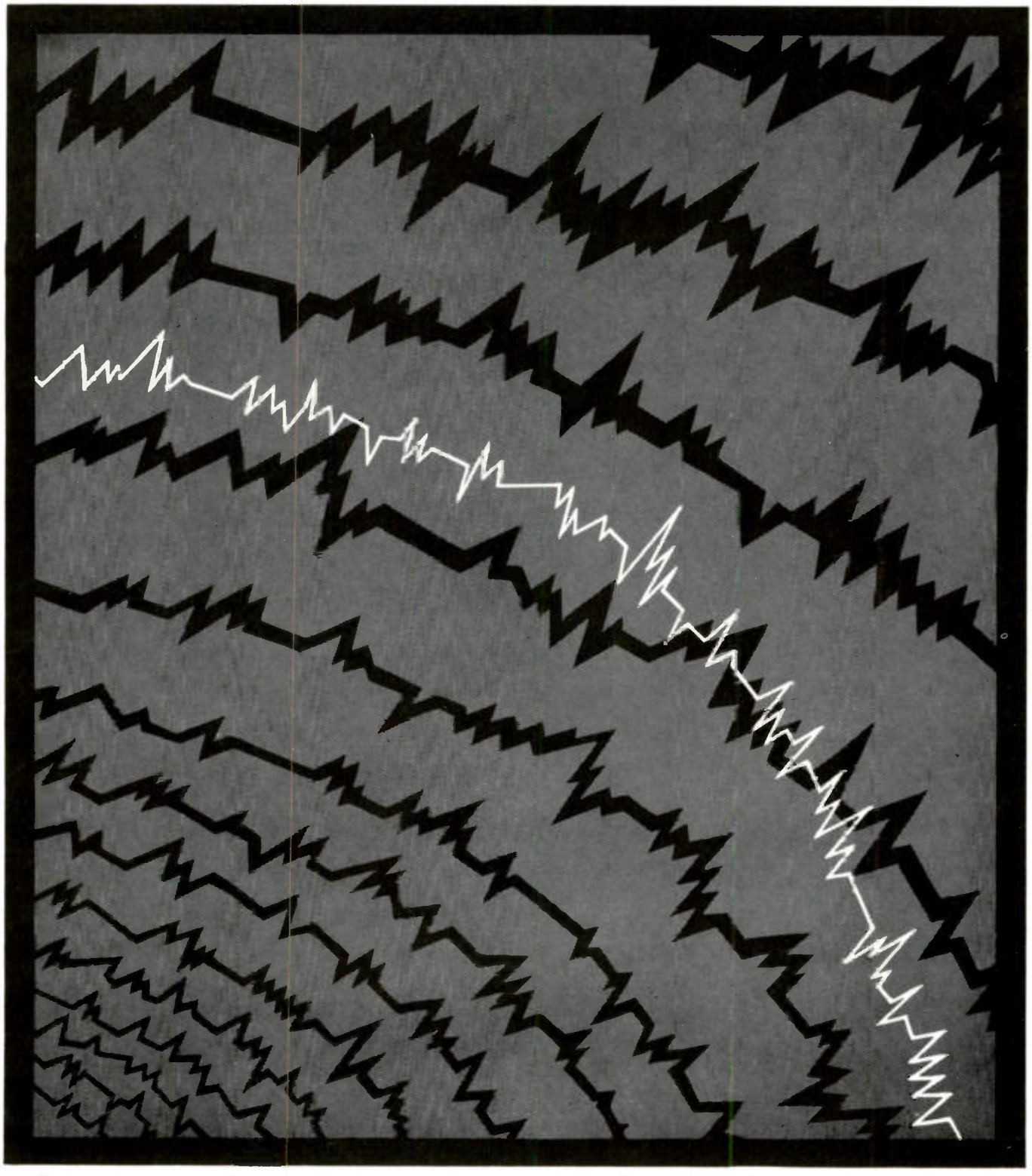
A new 16-page catalog to assist in the selection of coaxial cables and CATV cables for specific electronic applications has been made available by ITT Wire and Cable, Pawtucket, R.I. 02862.

Thor Electronics Corp. is distributing a 20-page purchasing guide on electronic tubes and semiconductors listing over 7,000 items. Company address is 741 Livingston Street, Elizabeth, New Jersey 07207.

A series of quarterly bulletins, "Video Talk", covering a variety of subjects pertinent to video tape recording are available from 3M Company, Magnetic Products Division, 3M Center, St. Paul, Minnesota 55101.

"The Truth . . .", a booklet presenting the research, production, delivery, and service capabilities of American Enka Corp., Brand-Rex Division, Willimatic, Connecticut 06226, is available from the company.

A data sheet listing features and specifications of Model AC-926 video control center has been produced by Ampex Corp. A brochure describing the new VR-5100 portable closed-circuit videotape recorder is also available. Write: 2201 Lunt Avenue, Elk Grove Village, Illinois 60007. TVC



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TV Communications is published by Communications Publishing Corp., publishers of CATV Weekly, the CATV Directory of Equipment, Services & Manufacturers, the CATV Systems Directory & Map Service, and the NCTA Convention Daily.

For Information About:

SALES

Contact Asst. Sales Mgr. Bob Titsch, Wayne Wilson or Stan Searle. They'll assist you with your display advertising program, specialized market and media information, reservation/copy deadlines.

PRODUCTION & CREATIVE SERVICES

Contact Advertising Services Manager Bob Lee. Bob will give you full production information and production assistance. If you need professional creative services—either copy or graphics—he'll provide it at a very nominal (or no) extra charge. **Contact Production Asst. Sharon Van Horn** for all traffic coordination.

RESEARCH & PROMOTION SERVICES

Contact Promotion Coordinator Sandy Gales. Sandy will assist you in combining your advertising program with special promotional efforts such as direct mail. She'll also give you the general market and media information you require, and if you need special research, we'll do it.

INDEX TO DISPLAY ADVERTISERS

THE CATV CLASSIFIEDS

TV Communications Reply Address: 207 N.E. 38th, Okla. City, Okla. 73105
Rate for classifieds is 25 cents per word for advertising obviously of a non-commercial nature. Add $1.00 for Box Number and reply service, per issue. Advance payment is required; minimum order is $10.00. Classified rate to commercial advertisers is $30.00 per column inch (2¼" col.). Deadline for all classifieds is 1st of preceding month.

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Need in-house billing capabilities for your system subscribers? We have the machines you need to perform billing and direct mailing chores, automatically. These addressograph machines are only two years old and operate like new. Will sell at greatly reduced rates since we are converting our circulation to computerized machinery. Call Buford Marsh or Pat Pogue for further details at area code 405/528-3523.

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WE NEED GOOD USED EQUIPMENT

Wanted to buy: We have request for low band solid state amplifiers; power supplies; line extenders; line splitters and other used equipment in good, usable condition. Give amount of items, make, age, price, location, availability. Reply to TV Communications, Dept. T12-1.

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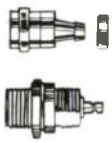

F 56 —RG 6 Cable
F 59 —RG 59 Cable
F 59A —RG 59 Cable
F 59PO —Push-on
F 59T —Terminating

F 61A —Accepts F 59 & F 59A
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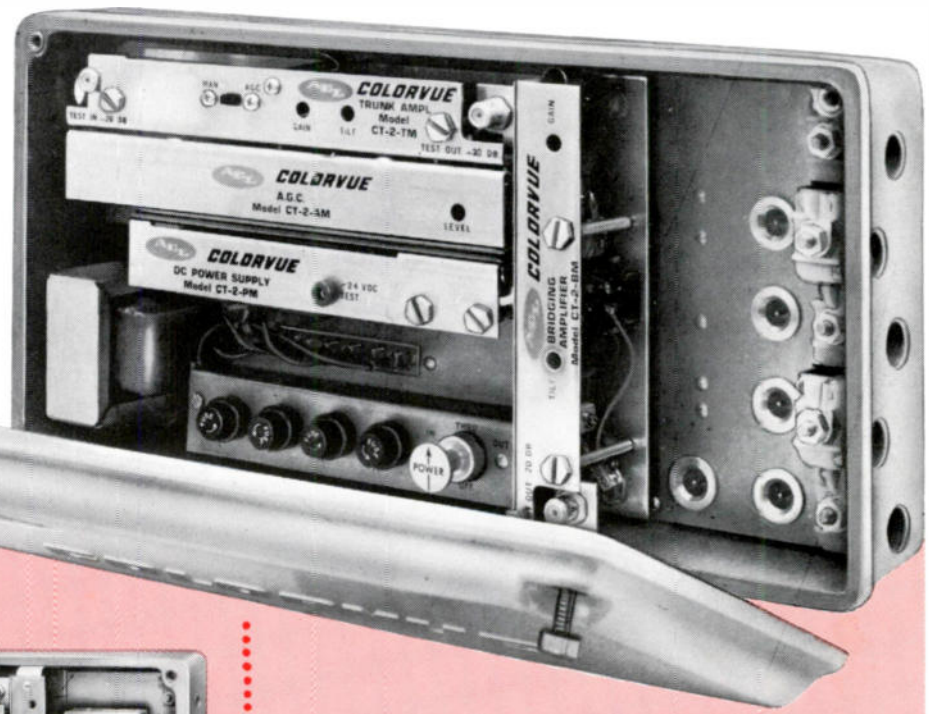

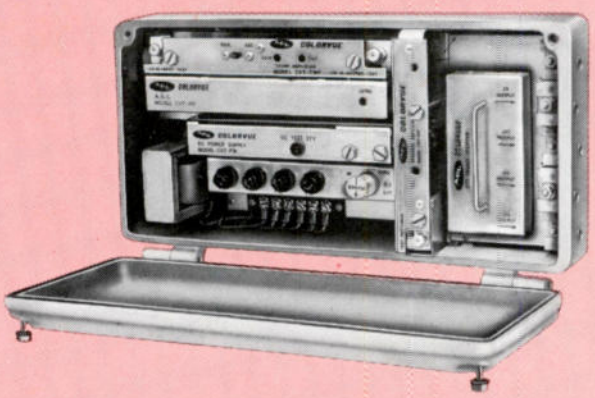

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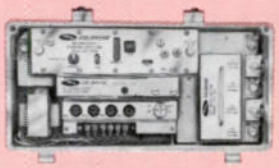

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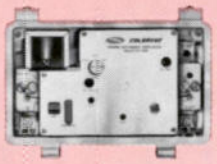

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