May 1968

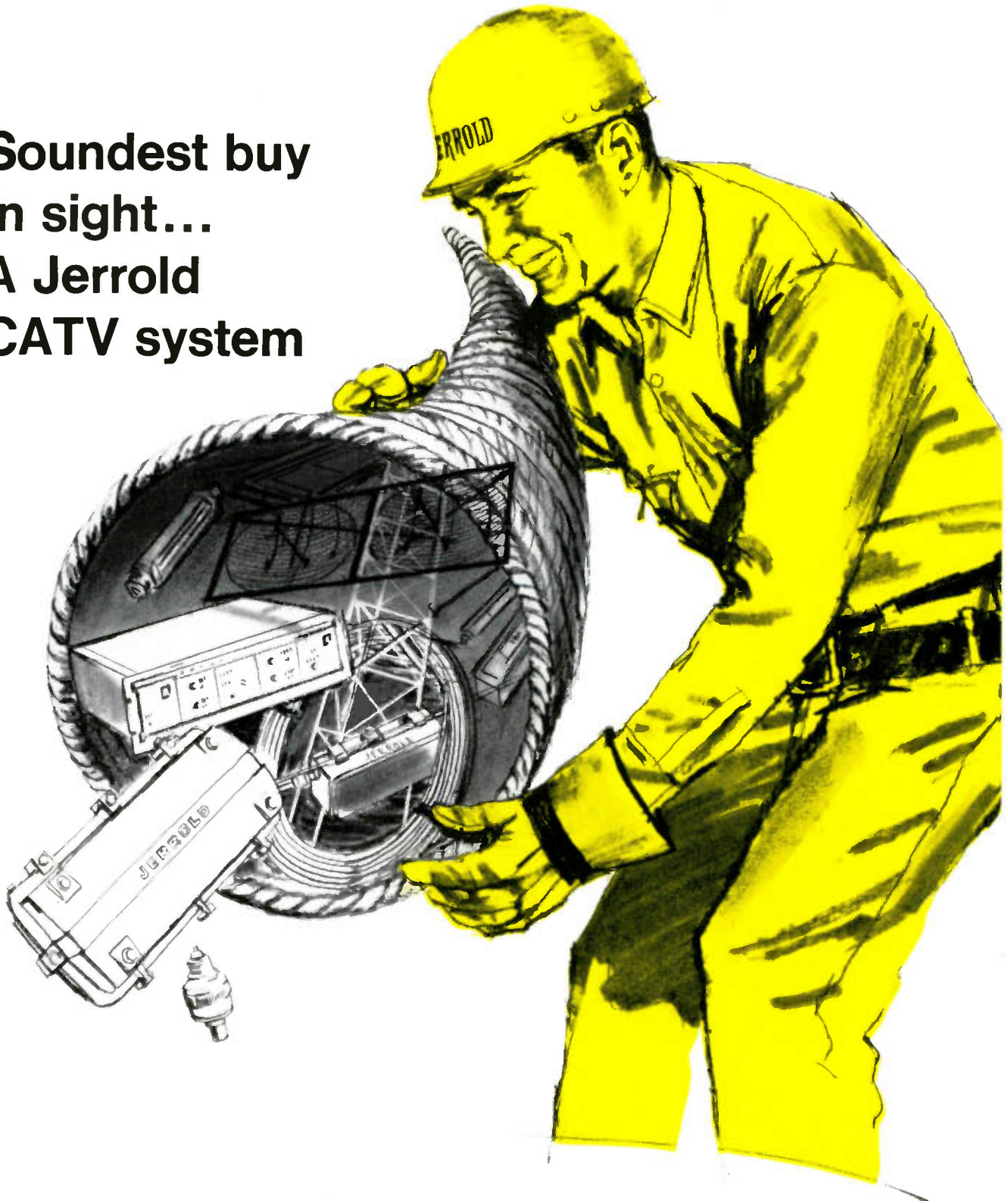
TV Communications

The Professional Journal of Cable Television

In This Issue . . .

Seasonal Promotions
CATV System Monitoring
Amplifier Gain Control

Soundest buy in sight... A Jerrold CATV system



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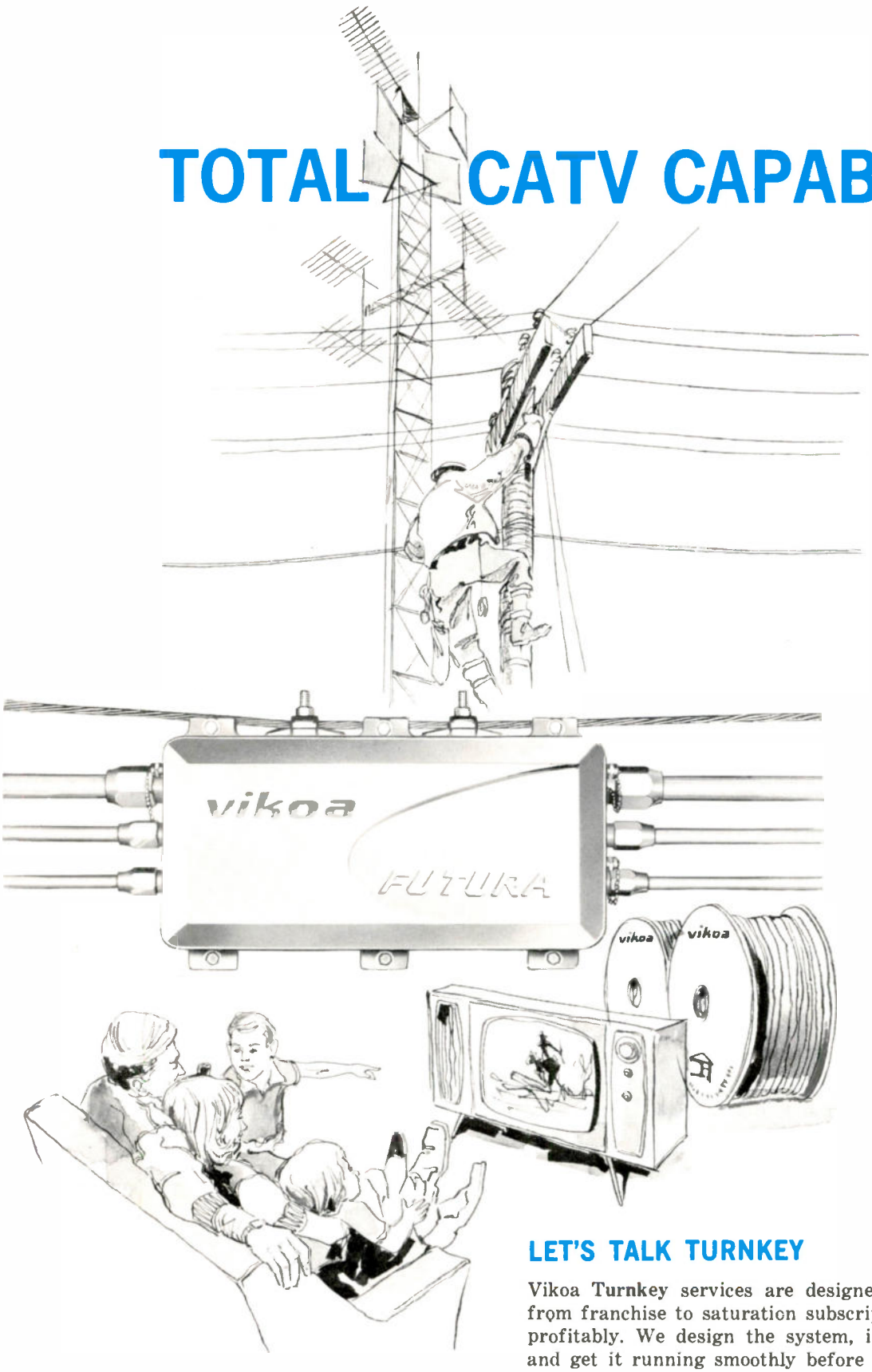

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Vikoa is the only company in the industry that manufactures **all** of the equipment for quality CATV distribution.

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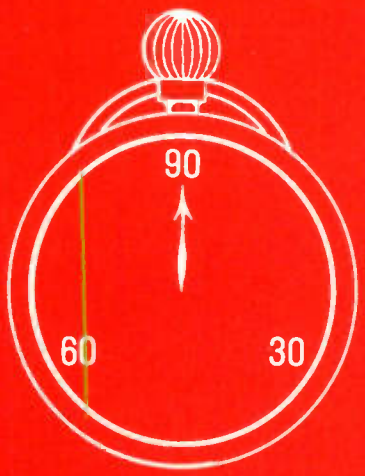

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IN THIS ISSUE

Selling Your Service

As the cable television industry continues its rapid growth and increases the sophistication of its service, the need for improved promotional methods becomes paramount. The growing variety of services offered the subscriber—and the entry into major suburban and urban centers—create new sales barriers and new sales opportunities for cablemen. The need for professional counsel in subscriber promotion is receiving growing recognition throughout the industry; and to help meet that need, the following articles have been assembled.

Beginning on page 36, Mimi Barash probes the possibilities offered by seasonal promotions. In addition to keeping your sales effort timely, such promotions can serve to overcome seasonal "slumps" in hookups.

Getting full benefits from your local newspaper is Charlie Wigutow's subject, as the veteran CATV consultant tells of the best approach for both advertising and publicity via your community press. See page 41.

Getting action from direct mail promotions can do wonders for the saturation of any system . . . and beginning on page 43. Sam Henry discusses the methods for doing just that.

About Those Codes . . .

The National Electrical Code and the National Electrical Safety Code remain the object of considerable confusion among CATV'ers everywhere—although these codes affect most plant construction. Beginning on page 49 of this issue, NCTA Safety Committee Chairman Bill Karnes explains important code topics.

System Performance Monitoring

A new concept in system maintenance, centralized monitoring of all distribution equipment, is the subject discussed beginning on page 54.

Our Cover: This Month's front cover photo was supplied by Earl Drake, Fetzer Cablevision, Kalamazoo, Michigan. *(TV Communications* pays $20 for color photos supplied by readers and selected for publication. Both transparencies and glossy prints and negatives are accepted — materials returned on request.

MAY 1968 Vol. 5, Number 5

TV Communications

The Professional Journal of Cable Television

CATV TECHNICIAN SECTION

DEPARTMENTS

BPA

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IRVING KAHN MEET DUANE CRIST

Irv, by being relatively new in the field, we've played some catch-up ball and we know it. But that's given us an advantage. We saw some of the other guys slip and fumble. Ask Duane Crist, our CATV Sales Manager. He'll tell you that, quite frankly, their problem has been bad service. We don't want to slip or fumble. We give you service, not when we get around to it, not when your turn comes, but *now* when you need it. It's available, any time you want it.

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The TVC Viewpoint

EDITORIAL

Your Friend, The TV Dealer

Times change, and so do the friends and foes of cable television. For example, the FCC held for years to the belief that it had no jurisdiction over cable television . . . but that has changed — and how!

And, on the other side of the ledger, consider the TV Dealer-Serviceman. A few years ago a cable franchise applicant could nearly *always* count on rugged opposition from local television dealers and servicemen. Usually the local dealers, concerned about rooftop antenna sales, would descend on city hall with a stack of propaganda from an outfit called the Television Accessory Manufacturers Institute (TAME). Bumper stickers, newspaper ads and press releases were all used in the anti-cable campaign pressed by the affiliates of TAME. This organization, made up primarily of home antenna manufacturers, has worked through local TV sales and service people to do a lot of damage to CATV in many towns over the past years.

But times have changed! The TV dealers and servicemen can now, in a great many cases, be counted among the friends of cable television. Because cable television means tremendously increased color set sales, dealers recognize that CATV helps their profit picture. In addition, better signals mean more television viewing. And more viewing means more sets wearing out faster, being replaced more frequently. Furthermore, the high quality, high level signals fed into a set by the television cable mean easier to please customers for the TV repairman.

Of course, one of the side benefits of CATV to the TV dealer is the fact that many folks are not satisfied with their ten year old sets once they have a choice of 8-12 channels. (Many of the older sets do not have adequate adjacent channel trapping to eliminate interference.)

All of these factors added together have produced an enlightened TV Dealer-Serviceman who welcomes cable television into the community. Wide awake cable operators, of course, have devised additional methods of winning over the TV dealers. Such programs as free hookups for the dealers, free connection coupons to be given away with set purchases and free dealer tie-ins with open house celebrations are just some of the ways of getting to a dealer's heart.

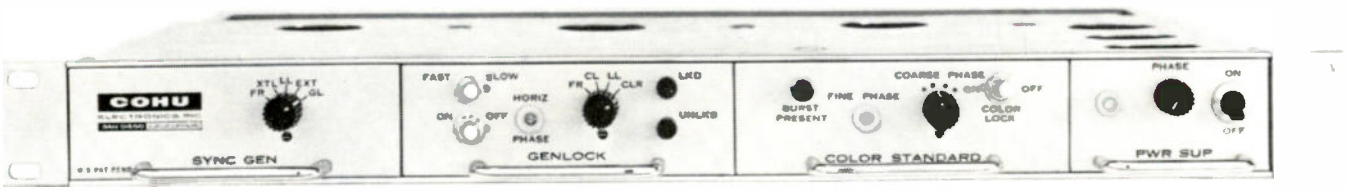
So, instead of avoiding the men in the TV repair and set sale business, you should look to these people as your potential friends and allies.

Within the past few months, a franchise applicant in a town of 50,000 population received the television repairmen's public endorsement. At a meeting of nearly every repairman in the city, 85% of them voted to publicly endorse the cable applicant. Two years earlier the TV servicemen in the same city had generally opposed a cable franchise applicant. So you see times have changed.

Cable television operators — and franchise applicants — need friends. They need lots of friends because they still have lots of opponents. So when you are looking around for friends, don't rule out the TV serviceman and TV dealer. They can be your staunch allies. They have a lot to gain from cable television and a great number of them are prepared to help you.

Stan Searle

Now update for color with this solid-state sync generator and accessory system from Cohu



All this in 1¾ inches of rack space: EIA 525-line monochrome/color sync generator; bidirectional variable speed genlock; color standard with colorlock; and electronically regulated power supply. And all for $2,240, FOB San Diego.

These systems feature solid-state, integrated circuit components for optimum reliability. Extension boards facilitate servicing and adjustment of circuit assemblies. Available accessories include a dot bar generator and automatic sync changeover switch.

Cohu also stocks monochrome/color switching matrix, switcher control and remote control units, pulse and video distribution amplifiers, and portable vidicon cameras. Get full details direct or from your nearest Cohu engineering representative.

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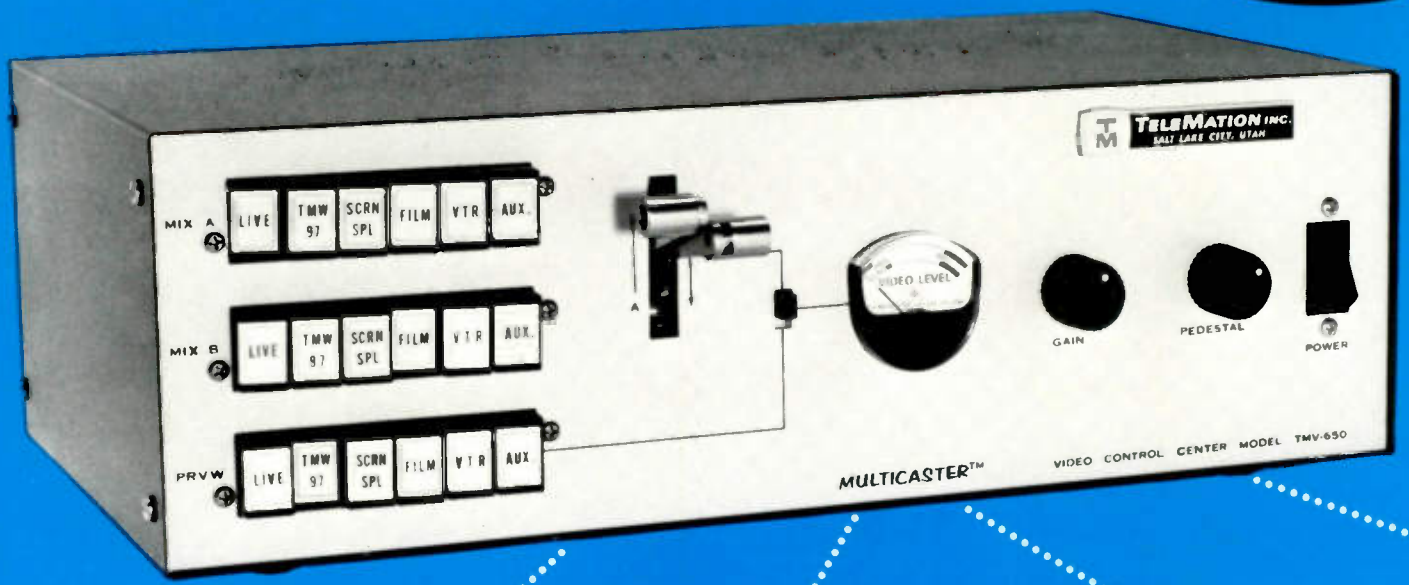

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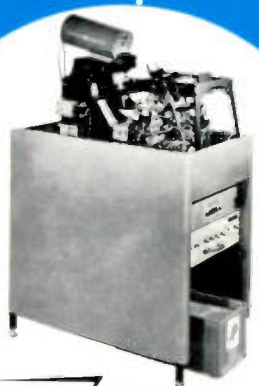


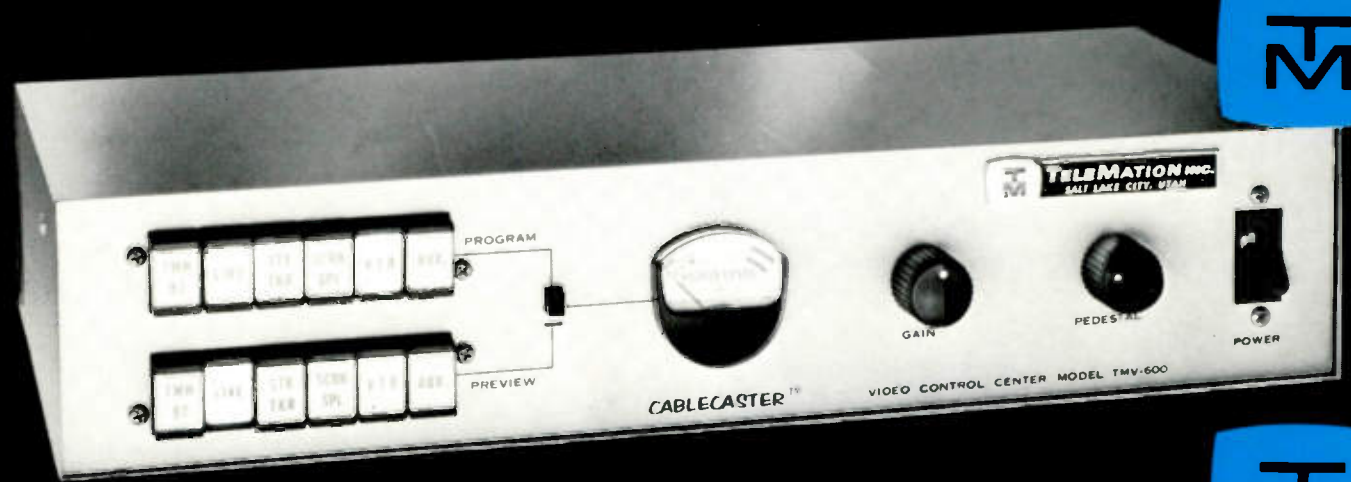
NEWS/CHANNEL

U.S. Patent No. 3,320,363

Canadian Patent Pending

Non-Duplication Switcher

CA



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DEL TMV-650

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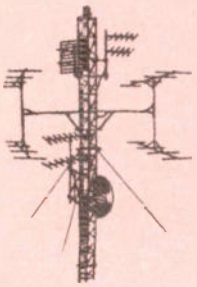


CATV Industry PERSPECTIVE

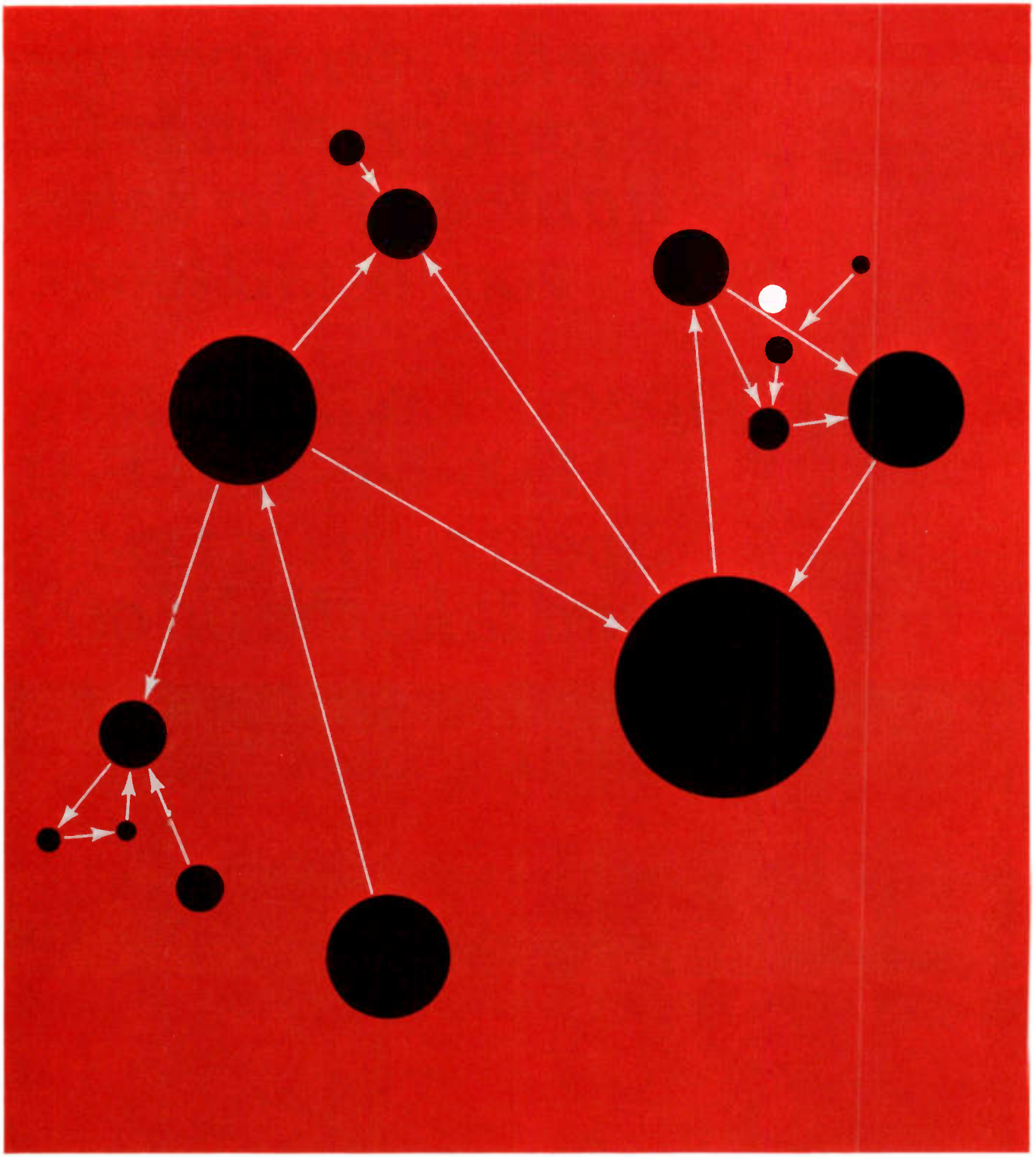
Aggressive leadership in the vital area of political contacts is being demonstrated by NCTA. Consequently, 1968 is shaping up as the year when cable operators literally "came into town." When cable operators visit Washington D. C., association staff members are available to go with them "up on the Hill" to see their legislators. Results are beginning to add up and will undoubtedly have a positive effect on cable television legislation when it comes.

That CATV law will undoubtedly be passed. Perhaps not in '68 (copyright situation too unsettled). But surely by sometime next year Congress will have to start the gears turning. The President's Task Force on Communications, plus cablevision success in New York City and other large cities will focus public attention on cable TV nationally. Lawmakers will respond with some direction for the cable television business. Chances are, there will be uncomfortable restrictions and perhaps even some sort of licensing. But for most operators, Congressional intervention will bring welcome relief from regulation by decree under the FCC's Second Report & Order.

Adverse Supreme Court ruling on copyright could very obviously create need for emergency legislation. The worst possible high court decision, in fact, could result in long range benefits to cable television. . . because it would precipitate protective legislation. A law hurriedly written to protect CATV from annihilation might be the most favorable the industry could hope for.

The usual annual prediction: NCTA Convention will be bigger than ever before. In spite of location (Boston) and slightly inconvenient time (June 29-July 3), the bullish attitude toward cable television will bring literally hundreds of new faces to the annual cable industry conclave. Look for some surprising newcomers among the exhibitors, too.

Unique political year could produce an unusual six-man Federal Communications Commission. Lee Loevinger has announced plans to retire in June. It is possible that the President will not wish to make an appointment at that time. He could ask Loevinger to remain for a few months--or, the Commissioner could depart prior to the appointment of his successor. This would leave a six-man Commission. Another possibility is that the President anticipates a possible draft at the Democratic convention and may prevail upon Loevinger to stay at the Commission until after August. On the other hand, if President Johnson intends to follow through on his own announced retirement, there is a strong possibility that he will name a new FCC Commissioner in June. Whatever happens, cable operators will be equally concerned with the appointment of the new Commissioner or the possibility of a short-handed FCC after Loevinger's retirement.



valuation studies reduce acquisition uncertainties

A supportable valuation study of intangibles, including franchises, plus physical assets, reduces uncertainties when deciding on the sale or purchase of CATV systems. It also becomes a supportable basis for allocating the purchase price and substantiating depreciation for tax purposes. Experienced valuation counsel can be of significant service.

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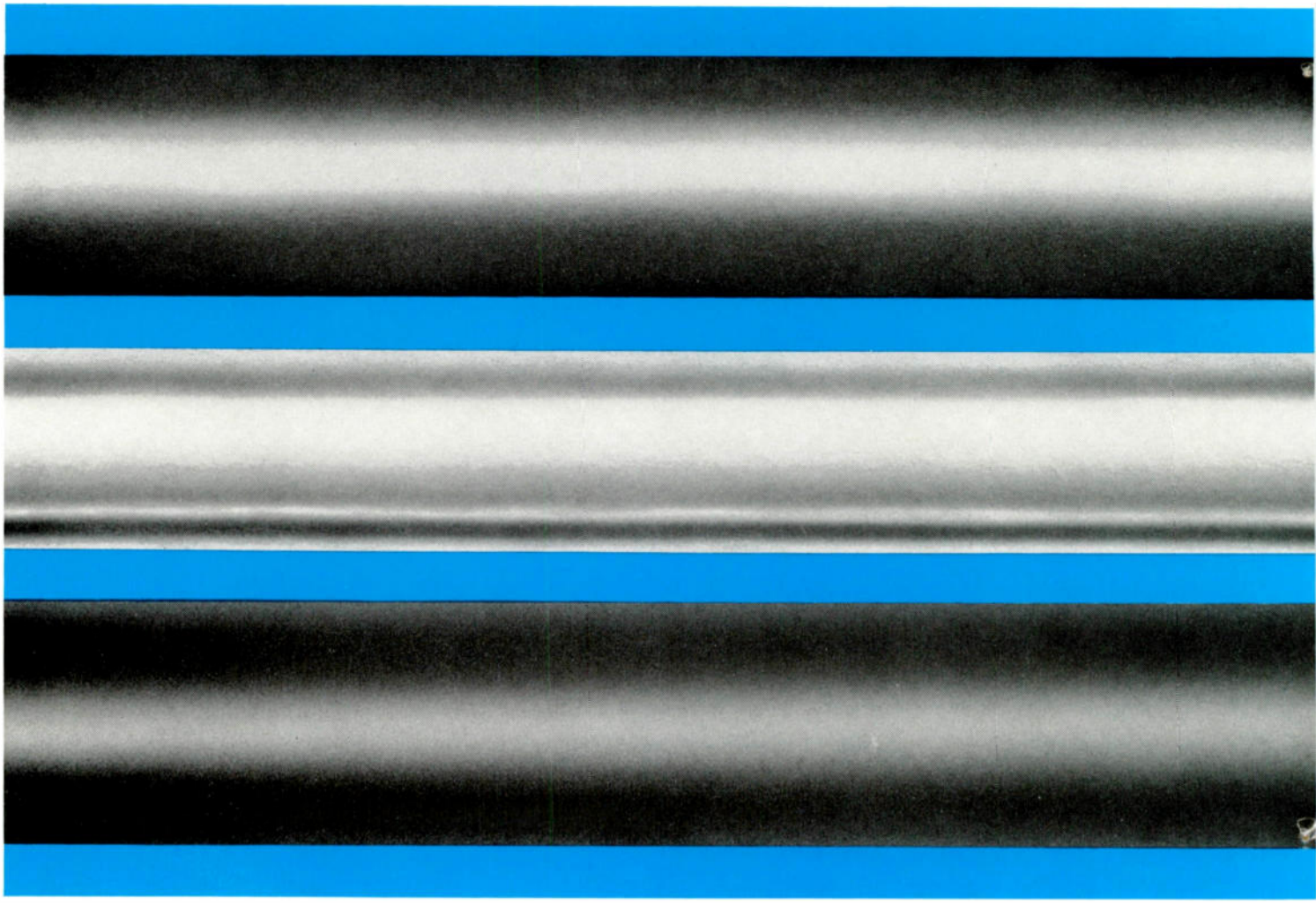

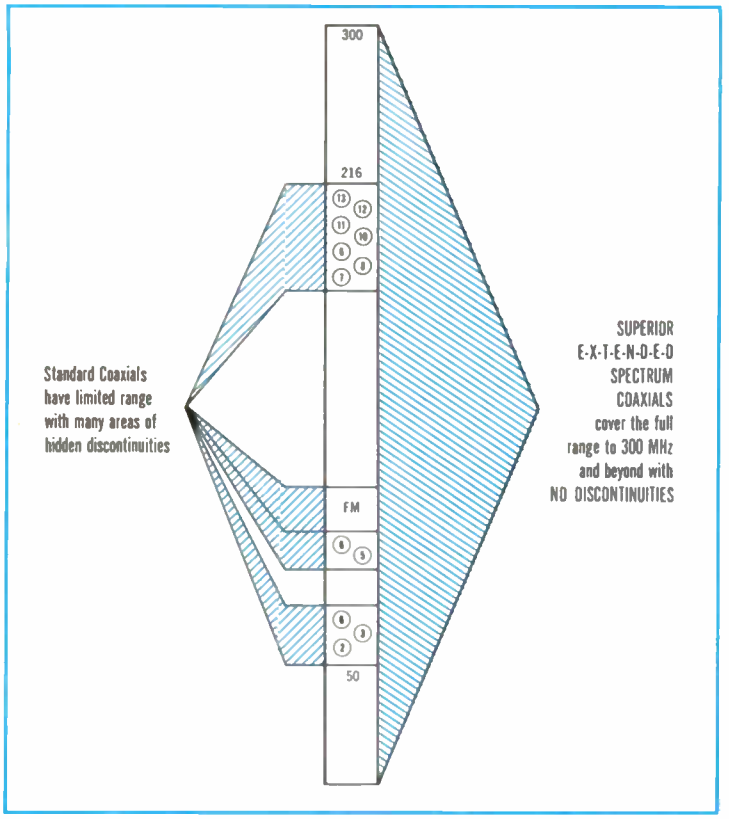

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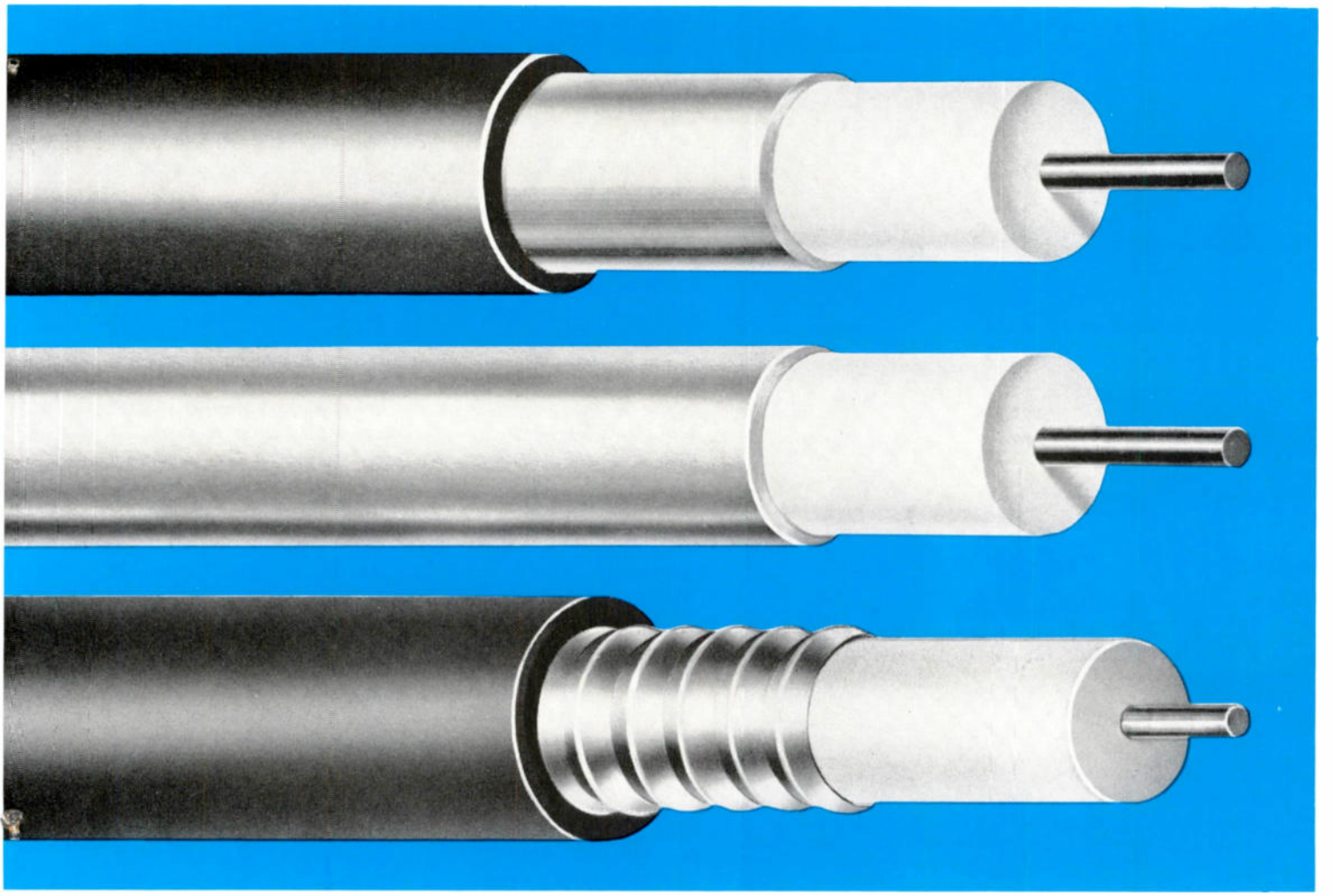

CATV MANAGEMENT CORNER

The Profit in Problems

Be thankful for the troubles of your job. They provide about half your income. Because if it were not for the things that go wrong, the difficult people you have to deal with, and the problems and unpleasantnesses of your working day, someone could be found to handle your job for half of what you are being paid . . .

If all of us would start to look for more troubles, and learn to handle them cheerfully and with good judgment as opportunities rather than irritations, we would find ourselves getting ahead at a surprising rate. For it is a fact that there are plenty of big jobs waiting for men and women who aren't afraid of the troubles connected with them.

By Robert R. Updergraff, Printing Impressions, July 1962.

Mr. Updergraff's statements couldn't be more correct. Troubles *do* make for progress.

So don't resent your problems and lacks. Welcome them. Capitalize on them. Realize they can be used to produce in you the kind of mettle that makes men big. Steel never tempered is low quality. Muscle never excersized is useless — dead weight.

Several principles can be kept in mind by the man who wants to profit from his problems:

Decide at the outset of every day that *every problem you will face will be used as an opportunity.* It may be an opportunity for your personal growth or the growth of one of your employees. The problem may expose outdated programs for what they are, so new and better ways of doing old jobs might be discovered. Realize that inherent within every obstacle is some kind of reward, and go after it.

When problems show up, *don't react — act.* Reactions are often defensive, emotional. To react with a hasty decision or a cutting remark is to overact. Perspective is distorted by emotion, and the objective approach that solves problems effectively is stymied. Give the problem some time to settle before you act. Instant solutions are seldom adequate solutions. Hasty decisions often amplify and complicate problems, making them harder to solve than ever.

Define the problem. Chances are, it's not a problem at all, but just a manifestation of someone else's overconcern. An enemy who remains hidden or disguised can never be defeated. Sometimes, the best move that can be made is to make no move — to sit still and let the problem come out into the open. Many small problems are just symptoms of larger problems. If you suspect this, don't alleviate the symptoms or you may never arrive at a real cure. Let the problem become full blown so you can get at it in its entirety.

Test the solution. Make sure it's not just a superficial cure. Evaluate it and consider *all* its possible effects. A solution that creates new problems in other areas is no solution at all. Expose it to the time-tested judgment of men who are older and wiser. Last of all, test it by trying it. Set a given time for the solution to be tried, and reevaluate its effects at the end of that period. Good judgment is usually complemented by the characteristic of flexibility, so don't be afraid to change your mind. It's especially easy if everyone involved knows that the proposed solution is being tested. Then, when and if it fails, the reputation of your judgment is not at stake.

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

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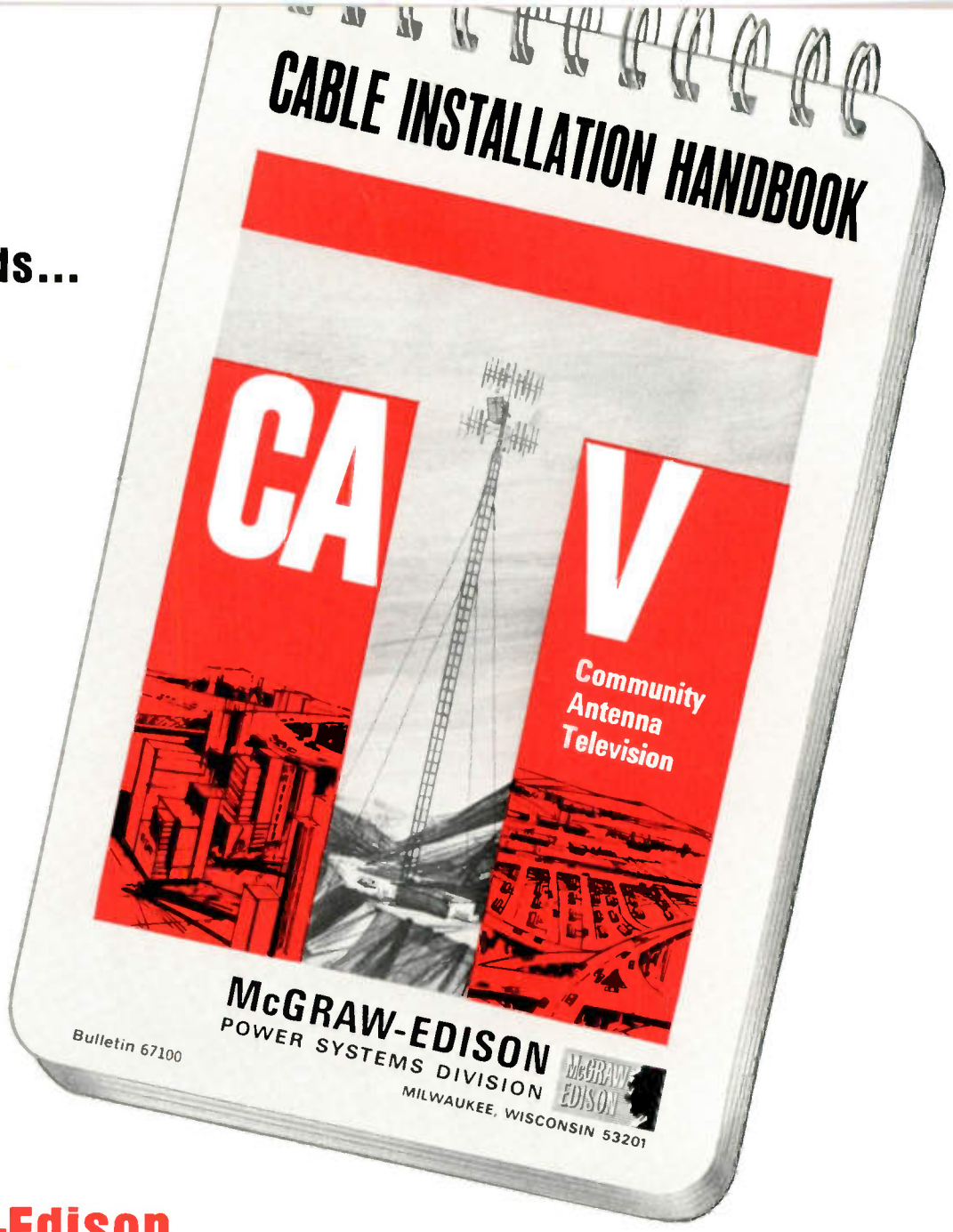
CATV Cable Installation Handbook



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Here's a handy, pocket-size guide to help you in the construction of CATV transmission lines. It's yours *free* for the asking. Provides concise information and detailed illustrations on pole line, aerial, and buried cable techniques. An ideal source for the latest hints on CATV cable construction.

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Late News

FCC CHANGES APPROVAL ROUTINE

In a time and money-saving move, the FCC has delegated authority to hearing examiners to approve carriage and non-duplication protection agreements between cable systems and TV stations. Unless the public interest would be harmed, such agreements will henceforth be approved even though the pact might not give the TV station the full protection accorded by the rules. "Where the parties have fairly resolved their differences," the FCC stated, "the matter should be disposed of by the hearing examiner." Where the examiner "has any serious question as to the propriety of the agreement or its impact on the public," he will refer the question to the Commission for a decision.

PUC REGULATION THREATENS IN NEW ENGLAND

Elliot Richardson, Massachusetts Attorney General, has ruled that cities and towns in that state lack the authority to license cable television systems, and he called for immediate enactment of state laws to regulate the industry. The Massachusetts Consumers Counsel, of which Richardson is a member, proposed rigid control of CATV under the Department of Public Utilities. The announcement of proposed legislation coincided with the meeting of the Cable TV Association of New England, and operators there expressed concern over the possibility that the "well-coordinated push for PUC legislation in Massachusetts," if successful, could trigger similar campaigns in nearby states. At the meeting, NCTA's managing director, Wally Briscoe, and TV Communications editor Stan Searle, both urged individual cable operators to become more deeply involved in their local political affairs in order to promote the cause of cable television.

"SKELETON" COPYRIGHT BILL REJECTED BY SENATE COMMITTEE

Despite a plea made by Register of Copyrights, Abraham L. Kaminstein, for passage of a "skeleton" copyright bill, Senator John L. McClellan's subcommittee on Patents, Trademarks and Copyrights is not expected to move on copyright this session. Kamenstein's proposed "skeleton" bill, while not embodying a CATV section as such, would have provided some protection for cable operators against possible exorbitant copyright fees. The senator rejected the proposal, however, in favor of a general revision bill to be enacted at some future date. Among other factors, the subcommittee is waiting for the Supreme Court verdict in the Fortnightly case and for the outcome of cable-copyright negotiations.

Late News (Continued)

CATV-BELL LAUNCH SUMMIT CONFERENCES

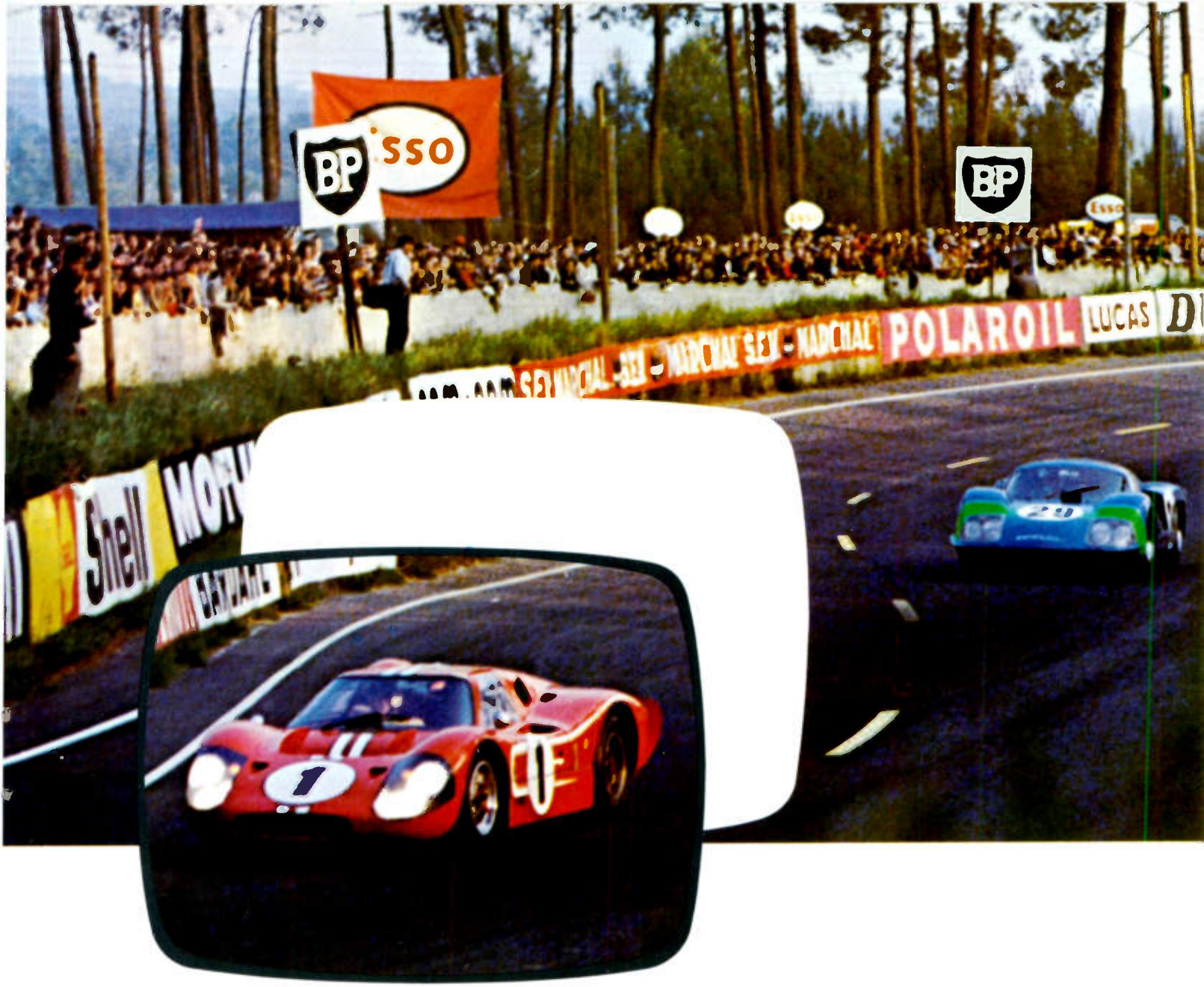
In the first of a series of "summit conferences" between AT&T and NCTA, top-level officials from the telephone and cable industries discussed pole attachment restrictions and pole rate increases. The meeting was the first move in "the establishment of a close working liaison," according to NCTA spokesmen. Representing the Bell System were: William Ellinghause, AT&T vice president for marketing and rate plans; Lewis Ulhman, a Bell attorney; and two staff members. NCTA representatives were Fred Ford, president; Wally Briscoe, managing director; Bruce Lovett, general counsel; and Ben Conroy, chairman of the utility relations committee. The conference was characterized as "very productive."

BIDS ESCALATE IN ALBUQUERQUE

When bids for the much sought-after Albuquerque franchise were opened, offers reaching as high as 36% of gross annual receipts were revealed. General Communications and Entertainment Company of Casper, Wyoming, offered 15% of gross on annual receipts of $5,000 to $7,000, with the fee escalating to 36% of gross on receipts in excess of $1,300,000. Other bid ranges: General Communications of New Mexico--4% between $5,000-$7,000 to 12% over $1,300,000; Total Television of Albuquerque--5% on the first $250,000 to 12-1/2% over $1,300,000; International Telemeter Corp.--5% on the first $250,000 to 35% over $1,300,000. One firm, Jack Kent Cooke, Inc., notified the city commission that it had declined to submit a bid. In addition to objecting to the bid provisions, a company spokesman said "there are several other aspects which make the ordinance generally unattractive."

FCC SPOKESMAN ADDRESSES CABLE MEET

Robert V. Cahill, legal assistant to FCC Chairman Rosel Hyde, sketched "CATV as seen through the eyes of the Commission" at the recent Spring Meeting of the Mid-America CATV Association in Oklahoma City. Cahill attempted to explain the rationale of the Commission's regulation of CATV, then went on to emphasize the challenge of change in today's communications. He concluded by re-issuing Chairman Hyde's call for "an accommodation of the mutual interests of broadcasters and CATV." The more than 125 operators attending the meeting also heard a report by attorney E. Stratford Smith on copyright and a discussion of the threat of PUC regulation by editor-publisher Stan Searle. Senator Fred Harris (D-Okla.) visited briefly with members, assuring them of his continued support.



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News SPECTRUM

FCC Rejects UHF Claims Of Probable Injury In Colorado

In a precedent-setting case, the FCC has voted 4-2 to permit Vumore Video to operate a CATV system in Colorado Springs, Colo. In so doing, the Commission majority issued a rebuff to NAB and expressed disbelief in an elaborate study of economic impact submitted by the local TV station.

NAB joined local Colorado Springs station and stations in Pueblo in seeking to defeat Vumore's application by lumping it into the Denver market through simultaneous consideration with a new CATV proposal for Pueblo and two applications for Denver. The four Denver commercial stations and one educational all put grade B signals over Colorado Springs. The FCC refused to comply with these petitions, which would have put the Vumore proposal into the top-100 market category. Thus, the broadcasters had to show injury before the application could even be designated for hearing.

As to the elaborate economic injuries studied, Commission said the broadcasters had "failed to make a basic showing of economic impact, and did not supply adequate support for other allegations. Quite to the contrary," the Commission said, "no applications have been filed for the vacant UHF channels assigned to Colorado Springs. The existing stations are reporting increased profits, and the market itself has experienced rapid growth."

The FCC went even further. It said the broadcasters hadn't even shown any special circumstances affecting the public interest which would require the imposition of special restrictions on the proposed Vumore CATV system.

Chairman Rosel Hyde and Commissioners James A. Wadsworth, Robert E. Lee and Lee Loevinger made up the majority. Commissioner Robert T. Bartley did not participate. The dissenters were Commissioners Kenneth Cox and Nicholas Johnson.

Time-Life System Managers Meet

Time-Life Broadcast, Inc. held its first CATV managers, conference recently at their New York headquarters. It marked the first joint meeting of representatives from all the operating cable systems in which Time-Life has an interest. The conference agenda included sales, technical and accounting sessions as well as a program origination workshop. Time-Life is part owner of Sterling Information Services, Ltd. (the parent company of Channel 6 and Manhattan Cable Television Company in New York City) and has interests in cable systems serving 23 communities.

Cablemen Win Again: No-Impact in Lexington

CATV systems have once again won a "no impact" ruling from an FCC hearing examiner. This time the ruling was by Forest L. McClenning. The case is that in which Lexington, Ky., TV stations WKYT and WLEX, in the nation's 141st market, sought to bar CATV service from bringing Louisville and Cincinnati stations into the market. After hearing the arguments, McClenning ruled that the systems should be permitted to bring in these stations, with only non-duplication protection for WKYT and WLEX.

Berea Cablevision proposed to import the signals for its system at Berea, Ky., Gregg Cablevision for Danville and Lancaster, Ky., and Mt. Sterling Antennavision for Mt. Sterling. Mt. Sterling was the only one to receive a set-back in the initial decision, but this was on its further proposal to bring in two West Virginia stations. McClenning didn't finally rule out the importation of the additional signals, he merely stated there was insufficient evidence in the record on the West Virginia stations.

McClenning found that there was no need to protect UHF, because the area is all-UHF. He also said this is not a top-100 market case. He found that the stations had remained profitable without network programming protection, and that there are present in the area

"conditions under which each (local TV stations and CATV) can bring to the public the benefits present in their services."

Similar decisions have been won in San Diego and Buffalo.

NAB Sounds The Alarm Against "Wired City"

The climate as far as cable television was concerned was officially quite cool at the National Association of Broadcasters convention in Chicago last month, with very little time devoted to the topic on the formal agenda. But the atmosphere heated quickly once NAB leaders *did* tackle the subject.

John F. Dille, Jr., as chairman of the Future of Television Committee of the NAB, sounded the call to arms against what he termed the "wired city" concept. He warned convention-goers that the

John F. Dille

threat of converting television broadcasting from an on-air service to wire must be taken seriously by all broadcasters and defeated at any cost.

Dille, president of the Communicana Group of Indiana, said the wired city "would envision a deliberate national project to phase out broadcasting and phase in wirecasting to the ultimate end that every American home would receive all of its television by cable."

The NAB, according to Dille, "is about to embark on an intensive . . . effort to defeat this concept of a 'wired-city' by whatever name it may be called." He called upon broadcasters to provide their skills, information and perhaps monetary contributions to a "war chest" in preparation for "what could turn out to be a fight for the very survival of free television in the United States."

NAB president Vincent Wasilewski, in his state-of-the-industry speech, also urged broadcasters to answer the threats to their industry. He said, "There are proposals under consideration which are not merely minor alterations in the present communications system . . . but rather an exploration of the question of whether the basic structure of broadcasting should be torn apart and put together in an entirely different form."

All proposals for change, according to Wasilewski, must be measured by the principle of nonviolence to the present system of broadcasting. And CATV must submit to the same value yardstick. "If it (cable television) brings

broadcasting services to those who cannot receive them in sufficient quality of quantity," he said, it is

President Johnson, addressing NAB members at a Convention luncheon, concentrated his remarks on major national issues, and on the role of broadcasters in dealing with such issues.

acceptable. But it fails the NAB test if it attempts to displace local programming or "aspires to become a pay television system."

FCC Postpones CARS Decision

The FCC has postponed its rule-making proceedings on whether cable systems should be allowed to use CARS frequencies for private microwave transmission of program origination. The original March 22 deadline for filing pro and con comments has been changed to 60 days after the Supreme Court hands down its copyright decision in the *United Artists vs. Fortnightly Corp.* case.

This decision is expected by Court adjournment in June, although it has happened that the Court has failed to decide a case in the term in which it was heard. After pro and con comments are filed, another 60 days will be allowed in which to file replies. This generous time allotment exceeds the July 22 extension requested by the National Cable Television Association and the National Association of Broadcasters.

One suggestion on the rule-making proceedings has already been made to the FCC by the Committee for the Full Development of All-Channel Broadcasting (CAB) and the All-Channel Television Society (ACTS). ACTS recommended that the Commission consolidate into a single proceeding inquiries into cable system licensing and the use of CARS frequencies for local origination. The CAB reportedly seconded the recommendation and also suggested that CATV-translator and top-100 market matters could be included.

Prominent Washington attorney, Robert D. L'Heureux, commented that the proposal "is another effort by the broadcasters to prevent anyone from serving the public except themselves. It comes from a poor source," he said, "when it comes from ACTS because they should be the first to recognize how much CATV is doing to allow UHF television signals to be received by a larger number of people."

Washington Utility Chairman Reassures PNCTA Members

According to Robert D. Timm, Chairman of the Washington Utilities and Transportation Commission, his group has "no jurisdiction and no program to promote jurisdiction over CATV" in the state of Washington. Addressing more than 175 cable television operators at the Pacific Northwest Community Television Association meeting in Spokane recently, Timm said cable has "filled a need in many communities, and that is welcome and worthwhile."

"So the record will be straight about how we feel," he stated, "let me tell you of an affirmative statement we made on this subject. In a national report, *our* state's Commission asserted that we have *no* jurisdiction, and no program to promote jurisdiction. Other states have suggested they ought to become involved; others thought the federal government had the inherent authority."

The possibility of cable television regulation was suggested by Timm on the basis that "someone, one day, will define what it is you do, and set the pattern of the governmental intervention you will

PNCTA president Clay White (left) and Pat Sutherland, association general counsel (right), discuss problems of governmental regulation with Robert D. Timm, Chairman of the Washington Utilities and Transportation Commission (center). Timm's address to cablemen on regulatory philosophy sparked the recent PNCTA two-day semi-annual meeting in Spokane, Washington.

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suffer." But cable system owners, he said, are in a position to guide the future of their industry. "The question of no regulation, limited regulation, complete regulation are all *yours* to answer. And I would think those questions would probably be answered in the legislative halls," he stated. Timm concluded, "Whichever direction you choose to take; whichever pattern of progress you decide, you will have only the best wishes of your Washington Utilities and Transportation Commission."

Also speaking at the PNCTA meeting was attorney John P. Cole, Jr., who flayed FCC regulatory practices. The current attitude of the FCC toward CATV was characterized by Cole as being closely aligned with the wishes of broadcasters. "It is not merely coincidence that the television industry generally gets what it wants. It gets it through sheer power. Money and vast capability to influence public opinion are power, particularly in Washington politics,' he declared. "The television industry has both, and an abundance of each. And the FCC is neither immune from nor unaware of these powerful forces."

During the course of the two-day meeting, the association membership voted to substitute *Cable* for Community in the name of the organization. They also heard a telephone report from NCTA officials in Palm Springs, Calif., where a board meeting was in progress.

Other features of the program included extensive technical sessions chaired by Bob Scherpenseel. Presenting technical papers were: Tom D. Smith, Scientific-Atlanta; Vic Nicholson, Jerrold Electronics; Phil Hamlin, Seattle Cablevision; Hilmer Taxdahl, Total TeleCable; John Dolan, Televue Services; S. W. Tai, Craftsman Electronics; Erwin Schuler, Interference Consultants; and Argyle Brigette, Spencer-Kennedy Laboratories.

Mike Pengra, of KSCS, Spokane, gave a progress report on the Public Broadcast Laboratory, and Stan Searle told operators about the National Cable Television Institute correspondence courses which are available to cable technicians. Clay White, PNCTA president, presided over the semi-annual meeting and Dee Miller served as general convention chairman. Cable operators from the states of Alaska, Idaho, Montana, Oregon and Washington, and from Canada, attended.

Massachusetts Representative Warns Against Unregulated Franchising

Massachusetts Rep. James R. Nolen urged New Bedford, Mass., city councillors recently to adopt a strong set of regulations to go along with any CATV franchise granted there. Nolen said, "When you give a company a monopoly on a product that is marketable, like television, then without price controls, they'll eventually make huge profits at the expense of the consuming public."

Representative James R. Nolen

Speaking to a special session of the New Bedford city council, Nolen said he has a bill pending in the legislature to control CATV operations. Nolen's bill calls for the Department of Public Utilities to assume control over CATV, including rates charged. An alternate bill would place CATV regulation in the hands of local licensing authorities. Nolen's bill has been held by the legislature pending outcome of a study by the State Consumer's Council. There has been some debate whether local governments can legally franchise a system; Nolen said the attorney general's office would rule on the question shortly.

The long-time critic of CATV said New Bedford is "one of the finest markets in the commonwealth for a cable television system . . . and should be let in, but only with proper safeguards." Those "safeguards," he said, "should give city council authority to review and reduce rates if it is shown company revenues justify a reduction." Recently Nolen charged that systems are enjoying a profit of 57 to 68 percent. It was apparently this premise that prompted Nolen's call for rate reduction. "Rates should be made available at the lowest possible cost. This will take public regulation, whether it be at the federal, state or local level, or a combination of regulations."

Six applicants have filed for the New Bedford franchise. They are: WTEV Cable Services, Inc., of New Bedford; National Cablevision, Boston-based firm; Full Channel TV, Inc., Providence; Southern Massachusetts Cablevision, Inc., New Bedford; The Outlet Co., Providence; and New Bedford Cablevision Co.

Commission Plans New Contour Study

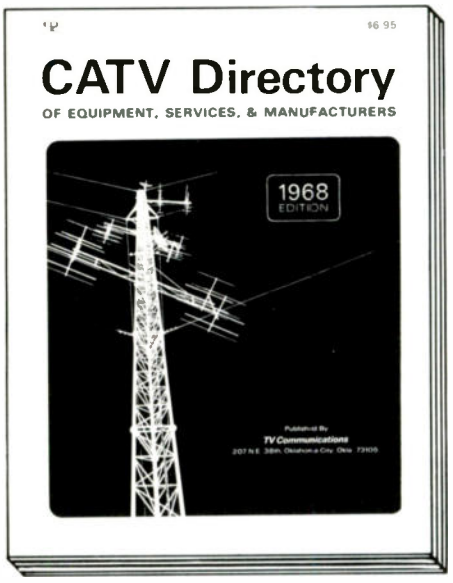
The FCC has announced it will conduct a feasibility study regarding the possible use of actual field strength measurements to determine the coverage of FM and television broadcast stations, instead of relying on predicted contours as it has for years.

The proposed rule making came in response to a petition from a Washington consulting firm, which recommended the FCC adopt the field strength measurement method used by the Television Allocations Study Organization (TASO).

The TASO method requires that mobile measurements be made with the receiving antenna at 30 feet above the ground. Most mobile measurements now submitted to the FCC are made at 10 feet.

This new directory lists over 3,000 CATV products and services offered by 887 CATV manufacturers, suppliers and professional firms.

(It's handy to have around.)



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OF EQUIPMENT, SERVICES, & MANUFACTURERS

TO ORDER, TURN TO PAGE 86.

Stronger Political Action Urged At Southern CATV Association Meeting

Striking similarities between early communications regulation and present day CATV regulatory attempts were cited by J. Leonard Reinsch, president of Cox Broadcasting Corp. in an address to the Southern CATV Association. Cable television operators meeting at Pine Mountain, Georgia heard Reinsch declare that "examination of past federal involvement in the broadcast field helps provide insight into what cable television is facing in the way of regulation today."

He stated that "Congress has always tended to lag behind technical progress in the communications field," adding that "Congress enacts laws to meet the need of new developments only after they have become so urgent as to demand immediate attention."

Reinsch concluded that cable television, just as the broadcasting business, must go through the throes of regulation and supervision. "But, cable operators can learn a lesson from broadcasters by maintaining close political contact with their Congressmen and other politicians," he stated.

Irving Kahn, chairman of the NCTA Public Relations Committee, reported to association members on the programs initiated by his committee. Pointing to beneficial results of National Cable TV Week, he suggested that every system, regardless of age or degree of saturation, can profit from the annual observance. Kahn, who is president of TelePrompTer, emphasized the contribution which operators can make to the national image of cable TV through their local participation in NCTA publicity programs.

Stan Searle, editor and co-publisher of *TV Communications* and *CATV Weekly,* told the 10-state convention audience that "the strength of our cable television industry is the individual operator." Citing specific results achieved when cable system operators personally visit their state and federal legislators, Searle stated that "you must look out for your own interests; do not expect NCTA to solve all of your local, regional and national problems." The National Association staff is not large enough to handle the entire job alone, he asserted.

NCTA attorney Chuck Walsh related the practical details of how cable operators go about contacting their elected officials, and how they have fared in the past. He strongly emphasized that many legislators have very little knowledge of what CATV is, or what its problems are as an industry. Walsh, who recently jointed NCTA's staff to coordinate legislative liaison, said that cable operators who visit the Capitol usually encounter a genuine interest on the part of their representatives. The Association assists in arranging appointments and provides a number of specific aids, he advised, including a short slide presentation to help describe cable TV to the law-makers.

The two-day conference at beautiful Callaway Gardens featured election of officers, a legal session and a technical presentation. Approximately 25 equipment and service suppliers were on hand for the exhibit meeting.

Attorneys John D. Matthews, Edward Kenehan and Bruce Lovett briefed operators on the recent Supreme Court hearing. Sam Street, NCTA, described the various subscriber promotion materials which are available to members of the Association. Mark Wolfe of Anaconda Wire & Cable told an interested audience about some of the advantages and challenges of underground cable construction, and Bob Weisberg gave a report on the availability of films for local origination from newly formed Program Services, Inc.

Bill Hemminger, president of the SCATVA presided over the conference and introduced Georgia's Lt. Gov. George T. Smith who gave a welcoming address. Jim Yager and Orlando Brillante moderated the sessions. By Monday evening's banquet, attendance had swelled to around 300.

The next annual convention of the Southern CATV Association is slated for March 1969 and will be held in New Orleans, La.

Southern CATV Association officers for the coming year were elected at the group's annual meeting. They are: president, Doug Talbot (right) of Cox Cablevision, Atlanta, Ga.; vice president, Grady Perkins (center) of Community System, Inc., Greenwood, Miss.; and secretary-treasurer, Jim Yager (left) of Cosmos Cablevision, Charlotte, N. C. Directors of the association are: Otto Miller, Alabama; David Mooney, Arkansas; Richard Cox, Florida; John Harrison, Georgia; Earnest Bliss, Louisiana; Doug Gardner, Mississippi; Bob Neathery, Missouri; L. H. Taylor, North Carolina; and Paul Puckett, Tennessee.

FCC Defers Action On Small System Waivers

The FCC recently announced a change in its processing of CATV requests for waiver of Section 74.1103 rules. Until now, the Commission has been processing all requests on a chronological basis. This, however, has posed some difficulties to small systems, which can most often "best make out hardship cases" according to the FCC, and which also have the least impact on broadcasting.

The Commission has, as a result, temporarily modified its processing priorities as follows: chronological processing will continue, but action will be deferred in cases involving an established system with fewer than 500 subscribers. The FCC declares that this new procedure will best alleviate small system hardship cases.

But the FCC warned that systems with less than 500 subscribers "will not receive an indefinite carte blanche since their waiver requests will be processed after the existing backlog of cases involving larger systems is acted upon. Systems with pending petitions for waiver will be expected to supplement their petition if and when their number of subscribers exceeds 500. The Commission is hopeful that the modified procedure will provide the maximum immediate benefits from its carriage and program exclusivity rules."

Multiple Ownership Rule Could Be Danger To CATV

A proposal that the owner of one type of broadcasting station, whether AM, FM or TV, not be permitted to own another type in the same market has become the latest in a series of FCC proposals "to promote program diversity."

The proposed new rule would not apply to present ownerships, but only to applications to sell or buy or to construct new stations. The vote was 6-0, although this was only on whether or not to consider such a rule. Those interested may file pro and con comments on the proposal until June 26, and the commission has set a deadline of July 8 for the filing of briefs containing answers to those arguments raised in the first briefs.

NCTA president Fred Ford labled the FCC proposal as a "danger to our industry." In his president's letter to members, Ford said, "The ownership pattern of broadcast stations has become, so sophisticated, so broadly public, as to make such a proposal totally impractical." Ford criticized his former colleagues saying, "What is to keep the Commission from saying tomorrow that you can't own a TV, FM or full-time AM station in the same market where you also own a cable television system?"

The Commission, which only recently decided not to impose limitations on ownership of TV stations in the largest markets, excepting the current general multiple ownership rules, said the new idea is part of a "continuing study of problems dealing with concentration and diversification of the broadcast media and of allied interests in other public opinion media."

Cablemen Plan ETV At Illinois-Indiana Meet

More than 150 cable television operators approved plans for an ETV pilot program at the Illinois-Indiana CATV Association meeting in Springfield recently. The association membership will work with the Illinois Department of Instructional Television in developing the program, and the first phase is scheduled for September, when CATV facilities will begin distributing videotaped programs to individual schools.

The master plan will involve broadcast transmission of specified programs to schools equipped with their own VTRs. In cases where CATV facilities are available, however, the local operator will videotape the programs and cable them to various schools in his system at scheduled times. According to Lynn Farrington, officer of the Illinois Dept. of Instructional TV, about $2,000 will be saved at each school involved if CATV facilities are utilized. Actual pilot tests will take place in the Springfield, Illinois area. An association spokesman indicated that the membership was glad to have the opportunity to work with the Department of Instructional TV and that they would "support them all the way."

Meeting participants, including state and local congressmen, heard NCTA Managing Director Wally Briscoe speak on CATV and copyright. Briscoe also informed the members present that a revised version of NCTA's public utility pamphlet is in production. The brochure, condensed and simplified at the request of the Illinois-Indiana Association, will soon be available on a national basis for sending to state senators and representatives.

New officers elected at the meeting were: John Gwin, Robinson, Illinois, president; Royce Greer, Danville, Illinois, first vice president; Phil Aston, Lafayette, Indiana, second vice president; and Douglas Phillips, Flora, Illinois, secretary-treasurer. Board directors elected were Clarence Ross, Ottawa, Illinois, John Foster, Attica, Indiana and Alfred Stelk, Kankakee, Illinois.

System Sales

Tower Antennas, Inc. of Coshocton, Ohio has purchased the Newcomerstown (Ohio) cable system from **Oliver Ortt.** Ortt will continue to operate the system. The acquisition of Newcomerstown gives Tower Antennas a total of 18 cable systems.

Oak Ridge CATV Inc. (Tenn.), serving 1,500 subscribers has been purchased by **Vikoa, Inc.**

Cablevision of Fredericksburg, Inc. (Va.) has been sold to **Richmond Newspapers, Inc.** The system was formerly owned by a group of small investors headed by Mr. and Mrs. Robert J. McGeehan of Silver Spring, Md. The three-year-old firm serves 2,000 homes in Fredericksburg as well as Stafford and Spotsylvania counties. Six Washington stations, three Baltimore stations, three Richmond stations and a 24-hour weather service are carried on the cable. Purchase price was reported to be approximately $650,000.

Meredith-Avco of Cincinnati is selling **Tennessee Cablevision Inc.** (Harriman, Tenn.) to **Woman's Hospital** of Chattanooga. Woman's Hospital is owned by Dr. William C. Pallas of Chattanooga.

H&B American Corp., Calif., has agreed to purchase a 70% interest in **TV Receptors, Inc.**, which is building a major system in San Bernardino, Calif. and adjacent county areas. H&B is also purchasing an 81% interest, with option to purchase the remaining 19% interest, in **Mountain Cable TV, Inc.**, which is building a large system in San Bernardino County. Approximately 40,000 homes are in the areas to be served by the two systems, and H&B estimates that the basic construction program for the two systems will cost $3 million.

Edward H. Lamb, Toledo businessman, announced the sale of his cable system in Flint, Mich., to **Lamb Communications, Inc.**, a publicly owned subsidiary under his influence.

Maumee Cable TV, Inc. plans to purchase the Napoleon, Ohio cable system from **National Theatre Supply Co.**, in the event the city council will grant a new franchise.

Don Benedict has purchased the **Beaver Valley (N.Y.) TV Cable Co.** from **George Alderman, Jr.** The system serves over 100 subscribers.

Cornelia Corp. has announced the acquisition of **Res Con Consultants, Inc.** of Parker and Phoenix, Ariz., owners, operators and builders of a cable system located on a 60-mile-long area in Arizona and California along the Colorado River. In addition to CATV franchises along the Colorado from Parker Dam, Ariz., to Blythe, Calif., Cornelia is acquiring franchises in Salome and Seligman, Ariz. The same firm has also purchased **Suffolk Cable Corp.** in **Brookhaven, N.Y.** TVC

CATV Marketing Firm Formed

The formation of a new marketing firm, CATV Marketing, Inc., has been announced by its president, Mark Van Loucks. The firm offers pre-marketing surveys, including aerial photography, door-to-door samplings, and engineering studies. Other services include the design of door-to-door promotional programs, tailored for the particular community and the training of local personnel in door-to-door sales or the provision of CATV Marketing crews employed by the firm. The new firm will also offer public relations promotions and will provide information for subscriber billing systems and other record systems. Headquarters are in Pleasanton, California.

Rhode Island Court Bans Cable System

The Rhode Island Supreme Court has ruled that no municipality can license any business activity unless specifically authorized by the state. The decision involved a CATV system franchise awarded by the East Providence city council. The court found that the franchise granted in

1966 to Full-Channel TV by the East Providence city council was null and void and permanently prohibited the firm from operating.

Cablemen Bring ETV To Wyoming This Fall

Wyoming will receive ETV this year, according to Don Tannehill, chairman of the Educational Television Committee of the Wyoming CATV Operators. The program is being financed by the cable operators who plan to begin closed circuit television from the University of Wyoming this fall. FCC authorization will be sought for two microwave links which will connect the entire state to cable connections.

Tannehill said the system will reach approximately 74 percent of the public school students, and all of the parochial and junior colleges.

FCC Stalls On Philly

The FCC recently granted without hearing four applications to bring distant signals into the Philadelphia TV market, and it set 24 other applications for a giant consolidated hearing. The four granted applications are all at a distance from the city and are primarily small towns.

Setting the 24 more important applications for a consolidated hearing was tantamount to an indefinite delaying action. According to Washington sources, the FCC probably acted deliberately to avoid a decision in the foreseeable future.

California Considers PUC Regulation of Cable

Three bills have been introduced in the California legislature affecting CATV: One would place systems under Public Utility Commission regulation, the second would exempt systems from PUC regulation, and the third would limit local taxes against the systems.

State Senator George Miller, who introduced the bill that would put systems under the PUC, was quoted as saying that regulation by city governments "has not been effective in enforcing reasonable charges for service." TVC

NCTA Reports On Cablecasting Survey

A recent survey conducted by the NCTA revealed that local origination is popular among cable system operators and that it is destined to become commonplace in the not too distant future. Of the 324 systems responding to survey questions, 52% originate programming of some kind, and nearly three-fourths of the remaining operators said they intend to become involved in cablecasting in the future.

The survey yielded data on types of programming, methods of programming, services offered to schools and advertising. The following table lists the percentage of responding operators giving affirmative answers to the items.

Programming:

Time/weather service	47
Sports events coverage	13.8
"Talk" programs	13.8
Film shorts	10
Live/taped news	9
Local council meeting	8.3
News ticker service	6
Feature films	3
Stock ticker service	1.8

Method of Programming:

Slide display	24
Videotaping	18
Film showing	15
One-man studio	14.8
Control room	11

(The average operator has 1.5 cameras and operates in an average studio of 430 sq. ft.)

School Service:

Free drops	66
Drops at cost	10.5
Regular rates	4.5

Advertising:

Accept advertising	10.5
Plan to accept advertising	8

(Cost for one-minute spots ranges from $1.00 to $30.00; cost for 30-minute show ranges from $7.00 to $100.)

First Color Cablecasting Package

The first complete CATV live color studio package was announced recently by Bill Daniels (left) of Daniels & Associates, and Ken Lawson (right) of TeleMation, Inc. Equipment includes International Video Corp. color cameras and color video tape recorders, as well as TeleMation multiplexing equipment, sync generators and other system components. The new color equipment is slated for the Coachella Valley Cable TV, Palm Desert, Calif., system owned by Dr. David Palmer, of Palmer Broadcasting (Iowa) and managed by Daniels Management Company.

Construction Reports

Elba, Ala. — Pete Johnston, manager of Elba TV Cable, has announced official beginning of cable service in the city. Subscribers are receiving 10 channels, including network affiliates from Columbus and Montgomery, as well as a 24-hour weather service with FM background.

Muscle Shoals, Ala. — Milton Underwood, general manager of Muscle Shoals Cable TV Co. has announced plans for a $1.5 million expansion of the present system. Head-end equipment is being provided by Jerrold, and the cable by Times Wire & Cable Co. Microwave petitions are pending before the FCC to bring in Atlanta signals. In the modernized 12-channel system, one channel will carry 24-hour time and weather with FM music and another will be devoted to local public service.

Lodi, Calif. — Multi-View Systems, Inc. of Lodi is proceeding with land acquisition and has applied to the county for a use permit to construct a 220-foot tower. Once the land is acquired, according to Reuben Rott, secretary-treasurer of the firm, the company will proceed with contract arrangements with Pacific Telephone Co. A total investment cost of over $700,000 was estimated by the firm to complete the 20-channel system.

Bainbridge, Ga. — Buddy Dykes of Bainbridge TV Cable Co. has signed a contract with J-E Construction Co. for construction of a cable system for the city.

Centralia, Ill. — Parts of the cable system are now operative and remaining sections are being balanced according to Russell Zimmermann, manager of Sullivan Cablevision, Inc. Subscribers are now receiving 2 of the 3 local origination channels, including a weather service, and the system is providing all St. Louis TV stations plus signals from Harrisburg, Carbondale, Paducah, Ky. and Cape Girardeau, Mo.

Lafayette, Ind. — Purdue University is installing a cable distribution system on campus to carry commercial entertainment-type programming to about 2,000 outlets. The system is expected to be operative by next fall, according to Ron Baker, electronics designer for the school. The system is in addition to the school's existing educational distribution system.

Guthrie Center, Ia. — United Transmission has energized a system carrying off-air signals from Des Moines, Ames, Omaha and Sioux City. Entron head-end and Anaconda amplifiers and cable were used in the system as well as TeleMation local origination equipment for the time and weather channel.

Fredonia, Kan. — A $10,000 improvement program has been planned by system owners Gene and Richard Schneider. Fredonia Cable TV Co. will modernize equipment and replace cable with a new type.

Atchison, Kan. — Atchison Cablevision's system was recently energized, providing 12-channel viewing to some 200 pre-start-subscribers. The 46 miles of plant carry signals from Topeka and Kansas City as well as a time/weather service. System owners expect to provide local origination in conjunction with area colleges.

Peekskill, N.Y. — Alfred Harry Miller, representing Continental CATV of New York, Inc. (a Vikoa subsidiary) has announced construction plans for a cable facility to serve Peekskill, Buchanan, Cortlandt and Yorktown. A local origination closed circuit color channel is planned for ETV and public service features.

Massena, N.Y. — Edmond Harmer, general manager of Antenna Systems Corp., has announced completion of a new Vikoa-built cable system. Until now, subscribers were receiving 5 channels, but the new system will microwave in signals from New York City, Syracuse and Watertown.

Riverdale, N.Y. — CATV Enterprises, Inc., a Westinghouse affiliate, recently announced the award of turnkey contract to Entron for construction of an all-solid-state, 12-channel system to serve the Riverdale Section of Bronx County, New York.

Manhattan, N.Y. — An agreement has been announced between Manhattan Cable Television and Alcoa Residences to make CATV available to tenants of Alcoa owned and managed properties. Alcoa Residences owns and manages 7,637 apartments in Manhattan, and 300,000 square feet in the United Nations Plaza Building.

Rockingham, Hamlet, N.C. — Larry Lewis, general manager of Jefferson-Carolina Cablevision, has announced the beginning of service in Rockingham. Hamlet is expected to begin receiving cable service the middle of May. The 12-channel programming includes one channel with music, weather, news and time.

Pennsylvania — The beginning of construction for several new Color Cable systems was announced by Robert E. Tudek, vice president of Centre Video (parent company of Color Cable). The new systems will serve the areas of Ambridge, Sewickley, Harmony Township, Baden, Economy, Conway, Osborne and Haysville. TVC

Calendar

May 7-8. The NCTA Executive Committee will hold a meeting in Washington, D.C.

May 8-9. The Pennsylvania Community Antenna Television Association will hold their spring meeting at Allenberry-On-The-Yellow-Breeches, near Boiling Spring, Pa.

May 12-14. The California CATV Association spring meeting will be held at the Senate Hotel in Sacramento, Calif.

May 13-16. The National CATV Association of Canada will hold the 12th Annual Convention & Trade Show at the Empress Hotel, Victoria, British Columbia.

May 17. New York State Community Television Association will hold its annual spring meeting.

May 28. The Alabama CATV Association will meet.

June 3-5. The NCTA Board of Directors will hold a meeting. Place to be announced.

June 4-6. The Second Annual Microwave Exposition will be held at the San Francisco Hilton Hotel, San Francisco, Calif.

June 28 to July 3. The NCTA will hold its 17th Annual Convention in Boston at the Sheraton-Boston Hotel.

September 29 to Oct. 2. The fall meeting of the Pacific Northwest CATV Association will be held at the Sheraton-Portland Motor Inn, Portland, Ore.

November 10-13. The California CATV Association will hold its fall meeting at the Del Coronado Hotel, Coronado Island, Calif.

FINANCIAL REPORTS

Vikoa Inc. reports per share earnings of $.55 for the year ending Dec. 31, 1967. This compares with per share earnings of $.86 for 1966. Earnings figures are based on net incomes of $751,012 and $1,113,724 for the two periods respectively. Sales were $15,297,851 for 1967 and $15,346,000 for 1966. Also reported were figures for the quarter. Per share earnings for this period were given as $.24 as compared with $.21 for the same period the year before. Net incomes for the two periods respectively were $337,012 and $272,000 and sales were $4,984,063 and $3,642,000.

Cox Broadcasting Corp. reports per share earnings of $2.62 for the year 1967. This compares with per share earnings of $2.12 for the preceding year. Earnings figures are based on net incomes of $7,518,527 and $5,953,359 respectively. Operating revenues for 1967 were $49,576,170 and $39,446,599 for 1966. According to Cox president J. Leonard Reinsch, CATV operations accounted for 9% of 1967 revenues, and acquisitions during that year brought the number of subscribers to over 84,000.

Reinsch also announced 1968 first quarter net earings of $1.5 million on operating revenues of over $11. A regular quarterly cash dividend of 12½ ¢ per share was payed April 15 to stockholders of record on April 2.

International Silver Company reports per share earnings of $1.46 for the year ending Dec. 31. This compares with per share earnings of $1.40 for the preceding year. Sales for 1967 were $173,900,000 and $168,300,000 for 1966. International Silver is the parent company of Times Wire and Cable, designers and manufacturers of coaxial cable for the CATV industry.

Reeves Broadcasting Corp. recently announced plans to create a new class of stock to be used largely for future growth and acquisitions. 100,000 shares of no-par preferred stock will be issued. Chairman Hazard E. Reeves said the company would use a maximum of 15,000 shares of the issue in connection with the acquisition of Video Cable Systems Inc., Huntsville, Ala. CATV firm. Under the terms of the acquisition, Reeves will issue these shares as 2% convertible preferred stock.

Famous Players Canadian Corp. reports per share earnings of $2.04 for the year 1967. This compares with $1.77 for the preceding year. Total income for 1967 was reported as $42,769,156 with a net profit of $3,543,362. 1966 income was $35,933,359 with a net profit of $3,078,716. Among other interests, Famous Players Canadian Corp. has large CATV holdings. During the last quarter of 1967, Metro Cable TV Ltd., which operates FPC's Toronto cable system, acquired a 45% interest in Grand River Cable TV, Ontario. Metro also acquired a 50% interest in Orillia Cable TV.

Continental Telephone Corp. reports per share earnings of $1.08 for the year ending Dec. 31, 1967. This compares with per share earnings of $.92 for the preceding year. Earnings figures are based on net incomes of $21,559,579 and $963,000 for the two periods respectively. Sales were $183,968,044 for 1967 and $153,174,941 for 1966. Continental Telephone owns Superior Cable Corp. as well as several CATV systems, including systems in Clarksville and Russelville, Ark., and Barstow, Calif. TVC

FOCUS ...On People

Systems

Manhattan Cable Television has appointed **Oleg G. Cherny** director of finance and administration. He was formerly president of Consultants in Organization Management & Finance (a confederation of independent consultants).

Abram Patlove has been elected vice president in charge of systems operations of Continental CATV, Inc., a wholly owned subsidiary of Vikoa, Inc. Patlove has served as systems development director since

Oleg G. Cherny

Abram Patlove

joining Continental last year. He will be responsible for all Continental systems in Pennsylvania, New Jersey and Ohio.

Melvin Myers has been appointed manager for the G'TEC Cable TV system in the Vidalia-Lyons area. Prior to his appointment he managed the cable system in Elberton, Ga.

Edward Harmer has been appointed vice president of Antenna Systems Corp., Massena, N.Y.

Georgetown Cable TV, Ltd., Georgetown, Ontario, has announced the appointment of **Wilfred C. Shaw** as vice president and general manager, and **John E. Olliver** as manager of sales promotion and subscriber services.

William C. Burdick is the new system manager at Telecable of Bremerton (Wash.). Burdick, former manager of California Interstate Telephone Co., will also manage the Poulsobo system.

Paul Coker has been named manager of the Phillipsburg TV Cable Co., Phillipsburg, Kansas. He has 10 years experience in the field.

Roger Hall was recently named manager of the Keokuk, Iowa, branch of Cable-Vision Co.

John Troy has repurchased the CATV service in Emlenton, Pa. Troy, the original owner, sold the system several years ago.

Clare N. Bristol has been appointed eastern region manager of community relations for GT&E Communications. Bristol, former manager of the G'TEC Cable system in South Haven, Mich., will be responsible for negotiations in the eastern region involving new cable television franchises for GT&E Communications. Bristol joined General Telephone Company of Michigan, a GT&E telephone

Clare N. Bristol

George W. Henderson

operating subsidiary, in 1943, and held positions in the engineering, purchasing, plant administration, sales and marketing departments.

Suppliers

George W. Henderson has joined Kaiser CATV Corporation, as field engineer. The announcement was made by Robert W. Behringer, executive vice president and general manager. Henderson has been in CATV for the past 6 years as a field engineer for Ameco and Jerrold, and most recently as chief engineer for Cable TV of Santa Barbara.

Robert Wheatley has been named operations manager for the CATV Construction Department of Jerrold Electronics Corporation. Wheatley joined Jerrold in 1956 as an installation technician; from 1960-62, he served as an assistant estimator. He also has been a technician with Television Cable Corporation, Kingsport, Tenn.

John E. Chaney has been named supervisor in the customer service department for Superior Continental Corporation. Chaney will be

Robert Wheatley

John E. Chaney

responsible for coordinating customer service activities involved in sales and marketing.

A major realignment of sales and marketing functions for the Brand-Rex Division of American Enka Corp. has been announced. **Charles R. Riordan**, general sales manager since 1960, has been appointed marketing manager. **Chris Walker**, Communications sales manager for the past year, has been promoted to general sales manager. **Edward W. Mickevicz** is the new manager, OEM markets, a newly created position, and he will be assisted by **Paul I. Valliere**, commercial market manager.

Sony Corporation of America's newly created VTR Division will be under the direction of vice president, **Bruce L. Birchard**. Birchard is also president of Videoflight, Inc., the Sony subsidiary at Jamaica, New York, which does tape duplication for industry, the medical field and education.

Jerrold Electronics has named **G. C. Baer** sales engineer for the western region of the Educational and Communication Systems Division and **O. W. Lindberg** has

been appointed sales engineer in the telephone marketing department of Jerrold's CATV Systems Division.

Thomas K. Albee has been appointed program manager for the telecommunications market of Amphenol Corporation. He will be responsible for working with all divisions of the corporation. Formerly, Albee was a staff engineer for Amphenol in Broadview, Ill.

Wayne A. Beaverson has been elected president of Electro-Voice, Inc., a subsidiary of Gulton Industries, Inc., Metuchen, N.J. Beaverson joined Electro-Voice in 1948, was appointed vice president of engineering in 1958, and was elected to the board of directors in 1962.

C. E. Swehla has joined the B. E. Duval Co. as manager of the CATV Division. He has had wide system experience and will provide service to CATV customers in California, Nevada and Hawaii where Duval represents Benco Television Corp.

Fred Garza has joined Southwest Suppliers, Inc. of Dallas. He will promote CATV in Missouri, Kansas, Arkansas, Oklahoma, New Mexico, Texas and Louisiana. Garza was formerly with Vikoa, Inc.

Don Neel has been named sales representative for Iowa, Missouri, Nebraska, Kansas, North and South Dakota by Cascade Elec-

Don Neel

Thomas E. Athans

tronics. Also named as a sales representative **Thomas E. Athans** will serve Oklahoma, Texas, Arkansas, and Louisiana for Cascade.

Nathaniel M. Marshall has been named vice president, marketing, industrial and educational products for Ampex Corporation's consumer and educational products division. Marshall is responsible for marketing closed-circuit video tape recorders, television cameras and associated equipment.

Professional

The Louisiana Association of CATV Operators has elected **Earnest E. Bliss, Jr.** as president. Bliss is general manager of Houma Cablevision Inc. in Houma, La.

John Gwin has been re-elected president of the Illinois-Indiana Cable Television Association. Other officers for the year are: **Royce Greer** of Danville, first vice president; **S. M. Aston**, LaFayette, second vice president; **Douglas Phillips**, Flora, secretary-treasurer.

Martin F. Malarkey, president of Malarkey, Taylor and Associates, recently announced the opening of the firm's new offices at 1225 Connecticut Avenue Northwest, Washinton, D. C. Malarkey stated that the larger quarters were necessitated because of additions to the MTA staff.

Increasing Your Saturation Through Seasonal Promotions

Cable television is constantly affected by the change of seasons. Often the "seasonal slumps" in new hookups can be curtailed or even dramatically reversed by the use of effective seasonal promotions.

By Mimi Barash
Barash Advertising

The cable television business is one of the most dynamic young industries in America today. And because of its incredible growth and bright future, it is also one of the most problem-plagued industries in existence.

Due to the apparent uncertainty of the industry's posture in the future, it would be very easy for you, the system operator, to become overly conservative in your approach to the promotion of your system. Our exhortation to you is, "Don't!" Don't be preoccupied with these problems when it comes to promoting cable TV in your town. Take a positive sales position. The best insurance for future problems the cable industry has is public sentiment. You have a great service to offer, and the more people you have enjoying your service, the more secure the future of your business will be.

A good promotional effort requires a certain amount of speculative investment, but the return of good dividends is almost certain.

One of the most effective ways to promote subscribers for a system, we submit, is through seasonal and special promotions — promotions that deviate from the hackneyed approach — promotions that permit you to truly merchandise the outstanding service you have for sale — promotions that create a greater desire for immediate action.

Look first at successfully tried and tested seasonal promotions that will produce what you're looking for — customers.

Summer

Start with summer because it's fantastic. Most cable operators follow the practice of spending very few of their advertising dollars in the summer months. They believe it's the worst time of the year to promote cable service because summer TV offerings leave a great deal to be desired. How wrong they have been in terms of expenditures! They should do themselves a favor. Run a special summer promotion beginning July 15 or 20. Offer *free* connection and *free* service until September, all orders to be received by August 12. Get ready for the flood of orders. Want to hear facts and figures? In one system which has run this promotion for the last four years, the effort has repeatedly resulted in the addition of over 500 new subscribers. Last summer, they hit a new high — 743 new customers in a system which already has 60% of the potential on

SUMMER PROMOTION

PURPOSE:
To get a maximum number of new subscribers connected in slowest month so that they will be paying customers at the outset of the best TV season . . . Fall. Such a purpose aids in getting maximum production from service crews in normally very slow period.

EXPENDITURES:

Newspaper	$550.00
Radio	186.75
Direct Mail	200.00
	$936.75

NATURE OF PROMOTION:
Free connection and free service til September 1 to all new subscribers ordering cable connection between July 27 and August 17. Also applies to orders for additional outlets.

RESULTS:
1. 719 new subscribers
2. 111 additional outlet orders

CHRISTMAS PROMOTION

PURPOSE:
1. To generate new subscribers
2. To tie-in a Christmas "gift idea" as a public relations effort.

EXPENDITURES:

Newspaper	$389.00
Radio	188.00
Direct Mail	200.00
	$777.00

NATURE OF PROMOTION
Free service til January 1st to any new subscribers joining between November 28 and December 16. Free offer also applies to additional outlets.

RESULTS:
1. 284 new subscribers
2. 36 additional outlets

the cable. Advertising cost per new subscriber: $1.67! Simple multiplication reveals a gross increase in business of $3,343.50 per month!

For those from Missouri who have to be shown about the advisability of promoting anything *free*, I suggest they stop worrying about a very obvious misconception. The greatest salesman in the world is the word *"free."* Sure, you lose the connection fee, but gain so much more in the long run. As for the free service, it really is quite safe to assume these new subscribers probably would not join a system in the summer. Meanwhile, you do get them on a paying basis at the start of the best season. At the same time, you keep connection crews well scheduled on a continuing basis in July and August, when, normally, their work load is light. Furthermore, you avoid the hang-up of backlog orders in the fall months.

Go all out on this promotion and don't cut corners. Use all possible media in your market for effective exposure — newspaper, radio and direct mail. In my opinion, all are a must for maximum effectiveness.

Fall

Because the programs cable television sells provide a built-in, natural sales advantage at the start of the new season, the fall approach should be a direct one without any reduction in price. Sell programing. Be specific in ads about the new shows, the great depth in coverage of all winter sports, and especially football. Always build, in particular, the number and names of shows available *exclusively* on cable. In other words, promote those shows that either are not received or received with poor reception off the air.

This is your best potential selling season at the regular price. Follow basic merchandising rules. Be specific and consistent . . . and remember there is no need to give anything away in this selling season.

Winter and Christmas

You say most people aren't thinking about watching TV around the holiday season? Maybe, but that doesn't mean they're not interested in being hooked up on the cable. Especially if you make it attractive for them. As a matter of fact, it's a great idea for a family present for the holiday — a present that brings pleasure and enjoyment year-round.

Once again, merchandise cable service. Some systems have used a rather low reduction in price most effectively — free cable service until January 1. Begin your promotion right after Thanksgiving (you may get in trouble with the "don't commercialize Christmas too early" critics if you begin the promotion before Thanksgiving!) with a deadline for receipt of orders around December 10. Give the added benefit of delayed payment —" enjoy the cable for Christmas in your home, pay nothing til January, and then, only 'so much' for monthly service."

The same system which used the summer free promotion, has also used this approach for the last three

SPRING BASEBALL PROMOTION

PURPOSE:
1. Generate hookups.
2. Announce the opening of baseball season.
3. Capitalize on a national interest.

EXPENDITURES:

Newspaper	$250.00
Radio	120.00
Baseballs	432.00
	$802.00

NATURE OF PROMOTION:
Free autographed baseball from the major league team of your choice with connection Apr. 24 — May 12.

RESULTS:
144 new subscribers

from the major league team of the subscriber's choice when he joined the cable from April 24 through May 12, Again using the same example system, 144 new subscribers joined during this promotion at a cost of $5.00 per subscriber including the cost of the premium. Monthly gross increase... $648.00.

While these subscribers cost more from an advertising point of view, it is important to remember to view advertising cost-per-subscriber on an overall basis. Some promotions will cost more, but overall, advertising cost per new subscriber, in our opinion, will be consistently under $5.00, when you effectively merchandise your cable service. Always remember, too, that you're buying subscribers for long range income!

There you have it. A must in a CATV advertising program is pro-

(Continued on page 60)

years during the holiday season, and has had excellent success for that period. Last year, the system gained 284 new subscribers plus 37 orders for additional outlets from existing subscribers during this two-week promotion. Total advertising cost per order was $2.42 with a gross monthly increase in business of $1,215.00. There you have sales results that will decorate your bank account all year!

Most of all, don't be afraid to step forward and promote at this key time. You'll be surprised with your results.

Spring

In the spring, 'tis said, "A young man's fancy turns to love," and most men, young and old, love baseball. So, use this as a point of departure on spring promotion.

With baseball, you have a tailor-made opportunity to offer a premium to new subscribers. There are many possible choices including baseballs, hats, bats and such. (incidently, if you use a premium, it should have a direct tie-in to what you are trying to promote.)

Barash Advertising's newest baseball promotion, used this year on a trial basis in the systems we serve, proved more sucessful than our previous efforts on baseball. We offered a *free* autographed baseball

CABLE TV WEEK PROMOTIONS

a. I Like Cable TV Contests

PURPOSE:
To create a strong public service image to draw attention to cable and National Cable TV Week.

EXPENDITURES:

Newspaper	$260.00
Radio	175.00
	$435.00

NATURE OF PROMOTION:
Month-long "I Like Cable TV" Contest. Tell in 25 words or less.

RESULTS:
1. 311 new subscribers during January
2. Excellent public recognition of cable.
3. 539 entries in the contest.

b. Display in Downtown Window

PURPOSE:
To create a strong public service image to draw attention to cable in general . . . and National Cable TV Week in particular.

EXPENDITURE:
$150.00

NATURE OF PROMOTION:
2-week technical, informational and promotional display tied in to contest.

RESULTS:
1. Excellent exposure on the main street in downtown area.
2. Good backup to contest and basic PR approach as a service industry.

* YOU GET 20-CHANNEL CAPABILITY FOR THE PRICE OF 12 IF YOU USE *KAISER CATV EQUIPMENT*

You get the 12 channel system you need now, but you also get — at no additional cost — the capability of increasing to 20 channels on your system. You simply add the channels as you need them, at no additional distribution system cost, and without signal degradation or the usual layout changes, module additions or "factory adjustments."

You save money by installing the Phoenician Series, and you profit from Kaiser's experience in the CATV field. The Kaiser reputation assures that you will receive the best equipment and the most knowledgeable service at the lowest possible price.

BUY NOW — AND GET YOUR EXTRA BONUS — 8 FREE CHANNELS

KAISER CATV

KAISER CATV CORPORATION / *P. O. Box 9728, Phoenix, Ariz. 85020, Phone (602) 944-4411*

member, world famous team of Kaiser Affiliated Companies

One million homes have been transformed by craftsman.
Quality conscious operators
have made that decision.

We are now ready for the second million

craftsman

Write or call, collect, for free literature 133 West Seneca St., Manlius, N.Y. 13104 Area Code 315 682-9105

Getting the Most from Your Local Newspaper

In most cable-served communities, the local newspaper is a vital tool for both advertising and news coverage—if you don't confuse the two.

By Charles Wigutow
Cable TV Consultant

Favorable exposure in the local newspaper should be a basic consideration in the public relations effort of every cable television system. Informative news items or articles about some aspect of cable television can be more valuable than paid advertising in many cases. This is underscored by the fact that the cost of good publicity is generally reckoned in terms of imagination and a "sense of what's news"—rather than hard cash.

Speaking of cash . . . do not make the mistake of trying to establish a relationship between your paid advertising and "free publicity" in the local press. It is true that newspaper publishers exist on the money they take in from advertising. And it is also true, that heavy advertisers might find it easier to place news releases in some papers, but it would be a serious faux pas to go to the publisher with your advertising bill in hand and say, "You owe me news space with all the money I am spending in your paper."

This is a pretty likely way of sending your story into the waste basket. When you look at it from the perspective of what makes a newspaper an effective vehicle for your advertising, you will realize why forcing "news" on the editor is no favor to you.

News is read because it is news, not merely because it shows up in print; and there is a sharp cleavage between news and advertising.

An ad can use words like *best, perfect, tremendous;* all of the superlatives. The only real limitation should be believability. An ad may concern an event, or no event. It can simply be a reminder to the public that there is a cable system in town. News, on the other hand, is about something new, something that is taking place that has some meaning for a lot of readers. And the readers are not being urged to buy anything by a legitimate news item.

If your newspaper were to use "news" as a vehicle of advertising, the chances are the publication would lack interest for its readers and probably would lose circulation. When a local paper is eagerly read, advertisers always receive better readership — and consequent results.

But this doesn't mean that a cable company is without legitimate news that should be appearing in the press. Far from it; people are so steeped in television viewing

(Continued on page 60)

Weber, Halpin Debate On Cable TV Tonight

When Robert J. Halpin and Robert H. Weber, candidates for the State Senate, meet in debate tonight at the cable television studio it demonstrates that a television outlet in Bridgeton is possible by cable. The TV industry generally holds to a business guide line that says it takes a minimum of 50,000 population to support even the least costly TV station.

No station in Philadelphia could do justice to each of the many communities within its broadcast orbit, even with the best will in the world to do so. There simply is not enough air time in the day to cater to the local needs of all of them. But cable television is able to televise community events when the event warrants it because its lines lie within Bridgeton, alone and it has both a studio at 68 South Laurel street and community channel 7 devoted to the city's affairs.

Weber, Halpin Debate On Bridgeton TV

Bridgeton's closed circuit television channel came through locally Thursday night with a promise of more debates to come in the contest for the Democratic nomination to the State Senate.

Joe McCulley, of Radio Station WSNJ, Bridgeton, in moderating the debate announced additional closed circuit meetings between the two contestants will be held until the date of the election.

Robert Halpin, speaker of the House, in leading off the debate gave a bow to Garden State's closed circuit telecast in Briddgeton as a generous public service. This was echoed by Robert Weber, past senator, who said to the audience, "Thank you for inviting us into your homes."

An on-the-spot telephone survey while the talks were in progress indicated that almost half the Bridgeton adults were watching.

Garden State Cable TV Adds Features

Garden State TV cable in Northfield has taken another step toward filling the VHF dial of the television set with programs.

WNEW-TV, Channel 5 from New York, has been added to the cable system and can be received by cable subscribers on their dial setting Channel 13.

WNEW features movie pictures that have been well received by newspaper critics. Pictures that have made it big like "Miracle on 34th St.," "Reap the Wild Wind."

On week nights Alan Burke and his special guests meet the public in his studio for an hour of sharp shooting questions and answers. David Susskind has his two hours on Sunday evenings with his probing panel shows.

A new educational feature has been added this summer on WNEW; daily shorthand lessons at 10:30 a.m. each day.

The announcement on the left emphasized the strictly local, public service role of cable television in Bridgeton. Front page story (center) gave about equal emphasis to politicians and closed circuit medium used for the debate. A new channel on the cable is news (right), and details of the new programs available are important to readers.

Making Things Happen With Direct Mail

Direct mail subscriber promotion techniques are by no means new to cable system operators. The opportunity to improve these techniques via professional counsel is obvious, however, and to that end this article is presented.

By Samuel Henry
Samuel Henry and Associates

There is an old "inside" joke among advertising agency executives, to the effect that the only really bad ad is the ad that never ran. There are several ways to interpret this.

1. Any ad is better than no ad at all so long as (like the Holywood press agent) it spells the client's name right.

2. Or it could (and usually did) refer to the fact that an ad not published could not earn the agency its usual 15 percent commission!

Fortunately, these cynical comments do not apply to direct mail, which most agencies eschew, but which must stand on its own two feet *and produce*, if it is to exist.

Psychologists often divide people into three types — those who *make* things happen, those who *watch* them happen, and those who hardly realize anything is happening . . . Well-planned direct mail can be the kind of advertising that makes things happen. Let's assume you are an alert, intelligent cable system manager with something to say, and a good, up-to-date list of potential customers for your service. The problem of planning effective direct mail then centers around two basic questions: How to reach my prospective subscribers with the most persuasive selling message? Second, how to induce them to *act* on the message, to at least move in the direction of signing up. This is all any advertising can be expected to accomplish.

(Before leaving the question of mailing lists, a brief reminder: To sow a successful crop, one must plow in fertile ground. The number of otherwise intelligent businessmen who launch elaborate, expensive mailing programs without first checking up on their prospect lists has always astounded this writer. Here is the easiest, perhaps most important part of insuring results from your direct mail advertising — *and the one most neglected.*

Armed with a good, accurate list of names, and addresses, direct mail can be a potent tool in your over-all subscriber selling program. Like any tool, it must be used with skill.

How well do you really know your prospects? What are their true likes and dislikes? Unless we know what *really* interests people, and can use the knowledge to gain their attention among the many competing appeals, personal pursuits, worries and distractions of day-to-day living (including so-called "free TV") we are not going to get far in our efforts to sell them through direct mail.

Years ago, a great magazine editor discovered the basic principles of attracting readers, and quickly built a circulation in the millions on the strength of his findings. He learned that people are intensely concerned with such things as good health (in mind and body), long life, success (in business and personal lives), a comfortable home, security and happiness for oneself and one's family, good looks, the approval of others. He learned that people also respect and admire courage, good humor, moral strength, honesty and integrity — all recognized qualities of *leadership* in the world today.

How does all this apply to selling cable TV subscribers? It certainly follows that your system must be a *leader* in the community. To be a leader, one must act like a leader. That includes the sort of advertising you do, the kind of "image" you present to the outside public — both subscribers and non-subscribers.

If I had to define "leadership advertising" in a single sentence, it might read, "the kind of advertising that consistently and clearly informs and serves the reader, in a way he can readily understand *and believe.*"

With so much misleading, exaggerated, downright dishonest advertising still around (though less than 10 years back) the use of plain talk and honest, informative copy pays handsomely. This is equally true in direct mail as it has been in radio or TV, where an effective commercial strives to sound like real people talking. There is an easy, near-foolproof way to check your direct mail copy for believability. *Read it aloud*, first to yourself and then to your office workers, to your engineers, to anyone whose honesty and judgment you respect. Try the same thing on your wife. If all keep a straight face, and offer no objection, you're on reasonably safe ground.

In fact, (though it takes an expert copywriter to handle) the art of understatement can often be applied

with good effect. People are much more inclined to believe and have faith in the advertiser who doesn't try to make them think his product is the answer to ALL their problems.

Nowadays, believable, informative copy is the trademark of virtually all successful advertising. In planning your direct mail letter or writing copy for a new brochure, you face the same challenge as a writer of mail order advertising. The millions of dollars still being spent in selling products or services by mail belie the 'junk mail' criticism often heard in certain quarters. The methods and techniques used in mail order were developed over many years, testing various copy principles and advertising approaches. These practical, down-to-earth copy geniuses are not inclined to guessing. The basic rules of effective mail order advertising have been developed out of millions of dollars spent in such advertising.

These rules often differ widely from those for newspaper or magazine copy. Mail order experts have found, for example, that long copy is almost invariably more productive than shorter copy. I like the story of the illiterate Negro preacher who somehow managed to hold his audience spellbound for two to three hours as he delivered his sermon each Sunday. Asked by a newly ordained white clergyman (probably a frustrated advertising man) how he did it, the wise old preacher explained:

"First, I tell 'em what I'm gonna tell 'em. Then I tell 'em. And then I tell 'em what I done tole 'em!"

Being an honest man of God who always told the truth, he had learned the value of believability plus repetition. They can work for you in direct mail. Don't be afraid to tell your story, in detail, over and over — so long as you observe the other basic rules of good mail order copy which follow.

These are selected from hundreds of straight forward, precisely stated rules for adding selling power to your advertisements, for increasing inquiries from your direct mail. Though the ones chosen are by no means the only rules to be remembered and applied, they seem to me to be the most important. (The comments following each statement, in parentheses, are this writer's.) Here then are some Proven Ways to Get More Sales Power, Increased Inquiries and MAKE THINGS HAPPEN WITH DIRECT MAIL:

1. Choose headlines with extreme care. Pick one you feel will flag the attention of your prospects. (Words like *new, now, announcing, at last, here's News about . . .*).

2. Make the headline itself a news headline (people are always interested in the news, whether about people, events or products).

3. Feature a price, price reduction or free offer in the headline. (Though this may seem obvious, everyone loves a bargain; we all like to think we're getting a genuinely good buy. The words Free Offer, when supported by details, are another strong inducement to read through the message.)

4. Offer Information of value. (By starting the headline with such words as *How to, how, why,* or *which* in question form, you invoke curiosity to know more.)

5. Address your headline to a specific person or

The table below lists some of the important Pro's and Con's of four basic advertising media widely used by cable TV systems in their subscriber promotion.

DIRECT MAIL	
Pro	**Con**
Selective - goes directly to actual prospects	"Junk" mail in eyes of some people
Flexible, can vary from simple letter or postcard to full color folder, long message	Expensive - per unit of exposure
Reaches people at home, where TV is used	High waste factor if message is poorly prepared, or poorly timed
Can include reply forms, premium offers, etc. to help complete sale	Intrusion of home and privacy, to some

OUTDOOR	
Pro	**Con**
Impressive because of size, color	Brief copy gives little chance for real selling message
Message is repeated 7 days a week - day and night	Expensive in larger cities
Good billboard gives impression of stability	
Full color at small extra cost	

RADIO	
Pro	**Con**
Human voice carries more persuasion than cold print	Oral description only
Excitement - announcer can make your opening or new offer a truly 'special event'	Waste circulation - often beyond CATV area
100% home saturation - almost 3 radios per American family	Can annoy rather than sell, if not used wisely
Flexible - allows last-minute changes in message	

NEWSPAPER	
Pro	**Con**
Universal circulation	Waste circulation in some cases - outside CATV area
News impact	
Lets you illustrate your service - **including color**	Poor reproduction in smaller newspapers
People use newspaper as a shopping guide	Lack of color in small newspapers
Good for Grand Openings, special offers, promotions	

group. (Attention: Basketball Fans; A message to parents; for Husbands only; To homeowners in northwest Podunk.)

6. Use a testimonial type headline. (Examples — Mary Brown really loves TV now; they found out about cable TV the hard way — story of losing old roof antenna in a storm; Bill and Jane Smith couldn't believe their eyes!)

7. Warn the reader to delay buying. (The old 'switcheroo' that can work for CATV too. Sample, "WAIT! Don't buy that new TV set. The old one may be better than you think.")

8. Tell a story. (Make your direct mail piece in the form of a 'true life adventure' magazine feature, or child's story book. You have to learn and use the elements of good story telling, of course. It's worth trying.)

9. Include a large return card or stamped, self-addressed envelope. (Make it as easy as possible for your prospect to respond.)

10. Offer a reward for doing something. (We are all a bit lazy and selfish to boot; make it profitable for the reader to act. The actual value of the reward is not important. Paying the prospect to do something, instead of asking *him* to pay works two ways: it demonstrates your faith in what you're selling, and it arouses interest).

11. Offer a free, illustrated booklet or folder; show it in your letter or on outside envelope. (Make sure booklet title follows the Rules for Successful Headlines too!)

12. Emphasize "No obligation." (Maybe you can say it in a new, better way.)

13. Use long copy. (Remember the Negro preacher down south.)

14. Use the right season, to match rest of your ad.

15. Include a telephone number prominently if feasible.

16. Urge immediate action. (Tell readers just what you wish them to do.)

17. Develop your own ideas and inducements for prospect to ACT.

18. Keep checking, measuring various headlines, appeals.

All of the above eighteen Rules and Principles of profitable direct mail are summed up quite well in the words of a forgotten writer who counselled wisely, "Success in business is largely a matter of finding out what people like, and doing *more* of it; finding out what people do not like, and doing *less* of it."

I believe people will always enjoy getting interesting mail informing them about ideas, products and services in an interesting, believable way. Despite the "junk mail" attacks upon it — inspired all too often by competing advertising or news media who have an axe to grind — we can expect to see more, and more creative uses of direct mail.

No other medium of advertising can offer more than direct mail, if you add its ability to use full color, unusual size, even animated mailings (which is another story). Suffice it to say the creative applications are limited only by budget and imagination. If this sounds suspiciously like a plug for direct mail (and your friendly local printer) maybe it is long overdue! TVC

If you specify television equipment, you need a copy of DYNAIR's new catalog.

It's yours for the asking.

By concentrating its efforts on the technical area of video signals, DYNAIR Electronics, Inc., has achieved a unique position of leadership in the television industry. A major supplier to every facet of TV—broadcast, community antenna, closed-circuit, educational and industrial—DYNAIR's years of experience have resulted in the development of many new design concepts. DYNAIR equipment is generally considered by industry experts to represent the current state-of-the-art design approach.

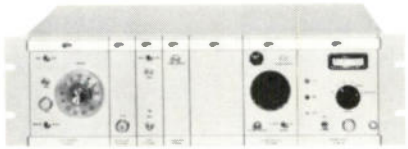
Units for signal distribution . . . signal switching . . . signal modulation . . . and RF demodulation are offered by DYNAIR for every operating requirement or budget level. This is field-proven equipment, used around the world.

To introduce ourselves and our equipment, may we send you our new TV Equipment Short Form Catalog? It's the first step in showing you what we can do in breadth . . . and in depth . . . for *your* video signals.

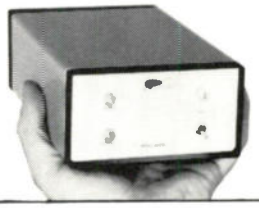
Typical DYNAIR TV equipment for any budget....any TV problem

Series 5110 Solid-State Remote Controlled Switchers . . . expandable to installations of any number of inputs and outputs

Series 4000 Solid-State Modular CATV Head-End Equipment for processing, modulating and demodulating television signals



MINI-Series CCTV Equipment . . . a broad group of compact, low-cost units ideally suited to industrial and educational applications



DYNAIR ELECTRONICS, INC.
SAN DIEGO, CALIFORNIA

DYNAIR ELECTRONICS, INC.

6360 Federal Boulevard, San Diego, California 92114
Phone (714) 582-9211, TWX (714) 583-8101

How soon will your CATV system offer

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

Or to open a new franchise with 25 channel potential?

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

We also have the equipment.

With the ITC PLUS 13 (a shielded channel expander) you can add the potential of 13 new interference-free channels to your present 12 channel system.

Up to 13 new channels with outstanding frequency stability, better than 100 db isolation against outside interference, and perfect color reception.

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

the profit potential of multi-channel TV?

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

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

All three units perform double duty as fully transistorized remote tuners. All three are easy to buy, easy to sell, and easy to install.

All three are business and profit builders.

And all three are ready now.

Call us collect (213) 478-7751 for full specifications on each unit.

Imagine, 25 ghost-free channels.

Haunting idea, isn't it?

ITC International Telemeter Corp
2000 Stoner Ave., Los Angeles, Calif. 90025
a subsidiary of Gulf + Western Industries, Inc. GW

No modifications to existing hardware. No adaptations of earlier designs. These are the *rules* of *Total Design*. These are the rules that helped create the Conductron C701 line extender.

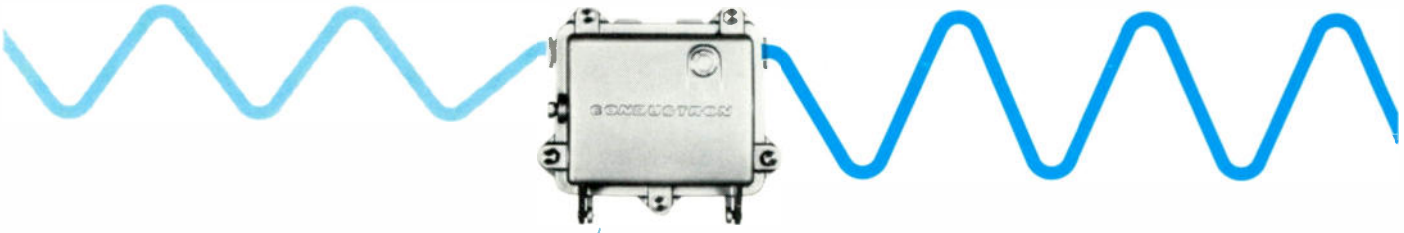
C701—First of a family Conductron started "from scratch", put to work the skills that developed the first modulator to soft-land on the moon, and designed a family of amplifiers that meets the most rigid specifications of the Cable Television industry. Just another example of what we mean by *Total Design*

Reduce time and maintenance costs Snap-in and snap-out service is provided by quick disconnects. In fact, it is possible to replace the entire module by merely loosening four captive screws. The case itself still stays on-line and new modules are installed in a matter of minutes.

Reach more subscribers . . . deliver a better signal The C701 allows you to now make longer runs with fewer units, reach more subscribers and deliver "cleaner" signals to each set. In addition, it gives a higher output, less noise and better stability over wider temperature ranges than "modified" line extenders can provide.

- Minimum Full Gain—25db
- Return Loss Rel to 75 ohms in—17 db Min.
- Return Loss Rel to 75 ohms out—17 db Min.
- 12 db cable equalization ± ¼ db
- Maximum Noise Fig. CH 13—10 db
- Maximum Noise Fig. CH 2—15 db (12 db equalization)
- CH 13 Output Capability—44 dbmv (12 channels,—57 db Cross Mod)

For complete specifications of the first solid state line extender with Cable Television *Total Design*, write or phone: Conductron Corporation, Marketing Department H, 3475 Plymouth Road, Box 614, Ann Arbor, Michigan 48107.



Now from Conductron-the C701 a solid state line extender with cable television

total design

CONDUCTRON CORPORATION

AN EQUAL OPPORTUNITY EMPLOYER

5307

DIVISIONS: MICHIGAN: ANN ARBOR • GRAND RAPIDS • MISSOURI: ST. CHARLES • CALIFORNIA: NORTHRIDGE • POMONA
SUBSIDIARIES: ADVANCED COMMUNICATIONS, INC., CHATSWORTH, CALIFORNIA • TRIDEA ELECTRONICS CO., EL MONTE, CALIFORNIA

What You Should Know About "The Codes"...

Many franchises and nearly all pole agreements require compliance with the "code." Much confusion remains, however, among CATV'ers with regard to the National Electrical Code and the NESC. Presented here are some important facts about "The Codes."

By William F. Karnes
Chairman, NCTA Safety Committee

In the business of operating a cable television system, we often hear references to the requirements of "the code" — either in new construction or in the daily work of running an existing system. Also, most pole attachment contracts require that CATV construction meet the provisions of the "code." In spite of this seeming frequency of use, however, discussion with many cable television people discloses much confusion regarding the application and requirements of the National Electrical Code and its working companion, the National Electrical Safety Code.

Similar in some ways, these two sets of rules differ greatly in their origin, administration, and applicability. The National Electrical Code, or NEC for short, was developed in the late 1800's at the initiative of various fire insurance companies, with the cooperation of electric utilities, etc. It is now administered by the National Fire Protection Association. The NEC is reviewed constantly, through a series of eighteen panels, each of which specializes in a particular area. Formal revisions of the NEC are issued at three-year intervals, with the next one due for issuance in 1968. The currently-applicable edition is the 1965 release.

The NEC is applicable in intent to electrical facilities located on private property — as opposed to the primary function of the National Electrical Safety Code, or NESC, which is intended to guide the construction of pole-line facilities and other transmission elements (either above or below ground) which are normally located in the public domain. Note that this is a very general distinction, and that there is overlap between the control areas of the two codes. For example, a transmission line might be built across private right-of-way but, because of the nature of the facility, be covered by the NESC rather than the NEC; conversely, a building could be constructed and operated as a public facility, but the electrical system would fall under the NEC. However, for general cable television purposes, it can be assumed that the NEC rules become controlling when you cross the property line from street or alley to the house, and the NESC applies when working on poles or underground outside of private property.

As mentioned above, the National Electrical Code will issue its latest revision this year. For over two years, the National Cable Television Association has had representation on the panel which is directly concerned with the section of the code that applies to cable television. The NCTA Standards Committee has prepared and submitted a proposed set of operating rules to cover specifically the installation of coaxial cables. With the inclusion of such a section, the National Electrical Code will, for the first time, recognize CATV facilities as an entity, and systems should be certain to obtain copies of this code, to make sure their operations are conducted within its framework. NEC is published by one of the large printing companies, and copies should be available through any bookstore. Also, many of the electrical suppliers reprint it in condensed form, some for free distribution, others make it available at a nominal price. Every cable television operator should see that the code is available and that his personnel are familiar with its requirements.

As pointed out, the National Electrical Safety Code differs from the NEC in that its primary focus is on outside plant construction, rather than inside building wiring. The NESC is sponsored by the National Bureau of Standards, through its Sectional Committee C-II and is coordinated by Mr. William Meese, at NBS.

NESC is subjected to continual review, as is NEC; but it does not receive the regularly scheduled revisions that its sister code gets. NESC is revised on an "as-needed" basis, and new editions are issued much less frequently than NEC. Sufficient reason exists for this treatment, since pole-line construction has remained relatively static as regards new materials and techniques for many years, while new ideas and concepts

Mr. Karnes is Chairman of the NCTA Safety Committee. Before joining GenCoE recently, he was vice president of Telesystem Services Corp., where he was responsible for turn-key sales and construction. Bill has been continously involved in cable television since 1956, when he joined Jerrold Electronics as Field Engineer.

have been introduced quite frequently for the inside wiring area. Currently, the underground construction sections of NESC are being rewritten, and the National Cable Television Association is represented in the group undertaking this revision. Some considerable changes are anticipated in the new rules, especially in the areas of conductor separation, both in direct burial and in duct; and it is hoped that CATV will share in these benefits.

As with the NEC, the NESC does not cover cable television attachments to poles, or underground facilities, specifically. However, the latest edition does state that CATV plant should be treated as "communications conductors", and accordingly, in referring to the NESC for guidance, the communications sections are the applicable ones. It is from this section that we get our basic criteria for plant construction, road clearances, etc.

Neither the National Electrical Code, nor the National Electrical Safety Code, are mandatory or binding in themselves. Both are advisory in nature and do not have the force of law. However, in many states, and in many more municipalities, these codes have been adopted in whole or in part, as law; each cable system should make certain of the applicability in a particular area of each code. In addition, attachment agreements with utilities should be read carefully to determine the extent to which, by contract, a system is obligated to observe and utilize code requirements. Many attachment agreements will specify construction practices in accordance with Bell System practices, Edison Electric Institute handbooks, or other such codes. If this is true, the system operator should make sure that he has copies of those documents, so that he will know the requirements he is obligated to meet.

A few cable television systems have, in years past, been constructed with little attention paid to safe, and proper practices (as have a few power and telephone systems). It is past the time that our industry should have recognized and corrected such conditions. All cable people, whether owner, manager, technician, installer, or whatever, should recognize the intense scrutiny under which we find ourselves — from the telephone companies to the state utility commissions — and make sure that their physical plant, and their operating practices, are of the highest order possible. To that end, know and understand the reasons for and the requirements of the applicable electrical codes. Copies of the National Electrical Safety Code can be obtained from the Superintendent of Documents, Government Printing Office, Washington. It is Department of Commerce Handbook H-81, at a cost of $1.75 each. It should be on your system's bookshelf now. TVC

WHAT'S BETTER THAN SOLID SEAMLESS ALUMINUM SHEATHED CABLE?

PLASTOID UHF WELDED CABLE.

HERE'S WHY: Plastoid curves a sheathing of precision-rolled aluminum around the poly-foamed dielectric. Then seals it with *one* radio frequency weld that is actually stronger than the parent metal (as proved by ASTM tests).

"Seamless" sheathing is formed by extruding an aluminum billet through a bridge die. It has as many weldments as the die has bridges—usually *three* or *four*. In addition, uniformity of metal grain structure (temper) and wall thickness cannot be maintained by this process.

The exclusive UHF welding process used by Plastoid permits continuous testing. One of the final inspections is by a highly sophisticated eddy current testing device that can detect the slightest flaw. We break up hidden weak spots so you won't have a breakdown in the field.

Sweep testing of competitive "seamless" sheathing locates only the obvious gaps, crimps and thin spots. Fissures in the structure often escape detection. Until they're public knowledge. Your public.

Want to know more about fault-free high conductivity Plastoid co-ax? Give us a call: 212/786-6200. When you compare our specs, other cables will seem less.

PLASTOID CORPORATION

42-61 24TH ST., LONG ISLAND CITY, N.Y. 11101
TELEPHONE: AREA CODE (212) STillwell 6-6200

Security and Market Control; Potential Cable System Services

Many of the services discussed in connection with the "wired city" concept are still difficult to conceive of as feasible, much less as immediately applicable to cable TV operations. Here are some services, however, which you can market today.

By S. S. Street
Director of Field Services
National Cable Television Association

Straight ahead — or, retrench and rethink our position? Lately, articles and speeches on CATV tend to glorify our future in the rapidly exploding communications spectrum — someday, somehow. Pressing for specifics, one tends to hear a heavenly hash composed of widespread cable origination, audience testing, shopping via cable, and of course widespread use of satellite to home communications. Nice to talk about but frankly hard to grasp, let alone put into effect on the cable in your community.

Surely there's another avenue, clearly marked and ready to be taken now. And it's been there all along, not pie in the sky, but bright blue sky. *Surveillance, home security, remote meter reading* . . . non-video services needed in every community and yours for the asking.

More and more, leading communications experts throughout the country are predicting more consumer services via wire or cable. Right now though, it's an open field for broadcasters, the telephone industry — or CATV. Even more important, legislators and law enforcement officers are probing for ways and means of utilizing available communications systems for adaptation to crime prevention technique. Technologically, several concepts are possible: on a local level, the cable operator is sitting on top of the obvious solution to more efficient crime prevention. With equipment innovations, the adaptation can be practical and profitable.

The basic structure of your cable television company does not change. You are simply expanding your services — and that's good. If you're wondering if your town could really use such a security system, let me say that if a town is big enough to have a cable system it's big enough to have a security system; and furthermore, needs it. The report from the select committee on small business (U.S. Senate, written by the Science Policy Research Division Legislative Reference Service of the Library of Congress), runs to 175 pages in fine print. Entitled "Contributions of Science and Technology to Federal Crime Insurance"* this report describes not only this nation's crime rate in detail, but explores the practicality of both the existing and potential surveillance systems. Today, 95% of existing surveillance systems are antiquated. They are easily compromised by anyone with a knowledge of electronics. All over the country, businessmen, large and small, have lawsuits pending against existing security companies over failures in leased security systems. One of the biggest, Grennel & Co., has been ordered to divest itself of its existing franchises. There is no longer a monopoly on the security system market. Which means there are many businesses ready to spend money for reliable crime and fire control systems. CATV is sitting right on top of a chick that's ready to hatch.

The production of sophisticated electronic gear for surveillance is on the upswing. The Digitor-400 shown here is a device for monitoring data acquisition and control functions. It can monitor 1,000 sensor circuits over carrier channel.

*Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price 45¢.

ABOUT THE AUTHOR

Sam Street has been associated with the cable television industry for the past seven years. His experience ranges from advertising and sales promotion of CATV systems to market evaluation and technical consultation. At NCTA, Street acts as a system management consultant and develops promotions and seminars for the membership.

Chart A
Additional Equipment Required
For Alarm Systems

A. COMMUNITY ALARM SYSTEM:
- ADDITIONAL SUBSCRIBER EQUIPMENT—
  ALARM RECEIVER & BELL . . $15 PER SET
- ADDITIONAL SYSTEM EQUIPMENT—
  CABLE PRE-EMPT CONTROL . . $500 LOT
  ALARM TRANSMITTER . . $500 LOT

B. SUBSCRIBER ALARM SYSTEM:
- ADDITIONAL SUBSCRIBER EQUIPMENT—
  ENCODER/TRANSMITTER . . $100 EACH
- ADDITIONAL SYSTEM EQUIPMENT—
  CABLE AMPLIFIER & DIRECTIONAL
  COUPLERS FOR RETURN PATH ONLY . . $100 EACH
  (APPROX. 350 FOR AN AVERAGE SYSTEM)
  CENTRAL RECEIVING/DECODING
  EQUIPMENT (FOR 1000 SUBSCRIBERS) . . $10,000 LOT

But we do have to help it along, so let's examine the problem.

If you study industries similar to cable television, there are interesting parallels which lend weight to the natural affinity of CATV and the surveillance industry. Let's look for a moment at Mackie Marine, division of ITT, and a leader in the fire, burglary and control industry. Mackie Marine has developed and produced a digital multiplexing device which can transmit information over coaxial cable or leased lines into and out of the home. This revolutionary new piece of equipment is designed primarily for the securities surveillance market, which by the way, is a multi-million dollar industry, grossing more than CATV today. And potentially capable of doubling your income from your already existing plant.

Briefly, this is now it works: A company, let's call it the Ajax Protection Company, has its office on Main Street. It now leases lines from the telephone company for 17¢ a mile. This is a metallic twin pair line, the cheapest telephone line the telephone company will lease. You, the manager of Ajax Protection Co., pay a visit to the manager of Plant X (whom you already know, if you've been doing your homework), offering a system of burglary and fire protection for X dollars a month, plus installation charge. He doubtless has some system installed and may or may not be happy with it. You should be informed as to the various practical and reliable systems available, and you should be able to offer assistance in selection of the equipment to be used. Some businesses will require sonic detectors, others photoelectric cells, and for some metallic tape on the windows is most suitable. However, the mechanics of the surveillance system are not the basic part of your problem, which is hooking the system to the central alarm equipment. The key to the security industry is in interrogating the equipment. In other words, making sure the equipment hasn't been compromised. When the device is touched off, the signal must be reliably transmitted back through the line to the central station, which is similar to the CATV cable office. The large display board indicates a disturbance in Plant X when the signal is broken; the central station responds and the information is transmitted to either the police or company personnel.

This brings our old friend, the telephone company back into the picture. Just recently, the Pacific Telephone & Telegraph Co. was authorized by the California Public Utilities Commission to offer an "alarm reporting telephone arrangement" (ART) on an experimental basis to customers in non-metropolitan areas of that state.

Through an arrangement which automatically transmits a pre-recorded voice announcement upon receipt of the signal from subscriber-provided detection equipment, the activated ART dials a present number and transmits a recorded message. The monthly rate is $10.50 for the ART and $5 installation with a monthly rate of 55 cents for a control point telephone. The initial installation charge is $50.00. The telephone company has just taken the first step into what could be a very lucrative venture and which does not involve the complicated legal processes we have endured for the past several years. This means, gentlemen, that if you want it, you have to go after it now or forever hold your peace. Although the grant given the telephone company is termed "experimental," the main experiment consists of determining the reasonableness of the charges to the customer. The security industry, adapted to either telephone or CATV equipment, is going places.

I don't have to tell you what $10.50 would mean in addition to the $4.50 or $5.00 you now receive for a monthly cable hook-up. It's pretty good "extra money." If the CATV industry doesn't act now, it will find itself locked out from the unlimited potential the security and control field offers.

How do you go about getting a franchise for security, burglar, or fire alarm protection? It's pretty easy. You already hold a "service" franchise, and you're a respected local businessman. Attend the next city council meeting and tell them that you are now prepared to go into security surveillance on a limited scale and that you are investigating all available equipment. Ask for a franchise to offer this service to your subscribers at a fee of $5.00 to $10.00 per month. Try to keep the exact amount vague. After all, you're still exploring the possibilities and they *are* getting $10.50 in California. The main thing you want is the Council's blessing to provide a *protection* service to your community. But get the franchise or permit or whatever *now*. Then, apply to the telephone company for a leased line, or decide to put it over your existing cable.

It's true your pole attachment contracts will cause difficulty — they say you can't transmit anything but video pictures over the cable — but you can lease a line from them for 17 to 20 cents a mile. If they can't find space, plan to use your own cable. No matter what you do, you're going to have trouble with the telephone company, so get that security franchise now, and you won't be locked out before you even start. Our big brothers want all the communication services, and they're still a little angry they didn't think of a few services (such as CATV) first. We do exist and have demonstrated our reliability — and are entitled to branch out. The place to resolve the feud is in the market place and in Congress. But if we don't let the public know we are able, *and willing,* to provide these services, we'll wake up one day to find the door shut to the unlimited future that cable television offers. TVC

Performance Monitoring: New Concept Promises Improved Cable Service

Malfunctions need to be spotted early and cleared up, if possible, before subscriber complaints result. Performance Monitoring equipment instantly locates and identifies problems on a single display panel located anywhere in the system.

By L. A. Turner and J. A. Ayres
Advanced Research Corporation

The most reliable electronic equipment, when assembled in a complex system, can and will malfunction occasionally. The military and the space and nuclear industries are well aware of this fact and have taken extreme measures to anticipate failures and to pinpoint and correct troubles in the shortest possible time. With the onset of automation, industry also has come to realize the need for malfunction detection and now uses special instrumentation to provide continuous monitoring of complicated equipment. Whenever complex instrumentation is used to provide a service to paying customers, it is inevitable that the customer will become intolerant of interruptions in service, other than occasional momentary problems and those caused by major unavoidable circumstances.

Operating CATV systems are particularly sensitive to failures for at least three reasons:

1. The system involves a maze of sophisticated electronic instruments, dispersed geographically so that 24 hour attendance of each instrument is impractical.

2. The equipment is located out of doors and is adversely affected by the elements.

3. One small failure can deny service to a large audience of paying customers for an extended period.

If a system operator is to provide the best service possible with the equipment at his disposal, he should have a means of being informed automatically and instantaneously when trouble develops. A performance monitoring system designed for this purpose should provide the following:

1. *Immediate notification* whenever the video signal levels at crucial points in the system differ appreciably from their normal value.

2. Indication of the *locality* of the malfunction.

3. Indication of the *type* of malfunction.

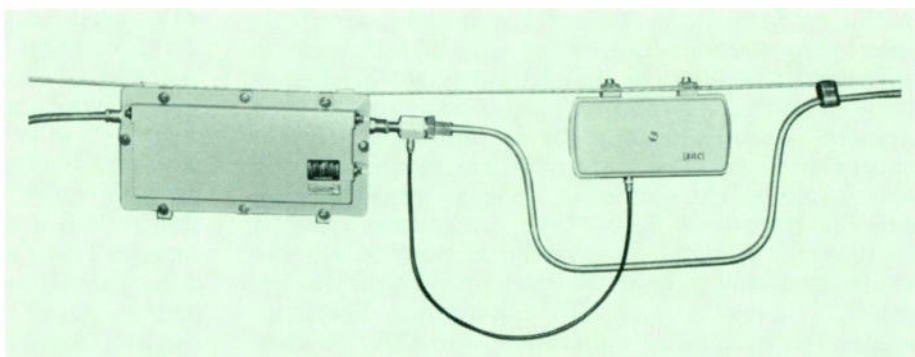
4. Indication of the occurrence of a *temporary* malfunction during *unattended* hours.

With this information at his disposal, the system operator can make prompt decisions regarding remedial action. He can also be aware when the quality of the signal delivered to some customers is substandard, but not sufficiently poor to precipitate formal complaints.

Overall System Description

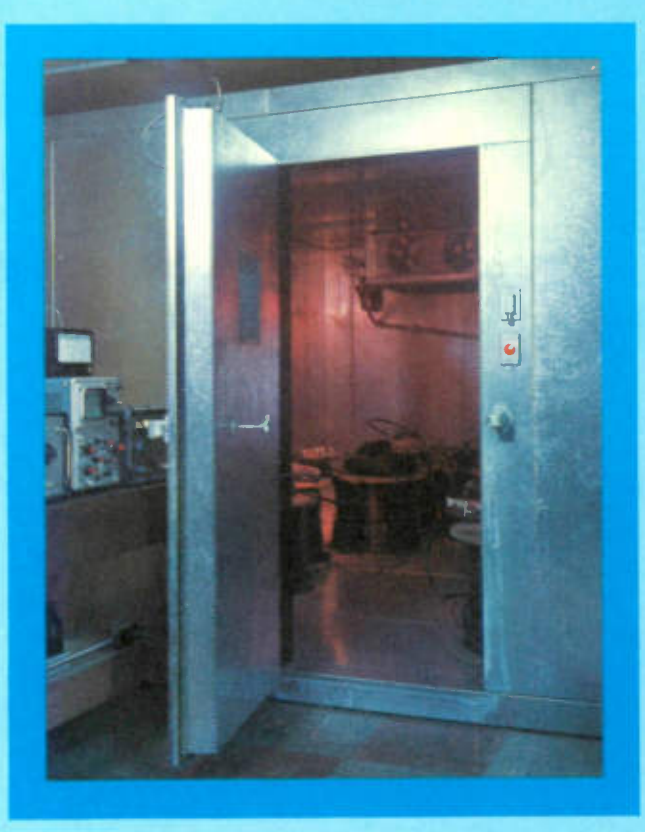
The Advanced Research Corporation Performance Monitoring System consists of a series of remote monitors (Fig. 1) placed at strategic locations in the CATV system, alarm signal bypass filters, and an alarm signal analyzer and display panel. The overall principle is very simple. Each remote monitor is assigned a transmitting frequency below the range of the television channels. It generates this frequency continually unless it loses power.

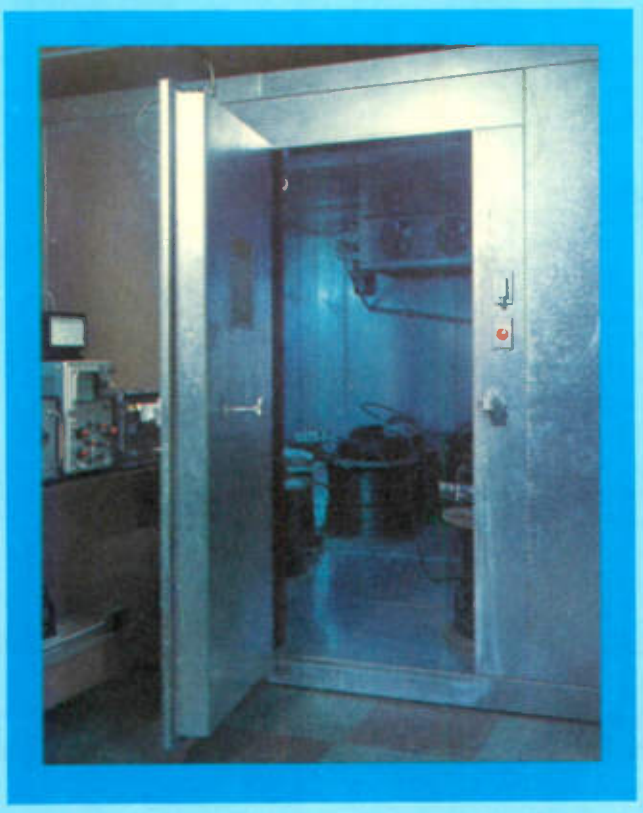
The signal analyzer, which may be located at any point in the system by simply installing a tap which passes these frequencies, detects the presence of the characteristic frequency of each remote monitor. It then controls the blinking pattern of a corresponding lamp on the display panel. Each lamp is numbered to identify it with the location of its associated remote monitor. The remote monitor "watches" the levels of two selected frequencies at a particular location in the system, one frequency in the low band and one in the high band. If both of these levels are within some preset tolerance, say ±3 dB, of preset values, the remote monitor delivers its unmodulated charac-



A key role in the monitoring system is played by remote monitors, placed at strategic locations throughout the CATV system. Each monitor generates a low frequency signal which is detected and reported by a signal analyzer.

232 db = 198 db





That's true! 232 db of cable (at +120° F) is equal to 198 db of cable (at -20° F). Somehow, the difference must be corrected by the amplifiers in your system.

At Cascade, engineers are constantly developing and refining new CATV amplifiers which sense temperature variations and correct for level changes *before they happen.* Our new environmental test chamber (shown above with ten amplifiers and ten 22 db lengths of cable) lets them cycle entire systems from extreme cold to extreme heat, and plot the performance and accuracy of our Temperature Level Compensation (TLC).

An array of new test equipment gives the engineers broader horizons in the measurement of levels, bandwidth, return loss, noise figures, crossmod, tilt accuracy and output capability. They test with twelve or more synchronous carriers . . . and in conditions resembling those from Arizona to Alberta.

In the ten-amplifier cascade shown, we get accurate compensation because each amplifier handles only one-tenth of the 34 db change — a nice, attainable 3.4 db correction range. The "other" method (with A.G.C. at every third amplifier) lets the error build up to 10.2 db before correcting — and that's not so attainable. Our TLC method offers you other advantages too. It corrects for temperature changes only, and doesn't hide any other faults. Troubleshooting is a snap!

Frankly, the test results with the new facilities didn't surprise anyone. Cascade TLC has already been proven in systems in both Arizona and Alberta, so we expected our controlled tests to show superior performance.

CASCADE

CASCADE ELECTRONICS LTD. PORT MOODY, B.C.

TEAR OUT

IMPROVED CASCADE FACILITY AT HARRISBURG, PA.

One of four warehouses serving Cascade customers, the facility at Harrisburg now includes a warranty service department for the convenience of eastern customers.

Yearick

Graham

The Harrisburg sales office/warehouse/repair depot operates under the direction of Eastern Regional Sales Manager, Richard F. Yearick, while Sales Co-ordinator Joel Graham looks after the details and keeps the orders straight.

Increasing demand for Cascade products has led to a similar expansion in the number of Cascade representatives throughout the continent. They now total sixteen, including three who have just been appointed.

Don Neel now handles sales in North Dakota, South Dakota, Kansas, Nebraska, Missouri and Iowa.

Tom Athans is now on the job in Oklahoma, Texas, Arkansas and Louisiana.

Customers in Michigan, Wisconsin, Illinois, Indiana and Minnesota are being serviced by Tom Williams.

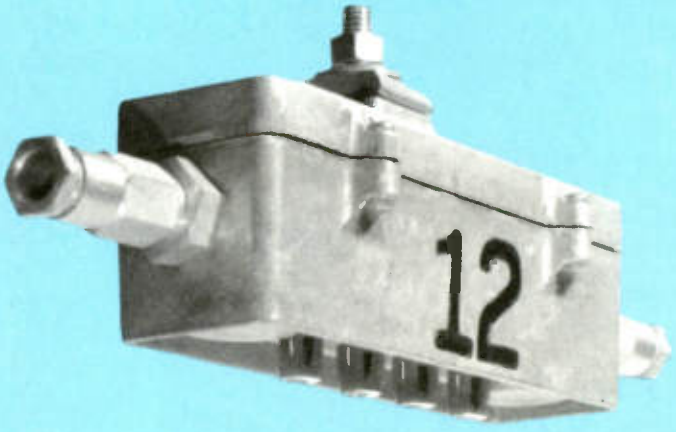
In the west, flying Jon Westfield is Regional Sales Manager, headquartered in Denver. The western warehouse, in Santa Rosa, California is now in full operation and orders are ably handled by Steve Corley.

Whenever *you* need information or assistance, just call your nearby Cascade man!

*

CASCADE ELECTRONICS
...isburg, Pa.: 2395 State St. 717/232-4111
... Cal.: 244 S. A St. 707/542-6054
...TENNA SYSTEMS
... Beaubien W. 514/276-6363
... 5594 Cambie 604/327-9201

CEDT-2
directional tap



RUGGED NEW HOUSING: Die-cast alloy housing is waterproof and highly corrosion-resistant. Extra strength and wall thickness allows use of 5/8-24 connectors . . . including new Cascade external-seizing fittings (extra cost). Extra length provides slack for expansion loops.

HIGH PERFORMANCE: Circuitry on precision-etched glass-epoxy board provides high reliability, isolation and directivity, low insertion loss.

PEDESTAL MODEL: Available for regular strand mount, or with all fittings on bottom surface for pedestal installations.

TWO-YEAR WARRANTY: Like all Cascade gear, warranted a full two years against defects in materials and workmanship.

SPECIFICATIONS:

Model	Tap Value	Insertion Loss (max)	Isolation (min.)	Directivity (min.)
CEDT-1/12	±1db	3db	19db	19db
CEDT-1/16	±1.5db	1.5db	19db	11db
CEDT-1/20	±1.5db	1db	19db	12db
CEDT-1/24	±2db	1db	17db	10db
CEDT-1/28	±2db	1db	16db	8db
CEDT-1/32	±1.5db	.5db	22db	5db
CEDT-1/36	±1.5db	.5db	35db	3.5db

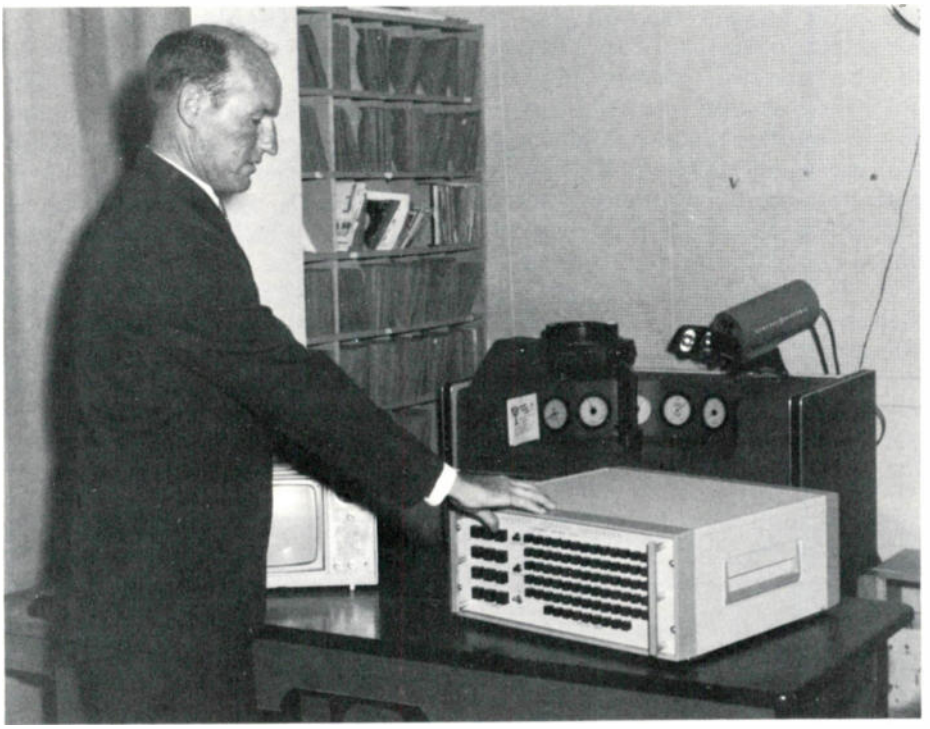
specifications subject to change without notice

CASCADE

CASCADE ELECTRONICS LTD. PORT MOODY, B.C.

May 1968

PRINTED IN CANADA



The display panel shown above gives the system operator a complete picture of his system's performance. Each lamp on the panel is numbered to identify it with the location of its associated remote monitor.

teristic frequency throughout the cable system, and the analyzer detects this frequency and keeps the lamp dimly lit.

Should power be removed from the section of cable where the remote monitor is located, the monitor ceases to transmit its characteristic frequency, and its associated lamp on the display panel is caused to glow brightly. Three blinking patterns are used to indicate out of tolerance conditions on the low band, high band, and both bands. A corrected malfunction causes the lamp to be extinguished completely.

Remote Monitor

Fig. 2 shows a block diagram of a trunkline amplifier and remote monitor situated at the amplifier output. The directional coupler provides a sample of the VHF signal, attenuated by 20 dB, to the remote monitor. It also passes 30 volt, 60 cps power from the cable to the monitor and the alarm frequency from the monitor onto the cable bi-directionally. The coupler is designed mechanically to mate with the output of any CATV amplifier. The connection between the coupler and the remote monitor is made with a short length of RG-59 coaxial cable. The monitor is encased in a waterproof box and mounted to the strand or on a pole.

The VHF broadband signal fed to the monitor is received by an RF detector module. This module provides selection of the particular low band frequency and high band frequency to be monitored and produces two signals, one proportional to the level of the selected high band frequency. The low band detector output is delivered to another module containing a level sensor which trips when the detector output differs by a preset amount from its nominal value. The output of the level sensor is fed to the oscillator/modulator, where it gates a particular operational mode of the modulator. In this mode the modulator electronically switches the output of the oscillator alternately off and on, the off time being 0.2 second and the on time being 1.0 second.

The high band detector output is fed to a separate level sensor module. It performs in similar manner, delivering a gate to the modulator when its received signal differs by more than a preset amount from the nominal value. This causes the modulator to produce the inverse mode of modulation, i.e., the oscillator output is switched off for 1.0 second and on for 0.2 second. If the modulator receives gate signals from both level sensors concurrently, a third mode of modulation is generated which switches the oscillator output alternately off for 0.2 second and on for 0.2 second.

An additional jack can be provided on the case housing the remote monitor to facilitate the connection of a telephone handset. Two prototypes of the handset have been constructed in our laboratory and tested on short stretches of coaxial cable. More severe tests of the intercom are presently being conducted in an actual operating CATV system. Noise problems are more severe with voice communications through the power circuits than with the alarm signals because of the much greater bandwidth required.

Additional jacks can be provided for external input signals, and space has been allowed inside the case for additional modules to accept these signals and transmit appropriate information over the cable through the power circuits. The possibilities offered by this capability are limited only by the imagination.

Alarm Signal Propagation

The malfunction alarm signal produced by a particular remote monitor enters the cable bi-directionally through the coupler and travels throughout the entire

CATV system. The Signal Analyzer/Display Unit may be placed at any point in the system by use of a conventional tap with minor modification. In fact several of the Signal Analyzer/Display Units may be used, each at a different location, all functioning simultaneously. The same principle which makes this possible also permits the use of the voice intercom between any two points.

The means by which all this is made possible is the interconnection of all of the power circuits by filters which block 60 cycle power

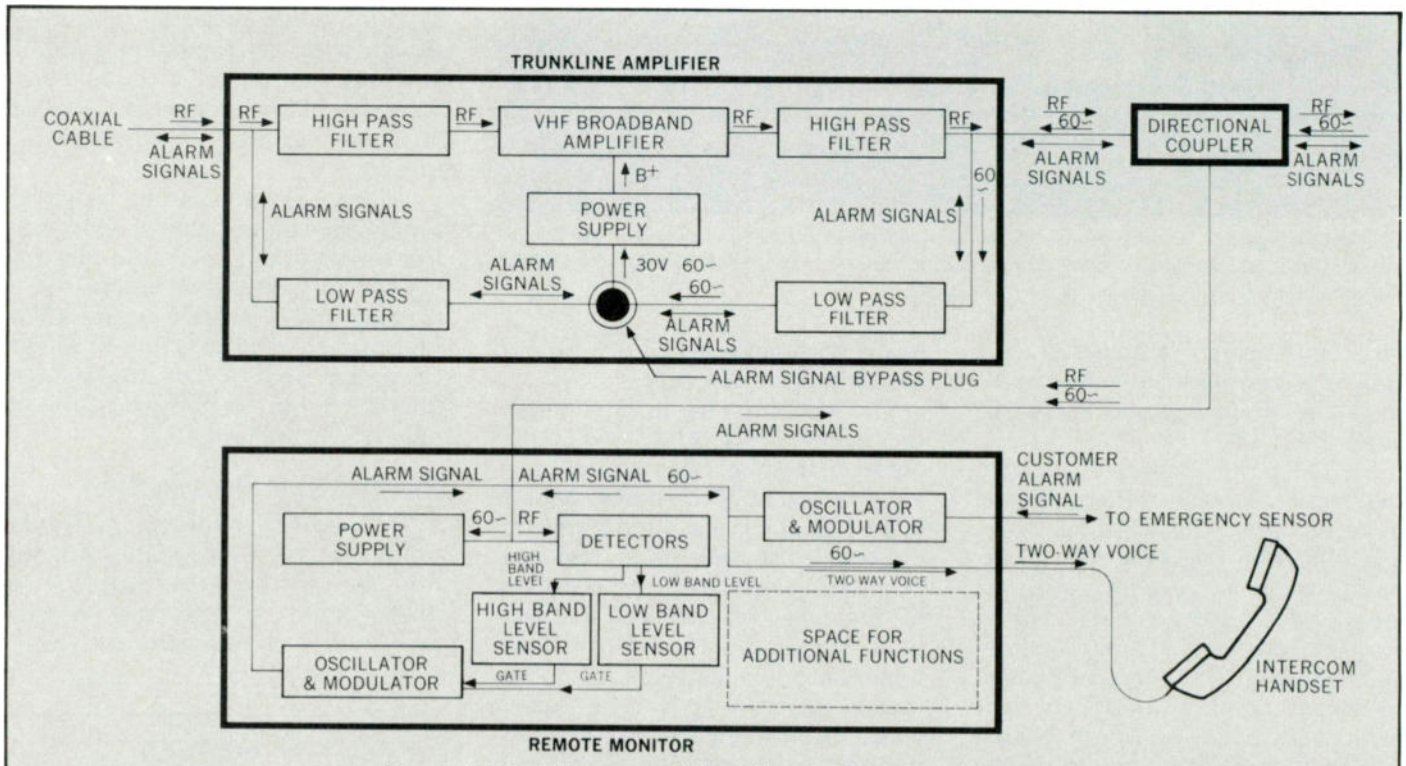


Figure 2: Block Diagram of Amplifier and Remote Monitor.

but pass the higher frequencies of the malfunction alarm signals and modulated carrier for the intercom. The amplifier manufacturers as a rule provide either a three pin plug which can be inserted in a four hole socket in various ways to accomodate either of three powering modes, or a three position switch is used to achieve the same results. The malfunction alarm signals will propagate freely through all of the amplifiers powered from a common [illegible]r supply, but they will be [illegible] when they arrive at an [illegible]n the "IN" or "OUT" [illegible] amplifier in Fig. 2 is [illegible] position. The three pin plug admits 60 cps power from the cable on the output to the internal power supply but blocks 60 cps from the input. Now if the three pin plug is replaced with one which preserves the 60 cps path from output to internal power supply but provides a filter between input and internal power supply (Fig. 2) the amplifier will pass the malfunction alarm signals while still preserving the 60 cps isolation between input and internal power supply. It is now necessary only to put the next upstream amplifier in the "THRU" position, and the malfunction alarm signals will propagate through all amplifiers powered by the two external power supplies involved. In a similar manner all of the power circuits can be interconnected. If the amplifier uses a three position switch, the filter must be added by connecting it across two terminals of the switch. The alarm signals have no difficulty in passing into the distribution legs at bridgers, because the bridgers are power passing to accommodate line extenders. The last line extender in a leg must be placed in the "THRU" position if a remote monitor is to be used at the termination point.

Analyzer/ Display Unit

The malfunction alarm signals propagating through the CATV distribution system are detected and analyzed by the Analyzer/Display Unit. Each alarm signal is received preferentially by a special plug-in P/C board, which amplifies and demodulates the carrier. The modulation is fed to a circuit controlling the current lighting the lamp, thus producing the appropriate blinking pattern to indicate the type of malfunction which has occurred.

If power is lost at a remote monitor location, the associated lamp on the display panel is caused to glow brightly. An out-of-tolerance condition on the level of the low band frequency being monitored produces a flashing pattern of the lamp in which the lamp is alternately on for 0.2 second and off for 1.0 second, making a period of 1.2 seconds. If the level of the high band frequency being monitored deviates from its preset nominal value by more than the preset tolerance, the lamp goes into a flashing pattern in which the lamp is alternately on for 1.0 second and off for 0.2 second. If both levels are outside the prescribed values, the flashing pattern is 0.2 second on

and 0.2 second off, which is a rapid cycle clearly distinguishable from each of the others.

An audible alarm signal is generated by a small speaker, whenever any abnormal lighting condition appears on the display panel, to attract the attention of personnel. The audio reset button can be depressed to silence the audio alarm without affecting the visual display.

In the event a malfunction occurs and later disappears, the analyzer extinguishes the lamp completely. This would occur, for example, if a circuit breaker on the power lines should open temporarily, or should a temperature extreme cause a shift of signal level out of tolerance for a short period. This information is valuable, because a malfunction will not go unnoticed even if it occurs while the display panel is unattended. Upon return of personnel to the display panel, the extinguished lamp will be observed, indicating that temporary malfunction has occured at the associated monitor point, but that the trouble has disappeared. A visual reset button is provided on the panel to restore any extinguished lamps to their dimly lit condition. Failure of a lamp to come back on when the reset button is depressed is an indication of a burned out light bulb.

System Layout

Ideally, it would be desirable to monitor every trunkline amplifier, every line extender, all outputs of bridgers and every termination point for both low band and high band performance, but adequate monitoring can be provided by selecting fewer points and transmitting less information from some of the points. Analysis of a particular CATV system map will determine the optimum selection of monitoring capability for that system. Compromises can be made to meet a particular budget figure, as several degrees of sophistication are possible. At termination points a compact, low price monitor can be connected directly to the cable in place of a terminator to monitor only the level of the broadband VHF signal arriving at that point. Another saving might be achieved by monitoring only a high band pilot carrier at AGC amplifier outputs, where the AGC controls the level of a low band pilot carrier.

The Analyzer/Display package is available in various size modules for mounting in a 19 inch relay rack. This permits a system operator to begin with a small monitoring system and add remote monitors and display panels to accommodate additions to the distribution system. It also should appeal to the operator who desires to analyze one section of his system at a time. Once the couplers are installed, the remote monitors can be moved from point to point by simply disconnecting the RG-59 cable and the support clamps and capping the exposed tap connection on the coupler.

With cable television subscribers becoming increasingly demanding, in terms of both quantity and quality of service, the recently developed performance monitoring system will aid the operator substantially in providing continuous, high quality viewing. This new system could, in fact, become standard equipment in a majority of cable television systems. TVC

(Seasonal Promotions . . . Continued)

motions within the system tied around the four seasons. But, that's just part of the overall possibilities.

There are numerous special promotions that can be tied in and spaced during the year to give a system regular shots in the arm. Time limits the detail with which they can be discussed, but here are just a few proven programs that can be applied in your system promotion effort:

1. 99¢ Sale — A one week promotion in which you reduce the connection charge to 99¢. This one is good any time of the year.

2. George Washington's Birthday Sale — A one-day sale in which you offer connection for 22¢ and also give a free cherry pie to the first 22 people to order. (Naturally, everyone who orders gets a cherry pie!)

3. "I Like Cable TV" Contest . . . use this one as a public relations project. Offer attractive prizes to the best entries.

4. Tie in to a good local charity or fund drive where feasible. As an example, if you're building a new hospital in your community, have a special promotion for one week . . . give all connection fees for orders received that week to the Fund Drive.

5. Pre-construction promotion — Free connection during the construction period. This is a natural. One system, had 53% of the system potential connected on the date the system was energized. Systems consistently run 30% or better on this promotion.

6. Open House — Free gifts and door prizes to officially open your cable system.

Those of us in the advertising business are sold on effective seasonal and special promotions because they consistently work. Obviously, results speak for themselves.

Editor's Note: This article on sales promotion for CATV was prepared from an address presented by Mrs. [illegible]v. Barash June 27, 1967, to the [illegible]A Convention in Chicago. Mrs. [illegible] a partner with her husband [illegible]h Advertising, State [illegible]gency works exclusively with cable television

(Local Newspaper . . . Continued)

that they are full of questions about conditions that affect their TV fare.

It is the ability to divine the news angle from the mere statement that "we are an important business" that reflects professionalism in reaping favorable publicity. You don't have to belabor your story to achieve newsworthiness. The important thing is spotting the *element of interest* in an announcement or event.

Newsworthy Politics

If your closed circuit channel covers debates between political candidates, you can count on help from news media staff in reporting these political happenings. Reporters and campaign managers will be handling publicity—and you will probably get mention for bringing the talks to the public. You can pick out those items that have to do with your cable functions and these will be news enough. Typical is the front page story after a debate (fig. 1). You will note that the moderator announced additional closed circuit meetings between the candidates. And that one of the candidates said of Garden State Cable that it was a generous public service.

The story preceding the debate (fig. 2) was in a similar vein, limiting itself to the part cable television was playing by serving as the community's own TV outlet.

Here we have *news* insofar as a new communications approach is being utilized in this local area and it is being used in behalf of a vital issue, the election. The cable company, as the new local medium, gains stature. Cable TV quietly assumes its place as an important part of community life. The part cable television plays is almost incidental but it is packed with public relations value.

News vs. Co-Channel

News can be used more effectively than advertising in shunting off complaints brought about by natural conditions. Each summer the shore area of the mid-Atlantic seaboard is plagued with co-channel interference. You can sit in your office and patiently try to explain to each person who calls, but you won't get too far. Or, by giving your story the authority of print, you can give the scientific explanation of co-channel interference—making the point that while cable TV is affected, it is disturbed much less than reception by roof antenna. The newspaper account will be believed. Print carries that kind of prestige. It is news because you are telling a scientific fact that is interesting to many people. They are naturally interested because the subject affects a big portion of their leisure lives.

Uncooperative Editors

There is an area in which cable systems have a legitimate gripe against *some* local editors; those who will not publish television program schedules. Even editors can be short sighted as to what is news, and some simply treat television as competition. It isn't hard to present a case for the publishing of television program schedules, however, even if limited to programming highlights. If you know your business you can present plenty of argument for showing that the press and television are not competitive. Each does a different job in presenting the reader and viewer with the matters of the day.

One way you can approach the problem if you have a problem of dealing with an uncooperative publisher is by running an ad of your own containing some selected highlights on the program schedule. If you do this for a while, and then stop, you will probably learn that the editor has been questioned by calls and letters on what's happened to the listings.

The point to all this is that news can work for you when it is news and not advertising. If you are discriminating and keep your advertising material where it belongs and not try to force it into the news columns you will find that even your ads are working more effectively for you.

Your local newspaper is very important in portraying your cable system to the community. Plan your advertising and be consistent in it . . . and be alert to opportunities for legitimate news items. The combination will spell good relations with the newspaper—and good public relations, too.

May 1968

TV Communications

CATV Technician

Engineer John Wright and technician Larry New inspect antenna array at Cox Cablevision's new system in Atlanta, Georgia.

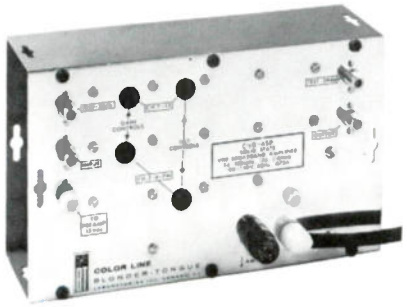
High-Gain Amplifiers and Automatic Level Control • Cascade's Thermistor Pr

Solve signal transmission problems by calling Pruzan, now.

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.

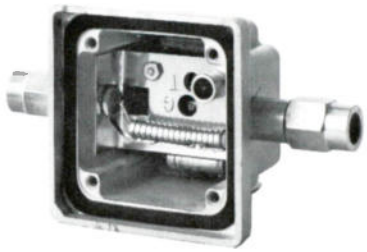
Need product solutions to other CATV problems? Need them fast? Good. Pruzan has the answers and the large stocks to back them up. Products from over 100 manufacturers for CATV keep our shelves full. These well-stocked shelves provide assurance that your order will be shipped the same day it is received. So, whether your need is a problem one or not, try Pruzan for all your CATV supplies.

SIGNAL TRANSMISSION PROBLEM SOLVERS



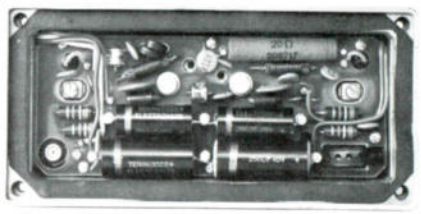
Blonder-Tongue Model CVB-45P

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.

On orders of 150 lbs. and over, Pruzan pays the freight to anywhere in the continental U.S.A.

CATV, Communication & Power Line Supplies

PRUZAN COMPANY

Phone 206 + 624-6505 / 1963 FIRST AVENUE SO. SEATTLE, WASHINGTON 98134

PRUZAN COMPANY • 1963 First Avenue South • Seattle, Wash. 98134

Please send me more information on:

- ☐ SKL 7300 Line Extender
- ☐ Blonder-Tongue CVB-45P
- ☐ Craftsman MAT-18

me_____

_____

_____ State_____ Zip_____

_____ Title_____

obe

e your complete "In Stock" catalog.

MORE INFORMATION

For full catalog information and prices on these products, or any of your CATV supply needs, mail this coupon today, or call us collect at 206/624-6505.

Control for CATV Temperature, Temperature Design and Automatic Level

The use of high-output trunk and bridging amplifiers, and improved AGC techniques are examined here as means to improve system reliability and cost reduction.

By James R. Palmer
C-COR Electronics, Inc.

The development of a high-output solid-state amplifier has given new dimensions to CATV transmission system design and operation. The application of such amplifiers to trunk lines is discussed in this paper. The inherent advantages of high-output trunk and bridging amplifiers are analyzed. The environment in which a CATV transmission system operates is examined with particular emphasis on temperature. Automatic level control and its operation with temperature change is explained. The overall result is improved system reliability through a great reduction in the number of amplifiers in the system and through improved level control as a result of better design. An important by-product is a reduction in the cost of electronic equipment.

Objectives and Definitions

One table and several definitions given in an earlier paper are reproduced here.

TRANSMISSION DESIGN OBJECTIVES
12 CHANNEL CATV SYSTEMS
0-4 mc

		TOP QUALITY
SIGNAL TO NOISE RATIO (SNR), dB		45
CROSS MODULATION INDEX, dB		52
SUBSCRIBERS SIGNAL LEVEL, dBmV AT 75 OHMS		0 to 10
ECHO RATING, dB		−34 dB
RADIATION FCC SEC. 15, PAR. 15.161-5		
HUM		−60 dB
GAIN STABILITY: SHORT TERM LONG TERM		±0.5 dB ±4 dB
DIFFERENTIAL GAIN		±2 dB
DIFFERENTIAL PHASE		±3°
	GOOD QUALITY	MINIMUM ACCEPTABLE QUALITY
SNR, dB	38	34
CROSS MODULATION, dB	49	48
	OTHER SPECIFICATIONS ARE THE SAME AS TOP QUALITY.	

The following quality grade definitions are those used in the above table. "Fine" is the TASO grade No. 2.

Top Quality: 95% of observers viewing pictures at all parts of the system would rate the Picture Quality as "Fine." At least 80% of observers viewing pictures at the extremity of the system would also rate the Picture Quality as "Fine." The picture is of high quality providing enjoyable viewing. Interference is perceptible.

Good Quality: 85% of observers viewing pictures at all parts of the system would rate the Picture Quality as "Fine."

Minimum Acceptable Quality: 70% of observers connected at all parts of the system would rate the Picture Quality as "Fine."

Two definitions used frequently are:

Tilt: Tilt is the ratio expressed in dB between the signal level of Channel 2 visual carrier relative to Channel 13 (or Channel 6 in five-channel systems). Tilt is positive when Channel 2 is at lower level than Channel 13 (or Channel 6). *Tilt refers to signal level.*

Slope: Slope is the ratio expressed in dB between the gain of an amplifier at Channel 2 relative to its gain at Channel 13 (or Channel 6). By considering attenuation as negative gain, the definition may also be applied to cable or other passive devices. Slope is positive when the gain at Channel 2 is less than at Channel 13 (or Channel 6); and is negative for coaxial cable. Amplifiers are generally operated with a slope complementing the slope of the cable span with which it is associated. *Slope refers to component of cable characteristics.*

Temperature

In designing a CATV system it is essential to determine the environment in which the system is to operate. The environment has many components, including moisture and precipitation, corrosive elements such as gas and salt water, vibration, and temperature variations. Of these components, only temperature variation is considered in this paper.

Temperature extremes for nine different locations in the United States are shown in Table I, which incorporates maximum and minimum temperature data for

Table I

MAXIMUM AND MINIMUM TEMPERATURES, °F

LOCATION	PERIOD YEARS	YEAR HIGH	YEAR LOW	YEAR RANGE	SUMMER * HIGH	SUMMER * LOW	SUMMER * RANGE	WINTER * HIGH	WINTER * LOW	WINTER * RANGE
PRESCOTT, ARIZONA	64	105	-21	126	105	13	92	87	-21	108
	10	100	- 5	105	100	22	78	83	- 5	88
FAIRBANKS, ALASKA	18	93	-59	152	93	-21	114	74	-59	133
	10	93	-56	149	93	-19	112	74	-56	130
LOS ANGELES, CALIF.	83	110	28	82	110	40	70	100	28	72
	10	110	32	78	110	46	64	96	32	64
GREELEY, COLORADO +	64	107	-45	152	107	-8	115	84	-45	129
	10	106	-39	145	106	0	106	79	-39	118
ST. AUGUSTINE, FLA.	68	104	13	91	104	37	67	93	13	80
	9	102	22	80	102	38	64	93	22	71
KEARNEY, NEBRASKA o	66	114	-34	148	114	0	114	95	-34	129
	10	113	-21	133	113	15	98	93	-21	114
KEENE, N.H. +	68	104	-32	136	104	1	103	85	-32	117
	10	102	31	133	102	13	89	76	-31	107
STATE COLLEGE, PA. +	73	102	-20	122	102	1	101	86	-20	106
	10	98	- 4	102	98	18	80	74	- 4	78
SEATTLE, WASHINGTON +	70	100	3	97	100	29	71	81	3	78
	10	100	13	87	100	35	65	67	13	54

* Summer, May through October; Winter, November through April, unless noted otherwise.
\+ Summer, April through October; Winter, November through March.
0 Summer, April through September; Winter, October through March.

the total number of years that the weather bureau stations have been in operation, as well as for a recent ten year period. The temperature ranges shown are for the full year and also for summer and winter. This kind of temperature data should be studied by the system designer and the specifying engineer whenever a new CATV system is contemplated.

If a system is designed to truly take care of temperature variations on a year-in and year-out basis, the resulting cost and complexity for, say, Greeley, Colorado, gives a system that definitely overperforms for Seattle, Washington. However, if a system is designed that will take care of Seattle, Washington, throughout the entire year, it would also take care of Prescott, Arizona, if that system were adjusted twice a year, once for summer and once for winter. Temperature statistics are available at the local weather bureau office and should be referred to for the installation of quality television cable systems.

Trunk System Design

The important performance criteria affecting the trunk system design are signal-to-noise ratio (SNR) and cross-modulation (Cross-mod). These two characteristics relate to the input and output capabilities of the amplifier. Another important factor interrelated between system design and equipment design is the system length. It has been shown that different amplifier gains should be selected depending on the length of the system. For this reason, C-Cor Electronics offers three different models of trunk amplifiers, with gains of 40, 34, and 28 dB, to provide for the different sized systems. Guidelines for selecting these amplifiers as a function of trunk length for various types of coaxial cables are given in Table II.

Transmission characteristics for these amplifiers are shown in Table III.

With the high output and low noise of the trunk amplifiers shown in Table III it becomes logical to use a part of this increased dynamic range as increased gain. With the use of a 40 dB gain trunk amplifier instead of a 22 dB gain unit, the reduction in the number of trunk amplifiers is highly significant, approximately 45%. Attendant savings in equipment costs and maintenance costs are readily apparent.

It is estimated that over half of the CATV systems

Table II

AMPLIFIER MODEL	GAIN dB	NO. OF AMPS. CASCADED	TOTAL dB	TRUNK LENGTH—MILES ½"ALUM	¾"ALUM	0.375 P
TA-40	40	16	640	9.3	13.0	11.0
TA-34	34	32	1090	15.8	22.2	18.8
TA-28	28	64	1800	26.1	36.3	31.0

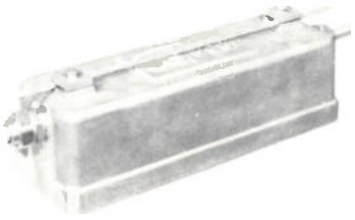
Table III

MODEL	TA-40A	TA-34
OUTPUT LEVEL @ −57 dB X-M dBmV	58	58
OUTPUT LEVEL - OPTIONAL CROSS-MOD RATIO, 12 CH. dB MEASURED @ TILT & SLOPE, dB	46 -81 20	43 -87 17
AMPLIFIER, CASCADED, MAX. NUMBER	16	32
NOISE FIGURE, CH. 13, dB MAX. CH. 2, dB MAX.	8 10	8 10
GAIN, MIN. SPACING/OPERATIONAL, dB	40	34
GAIN CONTROL, MANUAL RANGE, dB PLUG IN PADS AVAILABLE, dB	4 0,3,6	
GAIN CONTROL, AUTOMATIC, dB	± 3 CONTROL INCLUDES AUTOMATIC TILT.	
BANDPASS, MHz	50 - 220	
RESPONSE FLATNESS, dB	± 0.25	
SLOPE CONTROL RANGE, CABLE LENGTH IN dB AT CH. 13	34-40	28-34
IMPEDANCE: 75 OHMS		
RETURN LOSS: 16 dB (VSWR 1.38 MAX.)		
HUM MODULATION: −60 dB		
TEMPERATURE RANGE: −40°F TO 140°F. UNIT MEETS ALL SPECIFICATIONS THROUGHOUT THE TEMPERATURE RANGE.		
POWER: 20 TO 33 VAC CABLE POWERED.		

TAP	OPERATING VOLTAGE	CURRENT
24V	20-26	1.3 A
28V	24-30	1.2 A
32V	28-33	1.1 A

TEST POINTS: DC VOLTS, ALC VOLTAGE, RF INPUT AND OUTPUT FOR MEASUREMENTS WITH HIGH IMPEDANCE PROBE TP-30. (NOT SUPPLIED)
BRIDGER OUTPUT: OUTPUT TO FEED BRIDGER −20/−39 DOWN 20 dB AT CHANNEL 2, 34 dB AT CHANNEL 13. EQUALIZED TO PROVIDE +6 dB TILT TO BRIDGER.

The CAS TRA-217 line extender amplifier



. . . designed for the cable system that doesn't need everything

(and wants to pocket some big savings!)

This reliable CAS line extender amplifier does everything everyone else's line extenders do, yet costs considerably less!

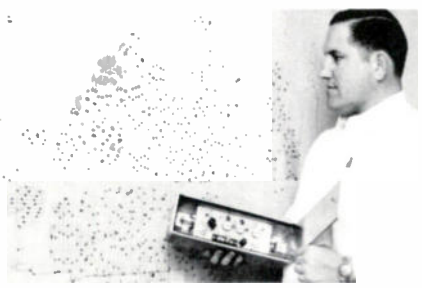
Here's some plain talk about amplifiers.

CAS line extender amplifiers are weatherproof, not waterproof. As a matter of fact, they won't float either. They install cover down on the cable, operate reliably during blowing rains, snow, hail, and sleet. When the sun comes out they keep right on operating.

CAS has nothing against modular construction. But plug-in replacement *does* cost you more. It's a nice feature when and *if* you need maintenance.

Quite frankly, CAS feels its TRA-217 amplifier maintenance history *doesn't* justify the additional cost of modular construction, so it builds a minimum maintenance unit and passes the savings on to you.

If a CAS amplifier ever does require maintenance, there are only six screws between you and disassembly.



Here's what Mr. Dale Mathis, (above) chief engineer of TV Cable of Abilene, Inc., says about the reliability of CAS amplifiers:

"We now have 670 CAS TRA-217 amplifiers in over 250 miles of system. Most of these amplifiers have been in operation since 1964. In the past 12 months we have had only 7 failures from all causes."

If your system doesn't really demand the additional cost of hermetic seals, modular construction and other design frills, you're missing a good buy.

There's a CAS low or all band transistorized amplifier to fill your requirements . . . from a short run down the alley to a 250-plus mile system.

All you save is money.

CAS MFG CO

P. O. BOX 47066 • DALLAS, TEXAS 75247

214/BL 3-3661

can utilize the 40 dB gain trunk amplifier. These are systems that have maximum trunk lengths of 13 miles of ¾" aluminum coaxial cable. Contemplated operations in New York City will utilize short trunk lengths from multiple antenna sites. Acceptance and licensing of the 18 GHz microwave service will accentuate this trend. In many metropolitan areas, multiple franchises have been given for different areas of the city — Philadelphia, for instance. In suburban areas contiguous to and a part of a metropolitan area, the fact that adjacent political subdivisions grant franchises to different companies precludes long trunk lengths. Why then, should these situations be saddled with a trunk amplifier that was designed to go a much greater distance?

The equipment designer has considerably more flexibility in the design of a high-gain amplifier than he does in the design of a low-gain amplifier. In the multistage amplifier, the multiple interstage networks can be used for equalization an automatic level control. Solid state devices with high output inherently have higher noise levels than low level devices. To be able to separate an input stage from an output stage with other stages gives the designer the latitude to select a low-noise, low-level input transistor at the input and a high-level output device at the output of the unit without one device affecting the other device to any marked degree.

Temperature Design, Trunk System

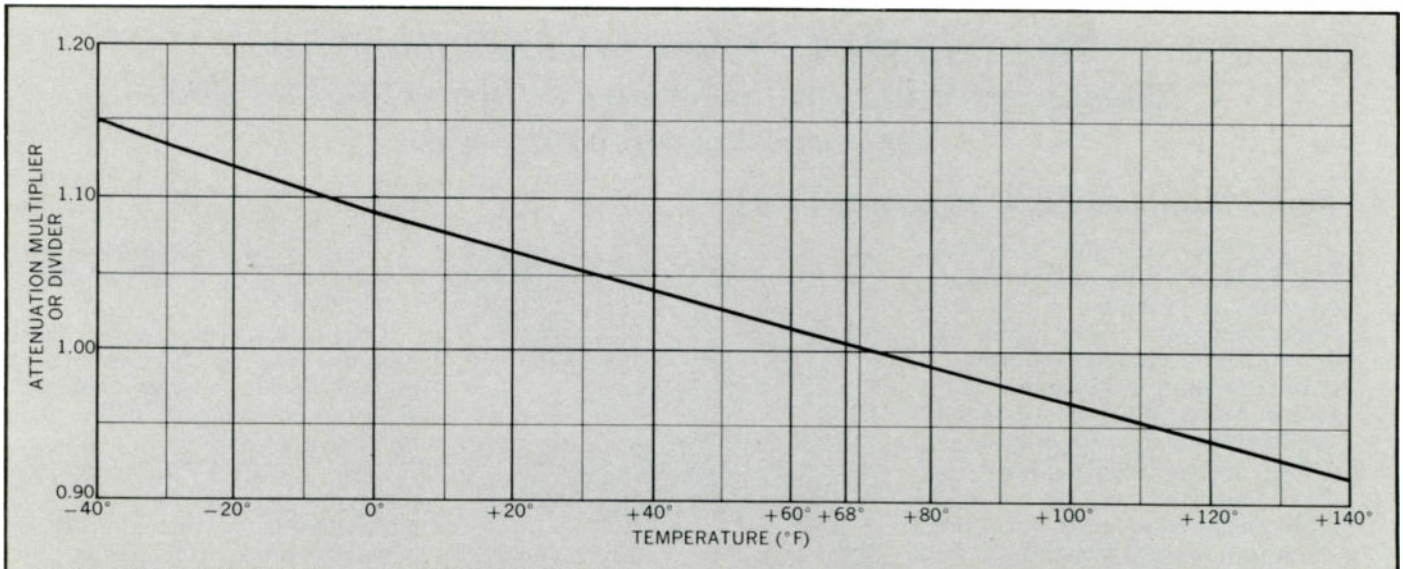
Barring an accident and assuming good design, the only thing to change the signal level in a CATV transmission system is temperature. This, of course, assumes that the signals at the antenna site delivered to the transmission system are stabilized through the necessary equipment. Further, it assumes that the power voltage supplied to the amplifier is regulated and that transistors are reliable and do not fall off in gain as they age.

Temperature causes the loss in the coaxial cable to vary. Curves showing the coaxial cable attenuation temperature correction factor are given in Figure 1. In addition, the amplifiers themselves may have a variation in gain with temperature, although the designer attempts to eliminate or minimize this variation. An automatic level control system, therefore, should be designed to take care of temperature variation. Such a system will also tend to take care of "accidents" if they should occur. These will not be designed for, however, since they are of an unpredictable nature.

An intermediate design goal is to hold signal levels constant. (The primary design goal is to deliver good pictures to the subscribers all of the time). If levels are too low at an amplifier input the pictures go into the snow (system SNR is reduced). If amplifier output levels are too high the picture shows windshield wiper effects of cross-modulation. Without some sort of control system, temperature fluctuations will cause snowy pictures in hot weather and "cross in the pictures" in cold weather. An automatic level control system is therefore desirable to hold signal levels at the output of an amplifier at a constant value.

In order to effect signal level control it is desirable to utilize a closed loop control system adjusting the gain of the amplifier. The output signal level is sensed, referred to a reference and adjusted. Some systems utilize a system that senses a temperature and attempts to make a proportional adjustment based on that temperature change. This is an open loop control system. However, it is logical that the signal level itself should be measured and controlled since this is the goal.

Since the temperature change causes the greatest



TO CORRECT ATTENUATION TO 68°F, USE FIGURES AT LEFT AS MULTIPLIER. FOR EXAMPLE: 2 dB @ 100°F IS KNOWN FACTOR. TO CALCULATE ATTENUATION @ 68°F, LOCATE 100°F AT BOTTOM OF CHART, FOLLOW 100°F LINE TO POINT OF INTERSECTION WITH CURVE, MOVE LEFT TO OBTAIN MULTIPLIER OF .96. 2 dB × .96 EQUALS 1.92 dB @ 68°F.
WHEN ATTENUATION @ 68°F IS KNOWN, USE FIGURES AT LEFT AS DIVIDER TO CALCULATE ATTENUATION AT OTHER TEMPERATURES. FOR EXAMPLE: 2 dB @ 68°F IS KNOWN FACTOR. TO CALCULATE ATTENUATION @ 120°F, LOCATE 120°F AT BOTTOM OF CHART, FOLLOW 120°F LINE TO POINT OF INTERSECTION WITH CURVE, MOVE LEFT TO OBTAIN DIVIDER OF .94. 2 dB DIVIDED BY .94 EQUALS 2.13 dB @ 120°F.
(COPPER LOSS CORRECTION ONLY; ASSUMING DIELECTRIC LOSSES CONSTANT WITH TEMPERATURE)

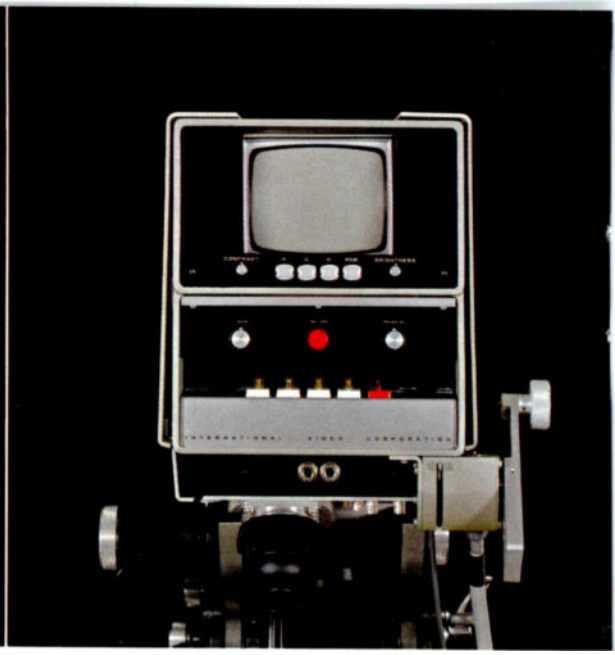
Figure 1: Attenuation temperature correction factor.

$12,600.

For the moment, forget the price. We'll get back to that. Consider the product. The IVC-100 NTSC-type Color Television Camera. It's a full-featured studio camera that makes live color television practical in education, medicine, industrial training, CATV, and advertising. The IVC-100 is virtually as easy to operate and as inexpensive to maintain as standard monochrome cameras. It offers features normally found in cameras costing many times more. It has three vidicon tubes, integral view-finder, sync generator and encoder. Available now, the IVC-100 is by far the lowest priced professional-quality color camera on the market.

Now, look again at the price. $12,600 complete. Nothing like it in the industry. Turn the page for details.

IVC



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NTSC-type color
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Using the built-in closed circuit sync generator and encoder, the IVC-100 requires only "two wires" (power in, video out) to produce NTSC-type pictures for distribution to monitors or for input to IVC-800 Video Recorder or other VTR. Internal EIA sync generator is optional.

For Use with Systems Components
An optional **CCTV Junction Box** permits complete intercom system and allows remote operation of the recorder through a control panel on the camera. For more sophisticated systems a **Camera Remote Control Panel** and **Studio Junction Box** are offered that provide for control room operation of multiple cameras and for use of external encoder and sync generator.

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RGB outputs are provided which bypass the encoder and feed separate red, green, blue and sync signals from the camera directly to the RGB-type monitors, providing superior color pictures.

The IVC-100 is available in a film chain version.

Basic camera is supplied complete with image tubes; 6:1 zoom lens; focus, zoom, and iris controls extended to rear of camera; and 25 foot power and video cable.

All solid state circuits (except image tubes and nuvistor preamplifiers).

Sync sweep panel opens 90 degrees allowing all registration controls to face operator, has fewer internal adjustment controls than any other professional quality color television camera.

Viewfinder with switcher permits viewing of red, green, blue or luminance signal.

Second tally light at viewfinder for operator convenience.

Electronically regulated supply voltages assure excellent stability.

Extremely stable sweep circuits eliminate registration problems.

All video outputs source-terminated.

Minimum hueshift across frame and minimum sensitivity to color shift with polarization.

Camera measures 10″ W x 12″ H x 28″ L, weighs 67 pounds.

IVC **International Video Corporation** 67 East Evelyn Avenue Mountain View, California 94040

variation at the highest frequency, the highest frequency signal should be used as a yardstick to control the level. The logical selection is Channel 13 picture carrier (with a standby oscillator at the antenna site) as the pilot signal for automatic level control operation. Further, since the temperature effects on the coaxial cable produce twice the dB change at Channel 13 as at Channel 2, the automatic gain function should change 2 dB at Channel 13 for every 1 dB at Channel 2. Any residual errors in the slope can be adjusted manually on a seasonal basis.

It has been found practical and economical to design an automatic level control system with C-Cor's Model TA series amplifiers with a range of ±3 dB. With the Model TA-40 and with cable spacing of 40 dB, this ±3 dB range will accommodate 120°F temperature range (±60°F). With the Model TA-34 and the TA-28, with ±3 dB ALC range, the temperature ranges are ±70°F and ±80°F.

With reference to the maximum and minimum temperature chart of Table I a range of 120°F can accommodate the temperature variations on a year-round basis for over half of the locations shown. It is suggested that the temperatures used for design consideration be those of a ten-year period instead of the life of the particular weather bureau. In locations such as Keane, New Hampshire; Kearney, Nebraska; Greeley, Colorado, and Fairbanks, Alaska, the yearly temperature ranges for the ten-year period shown exceed 120°. However, in all of these locations with the exception of Fairbanks, Alaska, the temperature for summer and winter will not exceed that range. For these locations a semi-annual temperature adjustment will be required. For Fairbanks, Alaska, adjustments three times a year are necessary. Temperature variation in April itself is 106°.

Nominal Temperature For System Design

For what nominal temperature should the CATV system be designed? First consider the trunk system and more specifically a system using the Model TA-40 trunk amplifier. This amplifier has a nominal 40 dB gain for 40 dB cable spacing. The automatic level control has a rated control range of ±3 dB. The amplifier meets all of its performance specifications at the limits of the ALC operation, 37 dB and 43 dB gain. It is necessary to have sufficient gain so that the signal level does not get progressively lower under the maximum temperature conditions. We could, therefore, design with 43 dB of gain 43 dB of cable spacing at the maximum temperature. The level control range of ±3 dB corresponds to ±60°F of cable attenuation change at 216 MHz. A 70°F ambient with ±60°F change gives temperature extremes of 10°F to 130°F. Since 130°F is almost always a maximum design temperature, one can design with the nominal gain and the temperature at a nominal ambient of 70°F.

The author believes that this is a satisfactory design approach. There is one limitation, however. The system design criteria for SNR have been established on the nominal gain of the amplifier, in this particular case a gain of 40 dB. Therefore, under the operation at the maximum temperature condition, the system SNR would be degraded 3 dB. Since a fairly high value of SNR has been selected by the author for "top quality" performance and since operation at maximum temperatures is quite infrequent, it is felt that the practical approach of permitting a degradation of system SNR at the maximum temperature condition is the economical design approach. This is not to be confused with the typical simply "running out of signal" under a high temperature condition when amplifier gain is unable to supply signal level through the coaxial cable.

Setting of Levels

With the concept that the automatic level control system is to take care of temperature variations, the level control operating position must be set in the field as a function of temperature. If it is desired to have the ALC function over a temperature range of 10 to 130°F then the ALC operating point must be adjusted so that it is at one extremity of its control range at 130°F and at the other extremity at 10°F. The manufacturer must provide the service technician with a temperature-ALC setting chart so that the technician, upon checking the ambient temperature, will set the level control system operating point at the correct point.

Feeder System Design

The high-output bridging amplifier operational characteristics are shown in Table IV.

The output of 53 dBmV for each port of a two-port bridger of 50 dBmV for each port of a four-port bridger allows feeder lengths over 40% longer than were previously possible (without line extender amplifiers). In fact, the high-output bridger has greatly reduced the number of line extender amplifiers necessary in a system and as a result has concentrated more of the amplification at fewer locations, resulting in easier maintenance and higher reliability.

Table IV

SPECIFICATIONS FOR BRIDGING AMPLIFIERS

MODEL	BA-2A	BA-4A
OUTPUT LEVEL @ −57 dB X-M dBmV	56	52
OUTPUT LEVEL - OPERATIONAL CROSS-MOD RATIO, 12 CH. dB MEASURED @ TILT & SLOPE, dB	53 -63 6 TILT & 0 SLOPE	49 63
NOISE FIGURE, CH. 13, dB MAX. CH. 2, dB MAX.	13 11	13 11
GAIN, MIN. SPACING/OPERATIONAL, dB	42	38
GAIN CONTROL, MANUAL RANGE, dB PLUG IN PADS AVAILABLE, dB	4 0,3,6,9,12	
BANDPASS, MHz	50-220	
RESPONSE FLATNESS, dB	± 0.5	
SLOPE CONTROL RANGE, CABLE LENGTH IN dB AT CH. 13 FIXED EUALIZERS	0-10 EQ-1, EQ-2, EQ-3	
RETURN LOSS ALL PORTS, MIN. dB	16	
TEMPERATURE RANGE: −40°F TO 140°F TEMPERATURE COMPENSATION PROVIDES STABILIZATION OF GAIN TO BETTER THAN ± 1 dB OVER TOTAL TEMPERATURE RANGE. UNIT MEETS ALL SPECIFICATIONS THROUGHOUT THE TEMPERATURE RANGE.		
HUM MODULATION: −60 dB		
POWER: FULL ISOLATION "POWER SAVER" TAPPED TRANSFORMER.		

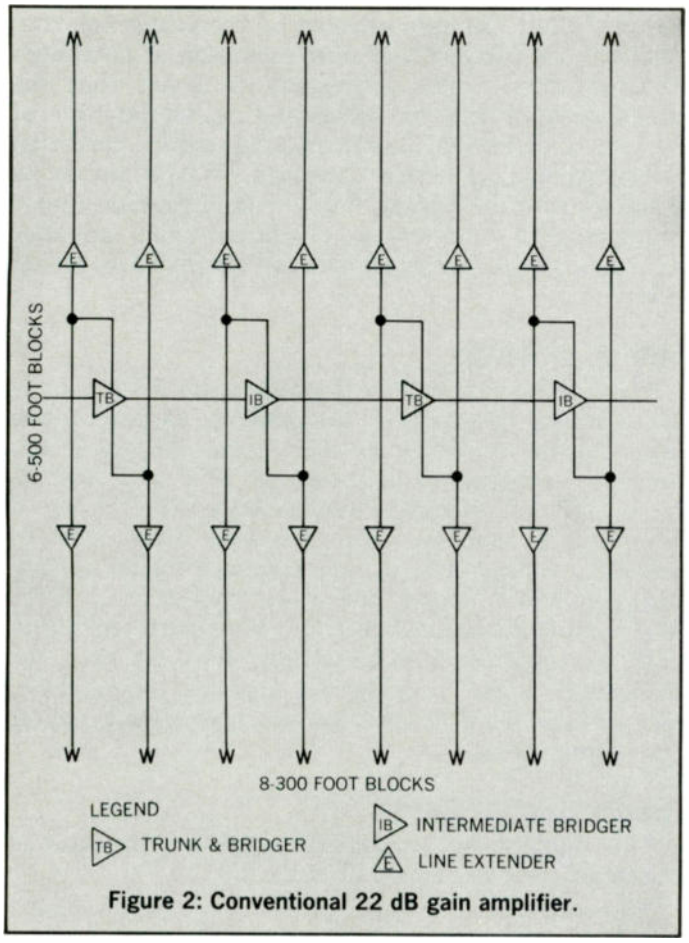

Figure 2: Conventional 22 dB gain amplifier.

Therefore, it is extremely important that the bridging amplifier itself have a gain-temperature characteristic that does not aggravate the situation. With C-Cor bridging amplifiers, the gain-temperature characteristic is flat. With the bridger output (operational) of 47 dBmV (each of 4 ports) and the resulting long feeder lengths, temperature variations of $\pm 60^{\circ}$F will produce signal level variations in the typical situation at the end of the feeder of ± 1.5 dB to 2 dB. It is felt that this range can be adequately taken care of with the AGC of the television receiver itself, particularly since the design criterion has limited signal level variation at the receiver of 0 to 10 dBmV under nominal conditions. However, it is readily apparent that another 2 dB change due to bridging amplifier gain change may aggravate the situation to the point of causing picture degradation.

Typical System Layouts

Two systems layouts are displayed in Figures 2 and 3 showing an idealized section of a system. The system shown in Figure 2 utilizes conventional 22 dB gain amplifiers. The system shown in Figure 3 utilizes C-Cor's high-output trunk and bridging amplifiers. For a forty block area C-Cor uses five amplifiers while the 22 dB system uses sixteen amplifiers. In this case the cost reduction for amplification is 25%.

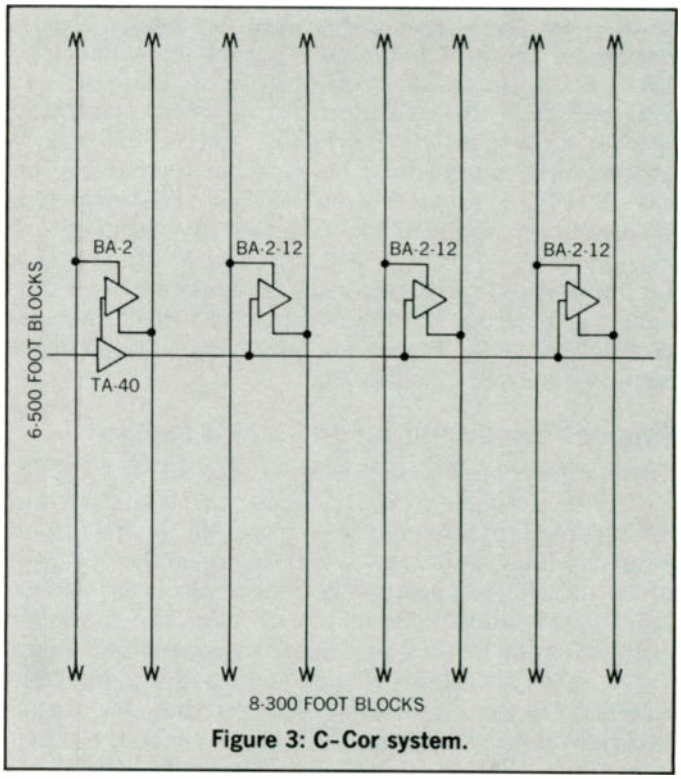

Figure 3: C-Cor system.

Conclusions

A considerable reduction in amplifiers can be made in a CATV system utilizing high-output units. System costs are also lower. An automatic level control system utilizing a closed loop control system results in higher quality performance. Careful consideration of temperature is important in good CATV system design. TVC

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The Totally Compensated System; A New Look at Old Problems

No aspect of CATV equipment design has received more attention than that of temperature-compensating control. Considerable variety can be found among the approaches to level control utilized by the various manufacturers . . . such as that of Cascade Electronics as described below.

By Henry J. Sawyer
General Manager
York Cablevision, Limited

The problem with AGC is readily seen if we define what AGC is, what it does and how it does it. After analyzing these three points we may ask ourselves is this what we really need.

AGC is a system of gain control which will maintain a constant output from a device that has a varying input.

What does AGC do and how does it do it? Closed loop, the most common type of AGC, senses that a change has taken place and feeds back a correction voltage to change the gain of the device, to maintain a constant output. A reduction or increase in signal level at the input to the amplifier is required to cause the AGC to operate. As far as the amplifier is concerned an error has been noted and has been corrected by a change in gain. Normal AGC therefore, locks the stable door after the horse has bolted.

This is hardly what is required in today's highly sophisticated state of the art, and results in a degraded system.

Normally, because of cost considerations, AGC is applied at every third amplifier, so the error builds up through two amplifiers and is corrected at the third position. If we have a cascade of 50 amplifiers, then the error builds up and is corrected as many as 16 times.

The illustration of Figure 1 shows the planned figures for a typical system, and an ideal AGC system would maintain all these figures constant. System design has to produce and maintain, at the television receiver, the correct signal level at all frequencies. At the same time, the design must be such that all amplifiers are operating within the rated specifications. The amount the signal is expected to vary outside the planned figure has to be allowed for in system tolerance. This reduces the usable specification of the amplifier — pure waste. AGC is used to compensate for the change in electrical length of cable due to temperature variations, which changes approximately 0.11% per degree Fahrenheit. Any other use of AGC in a system must be ignored as it cannot be planned for. Figures 2 and 3 show the change in cable length due to

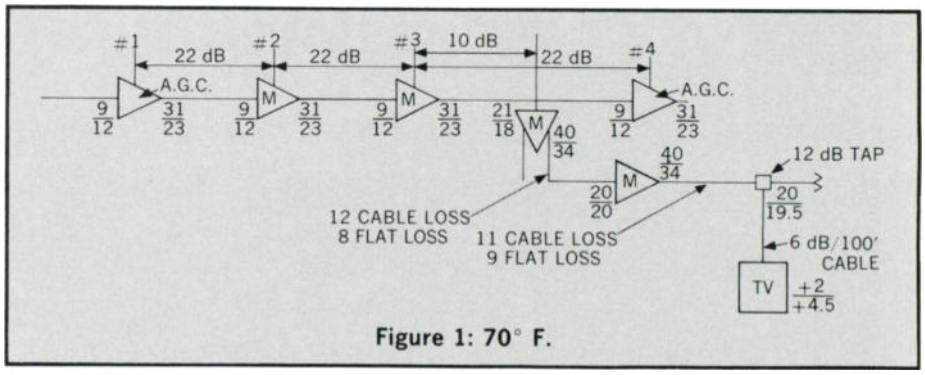

Figure 1: 70° F.

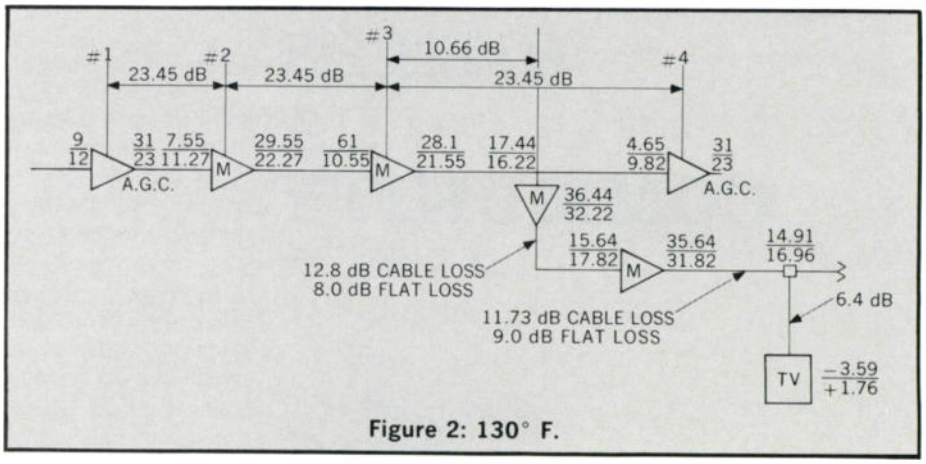

Figure 2: 130° F.

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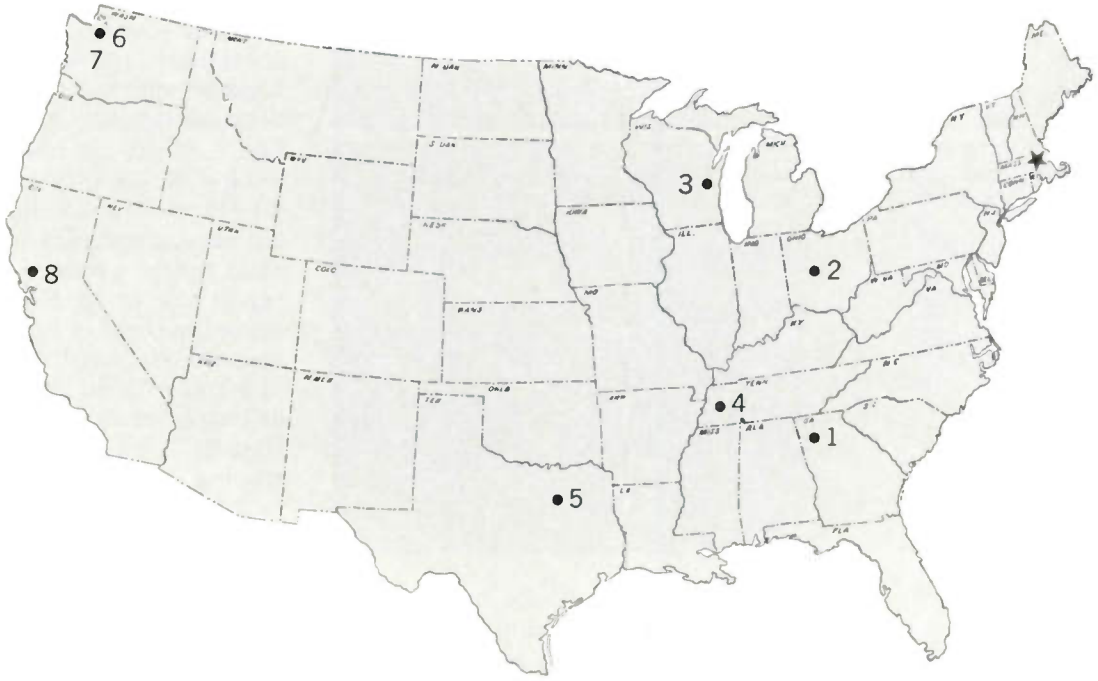

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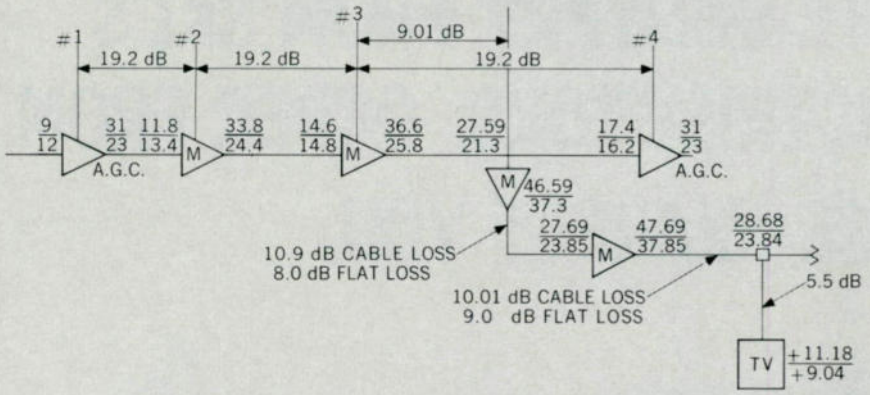

Figure 3: −20° F.

		AMPLIFIER #2		AMPLIFIER #3		AMPLIFIER #4	
TEMP.	CHANNEL	IN	OUT	IN	OUT	IN	OUT
130°	13	7.55	29.55	6.1	28.1	4.65	31.0
	2	11.27	22.27	10.55	21.55	9.82	23.0
GAIN	13	22		22		26.35	
	2	11		11		13.18	
70°	13	9	31	9	31	9	31
	2	12	23	12	23	12	23
GAIN	13	22		22		22	
	2	11		11		11	
−20°	13	11.8	33.8	14.6	36.6	17.4	31.0
	2	13.4	24.4	14.8	25.8	16.2	23.0
GAIN	13	22		22		13.6	
	2	11		11		6.8	

Figure 4

temperature variation and the levels resulting from these changes at 130°F and -20°F — not unusual situations in a normal system.

From Figures 2 and 3 it can be seen that at a TV receiver a variation of 14 dB takes place at Channel 13 and 7 dB at Channel 2. The trunk line variations are shown in the Table of Figure 4. These Figures are worth looking at together with manufacturers specifications. The usual method of designing a system starts at 70° temperatures and splits the difference of temperature variation to attempt to work within a manufacturers specification.

As can be seen, amplifier number 4, the AGC amplifier has to operate under widely varying conditions hardly within anyone's specifications. It is asked to operate with a low input of 4.65 dB and a high input of 17.4 dB, calling for gain in the amplifier of 26.35 dB and 13.6 dB, and a swing of 12.75 dB! This is the situation throughout the trunkline and will modify the cascadability of the trunkline due to noise and cross-modulation.

At this point we can see the shortcomings of AGC.

(1) Unless every amplifier is AGC controlled, system level variations are excessive.

(2) AGC can only maintain a constant level at set points in the system while cable attenuation varies constantly throughout the system.

(3) An error has to exist for AGC to make a correction.

Now to deduce what type of control is required to produce CATV operation that is in line with the present state of the art. Let us start from Figure 1 — this is the ideal, and the closer we can come to these predetermined levels, the better our system will be. The factors affecting cascadability are the input noise figure and the input level used together with the overload level and output level used. Assuming a noise figure of 10 dB and an overload level of 50 dB with 12 channels for -57 dB cross-modulation (both these are normal specifications on equipment today) we know that with set conditions as in Figure 1 at 70° using the chart of Figure 5, we may cascade 80 amplifiers at 22 dB spacing, with an input of 9 dB and an output of 31 dB. We know from Figures 2 and 3 that this 22 dB spacing at 70° will change at 130° to 23.45 dB of spacing and reference to Figure 5 shows that this reduces below 80 our cascadability. For this reason we must plan our 22 dB spacing to be at the maximum temperature we will encounter, then our 22 dB maximum spacing is not violated. 22 dB spacing at 130°F becomes 20.55 dB at 70°F and at -20°F it becomes 18.38 dB. Let us

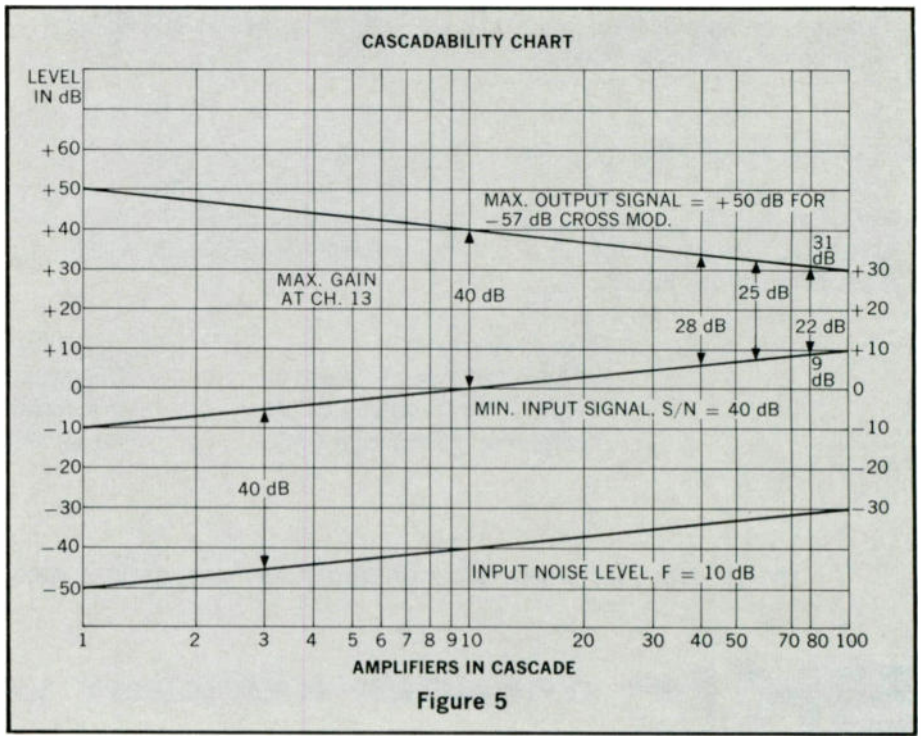

Figure 5

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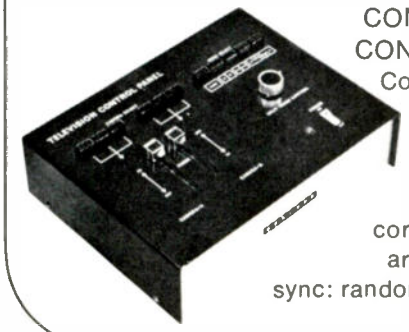

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assume therefore, 22 dB spacing at 130°F an input of not less than +9 dB and an output of not more than 31 dB. If we can produce these figures at all times, then our system will never operate in snow or cross-modulation. The known factors now are, cable of 22 dB electrical length at 130°F can only reduce in electrical length as the temperature reduces from the maximum, therefore, we never require more than 31 dB from an amplifier to produce 9 dB input to a succeeding amplifier. Each of these factors is in line with our original requirements for a cascade of 80 amplifiers.

What appears to be required is a system of control that will vary as the cable attenuation varies so that inputs are never less than 9 dB and outputs never exceed 31 dB. At the same time, the gain of the amplifier has to equal the cable spacing or the cable and flat loss spacing at all temperatures. We will now show how this can be done.

If we have an amplifier in which the gain control device is controlled by a temperature sensitive device we can have a temperature controlled amplifier. The amplifier gain will be varied as the temperature changes without being influenced by any other conditions in the network. The change of gain can be used to reduce the gain of the amplifier as the temperature goes down and to bring the gain back to normal when the temperature returns to maximum. If the gain control device in the amplifier is a varactor or like device, both the gain and slope of the amplifier will change proportionally as the cable attenuation varies. As both actions are due to the same temperature changes, we have an amplifier with the correct gain to equal the cable spacing at all temperatures.

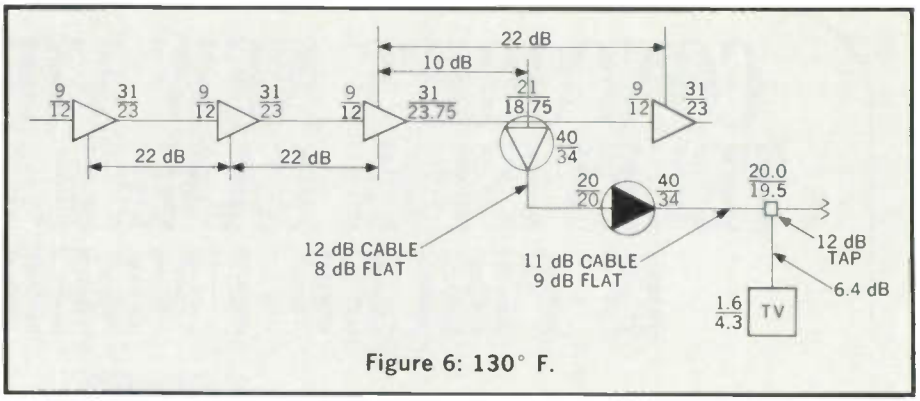

Figure 6: 130° F.

The Cascade Electronics amplifier we use has a thermistor probe external to the housing which senses the temperature variation and controls an internal gain and slope control.

The signal level into the first amplifier is maintained at +9 dB and no variation is allowed. This amplifier must be right at the headend building. The gain and slope of the unit is now controlled by a thermistor probe which is placed outside the building in such a way that the amplifier output level will reduce proportionally with respect to the change in electrical length, due to temperature, of the cable following that amplifier. This will maintain the input levels to the next amplifier constant regardless of change in temperature. If this, and all trunkline amplifiers, are controlled in the same manner then all input levels will remain constant and all outputs will be reduced from the maximum allowed level. In this manner our system specifications and tolerances remain inviolate.

The important difference in this system is in ensuring that input signals remain constant by aligning each amplifier to compensate for the cable following it, not as in AGC systems of aligning an amplifier for cable before that amplifier. The Figures 6, 7, and 8 show the difference when compared to Figures 1, 2, and 3. This is a substantial upgrading of the system.

We find at the same TV a variation at Channel 13 from +1.6 dB to +4.13 dB, and at Channel 2


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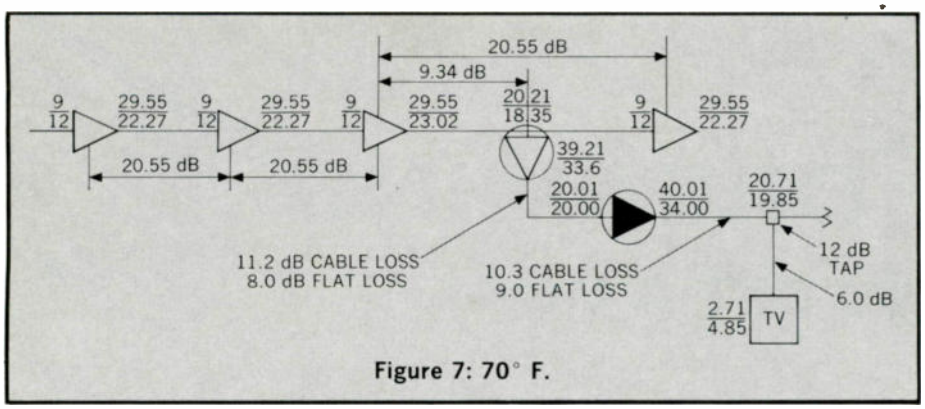


Figure 7: 70° F.

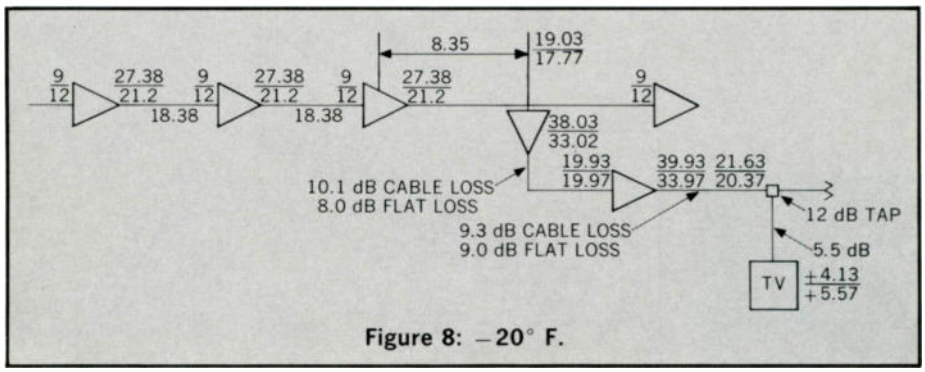


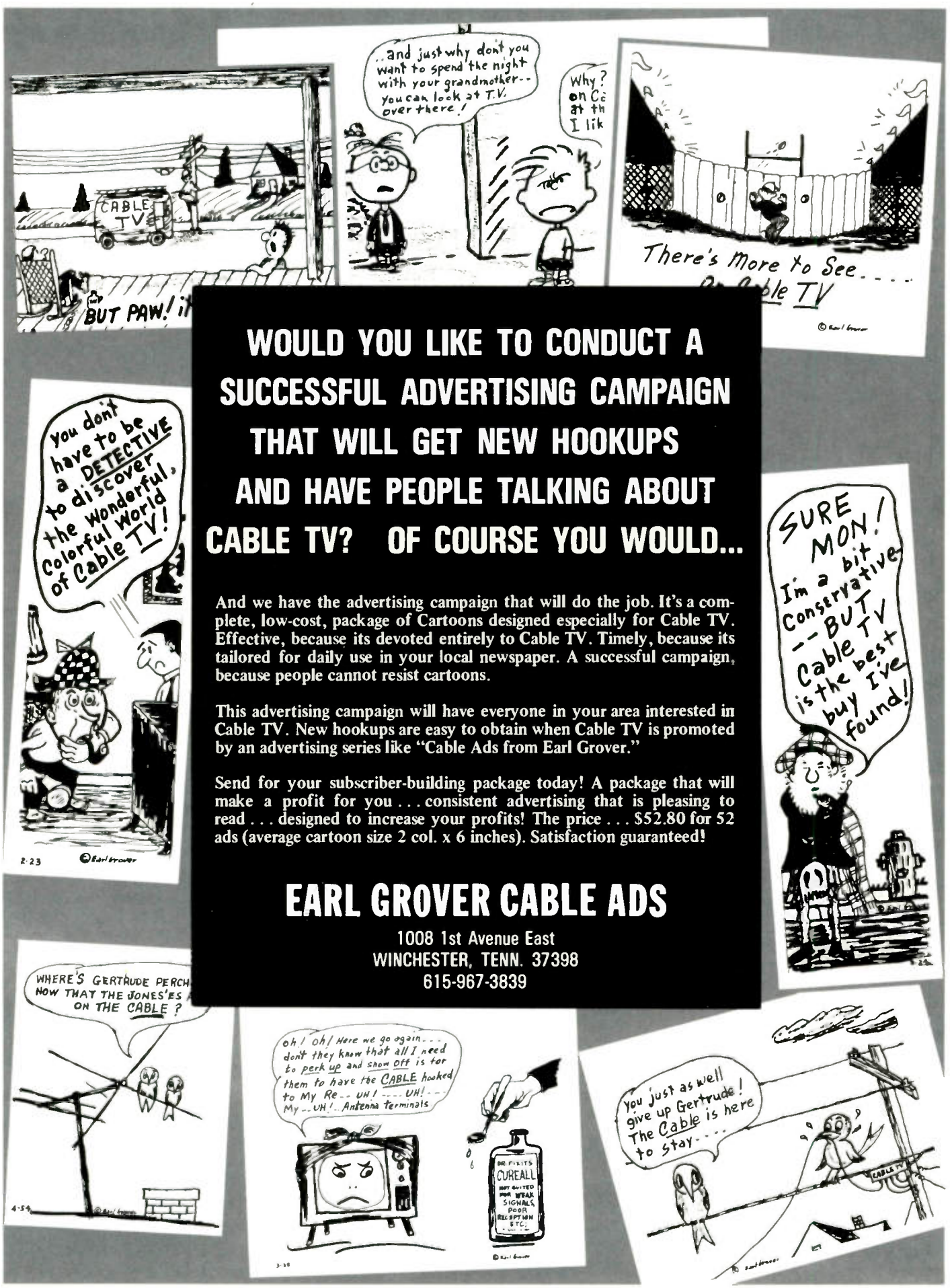
Figure 8: −20° F.

from +4.3 dB to +5.57 dB, swings of only 2.53 dB and 1.27 an improvement over normal AGC method of 12.2 dB at Channel 13. For the trunkline no output level specifications have been exceeded and inputs have remained constant so we can still cascade 80 amplifiers as our original planning had predicted. In fact when the temperature is below the maximum allowed in our design, 130°F, we have a built-in reserve for a safety factor. We won't attempt to work out the actual cascadability of a normal AGC system under the same conditions. Suffice to note that amplifier number 3 with a low input of 6.1 dB and a high output of 36.6 dB would be in trouble before 40 amplifiers were in cascade.

In following this philosophy, there are some important ground rules that should be followed. In Part 2 of this article we will go into them fully. Thermal control can be used either to hold every output constant or to maintain every input to the next amplifier constant. Our investigations show it is preferable to maintain inputs.

Another advantage of this approach is that a trunkline amplifier correcting for cable variations after the amplifier does not know whether the cable is trunk cable or distribution cable. Therefore, if the thermistor is correcting for 22 dB of cable, it will correct for this in distribution if the trunk amplifier is a combination trunk bridger or through a bridging amplifier for a total of 22 dB from the trunk amplifiers. Now we have part of the distribution system temperature compensated which is a large step forward. Temperature compensated distribution amplifiers are now available which will allow control in distribution cable. We can now produce a totally compensated system and are really state of the art!

In the second part of this article we will cover the technical approach to using this technique. It includes a simple summation sweep method, planning the system and alignment of amplifiers. This system philosophy is used in our system in Toronto where we are planning the trunk to be 65 amplifiers in cascade. Currently we are 28 amplifiers along the way, we have had temperature changes from 100° F to -20° F and have no degradation of the signal. We have never seen cross-modulation or snow anywhere in the network and have 1,600 subscribers using the service. Our average subscriber complaints are only 2 a day. TVC



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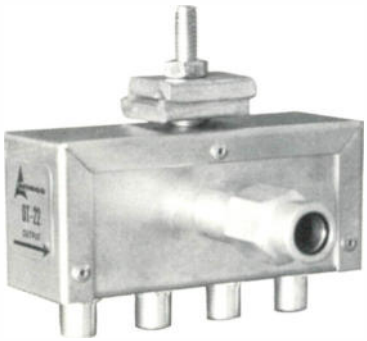
PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

AMECO DIRECTIONAL TAP

Ameco, Incorporated has announced the availability of a new directional tap, designated Silver Tap ST-2 and ST-4.

The device is injected with a polyfoam that encapsulates all internal electronics to prevent water seepage, and has a silver cadmium plating which strengthens the housing and



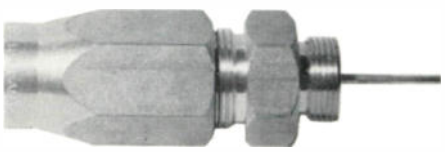
provides high reflectivity for lower operating temperatures, according to the manufacturer.

The device is available with color coding for dB values of 11, 14, 17, 22, 26 and 30. The ST-4 sells for $14.00, the ST-2 for $13.50.

For further information on this new product contact Ameco, Inc., 2949 West Osborn Road, P.O. Box 13741, Phoenix, Arizona 85002.

CASCADE CONNECTOR

Cascade Electronics has announced the development of a new CATV connector. A concentric clamping arrangement offers positive seizing of center conductor within the fitting, and elim-



inates any possibility of pullout, according to the manufacturer. Housings, with fittings installed, may remain sealed during installation. The device also features waterproof design, high corrosion resistance, the elimination of loose pieces, and standard 1# 5/8-24 mounting.

For further information on this new product, contact Cascade Electronics 2395 State Street, Harrisburg, Pennsylvania, or 244 S. A Street, Santa Rosa, California.

COAX FROM HATFIELD

A new CATV coaxial cable has been developed by Hatfield Wire and Cable. According to the manufacturer, the new cable is specially suited for systems where color TV is in heavy use. The designation for the cable is Comtenna. It is an aluminum sheathed, foam-core cable, said to be immune to radiation, and guaranteed to provide a minimum structural return loss of -26dB between ends. The manufacturer also states that it has excellent insulation characteristics and minimum expansion or contraction in normal service. It has both feeder and trunk line applications, and can be installed either overhead or underground.

For further information on this new product contact Hatfield Wire and Cable Division of Continental Copper and Steel Industries, Inc., 100 East 42nd Street, New York, New York 10017.

NEW BENCO OUTLETS

Benco's new OP series of wall-mounted TV and TV/FM outlets are available in 23, 17, 12 dB and 12T tap-off attenuations, and as a 75 ohm in, 300 ohm out wall mounted set matching transformer, and a 75 ohm in, 75 ohm out feed through plate. The OP series is available in the following models: OP 300 (75 ohm in, 300 ohm out) OP 75 (75 ohm in, 75 ohm out) OP2X300/FM (75 ohm in, 300 ohm out TV, 300 ohm out FM) OP2X75FM (75 ohm in, 75 ohm out FM) OP75/300/FM (75 ohm in, 75 ohm out TV, 300 ohm out FM).

For additional information on these new products contact Benco Television Corporation, P.O. Box 10068, Jacksonville, Florida 32207.

SOLID-STATE SIDEBAND ANALYZER

Dynair Electronics Inc. has announced the availability of the TS-100B solid-state sideband analyzer. The unit can be used to measure the overall amplitude versus frequency characteristics of CATV modulators. It is tunable through all 12 VHF channels, and if desired, can be used with an external converter on Channels 14 through 83. As a spectrum analyzer, the TS-100B can be used to observe the RF output of either a local or distant transmitter which is being fed with standard test signals or program material.

For further information on this new product contact Dynair Electronics, Inc., 6360 Federal Boulevard, San Diego, California 92114.

DROP CABLE STRAND CLAMP

A new low cost strand clamp for drops has been announced by CATV Equipment Company. The "Magna-Grip" features the new plastic, Delrin, said to have high strength and no cold flow. The device prevents corrosion

and electilolisis problems that weaken the strand, according to the manufacturer. The drop hook has a complete loop that engages drops to be pulled off at any angle.

For further information on this new product contact CATV Equipment Co., 1422 34th Avenue, Seattle, Washington 98122.

NEW RF MIXER

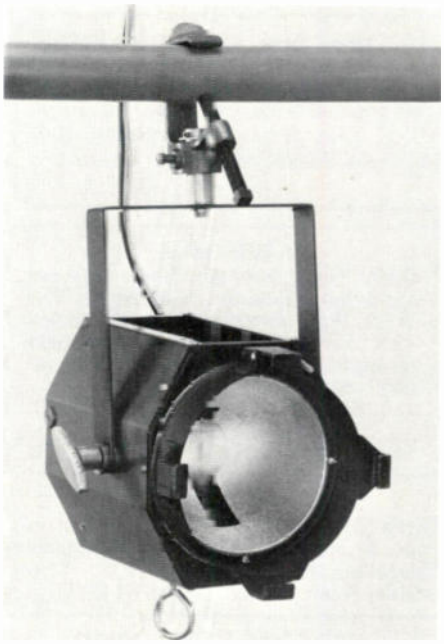
The availability of a new RF mixer has been announced by Advance Research Corp. The unit, designated Model M-1600, is said to permit single channel input combining of up to 16 channels of television, FM, broadband FM and control carriers. According to the manufacturer, the solid-state unit has very high isolation between inputs, without the use of supplemental splitters, couplers, etc. Extremely linear circuits over a wide bandwidth are said to minimize the introduction of objectional beats and their adverse affects on signal quality, and RFI is

said to be virtually eliminated by power supply filtering and special electromagnetic shielding in the combining section. Manufacturer's specifications list input and output impedance at 75 ohms; input and output VSWR as 1.2:1; frequency response for 54 to 220 MHz at ±2.0 dB, and for each channel at ±0.5 dB; insertion loss, 54 to 220 MHz at 10 dB ±2dB; channel bandwidth as 54 to 220 MHz; maximum input level at +60 dBmV; typical isolation between inputs at 50 dB. The unit's dimensions are 5-1/4" H X 7-3/4" D X 19" W. It sells for $595.00. ARC also has a 24-channel model, designated M-2400, and a 36-channel model, designated M-3600.

For further information on this new product contact Advance Research Corporation, 715 Miami Circle, N.E., Atlanta, Georgia 30324.

LIGHTING FROM BERKEY-COLORTRAN

Berkey-ColorTran, Inc. has announced the availability of the Vari-Beam "1000", a lightweight and compact lamp which provides a continuously variable light output. The model, LQV-10/TV permits smooth and accurate focusing from spot to flood with a ratio of 6-to-1, according to the manufacturer. The unit accepts a choice of sixteen single-ended tungsten-halogen "quartz" lamps operating at 120 volts, AC or DC. These lamps



are available in 500, 750 and 1000 watts in frosted and clear versions. Using a 1000-watt 3200° K clear lamp, the unit produces 151 to 948 footcandles at 10 feet from the flood to spot focus positions. The housing is ventilated and incorporates clips to accommodate various accessories. The LQV-10/TV weighs 8-1/2 lbs., and is supplied with a yoke incorporating a C-clamp for mounting on an overhead rail or a pipe, and is priced at $89.00.

For further information on this new product, contact Berkey-ColorTran, Inc., 1015 Chestnut Street, Burbank, California 91502.

TRUCK SIGNS

New self-adhesive, weather-proof truck door signs in a choice of a round design or a rectangular design are now being offered by Seton Name Plate Corporation. The signs are printed on pressure-sensitive vinyl or mylar. Application involves peeling-off of the backing sheet and then pressing the adhesive-backed vinyl sign into place. The signs are washable, won't wrinkle or buckle, and resist oils, solvents and acids, according to the manufacturer. Special style lettering can be reproduced at no extra charge.

For further information on this new product, contact Seton Name Plate Corporation, 592 Boulevard, New Haven, Connecticut 06519. TVC

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TVC pays top rates for articles, tech tips, and promotional ideas—any subject of interest to CATV personnel. Send materials, or write for additional information to: Milt Bryan, Managing Editor, TV Communications, 207 N.E. 38th, Okla. City, Okla. 73105.

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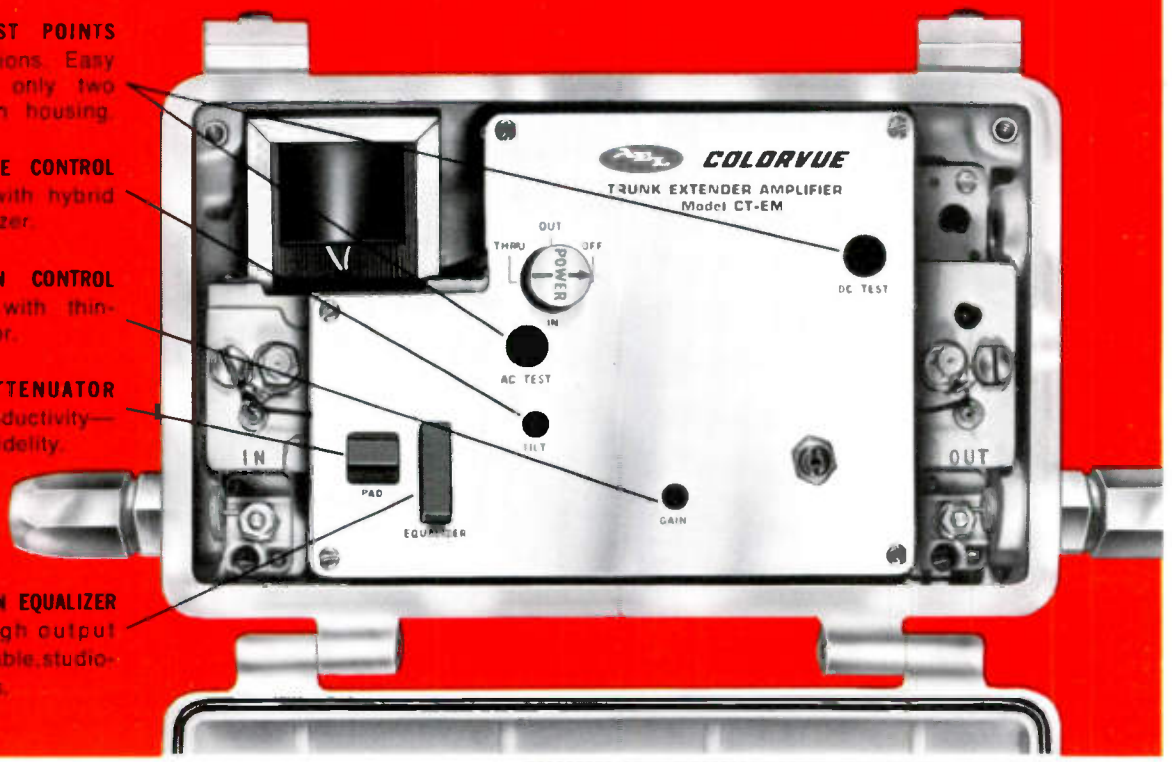

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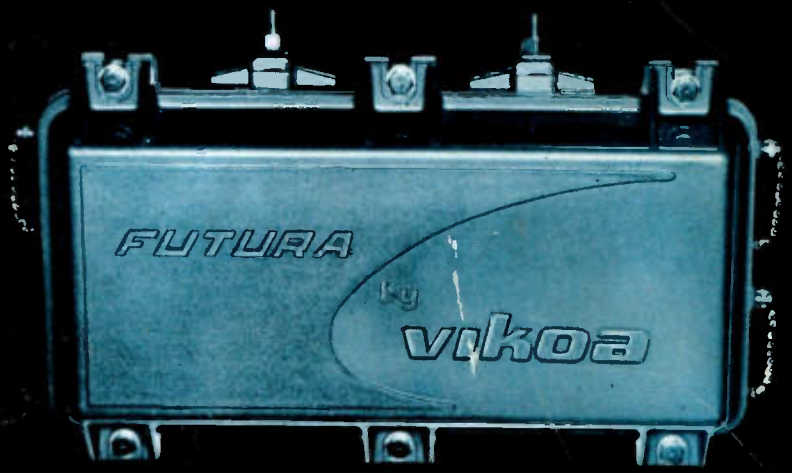

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