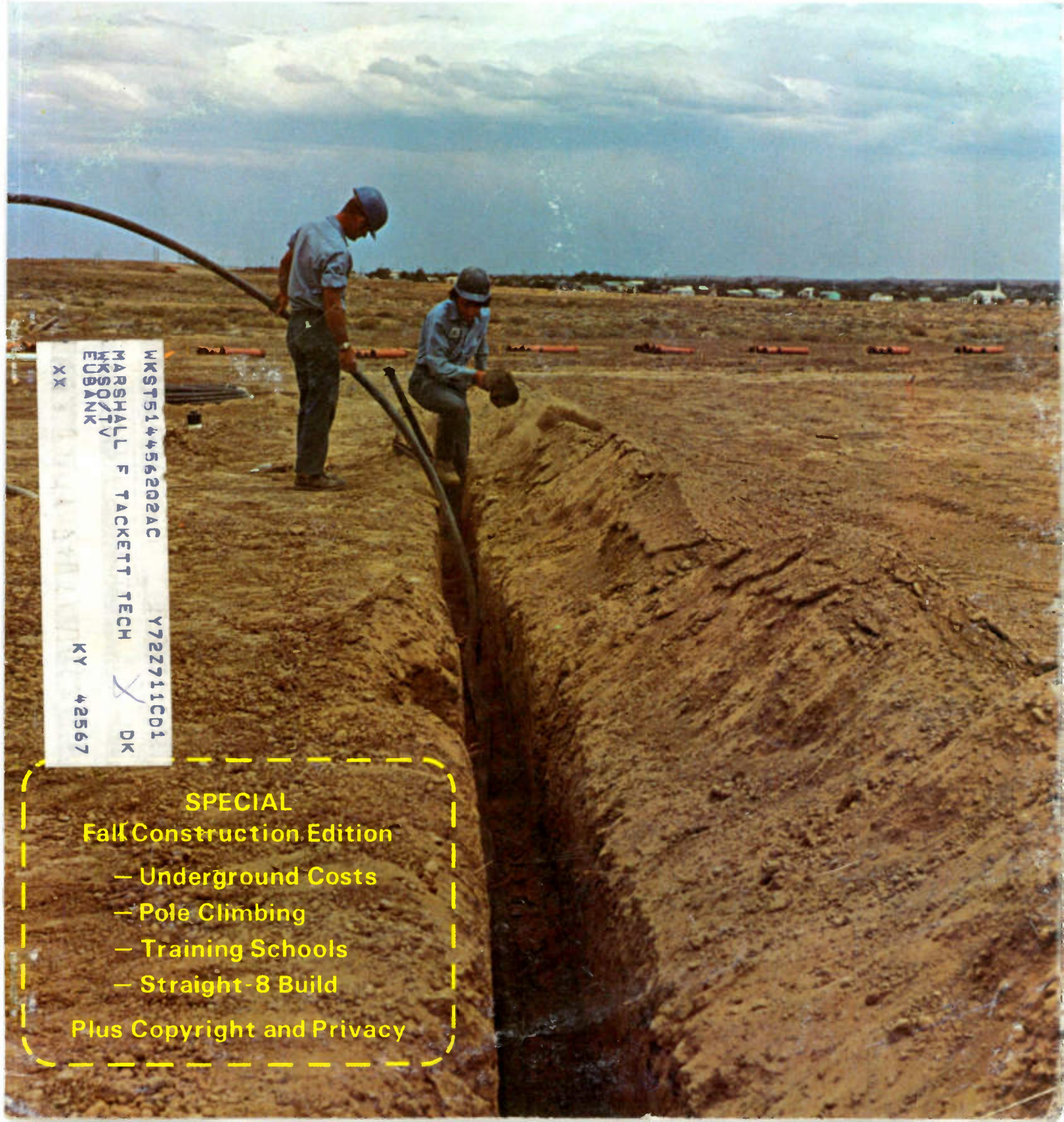
CPC

September 1972

TV Communications

The Professional Journal of Cable Television

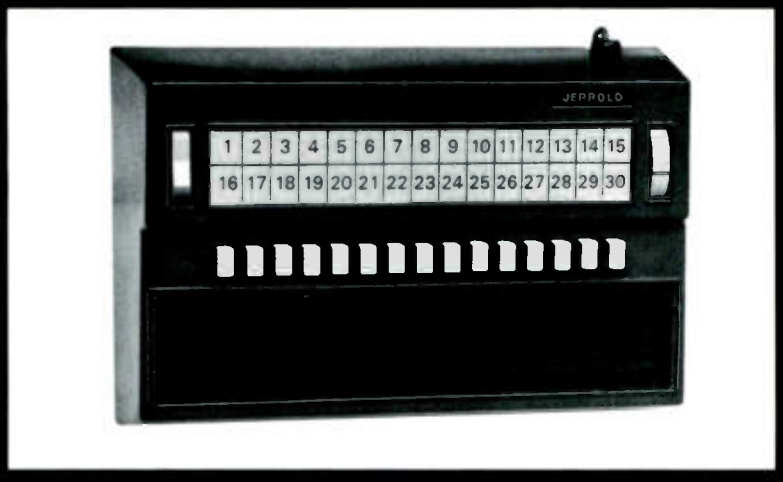


SPECIAL
Fall Construction Edition

- Underground Costs
- Pole Climbing
- Training Schools
- Straight-8 Build

Plus Copyright and Privacy

Now, from Jerrold, a new 30 channel converter designed specifically for CATV operators and subscribers.



Jerrold...the people who know CATV best!

Because we understand our business as we do, we knew what your requirements were. You wanted a converter that was easy to maintain, technically superior and competitively priced. Now you have it: the Jerrold Set Commander.

The Set Commander gives your customer the convenience of remote channel selection. And it overcomes local interference.

Because it's an R.F. unit and not a detent electromechanical unit, it's more reliable, and it's U.L. approved.

It's easier to use because it has a simple 15 button selector with a two-position band switch.

And because it's designed and built by Jerrold, you know you can depend on it. We saw a need for a competitively priced converter this good and we answered that need.

The Set Commander is available now.

First in CATV

JERROLD®

a GENERAL INSTRUMENT company

Before you thought about how big your CATV system should be, we were thinking about how big it will be.

Today you've got ten forward channels. Tomorrow, you may want to expand to twenty-five. Or, you may need bi-directional transmission.

Because Sylvania trunk amplifier stations are completely modular, it doesn't cost an arm and a leg to expand your system. Instead of replacing stations, you just plug in new capacity. For bi-directional transmission, you simply plug in a return amplifier and filters.

In fact, our trunk amplifier can handle 30 forward channels and 4 reverse.

We offer total automatic control, and broad bandwidths: 6-30 MHz and 50-270 MHz. Push-pull circuitry for low distortion. Removable base plate for convenient updating. Shielded for EMI suppression. Fully protected by an environmental seal.

At GTE Sylvania, we make CATV components and systems that grow as you grow. You don't replace them, you just add to them.

It helps you hold down the high cost of success.

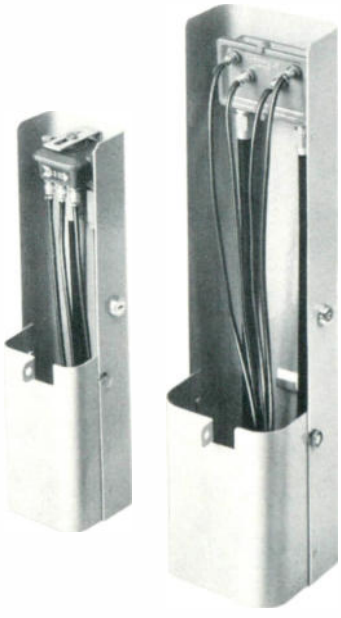
Sylvania Electronic Components Group, CATV Operations, Seneca Falls, New York 13148.

GTE SYLVANIA

Here are the CATV Pedestals with everything you've asked for

...including the price!

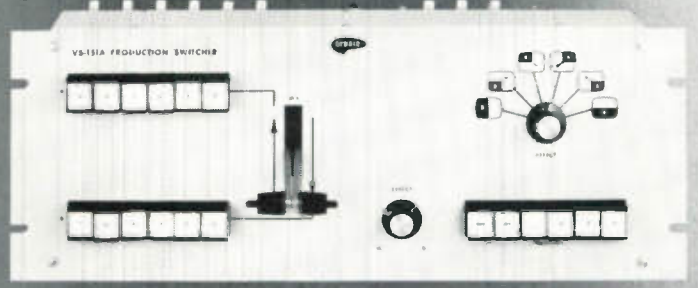
You want easy accessibility. The models TV4B4 and TV6B6 shown here have removable covers that allow access from three sides. You want security. Our pedestals are available with an optional cylinder key lock or a standard hasp that can be padlocked . . . plus a generous overlap on the cover for weather protection. Our new design is low-profile for unobtrusive installation . . . and all of our pedestals are made of 14 gage double mill galvanized steel, with a vinyl prime coat and baked on alkyd enamel finish. In short, we haven't spared a thing to make these the best CATV pedestals in the business. And, look at the prices . . . the TV4B4 is less than $8 . . . and the TV6B6 is less than $11. Surprising? Not really. Not when you remember that our company has been the largest producer of telephone closures for the past 15 years . . . and we aim to do the same good job for CATV. Write for detailed information or call . . .



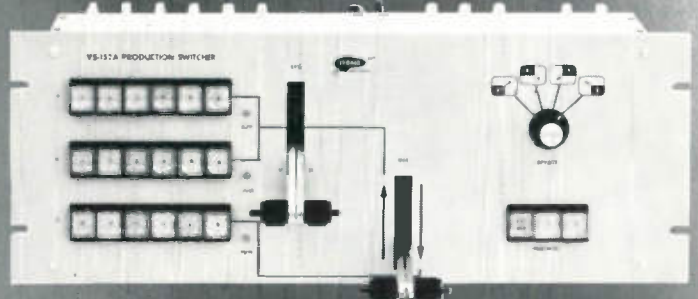
UTILITY PRODUCTS CO.
3111 W. Mill Rd., Milwaukee, Wisconsin 53209
(414) 352-8500
Plants: Milwaukee, Wisc., Greenville, Miss.

Now you can save more than 50% on broadcast-quality color video program control equipment.

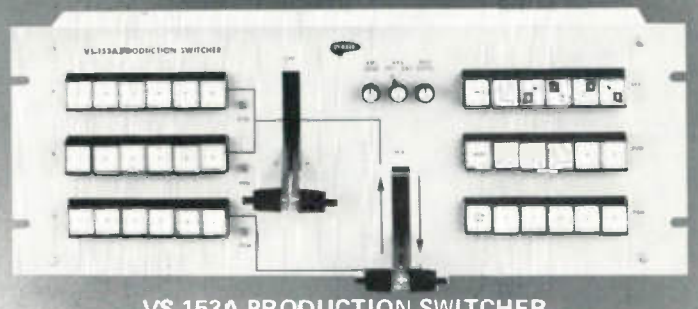
VS-150A VIDEO SWITCHER-FADER



VS-151A PRODUCTION SWITCHER



VS-152A PRODUCTION SWITCHER



VS-153A PRODUCTION SWITCHER

No . . . we're *not* having a sale. Our building didn't burn down and we haven't lost our lease. But you *can* save more than 50 percent when you buy DYNAIR Series-150 vertical interval program control equipment.

How? You'll find out quickly when you check the prices of comparable equipment of other manufacturers. For the same capability, you will pay from two to three times as much. And you probably won't get the quality and reliability of DYNAIR equipment.

On DYNAIR program switchers you won't find cheap, troublesome sliding fader potentiometers; we use quality gear-driven, locking split-lever controls. Nor will you find other inexpensive and unreliable components. The 150 Series uses the latest silicon solid-state devices available – over 80 percent of which are in integrated-circuit form – the same quality components and temperature-compensated circuitry used in our broadcast and aerospace equipment. Fully color delay compensated too.

And . . . one of the four units will usually fit your application *and* your budget. From a $795 basic 5-input self-contained switcher-fader to a $2895 11-input remotely controlled production switcher with special effects . . . that's the 150-Series.

Write today for literature and prices and we'll also send a free copy of our 12-page paper "Facts About Low Budget Video Switching and Effects." It contains a wealth of useful information about selecting programming equipment for a small studio.

DYNAIR ELECTRONICS, INC.
6360 FEDERAL BLVD., SAN DIEGO, CALIF. 92114
PHONE: (714) 582-9211

DYNAIR

SEPTEMBER 1972, Volume 9, Number 9

TV COMMUNICATIONS is published on the first day of each month. © Copyright 1972 by Communications Publishing Corp., 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 $23. Foreign subscriptions (except Canada and Mexico) add $4 per year. Single copies available at $2 each plus postage from 1900 W. Yale, Englewood, Colo. 80110. REMITTANCE CORRESPONDENCE OFFICE: Box 6096, Duluth, Minnesota 55806

September 1972. Volume 9, Number 9.

TV Communications

The Professional Journal of Cable Television

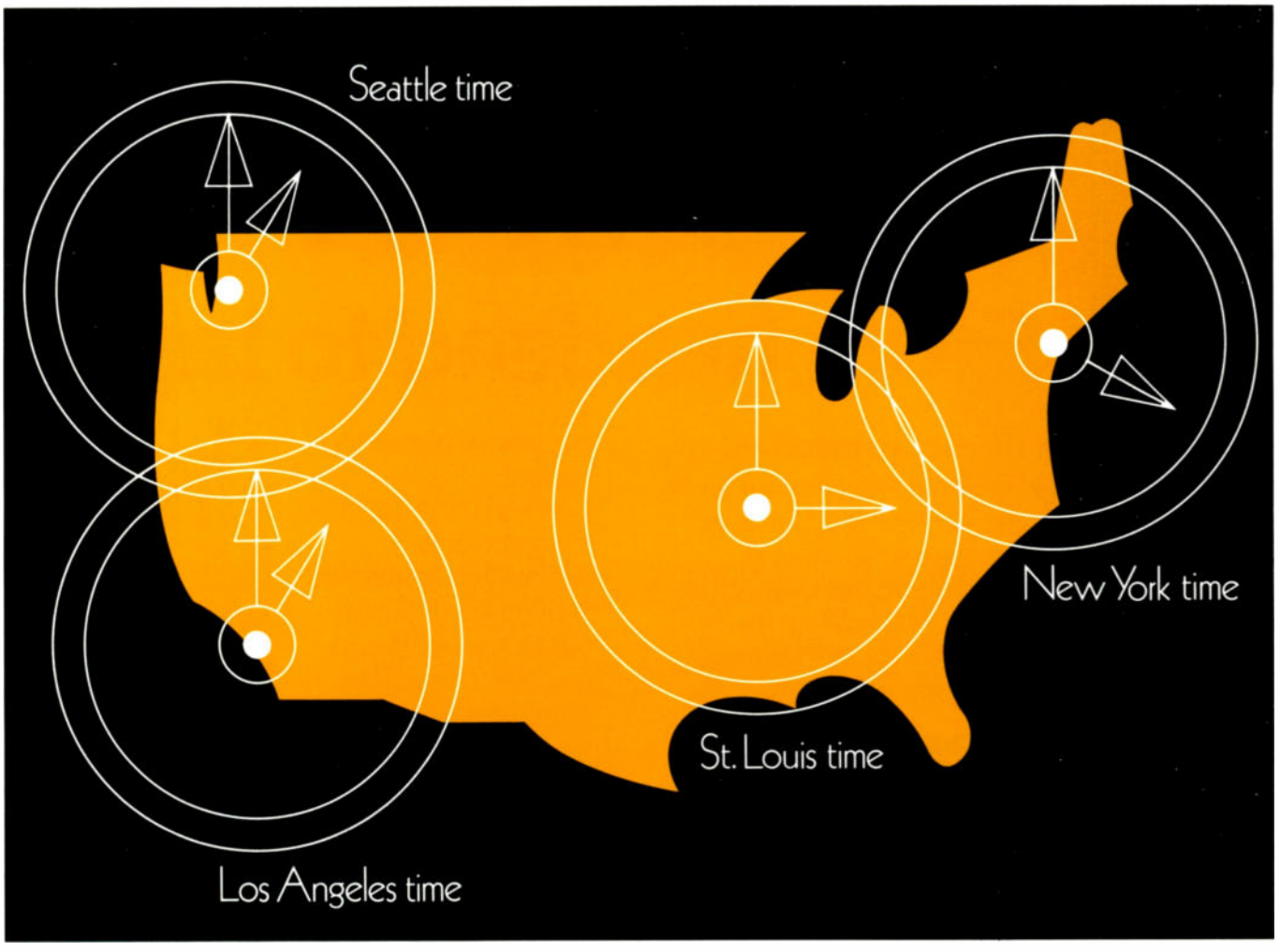
CATV Technician Section

Departments

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

This Month's Cover...

Cable in the vast wasteland? Not really. Pueblo Cablevision was just fortunate enough to get into a future trailer court with the utilities. For those not so fortunate, turn to page 42 for a look at undergrounding costs. Photo by Randall B. Lee.



What do you care if Pruzan adds another warehouse?

It's only your time we're trying to save.

Now we'll send you what you want even faster than ever. Our new Elmsford warehouse (in the New York City area) is ready to fill your orders for cable, strand, hardware, connectors, passive devices and drop materials. Now four warehouses offer that famous Pruzan service. Just call your nearby sales office.

The timesaving starts immediately.

The Timesavers

Call collect today!

Your national CATV supply service

ANIXTER-PRUZAN

Seattle, Wa. 98134 / 1963 1st Ave. S. / (206) 624-6505
Los Angeles, Ca. 90058 / 3385 E. 50th / (213) 585-0144
Lake Success, N.Y. 11040 / 5 Dakota Drive / (516) 328-3442

All in the

From headend to tap-off,

No one's growing like we're growing.

We're on the grow. We're reaching out and broadening our capabilities in the CATV industry. And no one else can offer the combination of skills and expertise, the high quality hardware, the innovative approaches to problem-solving, the unique services, the most advanced opportunities in systems development. No one but Theta-Com.

We're the "before" company.

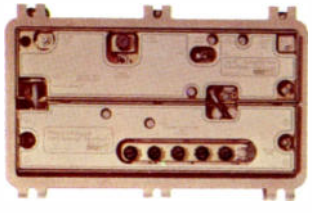
If you own or operate a CATV system, or if you are considering expanding and updating a system, or are planning a new system, you really should talk to us "before." Before you string another inch of cable. Before you buy one more amplifier. Before you make any decisions regarding micro-wave Local Distribution Systems. Before you get involved in any type of Subscriber Response Systems. Before you contract for any turn-key installations.

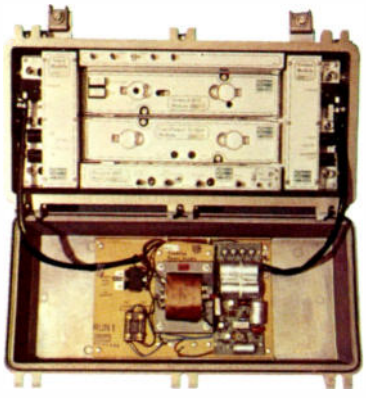
We're the best thing to come along.

Read about some of the things we do. Then let us tell you more. No obligation. Just the simple truth on how we can do more for your system than anybody else in the business. You'll like us. Because we're right for you.

Our newest division has been around a long time.

How many systems does it take to prove yourself? Hardly one. Perhaps ten? Maybe fifty? Our CATV division has proven its product's reliability in HUNDREDS of systems across the nation!





This division manufactures distribution equipment including our famed XR Extended Range and XR-2 Two-Way amplifiers. Through the use of modular units, we can create just about any type of amplifier you're going to need. And if you're not ready to spend the money on a two-way system today, our retrofit equipment lets you pave the way today for the future that's coming tomorrow.

And we're into all kinds of passive devices and cable manufacturing. Line Splitters, for example. Directional and Terminating Taps. Cable fittings. And the cable, too.

But then, you probably know all about us. Because we've been around for quite some time, building our reputation with high quality equipment you've learned to rely on. And that hasn't changed. Only our name is new. THETA-COM CATV.

THETA-COM CATV

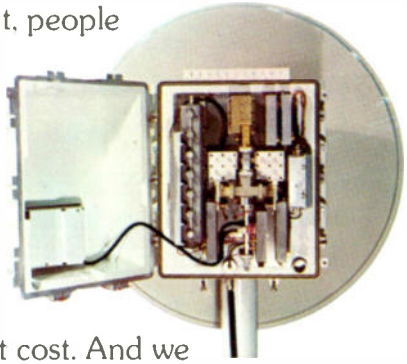
Our oldest division will get you off the ground.

We were the first to put multi-channel microwave to work for a cable system. And ever since, we've led the industry in installations that

family.

we've got it coming AND going.

work. At this very moment, people are watching Quality Television Pictures delivered by Theta-Com AML. AML? Amplitude Modulation Link. Our research determined that AM offered the best quality for CATV at lowest cost. And we ought to know, because we belong to the same family whose expertise created the sophisticated satellites used in global TV communications.



What can Theta-Com AML do for you? Perhaps extend your system's range. Or reach remote pockets of population. Cross barriers. Eliminate multiple headends. Decrease the length of amplifier cascades. Whatever it can do, it could be good for your system.

THETA-COM AML

The future lies ahead.

We're building something in El Segundo, California, that will bring the future into focus. It's our first Subscriber Response System (SRS), which will be in operation in 1972. Which means that the technology and equipment needed at both ends of broadband communications networks for two-way TV systems is here. Now. Ready to go to work in a number of ways. Home shopping. Educational instruction. Reservation service. Data bank access. Premium entertainment. Restricted TV programming. Opinion polling. Emergency alarms.

The excitement of SRS stimulates the imagination. The future of television has really changed, thanks to two-way CATV. And Theta-Com SRS is leading the way. Interested? Just ask us. We'll tell you all we know.

THETA-COM SRS

What do you want from us, anyway?

We can just about fill any need your old OR new CATV system could desire. And our help doesn't end with the reliable equipment we build. Our field and in-house engineering services can design an entire system for you. We can supply the finest hardware available to build your system. And our training schools and expertise can keep your CATV system happily humming and worry-free.

Like we said, we've got it coming AND going!

Now you know what we can do. And we humbly believe we can do it better than anybody else. One amp or a system full. Microwave LDS. CATV hardware. Passive devices. Cable. Subscriber response systems. Field surveys. Training schools. Whatever.

Our business is your business.

When it comes to CATV, we really know our business. And it's OUR business to know YOUR business. Ask us for help. We *know* what we're doing!

THETA-COM OF CALIFORNIA

9320 Lincoln Boulevard, Los Angeles, CA 90045
(213) 641-2100

Read any good cable promises lately?

They abound.

20% more of this, 10% less of that, guaranteed for X years, optimum attenuation, maximum uniformity, great-greater-greatest.

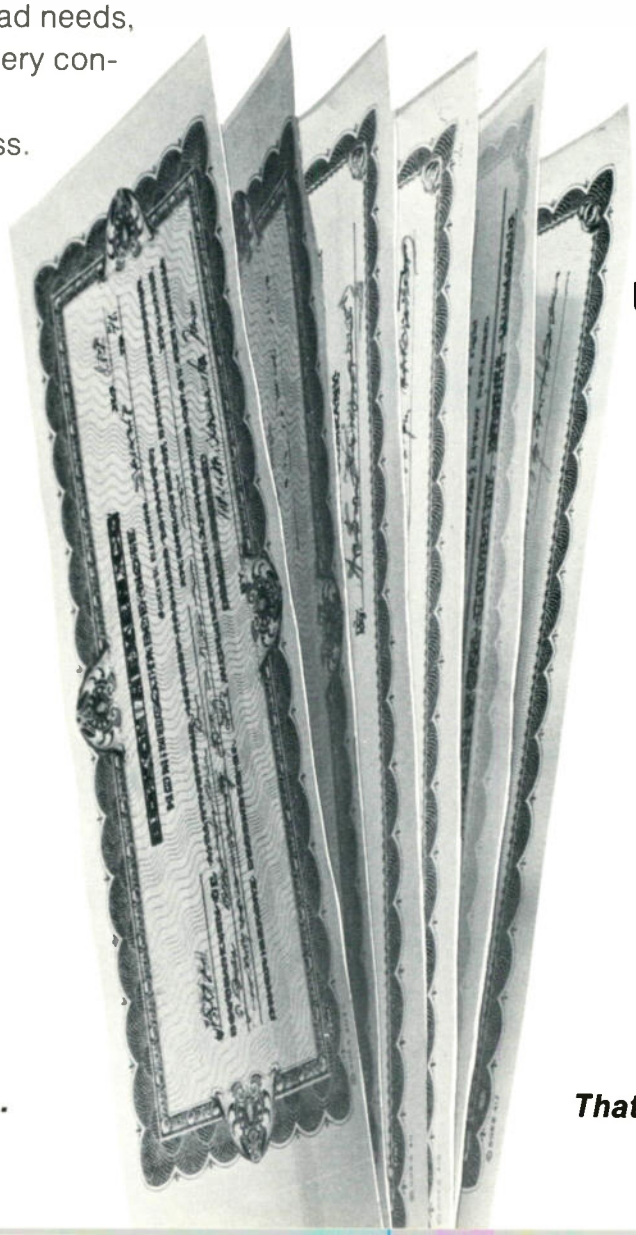
With so many cable variations, so many different system set-ups, so much uncertainty about years-ahead needs, the promises can get very confusing. Some are even worse. Like meaningless.

We make one that isn't. Matter of fact, it's the *only* one we make:

We will help you define your requirements — for now and the foreseeable future — very specifically, very honestly.

We will then provide quality cable to meet those requirements — no more, no less. The cable will then be delivered — by *us* — all the way to you; it will arrive in perfect condition, perform exactly as specified.

And that's a promise.



SYSTEMS WIRE AND CABLE INC.

Phoenix, Az.
(602) 268-0289

Rome, N.Y.
(315) 337-7080

All we make is cable . . .

That's why we make it better.

The TVC Viewpoint

EDITORIAL

Robert A. Searle
Publisher

If That's Good Faith...

Broadcasters, cablemen, city fathers and copyright holders alike got the same mandate from FCC Chairman Dean Burch last May: *Don't play games with the spirit of the rules.*

The spirit of those rules was to give cable television a chance to grow in America — without destroying existing media. The rules themselves reflected that spirit — especially the last half. They were the results of nearly endless hearings, and represented compromise after compromise — so that cable was left with a bare bones set of rights which would *probably* give it a viable business in U.S. television markets 51-100.

"In an abundance of caution, we may have kept cable not so much 'lean and hungry' as starved to death," Burch admitted. Implementation of the rules called for "hard, good-faith bargaining . . . that all the parties can live with," he emphasized further.

So CATV has been working at "hard, good-faith bargaining," especially with copyright interests.

But some broadcasters are apparently still not satisfied with what the Commission has trimmed cable's potential down to. They apparently think there is still some meat on CATV's bones, and from the way their teeth are gnashing, they intend to tear off every last bit of flesh.

Case in point: Albuquerque, New Mexico, where a threesome of broadcasters have been running a smear campaign against cable TV that's hard to believe. As the newspaper ad on this page indicates, "those guys are out for blood!" (From the July 7, 1972 *Albuquerque Tribune.*)

Now if that's good faith bargaining, I'd hate to see bad faith!

When is the FCC going to wake up and realize that many broadcasters are totally uninterested in "consensus agreement" and "good faith bargaining"? All they want is a blood bath. And guess whose blood they want to take it in?

Take five...

minutes or less to portray your entire cable system for spectrum analysis, signal level and frequency measurements, noninterfering system sweep, spurious radiation field strength, return loss, isolation and signal-to-noise ratio measurement. With Avantek's rugged, portable Remote Automatic Sweep System, it's simple and quick.

Avantek semiconductors, a foundation for excellence.

Avantek's Remote Automatic Sweep System is the result of total vertical product integration. From transistors to radio relay and test equipment, Avantek serves the electronic communications industry.

CT-1000 Transmitter

Installed at the head end of your cable system, the CT-1000 operates continuously without interference to your normal programming.

CR-1000 Receiver

The lightweight, weatherproof CR-1000 affords simple, one-man measurement of swept frequency response or spectrum analysis at any time and at any point in your cable system.

Avantek... *years ahead today.*

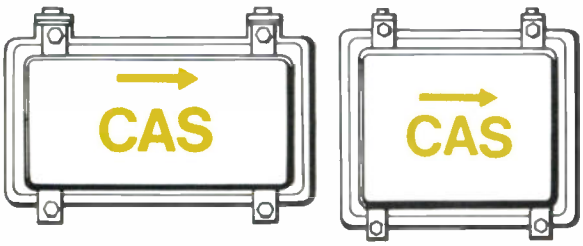
Avantek, Inc., 2981 Copper Road, Santa Clara, California 95051. Phone (408) 739-6170. TWX 910-339-9274 Cable: AVANTEK

We at TOCOM have Heart

for the American Heartland

Boone County, West Virginia—Freer, Texas—Hershey, Pennsylvania—Center, Alabama—Hollis, Oklahoma—Mammoth Lakes, California. Top 100 markets? No! Some folks prefer to call the small system a "Mom and Pop" operation. Call them what you like, we prefer "The American Heartland".

That's where our industry began—that's where a large segment of our industry will remain.



Price and dependability will always be a factor in building "The American Heartland". The CAS 240 Series Amplifier has been around a long time. It's well suited for "The American Heartland" system. We pledge continued support, by supplying to you the most reliable and economic equipment available.

Rebuilding, extending your system, or building a new system; if it's in "The American Heartland" you should have a look at the CAS 240 Series.

If you're looking at the "Large Market", take a look at TOCOM's Total Community Communications System. The TOCOM (Total Communications) computer system and the TOCOM (Total Communications) Amplifier will get the job done.

TOCOM

FORMERLY

CAS MFG CO

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

THE TOTAL COMMUNICATIONS COMPANY

Perspective

on the news

B. Milton Bryan
Editor

Good News! The gears have finally begun to unjam at the FCC with regard to CATV certificates of compliance. Toward month's end, the Cable Bureau was expected to grant approximately 150 certificates, unjamming the tie-up which had been preventing the implementation of the FCC's new cable rules.

Certificates granted, however, were for unopposed applications, most of which applied to smaller CATV operations. The real break in the dike is yet to come. Commission itself will have to rule on most applications which have been objected to, according to current outlook. Nearly all big-city proposals have been objected to, of course.

Broadcast objections may be illegal in some cases, according to recent suit filed by GenCoE, Inc. against a group of Albuquerque broadcasters (see related editorial this issue). If cable company is successful in suit, the industry could expect some relief with regard to franchising harassment by local broadcasters — relief many cablemen feel is long overdue.

Don't hold much hope for earth-shaking recommendations from the Federal/State/Local Advisory Group appointed by the FCC. Steering committee meetings, at least, are short on progress, long on hot tempers. Unless considerable progress is made in mellowing the approach of those committee members who are more vocal, recommendations to the Commission are likely to be so weighted down with "qualifications" that they'll be next to useless.

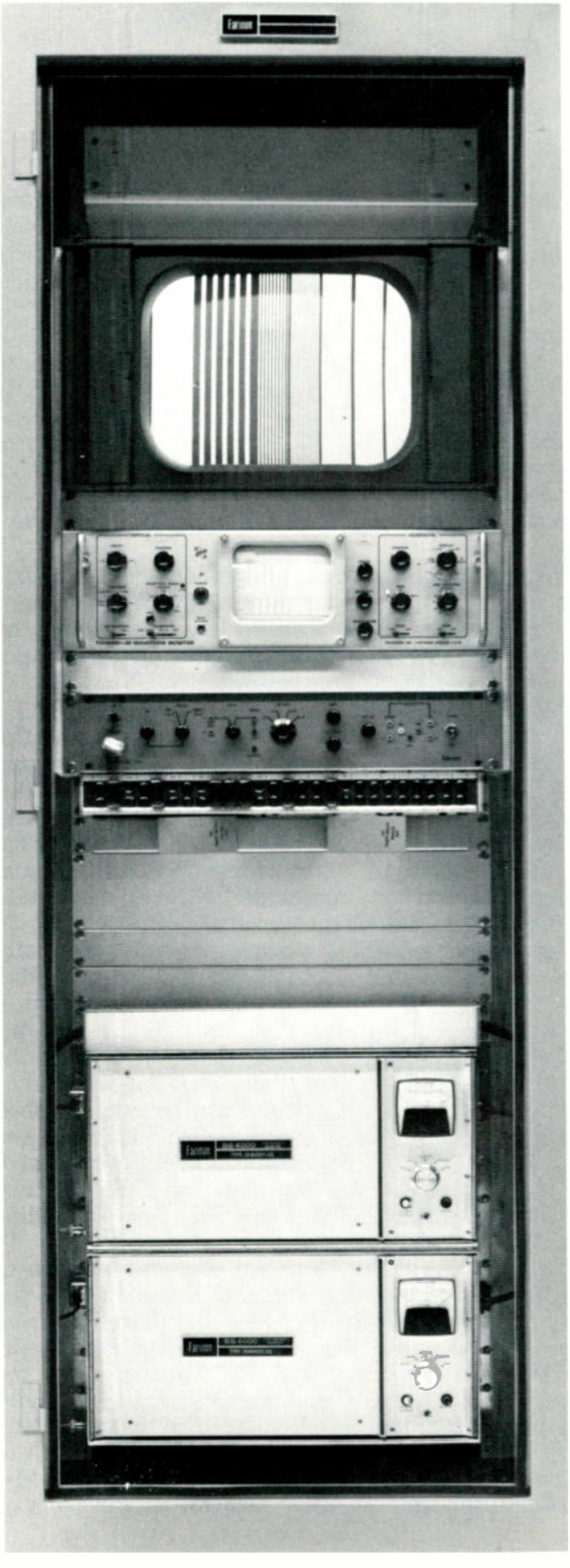
It was hoped that the group would provide oil for use in the implementation of the FCC's new cable rules. Those even more optimistic hoped the committee would be able to resolve some of the sticky jurisdictional conflicts between federal, state and local regulatory bodies. As important as that is, and as nice as it sounds, this editor for one, doesn't expect much in the way of meaningful progress in that direction.

On the copyright front, negotiations are still yielding virtually no progress. A "pay no copyright for three years and then let's take a look at it" proposal was rejected by copyright group, although the copyrighters themselves had apparently initiated the suggestion.

Recent death of Senator Allen Ellender (D-La.) caused some consternation in Washington circles. As a result of Ellender's death, Senator John McClellan (D-Ark.) will be taking the Chairman's seat of the powerful Senate Appropriations Committee. Because of the extremely heavy demands of the prestigious Appropriations post, some fear that McClellan will be less interested in his Chairmanship of the Senate Copyright Subcommittee.

McClellan spokesmen, however, assure us that the Senator will continue as Copyright Committee Chairman. He has wrestled with copyright revision which includes CATV for a number of years now, and apparently wants to see it through. But Senate bill will probably be two years in coming, so copyright issue may not be resolved for a long, long time.

Before you buy microwave see what Farinon has to offer.



Farinon solid-state microwave is FCC Type-Accepted to transmit video in all of the television services authorized for the 12.7 to 13.25 GHz bands. In addition, Common Carriers in the United States can use Farinon video links in the 4 GHz, 6 GHz and 11 GHz bands.

Farinon has been building solid-state microwave since 1965. It is used by telephone companies, pipelines, utilities, railroads and government agencies in more than 50 countries to provide voice and data service, as well as video. Any user of Farinon equipment will tell you about its inherent reliability, and about our fast response when he does need help to keep his system operating.

If you are about to buy microwave for importing distant signals, or for any other point-to-point application, you owe it to yourself to see what Farinon can do for you. A telephone call to John Bartelme at (415) 593-8491 or a letter is all you need to get engineering help and quotations for your needs.

Farinon Electric
935 Washington Street
San Carlos, California 94070

Telephone: (415) 593-8491
Telex: 34-8491

Farinon

LETTERS

Relooking at the Lookers

Dear Mr. Bryan:

We have just finished reading the article "The New Pot of Gold? Cities Look at Cable" in the May issue of your magazine. We wish to point out a few facts to you in answer to the previously mentioned article you have written.

First the inference you have given in the article is that a municipality would be necessary having to float bonds that would require that the municipality is an obligee and would have to dip into tax funds or general revenue to pay off the system in the event of a default on the bonds. *This is not true.* These systems can be financed with *pure revenue bonds without any tax backing* or *guarantee by the municipality.*

We agree with the statement "it seems questionable that a city of any substantial size should be engaged in what is a very high risk business." However, by financing these projects with pure revenue bonds *there is no risk to the municipality* itself.

Regarding your quote of an article in *CATV* Magazine, "that franchises are normally granted after competitive bargaining by the city and its applicants." I hasten to point out to you that this "competitive bargaining" which I prefer to call "haranging of municipal officials" is precisely what has called attention to the municipal officials and municipal financing interest as to the advantages to the city under municipal ownership.

Franchise applicants, in droves, appear before city officials all claiming it's a "losing proposition," and, after the city officials decide on which applicant is rewarded this "losing proposition" all file suit because they weren't awarded same. It makes the municipal officials wonder "who's kidding who?"

When installation of systems can be accomplished in the approximate $125.00 per connection range and the average price per connection in the stock market for companies in this business is $386.00 then municipal officials must again ask "who's kidding who?"

I was happy to see that you printed a portion of the facts on San Bruno, California. Excerpts from the story in *CATV* Magazine that you referred to have been disseminated readily by the members of the CATV industry to municipal officials, but in fact, the story does not present the true picture. In your story you mentioned the question of San Bruno legally being able to do what they have done but failed to mention (perhaps you were unaware) that they first received from the Attorney General of the State of

After 18,000 miles

we know how to turn on your system (and your cash flow) sooner.

We've invested a million and a half in special tools and equipment—much of which didn't exist until we invented it—to do a better, quicker job of installing every mile of CATV cable we've built. We've invested, too, in training a nationwide crew of CATV construction experts who know how to use these tools, and a field supervision team to put it all together and keep it all on schedule. Skilled engineering, sound planning, deep experience, and good men: that's Jackson Communication. We've earned our reputation for leadership in CATV construction.

From strand mapping and routing, to make-ready, cable and equipment installation, system sweep, and proof of performance . . . this blend of skill and experience puts you in business sooner. As soon as you have a franchise, call . . .

jackson communication corp.

P.O. Box 96 • Brookville, Ohio 45309 • Phone 513-833-4011

ARCATA NATIONAL

A WHOLLY OWNED SUBSIDIARY OF ARCATA NATIONAL CORPORATION

Letters...

(continued from page 16)

California his legal opinion acknowledging it was legal. In your conclusion you again hit on the point of risk to the municipality. We point out to you that the financing of this type of municipal endeavor can be accomplished *without risk to the municipality.*

You point out that cable television is not a necessary utility and yet if you will thoroughly analyze this industry and what its present and future use will be, I believe you can agree that this industry is presently building systems to provide more and more necessary utility services. Your closing sentence, quotes another publisher, asking if you would want the New York Welfare Department running a CATV system shows very specious reasoning on his part. Under a revenue bond financing program covenants under ordinances of the city are set out as guidelines to the operation and maintenance of the system. In fact many municipalities that have had many years experience in the operation of municipal owned utilities could in our opinion, opera' considerably more efficiently than the franchise owners.

This letter is not written to you to be critical without an answer. What needs to be understood by the cable communications industry is that the day of pulling the wool over the eyes of municipal officials is over. Additionally, instead of fighting this tremendous amount of available capital, the industry should concentrate more in the management field and manage the facilities that will be built with municipal funds. In this manner they will find their cash flow return on invested dollar considerably higher than the way they are doing business today.

Frank Hawkins
Frank Hawkins Co., Inc.
Investment Bankers
Overland Park, Kansas

Thank you Mr. Hawkins. We always appreciate hearing "the other side," but with what we know about San Bruno, I'm afraid we can't budge from our position. — Milt Bryan

Dear Milt:

I thoroughly enjoyed your article in the May issue of *TV Communications* in re municipal ownership (particularly your study of San Bruno).

I'm still convinced that the San Bruno municipally owned CATV system is, in its present state, a financial disaster and I'm sure any independent audit would confirm this.

E.M. (Ed) Allen, President
Western Communications, Inc.
Walnut Creek, Calif.

Thank you, Ed. As you can see from Mr. Hawkins' letter, not everybody agrees with us! — Milt Bryan

service IS our business

A quality cable system is built not only with dependable equipment, but also with professional engineering and reliable service and support. These are the elements offered by Scientific-Atlanta Service Company as the ideal complement to our line of headend, distribution, and two-way terminal equipment. If your plans call for strand mapping, on-site signal evaluation, or system engineering and installation, Scientific-Atlanta has the experience, the people, and equipment you can rely on. Your system is our business.

Boston	New York	Washington	Atlanta
617-272-1256	201-461-5340	301-779-1515	404-938-2930
Dan Pioli	J. King/J. Levergood	Ed Pietras	Ben Forrester

Dayton	St. Louis	Dallas	Los Angeles
513-335-4714	618-397-9251	214-357-1855	213-428-7515
Dick Gwisdala	Barney Geolat	H. Sauter/G. Dent	Al Gillingham

For more information and a copy of our new catalog write or call Bob Holman, Scientific-Atlanta, Inc., Box 13654, Atlanta, Ga. 30324 Phone (404) 938-2930

Scientific-Atlanta

Management Guidelines

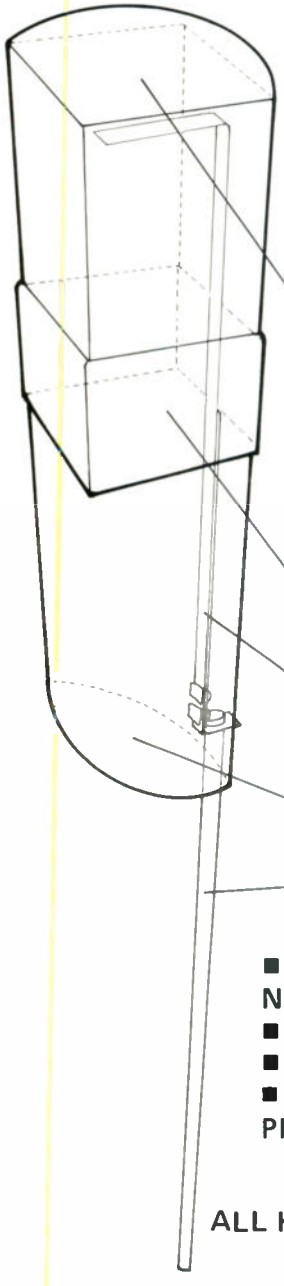
Randall B. Lee
Asst. Managing Editor

Planning Those State Association Meetings

It's fall again. And time for those state association business meetings. Many cablemen will be asked to plan those meetings. Some for the first time. Regardless of the individual's experience, providing a successful meeting requires careful planning. Here are some tips which should help the experienced and inexperienced plan a successful meeting.

- Have an immediate and specific purpose for every such meeting or do not schedule it. Holding meetings just because "it is time to hold one" is too often wasted effort.
- Schedule information that everyone will want and need to know; not exclusively what you feel that they should be told.
- Research every detail of the material involved carefully; leaving nothing whatever to happenstance.
- Blend each meeting into a continuing flow of the business itself; not something that is apart from it entirely.
- Give everybody attending something to take away from the meeting and put to practical use in their own efforts.
- Have fresh and important ideas for the meeting. Even the good one that was used last time might not produce good results when dragged out once again.
- Spend a little extra time in advance, to be certain that the meeting area has been carefully prepared.
- Be sure that those involved in the conduct of the meeting are notified far enough ahead of time so that they can properly prepare themselves.
- Beware of those off-the-cuff meeting procedures; plan everything out in advance.
- Keep every presentation as entertaining and informative as possible. Dullness can ruin the very best meeting presentations.
- Avoid an overloaded meeting agenda. It will get everyone attending confused.
- See to it that everyone attending is as comfortable as possible.
- Focus complete attention on what the group does not know about but should be aware of for not only the benefit of the business but their own as well.
- Develop every possible approach which can produce variety and freshness into each moment of every such meeting.
- Go easy on the stunts that are used or those attending will go away thinking and talking only about those stunts.
- If time permits, solicit ideas from those who will attend, for it will increase their sense of participation.
- Have something new for each such meeting; not a rehash of what has been done before. TVC

The New Economy "Park" Pedestals



REINFORCED DOMED TOP

AIR VENTS

YELLOW WARNING DECAL

HIGH IMPACT RIGID PLASTIC ONE-PIECE CONSTRUCTION

GRASS-GREEN COLOR

GENEROUS SLIP-JOINT OVERLAP

INTERNAL GROUNDING BAR

4 FEED-THROUGH HOLES FOR RG-59

TAPERED BOTTOM OPENING

4-FOOT COPPER GROUNDING ROD

- OUR PEDESTALS ARE NOT GLUED TOGETHER
- HIGH IMPACT POLYETHYLENE
- RIGID PLASTIC CONSTRUCTION
- ULTRAVIOLET RAY PROTECTION FOR MINIMUM COLOR DETERIORATION
- DESIGNED FOR AUTOMATIC LEVEL
- ALSO AVAILABLE WITH STANDARD "ECONOMY" LOCKING DEVICE

ALL HARDWARE HOT DIPPED GALVANIZING – FOR ADDED PROTECTION
SHIPPED 5 TO A CARTON, SHIPPING WEIGHT 15 LBS. (CARTON)

A FULL SIZE – RECTANGULAR (INSIDE DIAMETER 3¾" x 4½") PEDESTAL, 10 INCHES IN HEIGHT. SHIPPED COMPLETE WITH ALL HARDWARE AND WARNING DECAL.

$5.45
(ECO-4P-NL)
F.O.B. DESTINATION
CONTINENTAL U.S.A.
(QUANTITIES OVER 250)

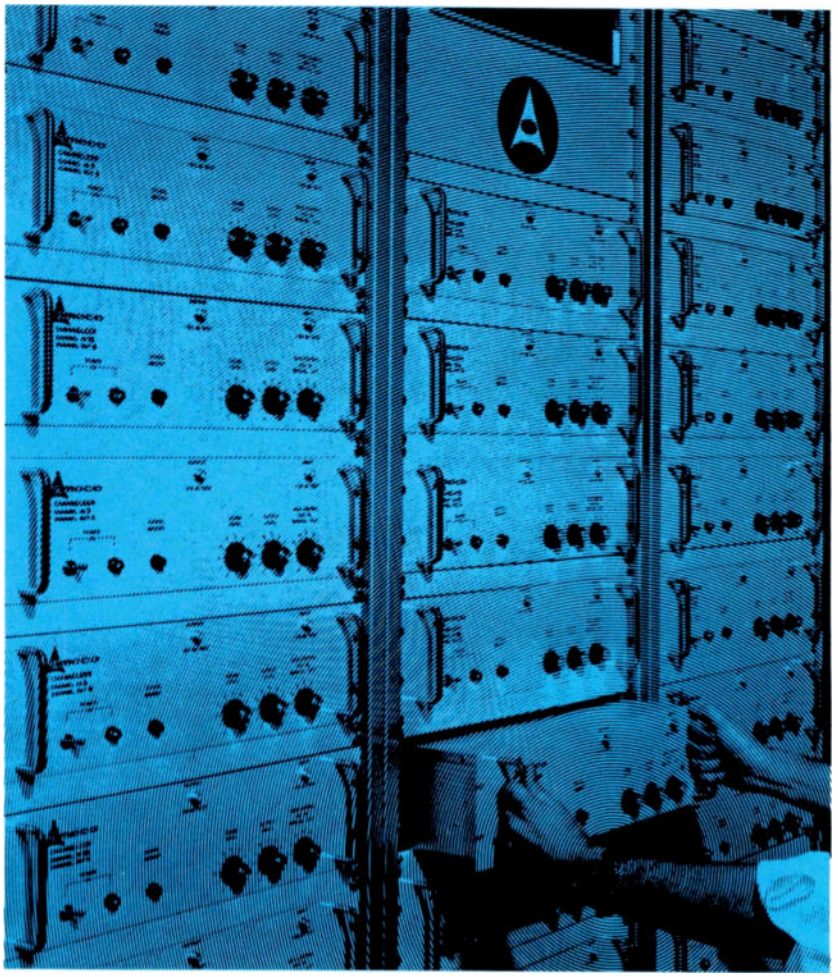
CONTACT YOUR LOCAL DISTRIBUTOR

Manufactured for
Ken Grinols
Company by:

QualEcon Industries, Inc.

5715 E. Hanna Ave./Tampa, Florida 33610/(813) 621-1346

PRE-ENGINEERED CUSTOM-DESIGNED INSTALLED SET and FORGET



CHANNELEER

Headend Signal Processing and Control Center

Ameco custom-builds complete signal processing and control centers at our factory providing TV channels, FM radio and special r.f. subchannel signals. The Control Center includes latest state-of-the-art Channeleer equipment and customer-specified system test and monitoring units meeting the most critical specifications for your system requirements. Our headends are completely compatible for any application in ordinary or Ameco METRO-COM transportation and distribution systems.

From your specifications, we design, engineer, pretest (175-hour cook-in assuring customer minimum maintenance problems) and deliver the control center ready for quick installation by our own field engineer. Factory-prepared diagrams, instructions and tagging insure trouble-free re-assembly in the field. And, as part of our service, our engineer thoroughly instructs your system technician in every phase of operation and maintenance.

We've been building headends for almost 20 years. We pioneered the heterodyne solid-state signal processor. Thousands of these processors are in service today, and will be tomorrow. We guarantee it.

The CABLEbility People

ameco

BOX 13741 | PHOENIX, ARIZONA 85002 | PHONE (602) 252-7731

CATV News Briefs

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

Advisory Committee urges Certificate Action: Federal/State/Local Advisory Committee urged FCC to act on cable applications "in normal sequence" despite state-imposed moratorium; members wrestled with clarification of fee limitation. Committee Chairman Jacob W. Mayer expressed opinion present backlog alone would take "at least a year." Despite lengthy discussions on fee limitations, little agreement on issues has been reached. (*CATV* 8/21 p4)

Utah Court Rules on Cable's Utility Status: Utah State Supreme Court ruled cable television is not public utility, in 3-2 decision overturning opinion of state attorney general. (*CATV* 8/21 p3)

FCC Advisory Group Wrestles with Fed/State/Local Problems: FCC's franchise fee limits was hot topic at Federal/State/Local meeting. New York City Director of Franchises Morris Tarshis challenged FCC's right to tell cities what fees they may charge. Committee agreed that percentage limitations in franchise fees should be applied to gross revenues collected by franchisee from typical CATV subscriber only, and that franchise fees in excess of 5% will not be approved. (*CATV* 8/7 p3)

Hearings Probe CATV Sports Blackout Options: FCC hearings on CATV sports carriage took statements from major professional league commissioners who expressed determination to maintain control over who sees which sports programs and where. Broadcasters spoke for strict controls — if not outright ban — on CATV carriage. Bill Daniels, CATV pioneer and president of American Basketball Assn., spoke up for cable. (*CATV* 7/31 p3)

Sterling Battle Against New York Telco Continues: Sterling Manhattan has asked FCC to enjoin New York Telephone Co. from providing Columbia Pictures with distribution for pay-TV movies into NYC hotels, arguing that the Telco ought to seek Section 214 Certificate of public convenience and necessity for the activity. Telco denies FCC has jurisdiction. (*CATV* 8/21 p4)

NCTA Directors Vote Support of Sterling: By overwhelming majority, NCTA directors voted approval and support of Sterling Manhattan's battle against New York Telco's pay-TV via cable operation. Directors also authorized new committee to study and make policy recommendations on cable subscription programming. In other action, NCTA directors approved National Chairman William Bresnan's committee appointments. (*CATV* 7/31 p3)

H. Rex Lee Criticizes Cross-Owner Inaction: Commissioner H. Rex Lee called for "immediate action" on petitions for reconsideration of CATV cross-ownership rules which forbid ownership of CATV systems and broadcast stations in same markets. Criticism came in dissent to the FCC's decision to waive rules for Stauffer Publications, owner of Amarillo broadcast station and part-owner of the local CATV station. (*CATV* 8/21 p6)

FCC Delays Decision on Satellite Appeal: FCC's Domestic Satellite Policy restricting AT&T and Com-

CATV News Briefs

sat's participation in domestic satellites failed to take effect as scheduled; Comsat's request for stay will be considered in September, when new Commissioner Ben L. Hooks will presumably cast deciding vote. (*CATV* 7/31 p4)

ACTS Wants Piece of Cable TV Pie: All Channel Television Society, long-time opponent of cable industry development, has filed request with the FCC for relaxation of FCC's rules in regard to UHF ownership of cable systems. ACTS noted FCC's previously-stated intent to foster development of UHF, and obvious failure of that intent to generate growth. (*CATV* 8/7 p4)

Cypress Requests Anaheim Ordinance Re-evaluation: Cypress Communications has withdrawn its franchise bid for city of Anaheim, Calif., and has requested that city fathers re-evaluate proposed CATV ordinance, which Cypress called prohibitive. (*CATV* 8/7 p3)

Anderson Column Labeled Fraud: Columnist Jack Anderson's claim that Chairman Dean Burch and Commissioner Nicholas Johnson are at head of alleged administration priority list for ax was labeled "completely a fraud" by OTP's Brian Lamb. (*CATV 8/14 p3)*

NCTA Sponsoring Logo Contest: NCTA will give the designer of a new logo a quadraphonic sound system valued at $1,200 plus $300 in cash. Contest is open to employees of any firm or organization currently in good standing with NCTA. (*CATV* 8/14 p5)

AVA Electronics Buys Trim Line Connector: AVA Electronics announced purchase of Trim Line Connector Co., manufacturer of outdoor connectors for CATV industry, from Premier Microwave Corp. Over $70,000 in inventory, drawings, tools and machinery were involved in cash purchase. (*CATV* 8/14 p6)

Experts Testify at Federal/State Meeting: Steering committee of Federal/State/Local Advisory Committee, discussing allocation of CATV authority among federal, state and local governments, heard statements from Steven Barnett, University of California, and Dr. Del Smith, University of Wisconsin. (*CATV* 7/31 p8)

Cable Bureau Announces Fee Total: Cable Television Bureau of FCC collected total of $1,616,059 in fees in fiscal year 1972, according to Commission. (*CATV* 7/31 p8)

NCTA Marketing Workshop "Unqualified Success": NCTA's three-day marketing workshop held in Denver and attended by around 150 cable marketers, was dubbed an "unqualified success" by organizer Del Henry. Repeat conference next year is likely. (*CATV* 7/31 p11)

Foster Speaks on Copyright Fees: NCTA president David Foster told New York Security Analysts

audience that settling of Copyright fees for CATV industry will likely "be solved by some sort of statutory fee schedule." (*CATV* 8/21 p4)

McClellan Shift To Have No Effect on Copyright: Due to recent death of Sen. Allen J. Ellender (D-La.), Sen. John McClellan (D-Ark.) will probably move up to the chairman's seat on Senate Appropriations Committee. Fear that the move would affect McClellan's chairmanship of Copyright Subcommittee, and that copyright law revision would be delayed as a result, was allayed by McClellan aide, who indicated that copyright bill would be passed before the Senator vacates post. (*CATV* 8/7 p8)

Systems Under Gun in Non-duplication Cases: Systems operating in half a dozen communities have been ordered by FCC to comply with non-duplication rules protecting stations with predicted priority contours. (*CATV* 7/31 p9)

International Cabling Up to Court, Says FCC: FCC refused to rule on what kind of permission a firm needs for land-cable crossing of U.S.-Canadian border, saying it's up to court to decide that question of federal law. TPT complaint against American Microwave was dismissed. (*CATV* 7/31 p6)

FCC Tech Division Has Receiver Report: New report on technical performance characteristics of television receivers is available from Technical Division of FCC. Over 200 models manufactured by 25 suppliers were involved in sampling. (*CATV* 7/31 p9)

More Authority for Cable Chief Schildhause: Cable Chief Sol Schildhause, who was recently given responsibility for processing CATV certificates of routine nature, will also be able to act on requests for special temporary authorizations in CARS. (*CATV* 8/7 p8)

ATC Wins Eleventh Florida Franchise: American Television & Communications won its eleventh central Florida franchise since it announced plans for 32-channel network interconnecting communities in the area. (*CATV* 8/7 p9)

Tocom Plans Sale of Total Communications: Tocom, Inc., of Irving, Texas, announced agreement to sell its subsidiary, Total Communications of Irving, Inc., to The Leavell Co. of El Paso. Terms include acquisition of all outstanding stock of Total Communications. (*CATV* 8/7 p10)

Macdonald Pledges Radio Hearings: Congressman Torbert Macdonald (D-Mass.) promised to focus specific attention on radio in hearings on broadcast license renewals early in 93rd Congress. Macdonald questioned a number of radio license renewal procedures. (*CATV* 8/7 p10)

National Magazine Features CATV Potential: 100th anniversary issue of *Popular Science* magazine featured article by Dr. Peter C. Goldmark, noted inventor and president of Goldmark Communications.

CATV News Briefs

Goldmark cited two-way broadband cable television as key to future in communications. (*CATV* 8/7 p10)

Viacom Buys California System: Viacom Int. completed cash purchase of Com-Cable T.V., Inc., which operates in Sonoma and Tuolumne, Calif. System has 6,400 subs. (*CATV* 8/21 p10)

Nebraska Cableman Dies: Conrad A. Bastow, general manager of Lincoln TV Transmission in Lincoln, Nebraska, died following a heart attack, at the age of 33. (*CATV* 7/31 p6)

Certificate Applications Granted: Twenty-four Certificates of Compliance were granted in July as "emergency items." Applications granted were: Outer Banks Video, Inc., for Kill Devil Hills, Nags Head and unincorporated areas of Dare County, N.C. (CAC-273, 274, 275); Communicable of Texas Inc., Monahans and Kermit, Texas (CAC-367, 368); McAlester Cable TV Co. for McAlester and Krebs, Okla. (CAC-15, 16); Pioneer Valley Cablevision, Greenfield, Mass. (CAC-10); Community TV Corp., Northfield and Tilton, N.H. (CAC-12, 13); Coosa Cable Co., Inc., Pell City, Ala. (CAC-11); Cablecom General, Corpus Christi, Tex. (CAC-48); Litchfield, Minn., Metro Cable Inc. (CAC-47); Columbus Cablevision, Inc., Columbus and Bibb City, Ga. (CAC-35, 36); and Gerity Broadcasting, Midland and Midland Township, Portsmouth Township, Frankenlust Township and Monitor Township (CAC-48, 54), all in Michigan. (*CATV* 7/24 p3) Applications granted in early August included: Coaxial Communications of Columbus, Inc., Columbus, Ohio (CAC-2); Bay City TV Cable Co., Bay City, Tex. (CAC-7); Hawkeye Cablevision, Inc., Urbandale, Iowa (CAC-71); Resort Television Cable Co., Hot Springs, Ark. (CAC-138); Burney Falls Cablevision, Inc., Burney, Calif. (CAC-148); Cruces Cable Co., Las Cruces, N. Mex. (CAC-153); Salina Cable TV System, Inc., Kinsley, Kan. (CAC-177); Salina Cable TV System, Inc., Pratt, Kan. (CAC-178); KWR Systems, Inc., Vernon, N.Y. (CAC-161); Tioga TV Cable Co., Inc., Owego, N.Y. (CAC-262); Herington CATV, Inc., Herington, Kan. (CAC-259); Mustang Cable TV, Inc., Andrews, Tex. (CAC-337); Thomaston Cable Co., Thomaston, Ga. (CAC-399).

Financial Developments: TelePrompTer reported first half income of $6,011,023, a 63.8% gain over 1971's first half net . . . Second quarter earnings were up 44% for Viacom International, which also gained 18,000 subscribers during first half . . . Cablecom General reported revenues up from a year ago, to $4,724,874, but reported a decline in net income from $.16 per share to $.08 per share . . . Cox Cable reported record second quarter with revenues totaling $3,892,012; Cox Cable and American Television & Communications are expected to review terms of their merger in next few weeks . . . Year-end report from LVO Cable showed revenues of $6.2 million; total subscribers increased to 106,136, according to the company . . . Gulf + Western announced record and distribution dates for the previously declared special dividend of one share of Athena Communications common stock for each 10 shares of Gulf + Western common stock. Dividend will result in issuance of 1,640,000 shares of Athena stock, of which G+W will continue to own about 360,000 shares. (*CATV* July/August issues)

Franchise Actions: Gary Communications Group, Inc., black-controlled corporation, has filed petition for franchise in Gary, Ind.; TPT already holds franchise and says it "welcomes the competition" . . . Cablecom-General won Topeka, Kan. franchise . . . Springfield, Ohio franchise award to Continental Cablevision has been challenged by Cypress Cable TV of Springfield. (*CATV* July/August issues)

Q. Is Anaconda really serious about being in the cable television business?

Jim Marvin, the new president of Anaconda Wire & Cable Company, is **very** serious. This teletype speaks for itself:

ANACONDA WIRE & CABLE COMPANY NYC 7/26/72

RECOGNIZING THE INCREASING IMPORTANCE OF ELECTRONICS IN THE MARKETS WE SERVE AND IN PURSUIT OF GROWTH OPPORTUNITIES IN COMMUNICATIONS AND CATV INDUSTRIES WE HAVE RESTRUCTURED TWO OF OUR DIVISIONS.

THE ELECTRONICS DIVISION AT ANAHEIM WILL CONCENTRATE EXCLUSIVELY ON EXPANDING OUR POSITION IN THE CATV INDUSTRY. TELECOMMUNICATIONS DIVISION - FORMERLY COMMUNICATIONS DIVISION - WILL ASSUME RESPONSIBILITY FOR PRODUCTS RELATED TO THE TELEPHONE AND ALLIED INDUSTRIES.

IT IS WITH PLEASURE THAT WE ANNOUNCE THE APPOINTMENT OF ALFRED L. GINTY AS VICE PRESIDENT - ELECTRONICS DIVISION.

JAMES L. MARVIN
PRESIDENT

ANACONDA ELECTRONICS, A Division of Anaconda Wire and Cable Company, 305 N. Muller, Anaheim, California 92801 714/635-0150

ANACONDA

FOCUS ...On People

Systems

Arthur C. Belanger has been elected vice president-operations of the General Electric Cablevision Corp. He has been with GE for twenty-one years in various capacities.

William C. Henchy has joined Aurovideo, Inc. as president of Aurovideo-CATV. He will manage the firm's systems and will lead the effort for acquisitons and franchises. Henchy was previously vice president at Athena Communications Corp.

Anthony C. Leonard has been named director of the newly created Corporate Development Department of Suburban Propane. He will assume supervision of the company's cable television systems, and will direct exploration of new business ventures.

Charles C. Woodard has been appointed president of Covenant Cable, Inc., with operating systems in Millville, N.J. and Greensburg, Pa. Woodard was previously vice president of programming for TelePrompTer.

J. Phil Franklin has been named general manager of Oceanside Cablevision. Franklin has served as secretary of the California cable association and was Founder President of the New Jersey group.

Suppliers

The CATV Division of Oak Industries has announced the appointments of Walter J. Sonneville as director, planning and development, and of Eugene C. Walding as director, engineering.

C-COR Electronics, Inc. has announced the appointment of Jere P. Smith as southeastern sales manager for cable television products. Smith is managing and working out of the company's new office in Atlanta.

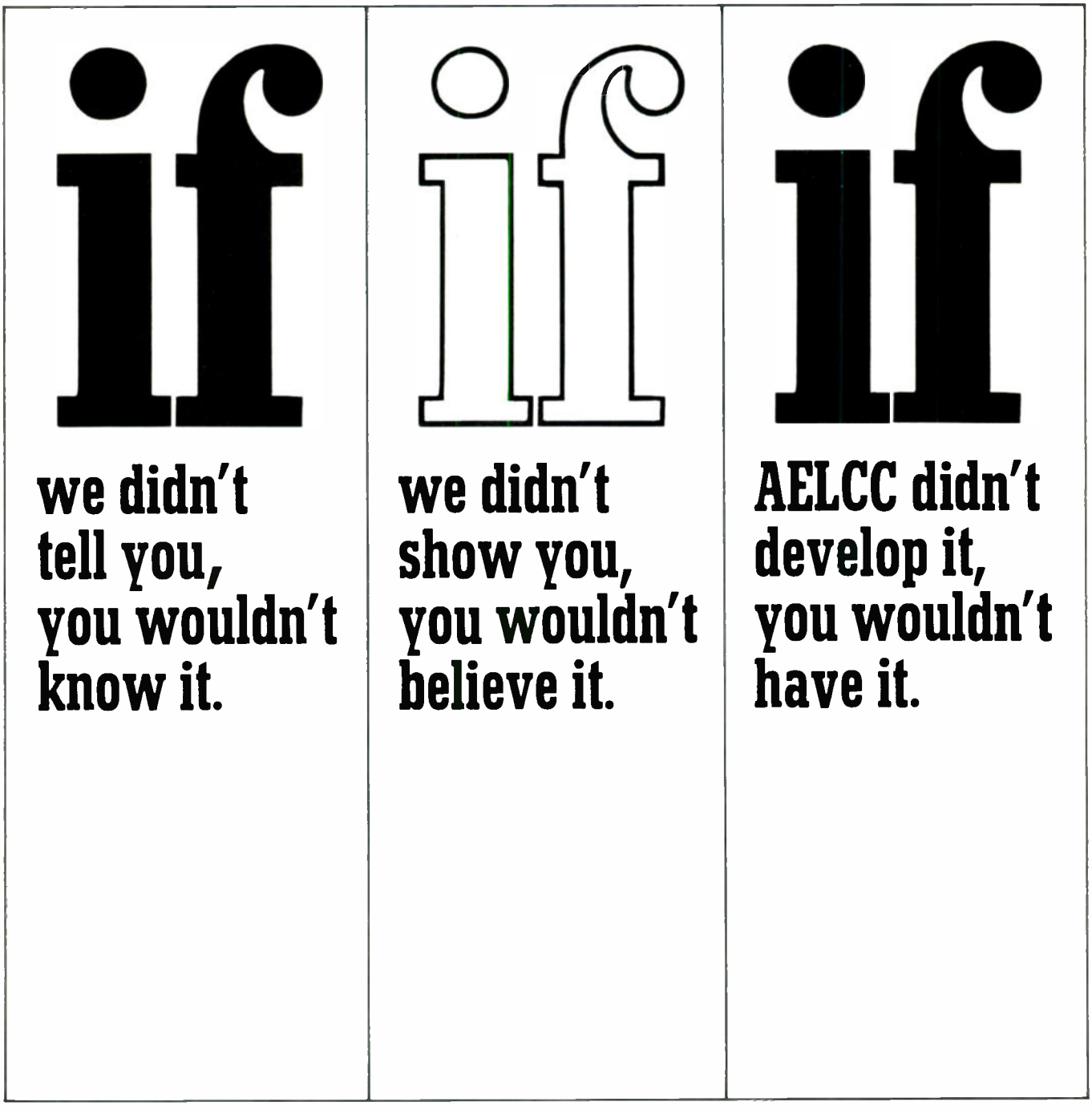
John M. Hollywood has joined Goldmark Communications Corp. as senior electronic engineer, Dr. Peter C. Goldmark, GCC president and director of research, has announced. A long-time associate of Dr. Goldmark, Hollywood is responsible for many outstanding developments in the field of display technology, particularly as applied to color television.

Matthew J. Lysek has joined Jerrold as manager of subscriber materials, according to William Lambert, Jerrold's CATV division head. Lysek formerly was vice president of marketing for Magnavox CATV. At Jerrold, he will assume product management responsibilities for a line of products similar to those developed at Magnavox under his direction.

Larry Freemire has been picked to run Anixter-Pruzan's Los Angeles office. Freemire recently won a company-wide "salesman of the year" contest.

Dolphin Communications Corp. has named Steve Jennings to the post of western divisional manager. Another new salesman for Dolphin is Dan Foley, who assumes responsibility for servicing systems in the northeast and southeast.

W. Sanford Maner has joined Anixter-Pruzan as southeastern salesman for CATV products. Maner will be based in Anniston, Ala., and will serve systems in Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee and Texas.



Find out what it is and how it can make your CATV system more efficient by writing to:

AEL®

AEL COMMUNICATIONS CORPORATION

The CATV Subsidiary of AMERICAN ELECTRONIC LABORATORIES, INC.

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

In the Balance– Cable and Copyright

To most cablemen, copyright is a very complex problem. Chin Kim, an associate professor of law at the University of Illinois, brings **TVC** readers up to date on the history and current status of copyright legislation.

By Chin Kim, Assoc. Prof. of Law
University of Illinois
Champaign, Illinois 61820

Since its original enactment, the need for thorough revision of the copyright law of 1909 has been felt strongly — especially during the period of rapid technological development of sophisticated devices for human communication. Innumerable proposals, meetings conferences, and discussions have taken place to achieve the goal of accomplishing a comprehensive omnibus copyright law.

In these series of forums the most noteworthy is an extensive study program on the revision of copyright law carried out by the United States Copyright Office, starting in 1955. Based on the results of this study, a revision bill was introduced in the U. S. House of Representatives in 1964. In spite of a series of legislative measures in both houses throughout recent sessions of Congress the revision of the 1909 Act is not yet fully realized. During the 2nd session of 91st Congress, the thorny CATV issue became the focus of controversy in the final process of deliberating S.543, a bill which dealt with the general revision of the copyright law.

More Legislation

On February 8, 1971, another legislative measure to revise the copyright law was introduced in the Congress and is still pending before the U. S. Senate Subcommittee on Patents, Trademarks and Copyrights.

Copyright is the means by which legal protection is given to a man's work of science, literature or art, regardless of its form, purpose or value or of the manner in which it is reproduced. This is by nature an esoteric and complex subject. In the protracted task of revising the copyright law, the CATV issue sprang into existence as a major issue in the U. S. Congress, thus stalling the further deliberation of copyright law revision measures.

The CATV industry has attained the rapid growth which posed policy questions in the communications services, and which inevitably raised the issue in copyright of programming.

The Legal Status of Cable

Legal status of CATV was a subject of controversy until 1968, when the United States Supreme Court interpreted existing statutes to rule on two issues: the authority of the Federal Communications Commission to regulate CATV and the question whether or not CATV systems are subject to copyright liability.

The first issue came up in United States et al. v. Southwestern Cable Co. et al. The issues here were whether the Federal Communications Commission had authority to regulate CATV systems and whether it had the authority to issue the prohibitory order in question under the Communication Act of 1934. The Court rejected the contention that the Commission was without authority because CATV systems were neither common carriers nor broadcasters and so eluded the Communications Act altogether. The Court ruled that the statute gave the Commission a "comprehensive mandate" with "not niggardly but expansive powers" and that there was no reason to

believe that Section 152 of the act did not confer regulatory authority over "all . . . interstate . . . communication by wire or radio."

The Second Question

The second question involved copyright infringement litigation. It came up in Fortnightly Corp. v. United Artists Television, Inc. Here the petitioner owned a CATV system and distributed television broadcasts from three stations in Pittsburgh, one in Steubenville and one in Wheeling, to its customers residing in towns located in the hilly terrain of West Virginia. Fortnightly Corporation neither edited nor originated programs. The CATV system carried all the programs of the five stations, and the subscriber could choose any of the programs.

United Artists Television, Inc. sued Fortnightly Corporation, which had no copyright license from either United Artists Television, Inc. or the television stations, for copyright infringement, claiming violation of its exclusive rights under the Copyright Act of 1909, to "perform . . . in public for profit" (non-dramatic literary works) and to "perform . . publicly" (dramatic works). Fortnightly Corp. averred that it did not "perform" the copyrighted works at all.

Recent Court Decisions Clarify

Further liability for cabling of distant signals was quashed when Judge Constance Baker Motley (the same judge who sentenced Irving Kahn and Tele-PrompTer in the Johnstown case) ruled that CATV system operators are not obliged to pay copyright fees on any broadcast signals transmitted, local or distant, off-air or microwaved. The decision effectively extended the Fortnightly ruling.

CBS, supported by other broadcasters and copyright owners, had argued, specifically against Tele-PrompTer, that cable systems importing signals via microwave and originating programming do not come under the Fortnightly protection. Judge Baker disagreed.

Just last month the Supreme Court, by one vote, settled the FCC regulatory role: "the Commission's program origination rule is 'reasonably ancillary to the effective performance of (its) various responsibilities for the regulation of television broadcasting." Midwest Video's long fight against the mandatory origination ruling was just barely lost. The Court voted 5 to 4 and produced a four-man opinion with the swing vote that of Chief Justice William Burger.

The Court split along unusual lines: Justices Brennan, White, Marshall and Blackman joined in upholding the Commission's authority; Justices Douglas, Stewart, Powell and Rehnquist dissented.

Revision Hearings

The question whether a CATV system infringes the copyright of a broadcasting station by its reception and retransmission of the station's signals came up frequently during the course of Senate hearings on Copyright Law Revision in 1966. Advocates who insisted upon the adoption of a legislative measure to impose copyright royalties on CATV systems based their reasoning on the decision of Fortnightly Corp. v. United Artists Television, Inc. rendered by a Federal district court in New York. They further relied on the United States Supreme Court decision on Buck v. Jewell-LaSalle Realty Co. wherein in 1931 the Court held that "the acts of a hotel proprietor, in making available to his guests, through the instrumentality of a radio receiving set and loudspeakers installed in his hotel and under his control and for the entertainment of his guests" constituted a public performance for profit. In other words, these wired music operators are engaged in giving public performance of copyrighted works for profit in violation of the 1909 copyright law.

Fortnightly vs. United Artists

The United States Supreme Court's decision on Fortnightly Corporation v. United Artists Television, Inc. was a disappointment to commercial television stations. The Court held that the activities of a commercial CATV system does not constitute a "public performance for profit" and are therefore not actionable as copyright infringements under the present copyright law. The Court ruled that "Judicial construction of the Copyright Act, in the light of drastic technological changes, has treated broadcasters as exhibitors, who 'perform,' and viewers as members of the audience who do not 'perform,' and since petitioner's CATV systems basically do no more than enhance viewers' capacity to receive the broadcast signals, the CATV systems fall within the category of viewers, and petitioner does not 'perform' the programs that its systems receive and carry."

Studies, Studies and More...

Extensive studies on "Copyright Law Revision" were made from 1957 to 1960 under the supervision of the U. S. Copyright Office with a view to considering a general revision of the Copyright Law of 1909. In these studies the words "CATV" are nowhere to be found. Because of the mushrooming of such a business, CATV, with its multidimensional problems, became a major issue in copyright law revision in the U. S. Congress almost overnight.

The house bill as originally introduced would have imposed full copyright liability upon CATV systems, and during and after the 1965 House hearings on "Copyright Law Revision" conducted by Copyright Revision Subcommittee No. 3, the House Judiciary Committee studied the arguments made especially in light of the decision rendered by the U. S. District Court for the Southern District of New York in United Artists Television, Inc. v. Fortnightly Corporation. The final version of the bill dealing with the

copyright aspect of CATV taken by the U. S. House of Representatives was a compromise between the two polar positions of complete exemption sought by CATV interests and full liability sought by the copyright interests. Defining CATV systems as "commercial services that intercept off-the-air transmissions of programs originated by others and retransmit them to paying subscribers by wire connections or the like, without altering their content, originating programs themselves or making special charges for particular programs." Section 111 of the proposed bill contained complex measures to work out this compromise.

Based on geographic and other characteristics, CATV activities were divided into three categories, each with different rights and remedies: (1) CATV activities are wholly exempt where they would fill in gaps or improve bad reception caused by technical interference of the primary broadcaster, (2) CATV activities are subject to full copyright liability where they retransmit beyond the area served by the primary broadcaster into an area already served by one or more other broadcasters, none of whom is licensed to carry the same program; and (3) CATV activities are subject to limited liability with a reasonable license fee where there is an uncompensated "free ride" at the copyright owner's expense, i.e., retransmission beyond the area served by any primary broadcaster into an area already served by another broadcaster who has a license to carry the same program; or into an area not served by any primary broadcaster.

The copyright revision bill passed by the U. S. House of Representatives in 1967 did not contain a complicated provision covering CATV. The CATV provision was deleted from the bill on the House floor and was referred to the Interstate and Foreign Commerce Committee which has jurisdiction over communications. Apparently, the House decided that the solutions related to the status of CATV systems under the Communications Act should proceed prior to the adoption of statutory measures to prescribe a copyright facet of CATV.

Compulsory Licensing for CATV

The Senate bill currently pending sets up a system of compulsory licensing for CATV systems by providing that the secondary transmission by a CATV system of a primary transmission embodying a copyright work is subject to compulsory licensing if one of the following three conditions exists: (1) the signals comprising the primary transmission are exclusively aural, or (2) the reference point of a CATV system is within the local service area of the primary transmitter, or (3) the reference point of a CATV system is outside any U. S. television market, as defined by the bill.

In case of existence of one of these conditions the bill provides that a CATV system may secure a compulsory license upon complying with certain reporting requirements and paying the necessary copyright fees. The bill requires every CATV system

The heart of your local origination system should be the TEKTRONIX 144 Generator.

The TEKTRONIX 144 Generator is a good buy. First it provides full EIA sync with the drive and blanking necessary for basic studio operation. And in addition, at no extra cost, the 144 provides color bars, convergence crosshatch, modulated staircase and modulated pedestal for studio setup and evaluation.

And more . . . A special mode of the 144 places your choice of video in an insert area of a composite pattern of convergence crosshatch and color bars. This insert area can be used for a commercial . . . a message from a TV service company would be very appropriate . . . or automatic time/weather data.

And special effects . . . The TEKTRONIX 144 comes with provisions for a simple wipe between two external video sources. All that is necessary is a simple change that is fully described in the 144 instruction manual.

No costly add-ons needed: The TEKTRONIX 144 is a complete generator with performance to match your needs today and the demands of the coming years, and it only costs $2500. You can learn more about the 144 and other TEKTRONIX products for CATV by using the new Television Products Catalog. If you haven't received one—you are not on our CATV Mail List and are also missing the information contained in our Television Application Notes.

TEKTRONIX®
committed to technical excellence

Tektronix, Inc.
P. O. Box 500-A
Beaverton, Oregon 97005

Send us the coupon to request a catalog, a demo and/or inclusion in the TEKTRONIX CATV Mail List.

☐ *I would like a demonstration of the 144*
☐ *I would like to receive CATV mailings*
☐ *Send me a catalog with 144 information*

Name _____

Position _____

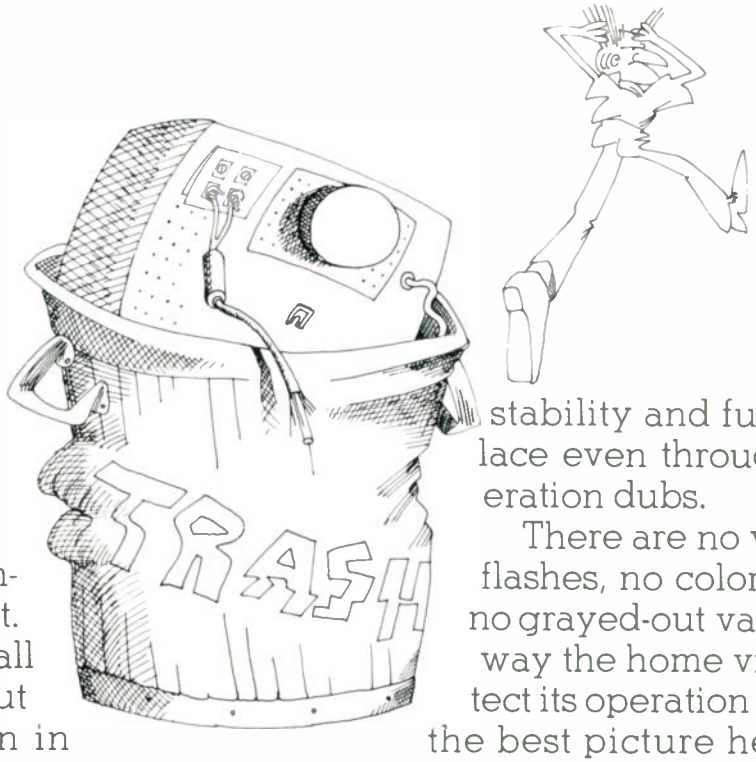
Organization _____

Address _____

_____

Eliminate the dropouts from your helical playbacks.

And maybe a few from your subscriber list.



Nobody's happy with video dropouts. Not you, and certainly not your customers. But up till now, there was nothing you could do about it.

So at 3M, we've taken all that we've learned about dropout compensation in quadruplex VTR's and come up with a Video Dropout Compensator for the helical VTR's used in most CATV systems.

It replaces all lost video information—in color or monochrome—with signals exactly matched for luminance and chrominance while maintaining video stability and full color interlace even through multi-generation dubs.

There are no white or color flashes, no color mismatches, no grayed-out values. The only way the home viewer can detect its operation is that he gets the best picture he's ever had, which ought to make both you and him happy.

Because a happy subscriber is a happy subscriber.

VIDEO PRODUCTS

Mincom Division 3M COMPANY

300 SOUTH LEWIS ROAD • CAMARILLO, CALIFORNIA 93010

transmitting secondary signals under a compulsory license to pay copyright fee in accordance with a graduated fee schedule payable quarterly to the Register of Copyrights who in turn will distribute the funds to the copyright owners. The bill also subjects a CATV system to full copyright liability for its secondary transmissions where a primary broadcaster has acquired the exclusive right to transmit any performance of a work.

Not an Easy Solution

The increasing number and size of CATV systems together with the technological cultivation of the potent cable have raised difficult problems of law and policy in both the communications and copyright fields.

In 1967, the United States Supreme Court rendered its decision in United States et al v. Southwestern Cable Co. et al. and Fortnightly Corp. v. United Artists Television, Inc. The Congress now has new CATV rules issued by the Federal Communications Commission which was the outcome of the hearings commenced on June 15, 1971, by the Subcommittee on Communications of the United States Senate Commerce Committee. Through this forum, the federal legislators discussed the Federal Communications Commission's ideas about its final CATV rules. The rationale of having these hearings appear in a report prepared by Senator McClellan, Chairman of the Subcommittee on Patents, Trademarks and Copyrights of the U. S. Senate, in the following words:

> *"The CATV issue was even more difficult to resolve because certain aspects of it were regulatory in nature and therefore outside the jurisdiction of the subcommittee. Consequently, the bill does not contain provisions relating to such subjects as program origination by cable systems, advertising or the application to cable systems of Federal Communications Commission requirements in the area of technical standards. However, the measure does include provisions pertaining to other phases of the issue, such as the payment and distribution of copyright fees by cable systems and the importation of distant television signals transmitting copyright programs."*

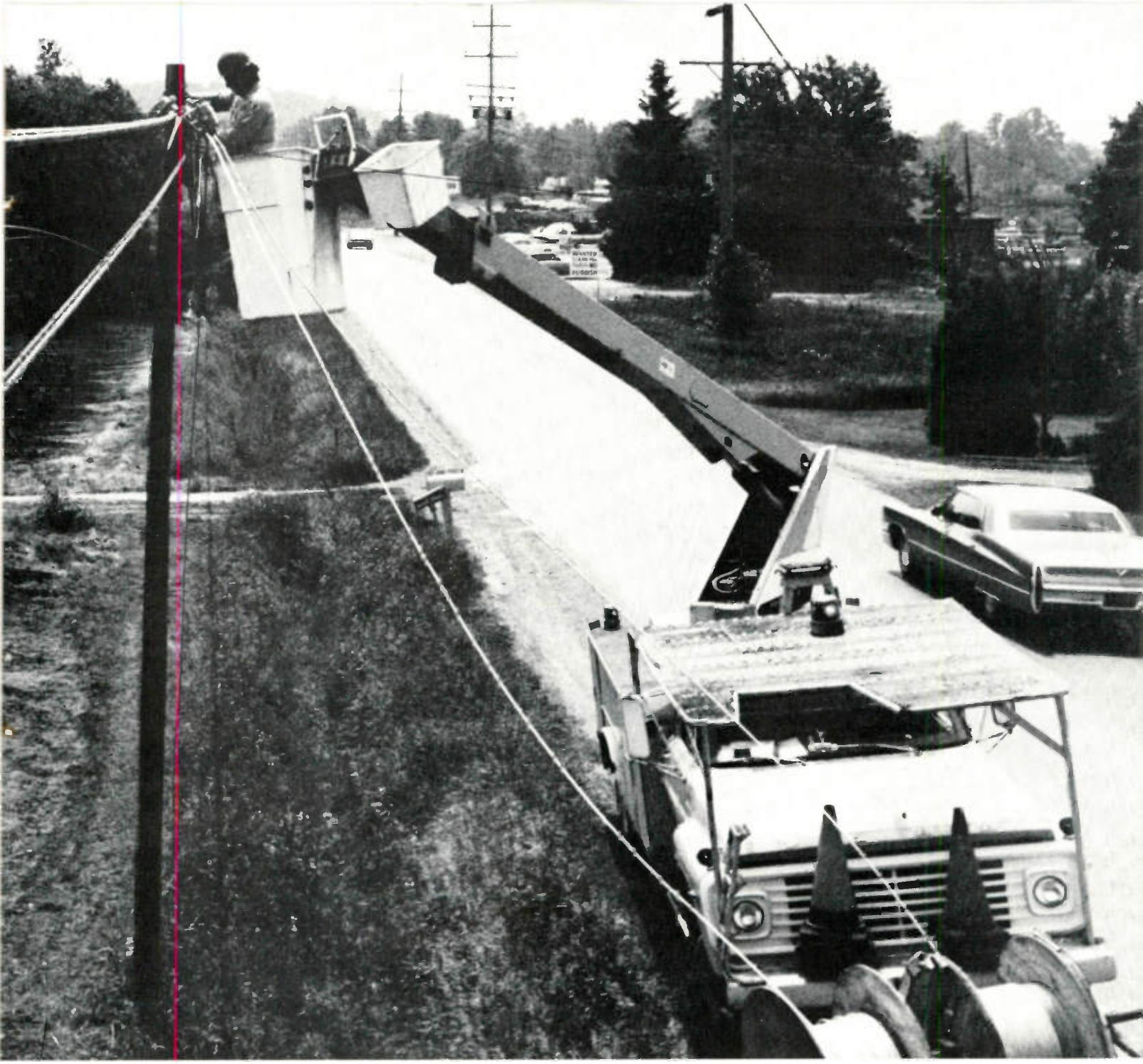
The adoption of the FCC's CATV rules, which are in keeping with a broad band of communications revolution now in progress, is considered a key to providing guidelines for CATV's copyright liabilities. In light of these adopted rules, undoubtedly House and Senate views on the copyright implications of CATV have to find a common ground based on a reasonable and well-considered compromise, thus removing a major barrier to the imperative task of revising the 1909 copyright law. Needless to say, the goal of this task is to find a balance between "the constitutional objective of the copyright system to encourage creativity, and the public interest in providing for the widest possible dissemination of information."

24 months, 1800 miles, and TVC keeps installing copper clad aluminum cable.

Here's what Mac Ferguson, director of engineering, TeleVision Communications Corporation, has to say: "After a couple of years' use in TVC's Akron, Ohio system, we've found the economical benefits of copper clad aluminum coaxial cable to be substantial, particularly where dual or multiple cable construction is planned."

More and more companies, like TVC, are discovering the unique advantages of copper clad aluminum conductor. Its copper skin transmits RF signals as efficiently as solid copper. While the solid aluminum core reduces weight. And cost.

Mile after mile, copper clad conductor performs like copper. Without the drawbacks. Tests show it has copper's attenuation characteristics. Yet it handles



easier. Expands uniformly to eliminate pull out. Won't drift in the dielectric. And experience shows you won't have to increase your power supply.

Copper clad aluminum conductor, developed by Texas Instruments, is available from your cable manufacturer. Specify it next time you order cable. Get everything copper gives you. Except the higher price.

For a folder of complete technical information on copper clad aluminum conductor, just fill in the coupon or write Texas Instruments in Attleboro, Massachusetts.

TEXAS INSTRUMENTS
INCORPORATED

Texas Instruments Incorporated
Metallurgical Materials Division
Mail Station 10-6A
Attleboro, Massachusetts 02703

Gentlemen:

Please send me your packet of technical literature on copper clad aluminum conductor.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Paul Maxwell

Jacqueline Morse

You Give 'Em an Inch, and... They Want a Mile for Copy, Right?

By Jacqueline Morse, Washington Bureau Chief, and Paul S. Maxwell, Executive Editor

Right!

"In the Balance, Cable and Copyright" by Chin Kim, an associate professor of law at the University of Illinois, chronicles the history of America's copyright hassles beginning on page 30 of this issue. We think it is time for an end to these seemingly endless hassles.

Jack Valenti of the Motion Picture Association of America threw in the towel (or, rather, he threw down the gauntlet) at this year's National Cable Television Association Convention in Chicago. He said the negotiations (still in "progress") to find an equitable and amiable agreement between the forces of the copyright holders and the cable industry were at the end of the road. And, from his tone of voice and his gyrations at the podium, the amiable part was about over too.

Alfred Stern, the head of Warner's TeleVision Communications, shared a panel discussion called the Hollywood View back there in Chicago. He very clearly and calmly told Valenti that "It is not yet time to throw up our hands." He wanted the negotiations to continue.

And they have, in a manner of speaking. Not a whole lot has been negotiated because just what is there to be negotiated isn't clear.

Zero for Three?

That is not some new way to get something for nothing. Rather, it is a reasonable approach to a compromise. The real problem in negotiating a copyright fee for cable communications to pay is that no one, not the copyright holders nor the cable people, know exactly what they are dealing with. There simply is nobody of knowledge to draw from; no experience to consider; and no real guidelines for what's to come.

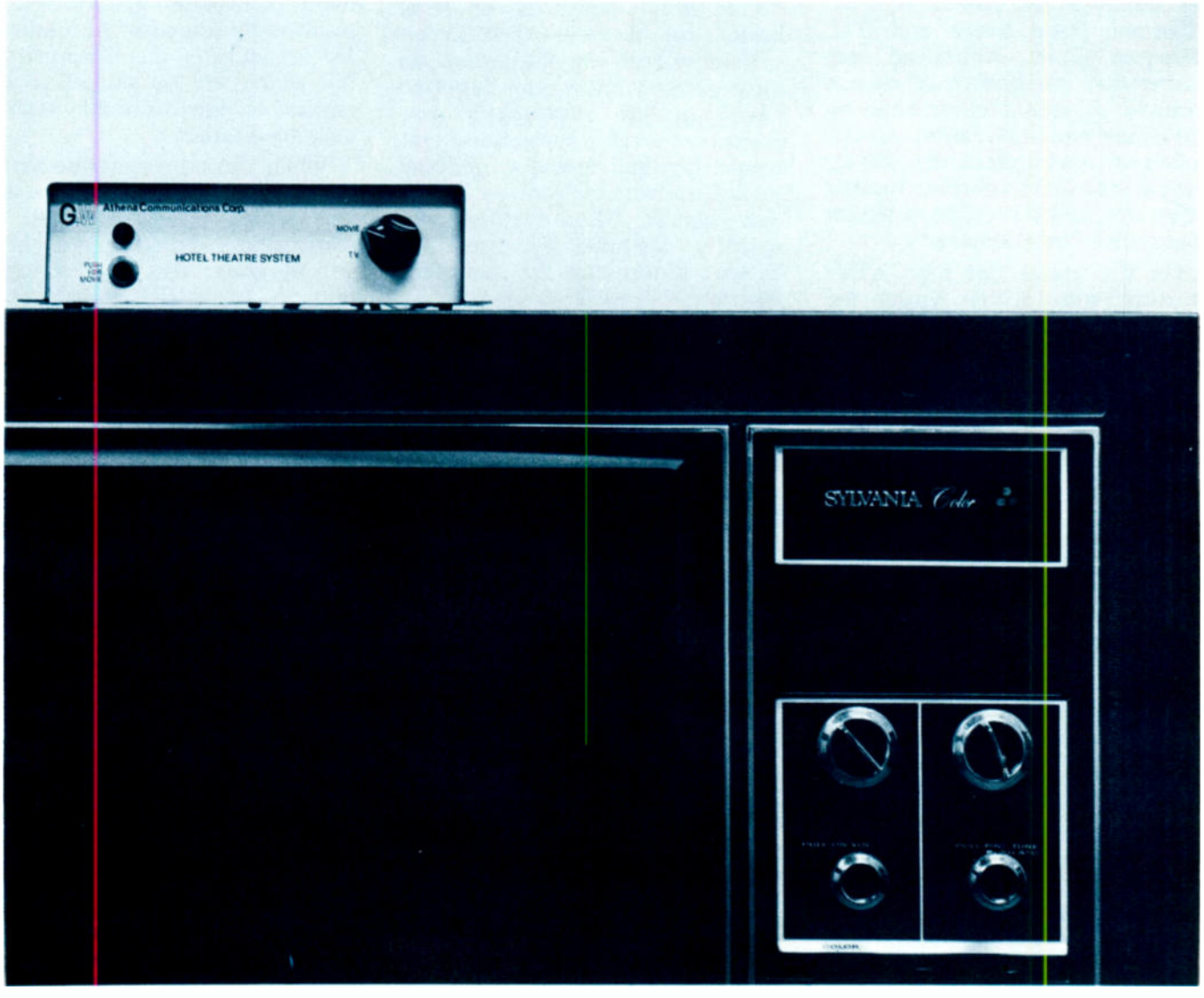
The failure of the two sides to agree really isn't due to any steadfast obstinance on either side, rather it is due to this obvious lack of adequate factual information upon which a decent negotiation could be conducted.

Therefore, the idea is that for three years cable would pay nothing. During that three years a body of statistics would be accumulated and the Copyright Tribunal (which would be set by the Copyright Law) would decide on a fair and reasonable fee schedule.

Good News/Bad News

Zero-for-three was first mentioned by the copyright people sometime back in the dim history

HOTEL THEATRE SYSTEM-HTS



Athena Communications has developed a low cost system for "Pay-As-You-View" movies in hotels and motels. This system permits a hotel or motel guest to select feature films for private viewing over the TV set in his room. The system does not affect the guest's capability for receiving normal TV service.

Athena Communications Corporation
A GULF + WESTERN COMPANY

1 Gulf + Western Plaza
New York, N.Y. 10023
212-333-4400

of the long negotiations. As the sessions dragged on and it became apparent that there's almost no chance cable and copyright representatives will agree on dollar amounts, interest in 0-for-3 began to stir in the CATV camp.

Pros and Cons: On the plus side, operators would have four years, and maybe five, with no fees to pay (the 1-2 years to get the bill passed plus the 3-year statutory period before the tribunal writes a fee schedule); FCC Chairman Dean Burch and OTP Director Tom Whitehead are understood to approve of such a formula; it would allow time to put some real top-market experience into the hopper and come up with a logical fee schedule instead of an arbitrary set of fees based on speculative "best guesses."

On the minus side for CATV: Starting with a low initial fee instead of no fee could give cable an edge when the tribunal reviews fees four or five years from now; Senator McClellan may be cool to the 0-for-3 idea — he might prefer to specify initial fees as he did in the bill his subcommittee reported out in a previous session of Congress. (The Senator, of course, would not be bound by a cable-copyright owner agreement — but a pact between the industries could exert quite a bit of moral pressure.)

Why All the Fuss?

As Al Stern told Jack Valenti, "there is no obligation or legal basis" for a cable distribution system to pay copyright fees. As most of you know, the Supreme Court in the *Fortnightly* case ruled that a cable system does not owe copyright fees for material picked up from over-the-air broadcast signals. This decision was recently affirmed by the U.S. District Court for the Southern District of New York in the case of *CBS vs TelePrompTer*.

Notwithstanding these decisions it is a part of the compromise agreement that cable systems should pay copyright fees, but the FCC left the matter to the Congress to determine. The parties to the compromise also agreed to attempt to negotiate a fee schedule for incorporation in any legislation.

But, as we've noted, that hasn't gone very far.

We believe that the large city markets will be profitable and ultimately highly profitable, but we are not at the point to concede that one fee percentage or another will be realistic. We think it more likely that this matter will be resolved by some sort of minimum fee schedule in the Congressional bill which will be subject to correction as the economic realities become clearer.

When the copyright fee matter is settled, several valuable benefits will accrue to cable. First, the uncertainty of copyright liability will be gone. This will be important to financial planning. Also, copyright legislation will give cable companies a statutory license as well as a single place to pay.

In any event, it's time to get the hassles out of the way. TVC

New in our book...

A fine Compact Production Switcher from COHU

Cohu introduces a totally new Compact Production Video Switcher, designed for the small studio. All electronics are housed in less than one cubic foot of space under a 19" x 10.5" panel. This switcher offers you features found only in a larger, more expensive unit.

- Additive or non-additive mixing, selected by a front panel switch. Sync is held constant through the dissolve.
- Mix effects, inserts, dissolve to inserts or effects, wipe key, external keying and self-keying are standard modes of operation. The video flow path permits facing of titles and special effects.
- Audio-follow-video logic allows only one audio source to be selected at a time. In a lap dissolve or wipe, the logic follows the previous source until the operation is complete.
- Full color timing under every switching and preset condition provides high quality color through any path.
- Eight synchronous plus two non-synchronous/synchronous inputs. All synchronous inputs may be composite or non-composite. Independently programmable sync adding circuits are provided for each circuit.
- Vertical interval switching with momentary pushbutton controls. A single cut button can transfer preview bus to program bus.
- Matte generator provides any shade of gray or one preselected color with variable luminance and permits matting in the self-key mode.
- All mix/effects can be previewed.
- Pushbuttons are softly illuminated for operation in subdued light. Video flow paths have easy to see path indicator lights.

One low price brings you the complete switcher with all the features listed above. Now is the time to place a modern Cohu Compact Production Video Switcher in your studio.

We're meeting the demand.

BOX 623, SAN DIEGO, CALIFORNIA 92112 · PHONE 714-277-6700 · TWX 910-335-1244

COHU
ELECTRONICS, INC
SAN DIEGO DIVISION

Overhead Considerations of Underground Construction

Any system planning on using underground cable needs to carefully consider the cost involved. George McGrory of Burnup & Sims analyzes different methods of burying that cable with respect to cost-per-subscriber trade-offs.

Based on an Address
By George R. McGrory, Superintendent
Burnup & Sims, Inc.

Since as much as 90 percent of all currently installed system is of the aerial type, it is not too difficult to learn from the experience of others about the pitfalls and the costs. The techniques of aerial installation are daily being perfected — in common with equipment and components. One point is clear, however, and that is that costs are steadily rising due to the pole rental rate increases, and higher make ready expense.

This is not to say that these costs will ever become directly competitive with underground installation. There are a number of other factors involved in the decision on whether or not to go underground; and a much more important consideration is that these factors may leave the system operator no alternative but to go underground. The cost of the underground installation will have to be written into the entire system cost, and he operator will have to be satisfied either with a longer time to realize a return on his investment, (he will have to adjust the number of subscribers required to reach the break-even point) or he will have to increase the charge per subscriber.

Practical Advantages Are Involved

Such realities are confronting an ever greater number of system operators as pressure increases to bury all lines — telephone, power, and other communications, including CATV. It should be encouraging that, in many new communities, developers who bury wires are finding ready buyers despite the fact that their higher costs are written into the homes.

From the practical point of view, there are advantages in underground installation, since such systems are secure against weather extremes: ice and snow in the northern parts of the U.S., high winds in other parts. In addition, the system is a great deal more stable than an aerial system due to the relatively constant temperature underground. The result will be that an underground system requires considerably less maintenance than an aerial plant. Maintenance costs will vary widely from one area to the next, but the reduction of this factor should help to make underground installation costs more palatable.

A further consideration is that in some communities the decision to go underground may not be the system operator's. Instead, zoning regulations are beginning to be written that require burial of all utilities. There is indeed a discernible trend to adopt these regulations in many parts of the country. This is, perhaps, a reaction to the general public's current concern with the environment.

Once this decision to go underground has been made, it should be recognized that costs may be incurred over which there is relatively little control. Experience has taught many contractors that the underground facilities of existing utilities — electric power, telephone, sewer, gas and water — should be physically located, one-by-one. This may be more difficult than would first appear, because records and maps are rarely reliable. It sometimes becomes a tedious task but can hardly be avoided.

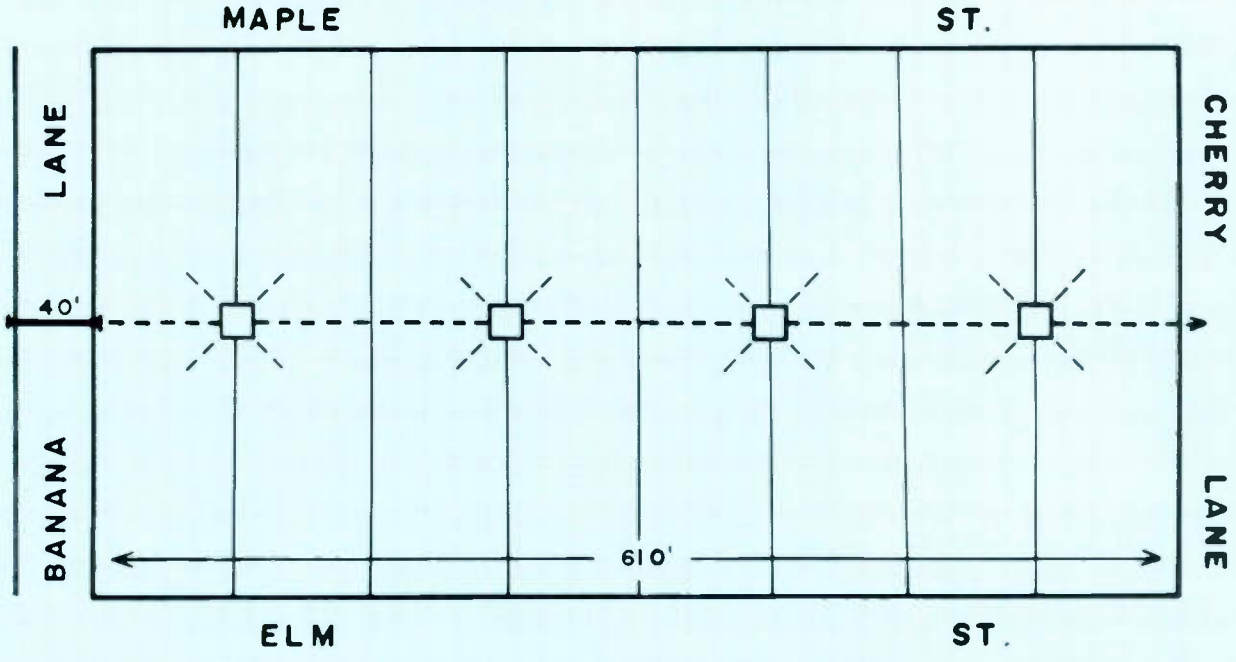


Figure 1: Rear Easement Installation

To ignore the importance of locating existing utilities is simply to gamble. sooner or later the trenching or plowing equipment will damage them. The cost of repairing damaged utilities can, of course, run extremely high.

In other instances particularly in built-up areas, the use of heavy trenching equipment may be ruled out by the presence of facilities that are already in place. The only way to prepare the ground then is tc trench it by hand and that, too will effect cost. not to mention schedules.

Pre-Planning Is the Best Planning

Proper pre-planning of the underground installation must be carefully viewed from all aspects. The most difficult decisions will involve placement of

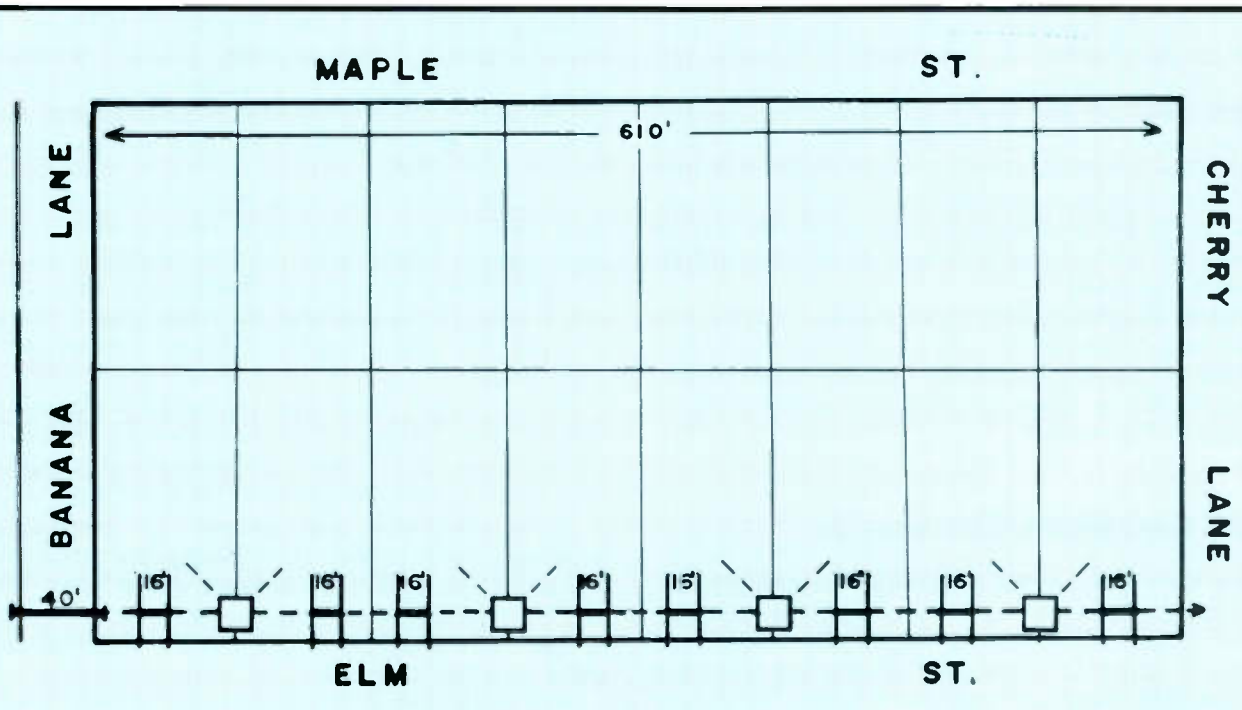


Figure 2: Front or Streetside Installation

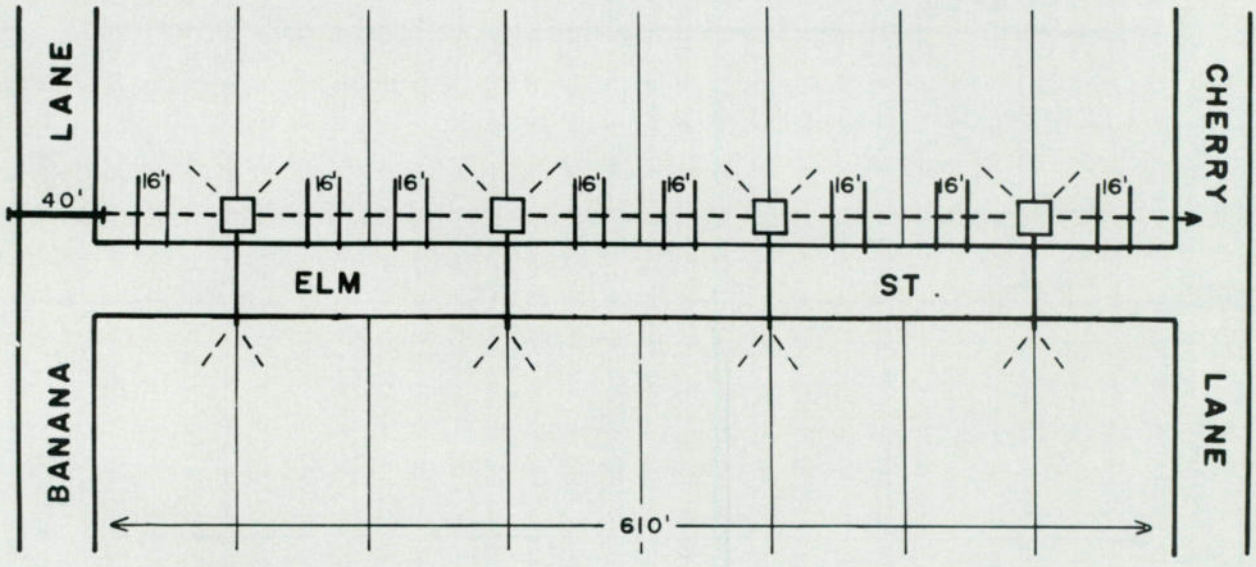


Figure 3: Front or Streetside Installation – Casings Placed To Serve Opposite Side

the distribution cables, since the path they travel have a significant effect on costs. In the main there are four alternatives available, as illustrated by the accompanying drawings.

Figure 1 shows how the cable might be installed in the rear easement of a typical city block. In this example, it is assumed that there is ready access and that trenching equipment can be brought to the site. Under these conditions, this installation method is the least expensive.

Figure 2 illustrates the front, or street side method of installation. In this example there is less grass to be removed and replaced but boring under driveways will be required. Additional equipment and labor costs will be incurred Also note that although four pedestal terminals have been installed (as with the previous method) only eight houses are serviced by them. In Figure 1, four pedestals service 16 houses so there is some cost penalty attached to this second method.

In Figure 3, casings have been placed to serve the opposite side of the street. This is the less expensive alternative to placing a double system, as in Figure 4, which would be twice as expensive as the method illustrated in Figure 2.

As CATV Goes Under, Cost Goes Up

If cost were the determining factor in the type of installation to be made without doubt the method shown in Figure 1 would be universally employed. However, it must be obvious that existing physical conditions will play an important part. Very few systems are installed on perfectly flat land which is divided into perfectly rectangular building lots as shown in the examples. In addition, it is important to remember that the CATV industry will not remain stationary and that on the contrary it is changing rapidly.

As the industry begins to make increasing demands on systems, system operators will be well advised to consider the following:

1) Systems will have to have greater bandwidth and two way capability. This often will require the laying of additional cable, unless the investment is made at the time of the original installation. If the current rate of cost increases is any indication, it can be expected that reworking the system will cost several times more than the original system initially built with expandability by way of shadow trunk and/or feeder lines.

2) The additional labor cost is minimal to install two cables or two conduits compared to installing only one. There will be a modest increase in material costs (cable and ducts), but this will only be a fraction of the cost of reworking a system to include this same flexibility three, five or ten years from now.

3) Increased labor and materials costs will make system maintenance and construction much more difficult in the future. Decisions on quality and capability should be reviewed in this light.

It is estimated that almost 10 percent of all systems under construction today are underground, a percentage that will increase every year. With so much experience, average costs are still hard to define, but the city block in the illustrations will serve as a fair example.

Referring again to Figure 1, shown here is a typical city block divided into eight lots. The block backs against a similar eight-lot block. For purposes

Imagine Handling 750,000 Subscribers in 137 Cities Every Day. We Do.

Imagine What We Can Do For You.

CableData, the nation's largest computerized information service designed exclusively for the cable TV industry, has just exceeded three-quarter of a million subscribers representing 137 CATV systems. From Lewiston, Maine to Los Angeles. From some of the smallest systems in the country to giant MSO's. And it's happened in 4 short years.

CableData provides instant retrieval of information in all phases of cable operations, including accounting, marketing and management.

And CableData's experienced training crew minimized conversion time and problems by training each system's staff right on the job.

If you'd like to get out from under the mountain of paper work and get on with the business of expanding your system, why not contact Rodney Hansen at CableData and find out how efficiently and economically CableData can help you grow. We're ready when you are!

CITIES SERVED BY CABLEDATA:

CALIFORNIA
Berkley
Castro Valley
El Cerrito
Foster City
Hayward
Hemet
Lodi
Lompoc
Los Angeles
Los Banos
Malibu
Martinez
Mission Viejo
Napa
Oceanside
Oxnard
Palmdale
Placerville
Port Hueneme
Rancho Bernardo
Richmond
San Bernardino
San Carlos
San Diego
San Jose
San Lorenzo
Santa Maria
Sunnyvale
Tujunga
Vallejo

COLORADO
Grand Junction
Pueblo

CONNECTICUT
Seymour

FLORIDA
Crestview
Fort Lauderdale
Fort Walton Beach
Niceville

GEORGIA
Cedartown
Claxton
Elberton
Metter

IDAHO
Orofino

ILLINOIS
Carpentersville
Decatur
Effingham
Galesburg
Mendota
Monmouth
Paris
Peru
Rochelle
Westville

INDIANA
Anderson
Brazil
Connersville
Marion
Richmond
South Bend
Union City
Warsaw

LOUISIANA
Lake Charles
Marksville

MAINE
Lewiston

MARYLAND
Berlin

MICHIGAN
Bay City
Coldwater
East Lansing
Houghton
Muskegon

MINNESOTA
St. Cloud

MISSISSIPPI
Batesville
Houston
Lambert
Louisville
Marks
Pontotoc
Water Valley
Yazoo

MISSOURI
Rolla
Sedalia

NEBRASKA
West Point

NEW JERSEY
Ocean City
Ventnor
Wayne
Wildwood

NEW MEXICO
Gallup
Ruidoso
Santa Fe

NEW YORK
Catskill
Islip
Jamestown
Poughkeepsie
Utica

OHIO
Cridersville
Delphos
Fort Shawnee
Kenton
Sidney
St. Marys
Wapakoneta

OKLAHOMA
Weatherford

PENNSYLVANIA
Altoona
Carlisle
Chambersburg
Marietta
Morrison
Newport
Reedsville

SOUTH CAROLINA
Georgetown
North Augusta

TENNESSEE
Jackson
Kingsport

TEXAS
Abilene
Anson
Dublin
Galveston
Hamlin
Hico
Jacksonville
Monahans
Navasota
Perryton
Port Arthur
Port Neches
Rotan
Stephensville
Sweetwater
Tyler

UTAH
Logan
Moab

VIRGINIA
Reston

WASHINGTON
Enumclaw

WEST VIRGINIA
Clarksburg

WISCONSIN
Marshfield
Merrill
Wisconsin Rapids

WYOMING
Casper

cable data

A PRODUCT OF:
U.S. COMPUTER SYSTEMS

P. O. Box 13040 • Sacramento, Calif. 95813 / Phone Rod Hansen (916) 441-4760

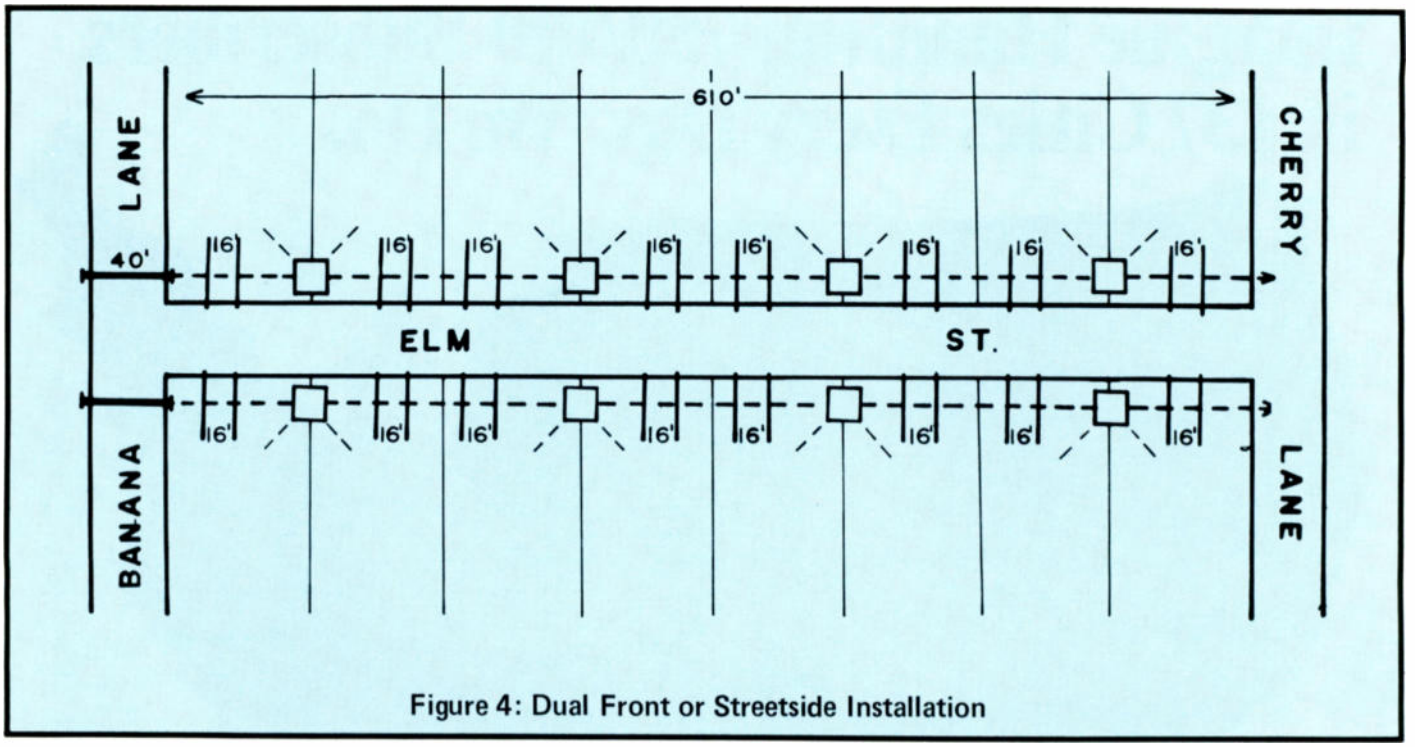


Figure 4: Dual Front or Streetside Installation

of the illustration, access to the block must pass under a 40 foot wide street. If every lot measures 75 feet, then the total distance across the block is 610 feet, and the total length of installed and spliced cable is 650 feet. In addition, four pedestal terminals will be placed, crossing the street to obtain access to this rear easement will be accomplished by means of boring or jacking and 610 feet of sod will have to be removed and replaced. Typical labor cost of this rear easement, single cable installation, might be approximately $600 by the direct burial method.

In Figure 2, there are only 482 feet of sod to be removed and replaced, but in the example there are 128 feet of driveway to be traversed, either by boring underneath or cutting through, and then replacing, the asphalt. Typical installation labor costs immediately rise to roughly $1,000. If Elm Street (Figure 3) is 20 feet wide and four borings are made to serve the other side of the street, another $300 is added to the cost. In other words, the 16 possible subscribers served by the installation shown in Figure 3, will cost the system operator $1,300, more than twice the cost of passing 16 possible subscribers by the rear easement method.

The most expensive method is the one illustrated in Figure 4, where feeder cable runs down both sides of the street. Labor costs are double those of the installation in Figure 2, or $2,000.

Costs rise further if conduit is used. Burial of cable in conduit by the rear easement method will add $150 to the cost per block and approximately $120 per block for front installation. The big advantage of using conduit is that the system can be upgraded easily. It is a relatively simple procedure to pull cable out of a conduit and replace it with new cable, certainly a great deal simpler than having to dig for the cable. At the same time, the system operator should consider the possibility of putting down an empty conduit in anticipation of two way cable requirements.

At first glance, it appears that the rear easement, direct burial method is the most logical choice. But all the other factors must be given due consideration. Experienced and reputable CATV contractors should certainly be consulted. Through careful planning and scheduling and through close liaison with local utilities firms, the contractor in all likelihood will make a significant contribution to installation economies. This may enable the system operator to finance a system with maximum capability. It is also important to remember that the contractor may make the difference in preventing massive cost overruns. One of the early points made in this discussion concerned the location of existing utilities. The same point should be remembered as the system is being installed. Once the system is buried and the grass has grown back, it is almost impossible to tell exactly where it is located. Accurate maps should be made concurrently with the installation, and this should be clearly spelled out in the installation contract.

A final word of advice: remember to communicate often and accurately with future customers of the system. Try to let them know in advance about installation plans, and keep them informed of progress as often as possible.

Make it clear to the contractor that he has not discharged his side of the contract until the owners' properties have been completely cleared and restored to their original condition.

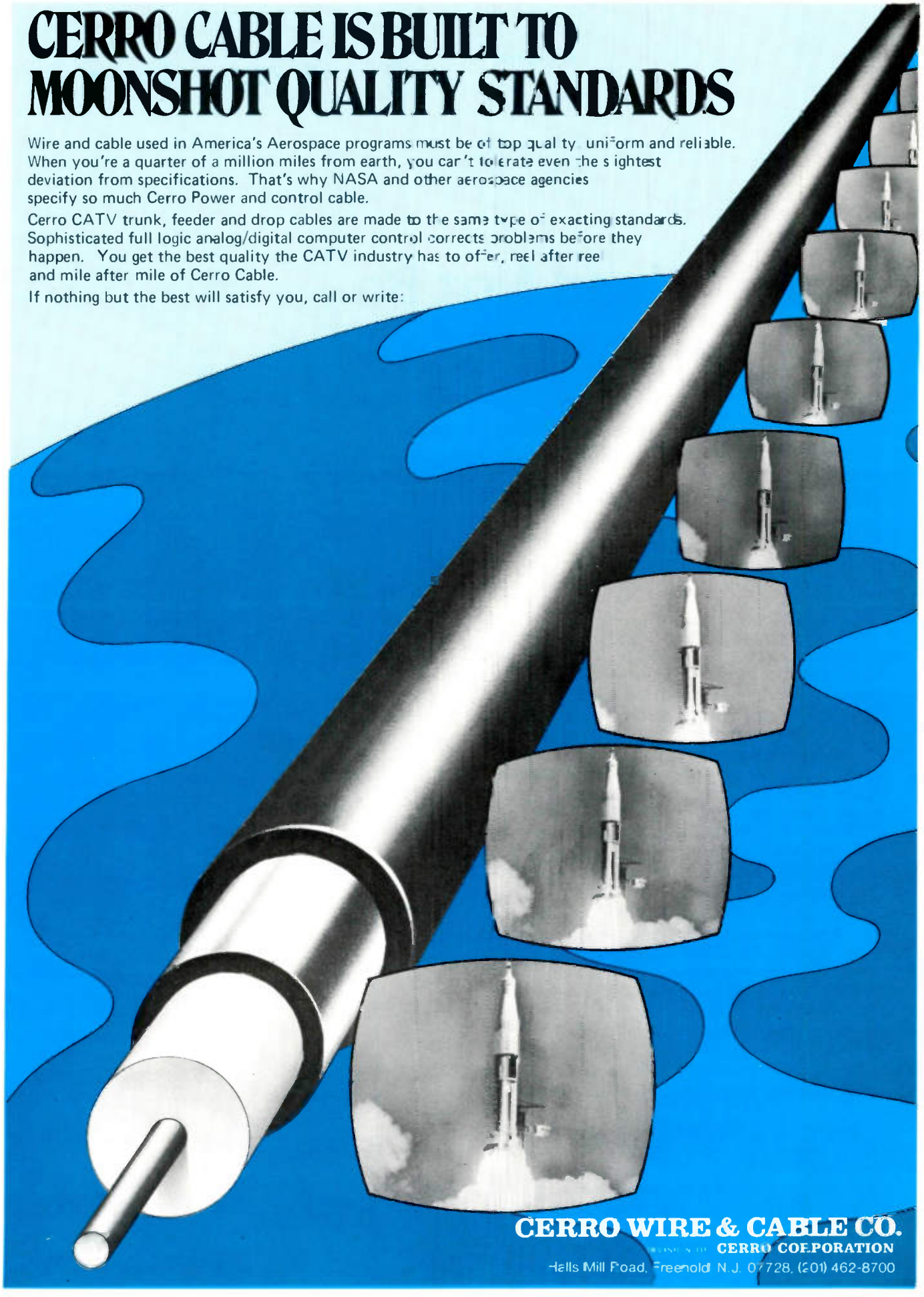
The worst thing the sytem operator can do is to be the cause of irritation or even anger on the part of property owners. After all, he expects to sell them the service, and disenchanted homeowners will make the job much more difficult.

CERRO CABLE IS BUILT TO MOONSHOT QUALITY STANDARDS

Wire and cable used in America's Aerospace programs must be of top quality, uniform and reliable. When you're a quarter of a million miles from earth, you can't tolerate even the slightest deviation from specifications. That's why NASA and other aerospace agencies specify so much Cerro Power and control cable.

Cerro CATV trunk, feeder and drop cables are made to the same type of exacting standards. Sophisticated full logic analog/digital computer control corrects problems before they happen. You get the best quality the CATV industry has to offer, reel after reel and mile after mile of Cerro Cable.

If nothing but the best will satisfy you, call or write:



CERRO WIRE & CABLE CO.
CERRO CORPORATION
Halls Mill Road, Freehold N.J. 07728, (201) 462-8700

'Privacy' Need Not Be A Double-Think Concept

The sophisticated, urban cable system of tomorrow does not have to make an Orwellian exchange of privacy and security for convenience. A composite channel-selection-and-address-gating system is a feasible alternative.

By Frank R. Eldridge
The Mitre Corp.

For many years cable has spread throughout small-town America by providing improved signals where off-the-air reception is poor. However, saturation of cable systems in these areas is rapidly approaching. New opportunities for viable systems, that supply only off-the-air signals, are becoming harder and harder to find.

In order to reach into cities, where many satisfactory off-the-air signals are already available, cable must supply a number of new and attractive types of services.[1] Many of these potential services will require at least some degree of privacy to be both effective and acceptable to the public. Mail delivery, bank-account information, credit checks, stock portfolio information, and access to personal files, are all examples of services that will require privacy. Security will be needed for files of private information stored in central processing units and transmitted to thousands of terminals in homes and offices served by the cable system. Many people will demand not only complete privacy of information transmitted specifically to their terminals but also a right to view any channels without information being gathered on which channels they are tuned into at any particular time.

What means are available, then, to designers and operators of these new types of cable services, that will guarantee privacy?

The literature contains many articles that present possible ways of maintaining security of private files stored in central computer memory banks.[2] These include special computer programs that store private information in a number of preselected sections of a memory bank, and the use of unique codes or passwords to gain access to these private sections of a memory bank.

There has also been a great deal of discussion on how user privacy in viewing of open channels should and could be maintained.[3]

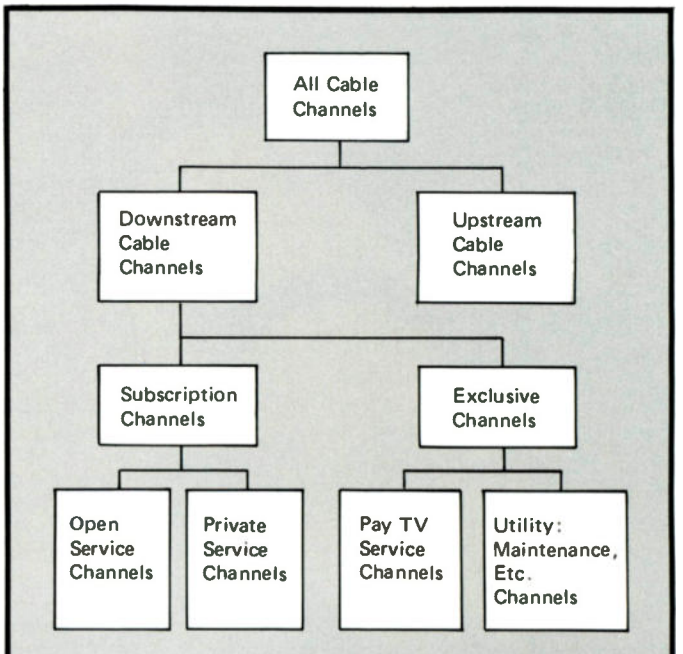


Figure 1: Classification of Cable Channels

However, the problem of how to maintain the security of private information transmitted to terminals in homes and offices throughout a cabled city has received relatively little attention. This is the problem that is focused upon here.

Channels and Services

A categorization of the types of cable channels that will be involved in these cable systems is shown in Figure 1. It is expected that most cable systems will eventually carry both downstream channels from headends to the system terminals, and upstream channels from the terminals to the headends. The downstream channels can be classified as follows:

Subscription channels — That is, channels provided to subscribers for a monthly fee, and which carry open services, available to everyone as in conventional CATV, as well as private services, available only to designated individual terminals.

Exclusive channels — That is, channels that are provided to subscribers and other users of the system for an extra fee. These channels will carry pay TV and utility services, such as meter reading, or selective power control, as well as various types of maintenance services, etc.

Table 1: Types of Subscription Services Provided

	One-Way Systems	Two-Way Systems
Open Channels	Local Signals Mechanical Signals Imported Signals Local Programming New Movies Local Sports Events Etc.	Polling Services Computer-Aided Instruction Slide Lectures Home Computer Social Services Video Library Shopping Services Reservation Services Etc.
Private Channels	None	Mail Delivery Bank Account Information Credit Checks Stock Portfolio Info. Access to Personal Files Etc.

In general, urban cable systems can be expected to carry both one-way and two-way services on the subscription channels. The one-way services will be provided on downstream channels carrying conventional video signals at 60 fields per second and will be received on standard TV sets.

Several types of two-way systems are being developed for use in future cable operations.[4] These will

TABLE 2
SUMMARY OF PAY TV SYSTEM DEVELOPMENTS

Name of System	Type of Cable System Required	Method of Excluding Non-Paying Viewers	Method of Accounting For Service Charges	Estimated Incremental Capital Costs
BTVision	One-Way	Video sync pulse and audio signal sent on separate channels, and recombined with video signal at receiver	Identification code for each program recorded on audio cassette and returned, periodically, by mail	$100 per Terminal
EnDeCODE	One-Way	Similar to BTVision	Fixed rate for service	$40 per Terminal
Computer Television	Two-Way	Viewer transmits program requests to central control station via cable. Central control remotely sets varactor tuners in subscriber terminals	Central control records programs requested	$600 per Terminal
K'Son	One-Way	Viewer telephones requests to central control station. Central control remotely sets program selector units to desired channel	Central control records programs requested	$100 per Terminal
Optical Systems	One-Way	Encoded signals sent from headend which are decoded at receiver by use of decoder cards or plug-in decoder cartridges	Viewer buys decoder cards or plug-in decoder cartridges for series of programs	$35 per Terminal
Phonevision and Theatre VisioN	One-Way	Encoded signals sent from headend which are decoded at receiver by subscriber ticket and decoder control unit	Viewer buys decoder tickets for individual programs	Not specified

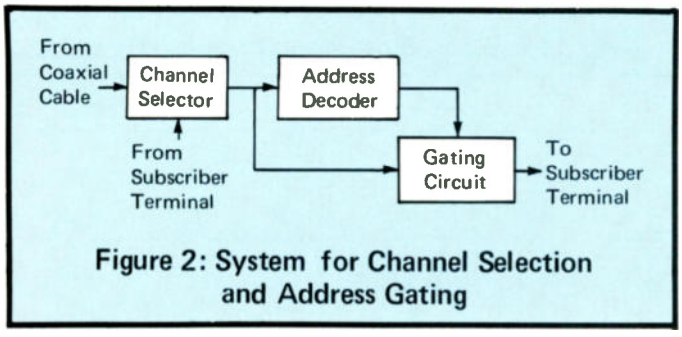


Figure 2: System for Channel Selection and Address Gating

carry both conventional and time-shared video and data signals on downstream channels, as well as time-shared data signals on upstream channels.

The types of services that can be provided by one-way and two-way systems are shown in Table 1. The one-way subscription services will include local and imported off-the-air signals, mechanical signals, local programming, new movies, local sports events and other programs that will normally be carried on the open-service channels and can be tuned-in by any subscriber. In general, it is expected that private services will not be provided on conventional one-way systems, but rather on two-way, using time-sharing and address-gating techniques, as discussed later. Such modes will enable available channel space to be used more effectively.

As indicated in Table 1, the two-way system could carry a variety of services such as polling services, computer-aided instructions, slide lectures, social services, video library, shopping and reservation services, and a variety of others on time-shared open channels available to all subscribers. On the time-shared private channels they could provide services such as mail delivery, bank account information, credit checks, stock portfolio information, and access to personal files.

Private transmissions using two-way time-shared channels will be originated, in most cases, from private sources, stored and retrieved from private data banks, and addressed to unique terminals in the cable system.

In contrast, pay TV services, such as first-run movies, special national sports events, and various types of special cultural events will, generally, be cablecast on exclusive channels to large audiences.

Pay TV Systems

At present, a number of pay TV systems are being developed for use on cable.[5] Many of these are aimed primarily at hotel and motel applications. Some of these types of systems are summarized in Table 2. Most of the currently available pay TV systems would use one-way cable. Many of the systems transmit signals that are scrambled by removal of the sync pulses, or the signals are switched-on at the viewing terminal by a central control-station. None of these currently available pay TV systems would be suitable for sending large numbers of short, individual private

messages addressed to any of thousands of specific terminals in a large city.

Switching Systems

One class of systems that should be considered as having the potential for providing privacy of information transmitted via cable, are switching systems, such as those produced by Rediffusion[6] (The Dial-a-Program System) and Ameco[7] (the DISCADE System). However, it should be noted that the switching in these systems, as currently designed, is controlled by the viewer rather than the sender. Each viewer, therefore, would have access to all messages on every time-shared private channel to which he had access through the local switching center. A possible means of overcoming this problem would be to supply these switching systems with address gating such as is being done for the MITRE TICCIT System.[8]

Address Gating

In the TICCIT System each conventional TV field carries an address, in the form of a series of bits inserted before the vertical retrace period that precedes the field. If the address of a field matches that of an address decoder that is inserted in the system, it passes through a corresponding gating circuit and is received by the terminal to which it is addressed. A unique address is provided for each terminal. Such a configuration is shown schematically in Figure 2. A device such as this, which is operative in Reston, Virginia, is shown in Figure 3, with the top removed.

One problem in regard to the privacy of the address-gating as presently operated on the MITRE TICCIT System in Reston is that all messages carried by each channel are sent to each home and could be taped and read by every user of the system. Since an important objective, here, is to maintain security for

Figure 3: Mitre Address Gating System

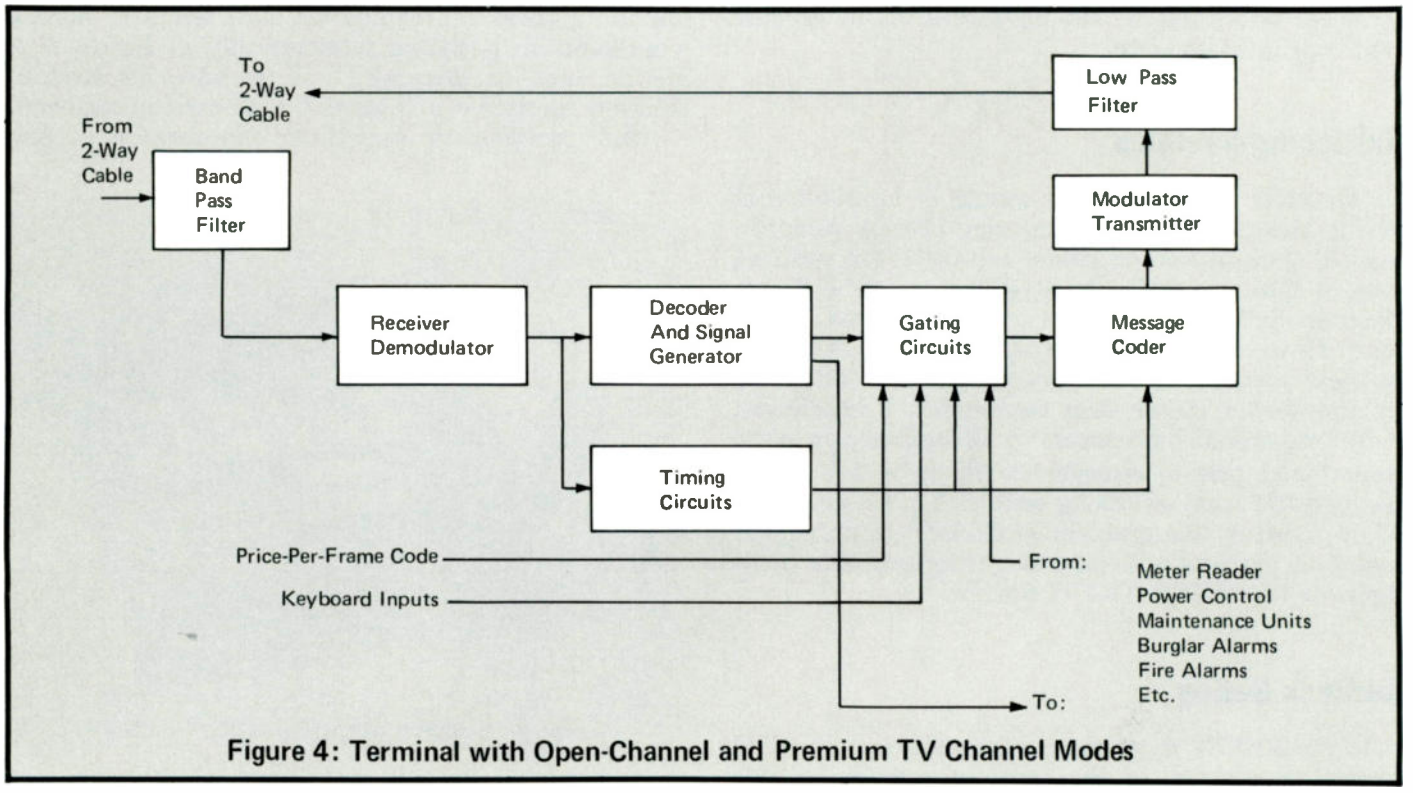


Figure 4: Terminal with Open-Channel and Premium TV Channel Modes

all private messages on these channels, each subscriber's address decoder and gating circuit should be located outside of his home and preferably in a local distribution center such as the strand-mounted Area Distribution Center, in the case of the DISCADE System, or in the Program Exchange Center, in the case of the Dial-a-Program System. This will prevent each subscriber from having access in his home to everybody's private messages on the time-shared private channel to which he has switched. By locating his address decoder and gating circuit outside of his home, only those private messages addressed to him will reach his home.

Variations on Privacy

There are many possible variations on this type of privacy system. For instance, an alternative would be to eliminate the use of a local distribution center and, instead, to locate the channel selector, address decoder and gating circuits, shown in Figure 2, in an external unit at the input end of the subscriber's dropline, either on a utility pole or in an underground conduit, and to provide for remote tuning of the channel selector from the subscriber's terminal.

In still another version, a pay TV mode could be added to the system. Each pay TV field would carry a "price-per-field" code as well as a pay TV address code. Each subscriber's external unit, in addition to the subscriber's unique address decoder, would contain a pay TV channel address decoder which would be the same for all pay TV subscribers. When the subscriber tunes into a pay TV channel, these fields would pass through the gating circuit as shown in Figure 4, and the count of the "price-per-field" code would be registered in the Subscriber-Response Unit, the details of which are shown in Figure 5. The pay TV field would then pass to the home terminal unit.

Channel your profits.

Nature abhors a vacuum. As a CATV operator you probably feel the same way toward unused channels. Well, how about making all those channels earn their keep? You'll find it's a good way to increase your profits. And the FCC will wholeheartedly approve.

As you well know, there's a bonanza of film entertainment available to liven up your programming. Not only full-length movies but business and industrial films, too. And with a 16mm videofilm projector, a slide projector, a modestly priced television camera, and a little initiative, you just might get some local advertising to help pay your expenses, with some left over for you. You can make your own films with a 16mm camera and get the film processed just about anywhere. Or do it yourself with KODAK ME-4 Chemicals.

We'd like to send you our new publication VIDEOfilm NOTES. Each issue contains new ways to use film in your business. If you're not already receiving it, please send your name, address, and zip to Dept. 640, Eastman Kodak Company, Rochester, N.Y. 14650.

Kodak

EASTMAN KODAK COMPANY

Atlanta 404/351-6510 Chicago 312/654-5300 Dallas 214/351-3221 Hollywood 213/464-6131 New York 212/262-7100 San Francisco 415/776-6055.

film

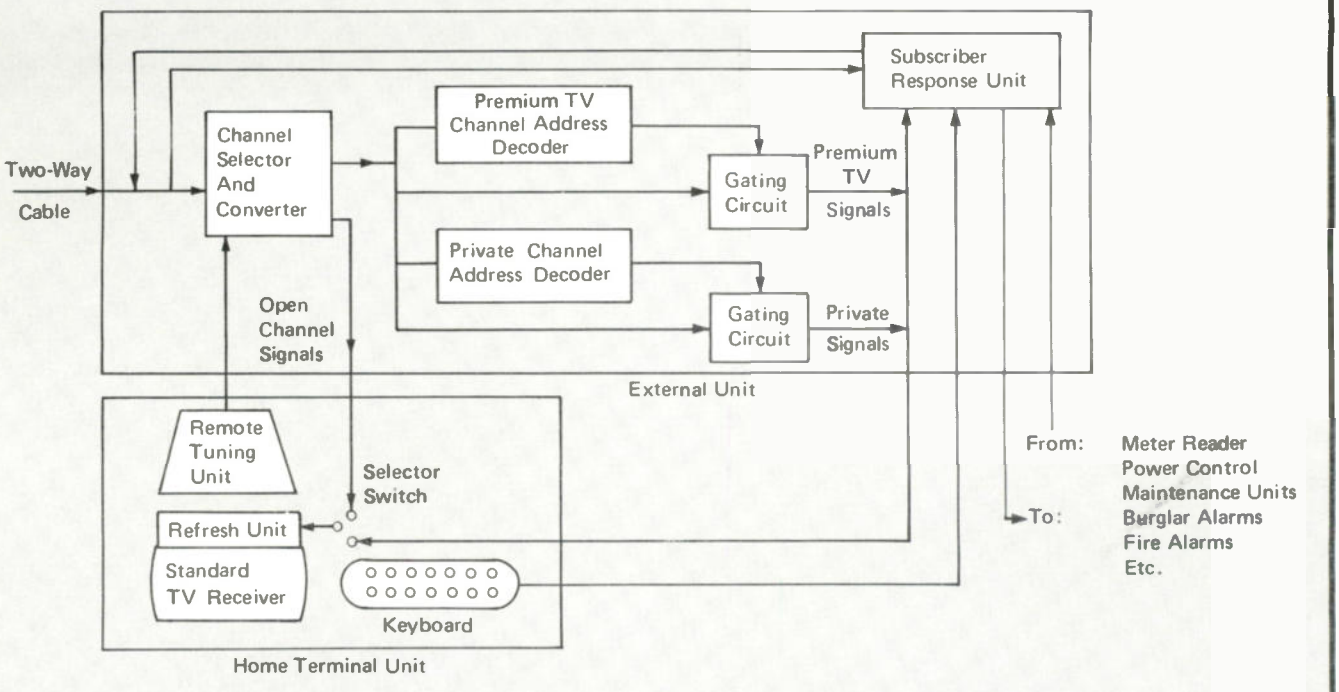


Figure 5: Details of Subscriber-Response Unit

The price information would be sent to a central processing unit for billing purposes.

Likewise a private mode field, bearing the subscriber's address, would be passed to the subscriber's terminal unit and through a refresh unit if field-stopping is required.

Open channel signals would be passed directly to the home terminal unit from the remote channel selector and converter.

A keyboard would be supplied in the home terminal unit for generation of upstream signals through the Subscriber-Response Unit for functions such as opinion polling, catalogue shopping and reservation services. This unit could also be used for meter reading, selective power control, maintenance checking, burglar alarms, fire alarms and other sensor interrogation services.[9]

Recent studies[1] have indicated a comprehensive two-way terminal of the type described above, in production quantities, would cost anywhere from $327 to $627 without privacy or pay TV modes. It is estimated that the cost of extra components needed for these modes and packaging and weatherproofing of the components that would be located in the external unit, would add about 10 percent to these costs.

Summary

In summary, it appears that an attractive and relatively inexpensive means of providing both private communications and pay TV services to homes, and other potential subscribers, would be in include an external unit, located either in a local distribution center or mounted on a pole or in an underground conduit at the input to the subscriber's dropline. This external unit would contain a means for remote channel-selection by the subscriber, as well as address-gating and subscriber-response units.

REFERENCES

1. Mason, W., et al., "Urban Cable Systems", The MITRE Corporation, May 1972.
2. Baran, P., "The Computer and the Invasion of Privacy", Hearings before Committee on Government Operations, House of Representatives, 89th Congress, July 1966.
3. Baran, P., "On the Impact of the New Communications Media Upon Social Values", Law and Contemporary Problems, Duke University School of Law, Vol. 34, No.2, Spring 1969. See also, Center for Policy Research, Memorandum, August 9, 1971, 2 pp. mimeographed.
4. Mason, W. and Polk, S., "Revolutionizing Home Communications", M72-38, The MITRE Corporation, March 1972.
5. Mason and Polk, "Premium TV to Get Real Test in 1972", Cable Management Engineering, February 1972.
6. Mason and Polk, "The Wired City – A Single Network", Rediffusion International, Limited, October 1970.
7. Hickman, J.E. and Kleykamp, G.C., "Multicable Solution to Communications Systems Problems, IEEE Convention, March 1971.
8. Stetten, K., "TICCIT: A Delivery System Designed for Mass Utilization", M71-56, The MITRE Corporation, October 1971.
9. Eldridge, F., "System for Automatic Reading of Utility Meters", M72-7, The MITRE Corporation, September 1971.

Titlemaster 1500/2400

CHARACTER GENERATOR AND MEMORY SYSTEM

Every TV and CATV operator needs it . . . and even the smallest can afford it! Titlemaster is a low-cost, self-contained electronic character generator designed for broadcast, CATV or CCTV.

Captions and announcements prepared on the typewriter-like keyboard are stored in an integrated circuit memory and converted to an EIA compatible signal for display on any video monitor. Model 1500 stores a full page of data, while Model 2400 stores up to four full pages.

And here's the best part: You can record any message onto a standard audio cartridge, via an optional interface from the Titlemaster keyboard to a SPOTMASTER or other tape cartridge recorder. Play it back whenever you wish . . . as often as you like.

- Ideal for election coverage, news bulletins, editorials, weather, sports, program announcements, commercials, etc.
- Display format of 15 lines, 32 characters each (Model 1500); or 8 lines, 16 characters each (Model 2400); full 64-character keyboard.
- Keyboard controlled "flashing" or "blinking" PLUS "roll" (from bottom of screen to top) PLUS horizontal "crawl"—fast or slow.
- Internal or external sync; composite video output.
- Ready for immediate delivery!

Store video messages on audio cartridges!

Get more information now; call or write:

BROADCAST ELECTRONICS, INC. A FILMWAYS COMPANY
8810 Brookville Rd., Silver Spring, Md. 20910
(301) 588-4983

Each of our dynamic duo is right. Because the fact is Dynafoam does improve performance and it does lower costs. With a copper-clad center conductor, it lowers costs even more. Dynafoam, Times' breakthrough in CATV cable, increases attenuation by a dramatic 20%, while cutting system costs significantly. It's proven by the more than 10,000 miles of cable now in trouble-free service.

The way to reduce your costs even further—and still retain the high-performance characteristics Dynafoam provides you with, is to specify your Dynafoam with a copper-clad center conductor. Since CATV signals are transmitted only along the outer surface of solid copper conductors, most of the copper is wasted, electronically, anyway. So it makes sense to use the transmitting copper where it's needed most—around the surface. And let the nontransmitting core (we use aluminum) be just as useful, and less expensive.

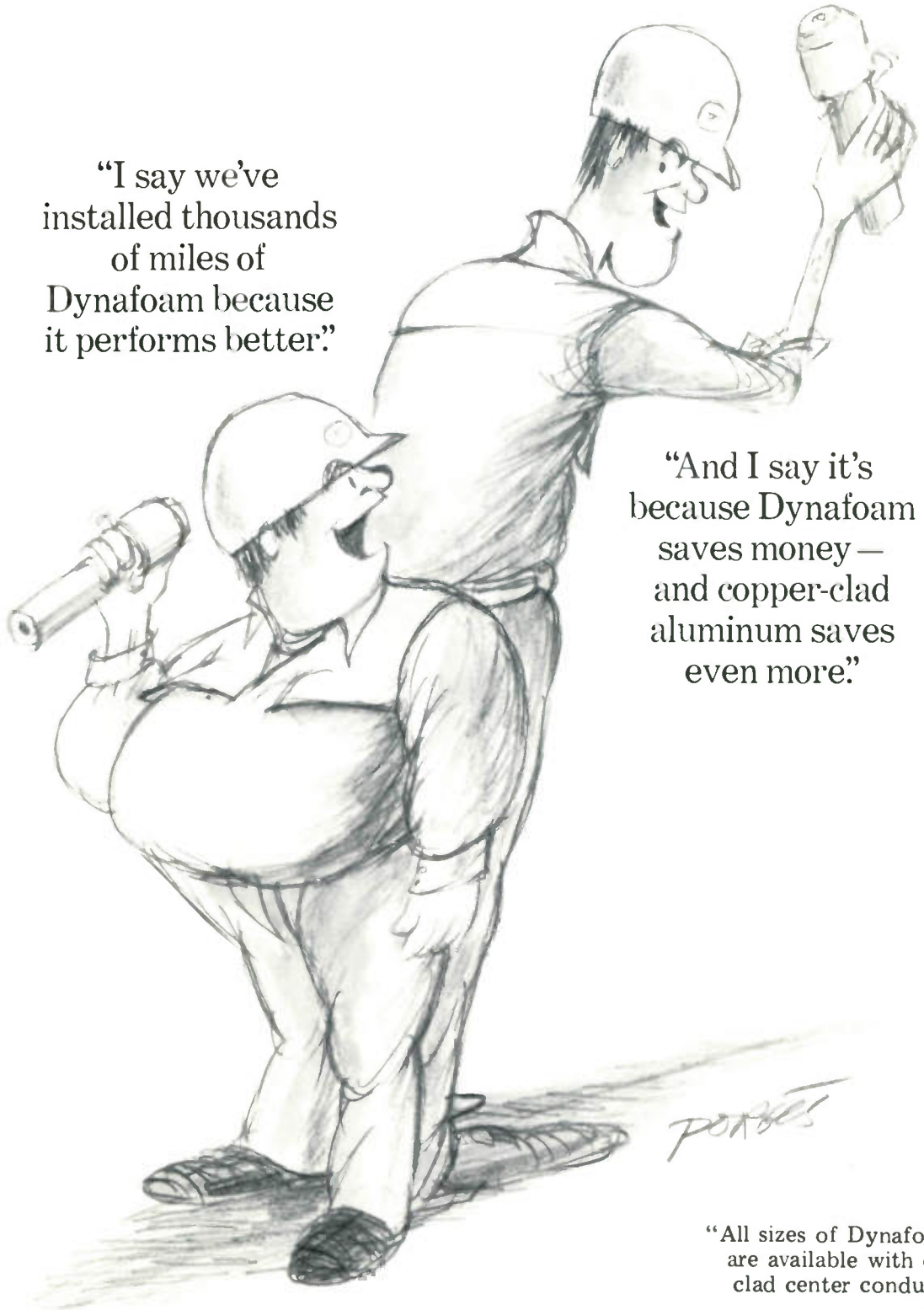
There's your choice: go Dynafoam in a smaller size than your conventional polyethylene, and save on cable costs or go Dynafoam in the same or larger size, and save system and maintenance costs of active equipment. Go Dynafoam with a solid conductor, or copper-clad. Whatever you decide, go Dynafoam. It can make the money-saving difference.

Write or call:

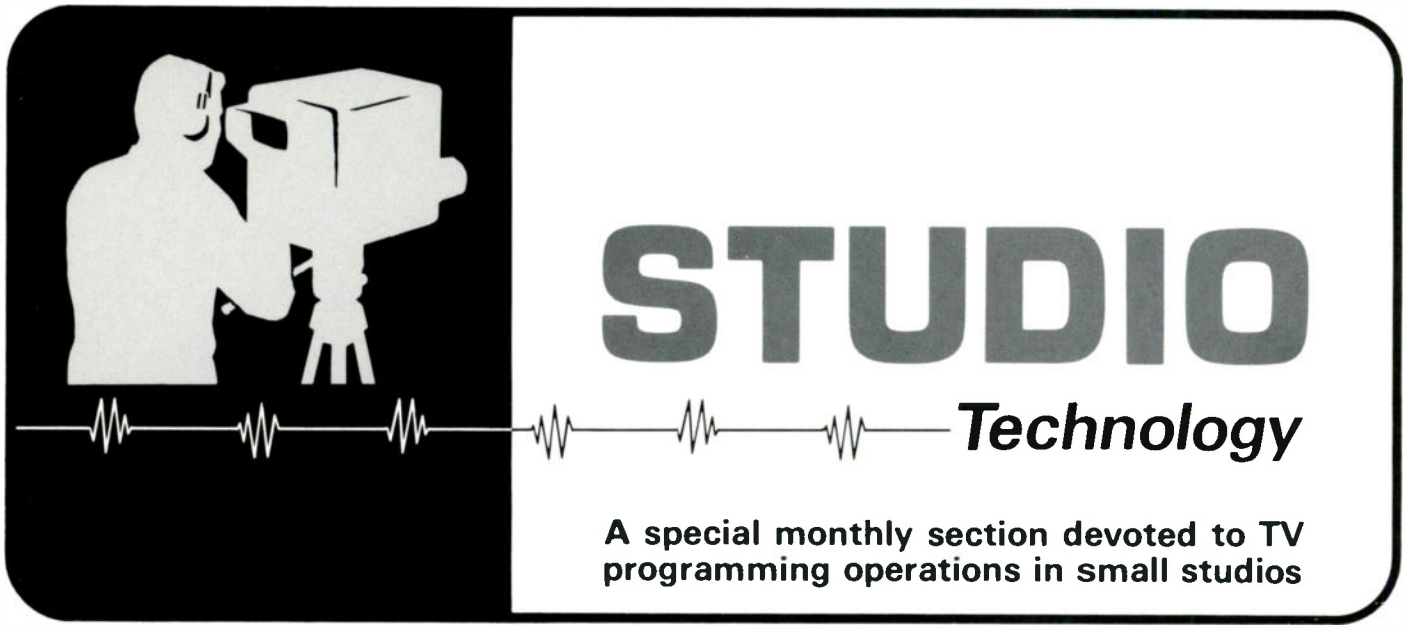
TIMES
WIRE AND CABLE COMPANY
Wallingford, Connecticut 06492. Tel. (203) 269-3381

"I say we've installed thousands of miles of Dynafoam because it performs better."

"And I say it's because Dynafoam saves money—and copper-clad aluminum saves even more."



"All sizes of Dynafoam cable are available with copper clad center conductor."



The Single Studio — The Economy Layout

Relatively few cable systems can afford the highly sophisticated color studio described in Mr. Berliner's article last month. Consequently, many cablecasters will have to begin with a practical, budget-conscious setup.

By Oliver Berliner
Telaudio Centre

Prior portions of this series have covered extensively the elaborate single- and multiple-studio layouts, each an all-encompassing sophisticated production plant capable of the most complex presentations approaching broadcast quality in every respect. Before attaining this goal it may be necessary to make-do with a modicum of equipment.

Unfortunately, people are so inundated with color that they expect nothing less . . . even in closed-circuit applications; and cable operators face the dilemma of having to place their own programming on the line in competition with slick and expensive Hollywood, New York and European presentations. This situation dictates the need for something more than just a camera, microphone, VTR and monitor. However, with a little ingenuity the cost can be kept to a minimum.

Three Is Better Than Two

It might be possible to "squeak through" with two cameras, one of which doubles as both a film and a live vidicon camera (one manufacturer offers a film pedestal which permits the camera to pivot away from the multiplexer to take wide shots of the live action . . . provided it's carefully located). But, it is hoped the system will be able to afford three cameras.

In fact, the versatility and failure protection afforded by three cameras would seem to dictate purchasing three vidicon-types rather than two of the superior lead-oxide tube (Plumbicon) units. No attempt will be made here to discuss the differences between single, dual and triple-tube types. Let it merely be reiterated that you get what you pay for.

Figure 1 depicts a block diagram of both the video and the audio systems. Some custom switching has been included in the video circuitry to increase its versatility . . . primarily by permitting a tape to be aired without tieing up the live studio. It is also possible to broadcast a film without it passing through the studio

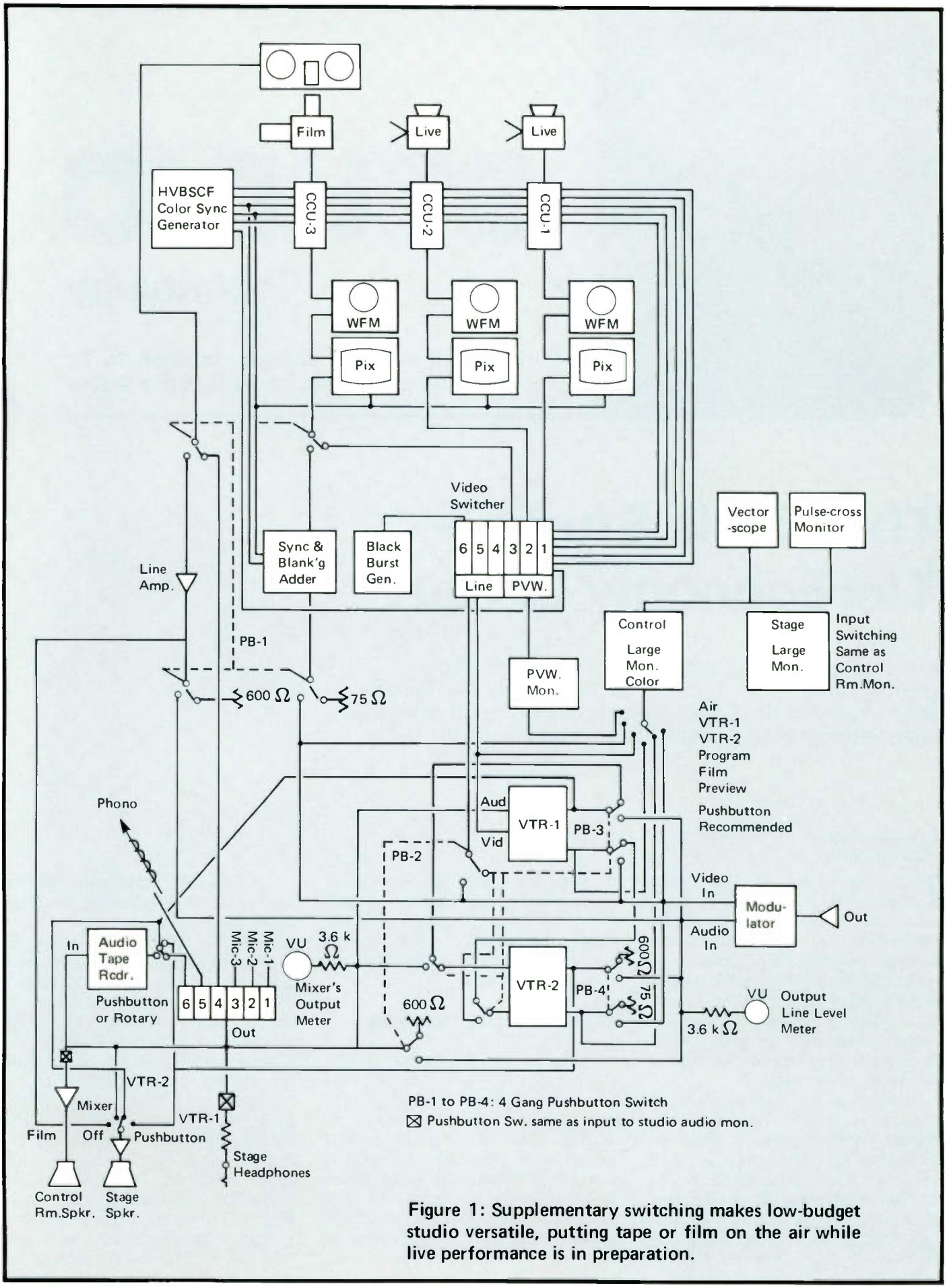


Figure 1: Supplementary switching makes low-budget studio versatile, putting tape or film on the air while live performance is in preparation.

switcher, thus freeing *both* the program *and* the preview buses of the switcher (instead of tieing up the program line with the film being aired and thus having only the preview bus left to work with).

Whether your studio is pretentious or spartan, always remember that when switching sources which are non-synchronous — in this case from switcher to film to VTR, in whatever order — always switch after having faded to (and while in) black. This results in minimum sync disruption to the receivers being fed.

Part of the professionality required of the CCTV system user, and virtually dictated to the CATV operator because of his technical and artistic proximity to the commercial broadcaster, is the use of what is known as a *vertical interval switcher.*

Sophistication Plus

This most sophisticated of the three basic switcher design principles accomplishes the switch from one input to another during the vertical blanking period, regardless of the moment the switch-button is depressed. Here again the switching takes place during the "black" period. Unless this is done, there will most likely be sync disruption to anything on the program line, and this is most damaging to video tape recorders. In fact, most will lose sync on source switching that takes place at other than the vertical interval points.

Fortunately, the development of integrated circuits has dramatically cut the cost of vertical-interval switchers so that now it is possible to purchase a broadcast-grade multi-input unit with preview and special effects sections for about a thousand dollars (Figure 2).

There are also some good color synchronizing generators emerging at "livable" prices. Cable operators should be certain that the generator meets both RS-170 and NTSC specifications; if not, it is not broadcast grade although it may be suitable for most closed-circuit applications. Most lower

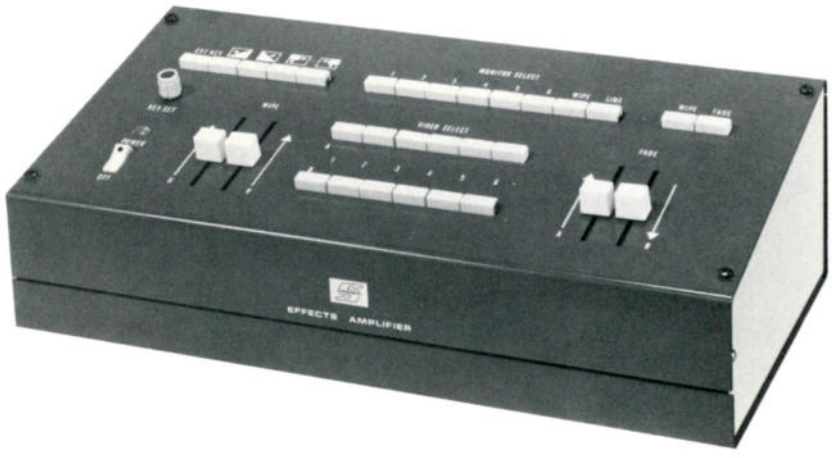


Figure 2: Switcher with special effects

priced color sync generators do not include genlock or black-burst provisions; the latter should be added to the system and fed to input no. 6 on the switcher to provide a *real black* on picture fade-outs. A pulse-cross monitor (Figure 3) not only should be included to read the VTR's playback output in order to optimize tape skew, tracking and tension but to observe system sync stability in addition to normal picture viewing.

Two VTRs are virtually a *must* for efficient teleproduction in addition to failure security, and one should offer capstan-servo tape editing. If you can afford it, add a helical-scan processing amplifier to clean up the sync on playback "on the air" or in tape dubbing. Remember that these processors will reshape the sync pulses emanating from the video tape recorder but will not correct the poor timing stability inherent to all helicals, even though perfect sync was fed-in during recording.

Treat yourself to an inexpensive waveform monitor and picture monitor combination (Figure 4) for the outputs of the three cameras. They are truly your best investment as they serve to match the outputs of each camera — all the time — and help to detect interference, sync problems, noise and even improper scene illumination. By having a waveform monitor on each camera's output, instead of skimping along with only one on the switcher's output, you will not only reap the foregoing advantages but you will be able to monitor sources fed directly to the line without the necessity of running them through the video switcher.

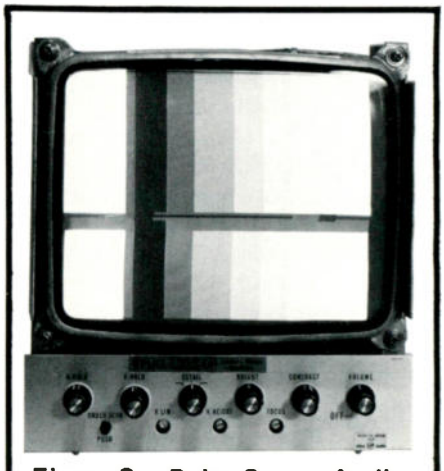


Figure 3: Pulse-Cross Audio-Video Monitor

Our audio section permits placing film output or VTR output or mixer output on the line — just as we did in the video section — and avoids mandatory running of everything through the mixer. This frees the mixer for production work while film or tape is on the air. You may wish to tie your audio and video switching together in this area (the popular "audio follows video") to minimize switching effort, especially when operating with skeleton crews.

Figure 5 suggests a placement

of the equipment in two medium-size racks. While sloping-turrets are attractive and relatively human-engineered, they rarely are able to hold all of the components we must install in a limited space; so they are not recommended.

One or Two Men

The layout described may be conveniently operated by either one or two people. Place all equipment in the room so that the rear of the racks is accessible. You may wish to place one video tape recorder to the operator's left, the disc record turntable to the right of the control desk, the audio tape recorder and second VTR to the operator's rear. Perhaps a remote control for the audio tape recorder could be located at the console for convenience. The telecine section should be in the normal view of the operator. One color monitor is sufficient for the entire system, although two would be well worthwhile.

Include a utility monochrome monitor for the actors on-stage and provide them with a headphone line for audio (not the intercom) plus a loudspeaker for VTR or film playback. The headphone may be useful for an actor to hear on-the-air audio while he is on the air or to get a cue from the previous program prior to his going on the air.

In closing, a few additional comments relative to the audio-video block diagram are in order. First of all, we have not shown the pulse distribution amplifiers whose absolute essentiality has been previously described. Secondly, we have attempted to overcome the limitations imposed by the lack of elaborate facilities by using ingenious circuitry and supplementary switching.

In most cases here, the use of somewhat more costly and space-

Figure 4: Waveform and Video Monitor

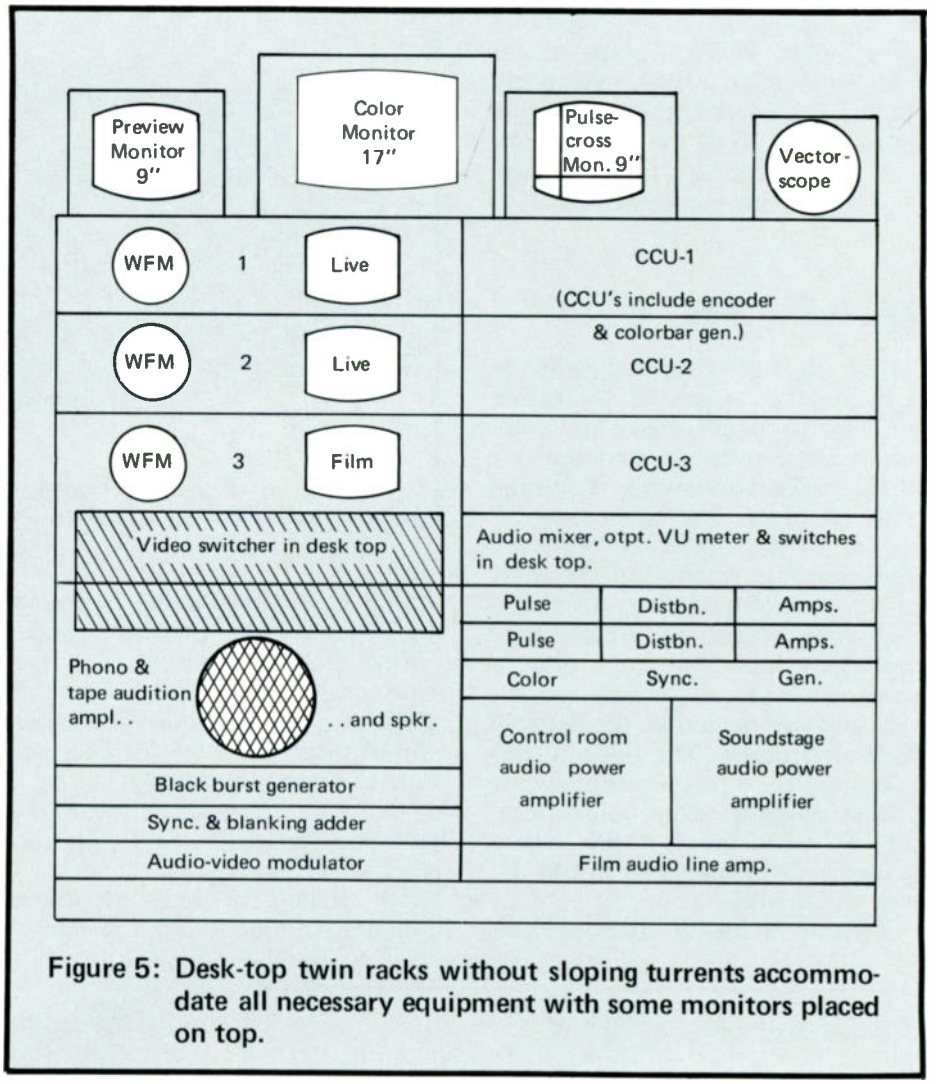


Figure 5: Desk-top twin racks without sloping turrents accommodate all necessary equipment with some monitors placed on top.

consuming pushbutton, rather than rotary, switches will serve to make things easier, speed-up production, minimize errors and preclude the necessity of "scanning" various circuits to get to the desired one.

You may wish to deviate from the VTR routing proposed here, but careful study of the block diagram may persuade you as to the advantages of the proposed setup. Note that the color monitor, vectorscope (if you can afford it) and pulse-cross monitor may be bridged onto any circuit, as is the case with the stage monitor for the performers, the latter also are able to hear what's on the line, or playback, of either VTR.

In the case of PB-1 to PB-4 switchbank, *illuminated* buttons would tell you at a glance what's on the air. Use them in this instance and also in the case of the color monitor. In the latter situation, one of the six pushbuttons is designated "air." During one of the frequent periods of "panic" it is consoling to learn exactly what's on the air at the time without having to stop and think or to look for and study a particular switchbank. (Sometimes you may be horrified to learn that *nothing* is on the air).

It may also be helpful to have the lights in the buttons of the color monitor source selector switch activated *not* by *their* respective buttons but rather by whatever has been put on the air by the on-the-air selector (PB-1 to PB-4).

Regardless of your budget limitations, if you're a cableman you must remember that *your* originations are competing with television's "best," and you may have to grit your teeth and spend something extra to minimize your disadvantage.

Next month we'll discuss mobile units.

the Ditch Witch building-block concept begins with these versatile handlebar units.

Three compact Ditch Witch units provide a solid foundation for the Ditch Witch building-block concept of trenching! They're small and compact, yet they're fully self-propelled to deliver big-machine performance on the job. The 7- to 9-HP **C-Series** delivers the lowest cost-per-foot of trench of anything in its class . . . it's so compact it slips through any standard yard gate with ease —and one man can easily load it into compact van or pick-up.

The **M-Series** offers 9- to 12½-HP, and is available in a track-mounted crawler model. With three digging speeds, plus reverse, it delivers as many feet of trench per hour as bigger competitive models costing twice the price.

For utility service installations, you can't beat the **VP12 Vibratory Plow,** with 25-HP capabilities and full hydraulic control. Install service lines or sprinkler systems without trenching, without costly restoration to expensive turf.

Compact, rugged and economical — Ditch Witch handlebar units provide the solid foundation for your entire trenching operation. Let us tell you more about our full line . . . or ask your Ditch Witch man to give you a free demonstration!

Build from the bottom by starting at the top...

TRENCHING VEHICLES FROM 7 - 65 HP . . . MODULAR ATTACHMENTS FOR EIGHT SEPARATE DIGGING FUNCTIONS

Charles Machine Works, Inc./P. O. Box 66/Perry, Oklahoma 73077

DITCH WITCH

Gatlinburg Channel Three — Clear View of the Smokies

Visitors to Gatlinburg, Tennessee, a resort city in the midst of the Great Smoky Mountains, are now offered a new guide to the area—CATV Channel 3.

By Vic Weals
Community T.V. Systems, Inc.

Visitors to Great Smoky Mountains National Park may total a record eight million or more persons this year, and a great portion of these will spend one or more nights in Gatlinburg, a resort city which can accommodate 25,000 visitors at one time.

A sizable number of the eight million will be on their first trip to the Smokies, and one of the more common questions the newcomers will ask is: "Where can we see some real Mountaineers?"

The answer, if the visitors are staying in one of Gatlinburg's more than 5,000 motel rooms, is that they can see some real mountaineers daily on Channel 3 Cable Television. Channel 3 has learned to plan their "local" programming in a very literal sense. The actors in the "sing, play, talk and do" shows live the parts in their everyday lives. They are broom tiers, the hardwood furniture craftsmen, the dulcimer makers and players, the weavers, the mountain honey harvesters, and from the more recent era of Appalachian culture,

the ski instructors from Gatlinburg Ski Resort, and the park rangers and naturalists and historians from nearby headquarters of Great Smoky Mountains National Park, the most visited of all American National Parks.

The coming and going of Gatlinburg motel guests means that our Channel 3 audience is constantly changing, except, of course, for the town's 2,500 permanent residents.

The audience turnover provides a unique programming factor in that they are able to cablecast the better local shows, most on color videotape, over and over.

Recurrent theme of the local production is the Channel 3 slogan, "Your Video Vacation Guide."

Determining what questions are asked most often by visitors to the Smokies is accomplished by informal daily research. The programming is then designed to answer those questions in the most interesting way possible.

Advertisers answer some of the questions, to wit: Where can I get a good breakfast? My car's heating up — where can I find a mechanic? Is there a hardware store in town? Where's the nearest market?

But the program content is largely noncommercial, except that it involves a number of people who make their living by their skills. These people already have considerable experience at talking about themselves and demonstrating their talents before live audiences. So when they rub their knowing hands across a finely-polished piece of furniture fashioned from curly maple, for instance, there is showmanship in their gesture and narrative.

It's one of the things tourists come to these mountains for, and Channel 3 CATV shows them where they can go later that day or next day to see the real art practiced, in person.

Although effective, scheduled local programming was started only last summer at the peak of the tourist season, a rapport with owners of restaurants, gift shops, clothing shops, entertainment attractions, oddity museums and antique car collections has already been established.

The audience of motel guests will be here for an average of two and a half days, so the advertiser needs to reach them early in their visit if he is to induce them to patronize his particular business.

In the winter months, when they reach mostly the 2,500 local citizens, they found that they were appreciated from that sector, too.

The limited winter programming included some classic film comedies that developed a local fan following, and gave considerable coverage to academic and extracurricular functions at Gatlinburg public schools.

School personnel did their own program planning and casting. The system gave advice and assistance when called upon, and made few demands except that preparation be thorough. It was effective programming in that it was watched and appreciated.

This summer Channel 3 was an even more efficient servant to the touring public. Traffic congestion is the number one problem of most tourist meccas today, and Channel 3 is now contemplating ways that it can pass on information that will help ease that problem in the Smokies.

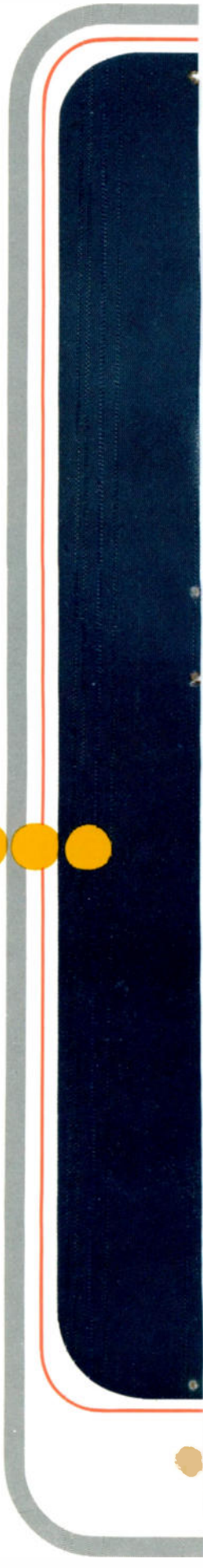
The studio includes one GBC color camera mounted on a hercules pedestal. With lens adapters it doubles as a film chain and studio camera. This gives Channel 3 the advantage of being full color at a considerable savings over the two or three camera operation. When various shots are required, they use either the electronic assemble edit or inset to create a multi-camera effect for commercial or program production.

Both video tape recorders used are IVC one-inch. Only one has edit capability. Switching of audio and video is done simultaneously through an American Data Corporation routing switcher. In their one-man operation, this frees the operator to cue up video tapes, slides, or audio tapes without having to worry with unnecessary switching.

Many short presentations and commercials are telecast with color 35 millimeter slides on the slide projector.

The studio is very small in size, but with proper planning and organization it is adequate for all equipment and production. A large glass window is provided so that the operator can monitor film projectors and studio taping activity. The studio is compact and of relatively simple design, but above all it works . . . and it is paying for itself.

we've put it all together...



coral + vikoa electronics division =

coral | vikoa
electronics division

providing to the industry . . .

- Coral's extremely sound financial position, with additional manufacturing and support facilities.
- Vikoa's engineering and manufacturing expertise and capability.
- Coral's dynamic up-to-date management and production skills.
- Vikoa's long service and understanding of the CATV industry.

coral communications corporation

A WHOLLY OWNED SUBSIDIARY OF **coral, inc.**

Hoboken, New Jersey (201) 656-2020	New York, New York (212) 943-5793	Denver, Colorado (303) 759-0608	Seattle (Bellevue), Washington (206) 747-9709	Dallas (Garland), Texas (214) 276-1181	Los Angeles (Torrance), California (213) 320-1801	Atlanta (Lithonia), Georgia (404) 482-2981

Available in Canada from Vikoa of Canada Limited.

Available in Belgium, Luxembourg, The Netherlands and Switzerland from A.C.E.C. BP 8, Charleroi, Belgium, International Telephone: 07/36, 20, 20, Telex: 51.318

For Those With Questions — Cablecasting Seminars

Beginning this month, cablecasting seminars for both beginning and advanced studio personnel will be offered in eight cities across the country.

TeleMation, Inc., the Utah-based manufacturer of local-origination equipment, plans to hold beginning and advanced television production seminars for CATV operators. The seminars will take place from September to February in eight major U.S. cities. They are designed to provide participants with a basic understanding of professional television production techniques, and to give them actual experience operating television production equipment.

For the Beginner...

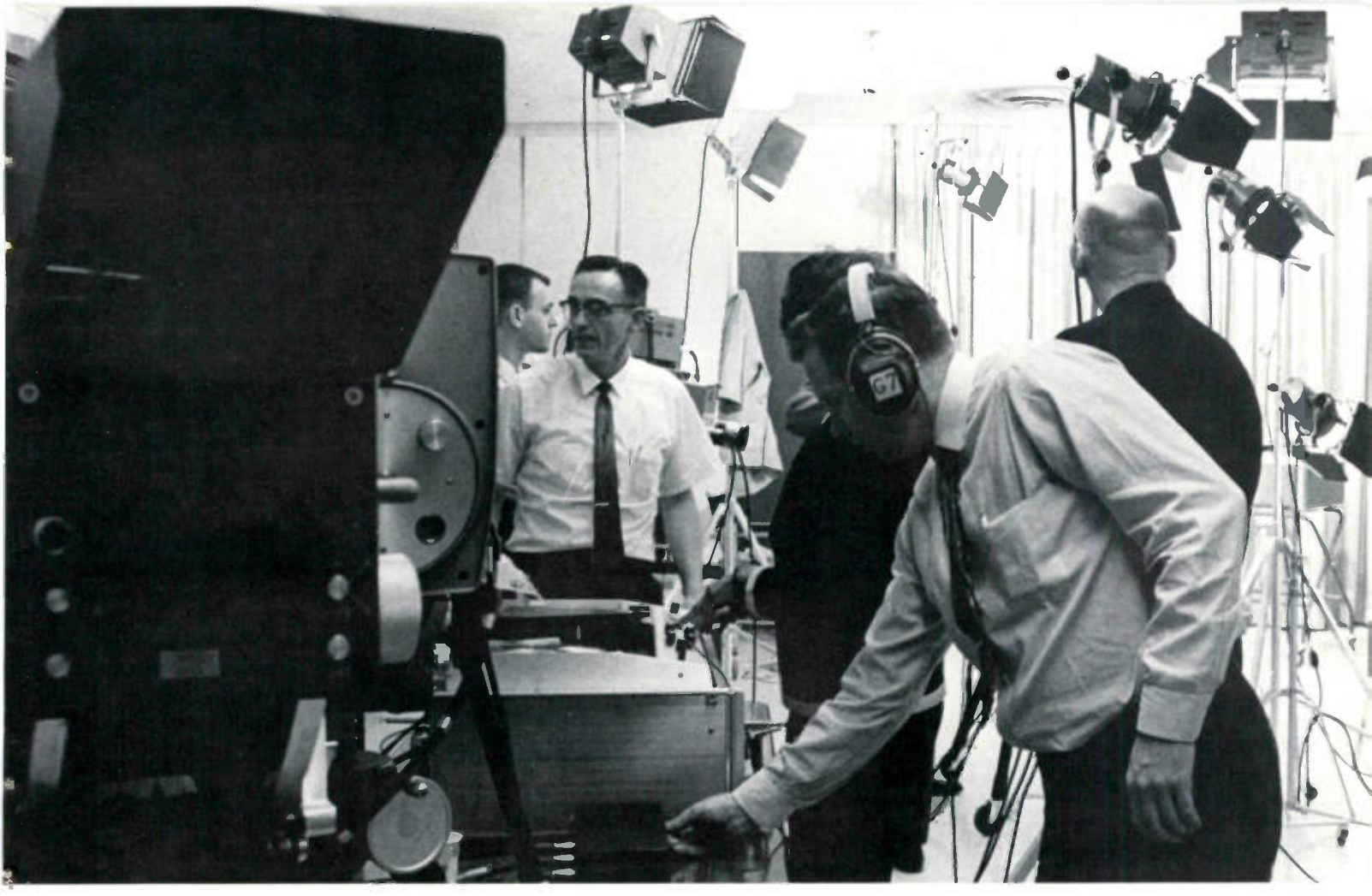
The beginning seminar covers nearly all the concepts involved in television cablecasting, including camera operation, basic production switching, directing, lighting, staging, audio for TV, visual materials, and scripts and scenery. Each subject will be introduced by the instructor, then discussed by the students. Everyone will get some practical experience putting these concepts to use in the studio following the classroom discussion.

For the Experienced...

The advanced seminar offers a more in-depth study of television production concepts. Students are expected to be proficient in the subjects covered in the beginning seminar. Students will be allowed to decide which topics they would like to discuss during the seminar from a list which includes technical considerations in television production, lighting, special effects, producing graphics, special considerations for remotes, video tape editing, and videotaping dramatic presentations. The practical aspects of the advanced two-day seminar include three exercises designed to increase the student's skills working with equipment and within time limits. The first of the exercises is designed to test the student's mechanical directing ability and his coordinated use of people, equipment and props. Students will work with a production switcher; they will man the camera, adjust the lighting, and arrange the set. The next exercise will require the students to show their abilities demonstrated in the first exercise in a coordinated professional production. In this exercise, students must work under a time limit. The third exercise is a final production of the student's choosing.

Registration Facts

Registration fees for each of the two-day seminars is $75. This fee includes a luncheon both days, full participation in the seminar, and supplementary printed material reinforcing the principles discussed in the sessions. The seminars are designed so that the beginning student can attend the full four days and come out of the joint seminars ready to operate his own equipment. The combined fee for consecutive sessions is $150. TeleMation suggests that the beginning seminar would be

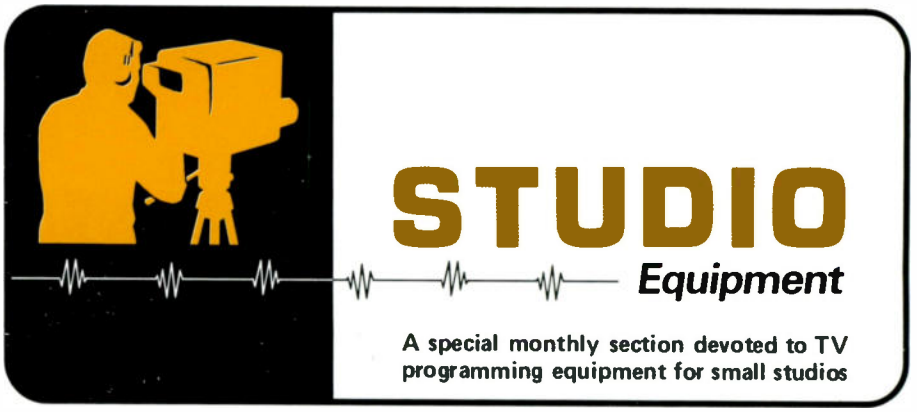


the most helpful for the student with no formal training and less than one year of experience in television production. Others who have more experience and know the basics of switching, framing, and lighting will find that the advanced seminar will help them in areas where they are inexperienced, help them overcome bad habits and introduce new aspects of production to them.

Richard L. Williams, who is the instructor for these seminars, has had experience in production for networks, commercial television, educational TV, instructional CCTV, and industrial television. He has taught high school, and for the past three years, has managed the training efforts of TeleMation, Inc. Mr. Williams promises that the seminars "are for instructional use only; anyone that feels he has been given a 'sales spiel' will receive his money back unconditionally."

The following is a list of seminar dates and locations:

- Albuquerque, New Mexico, TeleMation New Mexico, Inc., 6401 Acoma S.E. Beginning Seminar: September 26-27; Advanced Seminar: September 28-29.
- Anchorage, Alaska, Northern Video Systems, 2328 Spenard Road. Beginning Seminar: October 3-4; Advanced Seminar: October 5-6.
- Honolulu, Hawaii, Pacific Video Corporation, 2979 Ualena Street. Beginning Seminar: October 10-11; Advanced Seminar: October 12-13.
- Atlanta, Georgia, TeleMation Atlanta, Inc., 3684 Wilton Avenue. Beginning Seminar: October 24-25; Advanced Seminar: October 26-27.
- Chicago (Glenview, Illinois), TeleMation Midwest, Inc., 3200 W. West Lake Avenue. Beginning Seminar: November 14-15; Advanced Seminar: November 16-17.
- Salt Lake City, Utah, TeleMation, Inc., 2195 South 3600 West. Beginning Seminar: December 5-6; Advanced Seminar: December 7-8.
- Dallas, Texas, TeleMation Texas, Inc., 2609 Tarna Drive. Beginning Seminar: January 16-17; Advanced Seminar: January 18-19.
- Norwalk, Connecticut, TeleMation East, Inc., 217 Westport Avenue. Beginning Seminar: January 30-31; Advanced Seminar: February 1-2.



CAM Offering Complete Mobile Studio-in-a-Van

CAM Manufacturing, Inc., headquartered in Chapel Hill, North Carolina, has begun producing a turnkey mobile TV studio that is said to aid the CATV operator in providing public, governmental and educational access channels for local origination of programming.

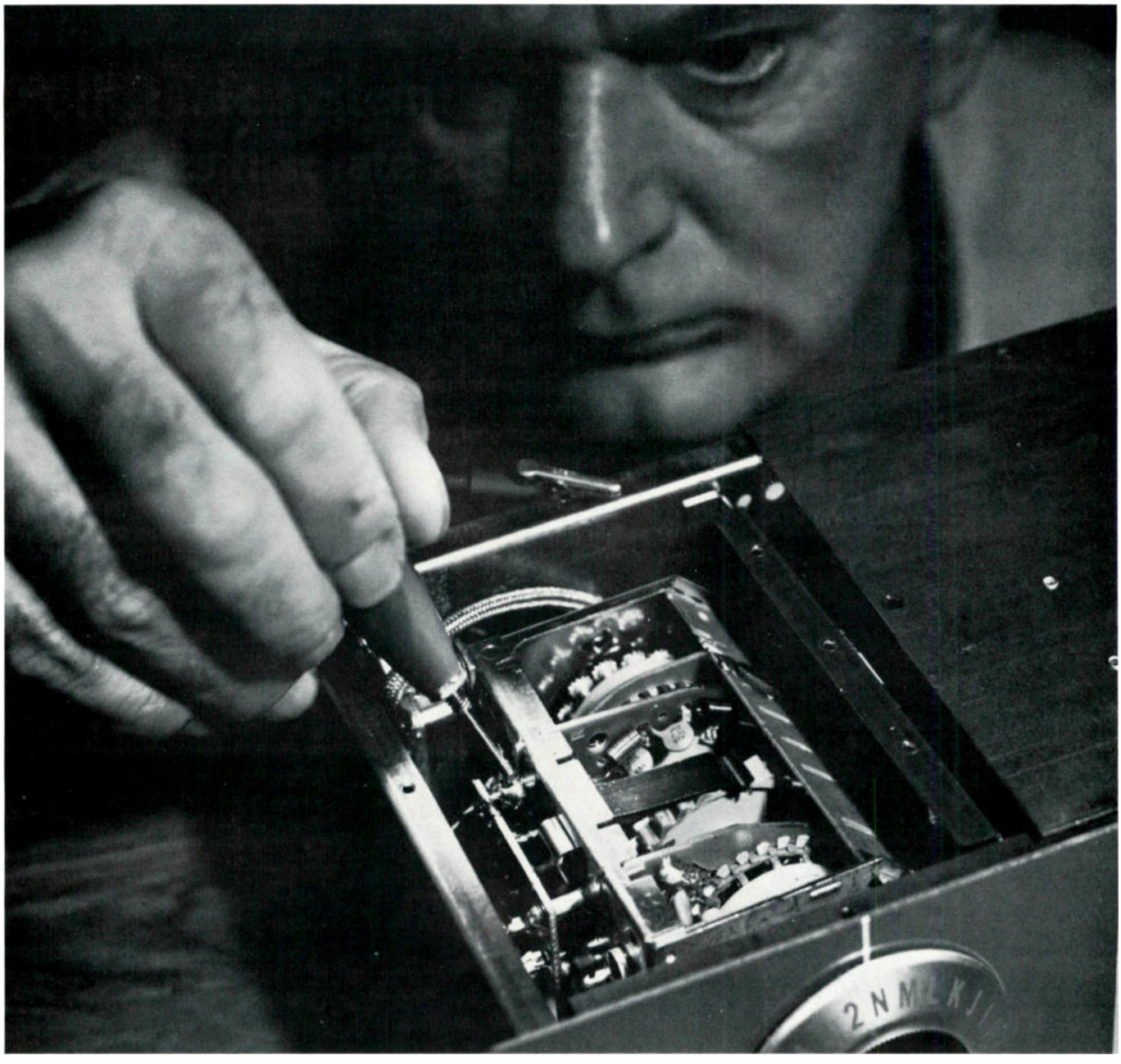
An air-conditioned van, complete with the local system's name painted on both sides, houses all necessary equipment for local origination of programs. Standard features include two black and white cameras with zoom lens, pan and tilt tripod, portable camera and VTR, monitors, switcher and mixer, multi-microphone audio recording facilities, van-mounted VTR, 50 feet of video/audio cable extensions, inverters and shock mounting. Color equipment is available on request.

The van itself, which serves as the mobile studio, is sound-insulated and carpeted, with drapes and multi-screen backdrops, controlled lighting, and suitable furnishings.

Options include cable lengths up to 500 feet, low-light level camera, and more elaborate lighting and backdrops.

CAM Manufacturing sells the standard model, "Studio A," for $10,865. Lease price is $392 a month.

According to the manufacturer, the CATV operator faced with compliance with recent FCC regulations could look a long time before finding a more economical way to meet his obligations. TVC



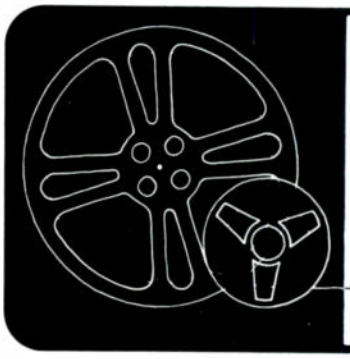
A first rate system deserves first rate engineering

Oak CATV Converters protect the integrity of your system. We've discarded outmoded 12-channel thinking and designed a converter that meets the specific challenges of CATV. The result: 26-channel tuning, 100 db immunity to direct pick-up, input-output isolation of 70 db, ultra-stable oscillators. Oak is far superior in adjacent channel rejection, noise figure, cross modulation and drift characteristics on any channel. And we fight obsolescence by providing space for additional circuitry within the housing like decoders or transponders.

Only Oak now offers U.L. listed electromechanical or varactor tuned converters, with or without AFC, all (including power supply) inside a single, attractive unit.

First rate engineering has kept us first. CATV systems buy more Oak Converters than all other suppliers combined. With our 25 years of TV tuner experience, we can show you that the first move to Oak is the best move you can make. Write or phone for additional information.

OAK Industries Inc.
CATV DIVISION / CRYSTAL LAKE, ILLINOIS 60014
TELEPHONE 815 • 459 • 5000 • TWX 910 • 634-3353 • TELEX 72 • 2447



CATV Programming

College Football Preview 1972

This fall North American Cable will give cable football fans across the nation an opportunity to preview the 1972 college football season. In conjunction with NCAA Films, *College Football Preview 1972* will be shown exclusively on cable channels. The program is a 48-minute color show containing the country's top football coaches and players and narrated by sportscaster Bill Flemming.

Football Preview 1972 features interviews and projections by leading coaches from every region in the U.S. Included are Bob Devaney of Nebraska, Chuck Fairbanks of Oklahoma, Joe Paterno of Penn State, Duffy Daugherty of Michigan State, Vince Dooley of Georgia, Paul "Bear" Bryant of Alabama, Bo Schembecler of Michigan, and Ara Parseghian of Notre Dame. Also featured are Rod Rust of North Texas State, Dee Andros of Oregon State, Woody Hayes of Ohio State and many other of the nation's top football leaders. The coaches discuss all aspects of this coming year's gridiron battles and examine the potential of over 100 of the country's finest collegiate football players. The players are shown in action performing their specialty in running, passing, receiving or defense.

The program is available from North American Cable on video tape, either one inch IVC or Sony Video Cassette. Other sports and football events are also available. Included are *1971 NCAA Football Highlites*, *1971 Big Ten Highlites* and *1971 Big Eight Highlites*.

North American Cable, founded in October, 1971, also distributes *The Outdoor Sportsman* for Sport Films Inc., Portland, Oregon, children's programs for Omega Films of New York City, and educational programs for Victor Kayfetz Productions and Creatavision.

Any information regarding these or other programs available may be obtained by writing to: North American Cable Co., P.O. Box 522, Ann Arbor, Michigan 48107, or call 313-485-3121.

Spanish Programs for CATV

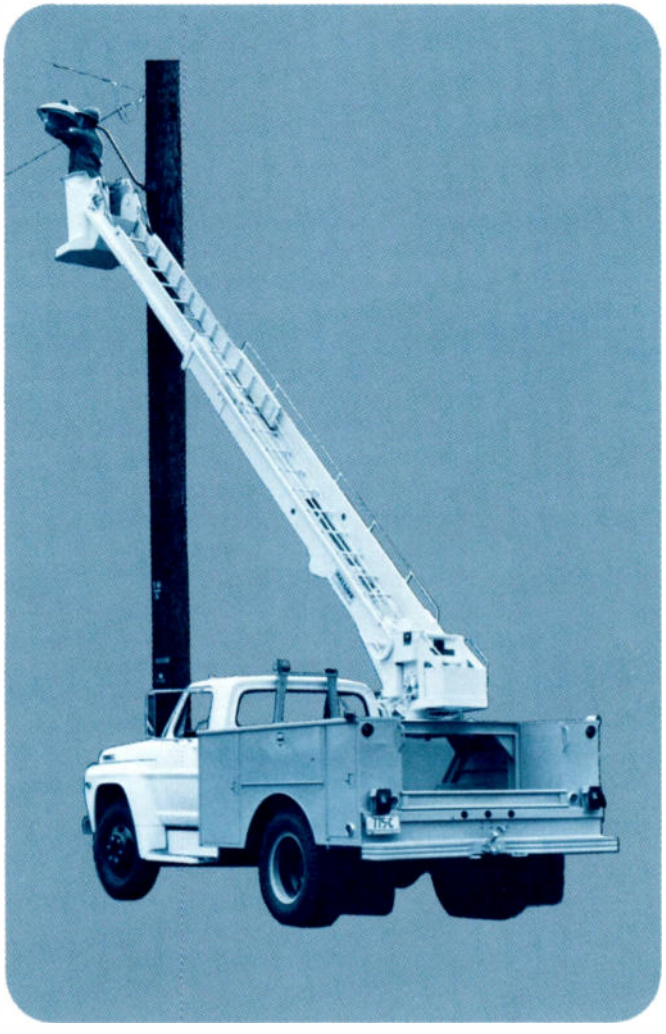
Cable Network Systems, Inc., P.O. Box 10312, Lubbock, Tex. 79408, has been granted all cablecasting rights to distribute Spanish language programs to cable TV systems in the continental United States.

Cable Network will receive video tape from Spanish American Network and process it in a more economical way than has been previously available. It will supply the necessary playback equipment to the cable TV systems and then distribute four hours or more of programming daily. The video taped programs — under the trade name VIA Cable Network — include feature length films, and musical, variety, and comedy and dramatic serials produced in Mexico, Puerto Rico and South America.

EME SELF-LEVELING LADDER

Bridge Mounted Electrically Powered

The EME Bridge Mount Self-Leveling Ladder is designed to meet maximum aerial job requirements. Full electrically powered ladder functions include extension, elevation and continuous 360 degree rotation. All ladder functions are achieved by the simple solenoid control switches, all of which can be actuated simultaneously without appreciable speed loss. Controls are located at the ladder base and on the top control panel at the basket providing the operator with complete control for all ladder functions.



Quality and performance are foremost in the design and construction of the EME Bridge Mount Ladder. This is reflected in the strength and lightweight of the unit. The rigid lower section offers all welded steel reinforced construction. The lightweight upper section is fabricated from reinforced fiberglass which resists unfavorable weather conditions and offers maximum insulation.

Features include improved heavy-duty double extend chains, upper and lower section hand rails, and fiberglass self-leveling work basket with nylon rope. A pilot operated check valve is mounted directly to the ladder lift cylinder that prevents the ladder from falling in case of hydraulic system failure or damage.

The self-leveling feature of this unit allows the operator to work from a comfortable horizontal platform regardless of the position of the ladder. Basket leveling is accomplished through the use of steel aircraft type control cables.

HALLINE

5525 S.E. 28TH AVE. • PORTLAND, ORE. 97202

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 _____

Ohio cable operator builds long life and good looks into TV cable systems

...and yet keeps the cost of construction within budget.

These pictures reveal the extra care exercised by Tower Communications, Inc., Coshocton, Ohio, in the design and construction of cable systems that faithfully serve subscribers, require minimal care and yet do not deface the beauty of the landscape.

Much of the responsibility of building and maintaining the company's wide network of cables rests with Glenn Lorenz,

Glenn Lorenz, Supervisor, is in charge of cable systems construction for the four-state area served by Tower Communications, Inc.

Supervisor in charge of cable systems construction. He's a nineteen-year veteran with the company.

We talked to him about his work, and particularly about the predominance of Preformed cable support products used in their cable systems — Telegrips, Teletaps, False Dead-Ends, Splices, and GUY-GRIP® dead-ends.

He emphasized the importance of neat, clean-looking lines and recognized that Preformed products have a slim silhouette — they blend into the line, have no bulky clamping mechanism, no nuts or bolts.

Economy is another big point. In laying out a new system, Tower Communications makes cost estimates as accurate as possible; they like costs to match estimates, which means avoiding lost time on the job. Preformed products twist on in a jiffy without tools. Contractors like them too, he pointed out, because of the ease of application.

Furthermore, the helical wire construction typical of Preformed CATV products cradles the cable, preventing cable distortion and excessive wear and tear. Preformed strand products promise long life to the cable system.

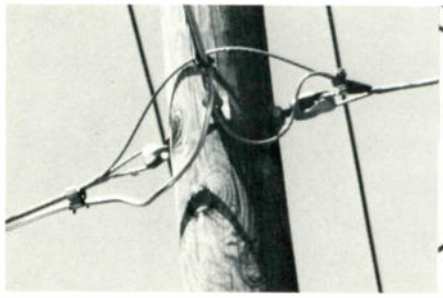
Tower Communications, Inc., a subsidiary of Communications Properties, Inc., serves a wide area throughout Ohio, Pennsylvania, Kentucky, and West Virginia, and they prefer not to maintain a large inventory. Preformed helps them in this respect by providing prompt service.

Next time you are planning a new cable system, consider these benefits of using CATV products by Preformed. Write for Bulletin SP-2073.

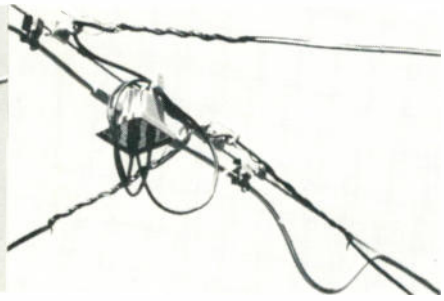
PREFORMED LINE PRODUCTS COMPANY, 5349 St. Clair Avenue, Cleveland, Ohio 44103. Dial 216-881-4900.

PREFORMED

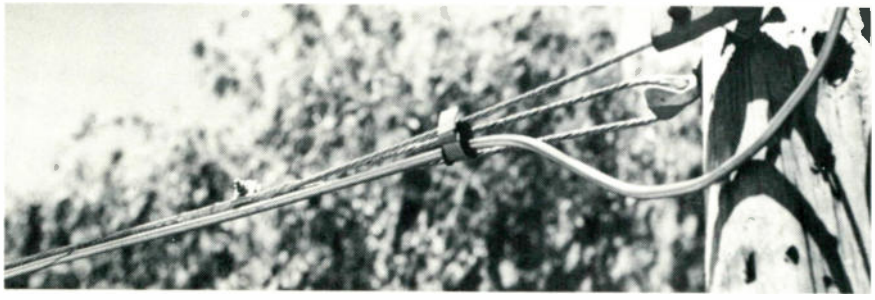
MAKES BETTER CONNECTIONS EVERYWHERE



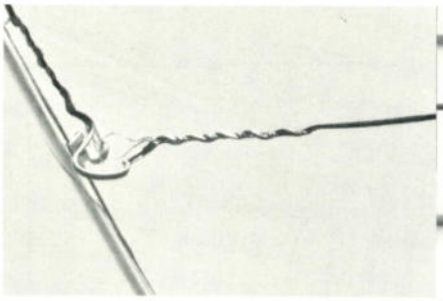
Corner pole construction showing use of three GUY-GRIP dead-ends to support messenger strand. Note that cable system is bonded throughout.



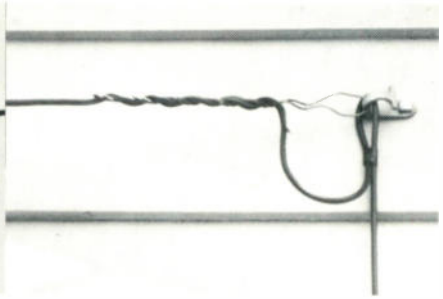
Three-way tap-off is made with Telegrips, which are connected to span clamps and carry the wire to the house.



Preformed False Dead-End is used at guyed pole. Permits straight-through continuation of cable and messenger. Often used when a slack span is needed.



In some cases it is preferable to bring the service wire off the tap to a point somewhere in midspan where a neat connection is made with two Telegrips.

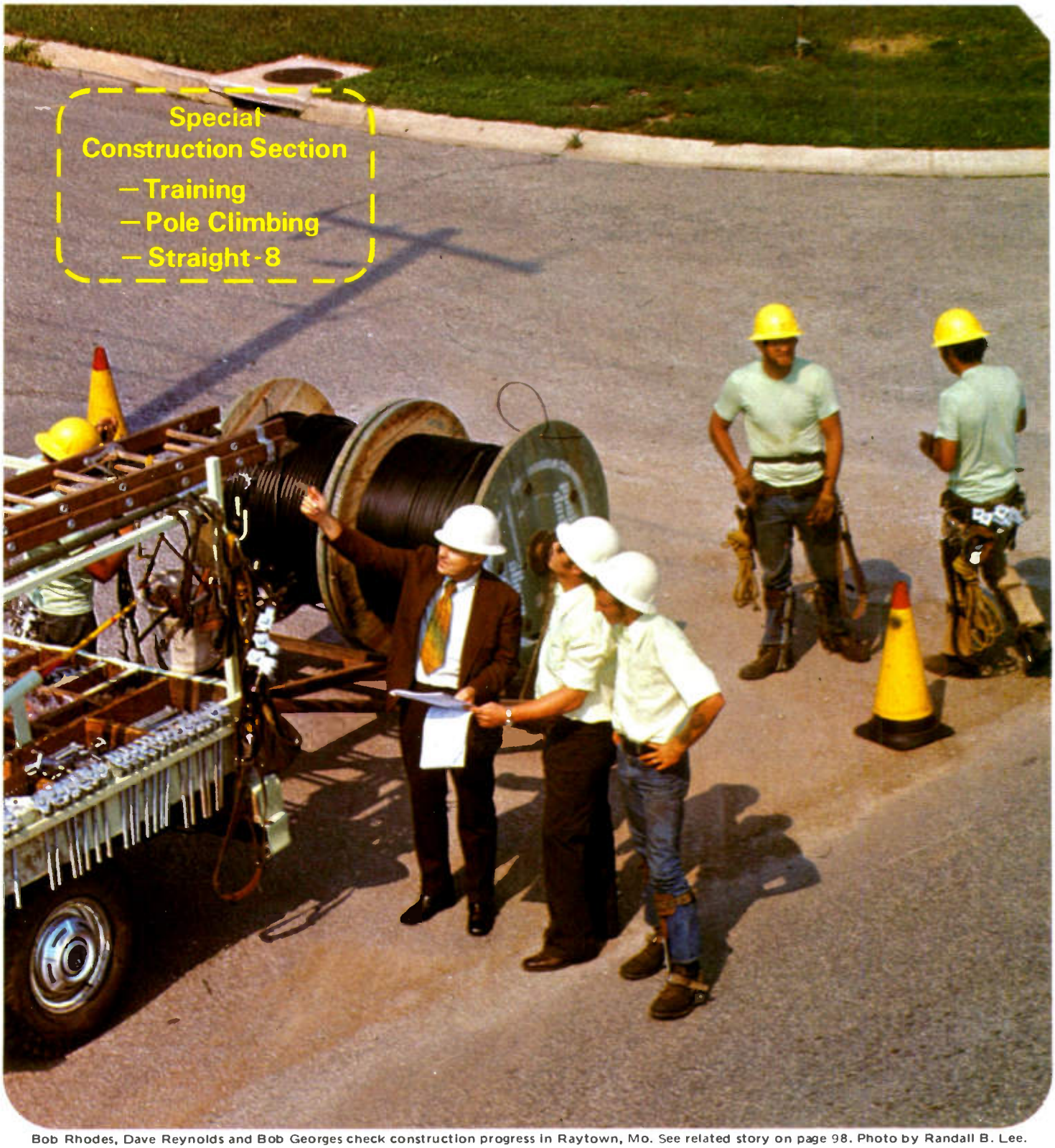


Telegrip is neatest way to bring service wire to the house entrance. It prevents kinks in the wire and helps give distortion-free picture.

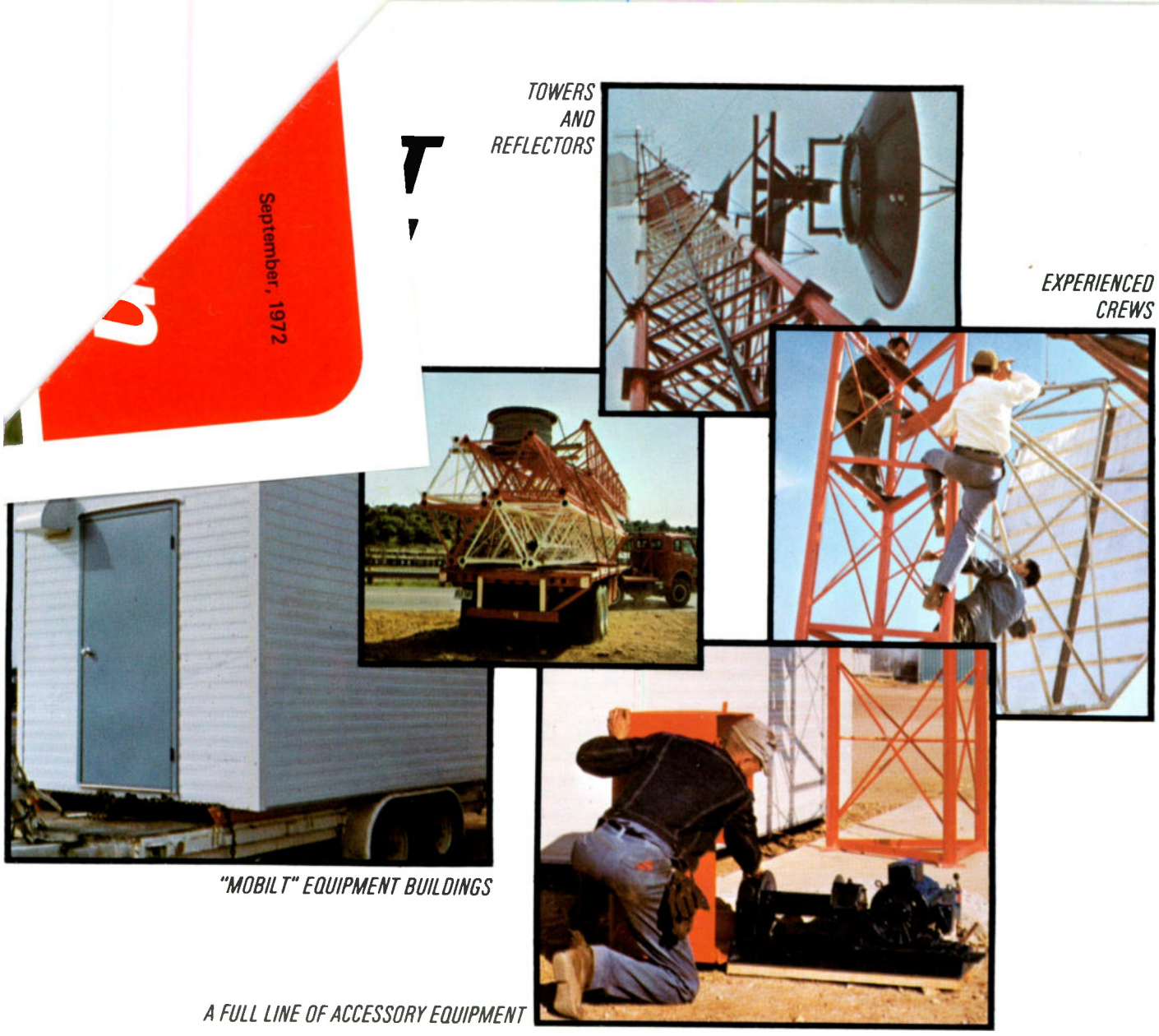
TV Communications

CATV Technicia

Special
Construction Section
– Training
– Pole Climbing
– Straight-8



Bob Rhodes, Dave Reynolds and Bob Georges check construction progress in Raytown, Mo. See related story on page 98. Photo by Randall B. Lee.



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

Joe E. Hale

Will CATV Come of Age in 1972? Technically Speaking—It Must!

There is a great deal of misunderstanding concerning the *Cable Television Report and Order* published by the Federal Communications Commission on February 3, 1972, as to Subpart K, "Technical Standards" and Subparagraph 76.601, "Performance Tests" paragraph. I checked with the Cable Television Bureau and they assured me that the rules mean exactly what they say, i.e. *ALL* operating systems must conduct the performance tests indicated in Subparagraph 76.605 on or before December 31, 1972, and annually thereafter. This was further amplified by a *NCTA Technical Topics* published July 11, 1972, which stated:

"December 31, 1972, is the latest date that the first tests must be completed to remain in compliance with the Rules."

The results of these proofs must be kept on file in the *local* office of the system where the tests are being performed. In addition, as a part of these performance tests, a description of the instruments, the procedure and a statement of the qualifications of the person performing these tests must be included in the report.

It is my understanding through discussions with the Staff Engineer of the Cable Television Bureau that any hardships that might be encountered by the operating systems has been taken into consideration under Paragraph 153 of the *Report and Order*, which states in part:

"While we recognize the compliance will involve some costs, we do not choose to sacrifice the public benefits derived from good technical performance."

Most large systems should have the equipment necessary to run these tests with the exception of Subparagraphs (1), (2) and (3) that relate to frequency boundary and deviation. It is doubtful that any but the largest MSO engineering labs will have the frequency counters and/or the quality of spectrum analyzers necessary to run these tests.

1972, thus, is the year our industry becomes technically mature – like it or not! TVC


Molecular bond
fuses polyethylene disc
to both the center
and outer conductors.

NEW FUSED DISC* COAXIAL CABLE.

Gives you more for less- and builds for tomorrow, too.

Our Fused Disc coaxial cable obsoletes existing designs. It's a precision product at a fully competitive price.

Fused Disc gives you absolute protection against moisture migration along your cable.

Fused Disc gives you an unqualified guaranteed SRL of 35 dB or better.

Fused Disc gives you an impedance tolerance of ± ½ ohm.

Fused Disc gives you considerably better echo level performance.

Fused Disc gives you low attenuation values and the enjoyable, profitable option of using smaller cable or fewer amplifiers.

Fused Disc installs easily. Needs no pressurization.

Fused Disc is priced to save you investment dollars when you buy and designed to save you maintenance dollars in operation.

You should know more about it.

General Cable

We go to greater lengths to give you greater value

Call your local General Cable sales office (51 coast to coast) or write for complete details: General Cable Corporation, Section 200-90, 730 Third Ave., New York, New York 10017.

*Patent Number 3560589

So You're Going To Build a System— So, Who Is Going To Do the Work?

The cable communications industry is conservatively expected to wire another ten percent of America's TV households—very soon. Who are the men who will build the systems? Here's one innovative, cable answer.

By Paul Sylvan Maxwell
Executive Editor

"There is an ever-increasing demand for the type of personnel that we (Jackson Communications) are using in engineering. construction and splicing. And not only within the CATV industry, but also in the telephone and power companies . . . making it all the more difficult for us to compete for the trained and knowledgeable personnel available.

"Due to the nature of our use of personnel in CATV construction, we can only train a small number to supplement our work forces at one time . . . and then only through on-the-job training. And that can result in poor workmanship and inadequate unit production and more costs to us."

Richard Jackson, president of Jackson Communications Corp. in Brookline, Ohio (an Arcata Company) is concerned about the supply of adequate construction personnel for the cable communications industry. "We're always stealing," he says, "men from other cable construction companies or MSOs — and they're always stealing from us, too — or telephone companies or power companies. It's either that or taking some guy off the street and hoping you can train him. That's not a good way to plan for the future.

The Need for Better People

"This industry is growing too fast for that. It cannot rely on the ever dwindling supply of people to build tomorrow's systems."

Jackson points out the need for people to fill the job slots that are beginning to open up today. He also points out the need for *better* people.

And he has found, he believes, a sensible part of the solution to the personnel problem:

In cooperation with another Arcata company, Van Velkinburgh Co., Jackson's cable construction firm has developed a training school in Lexington, Kentucky.

The School Idea Began

Curtis Van Velkinburgh, the company president, and Curtis Stamper, field coordinator for the Appalachian Council of the AFL-CIO (a federation of trade union leaders from the eleven Appalachian states formed in 1964), think they've found a part of the answer to the people problem. Van Velkinburgh agreed to run a school for telephone construction personnel and the Appalachian Council agreed to pay the students during their class time. The $45-a-week training allowance comes from the unions and the Federal Government under the Manpower Development Training Act.

The students are recruited from the ranks of America's new military veterans. Van Velkinburgh sends recruiters to Army out-processing centers to offer the vets an eight-week training course with a job virtually assured upon completion . . .and an allowance during training.

Leon Eckmann, Van Velkinburgh vice president in charge of the training programs, and Dick and Oscar Jackson got together and said "Why not cable training, too?"

"Why not, indeed?"

Jackson uses 345 CATV construction workers right now — and expects to need at least twice that number next year. So why not train them through Van Velkinburgh's school?

The Cable Curriculum

Robert Ennist of Jackson Communications is in charge of developing the curriculum for the cable classes. He has started with some unusual concepts. Instead of just running men through classes and then letting them disperse, he is considering hiring the classes as crews and keeping them together after training.

And, he hopes to thoroughly indoctrinate the students into the cable television industry. And, Ennist sees this school, and the chances it means, as vital to the future of Jackson Communications. He will be training the linemen, splicers and make-ready engineers of tomorrow . . . with emphasis on the trained technician who is building his own future.

The basic curriculum outline for the lineman sequence is divided into eight parts:

I. What is CATV?

II. The Lineman's Job Description.

III. The Tools and Equipment Used on the Job.

IV. The Maintenance and Care of the Equipment.

V. Safety.

VI. Clearances and the Other Guys: Telephone and Power.

VII. Record Keeping and: Anchoring, Guying, Framing, Stranding, Lashing and Clean-up.

VIII. Summary.

As Leon Eckmann and Dick Jackson have said, "The cable industry needs men . . . we think we've found one part of the answer." Perhaps other companies within the cable communications industry should look at this concept . . . and then talk to Federal, state and local governments *and* different public service organizations.

The cable industry might try a few more innovative solutions.

Above: One of the instructors talks with Oscar Jackson (center) and Leon Eckmann (right). Below: An instructor and student with the current telephone class.

ELIMINATES AC HUM MMMMM

Comm/Scope Video Pairs give you high-definition transmission and no AC hum on local origination.

Individually shielded and balanced, they'll handle the toughest transmission problems in broadband carriers, CCTV, data transmission, and voice frequency circuits.

Improve the performance of your system. Insist on Comm/Scope Video Pairs. In single pairs or in composite constructions. Flexible Video Pairs for patchcords and flexible video leads also available.

For information and prices, write or call: Comm/Scope Company, P.O. Box 2406, Hickory, North Carolina 28601. Phone 704/328-5271.

Warehouse locations: San Rafael, California; Dallas, Texas; Tampa, Florida; Seattle, Washington; Sherrills Ford, North Carolina; Woodbridge, New Jersey; Moline, Illinois.

TRANSMISSION DATA

Nominal Characteristics of 16 AWG Video Cable

Frequency* (kilohertz)	Attenuation (dB/mile)	Characteristic Impedance		Phase Shift (radians/M ft)
		Magnitude (ohms)	Angle (degrees)	
10.0	1.49	158	−18.0	0.52
100.0	3.20	129	− 5.0	4.50
400.0	5.81	126	− 2.0	17.00
1,000.0	8.94	125	− 1.0	43.00
4,000.0	17.70	124	− 0.7	168.00
10,000.0	28.20	123	− 0.4	417.00

*Data for additional frequencies can be supplied as required

ELECTRICAL CHARACTERISTICS

CONDUCTOR RESISTANCE: The conductor resistance does not exceed 23 ohms per mile of cable at 68° F.

MUTUAL CAPACITANCE: The mutual capacitance is not more than .058 microfarads nor less than .051 microfarads per mile.

CAPACITANCE UNBALANCE: The capacitance unbalance between conductors and shield does not exceed 0.50 picofarads per foot.

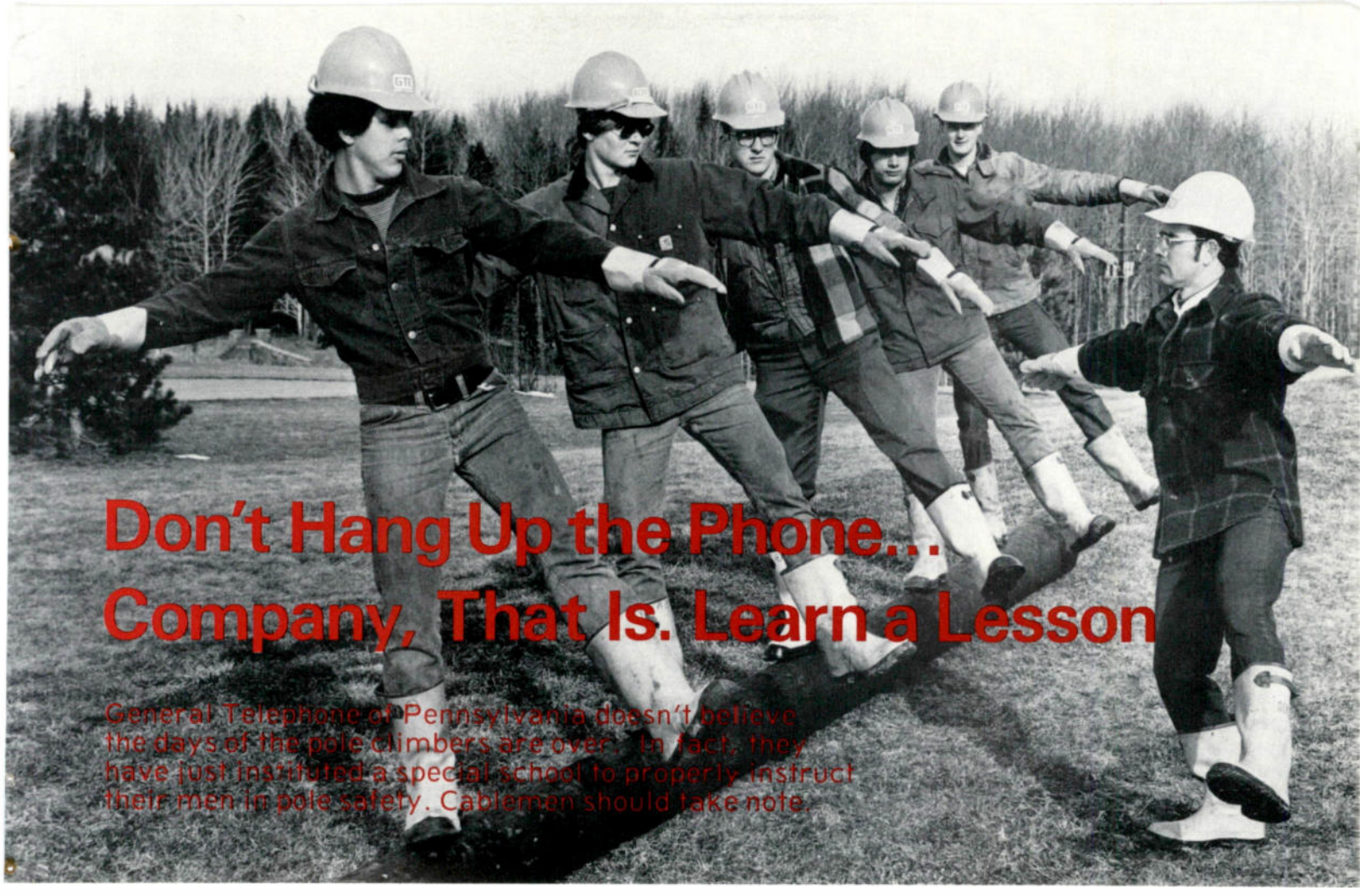
DIELECTRIC STRENGTH: Insulation is capable of withstanding an a-c test potential (maximum instantaneous), for 2 seconds of 2800 volts between conductors and between conductors and shield.

INTERNAL ECHO: The worst internal echo in a video pair is down at least 38 dB from the measuring pulse.

CHARACTERISTIC IMPEDANCE: The characteristic impedance is 125.5+3.5 ohms at 1 MHz.

Comm/Scope Company

Division of Superior Continental Corporation
A Member of Continental Telephone System



Don't Hang Up the Phone... Company, That Is. Learn a Lesson

General Telephone of Pennsylvania doesn't believe the days of the pole climbers are over. In fact, they have just instituted a special school to properly instruct their men in pole safety. Cablemen should take note.

By Edward J. Smith
General Telephone Co. of Pennsylvania

In these days of aerial lift trucks and buried CATV plant, one might wonder if communication men still climb poles.

The answer is a definite "yes!"

The climbing skill possessed by telephone men for close to a century is still a very important aspect of all construction, installation and maintenance men whose work involves aerial plant. Pole climbing training has become more thorough with the advent of formalized, standard lesson outlines which stress gradual physical conditioning, repetition of proven techniques and work-related activity while aloft.

Formalized training also provides additional classroom time to acquaint new employees with accident prevention programs, company practices, installation and maintenance procedures, and job-related activities.

Innovative teaching techniques being used in more technically oriented subjects also are now being applied to the teaching of pole climbing. Such training aids as videotape, slides and filmstrip presentations now complement the more traditional 16mm films in pole climbing training.

In That Other Industry

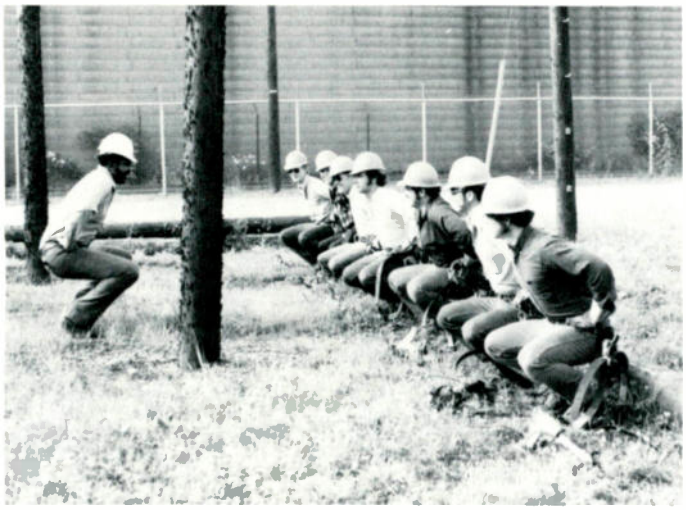
General Telephone Company of Pennsylvania's approach to modern pole climbing training began to develop when the company's Service Communications Training Center recognized a need for a formal, standardized lesson outline for pole climbing training when monthly accident summaries indicated many climbing accidents may have been caused by improper techniques of climbing and working aloft.

Likewise, cable operators should re-evaluate their training of this skill in their employees, who must climb aged, congested utility or telephone poles, under sometimes hazardous conditions. The development of the lesson plan involved the joint efforts of eleven outside plant employees with extensive experience. The original course outline was field-tested in four classes of climbing instruction and then revised according to the instructors' suggestions. Additional instructors were then familiarized with the final outline in a three-day seminar and were certified by the training center.

Classroom for Climbers

The accompanying photographs were taken during a one-week training session for new employees of Gen Tel of Pennsylvania's Northern Division. A typical session is taught by one certified instructor, and five to eight trainees, although larger groups can be accommodated if they are taught by a two-man team.

The trainees first were given classroom orienta-



Gradual conditioning is essential to an effective pole climbing session. Len Jefferson, service assistant, is shown leading trainees in exercises to loosen joints.

tion and fitted with climbers and body belts. The pole climbing area was the setting for physical conditioning as well as actual climbing practice. One and one-half hours of physical conditioning were included each morning and afternoon of the first and second days; two hours of conditioning with limited climbing took place each morning and afternoon of the third and fourth days; and there were six hours of climbing the fifth day.

There was considerable emphasis on gradual, thorough physical conditioning so that trainees would not experience loss of strength in their early ascents. Specific exercises built into the lesson plan had been designed to strengthen muscles and loosen joints. Body movements peculiar to pole climbing were thus gradually experienced, resulting in confidence as well as safety.

The pole climbing area contains 10-ft. poles, 25-ft. poles and 30-ft. poles arranged in a circular pattern for better supervision by the instructor. Also in the pole area are two stepped poles that enable men to get the feeling of height prior to wearing climbers, plus a pole raked at a 15 degree

General Telephone of Pennsylvania's Condensed Pole Climbing Outline

Training Aids	I.	Audio Visual & Classroom Equipment	
	II.	Pole Climbing Area Equipment	
	III.	Individual Student Equipment	
	IV.	GTE Practices	
First Day	I.	Introduction	
	II.	School Administration	½ hr.
	III.	Climbers and Body Belts Issued and Fitted	2 hrs.
	IV.	Conditioning	1½ hrs.
	V.	Wearing Apparel	1½ hrs.
	VI.	Conditioning	1½ hrs.
	VII.	Belt Safety	1 hr.
Second Day	I.	Conditioning	1½ hrs.
	II.	Ascending and Descending Non-Stepped Poles (Classroom)	1½ hrs.
	III.	Accident Prevention	1 hr.
	IV.	Care of Climbers	1½ hrs.
	V.	Conditioning	1½ hrs.
	VI.	Climbing Demonstration	1 hr.
Third Day	I.	Climbing Demonstration	½ hr.
	II.	Conditioning	1½ hrs.
	III.	Pole Safety	2 hrs.
	IV.	Ascending and Descending Non-Stepped Poles (Pole Climbing Area) Video Recorded	2 hrs.
	V.	Review of Safe Pole Climbing Training Film and Video	1½ hrs.
	VI.	Safe Work on Poles	½ hr.
Fourth Day	I.	Ascending and Descending Non-Stepped Poles (Pole Climbing Area)	2 hrs
	II.	Ropes	1 hr.
	III.	Hand Signals	½ hr.
	IV.	Maneuvering on Poles, Video Recorded	2 hrs.
	V.	Ladders	1 hr.
	VI.	Review of Safe Pole Climbing Training Film and Video	1½ hrs.
Fifth Day	I.	Maneuvering on Poles	2½ hrs.
	II.	Pole Climbing Slide Presentation	½ hr.
	III.	Written Test	1 hr.
	IV.	Observation of Individual Proficiency	3 hrs.
	V.	Safety When Working Near Power Wires	1 hr.

angle to train the proper method of ascent on such poles. The 10-ft. poles are used for early climbing exercises and help conserve the timber of the larger poles for more advanced training.

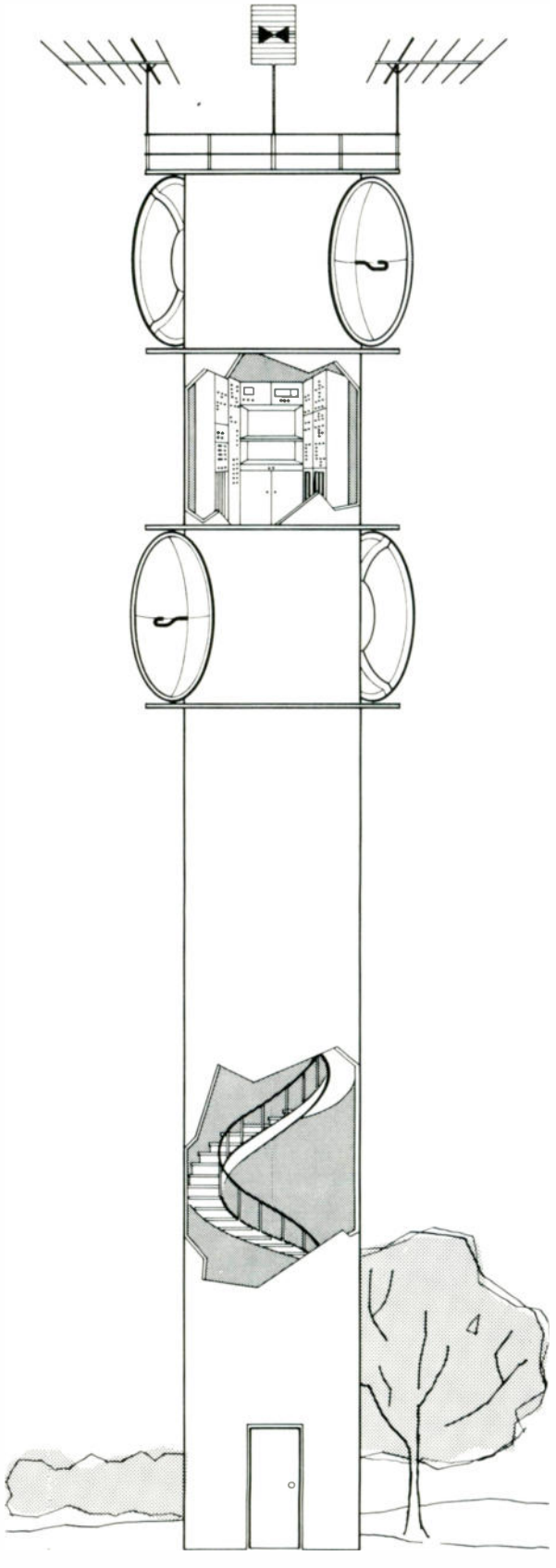
Each man's climbing activity was recorded by a portable, battery-operated videotape system. The 5 1/2 lb. camera featured an electronic viewfinder, built-in microphone, pistol grip control and zoon lens 12.5mm wide angle to 50mm telephoto. The portable video recorder's self-contained rechargeable battery pack was designed to provide 45 minutes of continuous operation with the camera. A back-up battery kept on recharge extended the camera time, allowing several 30-minute videotapes to be recorded. A versatile strapping arrangement allowed

The pole climbing area contains poles of various heights and diameters.

Climbing activity is recorded by a portable video recorder for later playback in the classroom.

Integrated Communications Structures

...by PDM



For CATV Head Ends & Microwave Relay Stations

NEW DESIGN FEATURES

1. Receiving antennas are rigidly mounted and use of short transmission lines means less signal loss and interference.
2. Preamplifiers may be mounted in equipment rooms.
3. Surface of structure can serve as a shield for receiving antennas.
4. Modular design allows choice of height, equipment space and antenna mounts.
5. Minimum exposure of equipment and personnel to weather.
6. No outside ladders and difficulty of unlawful entry results in less vandalism.
7. Complete structure is grounded providing protection from electrical storms.
8. Elimination of guy wires requires less land.
9. Maintenance is less than conventional towers with adjacent building.
10. Structure provides maximum protection from weather, forest fires or gunfire.
11. Height can be easily increased by adding modules.
12. Appearance is aesthetically more acceptable than conventional towers.
13. Minimum deflection and negligible twist results in greater stability for microwave purposes.
14. Structure can be disassembled and moved to a new site.

For more information, call or write

PITTSBURGH-DES MOINES STEEL COMPANY

Neville Island, Pittsburgh, Pa. 15225
(412) 331-3000

PDM builds for the future

Pittsburgh-Des Moines Steel Company

PDM

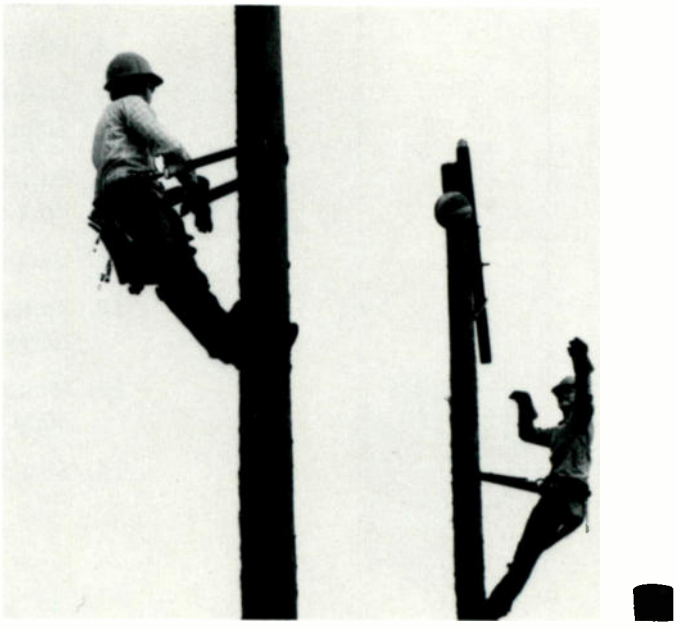
the 18-lb. recorder to be slung over either shoulder, worn knapsack style or set on the ground.

Outside instruction included actual work aloft in addition to basic leg stroking, ascending and descending. Students mounted cross-arms, transferred glass insulators from one end of cross-arms to the other, mounted attachments and raised and lowered equipment.

Having a "Ball" Up There

Proper methods of testing a pole's stability prior to climbing were demonstrated and practiced in the outdoor classroom. For diversion, the basketball technique introduced by Gen Tel of California was used several times during the course. Basketballs and footballs were tossed around and across the circular pole field, encouraging students to take both hands off the pole. They gained confidence in the body belt, relaxed and actually enjoyed the game. Dropping the ball meant an additional descent and ascent.

The videotape of each student's early ascents were played back on a 22-in. television receiver/monitor having stop-action capabilities. This enabled the instructor to stop the film showing the students during climbing to point out various good and bad aspects of their climbing techniques. Emphasis was on positive critiques, so that students would not become discouraged by humiliation or embarrassment.



Basketballs and footballs are tossed to encourage men to take both hands off the pole.

As anyone who has viewed themselves on television well knows, he is his own worst critic. This new training technique, therefore, results in immeasurable motivation for the trainee to correct his mistakes.

Another unexpected advantage of using the

C-COR OLYMPIC SERIES...

a champion that has earned the name!

Excellence, dedication, expertise, a drive to be the best. All of these and more go into the total make-up of a champion, and we believe our Olympic Series fills the bill. Indeed, all of C-COR Electronics has the aura of a winner; people, products, and performance — champions all. From John Hastings, system design, to Dave Churner, shipping manager, we are all ready to make your system a champion, too.

A. **TRUNKS** — Turn your system on with 300 MHz, 270 MHz, and value-priced options — 34, 32, 25, or 22 dB spacings — internal bridger option — two-way, now or later — Sub Band and Two Way, 14 - 14, Trunks also available.

B. **BRIDGERS** — Indoor or Outdoor — More output — +56 dBmV out for 12 ch. @ -57dB, cross mod, each of 2 ports — Closed loop level control option — Two-way, now or later — plug-in filters, reverse amps.

C. **EXTENDERS - DISTENDERS** — Flexible — Many options — Two-way — Manual, thermal or closed loop level control — Distender — the transition between DIStribution and exTENDER amplification in a Cable TV system.

D. **TAPS** — 5 — 300 MHz — Two-way — Proven, 8 port — New, 2 port and 4 port — Small, for 4" pedestal or messenger — Plug-in RF, Hybrid, flat.

C-COR Electronics, Inc.
60 DECIBEL ROAD, STATE COLLEGE, PENNSYLVANIA 16801
Telephone: Area Code 814 / 238-2461

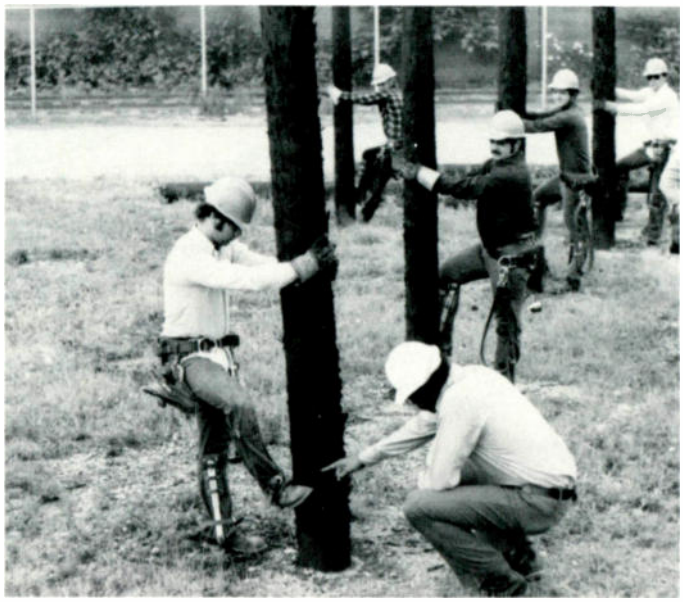
portable videotape system in one of General Telephone Company of Pennsylvania's training sessions was the recording of an actual "cut-out" accident. Fortunately, the trainee was not injured, but playback clearly shows that the accident was caused by a climbing error of improper leg angle during descent.

The classroom portion of the pole climbing course also included audio-visual instructions by means of a 35mm slide presentation produced by the company's Service Communications Training Center and two 35mm slide presentations obtained from climbing equipment manufacturers. These supplemented standard 16mm films which had been used in previous pole climbing courses.

With the O.S.H.A., Training Is a Help

Through anonymous individual critiques of the course at the conclusion of one particular one-week climbing school, it was evident that the men felt the new program was worthwhile, satisfying, safe and easy to learn.

J.C. Harpham, Service Director of General Telephone Company of Pennsylvania, summarized: "Standardized pole climbing instruction insures us that all employees receive the same proper instruction. Our accident summaries reflect a definite reduction of accidents among employees who have attended formal training."



Trainees are taught to acquire proper balance when stepping away from pole, after descent. Many accidents have occurred at this point.

The additional emphasis on providing the proper safety environment by the Occupational Safety and Health Act might suggest that cable operators as well as other utility companies consider similar formal pole climbing training, taking full advantage of the new training techniques which are now available.

DO YOU MEET THE NEW CATV CARRIER ACCURACY OF ±0.0005%* REQUIRED BY THE FCC?

You can measure to ±0/00005% accuracy with the new Lampkin 107B Frequency Meter/Generator!

- Measures frequencies from 10 kHz to 1000 MHz
- Generates frequencies from 1000 Hz to 1000 MHz in 100 Hz steps without gaps; CW, AM, or FM modulation with internal 50 Hz – 6000 Hz source
- Frequency Accuracy to ±0.00005% (0.5 PPM)
- Output calibrated in μV and dBm

Call (813) 746-4175 or write for further information.

*High-Band average for Aural Channel accuracy.

LAMPKIN LABORATORIES, INC. • 8400 Ninth Ave. N.W. • Bradenton, Florida 33505

Going Straight With Figure Eight

Raytown, Missouri just installed one-hundred miles of integrated messenger cable. Costs were reduced by nearly thirty percent . . . construction was finished ahead of schedule . . . and paying subscribers are hooking up sooner.

By Randall B. Lee
Assistant Managing Editor

It really isn't a new type of construction. In fact, there really isn't anything *that* unusual about the method of construction either. But when I received a telephone call from R.C. "Bob" Rhodes of Community Television of Raytown, Inc., I knew that, for some reason, at least one person was pretty excited about something called "straight-eight" construction.

Well, I know about construction — first, make-ready work is done by the utility people; then cable people go through stringing the messenger; and then those same cable people go through again. This time, however, they go through in force. Any by force — pulling a lasher through trees and whatever other obstacles might be in the way.

According to Bob, this "straight-eight" construction was something I just had to see. He was pretty convincing. So I made the ultimate sacrifice — I gave up a weekend.

Going to Kansas City

Bob was supposed to meet me at the airport in Kansas City. We had exchanged descriptions over the phone, so I anticipated no problem. After all, how many men with flattops are left in the country?

At the end of the passenger exit stood a man with a flattop. I waved. So did he. Then he walked off with the fellow in front of me.

Moments later, I heard, "Mr. Randy Lee, please report to the Continental ticket desk." There I was greeted by Brian Smith, Bob's partner. Bob had been tied up at the system.

It's only about a twenty-minute drive from the Kansas City airport to Raytown, Missouri, but I learned quite a bit about the Raytown system . . . and Bob.

Cable in Raytown

Raytown, Missouri is a bedroom community. Most of its 40,000 residents work in Kansas City. It is within the Kansas City television market — number 22.

Cable got started there last year when Bob turned on the first twelve miles of plant. That plant was put up using conventional cable construction techniques. Putting up that cable, most of it rear easement work, is what made Bob decide there must be a better way.

When Brian and I arrived at the system office, Bob wasn't there either. The secretary said he was somewhere out in the field. Brian knew where to look. Moments later we found Bob with two of his men. Bob was at the top of a pole.

I liked him immediately. There

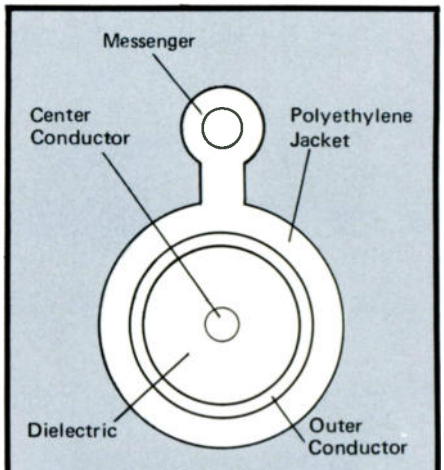
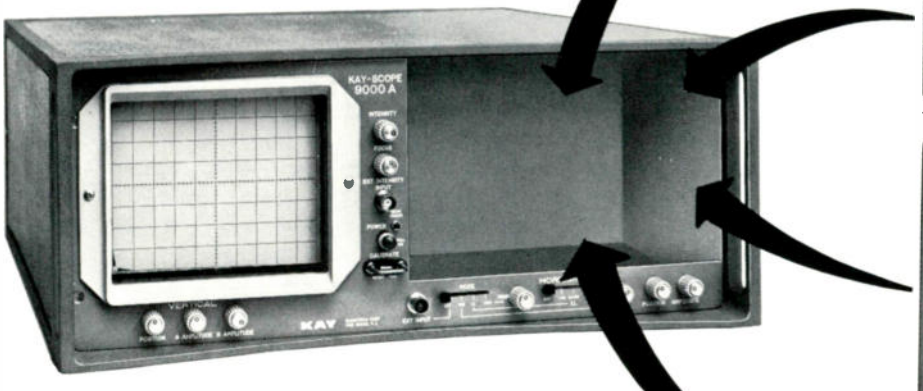


Figure 1:
End View of Figure 8 cable.

The performance is in the proof.



The P9020A

The P9030A

The P9040A

The P9059A

And the proof is faster, easier, more economical with Kay's modular solid-state CATV test set.

The new Kay Series 9000 CATV test set offers a completely new approach to system testing: a basic storage scope main frame with low cost plug-ins for summation sweep testing, spectrum analysis, loss and return loss measurements and bench alignment.

The unique design permits the addition of future test modules at relatively low cost with no sacrifice in quality. Add whatever you want, whenever you want it.

The P9020A is a VHF summation sweep receiver. It features a 40 db post amp, a 42 db attenuator, harmonic markers, a built-in detector and a variable tilt control.

The P9030A plugs into the same main frame for measurement of gain, loss and return loss of active and passive devices. It includes precision .25 db attenuators, an electronic switcher, repeatable bridge and RF detector.

The P9040A is a low-cost spectrum analyzer plug-in, covering the range from 500 KHz-300MHz. It offers a 70 db dynamic range, digital IF attenuator, digital center frequency readout and built-in frequency and level calibration.

The P9059A is a low-cost solid-state sweeper plug-in covering the 1-300 MHz range. Designed primarily as a head end sweeper, it may be removed from the head end rack and installed in the main frame for amplifier alignment.

Sweepers • Attenuators • Markers • Switches

KAY CATV Elemetrics Corp

MAPLE AVENUE, PINE BROOK, NEW JERSEY 07058 / PHONE (201) 227-2000

was the system manager (or president, according to his business card) right in the middle of the work.

When Bob finally came down the pole, we got into some serious discussion. Straight-eight construction, I learned, was basically different from regular construction techniques because of the type of cable used. The cable, which is referred to as *Figure 8* or *integrated messenger*, contains both the messenger and the coaxial cable in the same polyethylene jacket. (See Figure 1.) Bob coined the term "straight eight" because the construction crews go "straight through with Figure 8 cable."

A short time later, Dave Reynolds, site supervisor of the Sylvania construction crew, arrived on the scene. It wasn't long before I realized Dave was nearly as excited about "straight eight" as Bob was.

GTE Sylvania CATV Operations was given the responsibility of installing the one-hundred mile addition to Raytown's system in thirteen weeks. Under Dave's supervision, the job was completed in just over ten weeks . . . nearly three weeks ahead of schedule. I began to understand Dave's enthusiasm.

Of that one-hundred mile addition, 80 miles were through rear easements. Dave proudly told me that two of his six-man crews had installed 13 miles of rear easement plants in two days.

Bob pointed out that because the crews only went through potential subscribers' yards once, complaints were down markedly.

I inquired if Sylvania was planning on specializing in straight-eight construction. Dave informed me that they weren't. They would continue to do what the customer requested. In this case, Raytown had requested "straight-eight" construction, so that is what they were providing.

In the Field

The following day, Saturday, I got a chance to see the cable going up. Till that time, any enthusiasm I might have had for integrated

"ANC"

The newest word for true color.

Thanks to Automatic Notch Control* **(ANC),** Phasecom Heterodyne Processors introduce less than 50 nanoseconds group delay at the color sub-carrier. Minimum group delay and color sub-carrier attenuation means **true color** on your cable . . . **and it costs no more!**

For complete specifications and details, phone or write.

PHASECOM CORP.

6382 Arizona Circle / Los Angeles, Calif. 90045
Tel: (213) 649-2777

*Patent Pending

messenger had been "caught" from Bob and Dave. But when I saw the way that cable went up, my enthusiasm became my own.

When we found the crew in the field they were just getting ready to run the cable across an intersection of a four-lane, divided highway. They waited for the light to turn red. The cable was pulled across, hoisted up and secured before the light turned green.

I realized another benefit of this cable — safety. Were ordinary cable used, the construction crews would have had to cross the highway twice. And more of the crew would have had to cross because of the lasher. By only crossing once, the chances of an accident were cut at least in half.

Bob pointed out two more safety features. Because the entire cable and messenger is jacketed, there is much less possibility of high-voltage accidents. This one factor is quite important. Especially to any cableman whose messenger has flipped and ended up welded to a power line. The second feature, although not as important, also has its merits. Because the pole only has to be climbed once to install the hardware and secure the integrated messenger cable, there is less chance of pole-climbing accidents.

About this time I began to wonder why the industry hadn't been using integrated messenger cable more extensively since it became available in the early 1960's.

My first guess was cost. Bob ruled out that possibility. Although the cable cost more than aluminum sheath cable, it doesn't cost any more than any other jacketed cable and separate messenger. In fact, Bob expects he saved about 20 percent as compared to the cost of installing aluminum sheath cable . . . and 30 percent as compared to the cost for jacketed cable.

Bob believes that most cablemen's fears concerning integrated messenger are unfounded. Some of those fears include the following:

1) Pullout due to contraction in cold weather.

2) Extra difficulty in handling cable because of bulkiness.

3) Difficulty in installing taps or any other devices which require cutting into the cable.

4) Wasting time with splicing the messenger.

An example of the first fear happened to Empire Cablevision in Ephrata, Washington. In 1968 they installed approximately 18 miles of integrated messenger. That winter they had excessive pullout and ended up replacing the cable with regular cable. Looking back, R. Bauge, the system manager, believes it was probably a bad batch of cable. It should also be noted that, for the most part, center seized connectors were not used.

Obviously, Bob doesn't expect this to happen. He feels that the use of center-seized connectors and expansion loops at each device will prevent any pullouts. Before installing the *Figure 8* cable, Bob conducted extensive research and learned from others who had used the cable under similar circumstances. From that

You get more from America's No.1 TOWER Manufacturer

■ ROHN builds communications towers of all styles and sizes for every need whether it be a small tower of limited height or a 1000' tower! This means that we have the "know how", the experience, and the in-house facilities to quickly and efficiently satisfy your every tower requirement . . . whether 1 or 1000!

Experience counts when it comes to stable, attractive and minimum maintenance structures. ROHN has nearly a quarter century experience in the design, engineering, fabrication and installation of towers . . . a complete in-house service for you . . . one source of supply even for turnkey installations of any kind.

If You Need a TOWER . . . any TOWER . . .
Talk to us . . . IT'S OUR BUSINESS

ROHN® MANUFACTURING

DIVISION OF UNARCO INDUSTRIES Inc

P.O. BOX 2000 / PEORIA, ILL. 61601

ROHN MFG. / P.O. BOX 2000 / PEORIA, ILL. 61601

Gentlemen:
I'd like more information on:

- ☐ **MICROWAVE**
- ☐ **BROADCAST**
- ☐ **CATV**
- ☐ **OTHER**

_____
Specify

Name _____ Title _____

Company _____

Address _____

City _____

State _____ Zip _____

FACTS • FACTS • FACTS

Facts and more facts about cable television — **at a special discount price** — that's the name of the game in the 1972-73 edition of the *CATV Systems Directory and Handbook* ... It's more than just the most complete and accurate Directory of CATV systems available. It's also a **comprehensive reference volume** designed to help a CATV manager or executive do his job better. Order your copy of the *Directory and Handbook* today.

Complete CATV Industry Statistics: Both National and State
Accurate Listings of U.S. and Canadian Cable Systems
Federal Agencies and Committees Affecting CATV
Handy Summary of the FCC's New Cable Rules
CATV Advertising/Programming Markets List
Full-page State Maps with System Locations
State, Regional, and National Associations
NCTA Advertising Code Check List
Multiple System Operator Data
Sample Franchise Ordinance
Sample CATV Program Log
Glossary of CATV Terms
Top-100 TV Market List
U.S. TV Station List
Strand Symbols

SPECIAL ADVANCE OFFER! $6.95! (a 20% PLUS • SAVINGS!)

ONLY $6.95!

To obtain your personal copy of the *1972-73 Directory and Handbook*, just complete the card and drop it in the mail. Postage will be paid by us, and you'll receive your Directory as soon as it's off the press.

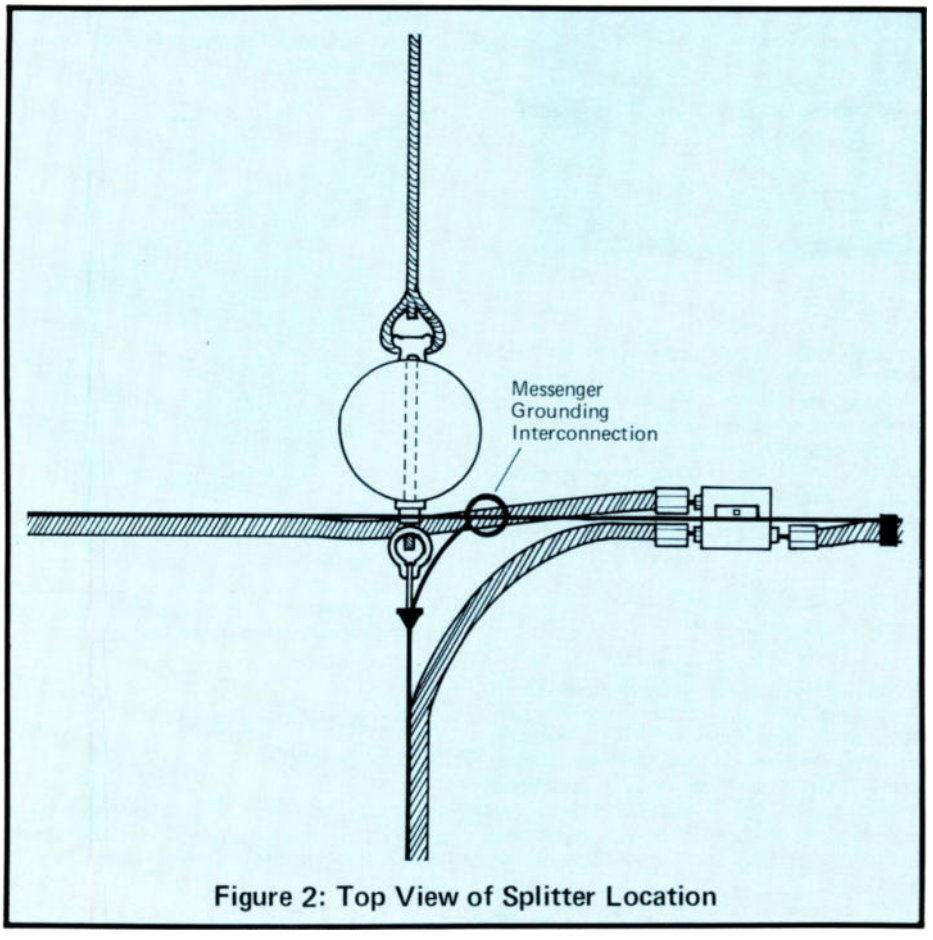


Figure 2: Top View of Splitter Location

research, he decided *Figure 8* could do as good a job for CATV as it has done the phone companies for years.

Bob completely refutes the other fears. On the difficulty of installing taps, he would agree if the industry were still using pressure taps. Having worked with *Figure 8*, Bob doesn't believe splicing or installing devices takes any longer.

It is interesting to note that when the one-hundred mile installation was swept, not one piece of damaged cable was found.

Cablemen will probably continue to have their doubts about *Figure 8*. But my weekend convinced me that they should take another serious look at the possibilities offered by *Figure 8* cable. And I know that Bob and Dave agree with me 100 percent.

Editor's Note: Those wishing more information can contact Bob at Community Television of Raytown, Inc., 6206 Raytown Rd., Raytown, Mo. 64133; or by phoning (816) 356-2559.

PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

DIRECTIONAL TAPS: MAGNAVOX CATV

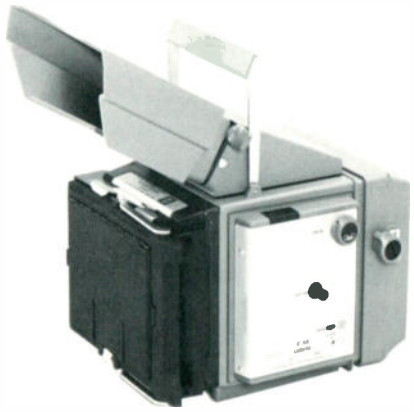
The Magnavox Company, CATV Division, 133 W. Seneca St., Manlius, N.Y. 13104, has announced the availability of the 2900 series, overhead directional taps. The units boast "total modularity," offering a choice of six attenuation values in each of two and four-

output versions. Key features include full 5-300 MHz bandwidth, Sealport coaxial seizure connector bosses, high rfi integrity and high isolation across the band. Mechanically, the units are said to be rugged, with protected components and soldered-in power passing and ground connections. Tap plates can be changed out without breaking the thru-line. Vivid color coding permits reading from the ground, and F-type cable-end connectors are supplied.

SCOPE CAMERA: TEKTRONIX

The C-58-G is a new low-cost trace-recording camera from Tektronix, Inc., P.O. Box 500, Beaverton, Oregon 97005. Features include an extra-wide-angle f/2.8 lens, shutter speeds from 1 to 1/50 second, and unity magnification. The camera is capable of recording the entire CRT display (up to 9.8 cm x 12 cm) onto a 4" x 5" film with no vignetting.

The camera is designed for use with Tektronix 7000-Series Oscilloscopes and CRT displays used with scanning electron microscopes, ultrasonic scanners, and IR thermogram instruments.



Full size 4" x 5" prints are obtainable by use of Graflok Back and Polaroid Land 4" x 5" film holder. The camera also accepts Polaroid Roll or Pack-Film Backs. Price for the C-58-G with Graflok back is $590.

TWO-WAY SYSTEM: AMECO, INC.

Ameco, Inc., Box 13741, Phoenix, Arizona 85002, has developed a two-way broadband telecommunications system, called Metro-Com.

The system is based on the principle of converting off-air and microwave TV and FM signals to the lowest VHF frequencies (6-48 MHz) and transporting them to distribution points. In addition to this, there are two applications of distribution. The first utilizes univertors at distribution points to reassign the signals to conventional VHF frequencies interfacing with regular, single- or dual-trunk systems. The second carries signals in the 6-48 MHz range directly to the customer through the use of Area Distribution Centers and customer set-top Channel Selectors avoiding the use and expense of conventional set-top converters.

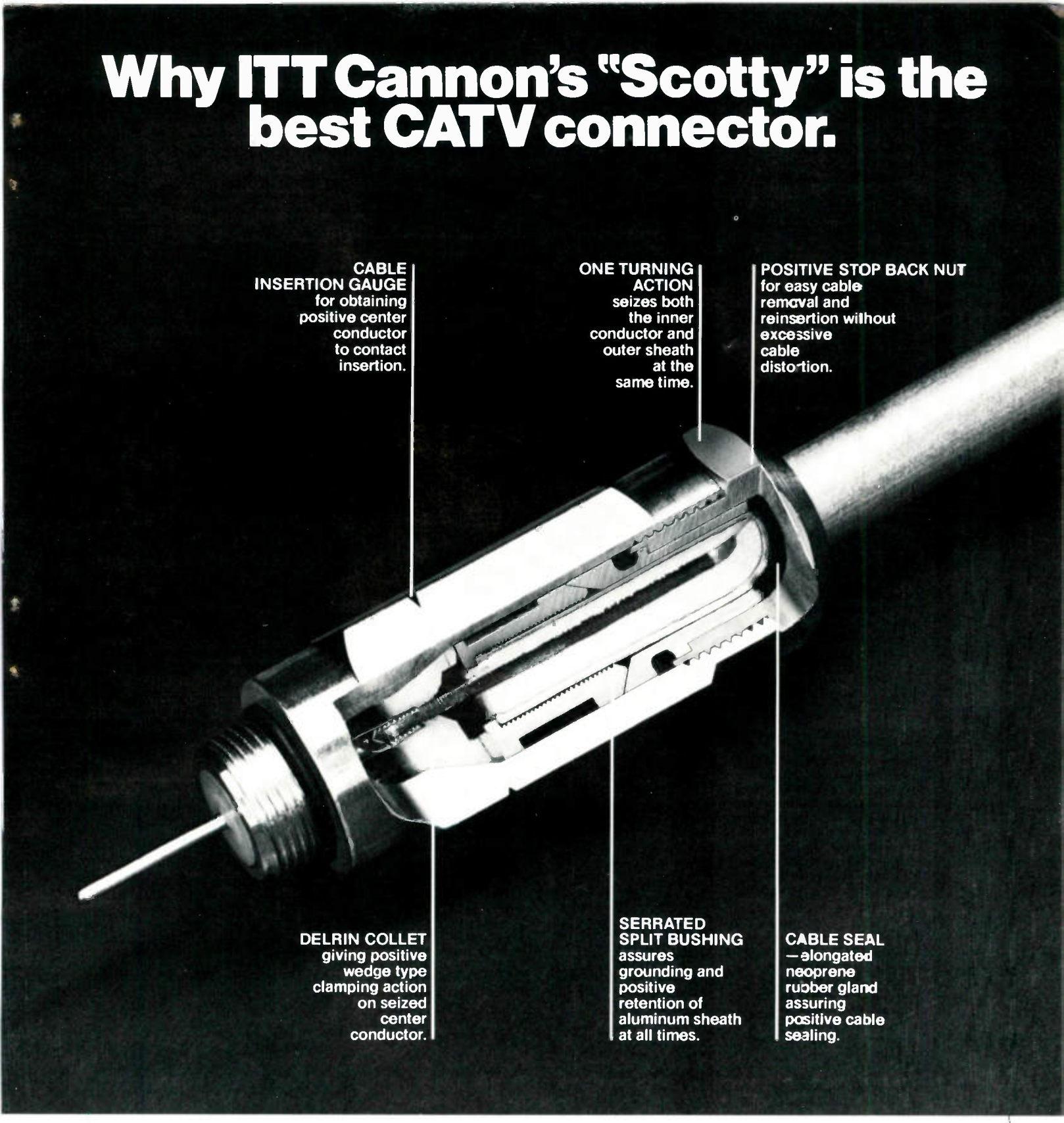
MULTIPLEX SYSTEM: SCOTT BUTTNER CORP.

The Coastcom Division of the Scott-Buttner Corp., 534 Twentieth St., Oakland, Ca. 94612, recently unveiled a new subcarrier multiplex system that makes practical the utilization of the previously unusable spectrum above the video portion of a typical microwave or cable TV channel.

Designated as the SBC-400 Voice-Over-Video Subcarrier Multiplex, the system makes it possible for users of microwave or cable TV links to add up to 24 high quality voice channels or a 250 kilobit data circuit above the video spectrum on existing or new facilities. The system adds these channels at a nominal investment in terminal equipment.

With the added multiplex circuits to be derived by use of the system, existing and new microwave video and cable TV links can benefit from the potential for greater versatility for many new service applications at a low per-circuit cost.

Why ITT Cannon's "Scotty" is the best CATV connector.



And the "Scotty-est" reason of them all—low cost. That's ITT Cannon's "Scotty" story: aluminum coaxial cable connectors in .412, .500 and .750 sizes, that you don't need a torque wrench to install. Feed-through, Seized center, Inline splices, Right angle and Pedestal splice types, with exceptional long-life RFI leakage protection, that will do the job for you underground or up on poles year after year in all kinds of weather.

Be canny about CATV connectors. For more information about "Scotty" economy, immediate delivery, and the name of your nearest distributor, contact ITT Cannon Electric, International Telephone and Telegraph Corporation, 666 East Dyer Road, Santa Ana, California 92702. Telephone (714) 557-4700.

CANNON ITT

AERIAL DEVICES: STELCO, INC.

Stelco, Inc., 700 Wedd, Overland Park, Kan. 66204, has announced the introduction of its Stel/Scope line of telescopic aerial devices for 60 C.A., one-ton trucks.

The devices, available in 25- and 31-ft. ground-to-bucket-floor heights, feature ease of access to the bucket, behind-the-cab mounting which permits full use of truckbed space, electric over hydraulic controls, 370 degree rotation, and always available access to the bucket provided by ladder boom design.

The ladder boom, which consists of three sections, is available in steel or fiberglass third stage. Steel and fiberglass buckets are available.

TIME INDEXER: TAPE-ATHON CORP.

Tape-Athon Corp., 502 S. Isis, Inglewood, Ca. 90301, has announced the availability of a tape time announcement system for use with broadcast logging recorders. The new Time Announcer Model 702 provides a minute-by-minute audio call-out of time that may be recorded on the broadcast log as an indexer of logged material.

Consisting of a special Tape-Athon 702 tape transport and a taped voice announcement of the time on a 24-hour basis, the system may be tied into any type of standard logging equipment found in broadcasting or communications centers. The output of the tape transport may be selected to override the logged material or to be recorded on a separate channel, either way allowing the user to quickly locate specific matter on the logging tape. Price is $800.

INTERMOD TEST SET: AEL COMMUNICATIONS

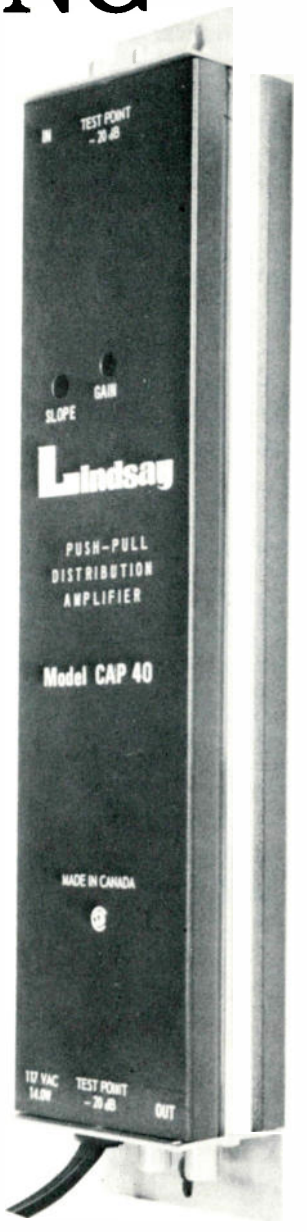
AEL Communications Corporation, P.O. Box 507, Lansdale, Pa. 19446, has announced the new model FTS-4, four-channel intermodulation test set.

The set provides four high purity signals and the required filters and amplifier to test broadband RF amplifiers used for CATV and other broadband applications. This unit, as

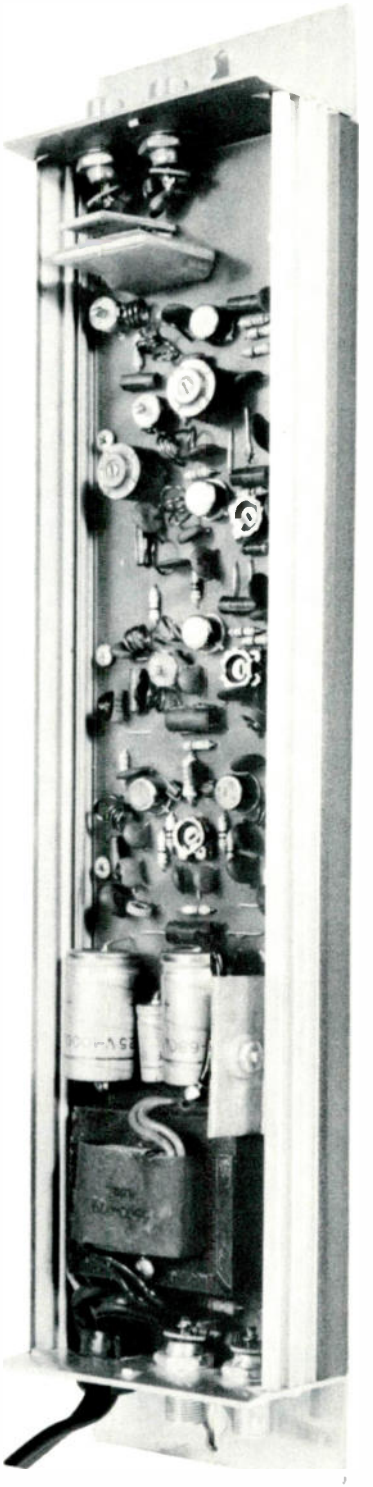
designed, is said to eliminate the generation of spurious products which are normally produced within test instrumentation. The set provides sufficient sensitivity to measure intermodulation performance with a field strength meter or the more graphic display of a spectrum analyzer. The sensitivity allows the measurement of devices with gains as low as 0 dB. Price of the unit is $550.00.

INTRODUCING

The Latest Lindsay Apartment Amplifiers



Model CAP 40



Model CAP 25
(cover removed)

These Push Pull Amplifiers were designed to meet the long term needs of high level apartment distribution systems. They provide flexibility and they allow use of the latest apartment control techniques, and permit adapting to 2 way. Make this LINDSAY CAP Series your choice for dependable apartment operation.

FEATURES

*Push Pull for Low Second Order
*40–270 MHz Bandwidth
*High Output Capability (+48dBmv –57dB 12 ch.)
*Exceptional Stability

GREAT VALUE!

A CHOICE TO SUIT EVERY REQUIREMENT					
MODEL	GAIN	POWERING			PRICE
			Line power		
		117VAC	30V.	60V.	
CAP25	25dB	*			$102.00
CAP25 L30	25dB		*		114.00
CAP25 L60	25dB			*	114.00
CAP40	40dB	*			125.00
CAP40 L30	40dB		*		137.00
CAP40 L60	40dB			*	137.00

ORDER NOW! THE'RE IN STOCK AND
FOR COMPLETE SPECIFICATIONS CONTACT

Lindsay
BOB TONER P.O.BOX 77
FORT WASHINGTON PA. 19034 USA
TELEPHONE (215) 646–4161

IN CANADA.....LINDSAY SPECIALTY PRODUCTS LTD.
50 MARY ST. W. LINDSAY ONT. TELEPHONE (705) 324–2196.

LAMP STANDS: BERKEY-COLORTRAN

Berkey Colortran, Inc., 1015 Chestnut St., Burbank, Cal. 91502, has announced a new line of compact heavy duty stands featuring lightweight, stability and strength.

The Senior Stand extends to a height of ten feet, eight inches and collapses to 54¼". This castered stand will support Seniors, Teners, lightweight arcs as well as the Maxi-Brute. Special bracing gives it stability even at its fullest extension. The stand weighs 24½ lbs., has a built in carry ring and sells for $135.00.

The heavy duty Low Stand is similar in construction, collapses to 27½", extends to 45" and weighs 12 lbs. The Low Stand sells for $95.00.

CHARACTER GENERATOR: BROADCAST ELECTRONICS

Broadcast Electronics Inc., 8810 Brookville Rd., Silver Spring, Md. 20910, has announced the availability of the Titlemaster video character generator. With the optional audio interface, the models 1500 and 2400 character generators may be used in conjunction with any unmodified Spotmaster record-playback audio tape cartridge for off-line storage of pre-composed messages and titles.

The model 1500 has a display format of 15 rows of 32 characters. The model 2400 has an 8 row, 16 character per row format and is capable of four separate internally stored pages. Both models provide output waveforms in accordance with EIA standard RS-170. Features include crawl and flash modes, complete range of editing controls, line insert or delete. Computer interface available through standard acoustic coupler modems.

LOCKING TAPS: ENTRON, INC.

Entron, Inc., Route 79, Morganville, N.J. 07751, has developed a new type of multiple outlet tap which provides both quick connect/disconnect and locks for security.

Called KEY-TEEs, the new tapoffs enable the system operator to hook up subscribers rapidly. At the same time, non-subscribers are prevented from making illegal connections.

The taps are modularized, with each module able to handle up to eight subscribers. Each customer drop is connected to the tap by means of a numbered printed circuit called SEKUR-A-KEY. To make a disconnect, the CATV man simply unlocks a guard plate and removes the SEKUR-A-KEY. This automatically disconnects the subscriber drop from the directional splitter circuitry, grounds the drop and terminates the unused splitter output.

An internal tamper-proof guard plate secures legitimate connections and prevents illegal connections. The numbered SEKUR-A-KEY is retained as an office record of disconnects.

The new tap is said to be ideal for connecting apartment house tenants to

modern two-way systems. The taps are available with a full range of isolation values. Auxiliary built-in return circuits provide two-way capability. Optional amplifiers are available to handle very large buildings where re-amplification may be required. The taps cover the entire CATV bandwidth, 5 MHz to 300 MHz. Return loss is at least 18 dB for all taps as well as the thru line. Built-in test points facilitate troubleshooting. Isolation between taps is 20 dB.

COLOR CAMERA: INTERNATIONAL VIDEO

A new color television camera for studio and remote use has been introduced by International Video Corporation, 675 Almanor Avenue, Sunnyvale, Ca. 94086.

The IVC-500A offers significant new features compared to previous IVC cameras but incorporates a silicon diode tube in the red channel and Plumbicon tubes in the blue and green channels.

The camera is priced at $32,000. Major new features in the camera include: new preamplifiers, an external video fed which can be displayed on the nine-inch viewfinder, a new focus current regular, full horizontal and vertical contour enhancement, and structural improvements which have increased the camera's mechanical strength.

The new camera also offers a 1/2-inch mini cable with compensation to 1,600 feet. One-inch cable with compensation to 2,000 feet is standard. Also standard is a five-position filter wheel, and RTH Varotal 10 to 1 zoom lens with servo iris, negative registration displays and numerous other operational features.

TRENCHER: DITCH WITCH

Ditch Witch, a division of Charles Machine Works, Inc., P.O. Box 66, Perry, Okla. 73077, has introduced the new R30 trencher, a 30-horsepower, rubber-tire-mounted, medium-range unit.

The trencher digs to depths of six feet, widths to 18 inches. The digging chain is powered mechanically while travel speed during trenching is controlled hydraulically. There are four digging chain speeds, plus reverse.

The trencher has maneuverability, steering-

wheel-controlled power steering and a mobile range for driving around the job to nearby job sites. The unit offers full hydraulic control of all working systems and new arrangement of controls for operator convenience. Its 64-inch backfill blade is designed to provide quick and easy clean up.

Attachments to fit the R30 include a utility backhoe, vibratory plow and hydraulic boring unit.

BRIDGE & DETECTOR: DOLPHIN COMMUNICATIONS

Dolphin Communications Corp., 181 Church St., Poughkeepsie, N.Y. 12601, has introduced two new products.

The model DRLB is a fixed return loss bridge precision tuned and calibrated at 75 ohms to match with CATV connectors and devices which are specifically designed for broadband systems.

The model DD-4300 is a precision detector utilizing a sophisticated doubler circuit and designed to obtain high gain and positive RF output.

CABLE RAISING SHOE: GENERAL MACHINE

The development of a new Cable Raising Shoe designed specifically to facilitate the placement of aerial cable from the ground has been announced by General Machine Products Company, Inc., Trevose, Pa. 19047.

Used with GMP Extension Handles, this new tool accommodates all cable up to 2¾" dia., including coaxial cable. The design of the shoe enables cable to be placed into position without damage to the covering, insulation or conductor.

The tool is manufactured of cast aluminum for light weight and durability. The shaft of the shoe engages in the end of an extension handle.

These extension handles are six-foot long sections of seasoned lumber which can be locked together to obtain any desired length, or onto other aerial tools.

FIELD STRENGTH METER: JERROLD ELECTRONICS

A new field strength meter has been introduced by Jerrold Electronics, 401 Walnut St., Philadelphia, Pa. 19105.

Designated model AIM-719, the new solid-state meter provides fast, accurate measurement of all UHF and VHF picture and sound carriers, plus all FM stations and any interference that falls within the TV and FM frequency range.

The battery-operated unit weighs 6½ pounds, including batteries and accessories. It is housed in a rugged case with a large accessory compartment to hold an earphone, extra cables, matching transformers, connectors, etc. A convenient neck strap facilitates hands free operation.

The unit provides signal strength readings directly in dBmV (decibel-microvolts) as well as microvolts. Tuning is continuous from 54 to 216 MHz and from 470 to 890 MHz.

To conserve battery power, the new meter automatically shuts itself off whenever the cover is closed. The input is matched to 75 ohms, but can also accept 300 ohm inputs, using the convenient plug-in matching transformer supplied.

TAPE BURIER: JACOBSEN MFG.

The Pipe Piper Division of Jacobsen Manufacturing Company, 3456 N. Washington Ave., Minneapolis, Minn. 55412, has introduced a new attachment for the Pipe Piper machine which buries warning tapes to protect, identify, and locate underground wire, cable, and pipe installations. The new attachment buries these tapes above either new or existing installations at a depth of eight inches, leaving a five-inch earth cover. This shallow burying provides an early warning to excavators and prevents costly damage.

The Pipe Piper will accommodate three-inch wide 1,000- and 1,200-foot warning tape rolls and three-inch and two-inch wide 1,000-foot locating-marking tape rolls. Tapes can be buried at a speed of 75 feet per minute and no turf or earth is removed.

CATV STEREO: CATEL

The new SM-2200 stereo generator and FMX-2100 FM modulator, from CATEL, Division of United Scientific Corporation, 1030 W. Evelyn, Sunnyvale, Ca. 94086, have been combined in a module designed stereo transmission system to provide an advanced solid state stereo origination system for CABLE FM in CATV systems.

The stereo generator provides a sub-carrier oscillator, balanced modulator and channel amplifier to produce a left-right double sideband suppressed carrier signal along with the left plus right signal and the 19 kHz pilot signal. The unit's output is a multiplexed audio signal which is fully compatible with "off-air" monaural and stereo signals.

A companion FM modulator is a FM crystal controlled cable transmitter designed

With a present range of 40 modules available for use in Unicom, you might think we started this modularity thing (we did) as a gimmick (not true). We believe this extreme modularity offers distinct advantages over a rigidly designed or less modular unit, and we should like to take a few moments of your time to explain our belief.

FIRST: The man who is building or operating a system knows more about the requirements of his system than anyone else. With a modular amplifier you use our building blocks (modules) to make an amplifier which suits your requirements, not ours.

SECOND: Maintenance on a modular amplifier is simplified to an exchange of modules, with the defective module being returned to the test bench for repairs. Exchanging a Unicom module should take less than 25 seconds, even under adverse field conditions, making it possible to change a troublesome unit during prime viewing time if necessary (all stations run advertising on the hour!). These small low cost modules also reduce the spares inventory problem.

UNICOM

THIRD: Official rulings and your desire for the best possible system are making system capabilities become increasingly complex, which translates into obsolete CATV equipment. A fully modular amplifier will become obsolete just as any other type, but the modular unit can be updated with a minimum of time, effort or expense. Our stated policy is to make all new developments compatible with existing equipment, to guarantee that your system need not become suddenly incapable of meeting your requirements.

FOURTH: We do not think you should ever feel forced to purchase system capability which might not be required for a year or more. Unicom modularity gives you an option. Start simple using single ended TLC; add AGC as and when required by plugging in one more module; if two way becomes necessary, exchange two modules per station; converting to push pull we add a resistor to the DC Power Supply and exchange RF modules — those modules that end up spare being used in a less demanding system.

CASCADE
CASCADE ELECTRONICS LTD
1111 C Street, Bellingham, Washington 98225 206/733-5315

Also available in Canada from Fred Welsh Antenna Systems.

to operate on a customer selected frequency in the FM band. The modulator makes possible the origination of monaural programming from AM/FM tuners, tape decks, short wave receivers and microphone pre-amplifiers.

The complete system makes it economical to originate audio programming from schools, city council chambers and law enforcement facilities. The same equipment may be used to provide cable FM service in hospitals, hotels, motels and industrial locations.

TRENCHER: VERMEER MFG. CO.

Vermeer Manufacturing Co., Pella, Iowa 50219, has just recently introduced a low-cost, heavy-duty service line unit to their multi-purpose underground equipment line.

Vermeer's new M-418 trencher is equipped with an 18 hp, air-cooled Wisconsin engine, power steering, four-wheel drive and a choice of flotation or traction tread tires. All five of its attachments are hydraulically controlled from the operator's seat.

As a trencher, the unit digs up to 12" wide, down to 60" deep, with four chain speeds forward, plus reverse. Dual augers may be raised or lowered to handle spoil close to the trencher or sweep it to the sides. The trencher also features Timken bearings on the boom idler sprockets, a heavy-duty 2 3/16" digger shaft and 45,000 lb. tensile strength digger chain.

The hydraulically-operated five foot backfill blade may be raised, lowered, or angled 30° left or right and features a replaceable alloy steel grader edge. A rear-mounted vibratory plow direct buries cable and flexible tubing down to 18" deep.

ECONOMY METER: SADELCO, INC.

Sadelco, Inc., 299 Park Ave., Weehawken, N.J. 07087, has introduced its new model FS-3-Special. The meter is built to the same standards as the FS-3, but does not include the UHF tuner. It is for VHF only (54-216 MHz). Either a UHF or Super-band tuner can be factory added at a later date.

It will work with a low frequency adaptor down to 4.5 MHz. It features: tuned bandpass filter input, logarithmic scale, accuracy of ±1.5 dB, FET metering circuit, and gold plated attenuator switches.

Prices range from $325 to $264.50 depending on quantity.

POWER SPLITTERS: MPI COMPANY

MPI Company, Box 6130, Philadelphia, Pa. 19115, has announced a new line of power splitters that divides input power to 2, 3, 4 or 5 output ports depending upon model. Called series S splitters, they are low-loss precision power dividers for 75-ohm lines and provide a flat frequency response over the entire frequency band of 5 to 300 MHz.

All units are solidly constructed and assembled in radiation-proof, die-cast housings and are shipped complete with cable fittings. They feature high permeability ferrites and printed

circuit boards which are said to assure optimum electrical characteristics, consistent component geometry, and reliable, high frequency performance.

WEATHER FORECASTER: METRODATA CORP.

MetroData Corp., 3201 Fairview Ave. East, Seattle, Wash. 98102, has introduced a character generation device to display local weather forecasts supplied by the National Weather Service.

Designed for cable operators who maintain a channel devoted to display of local weather conditions, the forecaster unit automatically recognizes and stores local or zone forecasts coming over the national teletype wire. Local

forecasts are displayed until updated. Storm warnings are instantly displayed.

The forecaster unit, known as the F-100, also comes equipped with an auxiliary keyboard to facilitate local messages on the botton four lines of the viewing screen.

Weather forecasts and local messages are displayed in color. Four line message segments prepared by the keyboard appear in different color combinations to heighten viewer impact.

SINGLE-CHANNEL AMPS: RIKER COMMUNICATIONS

A new series of UHF/VHF/FM single channel amplifiers capable of delivering up to one watt, 8.5 volt output per VHF channel has been developed by Riker Communications, Inc., 142 Central Avenue,Clark, N.J. 07066. The Channelflex 3800 series amplifiers are designed especially for CATV systems since they are engineered to run at a high level of output with extremely low distortion. The amplifiers are said to be excellent for use in large high-rise apartments and other types of high loss systems.

The amplifiers are completely solid state and AGC controlled with mixing input and output. The units are lightning and surge protected and have a regulated and current limited power supply.

They can be connected to a broadband antenna by using the mixing inputs or to single channel antennas. The amplifiers have a three-way mounting bracket.

Other specifications include: minimum gain 66 dB; input change 45 dB; output change 1 dB; maximum output 80 dBmV (10 volts for 2 dB sync compression) VHF, 72 dBmV (4 volts for 1/2 dB sync compression) UHF; AC outlet.

VIDEO NOISE METER: ROHDE & SCHWARZ

Rohde and Schwarz, 111 Lexington Avenue, Passaic, N.J. 07055, has introduced a new all solid state video noise meter for noise voltage measurements on composite video signals. Its main application is on TV cameras, film scanners, video tape recorders, radio and coaxial line links, TV transmitters, TV receivers and TV translators.

The meter, type UPSF, is based on the same principle as its tube type predecessor. It is basically a wideband (10 Hz-17 MHz) millivoltmeter, with two independent detectors, true RMS and peak to peak calibration. The measuring range of -85 dB, referred to the standard P and B value of 0 dB = 0.714 V, is obtained by gating out the sync and blanking pulses and measuring the remaining noise level. In addition, standard weighting filters, low and high pass filters, permit complete analysis of the noise component. A scope output is available for this purpose. A sag and tilt corrector is incorporated in the instrument. The repeatability of the meter is of the order of 0.1 dB, while that of equipments using a substitution method is, at best, of the order of 1 dB or more.

Price is $4400.00, while that of the filter is $425.00.

INDEX OF DISPLAY ADVERTISERS

Why so many different models?

Because no single model of directional tap can meet every systems' environmental and performance needs without sacrificing economy.

Why pay for submersibility in an overhead tap to be used in a clean, uncluttered Mid-American System?

Why pay for ultra-high rfi isolation and strand hardware in an underground tap for direct burial?

Why use a corrosion-prone alloy-housed tap near the seacoast, when corrosion-proof polycarbonate-housed taps are here?

Various Magnavox directional tap models feature: high rfi isolation; corrosion resistance; inconspicuous size; submersibility; from 1 to 16 outputs; flexibility in use; and real economy.

Purchase the best, but pay only for what you need; not a tap for all uses, (which doesn't exist anyway) but a specific model for your specific purpose. It makes sense and it will save you dollars.

WHY SO MANY DIFFERENT MODELS? BECAUSE OUR METHODS OF SOLVING YOUR TAP PROBLEMS ARE AS UNIQUE AS YOUR SYSTEM.

Magnavox
catv division

133 W. Seneca St., Manlius, N.Y. 13104 (315) 682-9105 • Telex 937329

THE CATV CLASSIFIEDS

Rate for classifieds is 25 cents a word for advertising obviously of non-commercial nature (employment, *used* system equipment, etc.). Add $1.00 for Box Number and reply service, per issue. Bold face type available for headings at 50 cents a word. *Advance payment required;* minimum order $15.00. Classified rate for commercial advertising or requested display space is $35.00 per column inch (1" x 2¼"); minimum order $35.00. Frequency discounts available. Deadline for all classifieds is 1st of preceding month. Please mail Box Number replies to TV COMMUNICATIONS, 1900 W. Yale, Englewood, Colorado 80110.

MANAGER

Large Dixie system still growing needs experienced manager who wants a challenge. Must be self-starter who can manage people. Some promotion experience helpful. Excellent opportunity in a fast growing Southern community. Excellent working conditions and gross opportunity with medium-size MSO. Write stating salary requirements, experience, etc. to Box T972-2

ATTENTION PROGRAM DIRECTORS

FREE-New 1/2 hr. weekly series "The American Dream" in color available to a limited number of stations starting June 73. Please write on your letterhead if interested. Director of Syndication International Motion Pictures LTD. P.O. Box 3201, Erie, Pa. 16509

ENGINEER WANTED

Major West Coast independent cable TV engineering firm needs ambitious engineer who can handle people as well as hardware. Engineering degree highly desirable. Motivation essential. Send resume to Box T972-4

BEEN SELLING FROM THE INSIDE TOO LONG?

An established manufacturing firm needs a CATV Sales Co-Ordinator who likes to travel and is able to operate relatively free of supervision. Must have CATV product and market knowledge. Excellent growth, with many fringe benefits including profit sharing. Send confidential resume and qualifications to Box W814-2

FOR SALE

Entron – Low-band amplifiers two cable systems in South

WANTED TO BUY

Ameco ATMB-60 series amplifiers
Ameco ATM-20C line extenders
Entron E3-C3 line extenders
Entron Inserts FTC No. 8-10-11

FOR INFORMATION

write:
West Alabama TV Cable Co.
110 James St.
Fayette, Ala. 35555
or call:
(205) 932-4700

SYSTEM ENGINEER

Medium-size MSO is seeking a "take charge" engineer for a large established Southern system. Must have minimum 3 years CATV experience in maintenance, lay-out, head-end, customer service and management of personnel. First-class ticket preferred. Excellent working conditions, insurance and paid vacation. Send resume and salary requirements to Box T972-2

CABLE TV SYSTEMS FOR SALE

All new system. 1,000 customers at present and growing. Great opportunity. Send all inquiries to:
Jackson Co. CATV Systems Inc.
P.O. Box 8
Ravenswood, W.Va. 26164
or phone (304) 273-3371

PROFESSIONAL AVAILABLE

Recognized administrator, MSO-Exec. strong on engineering, desires opportunity to direct your tele-communications development. Industry experience nationwide, including system appraisal, development from ground-zero, efficient, far flung, departmental organization. If you're acquisition and growth minded but seek skilled experience at the top, please reply in detail. Sorry, no blue sky, just profit seekers. Box W814-1

FOR SALE

Two RCA TK-41-C color cameras and Houston Fearless cradle heads and pedestals with many, many accessories. Just removed from service at large VHF network station. A real buy! Call 412-283-0925 Ext. 10.

CATV PERSONNEL REQUIRED

TelePrompTer Corporation is selecting personnel for the following positions in both operating CATV systems and new systems beginning construction:

Chief Technician: Minimum of 7 years direct experience in CATV system test, maintenance, operation, layout, head-end work, customer service, management of personnel and vehicles, and construction practices. Radio-telephone license desirable but not necessary.

Maintenance Technician: Minimum of 4 years direct experience in CATV system test, maintenance, operation, head-end work, customer service and service installation.

Join TelePrompTer, the leader in growth and system development!

Send Resume to Personnel Department
TelePrompTer Corporation
50 West 44th Street
New York, New York 10036
An Equal Opportunity Employer

CLASSIFIEDS ORDER FORM

I'd like to reach the **entire** CATV market with the following classified message in TV Communications. My check is enclosed.

_____

_____

_____

_____

☐ Please assign a reply box ($1 chg. per issue)

This ad is to run _____ month(s).

Payment enclosed for _____ words at 25¢ per word ($10 min.) per month.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TV Communications • 1900 WEST YALE • ENGLEWOOD, COLO. 80110

CENTRAL MISSOURI

Need manager/technician for new, high-quality system. Salary commensurate with experience. Reply Box W612-2.

ESTABLISHED COMMUNICATIONS BUSINESS

Owner wants to semi-retire. For sale or will take in working partner for modern equipped Sales and Service shop in southern Connecticut. MR for one of the top three manufacturers with associated distributorships. — Have many service contracts with municipalities and business. Business so great that we only service what we sell and turn away all others. — Reply to Box T972-1

HEAD-END SPECIALISTS

SOLVING YOUR

- Co-channel interference
- Power-line noise
- Head-end beat problems
- Antenna tower overhaul

B-RO Engineering Associates
Box 2175 Princeton, N.J. 08540
•609• 452-2440

SEMCOE, INC.

Electronic Engineering Consultants
Specialists
Video Message
Data

Roland G. Yount
3800 South Jason Street
Englewood, Colorado 80110
(303) 761-3093

CHIEF TECHNICIAN

10,000 subscriber eastern Cable TV system, needs chief technician to head an 8 man installer/technician crew. Also, to be responsible for head end, distribution system and new construction. Studio engineering knowledge helpful but not necessary. Box T972-3
AN EQUAL OPPORTUNITY EMPLOYER

M T A

CABLE TELEVISION
MANAGEMENT AND ENGINEERING CONSULTANTS

Malarkey, Taylor & Associates
1225 Connecticut Ave. N.W. Washington D.C.
(202) 223-2345

PURCHASING AGENT

Nation-wide growth company located in Florida needs individual with great growth potential. General knowledge of purchasing practices and procedures. Familiarity with supplier operations and outside plant hardware and equipment. Five years experience desired, preferably as buyer in contractor field. Send complete resume with salary requirements to:

BOX T 972-5
TV COMMUNICATIONS
An Equal Opportunity Employer

Hiatt cable clips
Grd. Wire $12.00/M
RG 59/U $13.50/M
Black, grey, white.

DESERT SUN DISTRIBUTING CO.
(505) 243-4592

Motion & Still Photography
Film Consultants . . . Systems Design

maxfilms +

Specializing in Super 8 Movie Systems

252 Pennsylvania, Suite 503
Denver, Colorado 80203

QUALITY GUARANTEED

Splicing, Balancing,
Installation, Changeovers, Etc.

It costs less when it's done right the first time.

D.G. KUJATH
Contractor

Rte. 10 Myers St.
Tyler, Texas 75701
(214) 561-1563

MUSIC LIBRARY

On 121 LP, 33 1/3 rpm, **"Major"** Production Music recordings selling at **$5.00** each, for a total list price of **$605.00.** Or entire library may be purchased at a 20% discount for a total library price of **$484.**

All copyrights and performances owned by us and will be granted under annual flat-fee agreements.

In addition, we offer every basic sound effect your productions need. Over 500 effects on 15 LP **"Major"** records for **$75.00.** All prices F.O.B. New York City.

Send for Free Catalogs

THOMAS J. VALENTINO, INC.
Established 1932
151 West 46 St., N.Y., N.Y. 10036
(212) CI6-4675

REVERSE SPIRAL
For CATV Drop Wire

WESTAY COMPANY
P. O. Box 573 - Cupertino, Calif. 95014

JANSKY & BAILEY

TeleCommunications Consulting Department
CATV/CCTV
Phone 703/354-2400
Shirley Hwy. At Edsall Rd.
Alexandria, Virginia 22314

Atlantic Research Corporation

WHAT IS CATV?

This question and many others are answered in NCTI's new book "Introduction to CATV."

This book contains 105 pages of information on:

- History and development of CATV
- Future prospects of the industry
- Complete descriptions, in layman's terms, of each component from antennas and headend to connection at the subscriber's set.

Still available at $9.95 (marked down from its original price of $14.95), this book is excellent in explaining the concepts of CATV to the non-technical person. Write today for your copy, and send your check or money order to:

NATIONAL CABLE TELEVISION INSTITUTE
1900 West Yale
Englewood, Colorado 80110

Bullseye.

Soladyne's 1501. We built it so you can zero in on your precise CATV or other distribution needs.

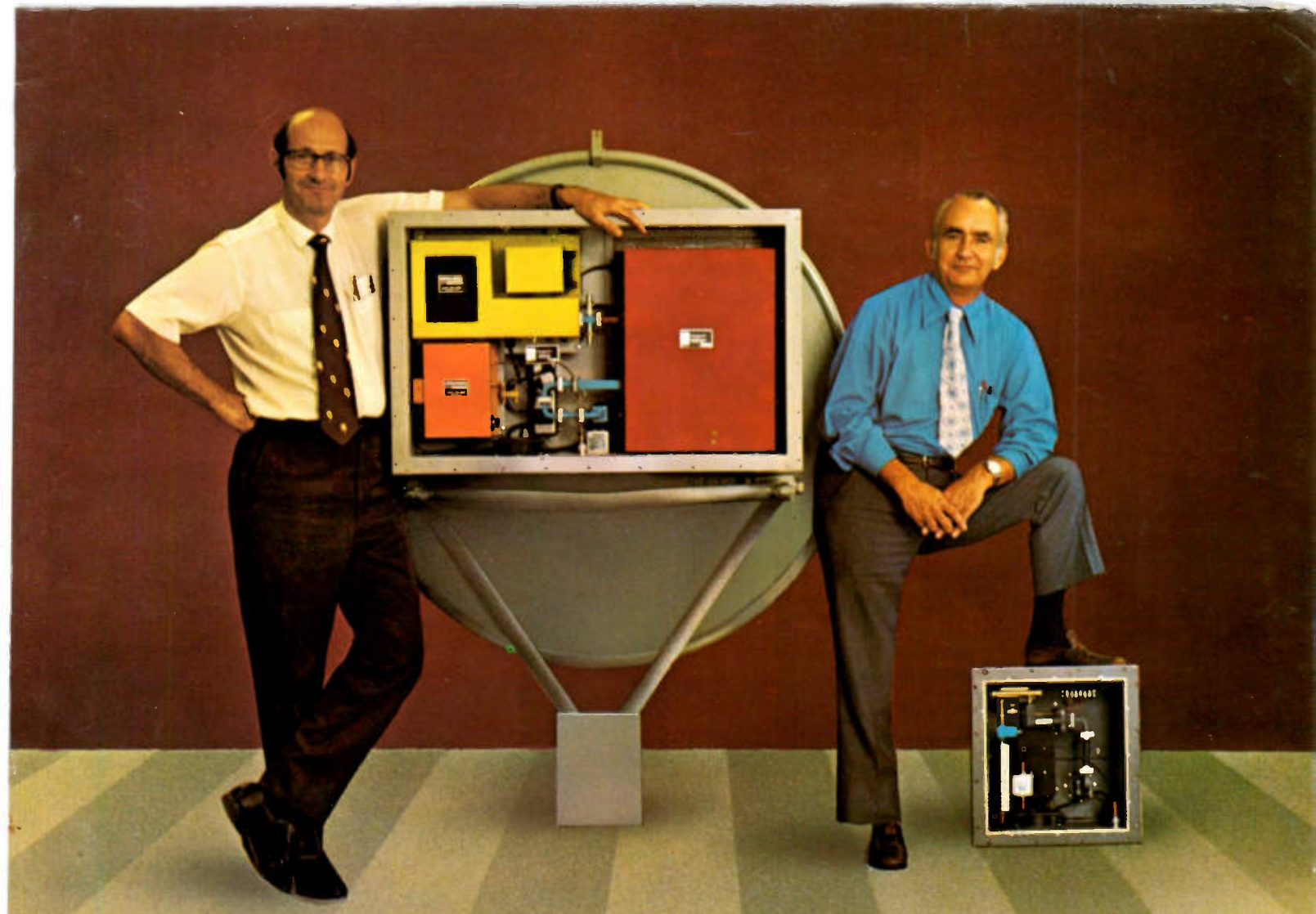
This compact, rugged, lightweight, low-cost AM microwave system provides beautiful video transmission. Proven through international performance since 1968.

Uses half the normal bandwidth. World's smallest. No plumbing. No field adjustments. Total solid state. 100 MW output.

Get all the facts now. Phone Mike McDaniel (714) 279-7872.

SOLADYNE
INTERNATIONAL, INC.
A subsidiary of Rohr Industries

7455 Convoy Court, San Diego, California 92111



The second best thing about our Airlink Microwave System is that it costs less.

The first is power.

Power is the key that makes Laser Link's Airlink Microwave System completely unique. For only this system transmits a full 20 watts of power from each Traveling Wave Tube amplifier. And up to 60 watts (in as many as 21 directions) from the same transmitter, by merely adding two more TWT amplifiers.

Laser Link's patented FDM/FM (Frequency Division Multiplexed/FM) System provides the power that gives you a versatile system with greater channel capacity . . . from a single carrier with a single cable input. A system that can be extended beyond the 20 mile range of the main transmitter exclusively by Laser Link repeaters.

Simple, too. Laser Link Transmitters and Receivers are small and light enough to be located anywhere, even on the antenna itself. No need for special buildings, rooms, heating or air conditioning. Plus Laser Link's color coded modules that make maintenance a snap . . . individual units can be replaced in a matter of minutes!

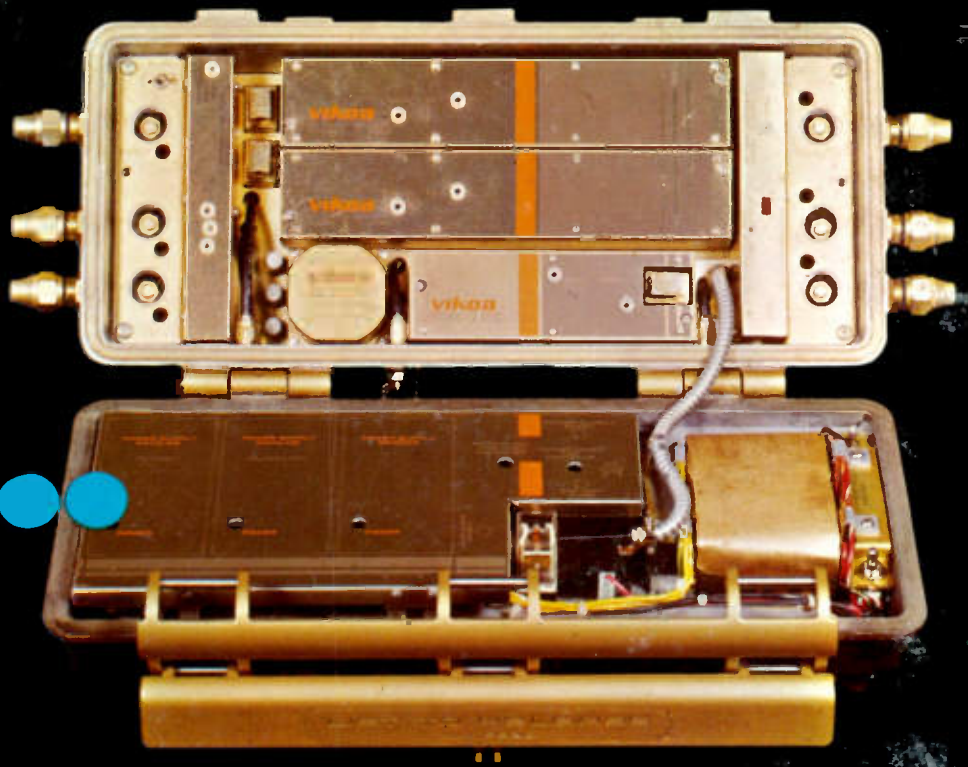
The Airlink System works better and costs less... We'll prove it to you. Get the complete kit that shows how the Airlink System can provide a more profitable capability for you. Just write or call 516-364-2200 collect.

Laser Link Corporation

303 Crossways Park Drive, Woodbury, N.Y. 11797 • 516-364-2200

A member of the Chromalloy American family of creative companies.

this is it...



TWO-WAY *plus* FAIL-SAFE RELIABILITY

Futura Two-Three Hundred Amplifier Series.

REDUNDANT FEATURES

- Add stand-by amplifier, sensor and DC power supply modules, as desired.
- Automatic switchover of stand-by modules.
- Highly reliable light emitting diodes indicate module in operation.
- Sensor module, used for switching, measures gain of RF amplifier.
- RF switching units included in removable base plate. Vacuum enclosed switches used for maximum reliability.

BI-DIRECTIONAL FEATURES

- Two way capability by simple plug-in modules.
- Two wide band channels plus thousands of narrow band return channels available for customer use.
- Status of each redundant trunk amplifier reported by each bi-directional module to a central location.
- One trunk cable required for downstream and upstream signals.
- Filters included in base plate allow bi-directional system to be obtained by plugging in return module only.

ADDITIONAL FEATURES

- All trunk amplifier modules push-pull.
- Toggle switch for AC input voltage selection from 18VAC to 60VAC.
- Highly reliable light emitting diodes indicate correct voltage switch position.
- External DC battery option for power supply in the event of local AC interruptions. Automatic switching and charging circuit incorporated in trunk amplifier.
- Current limiting fold back power supply design eliminates short circuit failures.
- Revolutionary latched housing for easy access.

C/V

coral | vikoa

electronics division Telex No. 12-8110/twenty-four hour service

Hoboken, New Jersey (201) 656-2020	New York, New York (212) 943-5793	Denver, Colorado (303) 759-0608	Seattle (Bellevue), Washington (206) 747-9709	Dallas (Garland), Texas (214) 276-1181	Los Angeles (Torrance), California (213) 320-1801	Atlanta (Lithonia), Georgia (404) 482-2981

Available in Canada from Vikoa of Canada Limited.

Available in Belgium, Luxembourg, The Netherlands and Switzerland from A.C.E.C. BP 8, Charleroi, Belgium, International Telephone: 07/36, 20, 20, Telex: 51.318

coral communications corporation

A WHOLLY OWNED SUBSIDIARY OF **coral, inc.**