CPC

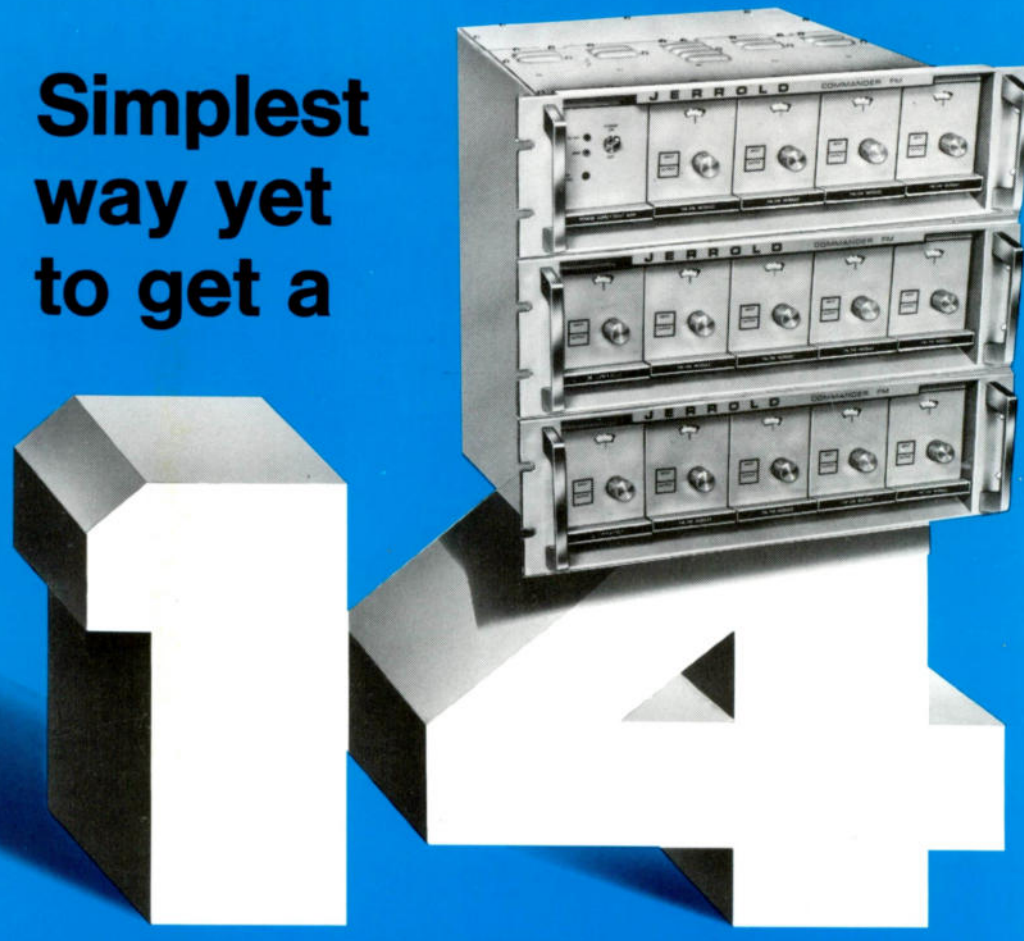
April 1971

TV Communications

The Professional Journal of Cable Television

SPRING 1971
CONSTRUCTION ISSUE

Simplest way yet to get a



14

channel FM head-end

COMMANDER FM by Jerrold

- Low cost per channel
- Variable tuning—input and output
- Crystal control option—input and output
- Common power supply and post amplifier for up to 14 channels
- Any channel operation

Give your CATV subscribers a broad choice of FM programs with Commander FM. For further information, see your Jerrold CATV salesman. Write or phone the Jerrold Regional Office nearest you.

JERROLD®

FIRST IN CATV

a GENERAL INSTRUMENT company

EASTERN OFFICE
401 Walnut St.
Phila., Pa. 19105
(215) 925-9870
TWX 710-670-0263

SOUTHERN OFFICE
1 Perimeter Place
Suite 101
Smyrna, Georgia 30080
(404) 532-3102
TWX 810-766-4895

MIDWESTERN OFFICE
1334 Atlantic Ave.
N. Kansas City, Mo. 64116
(816) 842-1130
TWX 910-771-3180

WESTERN OFFICE
1255 Veterans Blvd.
Redwood City, Calif. 94063
(415) 365-5200
TWX 910-378-5418

CANADIAN OFFICE
Jerrold Electronics (Canada) Ltd.
60 Wingold Ave.
Toronto 395
Ontario, Canada

April 1971, Volume 8, Number 4.

TV COMMUNICATIONS is published on the first day of each month by Communications Publishing Corporation, 1900 West Yale, Englewood, Colorado 80110. Second Class postage is paid at Englewood, Colorado with additional entries made at Oklahoma City, Oklahoma. SUBSCRIPTIONS: One year, $10, Two Years, $17, Three Years, $26. Foreign subscriptions (except Canada) add $4 per year. Single copies available at $2 each plus postage.

The edible direct burial cable is dead.

Burying TV cable didn't kill the problems. Instead of being rained and snowed on, cooked in July, then frozen in January. And smacked by falling branches above ground. Cables were gnawed at by underground moisture. Chewed away by alkalines. And treated like TV dinners by gophers and ground squirrels.

Plastoid didn't make direct burial cables to exchange one set of problems for another. Our cables are protected with the most durable high molecular polyethylene jacketing. A self-sealant flooding compound. A super-powerful rodent repelling jacket. Every reel of cable is sweep tested. And inspected at each channel.

When the cable you bury is Plastoid, you can be sure it will rest in peace. Not pieces.

PLASTOID CORPORATION
42-61 24TH ST., LONG ISLAND CITY, N.Y. 11101
TELEPHONE: AREA CODE 212 STILLWELL 6-6200

This is the converter to put in your subscribers hands...

Patent Pending

...craftsman

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

A **Magnavox** Company

APRIL 1971 Volume 8 Number 4

TV Communications

The Professional Journal of Cable Television

CATV Technician Section

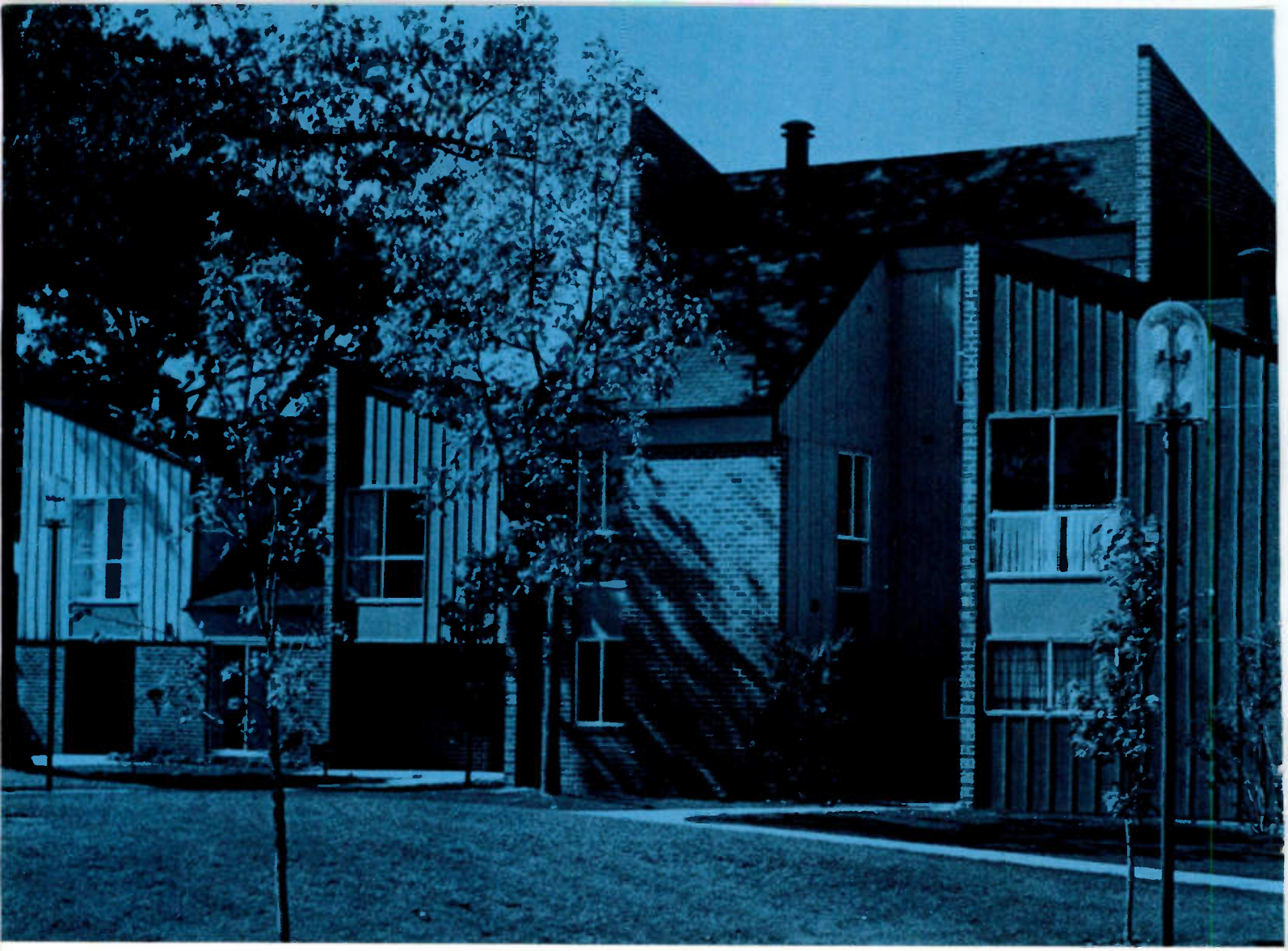
Departments

CPC Published by: COMMUNICATIONS PUBLISHING CORPORATION
1900 West Yale • Englewood, Colorado 80110 • (303) 761-3770

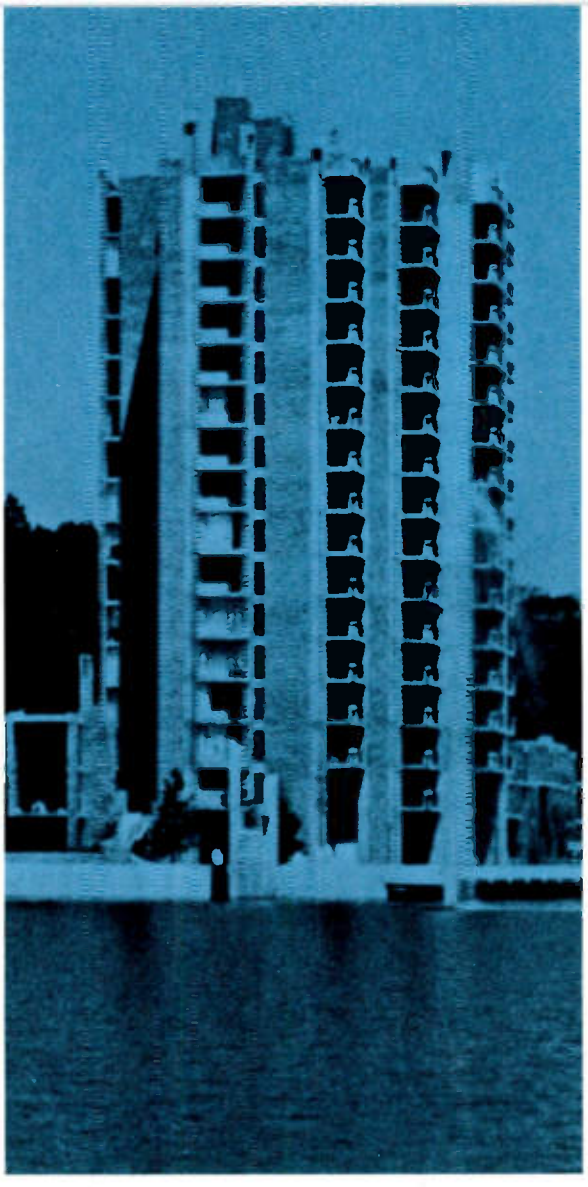
TV COMMUNICATIONS is circulated monthly to individuals and firms in cable television (CATV) and allied industries. ADVERTISING: Display advertising accepted at discretion of the publishers. Rates available upon request. SUBSCRIPTIONS: See page 3 for regular subscriptions. Group subscription rates available.

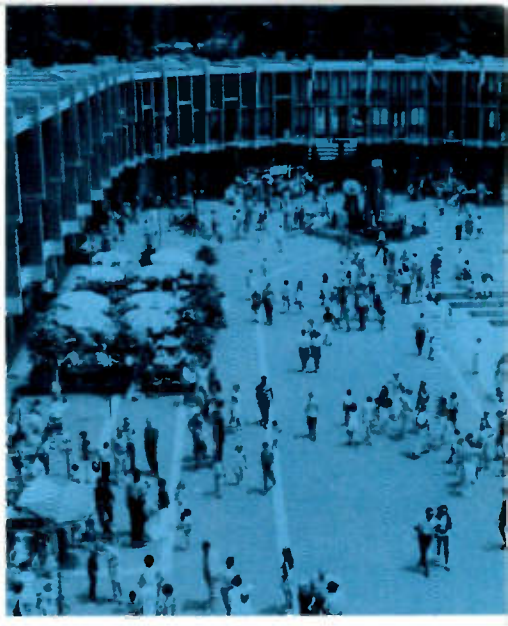
This Month's Cover...

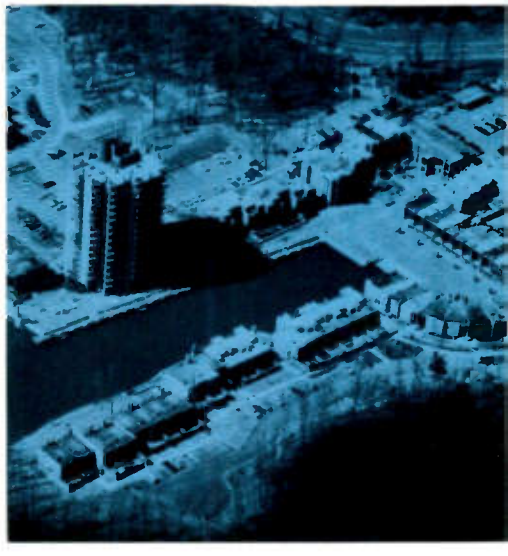
Workmen for Burnup and Sims construction company are in the process of bringing cable services to a new section of a Florida community. The firm is one of 85 CATV construction companies listed in the newly up-dated Contractors Directory beginning on page 83. Individuals or firms wishing to submit potential cover photos should contact Managing Editor Stuart MacPhail.



Beneath Reston, the world's ...99 miles of the world's telecommunications system







most modern community, most modern, dual-cable

Comm/Scope's Coppergard® Extended Spectrum Coaxials. Gulf's Reston, Virginia—the totally planned community. 10,000 people live there. Very soon, it will be a thriving city of 75,000.

As it grows, Comm/Scope's 99-mile dual-cable buried coaxial system will meet Reston's ever-increasing telecommunications needs.

Already, the system provides 14 CATV channels from Washington and Baltimore. Channels for weather, local origination and education are in the works. Modems for ITV are also slated. In all, 24 standard channels are available on this dual-cable buried system which is fully guaranteed for five years.

Later on, the 300-MHz full-spectrum capability of the system can accommodate fire and burglar alarm surveillance, facsimile mail and newspapers, and sophisticated two-way video and voice communication services. These CATV opportunities are there, now ...buried beneath the world's most modern community.

For information and prices, write or call:

COMM/SCOPE CORPORATION

P. O. Box 2406 Hickory, North Carolina 28601
Phone 704/328-5271
A SUPERIOR CONTINENTAL COMPANY

Warehouse locations: San Rafael, California; Dallas, Texas; Tampa, Florida; Seattle, Washington; Sherrills Ford, North Carolina; Las Vegas, Nevada.

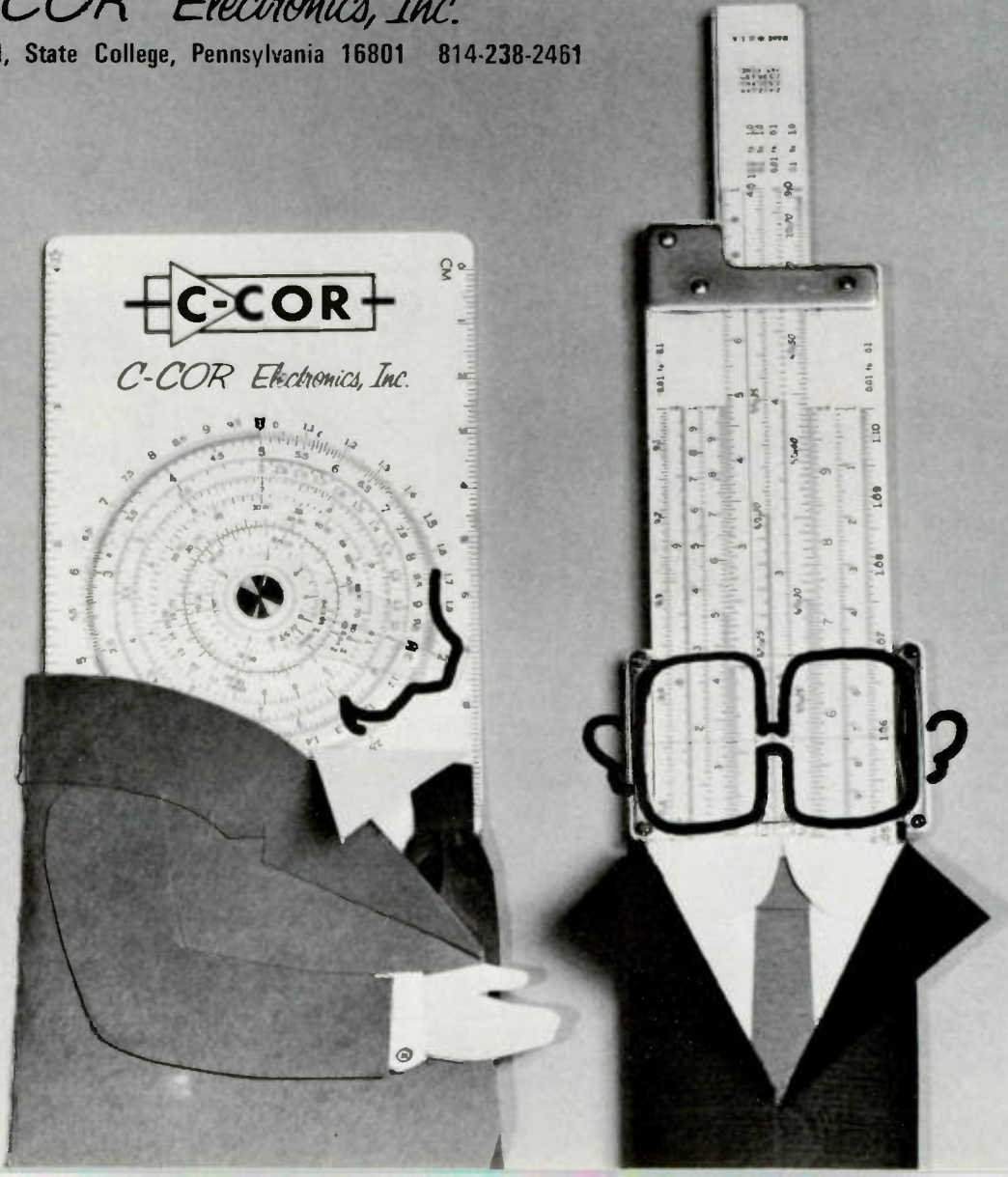
Some People Think Of Us As Faceless Personalities

We're often called "technical types" . . . and why not? In reality it describes a very important part of our real personality. There are even those people who think of us as walking slide rules. They're right, too! As faceless personalities we've managed to keep our feet on the ground, while developing a capability to produce amplifiers with high level output . . . amplifiers that are spaced at 34 dB and can require up to 50% fewer active locations in the system (half the parts . . . half the problems). There are still some system operators who have not put their slide rule to the C-COR high level approach to system performance. If you are one of them you owe it to yourself to evaluate the C-COR concept. We can provide the necessary data – the theory, the specifications and even a slide rule for your study. And if you have any questions, call Tom Kenly, one of our faceless personalities.

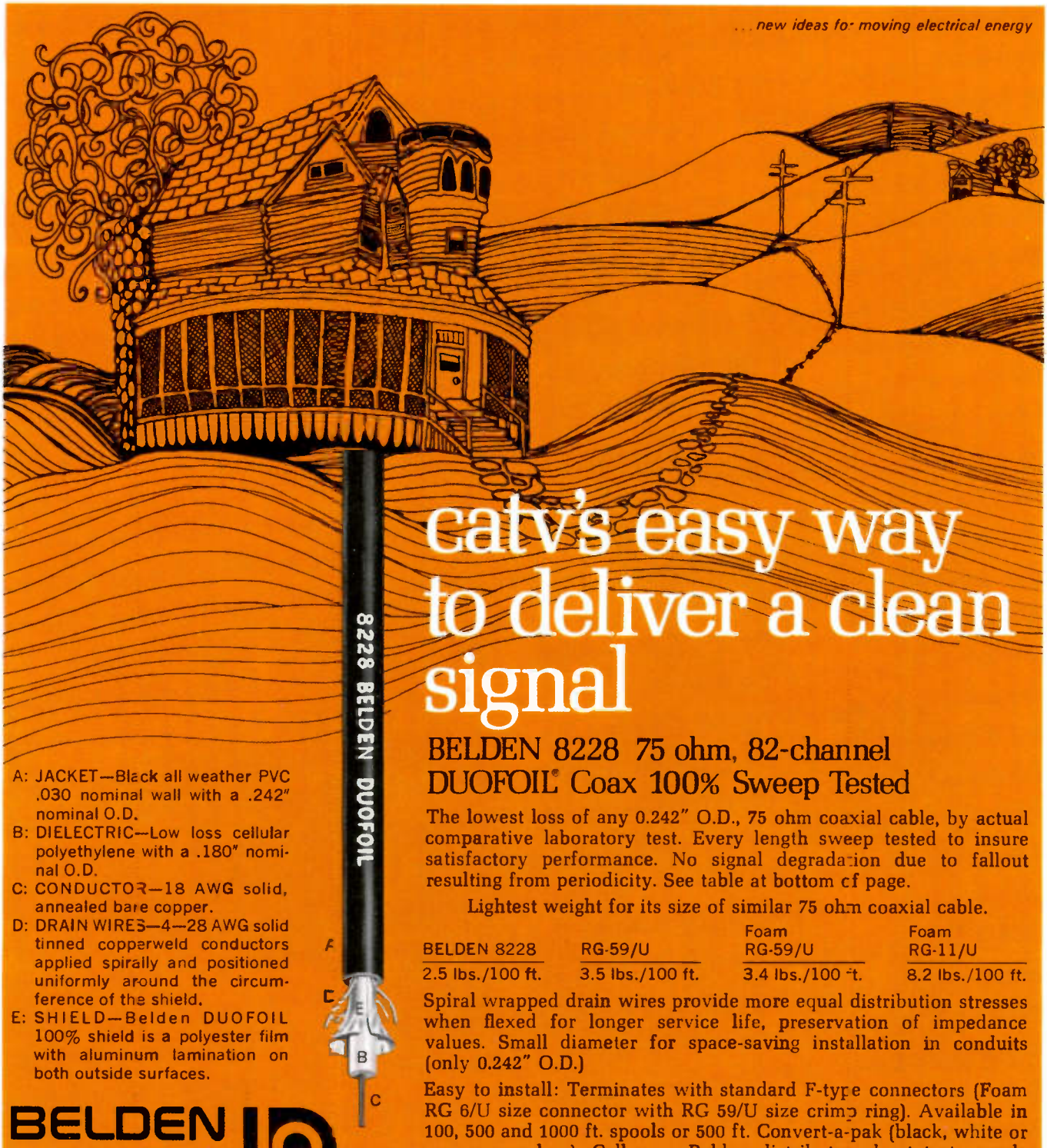
We don't make a lot of noise . . . we simply concentrate on results. Isn't that what YOU want?

C-COR Electronics, Inc.

60 Decibel Road, State College, Pennsylvania 16801 814-238-2461



...new ideas for moving electrical energy



catv's easy way to deliver a clean signal

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

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

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

BELDEN 8228	RG-59/U	Foam RG-59/U	Foam RG-11/U
2.5 lbs./100 ft.	3.5 lbs./100 ft.	3.4 lbs./100 ft.	8.2 lbs./100 ft.

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

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

8-4-9

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

BELDEN

Convenient carton dispenser

Spool pull-up

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

Brightening the World of CATV...

where dependable and quality products are standard!

dolphin
COMMUNICATIONS
CORPORATION

For information, write:
181 Church St., Poughkeepsie, N.Y. 12602
or call collect: (914) 471-3580

The TVC Viewpoint

EDITORIAL

Robert A. Searle
Publisher

Instant Cable?—Doubt It

Industry consensus is that the FCC will do something on the cable issue soon. A definite move — not just another proposal — is almost certain before this year's NCTA show. What the Commission does may be wrong, but they will do *something*. Their action could range anywhere from just a token gesture (say a lift on footnote 69 restrictions) to a thorough lift of the deep-freeze.

When the FCC does make its move, what will happen to CATV construction? Will the industry suddenly begin building in Chicago and other major markets? Will cable stocks soar, and every city in the nation start enjoying diversified viewing?

Probably not.

Cable stocks will soar to an all-time high, and then probably drop back down slightly. But cable building will not begin the day after the Commission says "thaw."

Much has to be done first. Industry manufacturers, nearly lulled to sleep by construction inactivity over the past years, will have trouble "gearing up." Many have trimmed their companies down to bare bones operations, and reduced inventories, due to the economic squeeze of the past year.

Getting the production wheels turning again will take time.

Aside from industry manufacturers, cable MSO's (who will enjoy most of the benefits of a warm-up) will have their own troubles. They, too, with few exceptions, have trimmed their operations,

But it will take most of them months to recruit and train personnel and to get their construction rolling.

Financing delays, too, will be partially responsible for the slow start. It will take time to gather venture capital, and some investors will have a "wait and see" approach.

Telephone company logistics, state regulatory problems, franchise details, microwave construction and a host of other flies will foul up the ointment.

But today's cable industry will have more than it can shake a stick at — for a while at least — assuming the FCC releases a reasonable package.

But long-haul growth is entirely dependent on the kind of "thaw" the Commission designs. There is a fear among some industry leaders that the FCC will make a gesture to the industry which is by no means a total lift — that they will give cable just enough latitude to keep it happily occupied with some new growth — enough to sidetrack it from the bigger issue of real freedom to grow.

Let's hope this doesn't happen. Anything less than a total lift, and the opportunity to import *at least* three distant signals in most markets would be a tragedy.

Let's keep the pressure on in Washington. The FCC has supposedly heard all everyone has to say during the last few weeks, but Congress hasn't.

Senators Pastore and McClellan and their subcommittees still want to consider the FCC's new rules before they are made public. Take the time to write these men and their committee members, especially if you are a member of their constituency. It may be cable's last chance to make its needs known. Don't pass it up.

Perspective

on the news

B. Milton Bryan
Executive Editor

Continued rumblings from Washington lead us to believe there won't be much of a time delay before some CATV thaw proposal is set forth. The proposal won't be all CATV wants, but it probably will be enough to make cable viable in most top markets and Footnote 69 areas.

As the official representative of the CATV industry, NCTA has asked for only four non-local, independent signals. We will probably get less.

Disgusting as it is, the law of politics insures that you never get what you ask for. A regulatory body under pressure from two or more factions always comes up with a compromise. While NCTA has taken a position of "reasonableness" which is admirable, that position may cost us a distant signal or two.

The industry will probably end up with just enough distant signal product to make cable viable in the cities -- just enough to get minimum saturation and to make a little profit.

Marginal nature of arrangement will force operators to look elsewhere for CATV product. Local origination, special information channels, leased channels and advertising will become full-born in the majors, as big-market operators look around for support services to complement distant signal package. The magic of 100 percent saturation will be everyone's goal.

Commission will be pleased with result. Due to economic pressure, much of what they desire will be born without the need for specific federal guidelines.

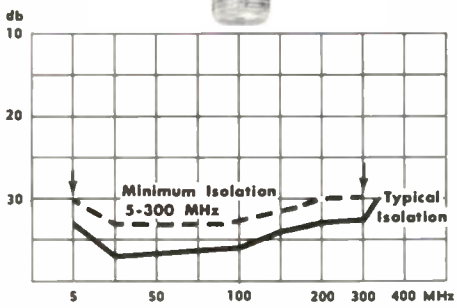
Commission may devise a plan whereby the copyright issue can be avoided altogether. This would limit the extent to which distant signals could be used, but would speed up the timetable for cable's big-market entry.

Coming to a head is the state/federal confrontation on the regulation of cable. Recent exposure of "under-cover" franchise "deals" in Pennsylvania and New Jersey is causing more states to think regulation is needed.

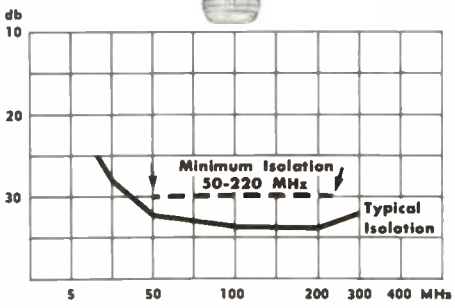
FCC won't be able to resist this battle. Tone of recent cable hearings before en banc Commission left listeners with the impression that the FCC would like to see CATV develop as a quasi-utility. Industry would be responsive to federal strings on most major issues, but would have to answer to states on such issues as pole attachments, safety standards and rates. Rate control is a hot potato, and something the FCC wants to avoid like the plague, but it may allow the states to be watchdog in this area.

At any rate, state and regional associations will be well advised to invest heavily in getting their state houses in order, because the issue is sure to come to the attention of every state legislature in the country.

New. Not so new.



The Red Label Extended Bandwidth (5-300 MHz) line of 2-way, 3-way, 4-way Splitters.



The Standard (50-220 MHz) Line.

Every splitter in the Red Label Line and Standard Line is tested to make sure that it meets or beats high minimum isolation and input/output return loss specifications across its rated bandwidth. Housed in 1½"x1½"x⅞" cadmium plated cans, both lines are designed for indoor use.

A new Red Label Extended Bandwidth (5-300 MHz) Tap, meeting equally high performance specifications is also available.

Write for complete specification data on the new Red Label line to View/All Television Products Corp., 2510 Electronics Drive, Anniston, Alabama 36201, (205) 831-2140.

View/All

SALES OFFICES

26 Duffy Place San Rafael, Calif. (415) 454-5214 Hank Geist Jack Penwell	1206 Maple Avenue Los Angeles, Calif. (213) 747-0401 Bill Wallace Denny Williams	2837 Anode Dallas, Texas (214) 358-3435 Ed Lasberg	1235 Granville Road Newark, Ohio (614) 344-3261 Floyd Mack	3800 S. Jason Englewood, Colo. (303) 761-3093 Roland Yount	200 Fifth St. Stamford, Conn. (203) 325-4301 Walter Hotz

Management Guidelines

D. Stuart MacPhail
Managing Editor

How To Plan a Meeting

Because there are so many poor meetings, many people think meetings are a waste of time. This need not be the case if the organizer follows a few basic rules.

Your first step is to decide what type of meeting it will be. There are three categories to be considered: tell, sell or solve.

The Tell Type. Its purpose is to pass information along to a group (such as explaining the company's new life insurance plan). This type of meeting is the easiest of the three, about the only time there will be a discussion is when someone asks you to clear up a point that he doesn't understand.

The Sell Type, is supposed to win the group's acceptance of the leader's proposal. Example: selling a new cost-reduction campaign. This type of meeting usually divides equally into two parts: presentation by the leader and discussion by the group.

The Solve Type. The goal here is to solicit help from a group in solving a particular problem, probably the most difficult type of meeting to run. For example, a system manager may be seeking ideas from his technicians on ways to cut down on the number of service calls.

The leader's role is to present the problem, then to keep things hot after the group gets warmed up. The group should do eighty to ninety percent of the talking in order to ensure that everyone's special knowledge is utilized.

Know precisely what your meeting is to accomplish, then determine the best way of attaining your objective. Suppose the problem is to reduce the amount of time per service call. Before the meeting is held, set a realistic time reduction goal.

Then figure out the simplest, most convincing way to present the problem to your people. This means having at your fingertips background information, facts and figures, pertinent questions to stimulate discussion, provocative statements.

Prepare a complete agenda and plan to make the meeting as brisk as possible. A thirty minute meeting is ideal; an hour-long session is OK, but never let a meeting run over an hour and a half.

A final must is to check the list of persons you intend to invite so that no one is left out who can contribute to the solution.

Next month this column will offer tips on how to run that meeting . . . to fulfill your purposes as completely and quickly as possible. Remember, knowing how to plan and run a meeting can eliminate that deadening "waste of time" feeling that staff members frequently get. TVC

LETTERS

Thanks for Directory

• I certainly appreciate the copy of your *1970 CATV Systems Directory & Map Service.*

Believe me, it will be most useful to my staff and me in the months ahead.

Donald G. Brotzman
U. S. Representative
2nd District, Colorado

A Standard Conduit Color?

• During the recent years, due to the concentrated effort of people interested in environment, more and more utilities are being put under ground.

When discussing utilities, this of course includes CATV systems. As more people are putting cable and pipes under ground, it is more difficult to prevent damage to cables and conduit. There have been many approaches to protect or prevent cutting of cable and conduit by people trenching . . . such as plastic film, paper, boards, etc.

As of this time, none of these ideas have really taken hold. Also, in many cases (particularly in CATV companies) you find common trenches, in some cases conduit even at the same level as other utilities. With so many people using conduits it is difficult to identify your own conduit in a trench.

I would like to propose that all CATV companies adopt a standard color for use on underground conduit. It is possible that with the cooperation of other utilities and conduit manufacturers, that a standard color can be adopted for each type of underground conduit.

Corresponding with common usage on the drawings, CATV systems might standardize on red conduit for main trunks and green on distribution. For a dual system, the color may be varied in shades that indicate secondary trunk or distribution. I recognize that this may cause problems for manufacturers and distributers who are involved in more than one field. But I feel that pressure from CATV companies will produce the colors desired.

Hoping that something can be done in this matter, I remain,

John G. Harris
Imperial Plastics, Inc.
1015 W. Hoover Avenue
Orange, California

This seems like a very good suggestion. Reader comments are invited.—Ed.

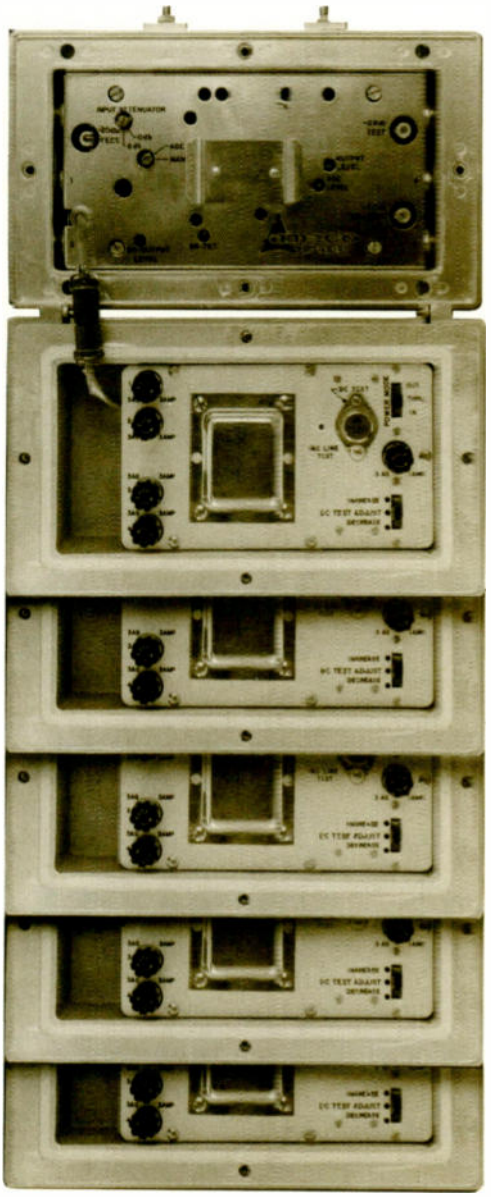
The Right Words

• One of the things I noticed at the recent hearings (in Washington) and which I wish could be brought to the attention of people is the improper use of the word "degradated." There is no such word. The verb form is "degraded," the noun is "degradation." Almost everyone concerned used the verb form "degradated." Could you mention this in *TVC* or *CATV*? I just winced every time I heard it.

I have a candidate for a word for "more than 12-channel CATV." How about "augmented CATV"? The term augmented was used in a letter I received from the Canadian government, and I understand that the term was also used by a Canadian lawyer writing a book on communications law.

I. "Sruki" Switzer
Chief Engineer
Maclean-Hunter Cable TV Ltd.

"Augmented" CATV sounds fine to me. However, the term is a bit institutional. I would prefer a term which is more dynamic for general marketing purposes. Although nothing comes to mind at the moment, phrases such as "fully implemented" sound a little better to me. — Ed.



AMECO'S PII SERIES AMPLIFIERS ARE ALL ALIKE*

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

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

Your subscribers expect good pictures, and you deserve some relaxation. So write us, or call our sales manager Collect so we can start helping you towards the best in system performance. And consider our new Push-Pull amplifier line for your large-channel-system needs.

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

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

AMECO, Inc.
Box 13741, Phoenix, Arizona 85002
Telephone 602/252-7731

CATV News Briefs

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

Commission Wraps Up Cable Panels: Small market CATV, large market CATV, copyright, distant signals — nearly every aspect of cable television operation was touched on in four days of panel-type hearings held by FCC during March. Panel presentations were too lengthy to recount in full, mood was primarily one of cautious optimism. Apart from some touchy issues — and a few touchy panelists — there was considerable evidence of compromise on all sides. During panel on CATV operation in top-100 markets, AMST president Jack Harris said his group supports an "adequate television service" concept for all markets. Time-Life's Barry Zorthian remarked that, in effect, even AMST "accepts the principle of importation — it's only a question of how much." NCTA's official position on distant signal question was presented by Al Stern, president of TeleVision Communications and chairman of NCTA Copyright Committee which co-authored the 7-point plan. This compromise proposal (referred to by Commissioner Nicholas Johnson as a "statesmanlike — perhaps too statesmanlike a proposal") got short shift from broadcasters who shared same panel. (*CATV* 3/22 p3)

Commission Heard Variety of Views: Justice Department: "The Commission should not impose artificial restrictions on importation of distant signals." "The Commission has been invited to embark on an elaborate scheme of social engineering — handicapping here, subsidizing there." Anti-cable forces: Bill Putnam said viewers don't really need any more signals. "A receiver can show only one thing at a time, anyway," he said. Broadcasters Dale Moore, Bruce Hebenstreit and Richard Dudley were convinced CATV takes a substantial number of viewers from their stations. Lengthy session on March 15 was devoted to questions of public ownership and public access to cable. Among plans suggested by public-interest groups represented were: "citizen's councils" to arrange public programming; requirement that systems set aside one-third of channel capacity for public interest programming; requirement that operators pay a percentage of gross to finance programming; and requirement that there be local ownership and management of systems. Question of who would be liable for what was said over public-access channels was touched on, but left unresolved by most panelists. (*CATV* 3/22 p5)

Five Days of Oral Arguments Followed the Four Days of Panel Sessions: Copyright was topic of final session and included celebrities Ossie Davis, Charlton Heston and Roberto Rossellini. Fred Ford and Bruce Lovett presented cable's side, asked for exemption for systems under 2,000 subscribers. Attorney Louis Nizer representing copyright interests rejected position that CATVers cannot effectively bargain with copyright holders. Participants generally agreed Congress would have to provide ultimate copyright solutions. Richard Block of Kaiser Broadcasting: CATV "terrifies us." nevertheless, "cable can and should grow." Public access to cable channels drew wide interest and concerns about liability. Arguments by attorney Jack Cole, Jr. sparked angry rebuff from Chairman Burch and other Commissioners. (*CATV* 3/29 p3)

Trenton N. J. Councilmen Charged in Second TPT-Related Indictment: A few days before the end of March, TelePrompTer Corp. found itself in another grand jury indictment involving a CATV franchise. This time TPT was not named as a defendant, but was named as a conspirator. Mercer County (N.J.) prosecutor and grand jury, investigating circumstances of franchise in Trenton, handed

CATV News Briefs

down an indictment charging one present Trenton city councilman, one former city councilman and two other people with having conspired and extorted $50,000 from TPT for the franchise. (*CATV* 3/29 p3)

Irving Kahn Leaves TelePrompTer: TelePrompTer Corporation's board of directors has announced that an agreement in principle was unanimously reached with Irving B. Kahn for termination of his employment agreement as Chairman and President, but providing for his continuing services through 1976 as a consultant. Kahn will continue as a Director. It is contemplated that Hubert J. Schlafly, Senior Vice President and a co-founder of TPT will be elected President and Chief Executive Officer. Announcement said these arrangements will enable Kahn to expend the time and effort necessary to defend himself and TPT against an indictment for bribery and conspiracy now pending in federal court in connection with a CATV franchise award in Johnstown, Pa. (*CATV* 4/5 p3)

Major MSO Proposes $66 Million Satellite System: Western Tele-Communications, a subsidiary of Tele-Communications, Inc. has proposed (for FCC approval) a two-satellite, six-ground-station domestic communications satellite system. Firm says it is ready to build and operate the $66 million system. Initial plans call for two satellites in geostationary orbit 22,300 miles over equator, and six ground stations. Eventually, TCI sees hundreds of earth stations in the continental U.S., Alaska and Hawaii. North American Rockwell Corp., a major contractor in the Apollo lunar missions, has designed the satellites for TCI. The satellites would be capable of carrying 20 television channels simultaneously and up to 2,400 voice and high speed data communications channels between earth stations. (*CATV* 3/22 p5)

NCTA, NAB Wrangle over Championship Blackout: The Frazier-Ali championship fight has touched off a new wrangle between NCTA and NAB. Adding to aggravation was a CBS anti-cable editorial aired by Washington, D.C. affiliate WTOP. NAB: "This fight, blacked out on free television and radio . . . is a shocking example of what cable-pay television is all about." CBS then broadcast an editorial narrated by Norman Davis, inferring that fight blackout was indication of what cable TV will mean. NCTA's Taverner: "the fact is, of course, NAB is talking about three different industries . . . the record clearly indicates that cable systems have gained nothing from the black-out." Charges and counter-charges of NAB's Paul Haney referred to the "closed circuit gouge" of the championship fight and to a "shabby cable-pay television pattern" which he suggested would follow. (*CATV* 3/22 p5 and 3/29 p5)

Time-Life Moves from Broadcast to CATV: Time-Life Broadcast, for some time a combination CATV/broadcast operation, has opted for a wired future. In agreeing to sell its five television stations to McGraw-Hill, firm complies with FCC's cable-broadcast cross-ownership rules — and brings $69.3 million into corporate coffers to finance its newer interests in cable television and emerging video cassette/cartridge market. Almost simultaneously with station sale announcement, Time, Inc. released news of its new video cartridge venture, Time-Life Video Service. (*CATV* 3/22 p7)

Burch Speaks to National Assn. of Broadcasters: Ten days after CATV hearings had closed, Burch spoke at annual NAB confab and gave listeners no real indication either as to time-table or sub-

CATV News Briefs

stance of new Commission rules for cable television. Sometime within "the next few months," he said, FCC will have its new cable rules. On one point Burch was firm: FCC's mandate, he said, is to protect public interest, "in *all* its dimensions." He reviewed Commission's objective — "to integrate CATV into the nation's communications system in a fair and orderly way." The challenge, Burch pointed out, is to produce regulation which will strike a "subtle balance" between competing interests. He said the Commissioners must fight "tendency to be so fiercely protective of what we've got as to end up in a state of sheer stagnation." Yet he also criticized "the other extreme . . . to become so entranced with the golden eggs . . . as to neglect the source of supply — the care and feeding of the goose itself." Commission must guard, said Burch, against "super-cautiousness" on one hand and "adventurism" on the other. (*CATV* 4/5 p3)

Translators Ask Same "Benefits" as CATV: Through a rulemaking petition filed by National Translator Association at FCC, translators ask Commission to raise power limits for broadcast translators and to allow program origination with advertising. NTA charges FCC with being "bemused," even "almost entranced" with cable television. If translators can have what CATV has, says NTA in importing distant signals, use of common carrier microwave and program origination, result would "be one to excite the regulatory imagination of the Commission." Among other suggestions, petition calls on Commission to provide that once a cable system has been authorized to import a distant signal, station whose signal is being brought in must place a translator station in the cable community. "This rule," said NTA, "will act to provide the public with a viable and continuing choice between free and paid television service." (*CATV* 4/5 p5)

IEEE Prepares Report on Cable Technology: A sub-group of the IEEE CATV Task Force has a report in the works on recommended frequency plans to be used by cable systems. IEEE is asking all interested parties to comment. Task force, chaired by Archer Taylor, and sub-task force, chaired by Robert S. Powers of the Department of Commerce Office of Telecommunications, says report will come up with several suggested plans for different types of systems. Individuals or organizations who have comments or inquiries have been invited to contact Jack O'Neill at National Academy of Engineering, Joseph Henry Building, Room 222, 2101 Constitution Ave. N.W., Washington, D.C. 20418. (*CATV* 3/29 p9)

California PUC Pressure Mounts: Once again cable operators in California find themselves faced with the threat of public utility regulation. Most recent bill introduced is S.B.190 which, according to California CATV Assn. "not only makes CATV into a public utility but contains very grave restrictions on all phases of CATV operation." Violation of any rule, regulation or order of the PUC could call for a jail penalty. Bill calls for preconstruction hearings; extension hearings; approval for suspension or discontinuance of service; prohibition against issuing stock, bonds, notes or indebtedness payable more than 12 months after issuance without commission approval. (*CATV* 3/29 p6)

FCC Type Certification Requested for Distribution Hardware: Laser Link Corp. has turned in all necessary engineering data to FCC staff for certification of type acceptance. Certification is expected from FCC by mid-April. Assuming no delays, Laser Link short-haul distribution hardware should be available to buyers by early July. Six applications have been filed for FCC approval to use the system. (*CATV* 3/29 p5)

CATV News Briefs

NCTA Issues Call for Technical Papers: Theoretical, experimental, developmental and operational papers have been solicited for NCTA 20th annual convention and exposition, July 6-9, 1971, Sheraton-Park Hotel, Washington, D. C. Persons interested in preparing a paper for technical sessions are requested to express their interest by submission of a one-page (150 word) abstract no later than April 15, 1971. Authors will be notified of selection of their paper for presentation at the Convention. For more information, contact Engineering Dept., NCTA, 918 16th Street, N. W., Washington, D. C.(*CATV* 4/5 p6)

New MSO Dubbed Pan-American Cablevision: Formation of a new cable operating firm, Pan-American Cablevision, has been announced by Stan Searle. Based in Denver, Pan-American will initially operate four cable systems in Colorado, Missouri and Idaho. Company has plans for developing additional properties in Oklahoma, Colorado, Missouri, Idaho and Washington. Searle has been involved in cable television since 1961, principally as co-publisher of *TV Communications*, *CATV Magazine* and other industry publications. *(CATV* 4/5 p6)

New Jersey Association Lobbies for Bob McGinty: New Jersey Community Cable TV Association has asked the NCTA nominating committee to consider its president Robert J. McGinty as a nominee for national office. (*CATV* 3/22 p19)

Canadian Cable Television Pioneer Dies: John Loader, a pioneer in Canadian cable television and a past president of that country's CATV association, died in Toronto in late February. Loader operated both a radio station and cable systems in British Columbia and served as the cable association's president and chief executive from 1968 to 1969. (*CATV* 4/5 p7)

Action in the Franchise Arena: City officials in Petersburg, Fla., have affirmed their decision to award franchise to TM Communications (after reviewing bids at request of losing applicants). General Electric Cablevision systems in Alpena, Mich., and Logan, W.Va., are being sold to Cable Information Systems, Inc. for an undisclosed amount in cash and notes. Americable, Inc. has (after months of negotiations) received approval from Florida's Dade County commissioners to extend its Homestead, Fla. system into unincorporated areas of Dade County. Theta Cable (TPT-Hughes Aircraft joint venture) has won franchises for El Segundo, Marina Del Rey and Beverly Hill, California. Continental Cablevision of Ohio has won a 15-year, non-exclusive franchise in Findlay, Ohio. A 25-year franchise for Lone Grove, Okla. has gone to Sooner Cable Antenna TV. The following communities have all granted CATV franchises recently: Bellaire, Frankston, Merkel and San Marcos, Texas . . . Stoneham, Mass.; Poughkeepsie, New York; and Hialeah, Florida. (*CATV* 3/22-29, 4-5)

Financial Developments Affecting CATV: TeleVision Communications Corp. has reported a 12 percent increase in net earnings on a 21 percent gain in revenues for the first six months ended January 31, 1971. Cox Cable Communications has announced plans for a secondary public offering of approximately 730,000 shares of common stock. Foote, Cone & Belding Communications, Inc. reported year-end results for fiscal 1970 which reveal lowered revenues and profit from the firm's ad agency billing and losses for its cable subsidiary. Communications Properties, Inc., has completed a long-term ($24,600,000 for 15 years) loan agreement with Home Life Insurance Company of New York. American Television & Communications Corp. has completed arrangements for $12.5 million worth of private financing. (*CATV* 3/22, 3/29 4/5)

Planned non-obsolescence.

Sylvania's CATV transmission equipment doesn't go out of date.

Its modular design makes sure of that.

You can start out with our 50-to-270 MHz wide-spectrum trunk amplifier. When required, you can add total automatic control and bridging amplifiers. An extra-service module can be added to give sub-VHF for bi-directional or long-haul low-loss transmission, band multiplexing, or fault reporting.

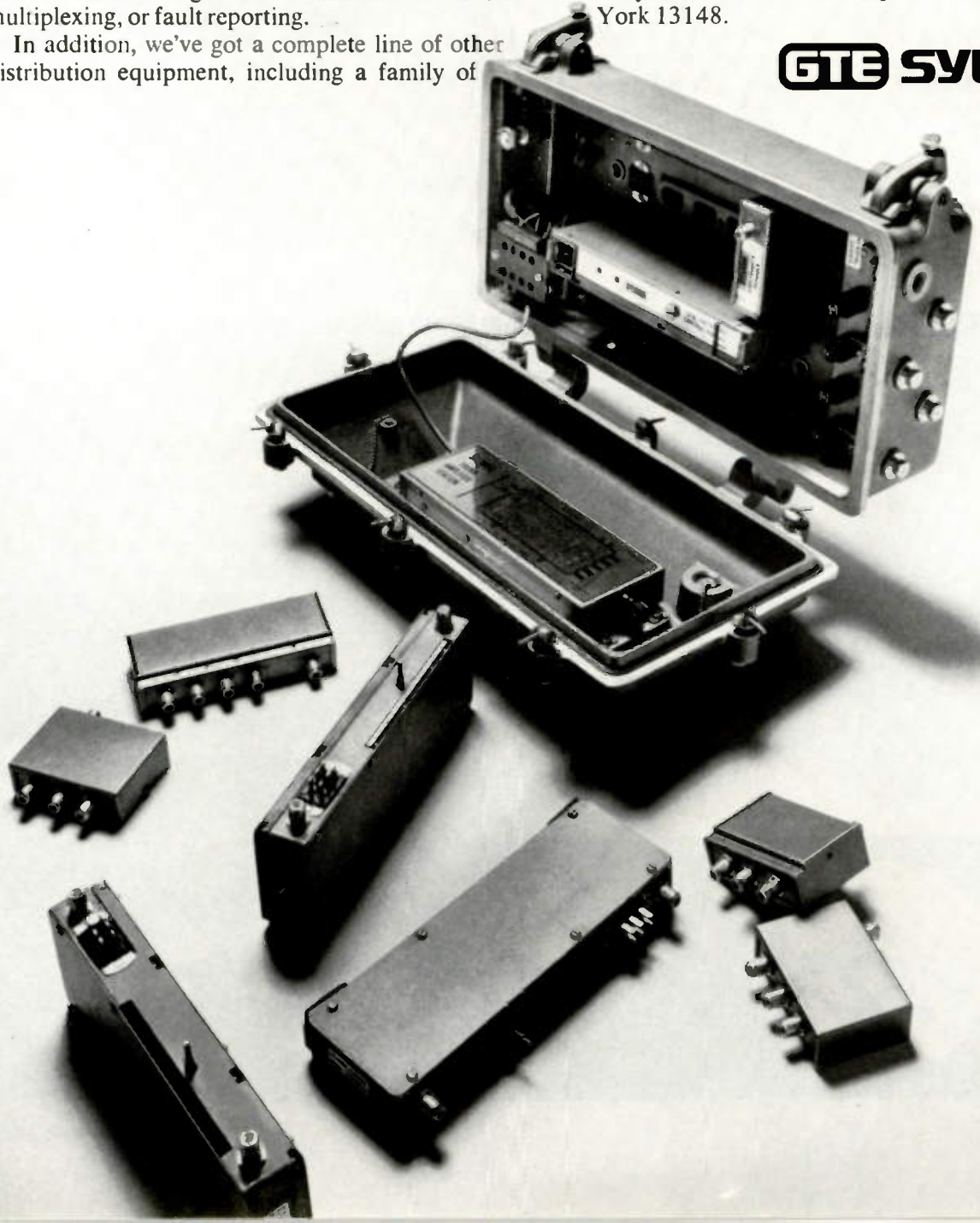
In addition, we've got a complete line of other distribution equipment, including a family of line amplifiers, directional coupler multi-taps, and other outdoor passive devices.

All outdoor equipment is housed in rugged cast aluminum housings with total environmental seal and electromagnetic interference protection.

Sylvania CATV equipment has the future designed in, so you'll never have to design us out.

Sylvania Electronic Components, Seneca Falls, New York 13148.

GTE SYLVANIA



FOCUS
. . . On People

Systems

Amherst Cablevision, Inc. has announced the appointment of Charles C. Monde as vice president and general manager. Monde will continue with his present duties in planning and construction of the Amherst and Williamsville, New York systems.

W. Sherwood Campbell has been named manager of engineering at General Electric Cablevision Corp. Campbell will direct the activities of technical personnel in CATV systems operated by the corporation and will also have responsibility for the design and engineering of new systems.

Xenophon W. Mitchell has joined TelePrompTer Corp. as director of CATV advertising sales. He will supervise advertising sales activities in more than 60 TelePrompTer systems. Mitchell was director of marketing for TelePrompTer's upper Manhattan cable TV system in 1968, and most recently has been cablecasting coordinator for the Midwestern CATV systems of Jerrold.

American Television & Communications, Denver-based MSO, has announced the election of James E. Robison as a director. Robison is chairman and chief executive officer of New York firm Indian Head, Inc.

David J. Lavin and Roland S. Tremble have been elected to the board of directors of Downe Communications, Inc. Downe operates cable systems through its subsidiary Downe Broadcasting and through Bartell Media Corp. in which it owns 40 percent of the common stock.

Mr. Robison

Mr. Ferguson

Mac Ferguson has been promoted to chief engineer for Tele-Vision Communications Corporation, New York-based MSO. Ferguson will continue to headquarter in Akron, Ohio, where he was responsible for the engineer-

SpringTIMES Special:

10 free house hook-ups* for every mile of Dynafoam® you buy!

***(1000 feet of 59U Alumifoil® un-messengered drop cable plus 10 JERROLD matching transformers.)**

Hurry— get complete details from your Times territorial manager, or call us direct: in Wallingford, Conn.: (203) 269-3381; in Phoenix, Arizona: (602) 278-5576. Territorial Managers: Northwest: Dean Taylor, (413) 736-2258 or 283-8802. Mid Atlantic: Mike Ganley, (703) 942-7910 or 942-7618. Southeast: Frank Hamilton, (404) 432-3102 or (912) 336-8398. Midwest: Rex Porter, (816) 842-3885 or (913) 649-5421. West: Carroll Courtnier, (415) 365-5161 or (805) 252-1091.

TIMES
WIRE AND CABLE COMPANY
358 Hall Avenue, Wallingford, Conn. 06492.

Offer good on orders received by April 2, 1971 for shipment by April 30, 1971.
More than 2,000 miles of Dynafoam already installed.
Offer does not include JT2340 size Dynafoam.

ing of the country's largest cable system now under construction there.

General Television, Inc., cable MSO operating in Delaware and Maryland, has elected Jay Phillips board chairman and James B. Goetz president of GTI. Phillips has been a director and shareholder since 1965. Goetz is former lieutenant governor of Minnesota.

Cox Cable Communications, Inc. has announced the promotion of Donald O. Williams as vice president and general manager of Trans-Video Corp. Trans-Video is the San Diego-based operating division of Cox. Williams has been with the firm since 1966 and was most recently assistant secretary-treasurer and business manager.

Suppliers

Clark B. George, president of the CBS/Viacom Group, has resigned "for personal reasons," according to CBS, and Ralph M. Baruch has been named to replace him. Baruch has been with the network since 1954 and has served as vice president, International Sales, CBS Films; general manager of CBS Films; and general manager of CBS Enterprises.

Miss Morse

Mr. Cummings

Derald O. Cummings, a Ph.D. candidate in electrical engineering, had been named to head research and development at C-Cor Electronics, Inc.

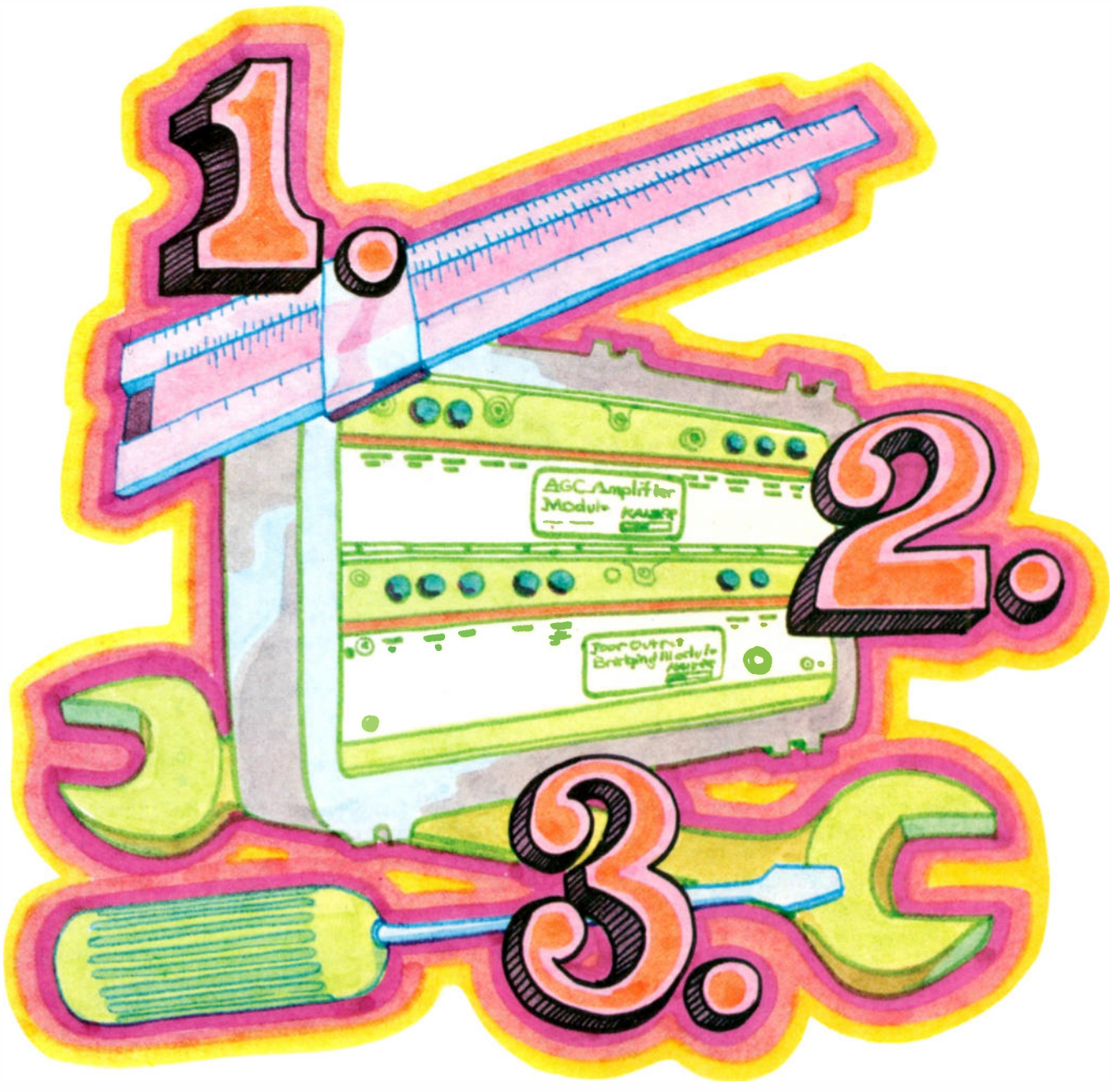
The Gowar Corporation has appointed Allan D. Harwood as director of the company's applied engineering department. Computer engineering techniques developed under Harwood's direction are expected to enable the company to expand nationally, according to Gowar spokesmen.

International Video Corporation has named two new vice presidents. Barrett E. Guisinger has been named vice president, advanced engineering and Daniel J. Yomine, vice president, operations.

Professional

Brian P. Lamb has been named assistant to the director of the Office of Telecommunications Policy. Director Clay T. Whitehead also announced the appointment of Antonin Scalia as General Counsel.

Jacqueline B. Morse has been named a vice president of Communications Publishing Corporation. Miss Morse joined the firm in 1968, and has recently assumed responsibilities for operations of the Washington, D.C. office.



Kaiser CATV. Best on all counts.

1. Design of CATV systems. 2. Design and manufacture of latest state-of-the-art CATV equipment. 3. Supervision of installations of any size. You name it and KAISER CATV does it. Best.

For anything from preliminary advice to a turnkey operation, come to KAISER CATV. You can count on us. Nation-wide performance and dependability is proving it every day.

KAISER CATV

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

Make No-Charge Installations And Increase Your Earnings

Here are facts and figures to support the free per-wiring concept. Grab instant saturation of your community from day one... and let CATV sell itself.

By Paul Crabtree, President
Paul Crabtree and Associates, Inc.

A markedly-different method of acquiring cable television subscribers officially got under way in Pt. Pleasant, W. Va., on November, 18, 1970.

On that day, the city government and the CATV franchise holder agreed to install CATV service into every one of the community's 2,300 homes . . . and to give every family a period of free trial service averaging 60 days.

If the experiment succeeds, it seems bound to affect the promotional and developmental aspects of every newly-wired area of the nation.

If it fails, the franchise-holder (the author) admits he is going to take a financial trouncing.

The test undoubtedly will be extended, even before its merits or faults have been proved out, since the company is building a centralized system using a single tower and dual trunk to serve four other communities (Middleport and Pomeroy in Ohio, and Mason and New Haven in West Virginia). A total of almost 6,000 homes are involved.

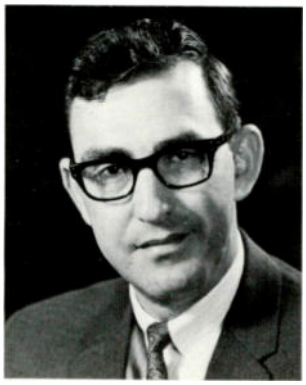
Two of the communities already have formally asked for the same free pre-wiring service for its citizens, and others have indicated an interest in the concept when the system (due for completion by May, 1971) reaches them.

Is It Financially Viable?

The free pre-wiring approach will provide an effective test for one of the only really new approaches ever developed in "selling" CATV. The author believes it to be financially feasible.

It is expected to have the effect of creating a favorable impression for CATV and the cable company . . . even in homes which do not remain as subscribers.

ABOUT THE AUTHOR



Paul Crabtree, at 41, is a veteran of West Virginia communications and government circles, although he was born in southeastern Ohio. A graduate in political science from West Virginia State College, with an additional major field in journalism at Marshall University, Crabtree was news editor of The Charleston Gazette while still in his 20s. Later, he was chief assistant to Rep. Ken Hechler (D-W. Va.) on Capitol Hill and set up West Virginia's first federal-state relations office in Washington. He was Executive Assistant to former Governor Hulett C. Smith during his term of office. (Smith is chairman of the board of Paul Crabtree and Associates, Inc.) Since 1969, he has headed the company which bears his name, and has become extensively involved in CATV ventures.

The central issue, of course, in this capital-intensive industry, is whether the company can afford to wire a whole city and deny itself revenues for two months of the critical first operating year.

I believe it can . . . and this faith is supported by many pioneers and acknowledged experts in the trade whom I have asked to comment on the proposal.

As a relative newcomer to CATV, I must admit I am disenchanted with the methods used by most CATV systems in selling themselves to the public.

Since CATV moved out of the "captive" community where everyone had to be a subscriber just to get television service, its advertising and selling techniques have been abysmally archaic and prosaic . . . by Madison Avenue, out of Barnum & Bailey, so to speak.

I'm not denouncing the impact of billboards, balloons and banners, nor am I decrying the effectiveness of advertising in other media, principally newspapers.

What I am saying is that CATV is becoming a medium in its own right.

Therefore, what can be more effective in selling CATV than CATV itself?

To use this "new medium in town," the only way to attain maximal impact is to make certain it is in every home, if possible. Therefore, the pre-wiring concept is born.

The economic risk is not as unpredictable as it might seem. And I feel this so strongly that we are making a calculated exposure of thousands of dollars on its success.

The Conventional Approach

Let's take a hypothetical case to prove this point. Assume there is a community of 10,000 homes, with a franchise which permits a connection fee of $10.00 and a $5.50 monthly charge.

Let's assume further that the area is economically stable, with above-ground utilities, and has no unique pole-attachment or extraneous signal-importation problems.

Then, let's take the pro forma projections for system growth used by major cable companies for a well-built, well-managed system: 20 percent saturation in the first year; 20 percent in the second year; 10 percent in each of the third, fourth and fifth years, for a cumulative saturation of 70 percent, or 7,000 homes.

Finally, let's assume that the average yield in connection charges is $5.00 per home (discounting half the allowable average because of free "charter subscriber" connections, promotions, special "sign-up" periods etc.), and let's assume that growth in the first year is concentrated around the opening of the system, so that an average of ten months' revenues is realized from all customers on CATV in this first year (since most will be charter subscribers using cable for the full year).

We therefore arrive at the projections in Table I. These are valid income projections for a well-promoted and well-designed system.

To obtain these 7,000 customers, we can project the cost-per-home for house drops at an average of $20 per home for labor and materials. Of this outlay, $5 was recovered in connection fees in our projection, or a net cost-per-home of $15. (We recognize that house-drop costs may fluctuate considerably around the country, due to differences in wage rates, population density and zoning regulations.)

At a net cost of $15 per drop, the conventional CATV system would spend the following amounts during a five-year growth period: First year, $30,000; second year, $30,000; third year, $15,000; fourth year, $15,000; and fifth year, $15,000 — or a cumulative cost of $105,000.

If we deduct this cost item from the total available revenues during the period, we find the system had net disposable revenues of $1,317,000.

Free Pre-Wiring Approach

Now let us consider the free pre-wiring concept, using exactly the same conditions and circumstances as we have illustrated above, with one exception.

Table I: The Conventionally-Promoted System.

FIRST YEAR:	
Subscriber fees (2000 customers paying an average of 10 months' service)	$110,000
Connection fees (2000 homes @ $5.00)	10,000
Total available revenues	$120,000
SECOND YEAR:	
Subscriber fees (2000 customers for 12 months; 2000 new customers for 6-month average)	$198,000
Connection fees (2000 homes @ $5.00)	10,000
Total available revenues	$208,000
THIRD YEAR:	
Subscriber fees (4000 customers for 12 months; 1000 customers for 6-month average)	$297,000
Connection fees (1000 homes @ $5.00)	5,000
Total available revenues	$302,000
FOURTH YEAR:	
Subscriber fees (5000 customers for 12 months; 1000 customers for 6-month average	$363,000
Connection fees (1000 homes @ $5.00)	5,000
Total available revenues	$358,000
FIFTH YEAR:	
Subscriber fees (6000 customers for 12 months; 1000 customers for 6-month average)	$429,000
Connection fees (1000 homes @ $5.00)	5,000
Total available revenues	$434,000
Cumulative revenues for 5-year period	$1,422,000

Table II: The Free Pre-wired System.

FIRST YEAR:	
Subscriber fees (6000 customers for 12 months, with 2 months service free)	$330,000
SECOND YEAR:	
Subscriber fees (6000 customers for 12 months)	$396,000
THIRD YEAR:	
Subscriber fees (6000 customers for 12 months)	$396,000
FOURTH YEAR: Subscriber fees (6000 customers for 12 months; 500 new customers for average of 6 months)	$412,500
FIFTH YEAR:	
Subscriber fees (6500 customers for 12 months; 500 new customers for average of 6 months)	$445,500
Cumulative revenue for five-year period	$1,980,000

Since the entire area is being systematically wired, there will be no hit-or-miss utilization of installation crews, and more concentrated purchasing of materials. Therefore, the average per-drop installation cost should decline from $20 to $15. This is the same *net* cost, of course, as in the conventionally-promoted system.

Let's assume that 17 out of 20 home-owners, or 85 percent, will permit their homes to be wired. Of this number, we might predict that about 30 percent will disconnect during or shortly after the free trial period . . . leaving a residue of *60 percent saturation when the system begins to collect revenues.*

Because of the unusually high penetration at the outset, we might forecast that the system would grow not at all in the first three years, then would increase by a modest five percent each of the fourth and fifth years (allowing for new families being established, population mobility, and the like).

On this basis, the projections in Table II seem attainable.

Since the house-drop cost was concentrated in the first year (the free pre-wiring stage), we can see that this cost totaled $127,500, at $15 for each of the 8,500 homes actually wired. Discounting the re-use of materials in the fourth and fifth years, connecting an additional 1,000 homes in this period cost the system $15,000 for a grand total of $142,500 in house drop labor and materials.

Deducting this cost from total revenues, the free pre-wired community thus has disposable revenue of $1,837,500.

Benefits of Free Pre-Wiring

Compared with the conventionally-wired and conventionally promoted system, the free pre-wired community yields a total of $520,500 more in actual revenues, based on the same general costs and

Be a doubter

Go ahead. Challenge us when we say we can cut your maintenance costs.

Keeping a good, crisp picture on the home screens costs money. Manpower costs money. Equipment costs money. Time is money. We know that.

But that's where we can save you money. The 'S' Van-Mounted Aerial Lift is a one-man aerial workshop. It lifts tools, supplies, equipment—and your operator—right to the job.

The whole operation is faster. No set-up time, no stabilizing jacks, no ladder climbing.

Best of all—the price is low: close to powered ladder trucks and hydraulic lifts.

If you're a doubter, make us prove the 'S' can save you more than enough money to pay for itself.

For details, write TELSTA Company,
Division of General Cable Corporation,
1700 Industrial Road,
San Carlos, California 94070.
Or telephone (415) 591-7611.

TELSTA DIVISION General Cable

identical saturation at the end of a five-year period (70 percent).

Perhaps I am totally wrong in this hypothesis. Perhaps the actual connection rate will be disappointing, although the initial reaction of citizens of Pt. Pleasant has been overwhelmingly favorable.

Perhaps the old-fashioned hard-sell techniques of the conventional cable system will prove more effective in the long run.

If this proves so, then we shall have to absorb some substantial losses. (However, in these projections, we have allowed nothing for the recovery and re-use of materials from subscribers who disconnected. Re-use of many of these items would substantially reduce connection costs for the post-opening period, and losses could be defrayed, to some extent.)

After evaluating this concept with experts in the cable field, including many veterans of the business, I don't believe this loss will occur.

One reason for this is that we are not *abandoning* the conventional methods of promoting CATV . . . we are merely *adapting* them.

We certainly do not plan to ignore an aggressive advertising and publicity campaign. Free pre-wiring must be viewed as a vital adjunct to other promotional features . . . not an end in itself.

We plan a high level of community involvement, with rudimentary local-origination from the very beginning, and rather ambitious plans for the years ahead.

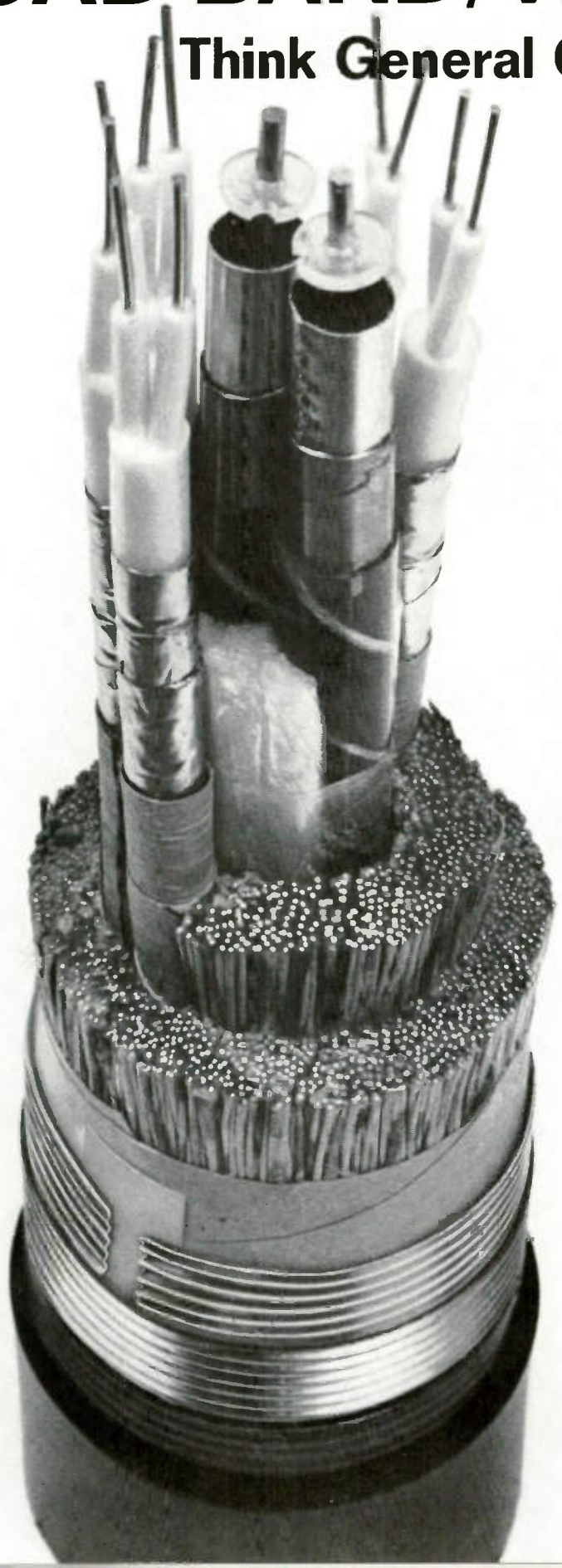
And we feel we can interest the advertiser at the local level in our homes far better than the conventional CATV operator, because . . . after all . . . we shall be going into almost every home at the beginning, and even the daily newspapers can seldom claim saturation of 85 percent or more. (No attempt is made to forecast the benefits which free pre-wiring would provide for advertising on CATV.)

Most of all, we are turning CATV into what the dreamers and thinkers foresee it becoming . . . a medium unto itself, capable of delivering an impact of its own. The free pre-wiring approach is merely an initial manifestation of that philosophy.

Whatever the outcome, the experiment in Pt. Pleasant and surrounding communities should prove greatly interesting to cablemen. TVC

EDITOR'S NOTE: The distribution system at Point Pleasant has already been completed. Crabtree used a heavy newspaper publicity campaign and employed a crew of women canvassers to visit each home just ahead of the construction team that makes the house drops. The women give pre-notification that CATV workmen will soon be in the area . . . they get permission to install . . . determine where to locate the drop, and when. Advance surveys suggest that 80% to 85% of the 2,000-plus homes will accept the free installation. Crabtree still projects a more conservative 70%. He expects the Pt. Pleasant installations to be complete by mid-May. *TVC* will publish a follow-up report next September.

When you think
BROAD BAND/WIRED CITY
Think General Cable.



Nowhere else can you get disc insulated coaxial tubes, video pairs, Qualfoam® communications cable and audio pairs in the combinations you may need.

Nowhere else can you get V/I® (Vapor Impervious) protection or CCW® sheathing.

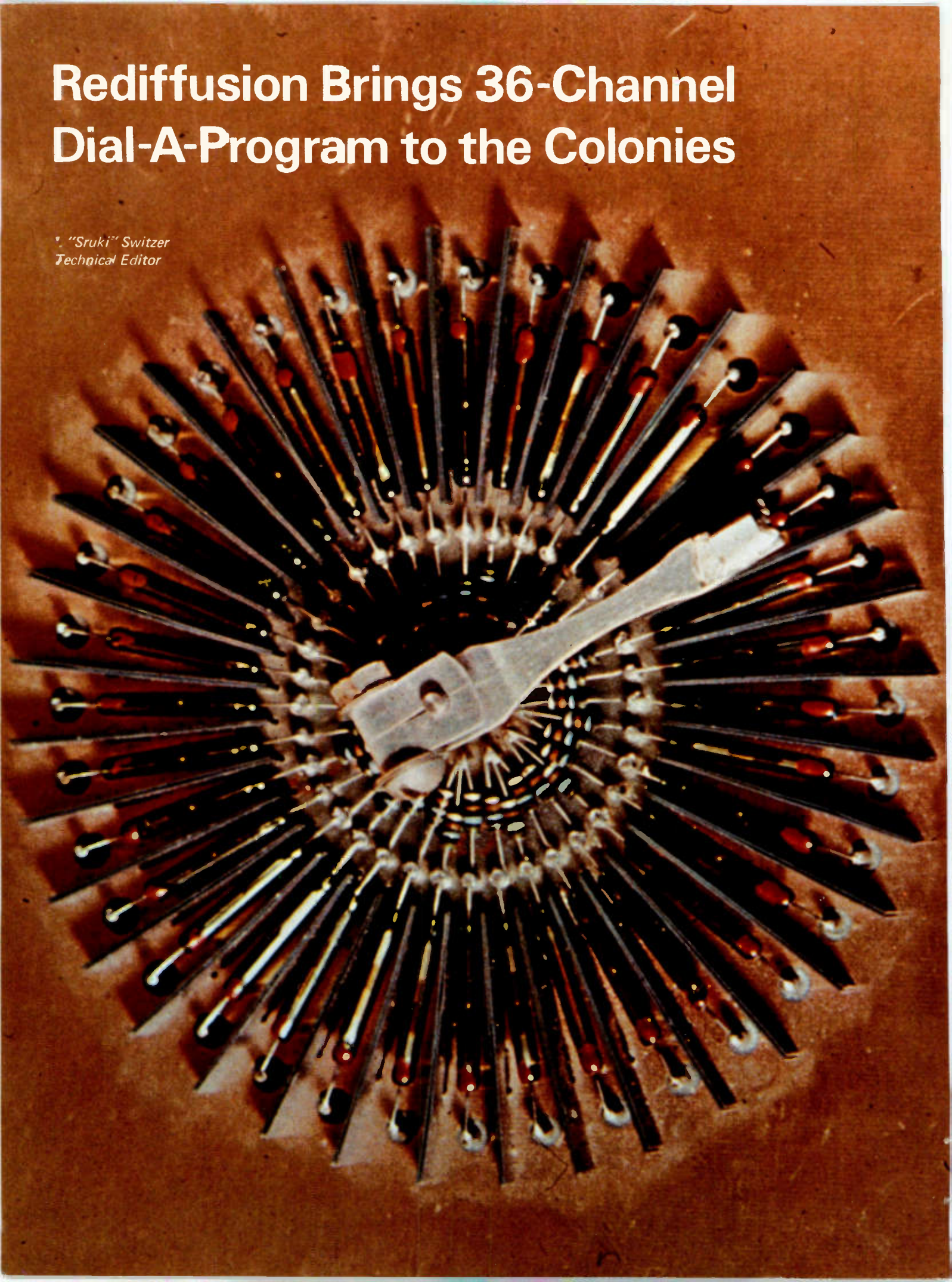
Nowhere else can you get in-depth servicing of all your wire and cable requirements... or the experience and engineering skill in communications and high frequency cable design. More important, nowhere else will you get quality assurance based on the highest standards in the industry.

At General Cable, we offer you more than just cable. We offer you quality, know-how, and 88 years of experience. For more information, write: General Cable Corporation, Section 200-40, 730 Third Avenue, New York, N.Y. 10017.

General Cable

Rediffusion Brings 36-Channel Dial-A-Program to the Colonies

"Sruki" Switzer
Technical Editor



The British are coming! The British are coming!" was the cry that heralded the start of revolution in 1775. The British came to New England again in 1970, with what may be the start of a revolution in communications — "Dial-A-Program."

Port Dennis, on Massachusett's historic Cape Cod, is the site of a pilot installation of Rediffusion's switched, multiple-channel cable television system. The system had been demonstrated at the NCTA convention in Chicago in June of 1970. The 160-subscriber Port Dennis installation was completed in the late fall of 1970, in cooperation with Leghorn Corporation, holder of the CATV franchise for that area.

The Dial-A-Program (DAP) system consists of a central exchange which serves up to 336 single-set subscribers. The exchange consists of a 36 x 336 cross bar switching matrix built up with 36 position reed switching units (see the facing page). Subscribers dial their selection of program over an individual control and program cable which goes direct from each television receiver to the switching exchange.

The subscriber's switching unit in the exchange selects the desired program bus. The program selection function is thus performed in the switching exchange instead of the subscriber's tuner.

Since each subscriber switching unit has access to 36 program buses, a selection of 36 different programs is available with equal ease. The DAP exchange at Port Dennis has full 36 channel capability but only 14 channels are being used because of a shortage of program sources (see Table I).

DAP Switching Exchange

The Port Dennis DAP system receives its programs from the conventional CATV system which serves the Hyannis-Port Dennis section of Cape Cod. The DAP exchange is 8 amplifiers (SKL) away from the head-end.

The cable feed into the DAP exchange is split into 12 feeds for a bank of Conrac demodulators, each tuned to one of the cable TV channels. Each demodulator drives a special DAP modulator.

TVC editors recently visited Rediffusion's pilot installation a Port Dennis. Technical Editor "Sruki" Switzer (right) discusses the system with Herb Goodwin (center). Goodwin is the chief U.S. representative for Rediffusion International Ltd. Looking on is John Gower (left), a Senior Systems Engineer for Rediffusion.

The DAP system uses a picture carrier at 7.94 MHz with sound carrier 4.5 MHz below the picture carrier. Carrier relationships in the DAP system are inverted from normal operation and the normal relationship is restored at the special combined dialing unit and frequency converter attached to each subscriber's TV set.

The DAP channel occupies the band 3.19 to 9.19 MHz. The special modulators derive their carrier frequencies from a common master oscillator. Thus all the DAP carriers are locked together and operate on the same picture frequency. Any cross talk between channels cannot cause objectionable beat frequency "bar patterns."

Each program modulator drives a program bus amplifier which operates at very high level, feeding 8 volts into a 50 ohm load. Each program amplifier is capable of driving a program bus in a 336-line DAP exchange and also can provide adequate drive to feed a line to the next DAP exchange.

A system of hybrids drives banks of exchange buses arranged in banks of 84 switch units (see Figure 1). Each bank receives 3 dB less level than the preceding bank. The higher level switching banks drive more distant subscribers while lower level banks drive closer-in subscriber lines.

The program buses within the

Table I: Port Dennis Dial Guide.

Dial 2 for	Directory	Dial-A-Program Selection Guide	
2	Boston	WGBH	ETV
3 44	Boston	WGBX	ETV
4 4	Boston	WBZ	NBC
5 5	Boston	WHDH	CBS
6 6	New Bedford	WTEV	ABC
7 7	Boston	WNAC	ABC
8 38	Boston	WSBK	IND
9 56	Boston	WHBG	IND
0 10	Providence	WJAR	NBC
01 11	Cape Cod	Cape II	Local
02 12	Providence	WPRI	CBS
03 27	Worcester	WSMW	IND
04	El's Del Today's Special		

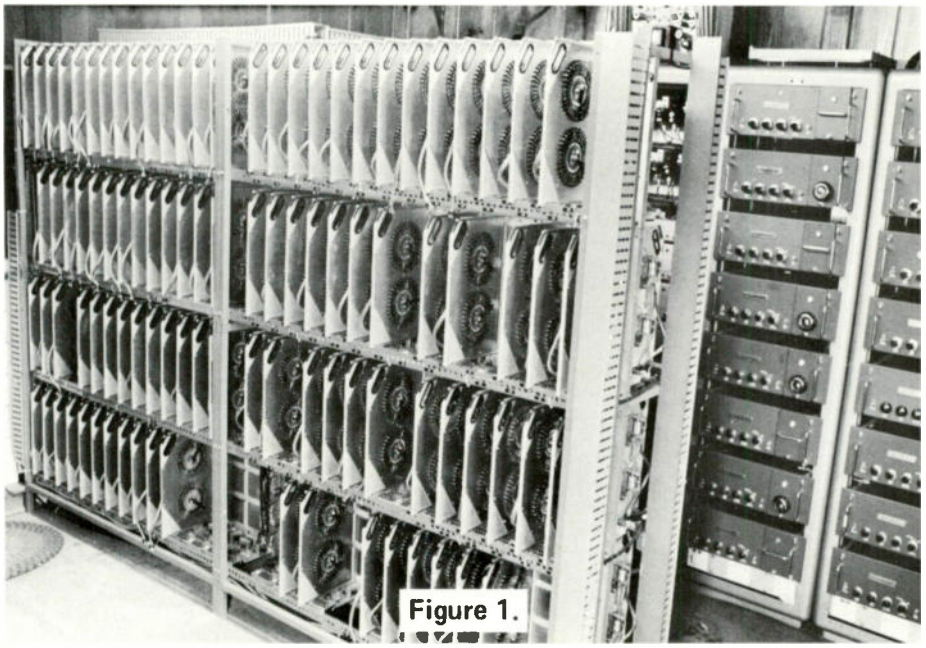


Figure 1.

exchange operate at a 12 ohm impedance level, unbalanced. A system of hybrids and baluns drives balanced 130 ohm subscriber service lines at 700 millivolt level.

The DAP system also provides program audio at baseband on each subscriber line, in order to drive special DAP receivers if they are used. Special DAP receivers do not have a tuner and conventional IF since they are only required to operate on the 3 to 9 MHz DAP channel. These receivers do not have a conventional intercarrier sound system, but derive their audio direct from the baseband audio on the DAP service line.

Picture quality on the Port Dennis demonstration system suffers a little from the problems of accepting a feed from a conventional CATV system. The Conrac demodulators do not perform ideally and there is a slight, though perceptible, picture degradation in the conventional 12 channel cable system which feeds the DAP exchange.

A complete DAP system would use individual heterodyne conversion of each air channel to the low frequency DAP channel, using phase-lock AFC loops to bring all the DAP program channels to the same carrier frequency. DAP programs would then never be handled on a "frequency division multiplex" basis and would be free of the distortion and interference problems associated with FDM-type cable systems.

The Port Dennis DAP demonstration system is housed in a garage rented from one of the subscribers, and converted to an exchange and "head-end." A normal DAP exchange can be housed in an enclosure having about 30 square feet of floor space.

DAP switch units consist of 36-position reed selectors, mounted two units per printed circuit card. The reeds are actuated by a magnet rotated by an electromagnet and pawl system. The magnet coil is actuated by dial pulses from the subscriber selector dial. A "rest coil" releases the pawl and a return spring brings the rotor back to "home" position.

The switch actuation is a simple pulse counting system, advancing one step for each dial impulse. A reset button on the subscriber dial-converter box actuates the reset coil, allowing the switch to reset to position 0. Dialing "2" advances the switch to position two. The magnet resting over the #2 reed pulls it in, connecting the subscriber service line to program bus #2.

Switching to program bus #12 requires a train of 12 dialing pulses, achieved by dialing "0" and "2." The first 0 sends out 10 pulses and the additional 2 sends 2 more dial pulses.

Channel 22, if used, would require a train of 22 dial pulses achieved by dialing "0," "0" and "2." Similarly connection to program bus #32 would require 32 pulses achieved by dialing 0002.

Bus #32 could also be reached by dialing 9995 since this combination also sends out 32 dial pulses (9+9+9+5=32). It takes about 4 seconds for access to channel 36. Cost consideration dictated a very simple switching mechanism without the "memory" system which would have

How do you pick up sound without noise?

Pick up the new RE50 and the new RE85 quiet microphones.

Model RE50 omnidirectional dynamic $120 list. Model RE85 lavalier dynamic $133 list. Less normal trade discounts.

Introducing two microphones that aren't "microphonic". That are unexcelled for hearing air-borne sounds, but shrug off contact noises. The new hand or stand RE50 and the lavalier RE85 dynamics.

Small, light, and just barely larger than the smallest microphones of their type. Yet both use a unique double-wall construction that is more effective in reducing microphone noise than any other we have tested.

Let's look into the RE50 first. A cutaway shows that inside each RE50 nestles the familiar 635A, case and all. It's shock-mounted at top and bottom to the outer case. Even the connector is isolated from the actual microphone. And the problems of mass and resonance have been worked out (with the aid of our computer) so that contact noises and cable rustling never reach the Acoustalloy* diaphragm.

The result is remarkable isolation from all but air-borne sound, even in hand-held applications where microphone movement is uncontrolled. And when you add the extra protection of the built-in Acoustifoam* blast and pop filter, this is one of the quietest omnidirectional microphones you can find. Yet response, output level, and polar pattern are essentially the same as the 635A (one of the most popular professional microphones of all time).

But if noise can be a problem with hand-held and stand microphones, it is a plague to lavalier types. Clothing rustle, cord noise, and accidental contact with hard surfaces are common troubles. Except with the new RE85. Again, we have created a microphone within a microphone. But we've gone even farther. A special low-noise grille, for instance. And even the hard, smooth paint finish was chosen to reduce small rubbing noises.

The result is virtually noise-free operation even with inexperienced performers. And at no expense to sound quality. Like all E-V lavaliers, output of the RE85 is peak-free and natural. Each RE85 comes complete with neck cord, tie clip, and a belt clip to help control the cable. The RE50 is supplied with a Model 300 stand clamp.

Both the RE50 and the RE85 are now available at your E-V microphone headquarters. In this noisy world, it's a relief to know that help has quietly arrived.

*E-V Trade Mark

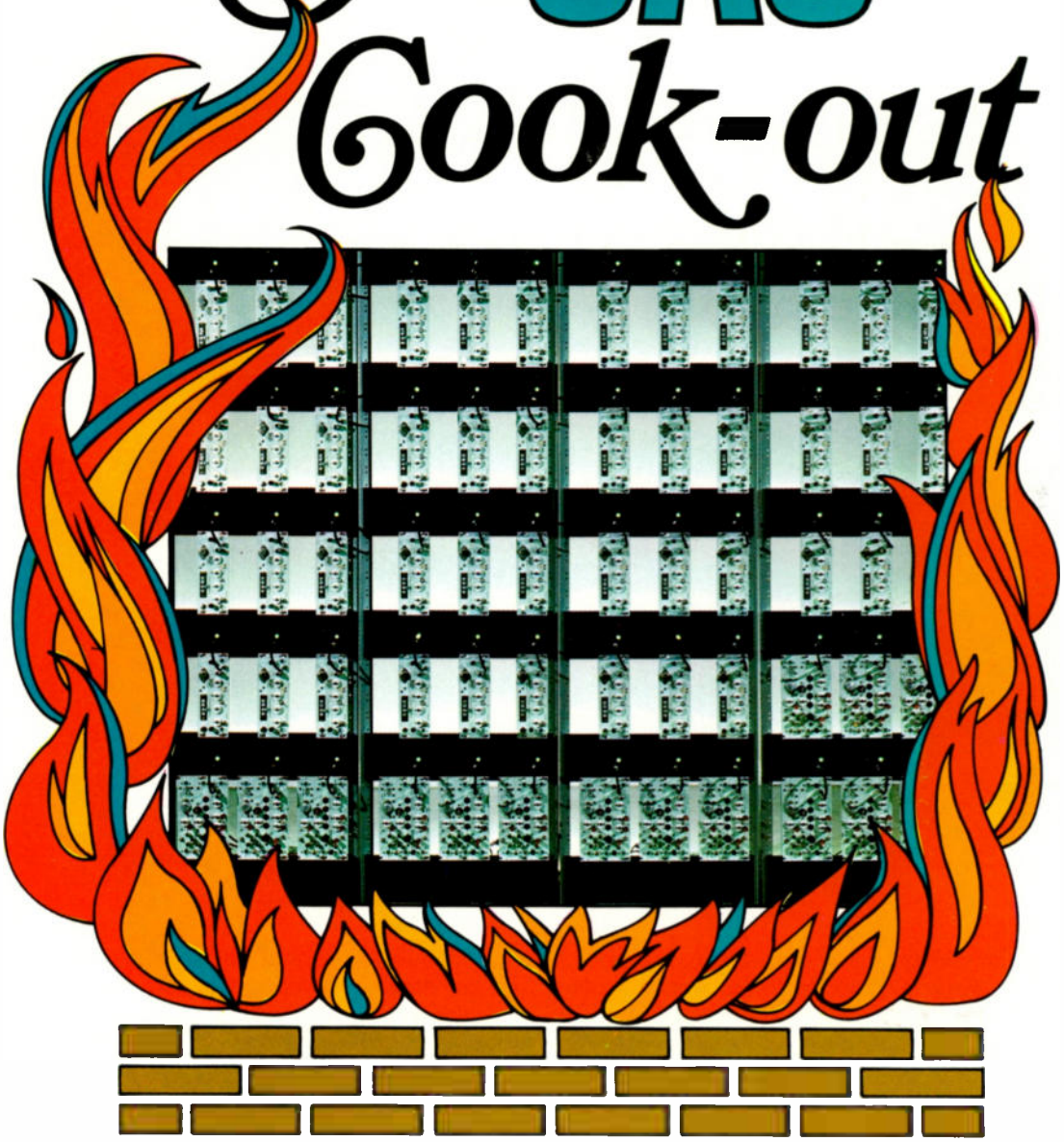
ELECTRO-VOICE, INC., Dept. 411TV
697 Cecil Street, Buchanan, Michigan 49107

high fidelity systems and speakers • tuners, amplifiers, receivers • public address loudspeakers • microphones • phono needles and cartridges • aerospace and defense electronics

Electro-Voice®

A SUBSIDIARY OF GULTON INDUSTRIES, INC.

A CAS Cook-out



NO JOKE! THE CAS COOK-OUT IS A NIGHTLY AFFAIR WITH US. WE HAVE ANOTHER NAME FOR IT TOO, IT'S CALLED *RELIABILITY TESTING*. FIRST – WE DO THE USUAL THINGS – *LIKE* – INSPECTION, QUALITY CONTROL CHECKS, BENCH TESTING AND ALIGNMENT. THEN – WE DO *OUR OWN THING*. WE HAVE A CAS COOK-OUT. THIS TAKES ABOUT TWENTY-FOUR HOURS. THEN – WE DO THE USUAL THINGS – ALL OVER AGAIN. ALL CAS EQUIPMENT GOES THROUGH THE *TRIAL BY FIRE*. MAYBE THIS EFFORT DOESN'T ELIMINATE ALL INITIAL COMPONENT FAILURES, BUT WE'RE GETTING CLOSE. ANY PIECE OF CAS EQUIPMENT YOU ORDER IS A *WELL-DONE* PIECE OF EQUIPMENT.

CAS MFG CO

CAS MANUFACTURING COMPANY

P. O. BOX 47066 ■ DALLAS, TEXAS 75247 ■ 214/253-3661

allowed simplified channel selection.

The DAP exchange levels permit all 336 subscribers to connect to the same program bus with only 1 dB reduction in subscriber levels.

The Distribution System

The main DAP distribution cable consists of a group of 6 subscriber cables, each consisting of a program pair and a signaling (control) pair. This is called a Qwist* cable (*registered trade name) and is about ½ inch in diameter. It can serve six television receivers. Seven Qwist cables are commonly bundled together into a 1¼" cable serving up to 42 television receivers. See Figure 2 for detail of Qwist cable construction.

An individual 4-conductor set has been developed from decades of Rediffusion experience with low frequency television distribution over balanced wire pairs. The 4-conductor subscriber cable constitutes an extremely well-balanced 130 ohm transmission line, providing low transmission loss with minimum susceptibility to interference and cross-talk.

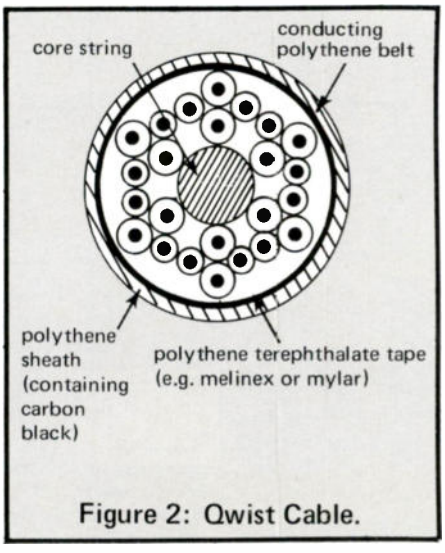


Figure 2: Qwist Cable.

Individual Qwist cables are terminated at a point convenient to serving six potential subscriber receivers, and are spliced into individual subscriber cables. The individual subscriber cable consists of a 4-conductor set similar to that in the Qwist cable, but having a metallic shield. This shielded, 4-conductor cable is called a "quad" cable by DAP technicians. DAP specifications permit a run of up to 1,200 feet of Qwist cable followed by up to 300 feet of "quad" subscriber service cable.

The Subscriber Terminal

DAP connection to a conventional television set requires an "inverter" to convert the low frequency DAP signal to an ordinary TV channel. The "inverter" is combined with the selector dial in a neat plastic cased unit which can be placed on top of the receiver or used at a remote location as a remote tuning device (see Figure 3).

The units at Port Dennis convert to TV channel 10. The subscriber receiver remains set at channel 10. Rediffusion has special DAP receivers (without tuner and IF) for demonstration at Port Dennis, but these are not in general use by subscribers there.

Although 50 volt DC power is available in the "inverter" for

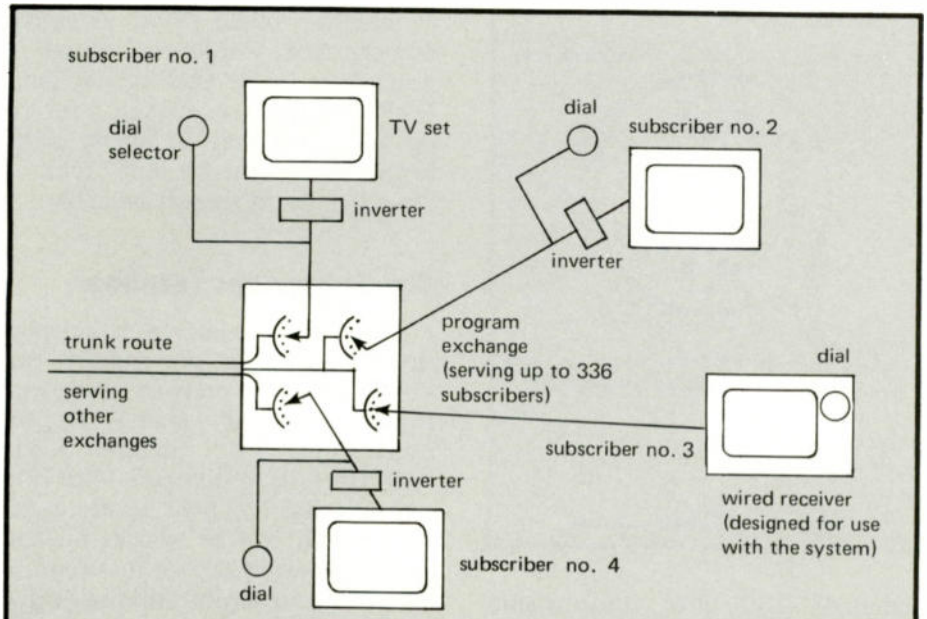


Figure 3: General Arrangement of a Dial-A-Program System.

operating the dialing system, the inverter section is powered by a separate 115 VAC line cord. A conventional RG-59U coaxial cable connects the inverter to the subscriber receiver.

Features of the System

Since there are normally no "one-way" amplifiers between the switching center and the subscriber, it is very easy to provide two-way transmission in the system. Rediffusion demonstrated two-way operation from their office and from a local restaurant ("El's Del" on the "Dial Guide") connected to the DAP system. Reverse transmission uses a channel in the 9-15 MHz band, with suitable filters and hybrids at each end.

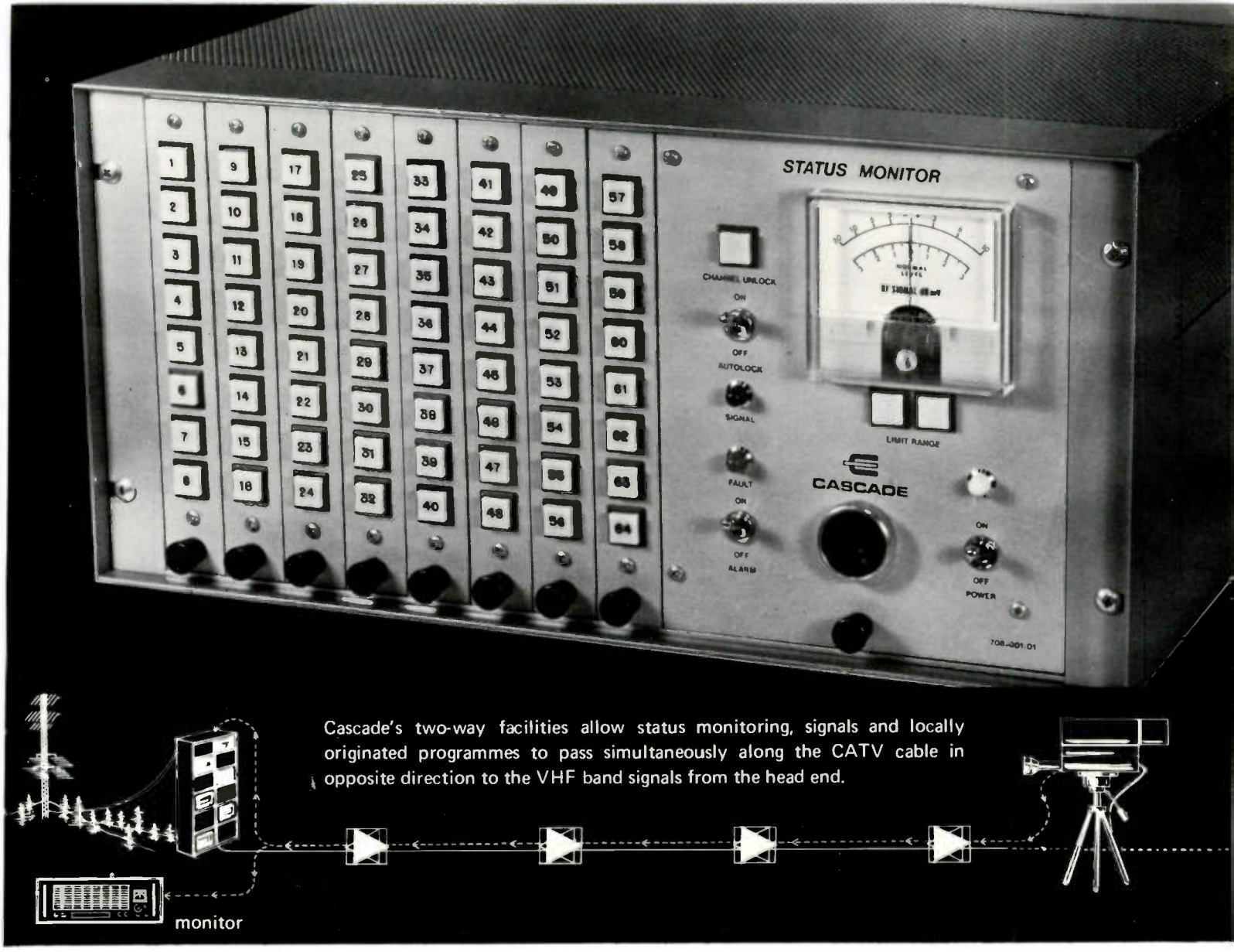
Subscribers can be excluded from access to certain "special" channels by inserting a "magnetic shield" at the appropriate position in the selector switch at the DAP exchange. This prevents the selector magnet from "picking" that particular reed, thus preventing subscriber connection to that program bus.

Since subscribers are uniquely identified at the DAP exchange, equipment can be added to keep a record of subscriber program dialing for audience survey or pay-TV purposes.

A single DAP exchange can serve up to 336 subscriber receivers. Individual exchanges are connected by bundles of coaxial cables, one channel per cable, operating at the low DAP carrier frequency. The program amplifiers in each DAP exchange provide the signal drive for the exchange and the drive to feed the cables to the next exchange.

Successive exchanges are driven in tandem, or may be bridged across the trunk cables, depending on the distance and cable loss between exchanges. Rediffusion estimates that their specifications can be met with up to 18 miles of interexchange trunking.

Rediffusion did not detail costs when *TVC* editors visited Port Dennis, but they did indicate that DAP costs run about twice that of conventional 12-channel coaxial cable systems. They said costs for the 36-channel DAP system run about the same as a 24-channel cable system, when set-top converters or dual-cable installations are taken into account.



The output level of individual trunk amplifiers may be monitored constantly, day and night, at the head end or at any control point along a trunk line.

A 'level monitor' module can be added to a UNICOM trunk amplifier, which (in conjunction with the UNICOM two-way communications) transmits the output level of the trunk amplifier to the monitoring point.

The CASCADE Status Monitor, situated at the monitoring point, constantly scans the incoming signals from the individual trunk stations. If their signal levels vary from a pre-determined limit, an alarm is raised.

Any failure or malfunction is instantly reported and pinpointed without any manual effort. Repairs can then proceed with a minimum of delay and expense.

.... think about it

CASCADE ELECTRONICS
Port Moody, B.C.: Electronic Avenue 604/939-1191
1111 C Street, Bellingham, Washington 98225 206/733-5315
FRED WELSH ANTENNA SYSTEMS
Rexdale (Toronto), Ont.: 1770 Albion Road 416/749-5043
Vancouver, B.C.: 5594 Cambie Street 604/327-9201

CASCADE

CASCADE ELECTRONICS LTD. PORT MOODY, B.C.

"the CATV people you can rely on"

BIG or little...

your company needs VAN LADDER

The Van Ladder features:

- Patented engineered stability. (Eliminates need of outriggers, even on a half ton van.)
- 4'x8' work platform for local origination.
- Electric from the truck battery; no hydraulics, no special alternator needed.
- Can be changed easily from one truck to another.
- Uses no cargo space.
- 28 ft. working height at 10 feet from the truck.

Van Ladder's optional features include:

- **Power rise and lower from the bucket.**
- **Heavy hand rails for greater stability.**
- **Power rotation from the bucket.**
- **Self-leveling aluminum or fiberglass buckets.**

Write for our brochure, featuring our new model with self-leveling buckets.

VAN LADDER

VAN LADDER, INC. / 620 Diagonal Street, Algona, Iowa 50511 / Phone (515) 295-5837

Where Will You Put Your Money? New Construction, New Systems Or...?

No one has enough money. . . but we all have some resources we can invest for the future. Here is sound advice on how to make those business investment decisions.

By R. Victor Gruenwall

A stockpile of CATV system components is important for the firm which wants to avoid being caught short of a critical item.

Perhaps even more important to the company's long term success is a stockpile of investment opportunities.

In the present context, investment simply means the expenditure or commitment of today's funds in return for anticipated future income. Such funds may be invested in equipment, short term liquid assets, advertising campaigns, new extra-CATV services, new franchise acquisitions, new system constructions, or applied research and development projects.

Such activities are not only for the large MSOs and corporate giants. In fact, they are more important for the smaller company which realizes that today advance planning is essential to continued operations.

To review this subject we'll examine it in four sections: planning, search for alternative opportunities, the four basic formulas, and implementing the decision. We'll also study in detail one of the four formulas, that of the payback period.

Advance Planning Is Essential

There are three main factors which are involved in the planning of investment decisions: (a) Setting of both short and long range investment policies, (b) Calculating what funds are now or will be available for investment purposes, and (c) Evaluation of past investments.

Many CATV system operators do not specifically examine their positions in any of these areas. The daily press of business makes it difficult for them to formally think about such relatively theoretical issues, but this is one case where theory is a requisite to future business success.

In some cases budgeting of funds for investment purposes does not become necessary until a stockpile of investment proposals causes an excess demand for the firm's investment funds. And often these stockpiles occur infrequently, simply because management gives too little attention to finding or following-up investment possibilities.

As with any business activity, careful and adequate planning often makes the difference between failure and success. CATV system operators should actively be alert to new avenues of investment for their firms, and they should encourage both employees and outsiders to submit proposals.

Search for Alternative Opportunities

This search, and the search for information regarding the profitability of each alternative, involves many sources. Included are: discussions with employees and business associates (a particularly important aspect of state, regional and national conventions); reading newspapers, business and trade journals and reliable trade news magazines; study of the firm's records; and creative thinking about the problems and possibilities.

Some CATV system executives search for opportunities only when they are dissatisfied with the existing situation . . . and then only until a "satisfactory" alternative is found.

The alternative chosen under these circumstances is likely to prove less profitable than one selected by a firm which already has on hand, as a result of previous search and evaluation, many investment opportunities from which to choose.

In short, too often investment decisions are made

only as a result of a crash program designed to apparently meet immediate needs rather than a decision made intelligently as part of an overall plan.

The Four Basic Formulas

After a stockpile of investment possibilities has been built up, each possibility must be evaluated in a manner that permits comparison with other proposals.

Even when the decision involves only one investment opportunity, some form of evaluation is necessary.

The typical approach to choice involves calculating some rate of return for each investment opportunity and then choosing the opportunity with the highest return.

Of the many formulas which have been developed to solve this decision-making problem the following are best known:

(a) Discounted rate of return. This formula involves a discounting process similar to the discounting of a note at the bank. It relates the discounted anticipated income, or savings from the investment, to the initial purchase price.

(b) Accounting rate of return. Essentially this is the after tax annual savings divided by the amount of the investment. There are many variations of this formula.

(c) MAPI rate of return. The formula developed by the Machinery and Allied Products Institute is based on a complex variation of annual returns divided by the original investment, but it compares investing in a project against going without it for one more year.

(d) Payback period. This is simply the original investment divided by the expected annual net savings or income from the proposal. It indicates roughly the time required to recover the original investment.

To use any of these formulas, a CATV executive must have estimates of the annual savings or income which will result from the investment. Some formulas require estimates of cash flow for each year, of the number of years the investment will last, and of its final salvage value.

Obviously such estimates are often quite uncertain. Also, many investments involve costs and benefits whose value cannot be expressed solely in dollars: the effect on the company image, for instance, or safer working conditions, or improved morale. Omitting such factors from the analysis of an investment opportunity may mislead management in its considerations of the full impact and profitability of the proposal.

Because of the uncertainties involved, complicated formulas probably do not have enough practical value for the average CATV system executive to warrant the time and expense required for their use. Simple methods of evaluating investment proposals are usually adequate.

Sometimes, too, formulas are unnecessary for many investment decisions if the decision maker carefully evaluates the proposal and compares the pending opportunity with other possibilities in his investment backlog.

For CATV firms which do want the assurance of some formula, however, the payback period approach is simple and workable.

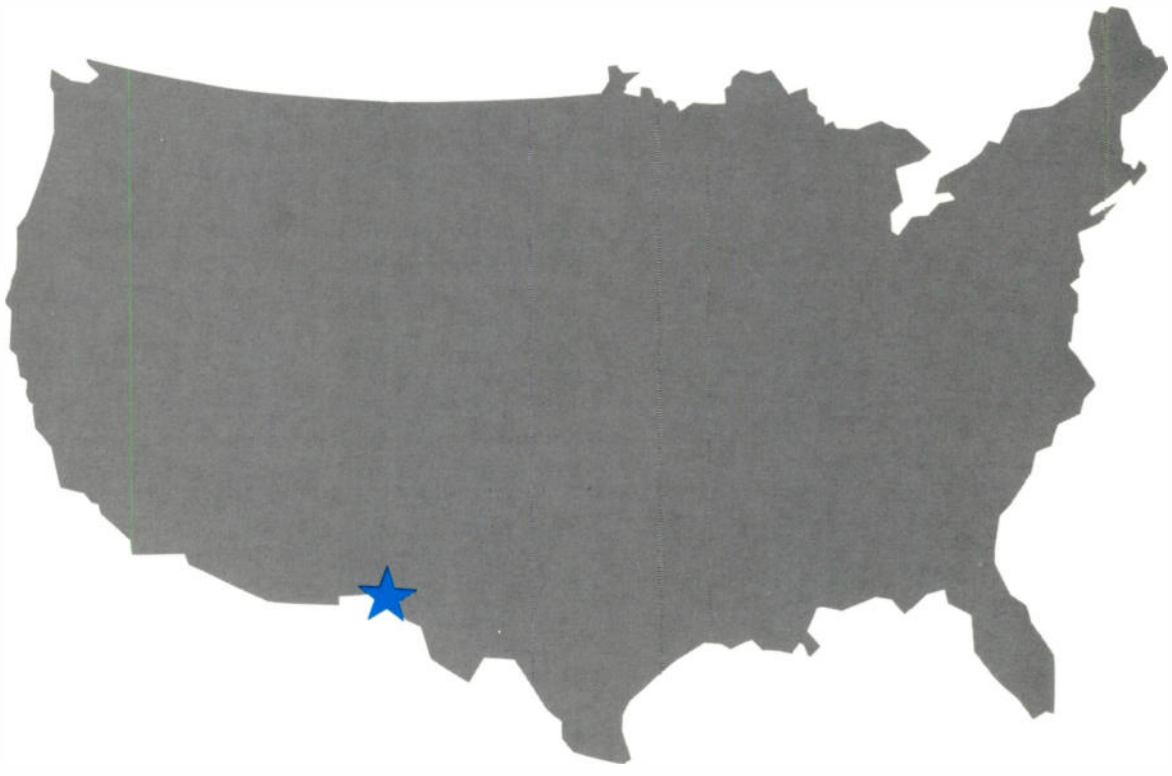
The Payback Period Method

This formula is closely related to break-even analysis. In drawing up the usual break-even chart, units of output are shown along the horizontal axis and dollars shown on the vertical axis. Lines representing total income and total costs are then plotted, and the break-even point is where they cross.

Suppose, for example, that you were trying to decide whether to market a new extra-CATV service. You would gather estimates of various fixed and variable costs, and plot them along the vertical axis. On the same chart you would plot the expected income from the service along the horizontal axis. Your break-even point would be where the two lines crossed, indicating that you had covered your costs.

In this type of analysis the only estimate which involves much uncertainty is output or sales. Cost estimates should be quite accurate. Changes in profit rate are not estimated, but result from changes in sales.

Another type of break-even or payback chart is needed when the uncertain factor is the length of life of the investment. You might know, for example, how much a new labor-saving machine would save annually, but not how long it would be until a better



WE'RE BUILDING 800 MILES IN EL PASO FOR EL PASO CABLEVISION

Telecom Construction, Inc. has been awarded the contract to build a new 800-mile cable system for El Paso Cablevision in El Paso, Texas. We'd like to help you with your project. We know you want highest quality construction and performance. Those are the basic guidelines of every job we bid. Let our experience build these same qualities into your system. Telecom Construction, Inc. features:

■ Highly skilled construction foremen and experienced crews (80 men now in the field) ■ Personal on-site evaluation and precise cost estimates ■ Complete system layout, design and construction ■ The most modern equipment for faster job completion ■ Capability in power line and telephone line construction ■ Has performed TURNKEY CONSTRUCTION for leading CATV group owners and manufacturers. Call or write for complete information.

A CATV Contractor Who Stands Behind His Work • Established 1948 • Fully Bonded And Insured

"An Unexcelled Reputation for Quality & Performance"

Telecom Construction, Inc.

In California: C.A. Roth & Associates, Inc.
In Oregon: Power Line Construction Co., Inc.

1310 S.E. Hawthorne Blvd. Portland, Oregon 97214 (503) 235-8576

machine was available. In this case your chart would be similar to the previous one except that the horizontal axis would indicate time instead of sales.

Suppose that you were considering an investment of $4,000 from which you expected gross sales to increase by $12,000. Your expected increase in other costs would be $5,000. A break-even chart based on this data would indicate that profitability would begin in 1.3 years, or after 16 months. (The actual formula which the chart employs is dividing the annual profit — here $3,000 — into the original investment — $4,000 — and converting the answer to an answer in months and years.)

Extending both the axis lines will indicate clearly how much profit the addition can be expected to make after specific periods of time, such as 2, 3, 5, or whatever, years.

Where annual returns are known or fairly certain, and the length of life of the investment is unknown, the payback period formula can be a useful tool.

This formula does have a weakness. It ignores the time value of money. (A dollar received today is more valuable than a dollar received next year because today's dollar can earn interest between now and next year.)

Suppose two proposals of $5,000 each are being considered.

Proposal *A* will return an after-tax cash flow of $2,500 a year for 5 years; proposals *B* an after-tax cash flow of $2,000 for 15 years. Using the payback period formula you would first choose proposal *A*, since the payback period is only 2 years while for *B* it is 2½ years. But *B* is far more profitable in the long run, so judgment is still needed when you apply these formulas.

While indiscriminate use of the payback criterion can lead to unwise decisions, a major error is unlikely for a cable operator who has facts, figures, and a backlog of investment proposals. In general a speedy return of investment and a high profitability are both important considerations. A firm with acute cash shortages, however, may prefer a faster return of original investment to greater profitability. Or when an investment is risky or subject to a high rate of obsolescence a fast return may be the most important consideration.

Implementing Your Decision

Your analysis will result in one of three types of action. Proposals will be accepted, rejected, or held for further study. Sometimes immediate decisions are necessary. But often it will pay, when the uncertainty is great and the decision can be postponed, to delay a decision until more information is available.

No formula, however complex, can make automatic investment decisions. You must still exercise your own judgment. But the risks will be reduced and the opportunities for profitable investments increased if adequate attention has been given to the planning and search phases of investment decisions.

Often the real need is not for more reliance on formulas, but for imagination and vigor in stockpiling investment opportunities. TVC

PROOF POSITIVE:

AEL's CATV EQUIPMENT IS BEST!

Walter S. Wydro Consultants

P.O. Box 285 Pineville, Penna. 18946 • PHONE 215-968-4403

February 26, 1971

Mr. Louis N. Seltzer, President
Chester County Cable Company
809 East Lincoln Highway
Coatesville, Pennsylvania 19320

Dear Lou:

With little doubt, we can now say that the Coatesville system meets all of the critical technical objectives for a high channel capacity system.

From my observations, the minor corrections made to the system by AEL have cleared up the remaining problems.

During these visits to the system, including the most recent one with NCTA and FCC officials, system distortion characteristics were closely examined with my spectrum analyzer. The system distortion products were as good and in fact better than other systems I have recently examined using the latest push-pull amplifiers.

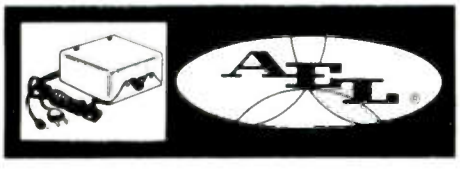
Again, my congratulations and best wishes for the continued success of your CATV plant.

Sincerely,

Walt. Wydro

Walter S. Wydro, President

CATV • COMMUNICATIONS • RECEIVERS • UHF-VHF AMPLIFIER SYSTEMS

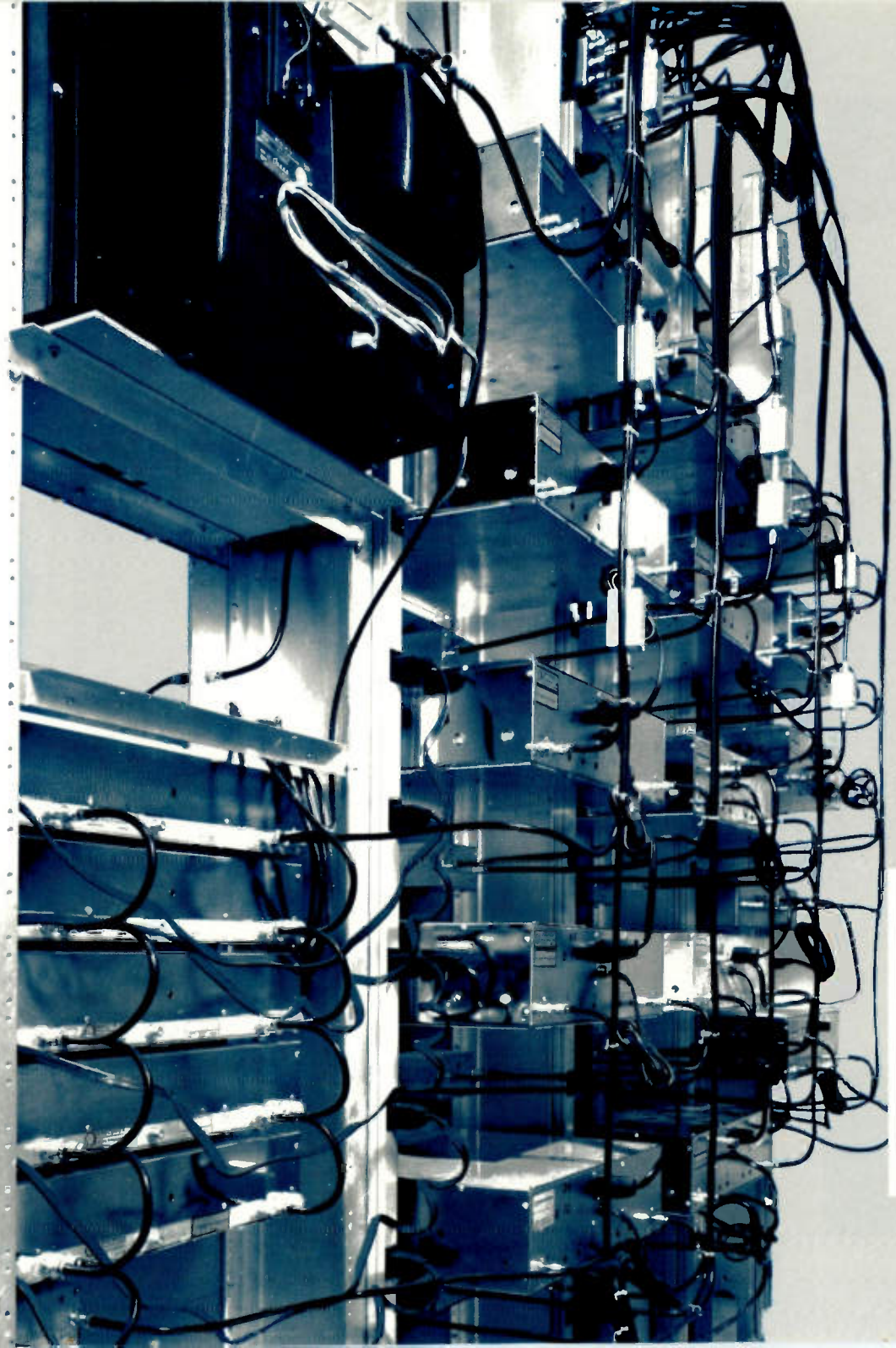


COLORVUE

AEL COMMUNICATIONS CORP.

The CATV Subsidiary of AMERICAN ELECTRONIC LABORATORIES, INC.

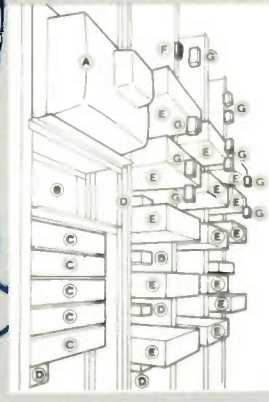
P.O. Box 507 • Lansdale, Pa. 19446 • (215) 822-2929 • TWX: 510-661-4976 • Cable: AMERLAB



ANACONDA HEADEND
OF RIVERSIDE CABLE COMPANY
AT HEMET, CALIFORNIA

HOW TO BUILD A BETTER HEADEND:

1. Select a supplier with proven CATV know-how and a reputation for meeting commitments.
2. Rely on the judgment of experts — men with years of experience in designing headend installations and solving reception problems.
3. Be certain the supplier is straightforward in business dealings and takes full responsibility for results.
4. Specify proven, up-to-date equipment.
5. Demand professional workmanship (the installation shown was designed and built by Anaconda field engineers).

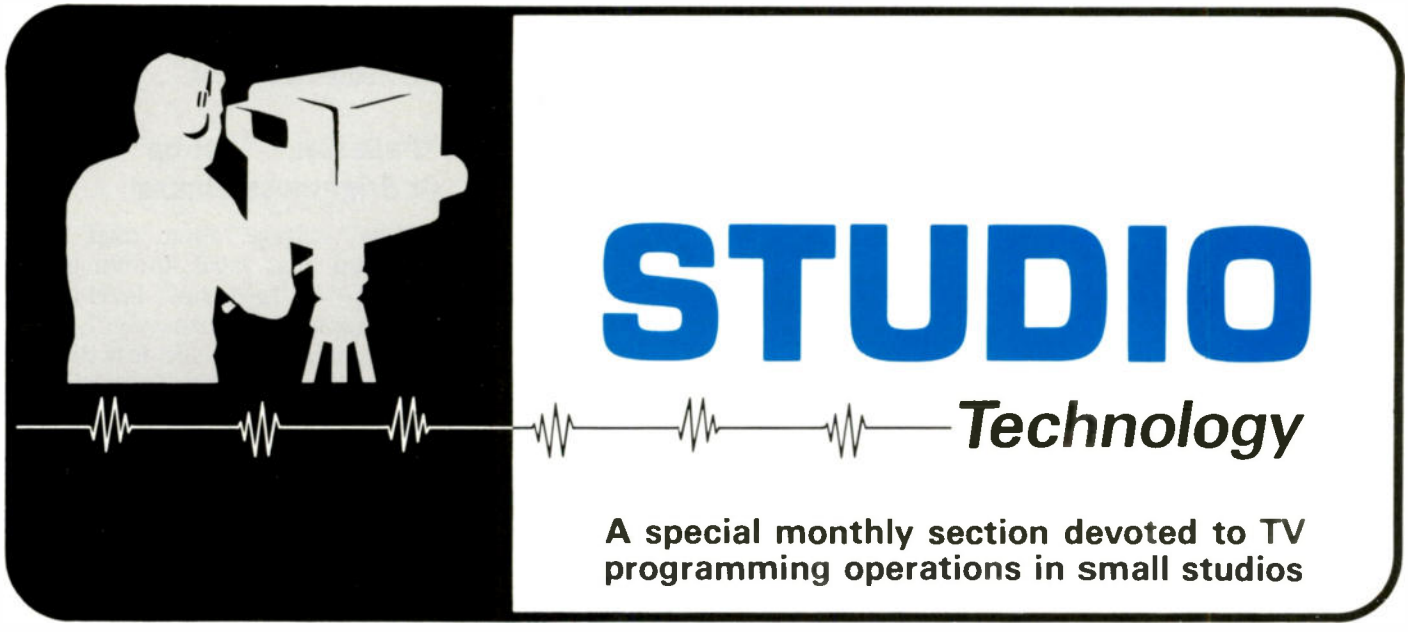


A Color Monitor
B Signal Level Meter
C 8710 FM Governor
D 8910 Bandpass Filter
E 8700 TV Governor
F 8816 Splitter
G HP and LP Filters
H 8900 Modulator

AT YOUR SERVICE
COAST TO COAST

ANACONDA ELECTRONICS
A DIVISION OF ANACONDA WIRE AND CABLE COMPANY
305 N. MULLER ST., ANAHEIM, CALIFORNIA 92803 • 714/635-0160

ANACONDA



The ABCs of Reading Video Waveform Monitors

To many people, the video electrical waveform is a mysterious thing. This article clears up some of the mystery and explains the importance of various signal parts displayed on the waveform monitor.

By Jack A. Rickel
Communications Consultant

The main theme of this article is the composite video waveform. This is the signal which is fed to the modulator. It may come from a switcher/fader, from a video tape recorder, directly from a self-contained camera, or from a demodulator. The term *composite* means that the signal contains both picture information and the pulses which synchronize scanning circuits (see Figure 1).

These two components are generated separately. A sync generator produces the pulses which are necessary for timing. They synchronize the vertical and horizontal scan patterns of cameras, monitors, and receivers. They also synchronize scanning mechanisms in video tape recorders.

Picture signals generated in a camera are amplified and, at some point, mixed with sync. Picture (or video) information is simply the voltage equivalent of the brightness of a scene at any given point. Since a color camera is basically a multiple – black-and-white camera scanning the same scene image through different color filters, what follows can be applied to the black-and-white component of color.

During actual production or playback of origination programs, the video signals of interest are those appearing at output jacks of equipment. These are standardized and usually require a general purpose oscilloscope for display. These internal signals are of interest when repairing and maintaining equipment.

External video signals have these important dimensions: amplitude, polarity and time. The first two, amplitude and polarity, are referenced to zero voltage. Input and output circuits are

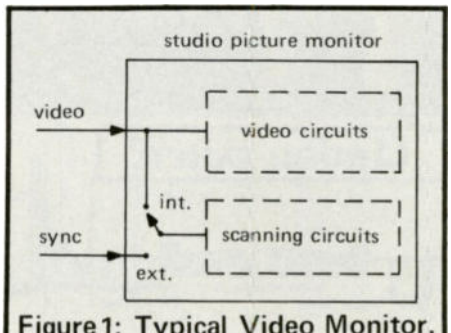


Figure 1: Typical Video Monitor.

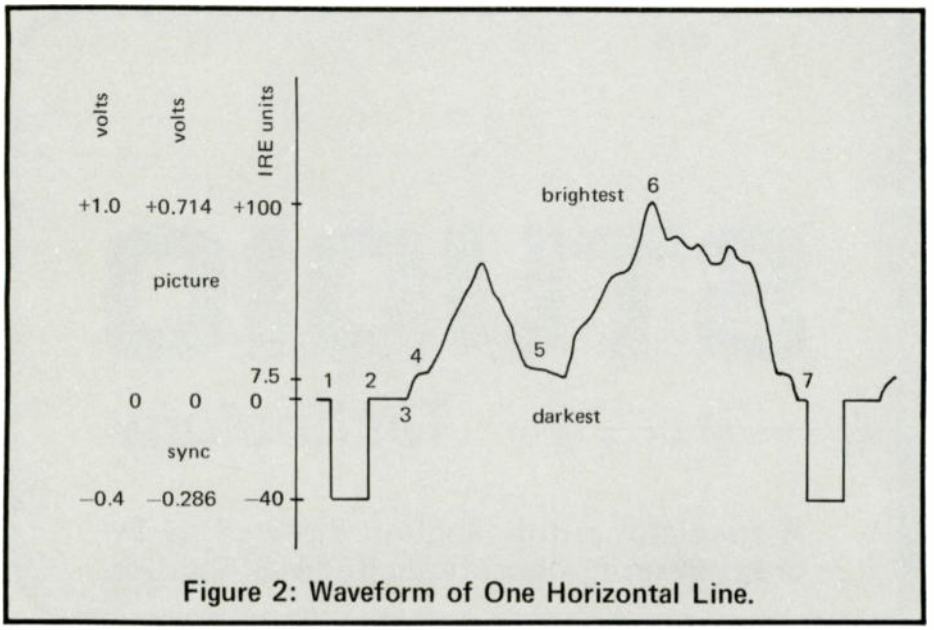


Figure 2: Waveform of One Horizontal Line.

standardized, so that a signal which is positive with respect to zero contains picture information only. Negative signals are synchronizing pulses.

Figure 2 shows a typical waveform for one horizontal line of a black and white picture. The usual waveform monitor or oscilloscope trace displays all the lines of a picture superimposed on each other, but for clarity we show only one.

The trace begins with the negative horizontal sync pulse between points 1 and 2. After the pulse, voltage returns to zero (2-3) and remains there for a brief period. This is called the "back porch" and in a color signal, it contains the color sync burst.

"Pedestal," "Set-up" Or Brightness Control

The voltage then rises to a standard bias level known as the "set-up" or "pedestal" level (point 4). This is approximately 7.5% of the positive peak, and it is defined as the blackest part of the picture.

Any picture information below this level will not be distinguishable on a properly adjusted receiver or picture monitor. In fact, if picture information should drop below this level, the pedestal should be raised. The corresponding adjustment on a receiver is the brightness control, which varies the bias or pedestal level at the picture tube.

Since the pedestal (or set-up) control on a camera or processing amplifier does essentially the same thing as the brightness control, it would not be unreasonable to put "brightness" labels on pedestal controls. This would make life easier for less experienced operators.

Since the pedestal level is defined as the blackest part of a picture, any level below it is "blacker-than-black," and any level above it is some shade of gray up to white. During the intervals containing vertical and horizontal pulses, all levels are at or below zero reference, or "blanking" level. This means that retrace lines are not visible on the picture tube.

The contrast range, (the range between darkest black and brightest white within the same scene) that a television system can produce is limited by the picture tube (kinescope). Its range is less than that of most camera tubes and photographic film. These, in turn, have less range than the human eye.

A typical example of this can be seen during an afternoon baseball game where the stands shadow part of the field. When the camera tries to show both the sunlit and shadowed part, much detail is lost in one or the other. Yet, the spectators have no trouble seeing both parts.

In terms of the video signal, full contrast range is between pedestal level and maximum positive voltage. Figure 2 has two different calibrations for the vertical axis, or voltage. Either may be used but it is most essential to be consistent throughout a system, and it should be noted that the ratio of peak positive to peak negative is the same in both.

Waveform monitor graticules are usually calibrated in IRE (IEEE) units: 100 to -40. The waveform monitor vertical amplifier can be adjusted for a full display with either +1.0 to -0.4 volts or +0.714 to -0.286 volts. Zero voltage or blanking equals zero IRE units.

Full contrast range, expressed in IRE units, is +10 to +100. A peak voltage that exceeds 100 will not cause that part of the picture to be noticeably brighter but may overload circuits. Such peaks can cause trouble in modulators and video tape recorders, which are usually protected with clipping circuits set to operate just above 100.

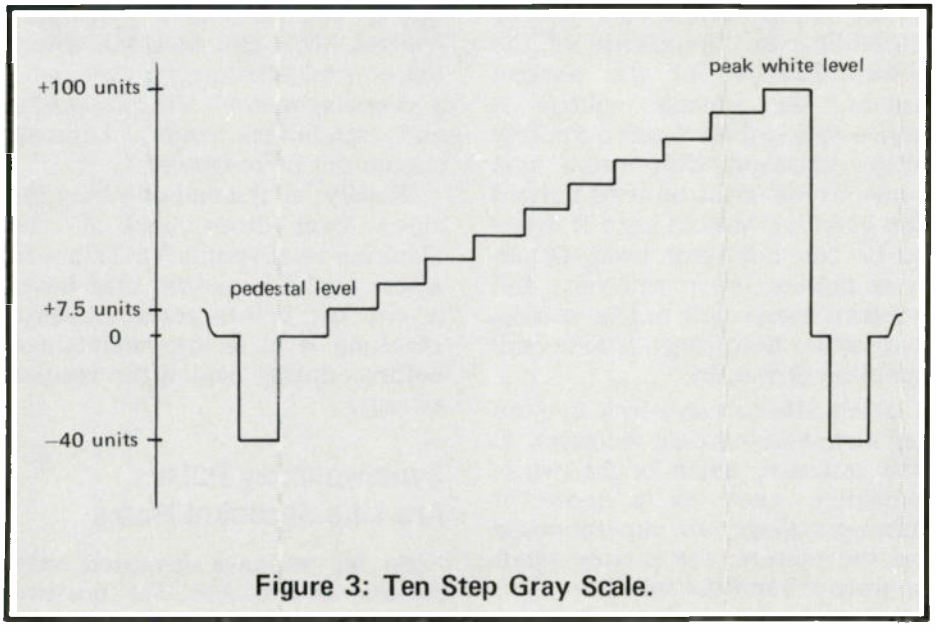


Figure 3: Ten Step Gray Scale.

A common test picture, or signal, is the gray scale, as shown in Figure 3. This consists of ten steps or shades of gray covering the contrast range.

When everything is adjusted properly, the darkest step is at the pedestal level and the brightest is at 100. On a picture monitor or receiver, all ten shades should be distinguishable.

As we mentioned above, point 2-3 in Figure 2 is the zero voltage reference level. It is obvious, then, that a video signal is unbalanced; there is more positive signal than there is negative.

Furthermore, the positive part

of the signal varies considerably depending on the nature of the scene. Except for the darkest scenes, the average voltage is above pedestal level and definitely above blanking. This means that some circuit must be used to hold the blanking level at zero if this is to be the reference level. Otherwise picture levels will vary, full contrast range will not be usable, and sync detecting circuits will function erratically.

Such effects can often be seen on inexpensive home receivers. In one instance, when bright, white sub-titles, such as a score or batting average, are superimposed on the picture, the picture tends to warp around the sub-title.

It was noted earlier that the pedestal level effects over-all picture brightness and could be re-labeled as a "brightness" control. A camera gain control also has its counterpart on a receiver or picture monitor. This is the "contrast" adjustment, which does essentially the same thing. Here, too, there is no good reason why a video gain control could not be re-labeled as a "contrast" control. This can be done where the control affects only video gain and not sync level. Video recorder and modulator input controls should not be re-labeled.

Finally, at the end of a line, the video level drops back to the blanking level (point 7). This is to assure that the picture tube beam is cut off before retrace begins. Blanking level is also maintained before, during and after vertical retrace.

Synchronizing Pulses Are Like Sprocket Holes

So far we have discussed only picture information, the positive component of a video signal. The same remarks apply equally to composite and non-composite signals. The negative component, in the case of a composite signal, contains only synchronizing pulses.

Basically, these pulses serve the same purpose as sprocket holes in motion picture film. Sprocket holes assure that each picture on the film can be precisely aligned in the projector. Pulses assure that the television image can be precisely aligned on the picture tube. Of course, neither will help if a projector or receiver is out of adjustment.

Horizontal sync pulses precede every horizontal line and occur at a rate of 15,750 per second. Vertical sync pulses occur between vertical scans, at a rate of 60 per second. Each vertical scan is called a *field* and consists of 262½ lines. Two fields make a *frame* of 525 lines.

Most better quality sync generators, including all those for broadcast, provide what are called equalizing pulses. These occur during each vertical at twice the horizontal rate. They serve to interlace the lines of alternating fields so they do not overlap.

Without going into a detailed explanation of sync pulses and precise timings, we want to stress the general operating requirements. All pulses should be rectangular and be free of noticeable noise, over-shoot and ringing.

Amplitude should be a constant -40 units. There should be nothing on the negative side of reference except sync (the only exception is high frequency color information).

It is almost impossible to overemphasize the importance of good synchronizing pulses. Serious problems are obvious; the picture will roll, tear or completely go to pieces. But even relatively minor problems can be troublesome.

If a scanning circuit does not trigger at exactly the right point every time, a slight jitter, loss of resolution, or weaving of the picture can cause "viewer-fatigue." And, remember that some subscribers will be watching on old or poorly adjusted receivers which are more likely to suffer from sync problems.

Keep the Sync Clean Especially When Recording

When recording programs, good clean sync is, if anything, even more important. Recorder circuits are critical and require good signals for accurate tape scanning. A problem that may not show up on a picture monitor can render a recording useless. But this would not be known until it is too late.

It is easy for production personnel to regard the sync portion of waveforms as something "for the engineers." Adjustments are complicated (except level) and should be made only by someone who knows exactly what he is doing and has the right equipment. However, this does not excuse non-technical people from knowing what good sync looks like so they can call an engineer if something suspicious happens.

If the ratio of sync level to peak video level is off by more than a few percent, it can result in an unstable picture, a shift in overall brightness, an unusable recording. Some other common problems which can be easily seen on a waveform monitor include spurious negative signals, ringing, and rounding or tilting of pulses.

Of all the many problems that can occur in an origination system, the worst are those associated with sync. Sometimes even a problem which appears to be caused by something else may actually be due to missing or improper sync pulses, or the associated driving pulses which also come from sync generators.

It should be evident from this discussion that understanding and monitoring video waveforms is very important. It can make the difference between amateurish and professional appearance of origination programming. It can even mean the difference between a good program and a completely wasted effort. It can also make a real difference in the enthusiasm of audience and sponsors.

In the early stages of origination, things tend to be rather loose and confused. Yet this is the time for studio personnel to start developing good habits and techniques. Developing at least an elementary understanding of the use of a waveform monitor, and the need for it, is not something which should be put off until later. TVC

Halline Aerial Equipment Leader!

Halline manufactures a wide variety of Aerial Ladders with CATV in mind. There is a series of Halline aerial equipment especially tailored to fit your maintenance and construction requirements.

Model EM is ideal for any CATV system. The EM includes a three plane working platform, manually operated rotation and extension with electric-hydraulic elevation, and new simplified design. Available in ladder heights, 26 ft. to 35 ft. Mounting requires minimum body floor space, leaving majority of cargo area for other materials and tools. The EM is fast and easy to operate. Requires only seconds to raise, lower and rotate.

Model EME is equipped with either a three plane working platform, or a self-leveling basket. This model from Halline has the added safety features of double chains, slip clutch, emergency basket controls, and 12-volt D.C. Heavy Duty Electric Motors. The EME can be conventionally mounted or Bridge Mounted allowing complete access to the body cargo area. The fiberglass upper section requires minimum maintenance. Push button controls for all movements are conveniently located at the pedestal and topside for ease-of-use by operator. Models available in 25 foot to 35 foot ladder sizes.

Model EMH has all the desired features for handling any CATV maintenance and construction requirements. It's rugged, compact and versatile. Either Power-Take-Off or Self-powered gasoline engine models are available. Controls located at both pedestal and bucket for convenience. Features a heavy duty hydraulic system, self-leveling fiberglass basket and fiberglass upper section. The EMH is available in 24 foot to 35 foot ladders. The quality construction of the EMH will carry any CATV workload.

The careful selection of performance features to fulfill changing CATV needs makes Halline Aerial Ladders foremost in the industry. Our National Distributor Organization will install, service and maintain your equipment. Full information on any or all of the Halline Aerial Ladders await your request.

HALLINE
UTILITY EQUIPMENT

5525 S.E 28th Avenue
Portland, Oregon 97202
Telephone 503/236-1178

Gentlemen: Please send me additional information on your Time Saving equipment. I have specified information needed

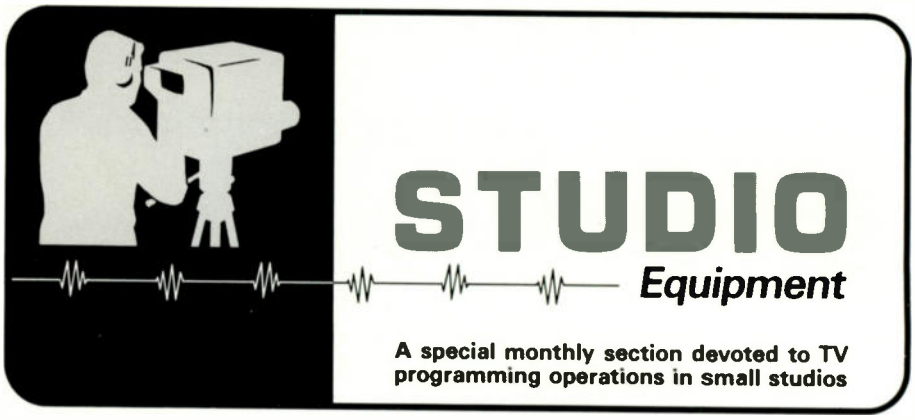
☐ EM ☐ EME ☐ EMH ☐ ALL MODELS

NAME_____

FIRM_____

ADDRESS_____ PHONE_____

CITY_____ STATE_____ ZIP_____



High Energy Videotapes Announced by 3M Company

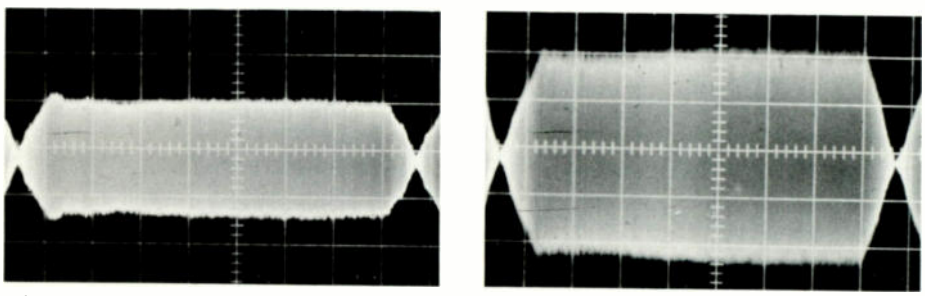
A new generation of videotapes featuring a "High Energy" oxide compatible with both present and future equipment, as well as high speed duplication, has been introduced by 3M Company of St. Paul, Minnesota.

Considered a technological breakthrough by 3M, the new proprietary magnetic oxide is capable of delivering substantially increased performance in signal-to-noise, color purity and other desirable characteristics. Daniel E. Denham, general manager of the Magnetic Products division, says the new cobalt-modified ferric oxide developed by his laboratory researchers makes possible a whole new series of videotapes.

To retain such properties as universal compatibility with present equipment, long tape life and minimal recorder head wear, Denham says 3M chose to stick with iron oxide technology by modifying it in some way.

"Engineers at our division's laboratories succeeded in achieving all goals and made it possible not only to announce a better tape but also to produce a family of "High Energy" tapes, ranging from those compatible with today's equipment to those designed for the future," says Denham.

The first commercial videotapes incorporating the cobalt-modified ferric oxide are designated Scotch brand 420 in the quadruplex format, and 461 or 462 in the helical versions. The new tapes exhibit a dramatic 4 dB increase in RF output and higher signal-to-noise ratio. Denham indicates that the "High Energy" products will sell at premiums of 10-15 percent for quadruplex tape and 15 percent for helical versions. TVC



These two photos show oscilloscope readings of radio frequency (RF) output of standard tape (left) compared with almost double the output (right) of the new "High Energy" videotape.

Guidelines for Production Of Local Commercials

Avoid second-rate commercials by following these simple techniques of basic TV ad production. . . and consider leasing your studio to others. Conclusion of a four-part series.

By Gene G. Cook
Manager of Sales/Programming
General Electric Cablevision

The past three issues of *TVC* have covered programming, film buying and sales for the local cablecaster. This fourth and final article in this series covers two more important areas: planning and creating local commercials and ways to achieve additional revenue from your production facilities.

The commercials you place on your cablecasting channel are the end result of all of your local origination planning and efforts. For those cablecasters selling advertising, the effectiveness of your commercials will dictate just how successful you are or will be. Obviously, all of your origination endeavors must tie together.

"Your first objective is the building of an audience . . . if no one is watching, what good is it?"

Your first objective is the building of an audience that will be large in number and interested enough in your programs to respond and react to the advertising message. You may have the finest commercial ever produced, but if no one is watching to receive the message, what good is it? The program, the audience and the commercial . . . all must fit together like pieces of a jigsaw puzzle. When they do, you will sell products, obtain more advertisers, increase your rates and be on your way to operating a successful cablecasting channel.

Keep in mind that all of the articles on local origination in this series have been written for cablecasting at the local level . . . primarily for the small and medium sized systems. Our approach to commercials will be in the same vein.

Before creating the commercial, know and understand the sponsors' objectives. What are you attempting to sell? To whom? What type of show or program will carry the commercial? How often will it run? Will you need art work for signs or 35mm slides? Do you need additional props? What about the product itself . . . what is the most advantageous way to present it? Is it hard sell, soft sell or institutional? Can you produce the commercial in your studio or must you go to the sponsor's location? What production format . . . slides with voice over, videotape or film? And, finally, do you have the proper people and equipment available to obtain your desired goal?

It is important to know your production limitations. Equally important are your playback capabilities. Can you run videotaped commercials within a taped program? Do you have enough capability to insert a 16mm film commercial within a film program?

Most cablecasters will find their ability to insert commercials a bit limited due to the lack of production equipment. This presents no major problem as long as you plan ahead. If the first spot within a specific show is videotape, the next one should be slides with voice over and the next after that 16mm with sound or audio cartridge.

If you have only one 16mm projector, don't try to run two film commercials back to back or two videotape commercials on separate reels, on one tape machine. If you do, your control room production man will develop ulcers at a very early age.

Push the panic button . . . "nothing happens, but you'll feel better."

The person typing the daily log must be aware of these limitations and work closely with your production supervisor to avoid last minute panic. While on the subject of panic, I suggest the first thing you buy for your control room is a panic button. When you push it, nothing happens but, at least, you'll feel better. I assure you that the panic button will be hit almost daily.

There are a multitude of ways to produce a commercial, but for now, we'll confine ourselves to the basic approaches.

The first and the most simple to produce is the live camera on announcer. In this situation, the announcer or talent simply stands before the camera and presents the message. A product may be demonstrated or a single commercial art card can be used to add emphasis. A variation of this approach is the use of two cameras . . . one on the announcer and one focused on a series of art cards stacked in proper sequence and placed on an easel.

The talent cannot memorize all of the message and it may be necessary to print the commercial in bold type on a large card or a long sheet of paper. These are often called idiot sheets or cue cards. Excellent idiot sheets can be made by using a heavy felt tip pen and a roll of unused teletype paper.

The second approach is to use 35mm slides with a voice over. In this situation, a series of 35mm slides are shown in sequence, coinciding with the audio portion which is replayed on cartridge or reel to reel audio tape. This is a simple way to present a most acceptable and effective commercial.

Videotape will play an important part in creating commercials. Whether or not you tape in the studio or on location will, of course, depend on your facilities and the needs of the sponsor. Just how elaborate or sophisticated you make the commercial will depend on your copywriter, equipment and production personnel. A word of caution . . . don't get too far out in your production techniques. You're selling a product, not trying to impress someone with pretty scenery or unique camera angles.

The fourth basic approach is to use 16mm sound on film, or a simpler method is to use film and supply the narration through audio cartridge or reel to reel tape. There is no doubt that the most creativity and effectiveness can be achieved through the use of color film. The problems would appear to be time, knowledge of photographic equipment and cost.

A good 16mm camera with proper optics is a fairly expensive piece of equipment. To this must be added the cost of film and processing. To achieve proper results the camera operator must have certain skills and knowledge. In addition, proper splicing of the film will spell the difference between a good commercial and a bad 60-second homemade movie.

At the recent NCTA production seminars, Eastman Kodak presented excellent instructions on the use of 35mm slides and 16mm film. If you were unable to attend one of those seminars, I suggest you contact an Eastman Kodak representative.

To paraphrase a noted author, "the commercial is the message." All good commercials tell a story. Who — what — where — when — why and, maybe . . . how much. The sole purpose of a commercial is to inform and sell.

The creativity of your production methods are vital, but of utmost importance is the message itself. If you can afford a full-time copywriter, artist and photographer, fine! If not, contact one of the commercial writers at a nearby radio or TV station. She or he may be willing to do a little "moonlighting" or will know of someone in the area who can help you out.

A similar approach might be used for art work and photography. Spend some time at a commercial television station. Visit their copy, art and photography departments. You'll learn more in one afternoon there than you will from reading six books on the subject.

The cost of producing commercials is obviously another important factor. Most cablecasters in small and medium size towns are going to run into difficulty explaining the additional production costs to local merchants. Radio and newspapers seldom, if ever, charge for writing or laying out an ad. You will be forced to educate the local merchant in the use and cost of TV commercials.

Most operators simply charge back their basic costs or perhaps add ten percent. In reality, you may be forced to absorb the production costs for the first few months of operation.

So far, we have discussed the locally produced commercial. The ideal situation is to obtain nationally produced commercials from the local or regional sponsor. Car dealers, soft drink bottlers, tire dealers, TV stores, in fact, any merchant who sells nationally advertised products has film, slides or tapes available to him.

"Local origination is in its infancy . . . Years from now, we will all look back and smile . . . "

Be sure to thoroughly check out the availability of such production or commercial aids. If available, use them . . . they will save you much time and effort. A sixty second sound-on-film spot announcement with a local audio/visual tag sells products and gives your local channel a very professional look.

When producing local commercials, keep it basic and direct . . . generally, the simpler the better. In the final analysis, no matter what type of production technique you use, if the commercial sells products . . . it's a good one!

If your production equipment and studios are standing idle several hours each day, it may be to your advantage to investigate means of additional revenue. The most common practice is to lease your facilities to schools and organizations for instructional purposes.

Many high schools and junior colleges can not afford the capital outlay for closed-circuit television equipment. By leasing your studios and basic equipment for a set amount of hours each week, they can offer classroom instruction in audio/visual production, produce instructional and educational tapes, and enhance their teaching methods. This all can be accomplished for very little cash outlay on their part . . . and you, in turn, are receiving some much needed revenue.

Sales organizations and retail stores can use your facilities to great advantage. Sales techniques and procedures can be videotaped in your studio or on location. The employees participate in the production and the finished product is shown to all employees, especially trainees.

Local industry is another good prospect. Instructional material, the "how-to" of a particular job, or safety films can be videotaped or filmed right at the factory. This material is then retained for replay to new employees.

Often, local plants will have a home office in some distant city. What better way to show a new procedure or piece of equipment actually functioning than to videotape the process and then mail the tape to the home office for all to see.

Civic organizations, churches and clubs may have special banquets or events from time to time that they want taped. This can easily be accomplished by using your production equipment and personnel.

The additional revenue you receive may well be the difference between a profit or loss at the end of the year.

In the past four months I have touched on the basics of local origination . . . hopefully, it has been of help and given you food for thought.

Each cablecaster must find his own place in his community. Local origination or cablecasting is in its infancy. I am sure that five or ten years from now, we will all look back and smile at our first production attempts . . . we may even miss the fun and excitement of these early years. TVC

NCTA Programming Conference

Four panels will highlight the April 21-23 Programming Conference:

Economics of Cablecasting – discussing consortiums to produce programs, attract ad revenue and increase saturation; reviewing economic problems in cablecasting.

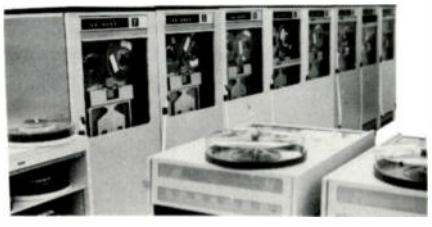
CATV Advertising – considering media-buying organizations, CATV demographics.

Standardization & Distribution Systems – examining ways to unify program format, etc.

Program Sources – analyzing alternative resources for community-oriented programs.

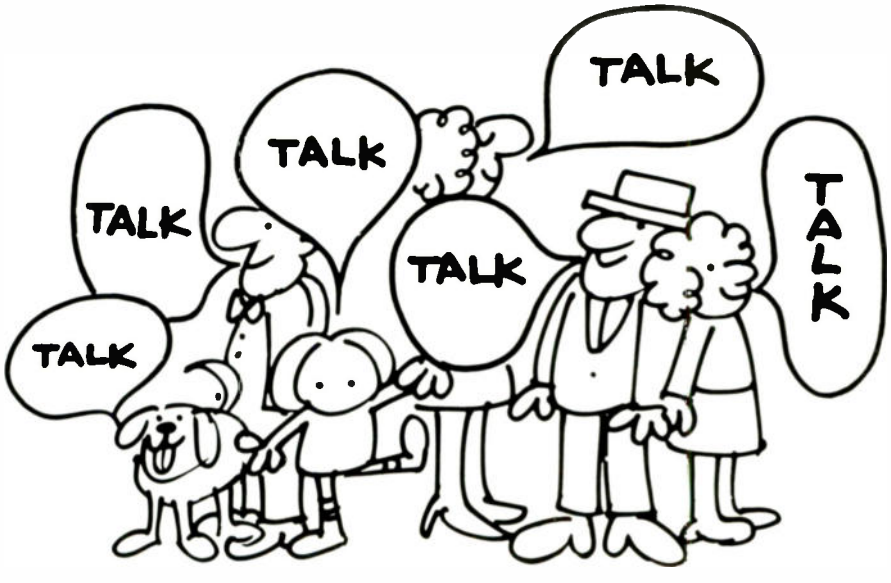
For more information about CATV software exhibit space, reservations, etc., contact NCTA at 918 16th Street N. W., Washington, D. C. 20006, (202) 466-8111.

Everyone in CATV talks about temperature swing, but only a CASE™ computer program does something about it.



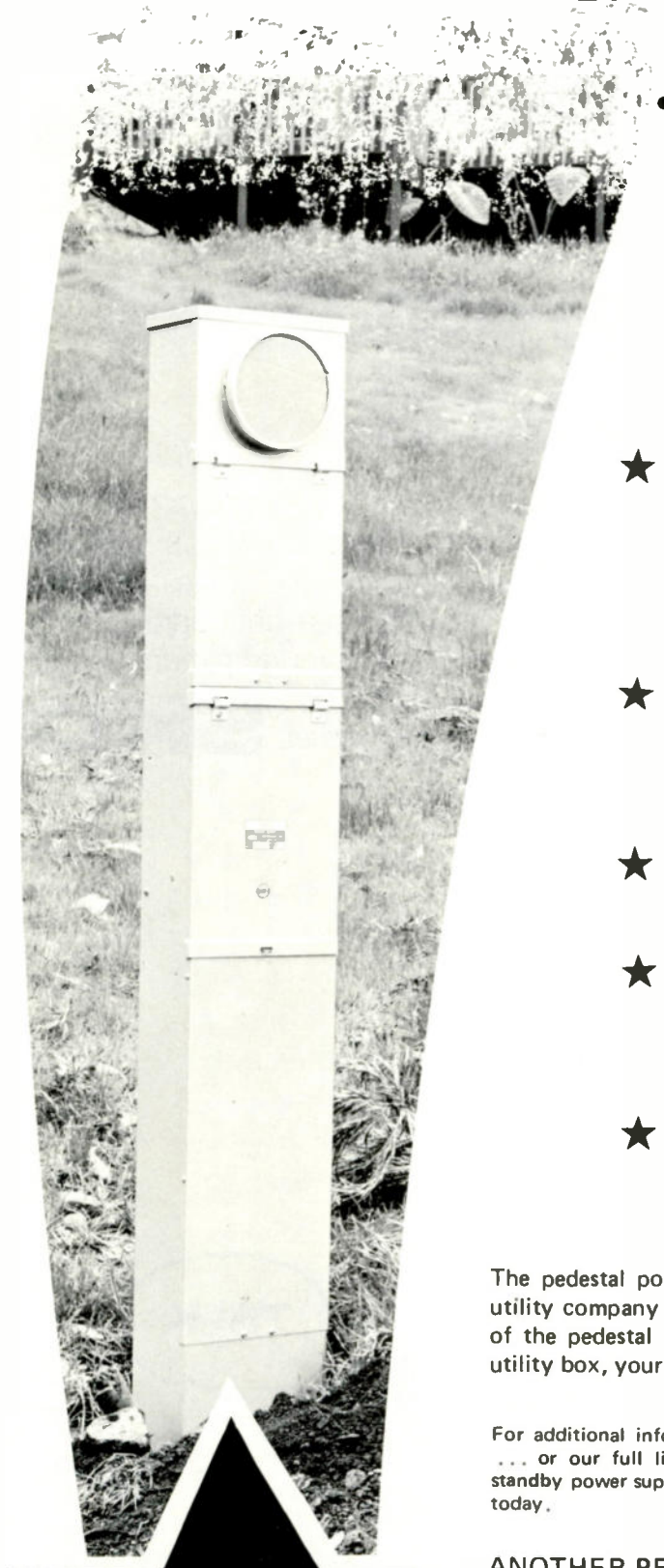
SKL's CASE pinpoints trouble spots in any existing or proposed system design and/or operation. It tells you what's right and what's wrong, indicates necessary amplifier changes, specifies the equipment needed to eliminate seasonal adjustments, reduce maintenance and improve year-round picture quality. Only SKL offers you a capability complete with CASE (Computer-Aided System Evaluation). Write for details and costs. Spencer-Kennedy Laboratories, Inc., 2 Lowell Avenue, Winchester, Massachusetts 01890.

SKL



GLENTRONICS' NEWEST STAR . . .

. . . ON ITS WAY DOWN



READY FOR UNDERGROUND INSTALLATION AND ELECTRICAL HOOKUP!

Check these features

★ **GLENTRONICS' newest pedestal CATV power supply, the finest UNDERGROUND CATV power supply on the market . . . designed to save installation time, reduce costs, and enhance the relationship between you, your subscribers, and the utility company.**

★ **Fully integrated unit—everything in one package: meter, power supply, circuit breaker, test block, power company termination, pedestal.**

★ **Designed for maximum accessibility and easy maintenace.**

★ **Designed to harmonize with natural environmental surroundings and landscape. Attractive appearance will please subscribers, developers, and power companies.**

★ **Approved by certified testing laboratories and most major power companies.**

The pedestal power supply has an overall height of 87", enabling it to meet all utility company requirements for meter height, as well as assuring adequate depth of the pedestal in the ground. By integrating all elements into one weatherproof utility box, your installer can now do the job in less than one-half hour.

For additional information or specifications on the GLENTRONICS Pedestal Power Supply . . . or our full line of **pole-mounted units, ground level underground modules, regulated standby power supplies, plus, dual power supplies for multi-cable systems, wire, write, or phone today.**

ANOTHER PRODUCT ACHIEVEMENT FROM GLENTRONICS

. . . "the power suppliers"

Glentronics, Inc.

CATV DIVISION
P.O. Box 66 • 748 East Alosta Ave.
Glendora, California 91740

213/963-1676

How To Plan For Studio Lighting

This two-part article shows how to determine the power needs, select the right equipment and plan the layout for your origination studio. Part 2.

By James L. Moody
Berkey-Colortran

The first half of this article suggested ways to calculate the power requirements for the CATV studio. A review of the various types of power control equipment was also included.

Space for control equipment, heat by-products from lighting equipment, efficient functioning . . . these are important considerations when planning the properly lighted cablecasting studio. This month we will cover these additional aspects of studio lighting.

Control Equipment Location

Location of the three basic components of a dimmer system is very important. The patch panel should be accessible to the studio to facilitate set-up and pre-production work.

The studio floor is chosen most often for this reason, however patch panels are also placed in the control room or separate lighting control room. This practice is usually reserved for network facilities where the labor situation allows for a man to maintain the control console at all times.

The dimmer rack should be placed in the basement or power vault. If there is none or the distance is impractical, a location outside of the studio should be found where the noise of the dimmers will not interfere with audio pickups.

Adequate ventilation should be provided according to manufacturers' recommendations. Due to the possibility of interference being created due to unbalanced loads in the rack, isolation from audio and video equipment is recommended.

Placement of the dimmer rack in the control room is not recommended. The problems of noise, additional air conditioning loads and possible RFI rule it out as an adequate location.

Placement in the studio is not recommended under any circumstances. Noise, vibration, and space limitations preclude this location. Production space is costly and should be reserved for that application. Even though some manufacturers claim their electronic dimmers operate noiselessly, the statement is not true. Fan and choke noise can be annoying during production.

The control console (Figure 5 is an example) can be located in one of three places. The studio floor offers advantages with a small crew. The drawback can be the space it takes and the additional person it puts in the studio during production.

The control room is the most popular spot. If the facility is a one man operation, it allows one man to be switcher, mixer, director, and lighting director. If responsibilities are broken down, the cues for the lighting do not have to be transmitted over a headset. The operator is at the

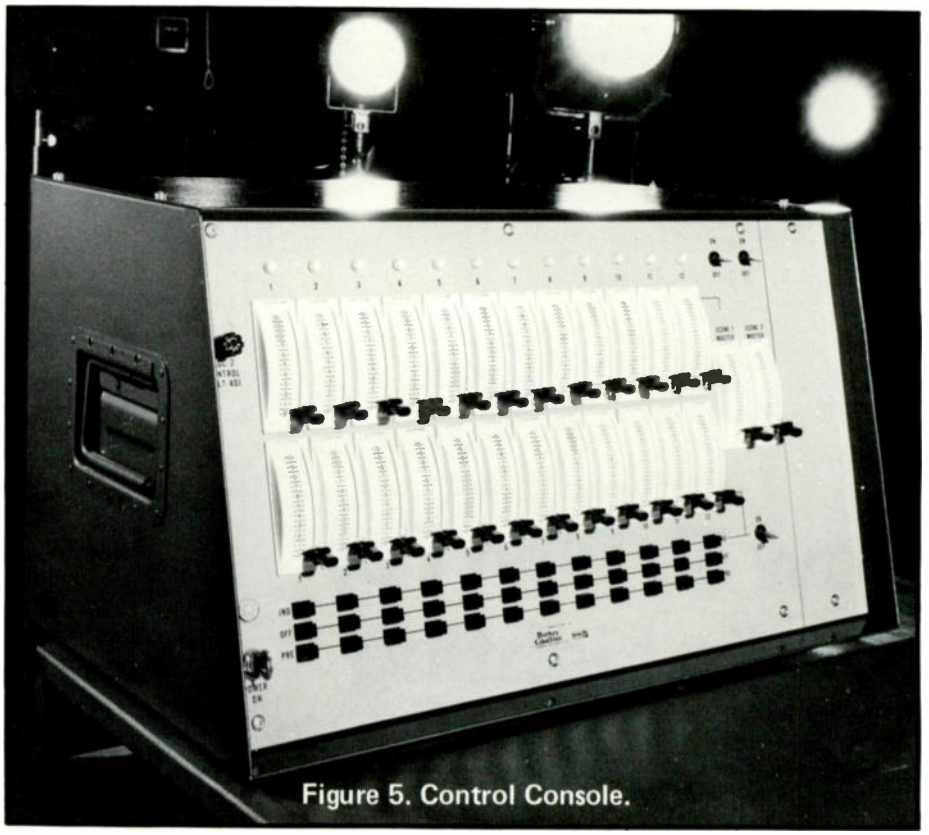


Figure 5. Control Console.

director's side if fast last minute changes are needed.

Room is again a problem. Control rooms tend to be small and compact for the equipment required. Although most control consoles do not take up more than four feet, available space is usually taken up by other electronic gear. The third location for the lighting control is in a room assigned for this purpose. If this approach is used, the patch panel should also be placed in the room.

Just as the sound man has his room, the lighting operator may be isolated. He does not have to see the studio except via monitors and he works from cues given to him by the director. A physical connection in or viewing the studio directly is not necessarily a requirement.

The Distribution Layout

The quantity of outlets and their size may be calculated much like the power requirement. A minimum of one outlet for every 15 square feet of studio floor is recommended. 500 ÷ 15 = 33.3 outlets.

This quantity is for the production area only and does not take into account the cyclorama. If 10-light, 2-circuit cyclorama strips are used, each circuit requires 41.6 amps. Therefore, 50 amp plugs would be required. With 4-light, 2-circuit cyclorama strips, only 20 amp plugs are needed.

The amperage of the outlets for the production area is determined by the wattage of the lighting fixtures to be used. If 50 amp plugs are required, the problem is how many you should have in proportion to the normal 20 amp plugs, and where you locate them.

The quantity can be determined as a percentage of the fixtures requiring the larger plugs to the total number of fixtures. Let us say we have a total of 40 fixtures and 10 are 5,000 watt fixtures. That is 25% of our outlets that should be 50 amp rated plugs.[7] Positioning these plugs is another problem which will be handled next.

The plugging strip is used in theatre and television (Figure 6 is an example). It provides the most effective method of power distribution. The basic form is a 4" x 4" gutter with pigtail receptacles.

Internally all wiring is brought to terminal strips in a terminal

box placed on one end of the strip. The installing contractor brings the required wiring to this point for interconnection to the patch panel or breaker panel. Outlets are usually on 3′ centers spaced along the strip.

The layout of 20 and 50 amp pigtails, when used in combination, requires careful planning. Do not put 50 amp pigtails at the outside walls. One per 10 ft. is usually sufficient, depending on quantity of 5KW fixtures. Each female receptacle represents a circuit in the patch panel. Pigtails are normally 18″. In some cases the length is 36″, but this is generally limited to studios with high grids.

In some cases more than one outlet is placed on a circuit. This practice is not recommended for several reasons. (1) The chance of overloading a circuit is greatly increased. (2) Flexibility is decreased when outlets are ganged. (3) More than one outlet per circuit permits room for errors in production.

The plugging strip should be provided with brackets every 5 ft. (for support) and mounted to the light pipe. This pipe is generally 1½″ I.D. schedule 40 black iron pipe. The distance between the plugging strip and pipe should be 3 to 5 inches. This allows enough room for efficient use of the c-clamp mount for fixtures.

The plugging strip is mounted at a height above the floor which is suitable for the type of production planned for the studio. A height of 12′ is the minimum

Figure 6. Plugging Strip.

acceptable with 14′ being standard in studios of up to 30′ x 40′. The height requirement is needed to permit lighting at angles determined by good photographic technique and wide camera shots.

This is a big problem for many closed circuit and CATV installations because they are located in office buildings and shopping centers where the ceiling cannot be raised. Another word of caution, architects will usually want a dropped acoustical ceiling in the studio. Do not give up valuable height for this purpose. A studio is for work and function, not for looks.

The distance between plugging strips is variable . . . 4 to 5 feet with the latter accounting for most systems. When a cyclorama is used it is recommended that a separate set of plugging strips (which run parallel to the cyclorama) be installed.

If all four walls of the studio are to be draped, and only enough for half of that distance was planned for in cyclorama lighting fixtures, provisions should be made to distribute power around all four walls equally. In this way the cyclorama fixtures can be moved or split up into smaller sections as needed without creating a power problem.

Junctions, Outlets, Grids

Grid iron junction boxes are designed to be the intermediate connection point for the installing contractor. It is best to make the connection to the plugging strip with a multi-conductor flexible cable, rather than wiring in with a hard conduit. The constant moving of lighting fixtures puts a strain on the couplings and causes wear and connection breakage which could result in electrical shock or power failure.

The multi-conductor cable permits movement of the strip. Each cable should be provided with a strain relief device such as a Kellems grip. The wiring between the patch panel and the grid iron junction box is run in gutter or conduit.

Wall outlet boxes (Figure 7 is an example) are useful in the studio for the practical lamp on the set, cyclorama strips, or any other reason for power requirements on he studio floor. By placing the circuit in a non-dim it acts as a remotely controlled on/off switch.

These boxes are provided with two or three pigtails as in the plugging strips. Surface mounting at a height of 3′ is recommended. The compliment of wall boxes is usually one on each wall until the wall exceeds 30′ in length and then boxes are recommended every 20′. The isometric drawing (Figure 8) of the distribution and control equipment should help to clarify the relationship of one component to another.

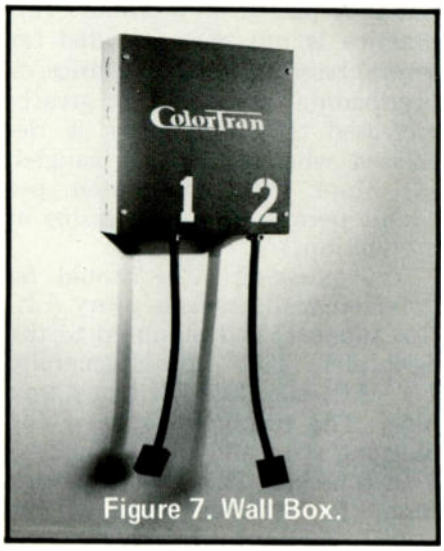


Figure 7. Wall Box.

Other power distribution systems are in use, but the only recent advances have been made in Europe. Although the Europeans have carried the design of suspension systems to a more automated state, the United States does not appear to be ready for the change.

The Monopole and the Weisboden grid systems, along with fully electronic systems in Japan, are costly and are designed to solve labor and time problems. No one has calculated in dollars and cents their true worth, but educated guesses are that for labor saved the systems cost is as great or greater.[8]

The need for overhead access for television lighting is minimal, but grids of wood or metal are still being installed. The old motion picture lighting methods are to blame.

channel one

Educates
Captivates
Entertains
With programming geared to
All Ages All Areas All Interests

Pre-School-A-Vision – Three hundred thirty minute tapes aimed at ages 3-6 years. A "Sesame Street" type format teaching the basics of numbers, alphabet, animals and their habits, music and rhythm. Fun programs which are easily retained. An audio-video education aid to the pre-schools and their mothers. (Can be produced in Spanish for some areas.)

Soap Opera – "Our World" . . . soap opera about Black life as it's lived, with an all-Black cast. Helpful program selling point in bringing cable into Black neighborhoods.

Game Show – The "Crossword Show" consists of an elaborate electronic board game, played with local viewers. Local merchants participate. Lots of prizes. Winners come to Hollywood to compete with stars such as Zsa Zsa Gabor, Jack Palance, Eve Arden and many others. The "star" games can be locally cable cast as well.

TRY CHANNEL ONE 1 FOR EXCITEMENT IN PROGRAMMING

Channel One 1 / 1028 North La Brea / Hollywood, California 90038 / (213) 463-3114

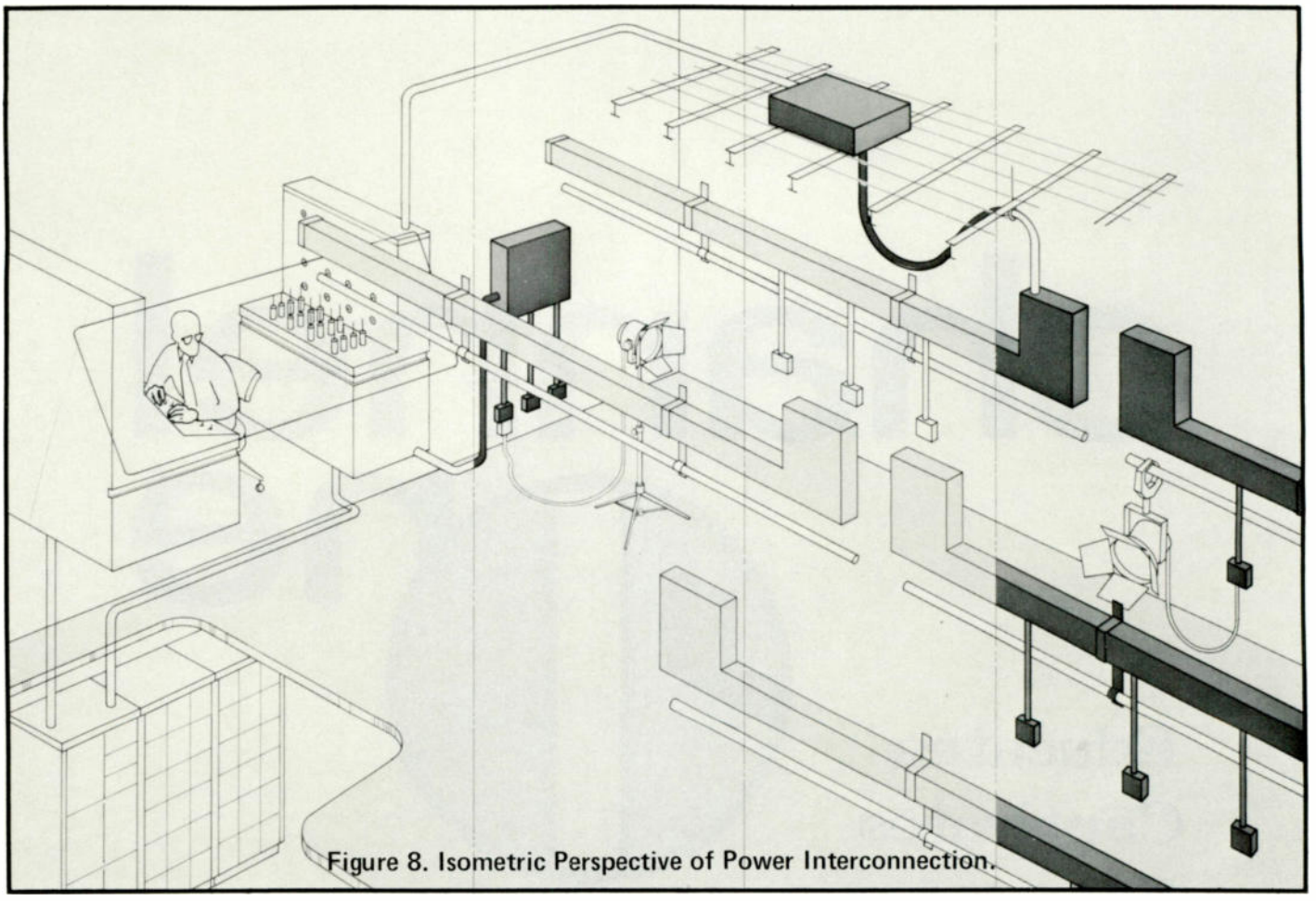


Figure 8. Isometric Perspective of Power Interconnection.

The first section above shows the three basic components of a dimmer system: control console, patch panel (behind the technician) and the dimmer rack (in basement). The second section emphasizes the wall outlet box. The third section emphasizes the grid iron junction box and the last section emphasizes the plugging strips.

An egg crate pattern of wood or pipe is usually placed above the plugging strips. Placing the pipe on five foot centers in both directions makes an acceptable grid from which to hand set pieces, draperies, or lighting fixtures.

Studio Air Conditioning

Air conditioning loads are extremely high in television studios and an air conditioning expert should be consulted to determine the load needed and the type of air conditioning units best suited for your locality.

Do not use systems which cause turbulent air movement in the studio. It may disturb draperies, props, lights, actors' hair, etc. The amount of air conditioning load needed just for lighting can be estimated from a formula detailed in Sylvania Electric's Handbook:[9]

The total KW of lighting times 0.14 equals tons of air conditioning required for lighting *only*. Remember there are people and other equipment in the studio to be cooled too.

The Installation

After the considerations above have been made and a workable system outlined, the electrical contractor should be brought in so that he can estimate the installation costs. Supply complete wiring diagrams to permit accurate estimating.

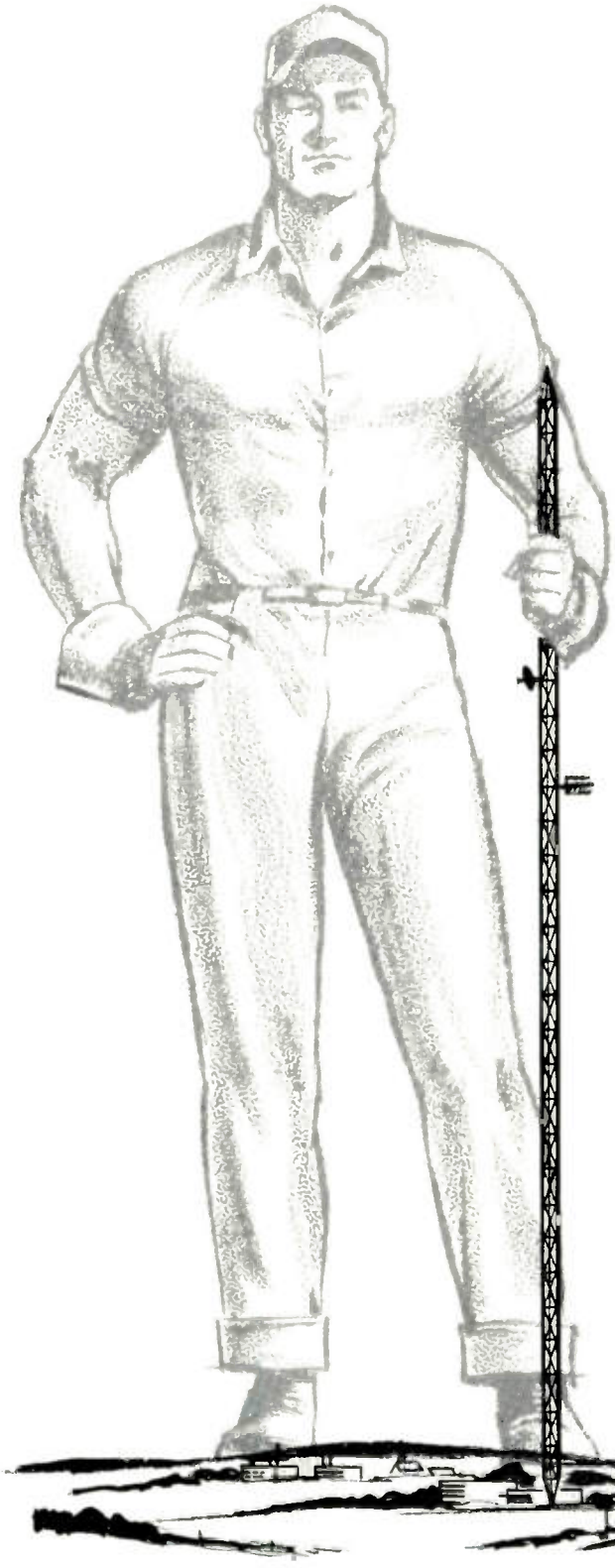
The diagrams should be prepared by the distribution and control equipment manufacturer. This information plus the plans of the building, will be needed by the contractor. The more information he is given, the more accurate his estimate will be.

The total cost of lighting is usually a small percentage of the total studio equipment cost. One camera can cost more than the most elaborate lighting systems . . . but without lighting, the camera is useless.

The camera can only produce a picture equal to the quality of the lighting. Money for an adequate, usable, well-planned lighting system is well spent. TVC

REFERENCES—Part II

7. Charles J. Neenan, "Television Lighting and the Conversion from Monochrome to Color," Illuminating Engineering, 61:521, August 1966.
8. Richard B. Glickman, "A Survey of Foreign Television Studio Lighting Systems," a paper presented at the Illuminating Engineering Society Fifth-Annual Theatre, Television and Film Lighting Symposium, May 25, 1969, at Chicago, Ill.
9. Sylvania Lighting Handbook, Sylvania Electric Co., 3rd ed., P. 63.



You get a

TOWER OF STRENGTH

When you buy

Utility

Better engineering, better construction, better installation — you get all these when you buy Utility.

Utility Towers are easier to tune, easier to maintain.

And these money-saving extras cost you no more from Utility.

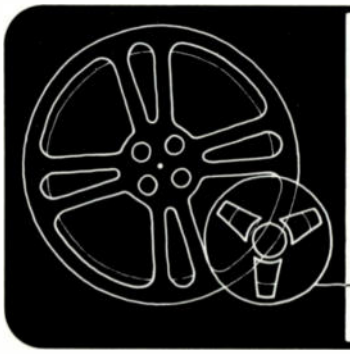
There are Utility Towers in every state in the nation . . . in Canada, South America, Puerto Rico, Europe and Korea.

Choose Utility — known the world over as the "Tops in Towers."

Utility Tower COMPANY

POST OFFICE BOX 12027
O K L A H O M A C I T Y ,

3200 NORTHWEST 38th STREET
O K L A H O M A



CATV Programming

software news and tips

NCTA Program Confab To Examine Economic Viability of Cablecasting

Anyone who is interested in or involved in programming for CATV should give very serious consideration to the upcoming NCTA Programming Conference. See pages 16 and 62 for more details.

Thomas J. Houser, newest FCC Commissioner, will be the luncheon speaker on April 22. An impressive, knowledgeable list of men and women make up four key panels.

The conference aims to help participants make cablecasting an economically viable undertaking. Sessions promise to get down to the nitty-gritty. Informal sharing of cablecasting experiences, problem-solving, etc. is another good reason most systems should be represented at this confab.

Products for Programming

Eastman Kodak has two new filters that are designed to give improved results under daylight conditions. Filters no. 85BN3 and no. 85BN6 are intended for use with Ektachrome 7242, when filming for television.

The K'SON Company, 743 Dunn Way, Placenta, Calif. 92670, has a converter/decoder device which is designed to allow one-way CATV systems to cablecast special programs for limited viewership. The device can convert up to 3 sub-band channels for a pay-TV-type of programming. A special head-end "interrogator" generates coded tones to jam signal reception of specified channels to all subscribers except those with the converter/decoder device.

CATV Production Centers

Television Production Center, 445 Melwood Street, Pittsburgh, Pa. 15213, is now open for business with a wide range of production services. They will lease studio space, teleproduction and duplication equipment and a remote video van. Tom Seger is the president of TPC.

TeleMation Productions, Inc., 3200 W. West Lake, Glenview, Ill. 60025, offers video recording services, on-location or in-studio . . . using either monochrome or color facilities. Robert E. Dressler heads TPI. Video Tran, Inc. is a related firm, located at the same address. VTI specializes in the transfer of video tape to 16mm film.

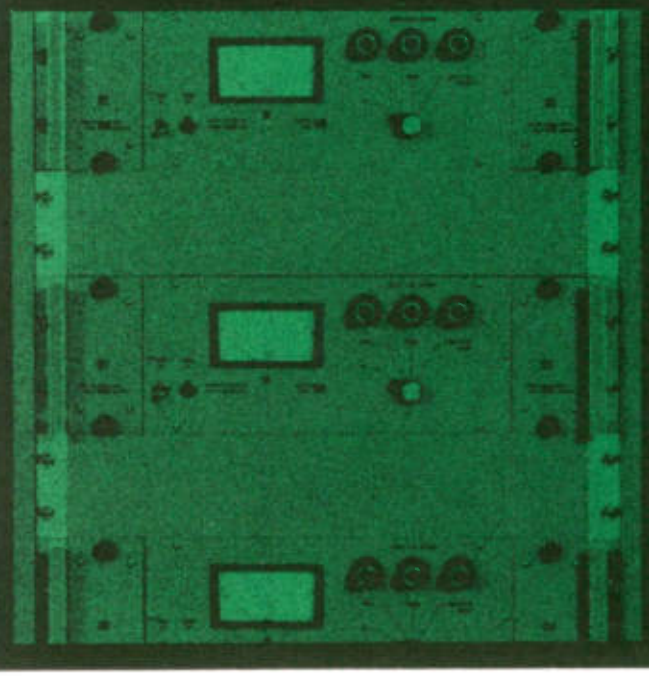
NCTI Offers Program Course

The National Cable Television Institute, 3022 Northwest Expressway, Oklahoma City, Oklahoma 73112, has announced a new "Program Origination Basics" course. It consists of four correspondence lessons dealing with cameras, video switching and production.

The complete course, including instruction, grading and diploma costs, is $95. NCTI offers a discount for groups.

Scientific-Atlanta

offers a complete range of CATV antennas and headend equipment, backed by full line turn-key headend engineering and installation capability. Whether you are planning a new system, rebuilding an older one, or simply adding new channels, Scientific-Atlanta has the experience, the equipment and the people you can rely on. If you would like more information concerning our products and the capabilities that back them, please return the attached card.



Dear Sir:
Please send me your product line catalog.
I have specific interest in the following;

- ☐ Turn-key Headends
- ☐ Signal Processors
- ☐ Demodulators
- ☐ Busi-Link Microwave Systems
- ☐ TV Modulators
- ☐ Master Antennas
- ☐ Other _____

I would also be interested in a computer signal survey for:

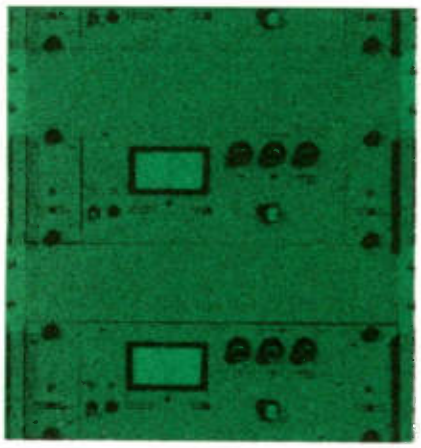
_____
coordinates or city tower height

Name _____ Tel _____

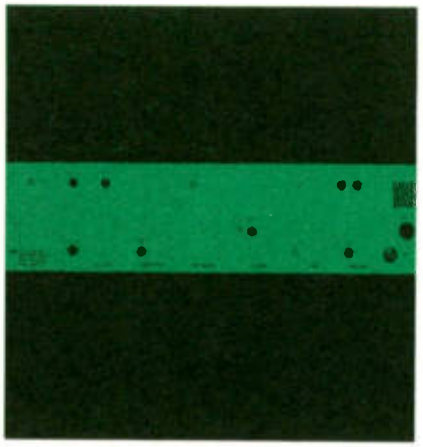
Company _____

Address _____

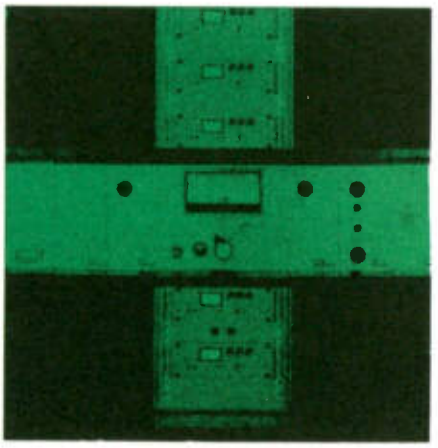
City _____ State _____ Zip _____



Signal Processors Model 6100

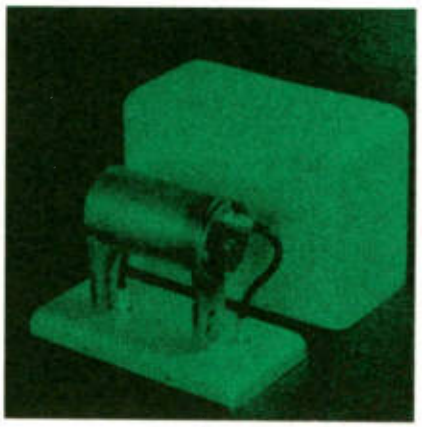


Demodulators Model 6200

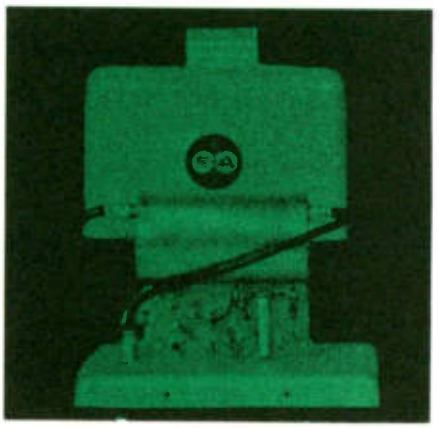


TV Modulators Model 6300

BUSI-LINK Microwave System Model 6750



Band-Pass Filters Model 62



Preamplifier Model 6000

Single and Quad-Array Antennas

By returning the convenient reply card to Scientific Atlanta, we will be glad to send you more detailed information on the pictured products.

UHF Antenna

FIRST CLASS
Permit No. 2295
Atlanta, Ga. 30324

BUSINESS REPLY CARD
No postage stamp necessary if mailed in the United States

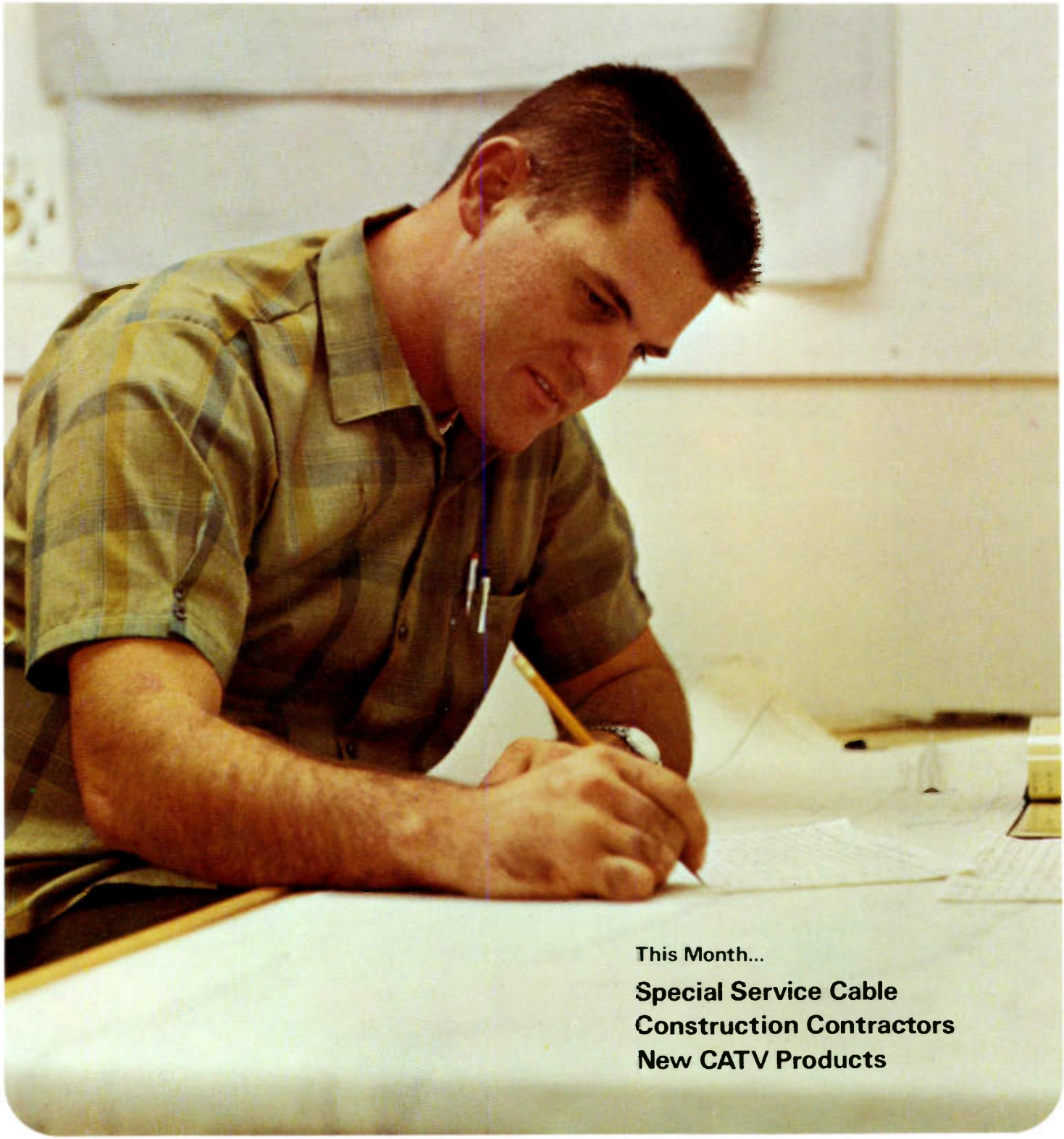
POSTAGE WILL BE PAID BY

Scientific-Atlanta, Inc.
P.O. Box 13654
Atlanta, Georgia 30324.

April 1971

TV Communications

CATV Technician



This Month...

Special Service Cable
Construction Contractors
New CATV Products

Tom Britton, Chief Engineer for Community Cablevision, goes over expansion plans for the system that serves the well-known, 130 sq. mile Irvine Ranch and "master-planned" City of Irvine (430,000 projected population for year 2,000). This totally underground system "from studio to subscriber" is the subject of a special report in May TVC.

PERFECT MATCH!

TOWERS AND REFLECTORS

EXPERIENCED CREWS

FAST DELIVERY!

"MOBILT" EQUIPMENT BUILDINGS

A FULL LINE OF ACCESSORY EQUIPMENT

Looking for BIG SYSTEM capability in your tower supplier? Fort Worth Tower Company has it. For two decades we've been building high quality communications towers, large and small. Towers for public utilities, railroads, public safety agencies, microwave firms, and the many other communications industries where big system reliability is essential. Towers individually engineered to fit each system's unique requirements.

Fort Worth Tower Co. also offers a complete array of support equipment for your system including microwave reflectors, equipment lifts, and many other related items. You get top performance with a perfect match of equipment and accessories.

For maximum reliability, include a **FORT WORTH MOBILT EQUIPMENT BUILDING** in your specifications. Designed expressly to house communications electronic equipment, Fort Worth Mobilts withstand any climate or location problem. . .house electronic equipment according to the most rigid standards. Your building comes with supporting I-beams. Simply drop on your site, connect the service inlet, and you're in business. Mobilts save you time and money because complete wiring is installed at the factory. Many options are available in size, outside finish, wiring and ventilation. You'll find a Mobilt exactly suited to your needs.

We'd like to put our products and experience to work in your system. For full information and a precise quote on your project, please contact us. We'd like the opportunity to serve you.

Fort Worth Tower Co., Inc.

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

One Large...And One Small
A New Approach to Dual Cable

These authors suggest a separate "data cable" and telemetry system as an inexpensive, reliable transmission path for those special services.

We are all well aware of the future opportunities of the cable TV industry and the fact that it stands at the threshold of a new era in communications. Dynamic growth feeds on new innovations and technology, and one major prerequisite for full realization of the potential of coaxial cable systems is the ability of bi-directional transmission, which is needed for both TV and narrow band peripheral services.

If we are to transform the "wired city" concept from a buzz word into a reality, we must first determine how we can best utilize this communication pipeline for two-way transmission. Before discussing the main theme of this article, let's take a look at the alternative methods presently available to achieve two-way capability. These are: (1) use of bi-directional devices in the CATV cable; (2) use of separate wire pairs; (3) use of separate coaxial

Our evaluation of these methods, for the purpose of this discussion, is based on the trans-

ABOUT THE AUTHORS

E. A. Rollor, Jr.

A. F. Bruns

Dr. Edward A. Rollor Jr. is a native of Dallas, Texas where he received BS degrees in Civil, Mechanical and Electrical Engineering from Southern Methodist University. He received his PhD from the University of Texas in 1952. He has 20 years experience in research and instrumentation. Joining Advanced Research Corporation in 1964, he became President one year later. Mr. August F. Bruns attended Upsala College, Drew University and Harvard Graduate School (Navy Supply School). He has 20 years experience in the Aerospace, commercial and industrial markets. Bruns is Vice President of Marketing for Advanced Research Corporation. He is a Lt. Commander in the Naval Reserves.

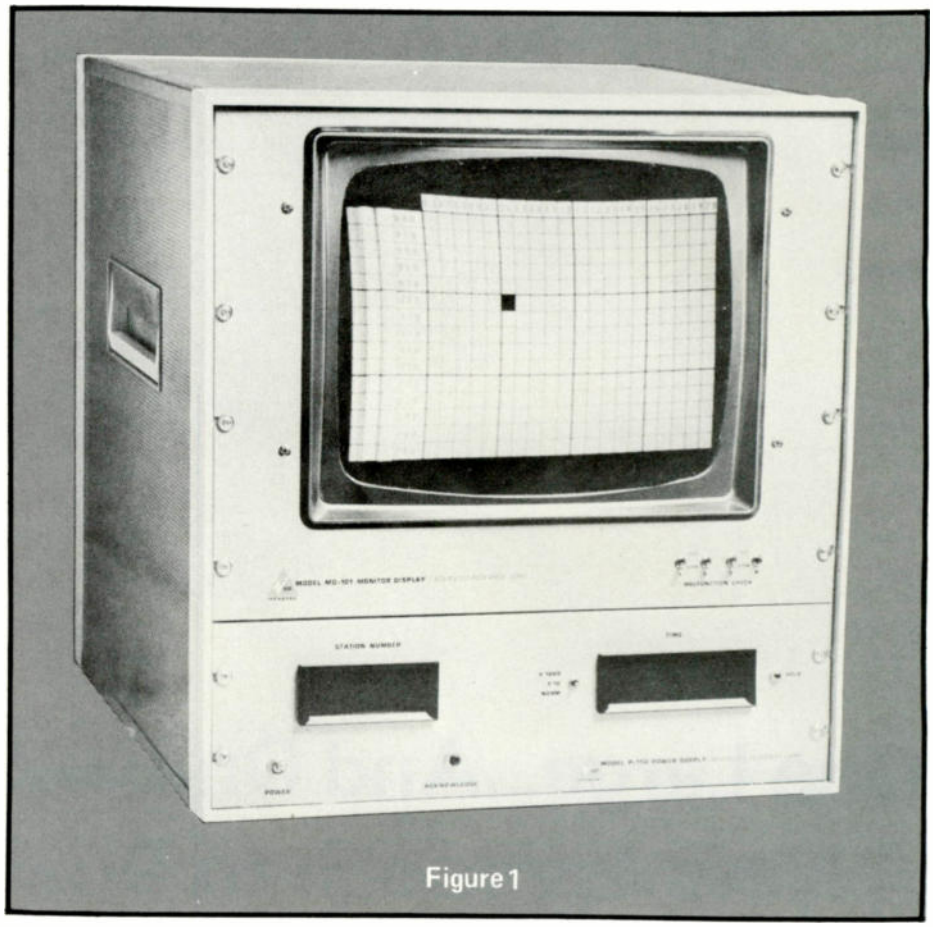


Figure 1

mission of data as opposed to TV signals. We have given careful consideration to both the technical and economic parameters in our analysis of these alternatives.

Another prime consideration is the short term need for implementation with present state-of-the-art. The bi-directional single cable may eventually be the most desired alternative, but it presently faces a multitude of technical problems before a total system can be perfected.

Standards under consideration by the FCC will put greater emphasis on quality of forward direction transmission. This, along with the trend toward high channel capacity, imposes severe restraints on the design of bypass filters for reverse transmission. The cost of bi-directional devices to make one cable do everything becomes a consideration which then raises the question of multiple paths.

Unshielded wire pairs are the least attractive choice because of the combined frequency and attenuation characteristics and susceptibility to noise pick up.

The third alternative provides, in our opinion, the best means for present implementation of data services. We believe this method will prove to be more reliable and less expensive in the long term over the bi-directional single cable approach. A second cable stranded along with the main cable will provide a wide band transmission path for all types of data telemetry without compromising the delivery of TV signals.

A relatively small cable such as 0.412 or 0.340 can provide data services for a sizable community *without the use of repeater amplifiers* by use of frequencies up to, say 10 MHz. This would provide about 1,000 channels of 10 KHz each, for narrow band data transmission. Each channel can serve a number of locations, depending on the bit rate required per location.

This low cost second cable also provides, with its passive network, a high degree of reliability . . . an essential factor when security alarm signals are involved. With such a large capacity available, the cable operator can provide the

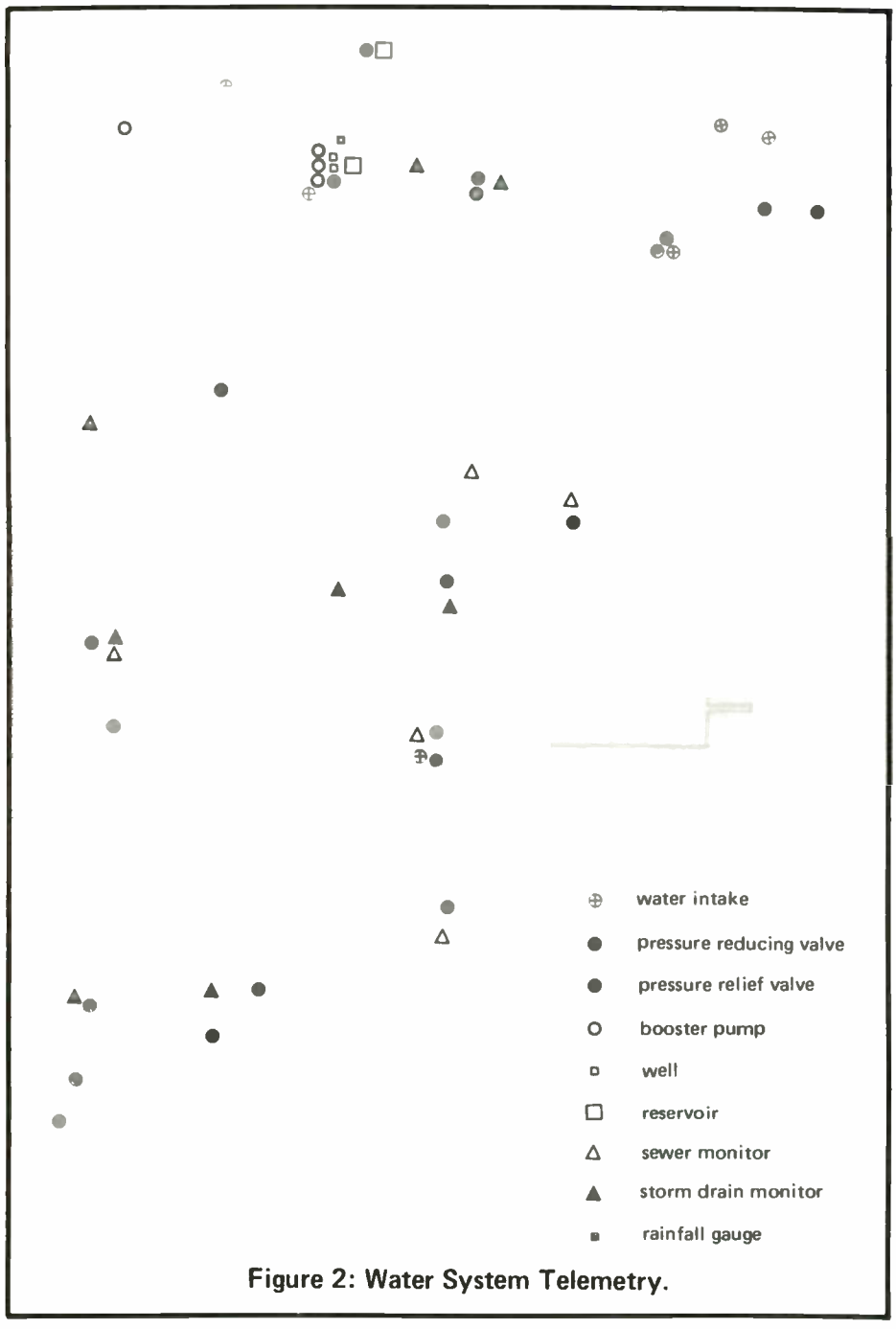


Figure 2: Water System Telemetry.

transmission medium for a host of commercial as well as municipal services applications.

The commercial services would typically include: home and business protective systems (fire, burglary, "panic button"), meter reading and other data services. Even if the operator were to service practically every home in the city, he would still have enough frequency spectrum remaining to provide the city with an adequate number of channels for their purposes. The franchise-seeking operator would considerably enhance his position if his proposal contained a provision for this communication pipeline.

Our concept for two-way communications employs telemetry equipment consisting of three basic elements: a central station console; a dedicated passive coaxial cable network and a number of remote transponders. A frequency/time division multiplexing technique is utilized to interrogate transponders throughout the telemetry system.

Each transponder monitors the status of several transducers (sensors, limit switches, etc.) connected to it. Reply signals from

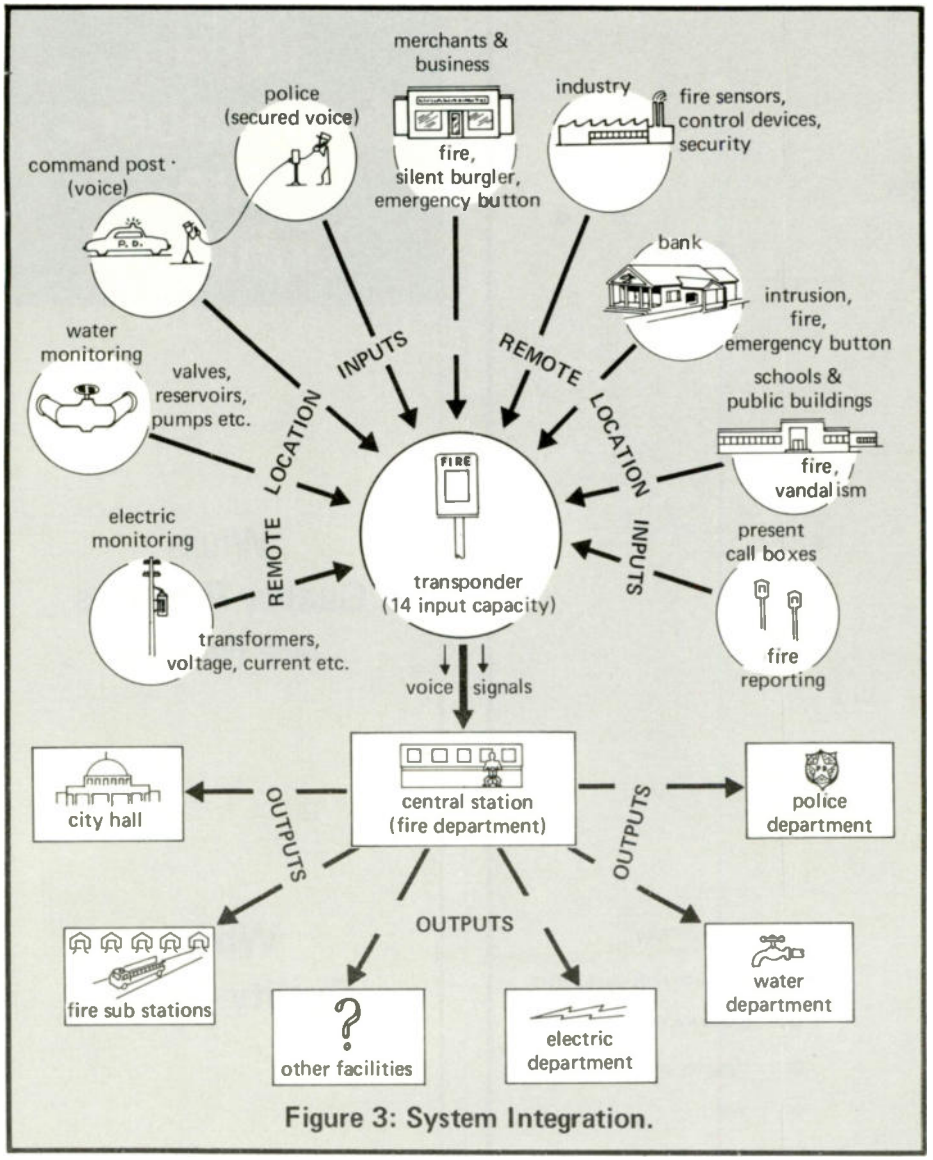


Figure 3: System Integration.

the transponders are received at the central station and fed to readout equipment, which indicates status of the monitored points.

A cathode ray tube (Figure 1) presents a panoramic view of the status of the entire alarm system. Measurement and control of remote locations can also be achieved by special coding techniques.

Visualize, if you will, a city wired with a telemetry cable that has access to practically every location whether it be a home, merchant or industrial plant. By "plugging in" terminal devices and transponders, we can effect two-way communications between any remote location and the central station. The central station can in turn relay or switch these signals to other facilities.

The applications of this transmission system, from the viewpoint of a municipal government, may be classified generally as (1) emergency alarm signaling, (2) voice communications, (3) data communications and (4) slow scan TV.

Monitoring equipment for emergencies includes the city's fire call box system, and sensors located in schools and public buildings to detect fire and intrusion. Vandalism in schools, a major problem cities face today, can be reduced by shortened response time on the part of police.

Voice communications included in the fire call box system can be used by the public to report fires and also for police reporting. In the latter case, a policeman calling into the central station can be switched onto a transcriber for dictation of his report.

A receptacle in the call box can be used to connect an extension cord whereby a command post can be locally established for communication with the central station headquarters. Interfacing the voice call box system with the city's PABX allows even further flexibility.

Each call box can also accept inputs from sensors located in its proximity. These sensors can report on any function for which a yes/no reply conveys meaningful data. The use of analog to digital conversion and multiple addresses will permit any type of measurement to be transmitted in binary digital form.

Figure 2 is an example of a water system telemetry network that can make the job of monitoring and controlling a city's complex water distribution system a relatively simple task. In addition to monitoring of valves, pumps and the like at hundreds of locations, measurement and control functions can also be provided.

Quantitative information from transducers in the field is received at the control center where evaluation is made by an operator or computer, and outgoing signals are generated to instruct control equipment to adjust conditions accordingly.

Progressive cities are installing traffic monitoring and control equipment. The advantage to the citizens in saving of time and gasoline alone can be significant. The telemetry cable is an excellent transmission medium for traffic monitoring and control data.

A transponder in the field can accept input from traffic count equipment and computer control signals can be transmitted over the cable to traffic light controllers. Accumulated data from traffic counters would be extremely useful to the city traffic engineer for planning purposes.

Slow scan TV has excellent potential in such applications as unauthorized entry detection, monitoring of trouble spots and traffic surveillance. Slow scan as opposed to live TV will conserve the use of available bandwidth on

the telemetry cable where repeater amplifiers are not used.

Transmitting a video signal at a slower frame rate allows many camera locations without the use of substantial bandwidth. For example, one complete frame every 15 seconds requires only 10 KHz bandwidth, while one frame every second would require a 150 KHz band. Remote control of pan, tilt and focal variation can be achieved by sending coded signals from the central station.

Time does not permit further discussion of some other very real possibilities such as police car locator systems, automatic reading and billing of utility meters and data transmission between terminals . . . all of which can be incorporated in the basic telemetry system. An extremely effective municipal communications system can be provided by integration of all readout and control equipment into a communications control center, which serves all municipal departments.

A slightly less sophisticated, yet very versatile system could be provided by using the fire call boxes for several applications as shown in Figure 3.

The expanding need in the world of communications paves the way for cable transmission systems to emerge with a dominant role in telecommunications. Over-the-air broadcasting does not permit extensive multiple use of spectrum . . . and mobile applications are becoming more and more demanding on use of the frequency space.

The telephone system was designed for point to point voice communications, and faces many technical problems in adapting to the demand for reliable data communications between a central station and remote locations. It appears the future trend in data communications will be toward coaxial cable for intra city transmission and microwave equipment for inter city transmission.

With communications playing a vital role in today's municipal operations, the time and technology are here for cable operators to take the lead in making the "wired city" concept more than an aphorism. TVC

things are happening!

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

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

EiE equipment is designed and manufactured to peak Aerospace Standards and backed by a respected service guarantee. If the equipment does not meet proof of performance EiE will replace it, unconditionally.

Let one of our Systems Engineers show you what's happening at EiE.

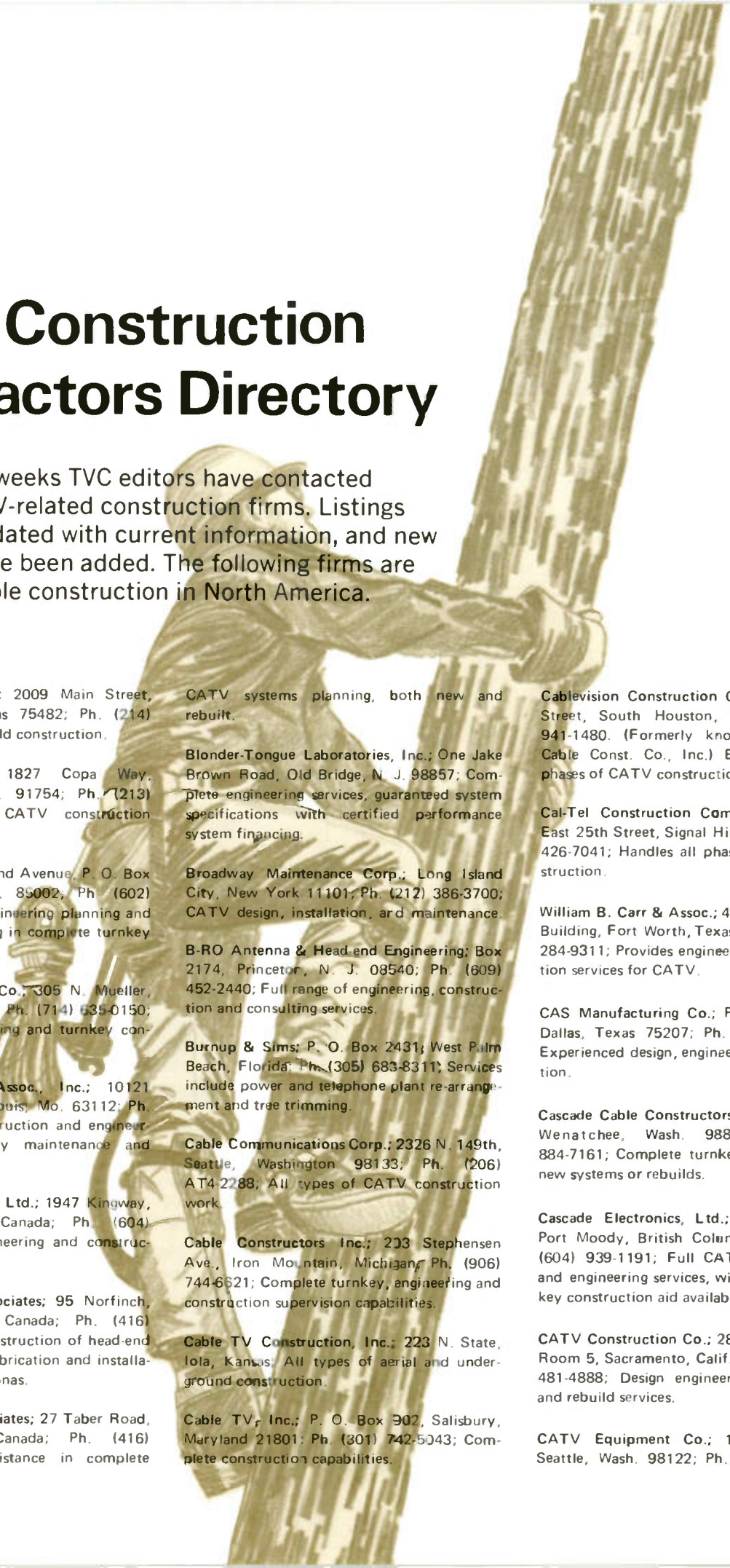
Electronic Industrial Engineering, Inc.
7355 Fulton Avenue
North Hollywood, California 91605
Telephone (213) 764-2411

EiE

Electronic Industrial Engineering, Inc.

CATV Construction Contractors Directory

During recent weeks TVC editors have contacted dozens of CATV-related construction firms. Listings have been up-dated with current information, and new companies have been added. The following firms are engaged in cable construction in North America.



A & M Construction; 2009 Main Street, Sulphur Springs, Texas 75482; Ph. (214) 885-4619; New or rebuild construction.

Alaun Engineering; 1827 Copa Way, Monterey Park, Calif. 91754; Ph. (213) 289-2172; Complete CATV construction services nationwide.

Ameco, Inc.; 2960 Grand Avenue, P. O. Box 13741, Phoenix, Ariz. 85002; Ph. (602) 252-7731; Provides engineering planning and installation. Specializing in complete turnkey services.

Anaconda Electronics Co.; 305 N. Mueller, Anaheim, Calif. 92803; Ph. (714) 635-0150; Complete system planning and turnkey construction service.

J. C. Barnard & Assoc., Inc.; 10121 Manchester Rd., St. Louis, Mo. 63112; Ph. (314) 966-2116; Construction and engineering services, two way maintenance and restoration.

B. C. Cable Contractors Ltd.; 1947 Kingway, Vancouver, B. C., Canada; Ph. (604) 879-2631; CATV engineering and construction.

Beaver Television Associates; 95 Norfinch, Downsview, Ontario, Canada; Ph. (416) 635-0320; Turnkey construction of head-end signal survey, design, fabrication and installation of towers and antennas.

Benco Television Associates; 27 Taber Road, Rexdale, Ontario, Canada; Ph. (416) 244-4296; Expert assistance in complete CATV systems planning, both new and rebuilt.

Blonder-Tongue Laboratories, Inc.; One Jake Brown Road, Old Bridge, N. J. 98857; Complete engineering services, guaranteed system specifications with certified performance system financing.

Broadway Maintenance Corp.; Long Island City, New York 11101; Ph. (212) 386-3700; CATV design, installation, and maintenance.

B-RO Antenna & Head-end Engineering; Box 2174, Princeton, N. J. 08540; Ph. (609) 452-2440; Full range of engineering, construction and consulting services.

Burnup & Sims; P. O. Box 2431, West Palm Beach, Florida; Ph. (305) 683-8311; Services include power and telephone plant re-arrangement and tree trimming.

Cable Communications Corp.; 2326 N. 149th, Seattle, Washington 98133; Ph. (206) AT4-2288; All types of CATV construction work.

Cable Constructors Inc.; 203 Stephensen Ave., Iron Mountain, Michigan; Ph. (906) 744-6621; Complete turnkey, engineering and construction supervision capabilities.

Cable TV Construction, Inc.; 223 N. State, Iola, Kansas; All types of aerial and underground construction.

Cable TV, Inc.; P. O. Box 902, Salisbury, Maryland 21801; Ph. (301) 742-5043; Complete construction capabilities.

Cablevision Construction Co.; 528 Michigan Street, South Houston, Texas; Ph. (713) 941-1480. (Formerly known as Oklahoma Cable Const. Co., Inc.) Experienced in all phases of CATV construction.

Cal-Tel Construction Company, Inc.; 1698 East 25th Street, Signal Hill, Calif.; Ph. (213) 426-7041; Handles all phases of CATV construction.

William B. Carr & Assoc.; 4028 Daley, Walker Building, Fort Worth, Texas 76118; Ph. (817) 284-9311; Provides engineering and construction services for CATV.

CAS Manufacturing Co.; P. O. Box 47066, Dallas, Texas 75207; Ph. (214) BL3-3661; Experienced design, engineering and construction.

Cascade Cable Constructors; P. O. Box 604, Wenatchee, Wash. 98801; Ph. (509) 884-7161; Complete turnkey capabilities for new systems or rebuilds.

Cascade Electronics, Ltd.; Electronic Ave., Port Moody, British Columbia, Canada; Ph. (604) 939-1191; Full CATV system design and engineering services, with complete turnkey construction aid available.

CATV Construction Co.; 2820 Auburn Blvd., Room 5, Sacramento, Calif. 95821; Ph. (916) 481-4888; Design engineering, construction and rebuild services.

CATV Equipment Co.; 1422 34th Ave., Seattle, Wash. 98122; Ph. (206) 325-6938;

Jackson Communications is one of the numerous CATV construction firms with a healthy investment in aerial construction and maintenance equipment. The 15 new truck-mounted Telsta electric lifts shown here bring the company's investment in aerial lift equipment to more than $½ million.

Specialists in all-band systems, providing complete construction services, layout equipment and installation.

C-COR Electronics, Inc.; 60 Decibel Road, State College, Pa.; Ph. (814) 238-2461; CATV engineering and construction services.

Comac Signal Corporation; 401 South Hartz, No. 104, Danville, Calif. 94526; Ph. (415) 837-1344; Engineering and construction of cable TV systems, housedrop installation, financing of cable TV systems & consulting for system costs and returns.

Commco Construction Div.; 802 Brown Building, Austin, Texas; Ph. (512) GR6-3531; Complete construction capabilities.

Comm/Scope; (a division of Superior Cable Corp.) Hickory, North Carolina 28601; Turnkey construction including planning and engineering.

Communication Construction Corporation; 1304 Kennelworth Ave., Toronto, Ohio 43964; Ph. (614) 537-2926; Complete CATV construction including strand mapping, tower installation, customer installation, and system rebuilds.

Communication Systems Construction, Inc.; 502 Larkfield Road, East Northport, New York 11731; Ph. (516) 266-2400; Complete system design and construction capabilities for CATV systems.

Com-Tel Construction, Inc.; 1721 West Monroe Street, Decatur, Indiana 46733; Ph. (219) 724-2581 or 2690; Aerial and underground system construction, including cable plowing and system engineering services.

Craftsman Electronic Products, Inc.; 133 W. Seneca St., Manlius, N. Y. 13104; Ph. (315) 682-9105; Complete engineering for any type of CATV installation.

DAVCO Electronics Corp.; P. O. Box 861, Batesville, Arkansas 72501; Ph. (501) 743-3816; Complete services include layout, equipment and installation.

Electronic Industrial Engineering, Inc.; 7355 Fulton Ave., North Hollywood, Calif. 91605; Ph. (213) 764-2411; Complete engineering and design for CATV systems.

Entron, Inc.; 2141 Industrial Parkway, Silver Spring, Md.; Ph. (301) 622-2000; Utility pole make-ready studies, system layout. Specializes

in turnkey construction.

William Enos & Son; 8481 Lomond Dr., Huntington Beach, Calif. 92647; Ph. (714) 536-4826; System design, construction and installation, underground or aerial.

Paul Godley Co.; Box 798, Upper Montclair, N. J. 07043; Ph. (201) 746-3000; FCC engineering and coordination, signal availability studies and surveys, head-end siting, construction supervision, and proof of performance checks.

Grasis Fabricating Co.; 5601 Gardner Ave., Kansas City, Mo. 64120; Ph. (816) 483-1100; Engineering and construction of CATV towers to specifications.

Great West Construction Co., Inc.; Box 468, 916 East Milam St., Mexia, Texas 76667; Ph. (817) 562-5662; Complete services include field engineering, signal surveys, layout engineering, installation of all electronic components, and testing both aerial and underground systems.

GTE Sylvania Inc., CATV Operations; 50 Johnston St., Seneca Falls, New York 13148; Ph. (315) 568-5881; Complete turnkey, engineering and construction supervision capabilities.

Wilt Gunzendorfer and Associates; 806 S. Robertson Blvd., Los Angeles, Calif. 90035; Ph. (213) 062-8800; Complete consultation on all CATV matters.

Harris-McBurney Co.; 1006 Airport Road, Box 267, Jackson, Mich.; Ph. (517) 787-1800; Complete construction services for CATV.

Henkels & McCoy, Inc.; 1800 Johnson Street, Elkhart, Indiana; Ph. (219) 264-1121; Engineering and construction.

Jackson Communication Corp.; 11 Market Street, Brookville, Ohio 45309; Complete engineering and construction.

Jansky & Bailey; 1812 K Street, N. W., Washington, D. C. 20006; Ph. (202) 296-6400; Engineering services, feasibility studies, site surveys, aerial or underground systems design and construction.

Jerrold Electronics Corp.; 401 Walnut St., Philadelphia, Pa.; Ph. (215) 672-0800; Turnkey construction, engineering and surveys.

Kaiser CATV Corp.; 2216 West Peoria Ave.,

Underground construction is becoming increasingly popular. The Community Cablevision system at Irvine, California is totally underground. System manager Gene Moon is shown here checking moisture-proofing of an amplifier in a vault. Approximately 50% of all California immigrants move into Orange County . . . and a high percentage of these people will eventually settle in the 83,000-acre "master-planned" City of Irvine. See a special report on this system in May TVC.

Box 9728, Phoenix, Ariz. 85020; Ph. (602) 944-4411; Construction of partial or complete systems, including complete turnkey.

Kenmore Construction Co.; 700 Home Ave., Akron, Ohio 44310; Ph. (216) 762-9373; Underground work only.

K. M. T. Construction Corp.; P. O. Box 128, Nokomis, Florida 33555; Ph. (814) 488-7741; Complete construction services.

Lembco; Barron, Wisconsin 54812; Ph. (715) 458-2535; Complete CATV construction, aerial and underground.

Lenkurt Electric Co., Inc.; 1105 County Road, San Carlos, Calif. 94070; Ph. (415) 591-8461; Complete "engineer, furnish, and install services." Also provides microwave equipment.

Artie M. Loftis Construction, Inc.; Box 992, Athens, Texas 75751; Ph. (214) 675-4616; Complete CATV construction service.

Malarkey, Taylor & Assoc.; 1101 17th Street N. W., Rm. 1303, Washington, D. C.; Professional engineering services including signal surveys, head-end, system and component design, preparation of pole line and strand maps, proof of performance tests, trouble-shooting, engineering statements, and qualified testimony in FCC proceedings or courts as an expert witness.

Master System Services; 709 Randolph Avenue, Costa Mesa, Calif. 92626; Ph. (714) 545-8393. Audits, conduit mapping, strand mapping, home installations, aerial and underground, and electronics.

Microwave Associates, Inc.; Communication Equipment Div., South Avenue, Burlington, Mass. 01803; Ph. (617) 272-3000; Complete engineer, furnish and install microwave CATV distant signal relay, head-end and studio microwave.

Norman Mills Associates; P. O. Box 20183, Billings, Montana 59102; Ph. (406) 245-5471; Consulting engineering, feasibility studies, layout and design aerial and buried, supervision of construction, microwave.

Multi Media Engineering, Inc.; 2383 Lewis Ave., Rockville, Md. 20851; Ph. (301) 770-3500; Cable television construction and engineering services.

E. Harold Munn, Jr., Consulting Engineers; Box 220, 57 Edison Court, Coldwater, Mich. 49036; Ph. (517) 278-6733; Provides engineering and consulting services and construction supervision.

Noram Cable Construction Ltd.; 1111 Albion Road, Rexdale, Ontario; Ph. (416) 741-0566; Complete CATV construction services.

Robert G. Owens, Inc.; 1609 Old Louisburg Road, P. O. Box 11516, Raleigh, N. C. 27604; Ph. (919) 828-0652; Total turnkey capability.

Pacific Pipeline Construction Co.; 1632 S. Greenwood, Montebello, Calif.; Complete CATV construction services.

Path Products, Inc.; 300 E. Tena, P. O. Box 399, Jacksonville, Texas 75766; Ph. (214) 586-9812; Tower design, fabrication, site installation, maintenance & inspection service.

Power Line Construction Co.; 2019 S. E. Hemlock, Portland, Oregon 97214; Full CATV construction service.

Richards & Associates, Inc.; P. O. Drawer 400, 809 Cedar St., Carrollton, Ga. 30117; Ph. (404) 832-7001; Fully capable and experienced in CATV construction. 25 years experience in installation of communications facilities.

R F Systems, Inc.; 155 King Street, Cohasset, Mass. 02025; Ph. (617) 383-1200; Designs, assembles, installs, manufactures, and maintains antennas and head-ends. Provides field service for measuring signal level at received sites and for evaluation of existing antennas and facilities. Provides consultation on antenna, propagation, and site problems.

RGH Electronics Laboratory, Inc.; 94 Milbar Blvd., Farmingdale, L. I., New York 11735; Ph. (516) 694-3100; Manufactures and installs

microwave relay systems.

Scientific-Atlanta, Inc.; Box 13654, Atlanta, Ga. 30324; Ph. (404) 938-2930; Complete turnkey construction capability for CATV head-ends.

Scott-Buttner Corporation; 2151 Arnold Industrial Highway, P. O. Box 5396, Concord, Calif. 94524; Ph. (415) 689-3700; CATV construction and microwave operations.

Spencer-Kennedy Labs; 1320 Soldiers Field Road, Boston, Mass. 02135; Ph. (617) 254-5400; Staff of TV systems engineers maintained to perform signal and pole line surveys, strand-mapping, system layout and design plus installation supervision for antenna site and distribution plant construction.

Stan Socia Corp.; 734 Petroleum Building, Tyler, Texas; Ph. (214) 593-0911; Complete CATV system construction and engineering.

Telecommunications Equipment & Services, Inc.; 3769 Farm Hill Blvd., Redwood City, Calif. 94061; Ph. (415) 365-2141 or (415) 365-1359; Complete construction services.

TeleSystem Services Corp.; 113 South Easton Road, Glenside, Pa.; Ph. (215) 884-6636; Offers design, engineering and complete construction services for CATV systems. (Subsidiary of TeleSystems Corp.)

Tel-Video Constructors, Inc.; 1222 Mercantile Bank Building, Dallas, Texas 75201; Ph. (214) 747-1866; Complete CATV system construction services.

Television Distribution, Inc.; P. O. Box 3894, Harrisburg, Pa. 17105; Ph. (717) 766-4765; Construction supervision, technical direction, design and evaluation of all phases of CATV systems.

Theta-Com Corporation; P. O. Box 90515, Los Angeles, Calif. 90009; Ph. (213) 641-1344; Site survey, engineering and turnkey construction of Amplitude Modulated Link Microwave Systems.

Tico Group; 641 Dekalb Industrial Way, Decatur, Ga. 30033; Ph. (404) 292-1212; Have complete construction capabilities.

Tyee Construction Company; P. O. Box 1477, Bellevue, Wash. 98004; Ph. (206) 455-3000; Construction engineering and design.

Underground Construction Co., Inc.; 2600 Williams St., San Leandro, Calif. 94577; Ph. (415) 357-3520; Provides underground and aerial system construction.

Urban Cable Systems Ltd.; 4651 E. Hastings St., Burnaby, British Columbia, Canada; Ph. (604) 291-9491; Complete turnkey service — engineering, design, construction and proof of performance.

U. S. Cable Inc.; P. O. Box 116, Appleton, Wisconsin 54911; Ph. (414) 733-3321; All types of construction except head-end work.

Vikoa Construction Co.; 400 Ninth St., Hoboken, N. J. 07030; Ph. (201) 656-2020; Complete facilities to construct CATV systems including surveys, engineering and planning. Complete turnkey operations. Special assistance in obtaining financing and leasing programs. (Subsidiary of Vikoa, Inc.)

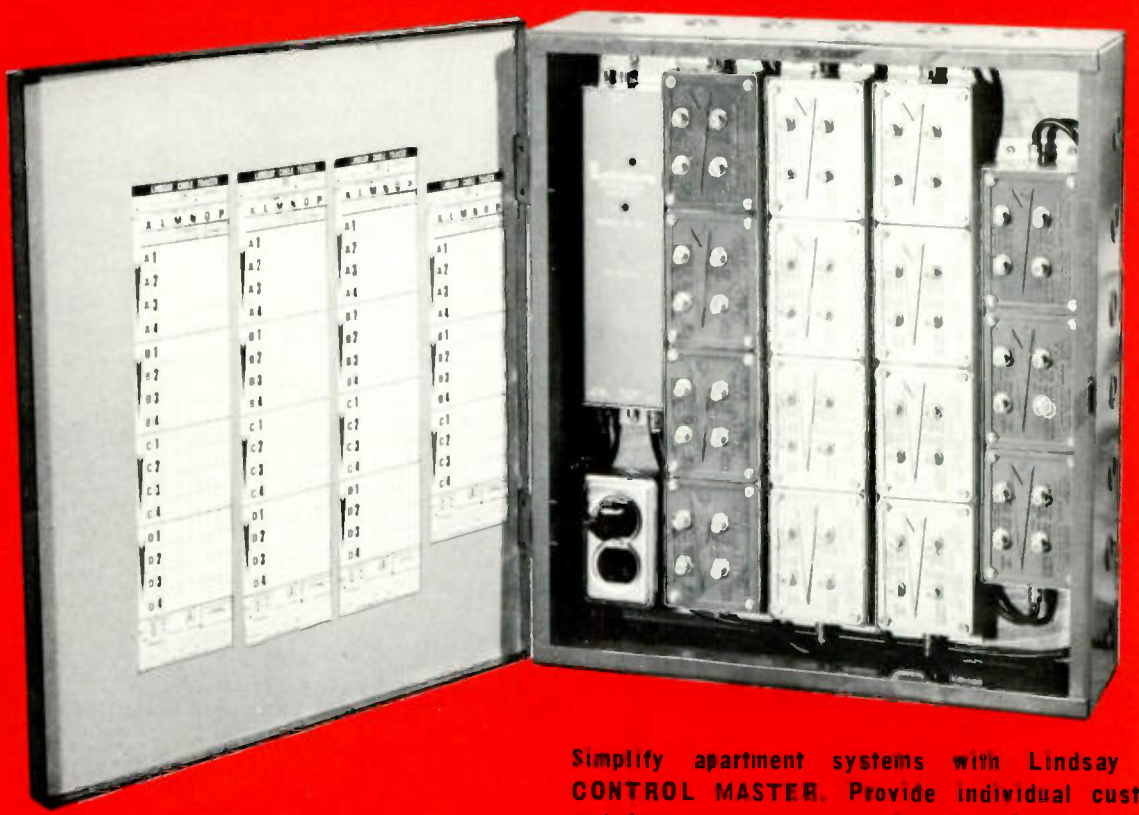
Western Cable Services, Inc.; 1571 Los Angeles Ave., Saticoy (Ventura), Calif. 93003; Ph. (805) 647-3633; Underground and aerial system construction, including house drops and inside installations in homes and apartments.

Western Community TV Construction, Inc.; Box 1131, Scottsbluff, Neb. 69361; Ph. (308) 636-0100; System design, construction and rebuild.

Western Electronic Distributors, Inc.; 1912 "P" Street, Sacramento, Calif. 95814; Ph. (916) 444-3474; Engineering and design for small systems.

Williams Construction Co.; Box 261, Glasgow, Kentucky 42141; Ph. (502) 651-5480; Specializing in CATV construction and installation. TVC

Lindsay CONTROL MASTER® Apartment System



Simplify apartment systems with Lindsay Apartment CONTROL MASTER. Provide individual customer control from a central accessible location and at the same time upgrade system performance by eliminating ghosts, reflections and smears.

Choose from Lindsay's wide range of apartment amplifiers – 12 dB, 24 dB 42 dB and 48 dB of gain all with high output capability and low second order; combine an amplifier in a readily available NEMA box with Lindsay Colorflex Directional Taps in 'CMB' series multiple housings.

Tailor tap values to your needs with snap-in color coded plates. Specifications fully to 300 MHz with guaranteed directivity greater than 20 dB and isolation higher than 26 dB between taps. Meet strict FCC and CRTC guidelines.

Handy trace sheets supplied for subscriber identification.

Buy these devices individually or call them up as loaded stations, fully tested.

This is the modern accepted method being evolved for central and full control. Its faster to install, lower in cost, more efficient and tamper-proof. Ideal for bulk or individual billing. Equipment available Now !

Lindsay

LINDSAY SPECIALTY PRODUCTS LIMITED
50 Mary St W. Lindsay, Ont. Canada. 705-324-2196

Call us or write for the Lindsay Brochure "Apartment Control Methods". In the USA contact Bob Toner, API, Telephone (215) 647-1000, P.O. Box 1776, Paoli, Pennsylvania 19301. In CANADA contact LINDSAY.

PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

EQUALIZED SPLITTERS OFFERED BY C-COR

C-COR Electronics, Inc., 60 Decibel Road, State College, Pa. 16801, has introduced the ESM series of equalized splitters. Designed for efficient splitting of trunk and feeder cables plus the added feature of built-in equalization,

the ESM has an attenuation characteristic similar to cable and eliminates the need for external trunk cable equalizers.

The ESM series is available in three models: ESM-2 (two equalized outputs), ESM-3 (three equalized outputs), and ESM-D (directional couplers; one flat output and one equalized output).

NEW ENTRON MULTI-TAP FOR DEDICATED PLANT

Entron, Inc., 2141 Industrial Parkway, Silver Springs, Md. 20904, is offering a new CATV splice box designed for systems requiring a dedicated plant. The unit is for installation during construction at points where new subscribers are expected to join the system in the future.

The splice box, available in models SMT-O and SMT-1, is a multi-tap with 0 dB or 1 dB bottom thru-line plates without outlets. For conversion to a multi-tap, the thru-line is simply replaced by one having the necessary attenuation and four outlets for feeding subscribers. Or, the SMT-0 can remain as a seized-center conductor splice, in trunk or distribution. The housing is never removed from the cable.

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

A component in Entron's new Spectramax product line, the splice-box features a sealed die-cast housing, standard 5/8-24 entrance ports, and a new universal seizing device suitable for underground or aerial mounting.

The unit has a waterproof, pressure-tight housing of corrosion-resistant aluminum and snap-in modules designed for ease of installation and maintenance.

NEW DAGE SYNC GENERATOR IS COMPACT, LIGHTWEIGHT

The smallest television sync generator on the market is now available from the Dage products section of Visual

Educom Inc., U. S. 12 East, Michigan City, Indiana 46360.

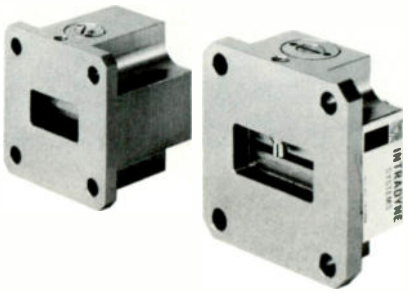
Dage sync generator weighs three

pounds per single unit, and measures 1¾" in height, 9" deep and 7½" wide. A mounting rack is available for either single or dual mounting. The dual rack provides for front panel switching from either of the two generators. Size of the two units rack-mounted is 1¾" high, 9" deep, and 19" wide.

Front panel of each unit includes controls for power, AFC fast/slow, and line/crystal. The unit operates at 115/230V, 50/60 Hz. It conforms to RS-170 requirements for 525-line scan rate and RS-343 for all higher rates. Each sync generator has dual outputs for composite sync, composite blanking, vertical and horizontal.

KLYSTRON OSCILLATORS FROM INTRADYNE SYSTEMS

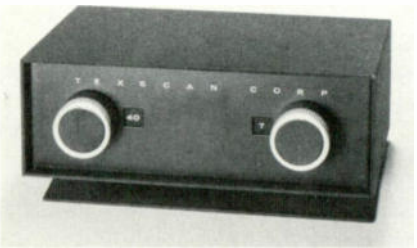
Intradyne Systems, Inc.'s (1188 Elko Drive, Sunnyvale, Calif.) new line of voltage-tuned Gunn oscillators provides up to 500 MHz of voltage tuning without sacrifice in other electrical performance specifications. This makes available all the advantages of voltage tuning for applications as a programmable or phase locked source, frequency agile radar local oscillator or exciter, low power chirp transmitters, etc. These sources may be FM modulated up to a 15 MHz rate to provide a very fast AFC oscillator or a frequency modulated source.



All of Intradyne's oscillators are available in either waveguide or coax output configuration.

MINIATURE ATTENUATORS MARKETED BY TEXSCAN

Texscan Corporation, 2446 N. Shadeland Ave., Indianapolis, Indiana, announces the 500 series 50 ohm miniature bench mount rotary attenuators. These attenuators can be used with signal generators or receivers which have no internal attenuators, or they can be used to extend the range of equipment that has insufficient attenuation.



Packaged in a cabinet of modern design, these attenuators feature low VSWR and flat frequency response. Calibration data is supplied with these instruments to increase their usefulness. Calibrated attenuation data is supplied at 30 MHz, 500 MHz, 1000 MHz and 1500 MHz. These attenuators are useable to above 2000 MHz, with slight degradation in the performance specified at 1500 MHz.

UNIVERSAL MOUNT NOW ON SCALA ANTENNA

Scala Radio Corporation, 1970 Republic Avenue, San Leandro, California 94577, has announced the availability of a universal mounting bracket for the paraflector model PR-450U antenna. The universal mounting bracket has been designed to allow the change of antenna polarity while in the field. No longer will it be necessary to specify antenna polarity when ordering the PR-450U.

The paraflector model PR-450U is an antenna designed for use in the

350-1000 MHz range. Its performance equals that of a parabolic dish, having the same aperture. The model PR-450U weighs less than 30 pounds and is easier to assemble and install than standard parabolic antennas.

Model PR-450U has a nominal gain of 14 dB at 400 MHz and increases to 17.5 + dB at 950 MHz over a half wave dipole. At the half power points, the horizontal beam width is 30 degrees and the vertical beam width is 32 degrees.

3M HELICAL SCAN COLOR DROPOUT COMPENSATOR

A helical scan color dropout compensator, which can be interfaced with any helical recorder, was introduced by 3M Company at the NAB show. The dropout compensator also will be available with a processing amplifier to correct

horizontal time instability and to remove tilt and low frequency noise.

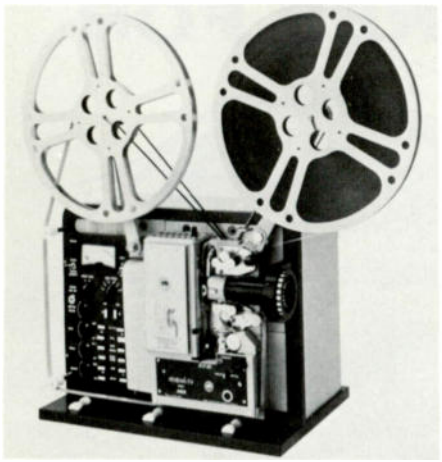
The dropout compensator will operate on both monochrome and color tape. Interface boards are available to fit the DOC to any helical scan recorder.

The DOC with power supply is priced at $2,520, or with the optional processing amplifier included, $3,690. A separate process processing amplifier and power supply is priced at $1,805.

L-W INTRODUCES VERSATILE TV FILM-CHAIN PROJECTOR

A new 16mm stop-motion telecine sound projector, the L-W Athena 4000-TSM, offers broad versatility for multiplex and other television film-

chain applications. It is offered by L-W Photo, Inc., 15451 Cabrito Road, Van Nuys, California 91406.



Standard features include instant still/run capability for both picture and sound, flickerless projection at all frame rates, optical and magnetic sound with magnetic record, slow motion, stop motion, instant forward/reverse direction change at any frame rate, and unlimited hold on single frame.

In the still mode, there is no damage to the film or loss of light.

Features also include a heavy-duty base for stability in multiplexing, push-button control, remote control of all functions, and precise frame rates of 1, 2, 4, 6, 8, 12 and 24 fps.

IVC TIME BASE CORRECTOR ELIMINATES PICTURE JITTER

A new time base corrector designed for use with the IVC-900 color videotape recorder has been introduced by International Video Corporation, 675 Almanor Avenue, Sunnyvale, Calif. 94086.

Coupled with the IVC-900, the IVC-4102 permits the first combined use of helical scan equipment with quadruplex recorders for dubbing in broadcast teleproduction.

The IVC-4102 reduces time base jitter to 4,000 times less than jitter present on standard helical scan videotape recorders and offers a time base correction down to 7 nanoseconds.

In addition to its use with quadruplex recorders, the IVC-900 with the time base corrector can also be used as an input source to a television production switcher. The IVC-4102 sells for $9,000. A monochrome version is also available at $6,000.

SHURE ANNOUNCES BOOM MOUNT ASSEMBLY

A complete boom mount assembly that makes possible support, control, and mechanical isolation for the Shure Model SM53 Microphone has been announced by Shure Brothers Inc., 222 Hartrey Avenue, Evanston, Illinois. The assembly is made up of four accessories, starting with the A53M isolation mount. Designed exclusively for the SM53, it cuts mechanical shock and vibration to virtual insignificance. It can be used with desk stands, floor stands, and lecture podiums in addition to booms. To reduce noise from wind gusts caused by swift boom swings and air gusts indoors and out, the assembly provides an A53WS windscreen. Both front and rear windscreens are included. The rugged A53E extension pipe makes it possible to lower the actual microphone mounting assembly an additional 20 inches below the boom to minimize difficult shadow problems.

INDEX OF DISPLAY ADVERTISERS

TV Communications ADVERTISING DATA

1900 WEST YALE • ENGLEWOOD, COLORADO 80110 • PHONE 303/761-3770

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

PRESIDENT
Robert A. Searle

VICE PRES. – SALES
Robert Titsch

VICE PRES. – PUBLICATIONS
B. Milton Bryan

VICE PRES. – BUSINESS OPERATIONS
Buford S. Marsh

For Information About:

ADVERTISING SPACE

Contact Robert Titsch, Phil Cook or Sid Black. They will assist you with specialized market and media information including space rates and deadlines.

INTERNATIONAL SALES OFFICE

Contact Kaz Miura, Media Brains, Inc., 3-3, Chigusadai, Midori-ku, Yokohama, Japan.

PRODUCTION & CREATIVE SERVICES

Contact Traffic Supervisor Carol Falconer for full information on production requirements, copy modifications, or creative services.

Calendar

APRIL

13-14—New England Cable Television Association annual meeting at the Sheraton Wayfarer in Bedford, New Hampshire. For more information contact Bill Kenny, NECTA executive director, P. O. Box 321, Tilton, N. H. 03276 (603) 286-4473.

14-16—Kentucky CATV Association meeting at the Continental Inn, Lexington, Ky. For more information contact Howard Norrell, president, 323 Ann Street, Frankfort, Ky. 40601 (502) 227-7969.

16—FCC cross-ownership proceedings: Comments are due this day from NAB and American Newspaper Publishers Association. Deadline moved from January 15.

17—Central Atlantic SCTE Chapter meeting at Rosoff's Restaurant, New York. For more information contact Earl Quam, Box 1000, Riverhead, N. Y. 11901 (516) 727-6300.

21-23—NCTA Programming Conference at the Palmer House Hotel in Chicago. For further information contact the NCTA PR office. Also see pages 16 and 62 in this magazine.

21-23—Ohio CATV Association meeting at the Sheraton Columbus Hotel, Columbus, Ohio. For more information contact Jack P. Rubins, convention chairman, 196 S. Main Street, Marion, Ohio 43302 (614) 383-6781.

22-23—NCTA Board Meeting at the Arizona Biltmore, Phoenix, Arizona.

25-30—Society of Motion Picture and Television Engineers will hold their 109th Technical Conference at the Century Plaza Hotel in Los Angeles. For more information, contact SMPTE, 9 E. 41st Street, New York, N. Y. 10017.

26—Beginning on this date, the Canadian Radio-Television Commission will hold a public hearing which will deal with proposed CATV policies and regulations for Canadian cable operators. The hearings will be at the Sheraton-Mt. Royal Hotel, Montreal.

26—Deadline for reply comments on applications for and proposed rules concerning a domestic satellite system.

27-29—North Central CATV Association spring conference at the Park Motor Inn, Madison, Wisc. For further information contact Bernie Mainville, sec.-treas., P. O. Box 706, Iron Mountain, Mich. 49801 (906) 774-2404.

MAY

4-6—Pennsylvania Community Antenna Television Association spring meeting will be held at the Marriot Hotel in Philadelphia, Pa. For more information, contact John Rigas, PCATA president, P. O. Box 472, Coudersport, Pa. 16915 (814) 274-9631.

JULY

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

THE CATV CLASSIFIEDS

TV Communications Reply Address: 1900 West Yale, Englewood, Colo. 80110

Rate for classifieds is 25 cents per word for advertising obviously of a non-commercial nature. Add $1.00 for Box Number and reply service, per issue. Advance payment is required; minimum order is $10.00. Classified rate to commercial advertisers is $30.00 per column inch (2-1/4" col.). Deadline for all classifieds is 1st of preceding month.

FOR SALE—BUCKET TRUCK

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

CLOSEOUT SALE

Spencer-Kennedy Equipment in Stock

All new equipment. Individual items subject to prior sale. Complete lot specially priced. Prices F.O.B. Appleton, Wisconsin.

Quant.	Description	Price
705	G-412B (8-1068) Cable Connector for .412 Alum.	1.41
554	G-500B (8-1069) Cable Connector for .500 Alum.	1.55
10	G-750B (8-1070) Cable Connector for .750 Alum.	2.90
1	7020 TRUNK AMPLIFIER	285.77
1	7025 TRUNK AMPLIFIER WITH AGC	354.41
2	7261 MULTIDIVER	17.54
2	7264 MULTIDIVER	40.20
20	7300 LINE EXTENDER	70.77
45	7500-0 MULTITAP	4.53
45	7500-3 MULTITAP	8.24
279	7500-10 MULTITAP	7.46
300	7500-22 MULTITAP	6.72
250	7504-12 TAP ADDER	6.34
151	7504-18 TAP ADDER	6.02

Midwest Telephone Supply, Inc.
P. O. Box 588, Appleton, Wis. 54911
Phone: 414-734-5632

FOR SALE

KAISER 12 CHANNEL AMPLIFIERS. THUNDERBIRD SERIES, TRUNK LINE MODEL KMA-25 and MODEL KAA-25 regular and AGC transistor amplifiers, perfect condition, 1500 aluminum input-output connectors. 30 dB. Gain. Cost new $400.00 each—Will sell for $50.00 each on Regulars and $60.00 each on AGC models. We have 7 of each.

Priv-O-Line TV Cable Co.
1122 That. Blvd. Safford, Ariz.
Phone: (602) 428-1313
C. H. Haralson

$100,000 INVENTORY REDUCTION SALE 20 — 30 — 40%

Savings off current list prices on Ampex, Bell & Howell helical videotape recorders and accessories. New Equipment in original factory sealed cartons. Can be used as origination equipment for ITFS or CATV:

Contact:
Ed Wille, Video Sales Manager
Ken-Com, 3540 N. 126th St.
Milwaukee, Wis. 53005 (414) 781-3084

SYSTEM FOR SALE

4 small systems covering 13 miles — having 950 subs with a potential of 2000. Best offer — Write to: TV Communications, Box T171-3.

WANTED

Immediate opening for man qualified to route underground and aerial TV Cable. Experienced in strand mapping, pole permits, make-ready, dealing with utility companies, and underground construction. Excellent future. Send resume to J. Green, P. O. Box 16687, Tampa, Florida.

WANTED

5 Used Jerrold Trunk Amp SCA-213
5 Used Jerrold Distribution Amp SDA-4
3 Used Jerrold AGC-213
5 Used Jerrold Power Supply CPS-4

Contact:
Warner Newcomb, K.B.C. Corp.
P. O. Box 1150
Killeen, Texas 76541

USED EQUIPMENT

Fully equipped, B & W:
(1) 1967 GMC Handivan (original cost $24,856), lease fee $534.40 per month, after April 1975, $745.68 annually.
(2) 1968 GMC Handivan (original cost $32,960), lease fee $692.16 per month, after March 1975, $640.12 annually.
Leghorn Corporation, 3301 14th Street West, Bradenton, Florida 33505, Telephone (813) 746-2117.

AVAILABLE

MSO or System Mgr. mnfrs. rep. or sales mgr.

Thoroughly experienced at all levels. Heavy on marketing of systems or product.

A proven producer with a heavy track record. Over 8 mill. in T/K sales, over 100,000 subs obtained.

Wants challenging position.

Reply to TV Communications, Dept. T471-1. Confidential.

JANSKY & BAILEY BROADCAST-TELEVISION DEPARTMENT

Atlantic Research Corporation
Division of The Susquehanna Corporation
1812 K Street N.W.
Washington, D.C. 20006
Phone: 202/296-6400

Literature

Hastings House (Communications Arts Books), 10 East 40th Street, New York, N.Y. 10016, offers **The Anatomy of a Television Commercial,** a $12.50 story of Eastman Kodak's classic TV commercial, "Yesterdays." The books goes into minute detail on the 10,000 man-hours that went into the making of the two-minute commercial. Not exactly a "how-to" book on ad production for CATV . . . nevertheless, it provides a good analysis of the phenomenon we call a TV ad. It is highly readable and practical in that it gives an understanding of the factors which made a good TV commercial what it is.

Also available from Hastings House is a new revised and enlarged edition of **The Technique of the Sound Studio** by Alec Nisbett (price $13.50, 559 pages). Described as "a non-technical account of the basic theory of sound," the book is based on the author's experience with the British Broadcasting Corporation. A valuable guide to the production of good sound quality, the book explores all aspects of sound, from developing microphone techniques to tape and film sound editing. This is an excellent handbook for the cablecaster interested in producing professional sound quality.

Great Plains National Instructional Library, University of Nebraska, Lincoln, Neb., has issued its **1971 Catalog of Recorded Instruction for Television.** The Library offers complete courses for educational television use, elementary through college and adult educational courses. Instructional material available with films.

Proceedings of the Symposium on Cable Television has recently been published by The Society of Motion Picture and Television Engineers, 9 East 41st Street, N.Y., N.Y. 10017. The 140-page softbound book has over 60 illustrations and sells for $6.50. Subjects for the Symposium were satellite distribution, two-way system design, studio equipment designed for CATV, and other topics of interest. G. Norman Penwell in the forward says: "We have attempted to present the gamut of possibilities that exist in this (the CATV) market."

Modern Talking Picture Service, Inc., 1212 Avenue of the Americas, N.Y., N.Y. 10036, has published its **1971 Catalog of Free-Loan Films for Television.** The free 48-page catalog lists 550 films including public service films, documentaries, sports and travel shows and how-to-do-it features — most in color.

The professional motion picture equipment **Master Rental Catalog Number 25** is available free of charge by writing Alan Gordon Enterprises, Inc., Catalog Division, 5362 N. Cahuenga Blvd., North Hollywood, Calif. 91601. The 56-page catalog lists 500 items of interest to the professional film maker.

AEL Communications Corp., P.O. Box 507, Lansdale, Pa. 19446 has issued two technical papers of interest to the CATV technician. The first is **CATV, a Brief Exposure to its Technical Requirements** by Samuel H. Colodny. The other publication details **System Performance Specifications and Proof of Performance Procedures for 50-270 MHz.** TVC

SCALA GIVES YOU CRAFTSMANSHIP THAT'S A THING OF THE PAST... AND THE PRESENT, AND THE FUTURE.

Otherwise, why would Scala yagi antennas installed 20 years ago in the third CATV system still be going strong today?

This standard of performance in every Scala antenna is the result of specific research and unique construction. Research into the myriad conditions under which an antenna must perform; and construction designed to master such conditions. (A combination that could also suit your purpose when you need a special solution to any particular TV communications problem.) The Scala VHF Color Log antenna, for instance, is a solution to the problems of metal fatigue and stress. It is constructed of heavy-gauge aluminum laminated to resist resonances and mounted for stability at the balance point with nonferrous brackets.

In solving these mechanical problems, Scala was also able to increase electronic efficiency through the use of larger active regions, thus providing coverage of channels 2 through 13 with only two Color Log antennas, instead of three or more fastened at one end (as required by other manufacturers).

Scala Antennas—for continuous service under the widest range of weather conditions.

A. Color Log VHF antennas:

CL-26 and CL-713 (channels 2–6 and 7–13):
Front-to-back ratio 25 db minimum.
VSWR maximum 1.4, average 1.2

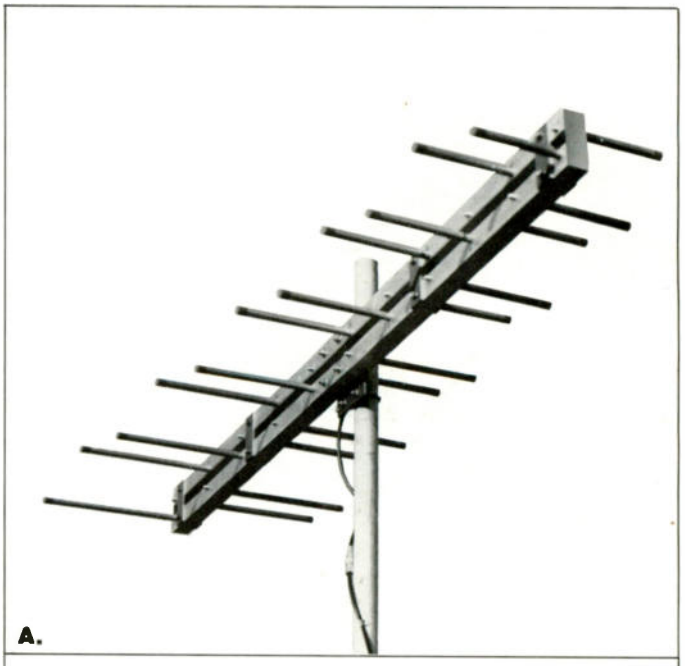
Gain over isotropic source:		**Dipole:**
CL-26	**10+db**	**8+db**
CL-713	**11+db**	**9+db**

Gain throughout any channel is within ½ db, and throughout the spectrum within 1 db.

B. Color Log UHF antennas:

CL-1483 (channels 14–83)
Front-to-back ratio: 35 db minimum
VSWR: Maximum 1.3, average 1.2
Gain over isotropic source 10+db. Dipole 8+db.
Gain throughout any channel is within ½ db, and throughout the spectrum within 1 db.

All CL-1483 antenna elements are housed within a fiberglass cover, thereby permitting the design of an antenna of maximum electrical efficiency without concern for mechanical problems. TWO OR MORE COLOR LOG ANTENNAS MAY BE STACKED TO ACHIEVE MAXIMUM GAIN OR PHASED TO PROVIDE OPTIMUM SOLUTIONS TO **CO-CHANNEL, MULTIPATH,** AND OTHER RECEIVING PROBLEMS.



A.

B.

FOR FURTHER INFORMATION CALL OR WRITE:

Scala Radio Corporation

THE WORLD'S MOST EXPERIENCED CATV ANTENNA MANUFACTURER
1970 REPUBLIC AVENUE, SAN LEANDRO, CA. 94577 (415) 351-3792

You enabled us to decrease prices in the midst of inflation.

(Thanks.)

That's right. Effective March 1, many of DYNAIR's 200 television products have been reduced substantially in price. Not because labor costs are down . . . they're up. And not because of reduced parts costs either . . . they've skyrocketed!

How did we do it? Well, increased efficiency and marked decreases in overhead have helped. So have tightly controlled computerized cost accounting methods. But the primary key to reduced prices has been you.

Your faith in DYNAIR has been substantiated by a solid increase in our sales, particularly in certain product areas. Since manufacturing costs are directly related to quantity, this has enabled us to decrease our price to you.

It works both ways though, and we were also forced to raise a few prices. Not much . . . just enough to allow a fair profit in the face of drastically increased parts costs. Only a few items are affected, with the increases being very moderate.

We have refused to play the inflationary game of blanket price increases. We have also refused to price an item based upon what the market will bear. We look carefully at costs on each particular product and establish a price which is compatible with normal profit considerations. Our continued growth, even during the past year when so many corporations failed, is indicative of your agreement with our philosophy of high quality products at competitive prices.

Request a copy of DYNAIR's new price list today. We think you'll like what you see.

TYPICAL PRICE REDUCTIONS

PRODUCT	OLD PRICE	NEW PRICE
MINI-3 Video Switcher, 3-input	$ 65	$ 55
MINI-6 Video Switcher, 6-input	85	70
MINI-DAV Video Distribution Amplifier	255	200
MINI-DAP Pulse Distribution Amplifier	255	200
DA-30C Video Distribution Amplifier	325	275
DA-60C Video Distribution Amplifier	425	375
PD-81C Pulse Distribution Amplifier	425	375
DA-1060C Video Distribution Amplifier	180	150
DA-1064C Video Distribution Amplifier	250	200
PD-1041C Pulse Distribution Amplifier	185	150

DYNAIR

DYNAIR Electronics, Inc.
6360 Federal Blvd., San Diego, Calif. 92114
Telephone (714) 582-9211

Please send me a copy of your new price list and short-form catalog.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

Extend Your 12 and/or 21 Channel Distribution Systems With Futura Solid State Automatic Gain Control

1. Amplifier input Signal Level on Distribution Line can vary ±3db due to temperature effects on cable.

Model 217 Futura Line Extender/AGC Amplifier

3. Output Signal Level of Amplifier is Automatically held within ±0.75db of desired (Pre-set) level.

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

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

Model 217 Futura Line Extender/AGC Amplifier

vikoa THE HOUSE THAT SERVICE BUILT

technically, the One

400 Ninth Street, Hoboken, N.J. 07030

Telex: 12-8110 (24 hour service)

CALL COLLECT: • Hoboken, New Jersey (201) 656-2020 • New York, (212) 943-5793 • Denver, Colorado (303) 777-2696 • Seattle (Bellevue), Washington (206) 454-1446 • Dallas (Garland), Texas (214) 276-1181 • Los Angeles (Torrance), California (213) 371-7543 • Atlanta (Lithonia), Georgia (404) 482-2981 • Available in Canada from Vikoa of Canada Limited, 8340 Mayrand St., Montreal, 308, Quebec (514) 341-7440 • Available in Belgium, Luxembourg, The Netherlands and Switzerland from A.C.E.C., BP 8, Charlerol, Belgium International Telephone: 07/36. 20. 20, Telex: 51.318 • Available in Central America and South America, and the Caribbean from Caribe Export-Import Co., P.O. Box 2435, Bayamon, Puerto Rico 00620.