CPC

February 1971

TV Communications

The Professional Journal of Cable Television

BIG CITY ISSUE

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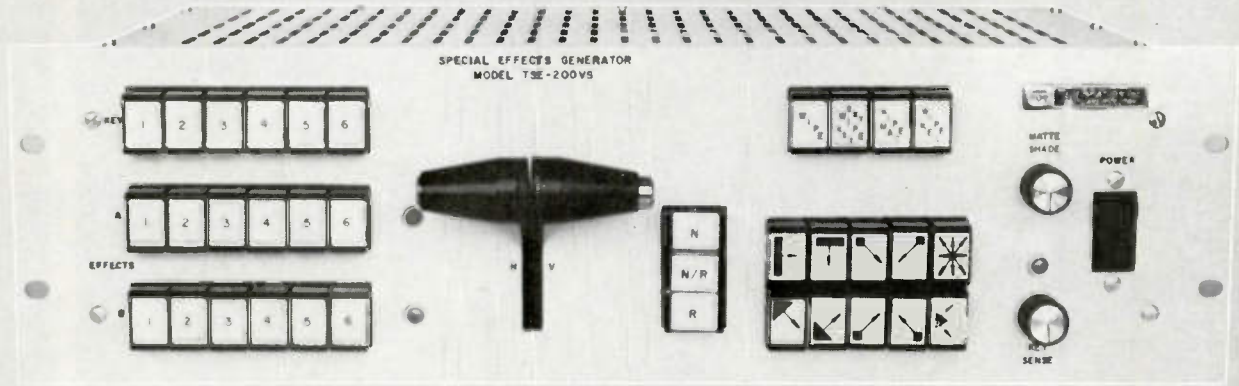

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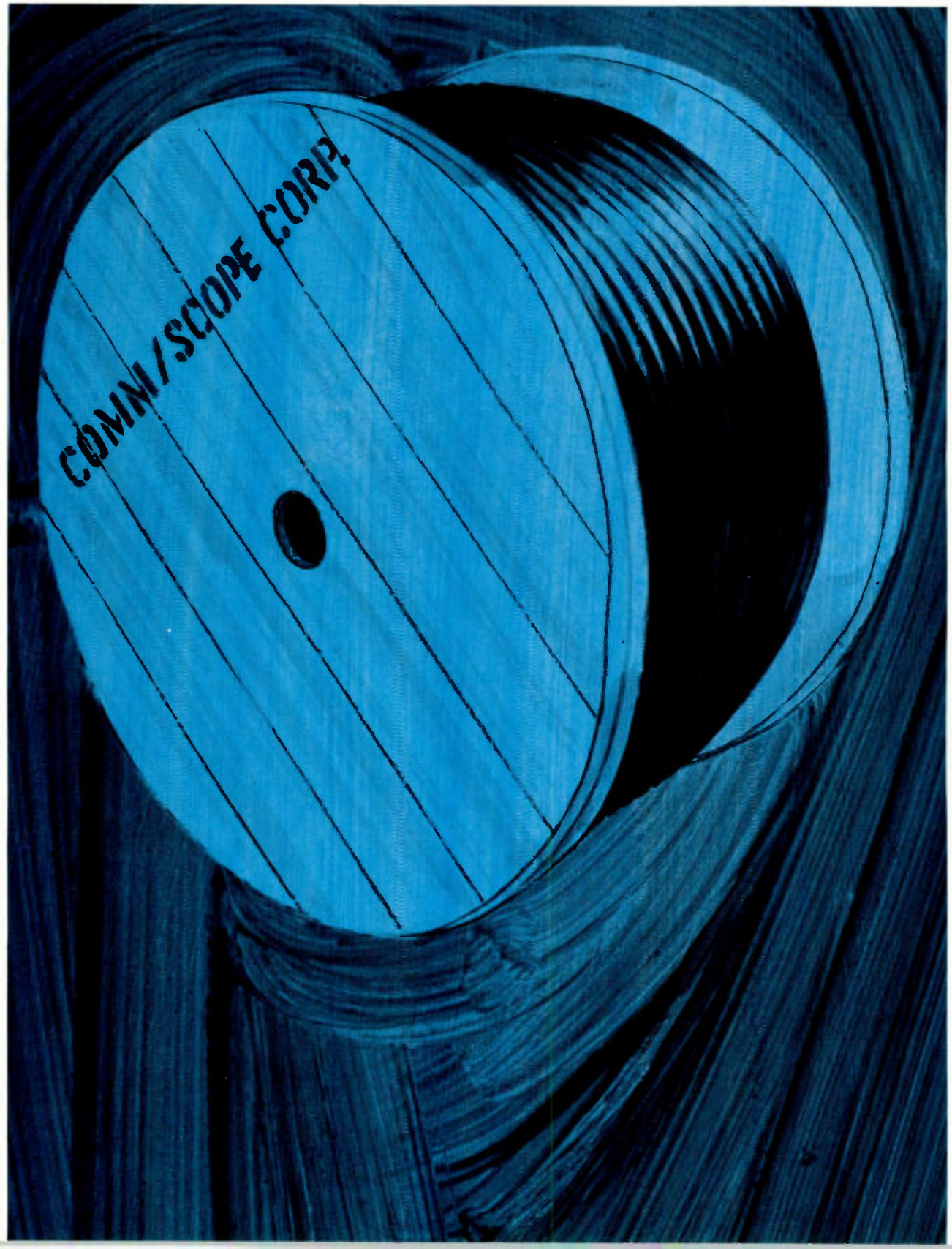

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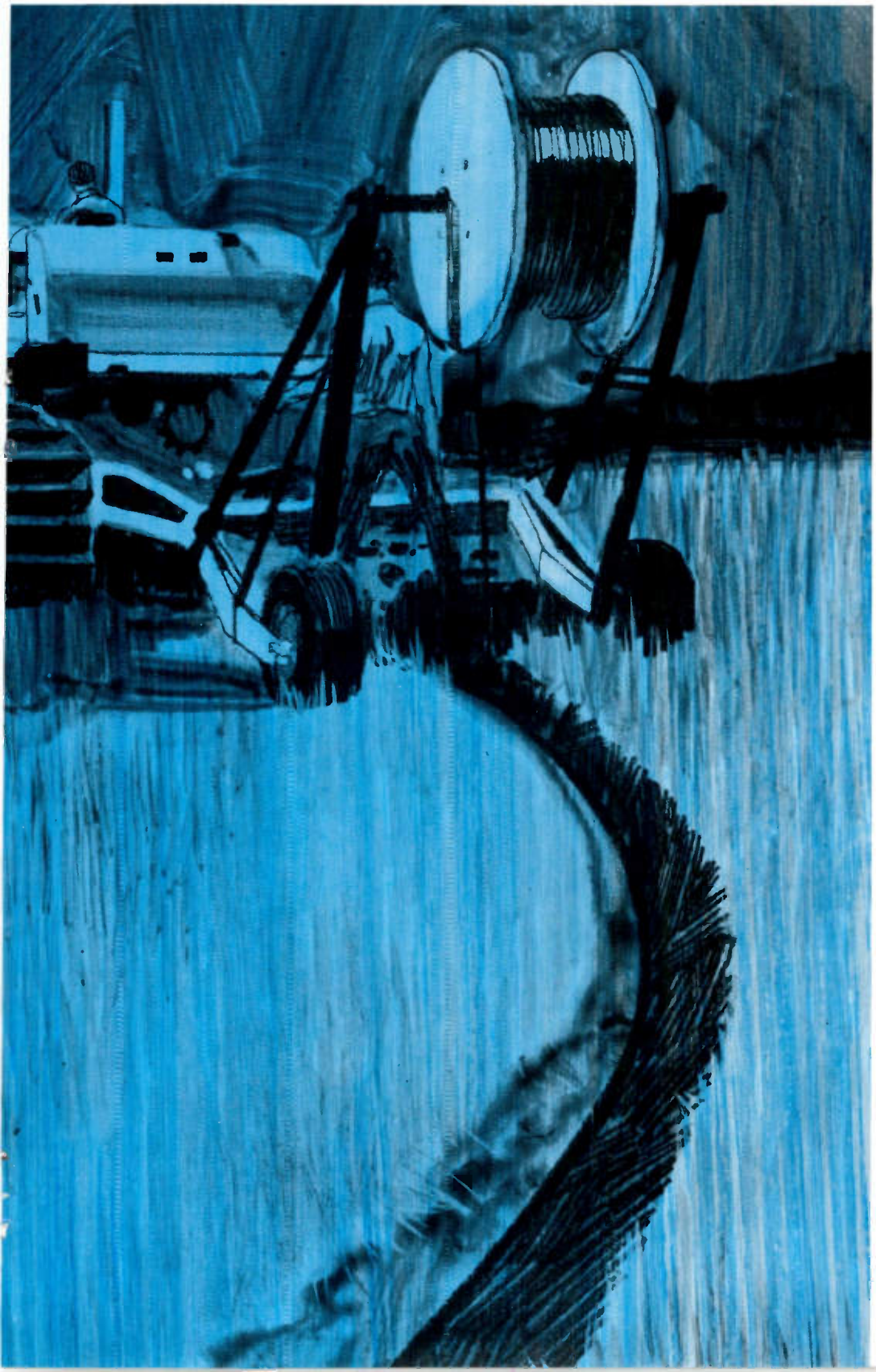

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FEBRUARY 1971 Volume 8 Number 2

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The Professional Journal of Cable Television

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Pruzan's CATV customers are everywhere. (Notice they're all smiling.)

For twenty-one years we've been serving satisfied CATV customers. And they stay satisfied. We don't like to see people cranky in California, moody in Maine, teed-off in Texas or cantankerous in Kentucky. That's why we're so strong on service. And depth of inventory. So the next time you need cable, strand, hardware, tools or electronics, call Pruzan collect. And smile.

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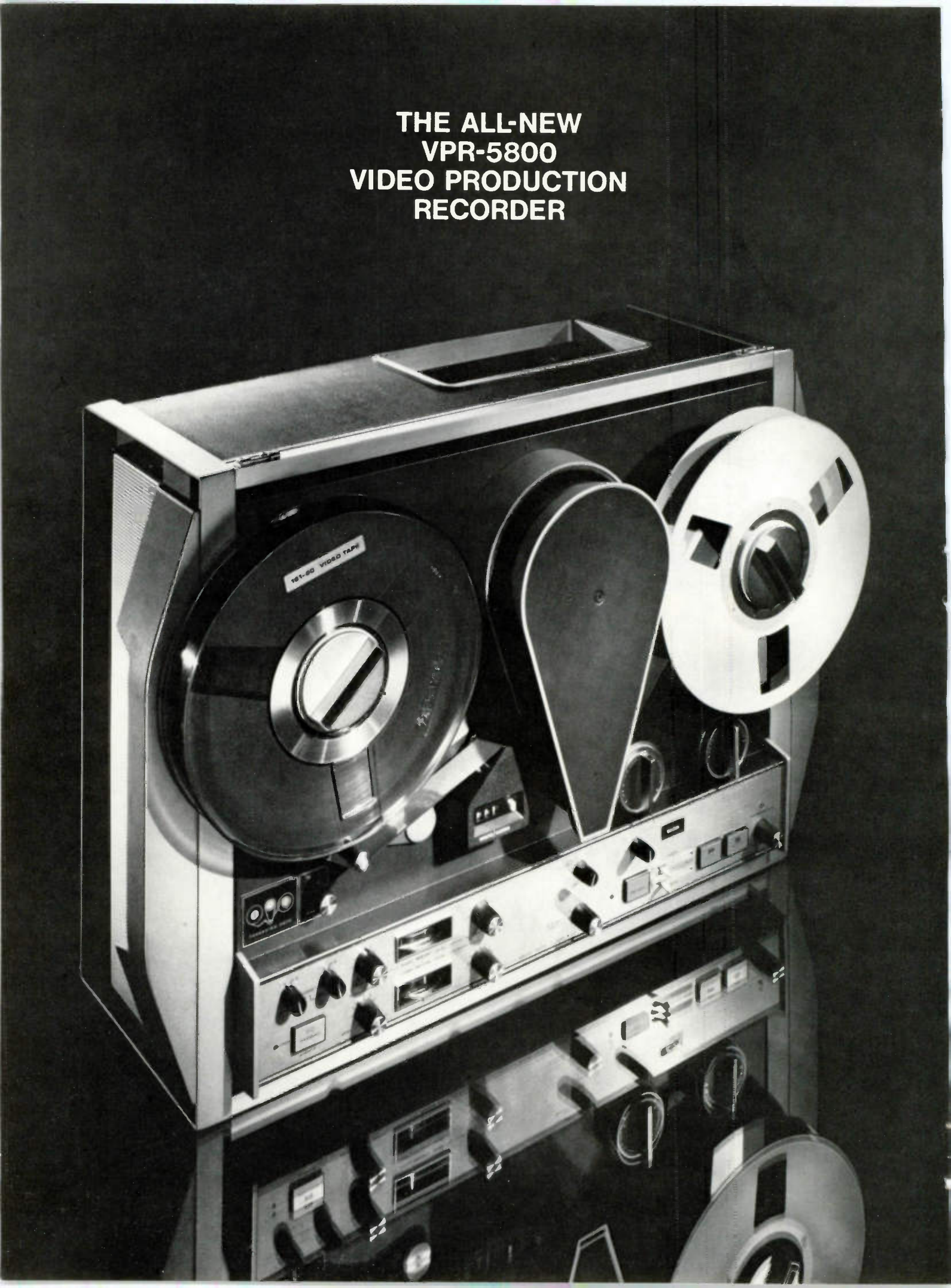

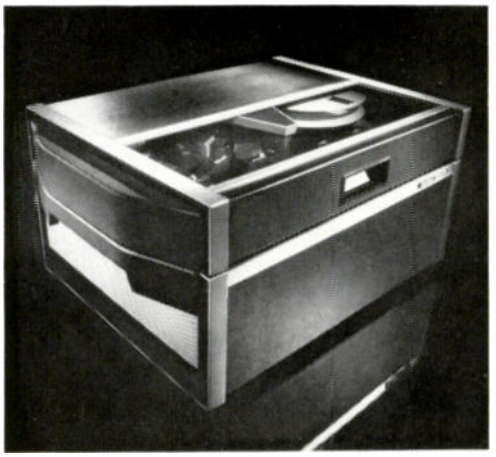

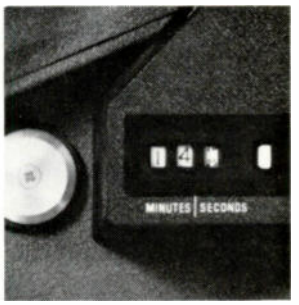

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The TVC Viewpoint

EDITORIAL

Robert A. Searle
Publisher

CPB: The Public Executioner?

Editor's Note: The following editorial is reprinted from the January 11 issue of CATV Magazine. *It strikes at the vitals of one of the most absurd proposals ever to face the CATV industry — the proposal that CATV systems be owned by local governing bodies or other non-profit groups.*

Even now, a group of influential businessmen (including a vice president of a local VHF television station) are proposing a non-profit CATV operation for the city of Kansas City, Missouri. And some cities are definitely considering the possibility of owning their own CATV systems.

In spite of their good intentions, public servants are frequently guilty of crucifying their own trust . . . the public itself. Misinformation is usually the cause.

On Thursday, December 10, the president of the Corporation for Public Broadcasting, John Macy, Jr., drove a first nail.

Speaking at the annual convention of the National League of Cities, Macy first heralded the coming of cable communications, then urged city fathers and mayors to get in on the CATV action themselves through municipal ownership.

Macy, whose organization has supported the FCC's Public Dividend Plan, is obviously after a big piece of the CATV pie for public broadcasting. He knows the FCC will not allow local broadcast ownership of cable facilities, so he is urging League members to *build their own systems* and then to turn around and *lease* them to CPB member stations. Quite an interesting formula!

But this is all quite proper of course! The public has been cheated out of "meaningful" programming through the capitalistic nature of present radio-television economy, which always has to cater to the mass audience. Therefore, cable systems . . . the next great leap in mass communications . . . should be controlled by non-business interests, such as the cities themselves, and public broadcasters.

Don't kid yourself, Mr. Macy! Such a plan would be peachy, if the cities and public broadcasters themselves didn't have their own bones to pick. While it may be true that the commercialistic approach to TV has produced a "vast wasteland," it is even more certain that political and institutional approaches will create even worse monsters.

But Mr. Macy's ownership plan is not his only formula which is fouled up. After telling those present (of the 14,000-member organization) that they should never accept a franchise proposal for a limited single-cable system, he had the gall to tell them that their city-built system would only cost $4,000 per plant mile . . . a very low cost for even the most shoddily-built, single-cable metropolitan system.

Macy also neglected to mention a few things. He didn't allude to the FCC-metro jurisdictional crisis on the horizon. He didn't even mention constitutional questions, much less copyright complexities, the high risk nature of CATV, and the possibility of competition with broadcasters.

Municipal ownership will sound CATV's death knell, and will be the de facto guarantee of the public's execution upon an instrument with nearly infinite capability for the public's good.

Every cableman should fight this concept with all the resources he can muster.

Planned non-obsolescence.

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

Its modular design makes sure of that.

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

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

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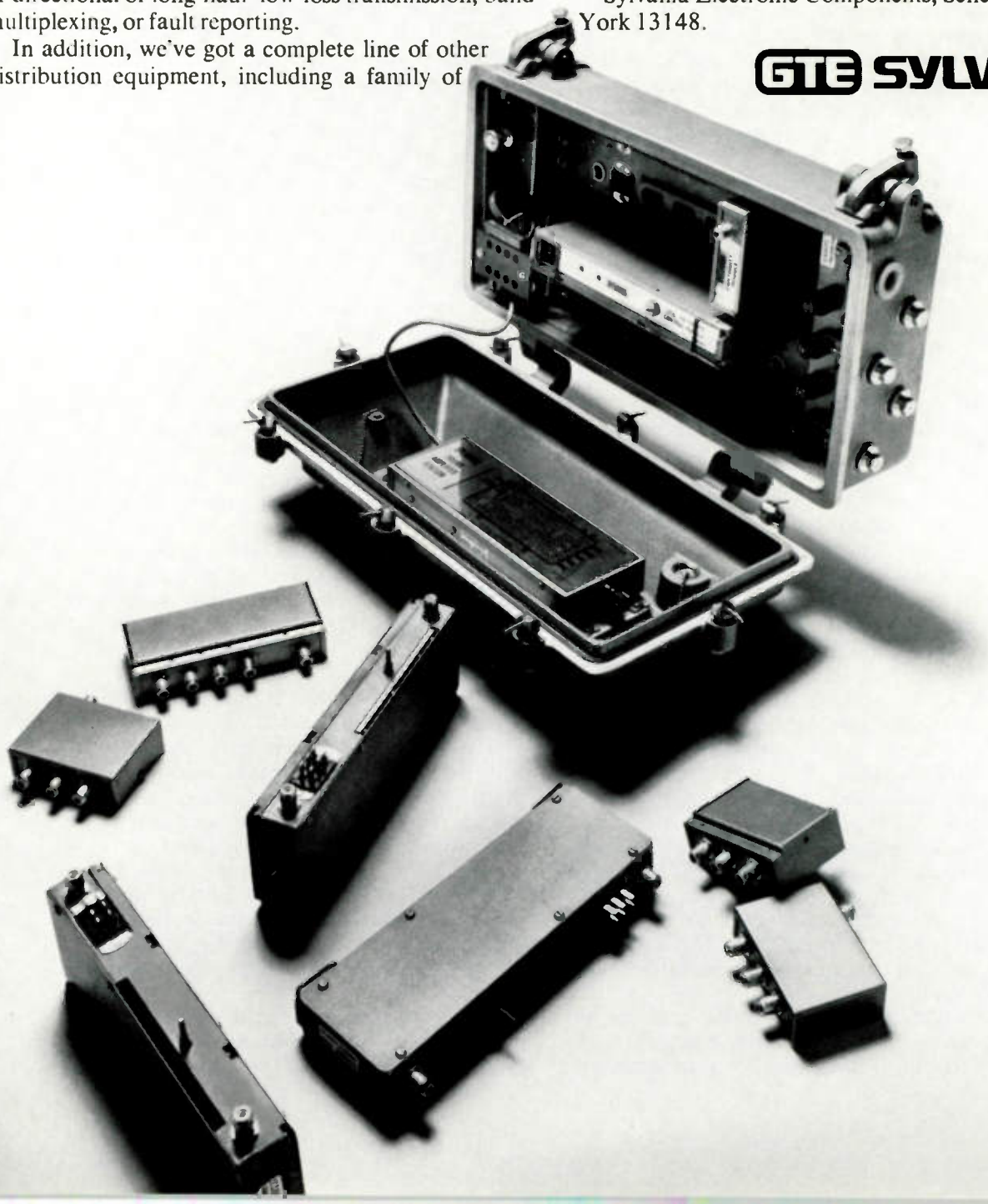

Now that you've decided to go into CATV, what's the first thing you should do?

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It's the smartest move you can make.

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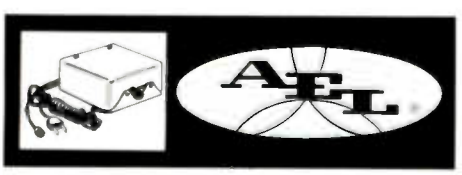
If you're contemplating a CATV system, contact AEL. You'll be turning on to the best.



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Perspective

on the news

B. Milton Bryan
Executive Editor

Certain critical industry developments of recent weeks may trigger deeper involvement on the part of the Federal Communications Commission in the franchising process. The indictment of Irving Kahn in the sticky Johnstown, Pa., situation (see story this issue) is strong medicine for those who would "cure" franchise bidding ills by having the Commission decide the rules for the game.

Jurisdictional crisis is also brought to light in the battle between New York City and Comtel (see Late News Briefs). If the Commission grants Comtel 214 certification, it is, in effect, giving the company further opportunity to expand its leaseback system in New York where it has been operating without a franchise, and without the City's sanction.

It is difficult to say whether the FCC is softening its CATV attitude substantially, even in view of recent seemingly positive moves. Decision to give systems under 10,000 subscribers opportunity to request waivers from mandatory origination ruling is case in point: That decision, in addition to being a relief for a number of operators, is also a decision of convenience. The FCC realized long after it had given the mandatory origination order that the rule might well be detrimental to the profitable operation of smaller CATV systems.

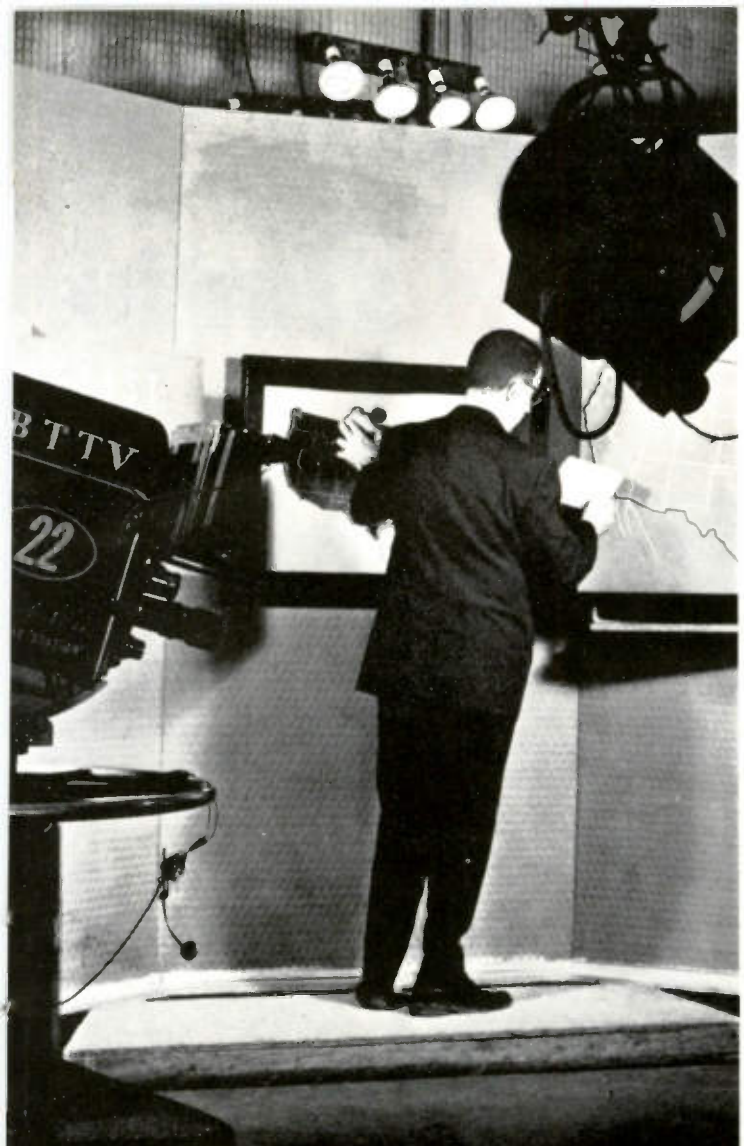
Learning that compliance with the rule might severely affect these systems, the Commission was faced with a dilemma: should it nullify the ruling, and expose its error? Or should it carry through with its decision and run the risk of being shown in error by the business losses of numerous systems?

The decision to allow waiver requests was a good, although not perfect, compromise. It gives those operators who do expect to lose money in origination the opportunity to appeal. It may prove to be a de facto nullification of the mandatory origination rule, since the FCC staff could just stack up the waiver requests and not process them at all.

Commission decision to allow Bucks County experiment with commercial insertion provision (see Late News) is another example of what could be interpreted as a decision of convenience. The company claimed that it had lost $200,000 due to the Commission's stripping it of distant signals, and claimed further that it would have to have 2,200 subscribers to break even.

Rather than allow the cable system to go under, the FCC has given it permission to "test" the commercial insertion provision of its proposed Public Dividend rulings. This gives Bucks County its distant signals back, but does not violate the letter of the law with regard to the 1968 freeze.

Consensus is that Public Dividend Plan has "had it." No one in D.C. expects it to work. The experiment to test it in Philly is more an excuse to keep Bucks County in business than anything else. While the FCC may prevent CATV's growth, it apparently does not want to be the executioner to bring about its demise.



The Year-'Round Lavalier

Around most TV stations, E-V lavaliers are taken pretty much for granted. Just hang one around your neck, or clip it onto lapel or pocket—and start talking.

Nothing could make us happier. Because we take great pains to insure the absolute reliability of these tiny microphones. And frankly, no other type of microphone poses a bigger design problem. The lavalier gets dropped, stepped on, swung by its cord, smashed and banged—not once, but often during its life. Most of the abuse is accidental—but inevitable.

So we developed a "nesting" principle of construction that is based on tolerances so tight that the internal element acts as a solid mass, reducing damage due to shock. And we use nothing but Acoustalloy® diaphragms . . . almost indestructible despite heat, humidity, dirt, or high intensity noise or shock.

We've also spent years developing cable specifications—and methods for attaching it. We've taken into account all the tugs and twists that are the fate of any lavalier cable. That's why our strain relief is so effective. And knowing that no cable can last forever, we've made replacement easy and fast.

Of course reliability by itself is not enough. So our field testing of E-V lavaliers is also devoted to sound quality. We must satisfy major network and independent stations on every score. As a result, E-V lavaliers can be mixed in the same program with stand microphones with no change in voice quality.

In the process of developing the lavalier, we've also made it smaller. Our original model was 7" long and 1" in diameter. Today's Model 649B is just 2-1/4" long, 3/4" in diameter, and weighs a mere 31 grams!

Normal trade discounts apply to list prices shown.

Of course TV studios aren't the only places you'll find E-V lavaliers. They're used in classrooms, lecture halls, conferences, stages and business meetings. And they offer the same year-round reliability with no compromise of sound quality.

Every E-V professional lavalier is protected by our unique 2-year unconditional warranty against failure of any kind, plus the lifetime guarantee of workmanship and materials that is an integral part of every E-V microphone. Full details are waiting at your nearby Electro-Voice microphone headquarters. Or write us about your special needs. We're ready to solve the toughest sound problems—off the shelf—all year 'round!

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The COLORCASTER III package includes two IVC-90 color cameras—one studio and one filmchain. These are the most widely used low-cost color cameras in television today. Another major item is the new IVC-870 color videotape recorder, with assemble and insert editing. Also included are the: audio and video consoles, multiplexer, slide projector, film projector, switcher with special effects, and a studio lighting kit plus the sync generator, distribution amplifiers, intercom, cabling, and all other items necessary to give you a totally complete package. Every component has been pre-selected for your optimum operating efficiency. Home viewers will see color pictures on your cable channel that match the quality of the network channels on your system.

The COLORCASTER III package sells for $47,900. If this combination doesn't suit your needs, ask us about other available studio packages.

Why an IVC System?

Owning an IVC system provides you with three forms of insurance: (1) Insurance against incompatibility—all equipment has been engineered to work together. (2) Insurance against malfunction—an IVC cable television studio is designed for upgrading, expansion, or re-configuration to suit your future needs.

We Install What We Sell

You provide the location—IVC will handle all details of system planning, installation, set-up and training. Our experienced personnel are part of the package, with systems know-how that parallels the proven performance of IVC equipment.

IVC is a pioneer in the installation of cameras, recorders and complete color systems in CATV. IVC has supplied the cable television industry with more color recorders and cameras than any other manufacturer.

Local origination of full color programming is easily and economically within your reach, with broadcast-proven color cameras and videotape recorders. For complete color studio systems information write us in Sunnyvale or contact your local IVC sales office.

This complete color studio at Peninsula TV Power, Inc., Sunnyvale, California is typical of studio systems designed, and installed by IVC.

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The standard for color in cable television.

Management Guidelines

D. Stuart MacPhail
Managing Editor

Handling Those Differences of Opinion

Invariably there are differences of opinion on about any new subject or proposal discussed. It's just human nature to be skeptical.

As soon as a difference of opinion occurs, an immediate barrier in communication is created. Two people become so intent on each substantiating his own position that there is hardly a chance that either hears what the other is trying to say. Neither wants to be confused with the facts, because his mind is already made up.

It is well to remember that there are usually three sides to every discussion; your side, the other person's side, and the right side.

You cannot give the impression of being stubborn or biased in your thinking if you want to communicate with people. You must realize that everyone has a right to an opinion, right or wrong. If you expect a person to change his opinion, you will have to do more than present facts, and intelligent reasoning.

As no one wants to admit he is wrong, you must seek some face-saving outlet that makes it easy for him to concede or change his mind. You can say, "I can see your point of view . . . but . . . "

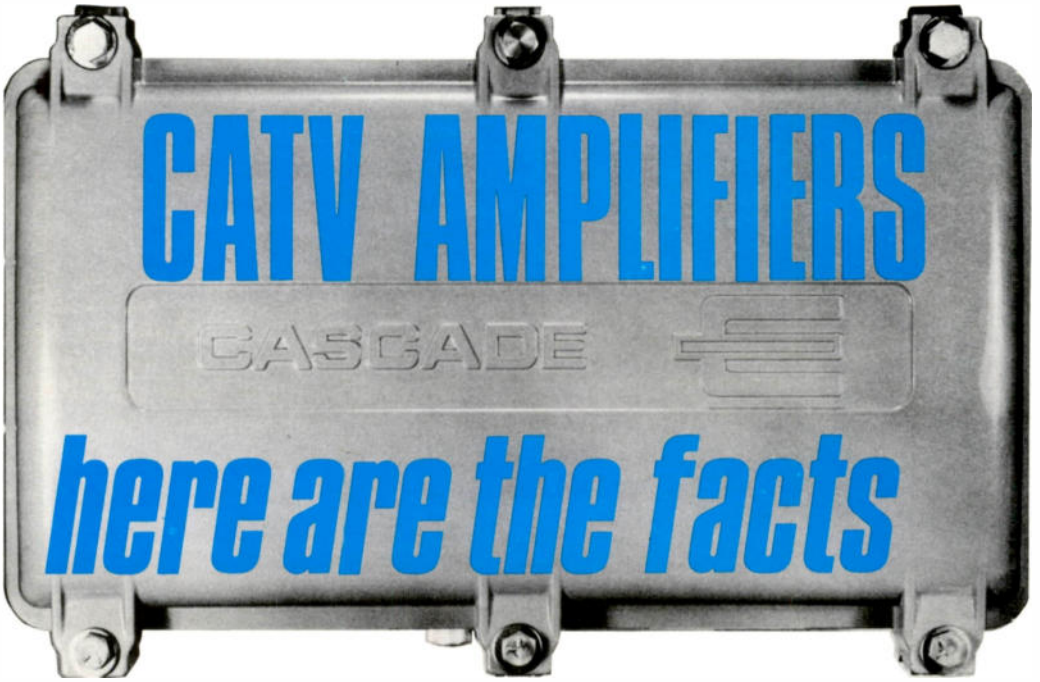
It isn't always what you say that counts; it's how you say it. When one person starts shouting louder than the next one, tempers fly! You can be sure too, that when differences of opinion lead to shouting, very little of the message is retained.

The best way to communicate with an excited, loud-voiced person is to retain a calm and composed manner. If your replies are softly spoken they will calm down the "yeller."

If a person is angry or upset, his thoughts and actions can be irrational. If you pursue a point when a person is in the wrong frame of mind, you may not only get a false reply, but you are likely to subject yourself to possible arguments.

Your objective should be to listen intently and patiently. Let the person talk himself out and blow off all the steam he possibly can. You should encourage him to "talk out" his point to the fullest extent. Just reply, "I can see your point, Joe." You then provide a cooling-off period by suggesting a cup of coffee. After the person has cooled off, you can return to the subject.

If what you have to say is important, then also put it in writing. If it can be demonstrated with a chart or other visual methods, do it. A visual demonstration can reduce the variables in interpretation. It can also help the person to take notes with him for further study, and to clarify questions in his mind which were not fully understood or covered in the discussion. TVC



A CATV amplifier must:—

1 Provide all customers with a consistent, stable, distortion free signal for producing quality pictures on black and white or color receivers.

2 Be reliable.

3 Easy to maintain.

4 Low cost.

5 Be covered by a warranty.

6 Have available a full range of compatible ancillary equipment.

7 Minimal redundancy.

1

The amount of "down time" in a system depends on three basics:

1 The head end should be adequately maintained and must contain quality equipment.

2 The system must be well designed, properly constructed and adequately maintained.

3 All active and passive equipment must be reliable.

We help you on the third point by providing a field engineering department who are constantly reporting your problems to our Research and Development Department. Our policy of continuous development provides for design changes based on your problems. As an example, the recently introduced spark gap on our power supply modules does cost us money, however, lightning and transient induced module failure has been drastically reduced.

Stability in any system is a result of system design and temperature compensated output level control. Our method of combining TLC with AGC offers the best of both worlds; TLC provides a simple but efficient control on every station, AGC is applied at every 5th station (spacing optional) to eliminate any fluctuations which TLC has missed. Keeping the number of AGC stations to a minimum decreases potential trouble spots, and allows for greater cascades.

Distortion to a transported signal is unavoidable, but this distortion can be held to a minimum with careful amplifier design and correct system application. Both cross modulation and noise are checked in each and every amplifier — not random samples! meaning the equipment you receive will meet our published specifications.

We do not eliminate distortion, we just keep it to a minimum by careful design and 100% inspection.

2

Since a CATV system is a business enterprise, anything that increases overhead expense is undesirable. Therefore, optimum reliability in amplifiers is a major consideration. Amplifier malfunction requires technicians, technicians cost money, frequent malfunctions eventually cost the operator paying customers — it's simple arithmetic, and we've done our homework.

3

The plug in module concept enables a technician to have an amplifier operable again after malfunction within seconds. Spare modules are carried for immediate replacement while repairs are carried out. A Cascade Status Monitor will pinpoint a malfunctioning amplifier the very moment the malfunction occurs.

4

Although initial capital cost is a major consideration (and well we know it!) this must be balanced against things like; life, redundancy, maintenance, etc. A further consideration is the advent of local origination from remote points in the system. By using a "Unicom" amplifier the two way facility can be added at a later date without costly rebuild — a simple changeout of modules is all that is necessary.

Incidentally, you will need two way when you install your Status Monitor, and that's a money saver!

5

The Cascade warranty covers equipment for periods of from 90 days to 1 year depending on the type. After sales service is treated as if it were a sales service because, we believe that word of mouth is the best form of advertising and we don't want you bad mouthing us!

6

The Cascade range of ancillary devices operates within the same bandwidth (5—252 MHz) as Unicom amplifiers, making all equipment completely compatible. The published specifications are from production runs, supplied by the Test & Alignment Dept. — you can believe them.

7

The unique modular design of the "Unicom" range allows for almost unlimited progress in technology without resorting to rebuild. For many years to come the "Unicom" housing and chassis board will accommodate any new electronic development.

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Vancouver, B.C.: 5594 Cambie Street 604/327-9201

CASCADE

CASCADE ELECTRONICS LTD. PORT MOODY, B.C.

LETTERS

Readers Ogle TVC Cover

• Regarding cover of (January) *TVC:* After much discussion, and with much reservation, we are forced to concede the young lady probably has one glaring blemish . . . her 250 pound boyfriend.

Signed:
"A group of henpecked husbands."
(the envelope carried a mid-California postmark)

Knife Edge Diffraction

• Some years ago I read of a signal propagation mode called "knife edge refraction" and heard rumors of a few places where CATV systems were utilizing this effect in their signal reception. I would like to know if any of your readers are receiving, or know anybody else who is receiving their signals in this manner.

James B. Wright
2319 Ninth Street
Peru, Illinois 61354

Knife edge diffraction is the name given to a situation in which both the receiving and transmitting terminals have a common horizon. There are a few systems using this kind of reception, and I understand that it gives very satisfactory results. I haven't been able to find the names of actual systems, but my recollection is that they are in California. The situation usually involves a sharp mountain crest separating the transmitting station from the receiving antenna.

I am enclosing two references that deal with the subject. One is Tom D. Smith's paper (Scientific Atlanta) on basic propagation theory for CATV technicians. The other is the chapter out of NBS technical note 101, "the propagation bible," which deals specifically with knife edge diffraction. Smith doesn't say much about it because it is relatively uncommon in CATV. The NBS note is very theoretical, but it contains everything there is to know about it. Note that the diffraction occurs at an obstacle that is common to both terminals.

In a practical sense there is a good chance of satisfactory reception if there is only a single, relatively sharp osbstacle between the CATV head-end and the TV transmitter. Some careful study of topographic maps may lead to locations where this condition is found, and where satisfactory signal levels might be expected.—Technical Editor, I. (Sruki) Switzer.

To Build, Or Not To Build?

• I am interested in building a cable TV system for my city and the surrounding community.

Where could I go to get the answers to the multitudes of questions involved? Do you think a system where the potential was less than 1,000 customers would be practical? I am sorry to have bothered you, but I had no idea where to start.

Joe M. Carl
Gentry Hardware Company
Gentry, Arkansas

For determining the economic feasibility of a CATV system in a particular town, we recommend use of the "CATV Cash Flow Projection Book," It can be ordered from the publishers of this magazine.

There is no single comprehensive source of information as to all the "ins and outs" of CATV system construction. I recommend you contact one of the numerous excellent consulting or construction services available to the CATV industry. A complete listing of these is included in the "CATV Directory of Equipment and Services" (also available from our publishers).

However, if you have an extensive electronic background, and just need general data on CATV system construction . . . any CATV equipment manufacturer should be able to assist you in the finer points of system construction and design.—Ed.

'Thanks' from NCTA

• Just wanted to say thanks for the free Cable Week ad you ran in the January issue of *TVC.*

As you have recognized, Cable Week is a good opportunity for NCTA member systems to toot their own industry's horn. Your support has gone a long way to making this the most utilized celebration yet.

And, thanks for your use of the membership ad. Because our major problems have been and are stretched out over so many years, your provision of free advertising space has enabled us to bring a specific example of NCTA's long-term effectiveness to both members and non-members. We appreciate it.

Don Witheridge
Public Relations Director
National Cable Television Assn.

They Want TVC by Air

• Upon arriving at Marianas Communications System, Inc. located here on the island of Guam, I find that *CATV Magazine* and *TV Communications* do not arrive here until three to five weeks after being published.

Larry Gunn and Dave Ulloa would be more than willing to pay the additional costs of air mailing in order to receive timely data on the industry.

Dick Rokes, MSC, Inc.
Agana, Guam 96910

Article Copies Requested

• I should be very grateful if you could send me as soon as possible reprints or copies of the following articles which have appeared in past issues of *TV Communications:* "The Arithmetric of the In-Home Converters" (June 1968); "Mid-Band CA-TVI Real or Imagined Problem" (Dec. 1967); "Recognizing Cross Mod Cross-ups in CATV Amplifiers" (June 1968); "A State-of-the-Art Review: Expanding Cable Capa-

bility" Parts 1 and 2 (June and July 1970); and "Expanding to 17 Channels: How they do it in Seattle" (Sept. 1970).

K.J. Easton P. Eng.
Cable Consulting Services
1608 Truscott Drive
Clarkson, Ontario, Canada

They are on their way!—Ed.

• Sometime ago I wrote and requested a copy of George Green's article, "Preparation of a CATV Cash Flow Projection" that appeared in the January, 1966 issue of *TV Communications.*

I should appreciate receiving a copy of this article just as soon as possible, together with information regarding your "Cash Flow Projection Books."

Lemuel B. Schofield II
86 Greenacres Avenue
Scarsdale, New York 10583

Please forgive the delay . . . the materials are on their way. We have received numerous requests for Mr. Green's excellent article. For the interest of other readers, the "Cash Flow Projection Book" is available for $2.50 each or $2.00 each in lots of ten or more.—Ed.

Reader Agrees with Writer

• In response to your question on page 56 (and of the guest editorial by Leslie Farey, "CATV — Is It One Industry or Two?") in December *TVC* . . . I agree with the author.

Richard Jarosky, Vice Pres.
Eastern Pa. Relay Stations Inc.
405 E. Sunbury Street
Shamokin, Pa. 17872

Since last December, TVC has carried a new monthly feature entitled "Opinion from the Industry." This month Consulting Engineer George Brownstein expresses the opinion that use of the mid-band and/or super-band for CATV could bring hazards to aircraft navigation. Readers who agree, disagree or have additional thoughts on these guest editorials are invited to express themselves.—Ed.

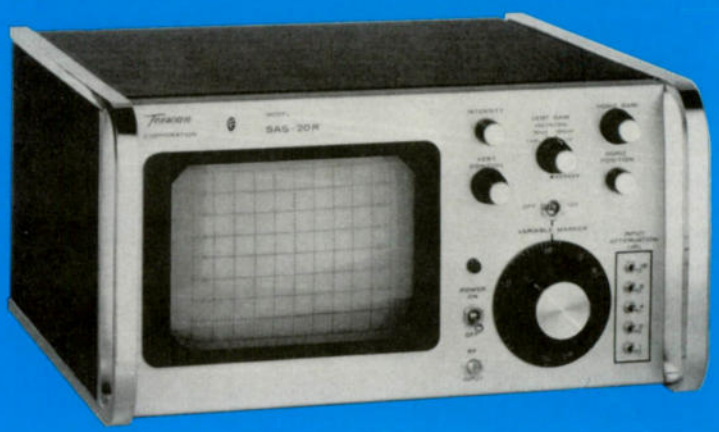
Sweep your entire CATV system with no program interference

These two super-compact instruments do the job. Easier and faster than ever before.

At the head end, a solid state sweep/signal generator transmits the signal.

In the field, one operator with a single, highly-portable receiver completes the tests.

Without disturbing subscriber reception.



No excess baggage. No frills. No Nighttime tests. Because Texscan designed this system from scratch. Specifically for CATV. To make your summation sweeps easier. Faster. More reliable. And at a sensible cost.

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Late News

KAHN EXPECTED TO PLEAD "NOT GUILTY" IN BRIBERY CHARGE

At TVC presstime, TelePrompTer Corp. and its president Irving Kahn, both charged with bribing Johnstown, Pa. officials for a 1966 CATV franchise, had not yet entered a plea. As TPT stock fell and new franchise prospects dimmed, Kahn and other company officials sat tight, conferring with their attorneys.

Even though it could mean a lengthy public trial, there is a good chance that Kahn will plead "not guilty" to the bribery charge. The firm has maintained from the beginning that the case is one of extortion by Johnstown officials, not bribery by TelePrompTer.

TelePrompTer bought the Johnstown system in 1961 for approximately a half-million dollars. In 1966, Johnstown city officials decided to void the TPT franchise and ask for bids. Kahn refused to enter a formal bid, but he placed his proposal to the city in a sealed envelope and gave it to a newspaper reporter to hold until after the other bids had been opened. He predicted that TPT's offer to the city would be better than the new applicants. By this time the system had been operating for about five years, and TPT had over $1 million invested in it.

TelePrompTer ended up keeping the franchise and $15,000 changed hands. The grand jury indictment charges that this $15,000 represented a bribe; Kahn and TelePrompTer maintain that it represents money extorted from the firm by the Johnstown mayor and two city councilmen.

NEW YORK CITY'S UNFRANCHISED COMTEL SEEKS RIGHT TO EXPAND

For years, Comtel has used telco plant and thus by-passed New York City franchising. Thus far, Comtel has won every legal battle in the state courts. But now, in order to expand, the telephone company has had to seek 214 certification from the FCC.

The FCC CATV Bureau, represented by Abraham Lieb, tried to walk a middle course in a recent hearing. It suggested a grant of the 214 certificate for an "experimental period" of perhaps nine months, during which time "the possible benefits of competition" among CATV firms in New York City could be tested.

Commissioner Nicholas Johnson directed some pointed criticism toward the Cable Bureau's position. He suggested that it might be "difficult to test competition" with the firms operating under different circumstances — that is with some having to meet city specifications and one not so circumscribed.

VIKOA GIVES UP ON ENTERTAINMENT DIVISION

Officials of Vikoa, Inc. have announced that the company is giving up on the production of entertainment films and expects to take a pre-tax loss of $3,700,000 on its operations in that area.

The firm has made arrangements for the distribution of its entertainment properties by Steve Krantz Productions, Inc. — a new company formed by Stephen F. Krantz who resigned as president of Vikoa's entertainment division and as vice president of Vikoa.

Late News (Continued)

COMMISSION ASKED TO RE-THINK BUCKS COUNTY EXPERIMENT

Both Bucks County Cable TV and Philadelphia station WPHL-TV have asked the FCC to take another look at its recent decision to test commercial substitution test (see earlier story on page 29).

Bucks County Cable has asked the Commission to add a third local UHF station, WKBS, to the commercial substitution plan and to rule that WNDT from New York need not be part of the plan.

One of the Philadelphia U's whose commercials will be a part of the plan is unhappy with the entire experiment. U.S. Communications Corp., licensee of WPHL-TV, has filed a motion for stay and says it will take the FCC to court over the case.

The station's complaint is that it was not consulted by the CATV Bureau before the experiment was proposed and acted on by the Commission. The action, said WPHL-TV, was "an unprecedented departure from concepts of fairness, justice and sound policy."

JOHN CAMPBELL BUYS CAS BACK FROM AVNET

After six months of negotiating, Texan John Campbell has repurchased CAS Manufacturing Company from Avnet, Inc. The CATV-supplier firm had been sold the larger corporation more than two years ago.

HOSTETTER, GWIN GET NCTA CHAIRMANSHIP ENDORSEMENTS

The race is already underway for the chairmanship of the National Cable Television Association. At the January meeting of the New England Cable Television Association, the group unanimously voted to urge Amos "Bud" Hostetter to announce his candidacy for the position. The group promised its support if Hostetter makes the race.

During a Board of Directors meeting of the late January meeting of the Illinois-Indiana Cable Television Association, a resolution was passed in favor of John Gwin for the position. The statement suggested that the group believes " . . . John Gwin to be the most qualified person to serve as NCTA chairman during the coming year, and, therefore, recommends that he be nominated."

EXCLUSIVITY PROBE AIMS TO FREE PROGRAMMING FOR CATV USE

The FCC is proposing to take another look at program exclusivity — purportedly with a view toward freeing more non-network programming for CATV system and UHF station use.

At present, contracts between VHFs and program suppliers tend to tie up programming for long periods of time, and for multiple showings. Perhaps, said the FCC, this means that desirable programs are "unduly or inordinately unavailable to other stations and potential audiences."

All interested parties are invited to comment and to submit alternative proposals. Comments must be filed by March 3; reply comments, April 5.

ameco

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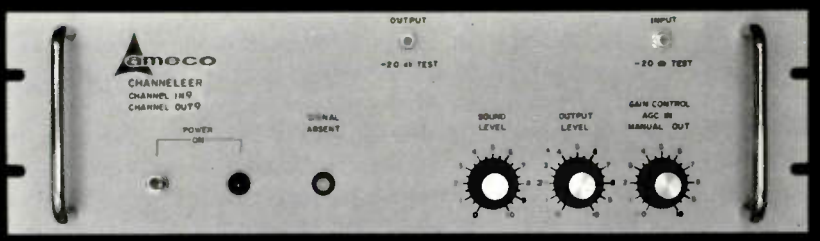
ROUTINE ATTENTION



That's how much maintenance to expect with your new Ameco Channeleer. It's the original high-performance, low-maintenance signal processor. Feed the Channeleer the same signal you fed your old headend gear. No more color smear or sound bars. Noise level (snow) will drop, spurious beats and adjacent channel interference will disappear.

Never fear future regulation changes either . . . non-duplication connections are available on the rear panel. In addition, channel changes are easy. The input and output modules can be field-changed, with no re-tuning or other adjustments. Users of more than 1100 Channeleers appreciate ZERO routine attention. Why not join them? Call Ameco's ACTION-LINE collect. 602/252-7731.

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Recommended input (picture carrier)	0 to +10 dBmV
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AGC control	±0.5 dB for input change from −14 to +30 dBmV
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Minimum return loss	16 dB input & output
Image rejection	50 dB minimum
Adjacent channel carrier rejection	50 dB minimum
Video IF response	41.57 to 46.50 MHz, ± 0.25 dB
Carrier substitution oscillator	45.75 MHz, crystal controlled
Spurious signals	60 dB down minimum
Power requirements	95 to 130 VAC, 60 Hz, 30 Watts
Physical dimensions	19 x 17 x 5¼ inches
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News SPECTRUM

Relief in Sight from Origination Order: FCC To Allow Waivers for Systems Under 3500

Cable system operators serving more than 3,500 but less than 10,000 subscribers can avoid mandatory origination by filing a request for a waiver of the cablecasting rules.

"We see no public benefit in risking injury to CATV systems in providing local origination," the FCC said. "Accordingly, if CATV operators with fewer than 10,000 subscribers request *ad hoc* waiver of the Rules, they will not be required to originate pending action on their waiver requests."

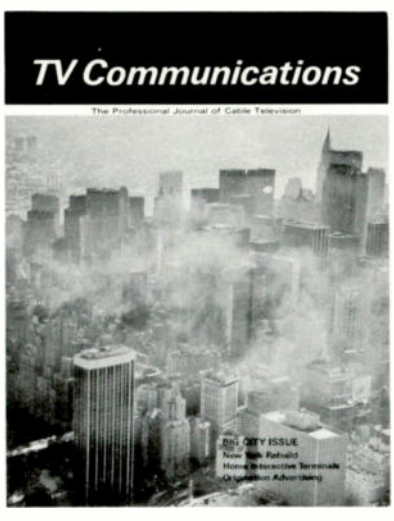
The Commission established the waiver procedure in response to petitions from cable interests who claimed that origination costs would be prohibitive for many 3,500+ subscriber systems.

According to a study filed by the California Community Television Association and NCTA, capital equipment cost for origination would run at the $38,000 level with annual operating costs running about $43,000.

In acting on waiver requests, said the FCC, the Commission will rely heavily on the operator's financial showing. Every request for waiver "must contain sufficient information for the Commission to judge the net effect of program origination cost on the ability of the CATV system to serve its subscribers."

Waiver requests *must* include the following data: (1) complete financial operating statements for the past three years, including separate cost entries for all major expenses and identification of the amount included as expenses but paid to the principals; (2) a description of the depreciation periods and computation method; (3) company balance sheet as of the beginning of the three-year period and as of the end of each of the three years; (4) average number of subscribers connected to the system and homes passed during each of the three years; (5) cable miles planned in the franchised area; (6) estimated capital and operating costs for origination.

The FCC said that systems serving over 10,000 subscribers may also request a waiver. These systems, however, will *not* be excused from cablecasting until and unless the Commission acts favorably on the request.



This Month's Cover...

Perched atop the 47-story Gulf & Western Building (left foreground) are the new antennas of Manhattan Cable Television. The firm was forced to relocate its head-end to the building by the G & W structure itself, which stands in the path of signals from the Empire State Building to the old head-end. Head-end equipment is in the sub-basement of the building. (See story this issue). The rebuild is typical of the problems which will be facing cable TV operators and engineers as they move into the major markets. (Photo courtesy Sterling Manhattan Cable Television). TVC

Houser and Wells Get Recess Appointments

Thomas J. Houser and Robert Wells have received recess appointments to the FCC from President Nixon.

The Presidential action was expected, as the nominations were not acted on by the Senate before adjournment of the Ninety-First Congress. The law specifies that Federal appointments made when Congress is not in session can take effect immediately, provided the President submits the names to the Senate for confirmation within 40 days of convening of the new Senate.

Wells is currently a member of the Commission, but his term expires June 30. He is being named to the full seven-year term (now six and one-half years) created when Kenneth A. Cox left the FCC, and the recess appointment of Wells was necessary to open up the short-term slot for Houser.

Houser, a Chicago attorney who most recently has been Deputy Director of the Peace Corps, gives the Commission (and Burch) its first GOP majority in a decade. He will join Wells, Burch and Robert E. Lee in the Republican column. Though partisan affiliation is often no guide to FCC philosophy, it certainly can incline a majority toward the leadership offered by other party appointees. Of the four GOP FCC members, only regular Republican Lee was not appointed by President Nixon.

For over 10 years experts tried to design an amplifier to connect MATV to CATV systems.

Now Benco has four of them!

Four new high level, solid state, broadband amplifiers especially designed to connect MATV systems to CATV systems—yet versatile enough for nearly any application.

MODEL	DA 40-252-B	DA 45-252-B	DA 50-252-B	DA 55-252-B
FEATURES:	Balanced output Stage	Balanced driver and output stages	Balanced driver and output stages	All stages balanced
Frequency Response	40-252 MHz±1/2dB	40-252 MHz±1/2dB	40-252 MHz±1/2dB	40-252 MHz±1/2dB
Minimum Gain (flat)	36dB	44dB	44dB	14dB
Maximum Output	+45dBmV with 12 channel loading.	+51dBmV with 12 channel loading.	+55dBmV with 12 channel loading.	+58dBmV with 12 channel loading.
Maximum Noise Figure	8dB	8dB	8dB	
Gain Control (flat)	10dB	10dB	10dB	
Tilt	Adjustable for 0 to 30dB cable.	Adjustable for 0 to 30dB cable.	Adjustable for 0 to 30dB cable.	
Input and Output	18dB return loss	18dB return loss	18dB return loss	12dB minimum
	Regulated power supply	Regulated power supply	Regulated power supply	Regulated power supply

NOTE: All amplifiers available for Cable Powering or Line Powering. Add CP or LP to model number.

Call or write for further information

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EIE has put it all together. The vestigial sideband filtering is optimized by utilizing IF modulation, resulting in maximum attenuation of all spurious signals, thus eliminating adjacent channel interference.

The solid-state reliability is reflected in the unexcelled broadcast quality output of either monochromatic or color signals.

Quick reference monitoring is offered at your fingertips. An accurate and easy-reading meter provides instant reference to audio or video modulated output levels. No additional test equipment is required to set up modulation and carrier levels. It's all done on the front panel.

The precision calibrated output attenuator allows the operator to control the video carrier from a +50 to +60 dBmV in 1 dB increments.

Modular design allows flexibility and versatility for the system operator. There are four plug-in modules, power supply, audio, video and converter. Only the converter is unique to a given channel. All others are common, thus reducing the operator's inventory. Modules plug into front panel for easy access.

Electronic Industrial Engineering, Inc.
7355 FULTON AVENUE · NORTH HOLLYWOOD, CALIFORNIA 91605 · TELEPHONE (213) 764-2411

EiE

Harriscope Transmission Is Now Cypress Cable TV

Harriscope Transmission, Inc., a subsidiary of Cypress Communications Corporation, has changed its name to Cypress Cable TV, Inc.

The company, which was formerly called United Transmission, Inc. prior to its consolidation, will move its Kansas City office to Cypress' headquarters in Los Angeles.

All former Harriscope Transmission systems will also assume the new name, including systems in Indiana, Iowa, Kansas, Missouri, Ohio, Oregon, Pennsylvania, and Texas.

Proposed Legislation Supports NCTA Position

Rep. Robert O. Tiernan (D-R.I.), a member of the House Commerce Committee, has introduced legislation that would explicitly give the FCC regulatory authority that would be much like that suggested by NCTA in its comments on the Commission's proposed rules governing federal-state-local regulation.

Tiernan said that CATV offers much, but "all these dreams will remain mere hopes, unless we in government decide to act, and act now." He said that clear federal guidance from the FCC is needed in order to avoid a confusing and contradictory web of state and local regulations.

Schildhause Now Official Cable Chief

Sol Schildhause, acting head of the Cable Television Bureau and former chief of the CATV Task Force at the FCC, has been formally appointed Cable Television Bureau Chief by the Commission.

His appointment followed by only a few days another top-level FCC title change. Max D. Paglin was shifted from his position as Executive Director to Special Assistant for Administrative Procedure, and John M. Torbet was brought in as the new Executive Director.

Allen Cordon, former legal assistant to FCC Commissioner Kenneth A. Cox was named Deputy Chief of the CATV Bureau.

John M. Torbet, who takes over as the FCC Executive Director, comes to Washington from the U.S. Air Force Academy

Five 'Top 100' Systems To Carry Distant Signals

Half a dozen systems – five of them located in Top 100 markets – have been authorized to carry distant signals as the FCC continues to process waiver applications under the Interim Rules.

In Oklahoma, Bartlesville Video Inc. has been granted permission to carry 11 distant signals from Arkansas, Missouri, Texas and Oklahoma in addition to the local signals.

Commercial Substitution Test Gets FCC Go-ahead

The FCC has authorized an experiment in Pennsylvania which will not only test its "commercial substitution" plan but may save the life of Bucks County Cable TV.

Under the decision, Bucks County may resume carriage of four distant-signal New York City independents – and will substitute the commercials of local television stations for those of the New York stations.

Last fall, the Commission ordered Bucks County to drop the four signals. As a result, said the system, it has lost "over $200,000" and would be unable to continue operating unless the signals were restored.

Taking the opportunity to test a controversial aspect of its proposed CATV rules, the FCC restored the signals on condition that Bucks County substitute the commercials of Philadelphia UHF stations WPHL-TV and WTAF-TV for the New York commercials. In addi-

tion, the CATV system must bear the entire cost of the commercial switching and must provide written progress reports every 30 days to the Cable Television Bureau.

In giving Bucks County the go-ahead, the Commission stressed that this situation is unique and that other similar waivers are not contemplated.

FCC Proposes Standard Program Logging Rules

Looking toward the fast-arriving day of mandatory CATV originations, the FCC has proposed rules requiring standardized program logging of cablecasts.

The impact of the proposed rule, of course, depends in part on how many system operators actually are forced to originate (see separate story on modification of Origination Order).

Under the proposal, a standard log kept at each system would identify the type and source of each program; beginning and ending time of program; channel lessee; name and political affiliation of any political candidate; and details on commercial matter and public service announcements.

Entries for commercials would include not only the sponsor identification, but total duration of the commercials within each hourly time segment.

Cablecasting data is being asked for in the proposed Annual CATV Reporting Form (FCC Form 325). If standard program logging is used, according to the Commission, Annual Report data will be more easily gathered as well as uniformly maintained among systems.

Comments on the proposed logging rules are due February 22; reply comments due March 4.

TPT (Focus Cable, Inc.) Wins Oakland Franchise

The City Council of Oakland, Calif., has granted a franchise to Focus Cable, Inc., in which TelePrompTer Corporation has a 50% interest, to build and operate a cable television system in the Bay Area city of 400,000 population.

Focus Cable filed official acceptance of the grant with the Oakland City Clerk's Office just before the end of the year, according to R. H. Symons, vice president in charge of TelePrompTer's CATV Division.

The company has recently acquired seven CATV systems from Reeves Telecom Corp. for $17 million and the Newport Beach, Calif. system from FCB Cablevision.

Zenith Gets Substantial Minority Interest in EIE

Zenith Radio Corporation has acquired a substantial minority interest in Electronic Industrial Engineering, (EIE) Inc.

John Thompson, EIE president, said that Zenith's investment in EIE "means that the Chicago-based consumer electronics company has made a substantial com-

mitment to the future development of cable television."

Thompson said that Zenith's substantial, but non-controlling, interest in EIE provides additional capital for the expansion of his firm's activities in development and marketing of two-way cable TV systems and components. All present management personnel and policies of EIE will continue.

Three representatives of Zenith will hold seats on the EIE board of directors.

LVO Cable Gets CATV Franchise for Tulsa

The Board of Commissioners of the city of Tulsa, Oklahoma has unanimously selected Tulsa Cable Television (TCT) to provide broadband cable communications services for the city. The franchise agreement calls for a $4.55 subscriber fee and a payment to the city of four to six percent of gross revenues.

Tulsa Cable Television is comprised of three general partners: LVO Cable, Inc., cable television subsidiary of Tulsa-based LVO Corporation (51 percent); Williams Brothers Company, Tulsa-based pipeline engineering and construction company (25 percent); and William D. Swanson, former general manager of Tulsa's KTUL-TV.

TCT plans to provide a single-cable broadband system for the city.

GTE Sells Out In Telco Divestiture

GTE Communications Incorporated, a subsidiary of General Telephone & Electronics Corporation, has announced that it is selling all of its cable television properties.

The company operates twenty CATV systems covering thirty-two suburban and rural communities, twenty of which are served by GTE telephone operating companies. TVC

FOCUS ... On People

Systems

Jay A. Doub, former editor and publisher of the Winter Garden (Fla.) *Times*, has been named system manager of TM Communications' Winter Garden area cable television system.

Tele-Communictions, Inc., Denver based CATV multiple system operator and microwave common carrier, has announced the selection of **Mrs. Martha Jones** as financial public relations coordinator for the firm.

Cox Cable Communications, Inc. has announced the following new executive assignments: **Henry W. Harris,** president; **William A. Pitney,** vice president; **Henry R. Goldstein,** vice president; **Thomas C. Dowden,** vice president (continuing as secretary); **Thurber M. Foreman, III,** treasurer (continuing as controller).

Charles E. Clements has been named general engineer for Community Tele-Communications, Inc., a wholly owned subsidiary of Tele-Communications, Inc. (TCI).

A twenty-year veteran of the cable television industry, Clements began his CATV career in November, 1950 when he developed a cable television system at Waterville, Washington. He was most recently President of Tele-Vue Services Company, division of Tele-Vue Systems, a Seattle based cable television firm.

Cable industry veteran **Frank Thompson,** manager of TelePrompTer Corporation's systems in Rochester, Brainerd and Winona, Minn., and in LaCrosse, Wis., has transferred to El Paso, Texas, to build and manage a new system. Replacing Thompson as manager in Rochester is Frank D. Staley who has been manager of the TelePrompTer CATV system in Morgantown, W. Va. New manager in Morgantown is David Pardonner who was assistant manager with TM Communications.

Gene Harris, seven-year veteran of the broadcasting industry, has been named by Storer Cable TV, Inc. as director of cablecasting for the firm's eastern division. Harris will headquarter in Sarasota, Florida,

Donald L. Guthrie, has been appointed vice-president and general manager of the Time-Life Broadcast-managed CATV system, Cable TV of Rochester, Inc.

The election of **Najeeb E. Halaby, John F. White** and **Richard L. Schall** to the Board of Directors of Viacom International Inc. has been announced by Clark B. George, Viacom president and chief executive officer.

TelePrompTer Corporation has appointed **Charles C. Woodard, Jr.** a corporate vice president and assistant general manager of the Cable Television Division.

William H. Keller, Jr. has been named executive vice president of the Westinghouse CATV Division, with systems in Georgia and Florida. Keller, who was formerly the CATV general manager, will also serve as executive vice president of Micro-Relay, Inc., a microwave common carrier.

Micanopy Cable TV has announced the naming of **Robert Fink** to the position of system manager for the firm's systems which serve Chiefland and Cross City, Fla.

Lawton Cablevision, a subsidiary of KSWO Television Co., Inc., has announced the promotion of **R. P. (Jim) Wilhite** to the position of plant superintendent. He was previously construction foreman for the firm's 190-mile complex which serves Lawton, Okla.

Melvin Wright, manager of Upper Valley Telecable Co., has announced the appointment of **Stanley S. Simon** as chief technician for the firm's system which is presently under construction in Idaho Falls, Idaho.

Suppliers

The appointment of **Pitt W. Arnold** as senior engineer has been announced by Phelps Dodge Communications Company.

Some people think our president is a fly by night

Actually, he'll fly by night or by day . . . himself . . . to get his message across. At times he tends to go to extremes (take this 1928 Fairchild KR-34 as an example . . .) to emphasize his point. But, he's that kind of a "no-nonsense" guy. In reality, Jim Palmer's "no-nonsense" philosophy and strict emphasis on sound engineering (Yes, the biplane does fly, but he'll bring you to the plant in a much more sophisticated "push-pull" Cessna . . . get the connection?) are part of the reason C-COR amplifiers are "no-nonsense" devices. At C-COR our president's different, our engineering's different, our product's different. Let our president fly you by night or by day to visit the plant that makes amplifiers that are different. Incidentally, we don't require that you like our president . . . it's our product that speaks for itself!

Call or write for reservations.

C-COR Electronics, Inc.

60 Decibel Rd., State College, Pa. 16801 814-238-2461

George Sadler has been appointed marketing services manager for Scientific-Atlanta, Inc. In his new position, Sadler will be responsible for all advertising and sales promotion for the electronics firm. Before joining Scientific-Atlanta, he was founder and owner of Visuals, a graphic arts company.

Appointment of **Vroman W. Riley** as manager, cable systems, in the RCA Communications Systems Division, Camden, N.J., has been announced by Andrew F. Inglis, division vice president and general manager. Riley, formerly manager, cable systems engineering and production management, succeeds **W. Thomas Collins** who has transferred to RCA Consumer Electronics. RCA Cable Systems installs complete distribution systems for CATV operators.

Paul Chase has been promoted to manager of operations for Anixter-Pruzan Company of Seattle. He will have responsibility for inventory control, purchasing and warehousing. Chase has been material manager for the company since January of this year.

Donn Nelson, vice president of HTV Systems, Inc., has announced the move of **U. P. "Prent" Hedrick** from production manager to customer service manager. Said Nelson, "The responsibilities of this newly created job will be to insure better coordination between HTV and its customers. This will establish a single point of contact involving any customer request or sales contract to HTV." Hedrick joined HTV in 1969 as manager of purchasing. Prior to that time he worked in military electronics. He attended Cornell University and Ithaca College, both in his home state of New York.

Edward P. Whitney, active in CATV since the mid-50s, has been appointed vice president for cable television at Hamilton Landis & Associates. In 1957 Whitney was the first full time, paid executive director for NCTA. Hamilton is a twenty-five year-old media brokerage firm.

Anaconda Wire and Cable has appointed **Thomas M. Moran** as manager of employee relations. In

this position Moran will be responsible for employee communications and manpower planning for the company and its various divisions.

James T. Victory, vice president, domestic sales for CBS Enterprises, Inc., has announced the appointment of **Frank Herman** as CATV program sales consultant. In his new position, Herman will assist in the development and sales of CBS' CATV live programming service.

James M. Constantine has been named production material control manager for Jerrold Electronics Corp., according to an announcement by Robert H. Beisswenger, president of the firm.

Frank G. Hickey has been elected as a director of General Instrument Corp., according to an announcement by Moses Shapiro, chairman of the board and chief executive officer.

Alan Anixter, president of Anixter Brothers, Inc., has announced the appointment of **Kenneth E. Morton** as vice president, marketing. Morton, who joined the firm in 1969, will now be responsible for unifying several marketing programs. Anixter also announced the appointment of **Robert A. Stover** as marketing manager, communications.

Jack N. Mann, president of National Telesystems Corp., has announced the appointment of **Arden D. Moser** as sales manager.

Leon Riebman, president of American Electronic Labs, Inc., has announced the appointment of **William P. O'Hara** as senior antenna development engineer.

James E. Turney, Jr. has been named general manager of the newly formed information Systems Division of Technicolor, Inc. Formerly president of DM Systems, Inc., a Los Angeles based firm serving the broadcast and CATV industries, Turney will spearhead the division's introduction of computer-related services to cable television. Services the division will offer to CATV include: subscriber accounting, management information systems, program and advertising control and distribution.

Advertising Via CATV: A Status Report

The FCC has encouraged cable operators to use advertising to help pay the costs of local origination. This author shows who is buying ad time on cable systems ... and why.

By Steven Grover

About a year ago, the Reno Turf Club — described by its manager, North Swanson, as "a bookie joint" — discovered an ideal new way to advertise: cable television.

As Mr. Swanson explained it, "Nevada is the only state in the union where you can advertise gaming or gambling. But we were precluded by FCC regulations from advertising on regular television or radio because of the possibility our ads could be heard across state lines."

So, at a cost of only about $30 a week, the Reno Turf Club began to advertise on the local TelePrompTer system, Community Antenna Co., whenever there were idle cable channels available. Accompanying the ads — hand-lettered replicas of the company's football cards (describing the games to be played and the odds) — was background music provided by the system. "Sometimes, we were on all four channels at once," Mr. Swanson said, "and it was tremendously effective. At one point we weren't even advertising in the Reno editions of the two local papers and yet we enjoyed an upsurge in business."

Mr. Swanson is only one of many persons — and businesses — in recent months to discover the unique advantage of cable television: its ability to zero in on a particular audience. The day is not far off when a furniture store on New York's Delancey Street can advertise a sale — in Spanish — to Puerto Rican residents in the immediate vicinity or Rolls-Royce can advertise its models to subscribers living the vicinity of Park Avenue.

CATV Will Revolutionize Advertising

"When General Motors realizes it can advertise its cheaper cars in one end of town and its more expensive models in the other," says Alfred Stern, president of Television Communications Corp., a New York-based operator of several systems, "it's going to revolutionize the whole nature of the advertising business."

Cable television also offers advertisers another unique feature which may one day be even more important than its "selectivity." As Mike Wallace, the Columbia Broadcasting System commentator, said recently, "The signals can move in either direction. So if you have the equipment at home, you could transmit as well as receive."

Thus the day may not be far away when the viewer can "ask" his set for a demonstration of the latest refrigerators, and then select the model of his choice from the local Montgomery Ward with a flick of the switch — and have the sale billed to his set.

Montgomery Ward is already testing ads on two cable television systems, in LaSalle and nearby Ottawa, Ill. For the moment the ads consist only of slides that feature products in the Montgomery Ward catalog; both towns have Montgomery Ward catalog stores. But

the company is already building a new retail outlet in Peru, Ill., near LaSalle, and the general expectation is that Montgomery Ward is looking forward to the day when computers can be attached to local sets enabling viewers to command pre-recorded demonstrations of certain products over their sets and then order them without once stepping inside a store.

"This kind of system is possible right now," says Paul Klein, the former National Broadcasting Co. television ratings chief who now is president of a company called Computer Television Inc. which is looking into the futuristic possibilities of cable television. "The equipment is available; it's only a question of advertisers catching up with the possibilities," he says.

Notwithstanding its futuristic possibilities, the thing of interest to advertisers at the moment is cable television's "selectivity," its ability to reach a particular audience. The average U.S. cable system has fewer than 2,000 subscribers, and even these small audiences can be segmentized so that an advertiser can move in on a particular neighborhood or ethnic block. The name applied to this concept is "narrow casting" as opposed to "broadcasting," and it represents a new advance in the art of demographic advertising — aiming ads at a particular group of people. Lawrence Walz, administrator of the National Broadcasting Company's cable television development, says: "Cable television has the unique ability to reach those ethnic groups or minorities not programmed to by the regular commercial television interests."

The networks fear that by allowing advertisers to aim their messages at such groups as blacks, doctors, theater lovers and "green thumbs" the nation's 2,500 cable systems could become the "trade magazines" of the television industry. Such a development could bring about a collapse in rate structures as audiences become fragmented into smaller groups. As it is, the networks and the station owners see the cable systems making the already difficult business of selling advertising even more competitive.

Large Advertisers Are Looking at CATV

A number of systems have begun to program shows and to accept advertising, largely from local stores, banks and auto dealers. Recently, some of the nation's largest advertisers . . . including American Airlines, General Foods Corp., Campbell Soup Co. and Lever Brothers Co. . . . have started advertising and learning what the possibilities are.

From an advertiser's point of view, the results . . . to date . . . have been mixed. In New York, advertisers such as American Airlines, American Express, Schaefer beer, Gilette razor blades, Shell gasoline and Hertz cars have been happy to sponsor the sports events distributed exclusively from Madison Square Garden by Manhattan Cable, one of two systems serving Manhattan Island. The cost to each of them has been only $25,000 for two one-minute spots each on every Garden event . . . for a total of 125 events . . . plus an opening and closing identification. One minute of prime time on a New York City television station would cost about $5,000.

But then the programs originated by Manhattan Cable are, in general, the best available on a cable system in the U.S. In many communities, where the quality of the fare has varied from poorly lit football games played by the local high school to "meet-your-candidate" panel shows, the response has sometimes been anything but encouraging.

In Melbourne, Fla., one of the nation's largest systems . . . Florida TV Cable Inc., with 26,000 subscribers . . . has offered as original program material the usual high school football games, safty classes conducted by the local Red Cross, newscasts and the weather. Advertisers are offered . . . as a minimum amount . . . 72 ten-second commercial spots a day, or 12 minutes of time altogether, broken down as they like, for $36.

One of the firms that advertised recently was Cape Canaveral Motors Inc., a Melbourne

ABOUT THE AUTHOR

Stephen Grover is television, film and advertising news editor for The Wall Street Journal. He is a graduate of Yale and the Columbia University Graduate School of Journalism. Prior to joining the Journal three years ago, he was assistant managing editor of the European edition of the New York Herald Tribune. He has also been a correspondent for Reuters, the British news agency, in Paris.

car dealer. Bank Oliver, president of the company, said the firm advertised over the system's program channel at the rate of one day a week for a total of six weeks "with absolutely no results so far as I could see." He blamed the fact on the channel's generally poor programming (in black and white) and the fact that it was having to compete with television program material in color, distributed by the system's other channels. In short, the system was competing with itself . . . and losing.

Ads on Cable Get Mixed Results

Even in Reno, where the Reno Turf Club found advertising on cable TV much to its liking, not all advertisers were pleased with the results. Jack Perkins, president of Perkins Tax Service, said his company had run a card ad on the weather scan channel for the first six months of last year "with not the slightest indication that anyone had seen the ad . . . not one phone call, not one inquiry." He said: "You'd expect people to check the weather once in awhile and to catch our ad. After all, the ad was shown every minute or so for 24-hours a day." Cost per day: $1.

On the other hand, L&B Printing Co. said it had had "all kinds of response to its ads on the weather scan channel, mostly from one-shot people who needed things like letterheads."

Gary Nelson, manager of the Reno system, said he wasn't really going to go out in search of advertisers until the industry as a whole "determines what's reasonable as far as advertising prices are concerned. I don't want to push a rate that's not proper."

In Ottawa, Ill., Chuck Whitmore, president of Ottawa's Whitmore Chevrolet Sales Inc., helped sponsor some of last year's high school football games on the local system and he wasn't entirely satisfied with the results from a technical point of view. The games, he said, were all played at night "and no high school football field is that well lit. The cameras needed more light than was available on the field. You got an idea of what was going on, but the programs were not up to professional quality."

However, Charles McAllister, president of the First National Bank of Ottawa, said: "It makes an impression to see the bank advertise on certain sports events."

Though he declined to give any overall figures, he said the bank spends from 10% to

12% of its current advertising budget on cable television. "Of course," he adds, "the cable company has an account with us."

Xenophon Mitchell, director of the Ottawa system, said: "We're going after those accounts that can't go on regular television. This seems to satisfy them." Mitchell charges between $5 and $7 a minute for advertising. The advertiser is left to produce his own commercials. If the advertiser wants, he can also . . . at a slight charge . . . have them produced by the station.

Most of those advertising on the Grand Junction, Colo., cable system, Comtronics Cable TV, like the results they've had to date. Jim Eisenhower, head of Ed Eisenhower Motor Co. and . . . as he puts it . . . "a fifth cousin of Dwight D.; we're all from Kansas originally," said he liked the system "because they localize a lot."

For an average cost of only $40 a month the company (a dealer in Dodge cars and trucks) gets three 60-second spots in the middle of three nightly sports news programs (plus an opening and closing identification). The company also takes out extra advertising when the system broadcasts the National Junior College Baseball Tournament which takes place over a five or six-day period in late May and early June every year. The cost of such advertising compares to a monthly bill of about $300 for advertising on the regular local television station, KREX-TV, at a rate of about $42 to $50 each for one 60-second spot at night. The company also spends the lion's share of its monthly advertising budget ($1,500) on the local newspaper, *The Daily Sentinel*, which Jim Eisenhower feels has "good readership" in the community with a metropolitan-area population of 40,000.

Rationale for Use of Cable Varies

Ray Watkins, president of Brownson's Inc., a Grand Junction men's and boy's clothing store, said he had obtained good results from advertising on the cable system. In any event, he said, "we like to participate with people doing new things." He also described the manager of the system, Tom Worster, and his staff as "progressive people."

Burt Rosenthal, vice president of Grand Junction's L. Cook Sporting Goods store, said he had advertised on the local system because "frankly, the rates are low." Moreover, he says, the system's sports events "tie in with our own particular needs."

Several advertisers in the city also criticized the attitude of those who ran KREX-TV, the local television station. They said the station had fostered "a devil-may-care attitude" in view of its monopoly status in the area, and that this attitude persisted even after the arrival of the local cable system, which provided a new television outlet for advertisers.

The Grand Junction cable system's locally-originated programming is relatively more "sophisticated" than the fare offered by other stations. Programs include "Shop by Cable," in which items phoned in by subscribers are offered for sale by an on-camera commentator; "The Contemporary Scene" a program hosted by local women covering subjects of interest to women and the community; and "Perspective," a program aimed at issues in the community . . . city council problems, drugs and schools.

Despite the mixed response to advertising on cable TV, though, some of the nation's big advertisers have taken the plunge. General Foods, Campbell Soup and Lever Brothers are among those taking part in a program put together by a company called Monitel, in which Reader's Digest has a 49% interest. Monitel quite frankly says its purpose is to introduce the larger advertisers to cable television and to help the systems finance the cost of locally-originated programming. "The minimum amount a system can spend if it is to originate black-and-white programming," says Monitel chairman Robert Lawrence, "is $25,000 . . . and this is just for some cameras, a generator and a video tape recorder. Many of the systems are also going to have to build a small studio and hire additional personnel."

Monitel hopes to improve the quality of programming in part by providing such material as background music systems and filmed shorts on subjects of contemporary interest, such as pollution, around which local systems can build their own programs. It also is strong on channels that do nothing but present the weather forecast and the time.

Monitel is currently testing its package on five systems throughout the U.S., including those in Melbourne, Fla., Macon, Ga., York, Pa., Marietta, Ohio, and El Centro, Calif., and the tests will be extended further if they prove to be effective. "The systems must first learn what they can do with what they have before they move into new areas," says Monitel president Henry Bonner. "But the future is there and, in my opinion, the possibilities are almost limitless."

OPINION
FROM THE INDUSTRY

Mr. George Brownstein is a consulting engineer for the CATV and telecommunications industries. He was formerly Vice President of CATV operations for International Telemeter Corp., and holds four CATV related patents.

Those Extra Channels Could Be Hazardous!

I have been concerned for some time with the proposal of transmitting nine television channels in the mid-band spectrum and six television channels in the super-band spectrum above channel 13. This concern is based upon the possibility that any energy transmitted via coaxial cable, whether it be television signals or reference carriers for AGC purposes, etc., represents a potential hazard to aircraft navigation and communication with possible serious consequences.

For purposes of this discussion these channels are reviewed below as well as the civilian and military navigational channels which they can interfere with.

Mid-Band (MHz)

Channel A	120-126
Channel B	126-132
Channel C	132-138
Channel D	138-144
Channel E	144-150
Channel F	150-156
Channel G	156-162
Channel H	162-168
Channel I	168-174

Super-Band (MHz)

Channel J	216-222
Channel K	222-228
Channel L	228-234
Channel M	234-240
Channel N	240-246
Channel O	246-252

Civilian Aviation Band (MHz)

VOR Channels (Even)	108.0-111.8
Localizer Channels (Odd)	108.1-111.9
VOR Channels (Odd & Even)	112.0-118.0
Air to Ground Communication	118.0-136.0

Military Aviation Band (MHz)

Air to Ground Communication	225-328
Glide Slope Communication	328-335
Air to Ground Communication	335-400

There are other proposals for carrying the extra

TV Communications

SPECIAL EMPHASIS ISSUES/1971

1971 will be the year cable television comes to the cities. Cable people are confident that the "freeze" will be lifted – money will be available.

TV Communications has been and will be the trade journal of the industry. Operators will look to TV Communications for the answers to their business and technical problems. We've tailored our editions to give them the best answers possible to their most pressing problems. Here's the lineup for 1971 – your guideline for effective CATV advertising!

January	Special Emphasis: Modern System Management
February	"Big City" Cable Television – Progress, Problems & Technology
March	Special Emphasis: Cablecasting
April	Spring Construction Edition
May	Special Emphasis: System Promotion; Canadian Association (NCATA) Annual Convention Issue
June	NCTA Annual Pre-Convention Edition
July	NCTA Annual Convention Edition
August	NCTA Convention Coverage Edition
September	Fall Construction Edition
October	Special Emphasis: Cablecasting
November	Special Emphasis: Head-end Equipment, Microwave, Antennas & Towers
December	Special Emphasis: Test Equipment

The CATV Directories:

February	1971 Directory of CATV Equipment Services & Manufacturers
June	1971 CATV Systems Directory & Map Service

Be sure to schedule your advertising messages to take advantage of these outstanding publications. All have been planned to provide the type of timely, practical information requested specifically by industry users.

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TV Communications

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channels which involve slightly different frequency arrangements and some of these start below 108.0 MHz, but all of these fall within the aviation band.

It is apparent from the above that the mid-band and the super-band channels can cause interference either directly or indirectly by a combination of sum and difference video and audio carriers. It should be kept in mind that this entire discussion is predicated upon the condition that a fault condition can arise somewhere in the cable system and until it is detected the hazardous condition to air-nav communication is possible.

I am not discussing the ideal situation where radiation does not take place, where there are no corroded fittings, or poor terminations, or bad grounds. Under these conditions, which can only be realized in the laboratory, the issues raised in this discussion do not apply. Unfortunately, in real life we do not have lab conditions and hence it becomes necessary to raise the problems discussed within the context of this article.

It is the purpose of this article to call to the industry's attention to this situation and ask industry leaders to consider appropriate safeguards to minimize or eliminate the risks involved.

Many CATV systems use aluminum sheathed cable and under ideal conditions there is very little, if any, measurable radiation from this type of cable. As a matter of fact, the isolation of this cable is about 100 dB. However, if a fault condition were to develop the resultant radiation could exceed FCC specifications.

FCC Rules and Regulations, Paragraph 15, 161, Subpart D, states that maximum radiation from cable shall be limited to 20 microvolts per meter at frequences from 54 MHz to 132 MHz, at a distance of 10 feet; from 132 MHz to 216 MHz maximum radiation shall be limited to 50 microvolts per meter, at a distance of 10 feet; from 216 MHz to 1000 MHz maximum radiation shall be limited to 15 microvolts per meter, at a distance of 100 feet.

All aircraft navigational systems use receivers which have sensitivities that vary from 0.5 uvolts to 0.1 uvolts input for a 6 dB S/N ratio as measured at the second detector. I am certain that it can be appreciated that with this kind of receiver sensitivity, the aviation band must be kept clear of any extraneous signals. We have enough pollution problems facing us without generating new ones within such a sensitive area as the aircraft navigation and communication band.

Because navigational receivers are so sensitive, they are prone to the generation of signals caused by commercial equipment. The FAA is very much aware of this problem and constantly "patrols" the civilian and military aviation band to minimize the "garbage" which may be received as a spurious response on a navigational receiver.

An example of the type of problem which can occur can best be described by quoting from a 1965 FAA report covering interference to the military aviation band by garage door opener receivers. The report was written by John P. Kemper and Reuben A. Michaelis, Electronic Engineers who were part of the task force which conducted the investigation. The

report was directed to William Hawthorne, Chief Frequency Management Staff, Washington, D.C.:

"Over the last several months the frequency management staff of the FAA received a continually increasing number of interference reports on 243.0 MHz (Guard or Emergency frequency) and 282.0 MHz (station home frequency) from the Los Alamitos Naval Air Station in California. (Note that 243.0 MHz is Channel M on the super band). Preliminary investigation indicated that a majority of these problems resulted from radiation from the super-regenerative oscillators in garage door opener receivers mounted in the garages of private home owners in areas near Los Alamitos.

"These receivers operate normally between 230-290 MHz. (About the same as super-band channels L through O) Certifications were written to the FAA office by the commanding officer of Los Alamitos Naval Air Station, stipulating specific areas that were particularly hazardous and also indicating that it was possible to "home in" from distances up to 15 miles on many of these areas.

"The principal consideration of NAS was that blanking out of 243.0 MHz made this channel unusable in aircraft making GCA approaches. Under these circumstances, there remained only one channel available to the plane in GCA approach, and that was the particular channel being utilized by the GCA controller. If an emergency occurred, such as a vehicle on the runway on which the aircraft was landing or another aircraft in distress attempting an emergency landing, there was no way to notify the pilot on GCA of these conditions, obviously resulting in an extremely hazardous condition.

"Also, on the departure pattern of NAS, the 282.0 MHz frequency is utilized as a Navaid for the departure pattern. In the Long Beach area off the end of the runway, severe interference was found to occur."

The report goes on to say that "random sampling of the field strengths of these offending devices varied from a minimum of 180 uvolts per meter to 10,500 uvolts per meter at 100 feet. Basically this range is in excess of that permitted by part 15 of FCC Rules and Regulations. In addition, all these units were causing interference and were considered to be hazardous to air navigation and air communication in the UHF 225-400 MHz range."

It is apparent that the situation described in the FAA report can also prevail on the mid-band if Channels A through I are used. Now of course there is a considerable difference between a superregenerative receiver which is constantly on and radiating energy, as compared to an aluminum sheathed coaxial cable which has an isolation of 100 dB if properly terminated. But what if the cable is not properly terminated? What about drop cables which in most casts are single shielded and terminated poorly?

Let's examine some higher level point on the trunk cable, such as the output of a trunk amplifier. Do we really believe this part is so well shielded, at all times, that no radiation will take place? What about faulty fittings, joints which have become corroded, coaxial cable seams on the outer sheath which can rupture? Is anyone in this industry prepared to predict that under these fault conditions FCC Regulations would not be exceeded? What happens if lightning should strike a cable, or a pole should be knocked over by a drunk driver?

These, of course, are extreme situations which become immediately known and crews are sent out as quickly as possible to repair the damage. But before the repair crew gets there a trunk line amplifier with about 0.1 volts to 0.5 volts connected to an unterminated coaxial cable is spewing energy into the aviation bands. This could have tragic consequences.

According to Mr. Kemper of the Los Angeles FAA Frequency Management Division at Los Angeles International Airport, a plane takes off or lands, on the average, at the rate of one per minute. This rate figure is averaged out over a 24 hour period, hence at peak intervals it is much higher. However, taking the average figure of one per minute and assuming the repair crew takes 15 minutes to arrive at the fault site to turn the offending radiating amplifier off, in that interval of time, 15 planes could be taking off or landing, any one of which, or several of which, or all of which could be interfered with, resulting in the possible loss of life and property.

In further discussion with the Los Angeles Division of the FAA, I was told of a situation where a military plane working with the agency was airborne over Catalina Island, 25 miles off the coast of Long Beach, California. The plane locked-in on a UHF/DF signal and "homed-in" all the way to the Long Beach Circle, which is the center of a residential area. Upon investigation, it was determined that the field strength of the radiation source was 3,500 microvolts per meter, measured at 100 feet. Fortunately the pilot realized what was happening and avoided what could have been a tragic and costly situation.

Are there points in a CATV system that could radiate signals from 180 uvolts per meter to 10,000 uvolts per meter? These levels are restated here because in the case of the garage door opener receivers the FAA determined that this range of level constituted a hazard to all aircraft navigation and communication. It follows that if there are field strengths radiating from the cable that could be of the same order of magnitude as the garage door receiver, then the cable would be equally as hazardous a radiating source. This may be particularly more so in the mid-band than in the super-band, because the losses in the mid-band generally are less.

This situation is considered so serious by the Canadian Government that their Department of Communication prohibits the transmission of TV channels on the aviation band for the same reasons emphasized above.

CATV is a young industry which hopefully can look foward to a bright and socially useful future. It is performing a public service within and for the interests of the public. Because of this the industry must assume the responsibility of policing itself to a certain extent. It must reject summarily questionable engineering practices which may turn out to be inimical to the public safety and welfare. TVC

Index of 1970 Articles: A Topical Listing of Features

Beginning on this page is a complete listing of all feature articles which have appeared in the 1970 issues of TV Communications. Articles are listed alphabetically by title and followed by a brief summary statement, author's name, issue and page number.

Construction And Maintenance

A Practical Cable Reel Trailer: tips on how you can build your own cable trailer; Albert W. Carey, Sr.; April, p. 82.

A Technique for Testing: tips on testing matching transformers; R. Bilodeau; Dec., p. 88.

An Introduction to Aluminum-Sheathed Coax: a two-part article on the art of cable handling; William G. Witzigman and Lewis G. Coggins; April, p. 71 and May, p. 102.

Cable Operators Unite After Hurricane Camille: cooperative efforts of cablemen and suppliers in rebuilding battered cable systems; Gene G. Cook; September, p. 50.

Cable System Construction Contractors: reference listing of firms serving the industry; April, p. 53.

CATV Construction Contractors Directory: an up-to-date reference listing of firms serving the industry; September, p. 46.

Construction Projects: The Critical Path To Success: The CPM approach to successful completion of major projects; staff feature; April, p. 36 and May, p. 82.

Hospital Wired by Men in White: surgical gowns were uniforms for this unusual installation; Merle Block; April, p. 44.

New Antenna Features Guaranteed Parameters: an evaluation of the new all-band antenna; I. Switzer; November, p. 79.

System Grounding: An Important Protection: techniques for grounding reliability; Robert Bilodeau; April, p. 76.

System Performance Testing: Using the Field Strength Meter: a discussion of the varied applications of the field strength meter; Robert D. Bilodeau; February, p. 66.

Techniques for Calibration of Signal Level Meters: a two-part article by Technical Editor I. Switzer; December, 1969-January, 1970.

Troubleshooting Video Problems in Microwave Inputs: a list of steps for spotting problems in relay signals; John Dolan; January, p. 81.

Underground Construction: Time for Your Best PR: PR headaches are reduced by preventive "pre-dig" efforts; staff feature; April, p. 48.

Legislative And Regulatory

An Interview with a PUC Consultant: discussion of cable regulation with consultant to Vermont PUC; staff feature; November, p. 36.

Cable and the PUC: Three Points of View: three cablemen speak out on PUC regulation; staff feature; May, p. 38.

Cablecasting and the Law: Areas of Concern: a review of the legal implications of origination; Gary Christensen; March, p. 38.

CATV Technical Standards: Review of FCC Proposals: providing background information on the proposed CATV technical standards; G. Norman Penwell; September, p. 67.

The Commission's New Proposals: An Analysis for Laymen: two well-known attorneys cut through the FCC legalese; E. Stratford Smith and Arthur Stambler; August, p. 31.

The McClellan Proposal: A Lawyer's Analysis for Laymen: an analysis of the Senate proposal on copyright; Arthur Stambler; February, p. 41.

Studio And Cablecasting

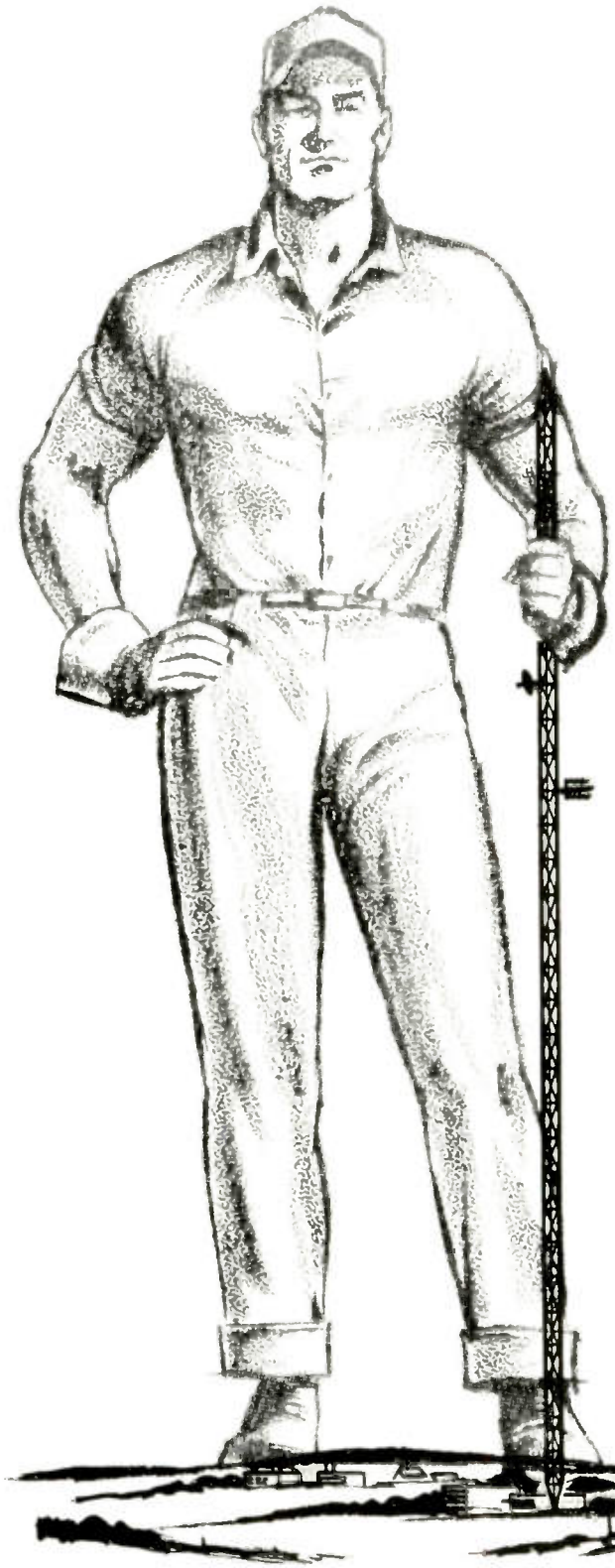
A Prepared Host Means Good TV Interviews: how to host and produce interesting shows; Frank Herman; October, p. 78.

A Profile of ATC's Beloit Cable TV: this system concentrates on public service originations; Richard L. Sine; June, p. 90.

Building a Low Cost Portable Studio: portability and flexibility are virtues of $16,000 unit; Paul R. Pack; March, p. 71.

Cablecasting and the Law: Areas of Concern: a review of the legal implications of origination; Gary Christensen; March, p. 38.

Cablecasting Election Returns: An Origination Profile: Handling Election coverage in Ottawa, Illinois; Xenophon W. Mitchell; August, p. 45.



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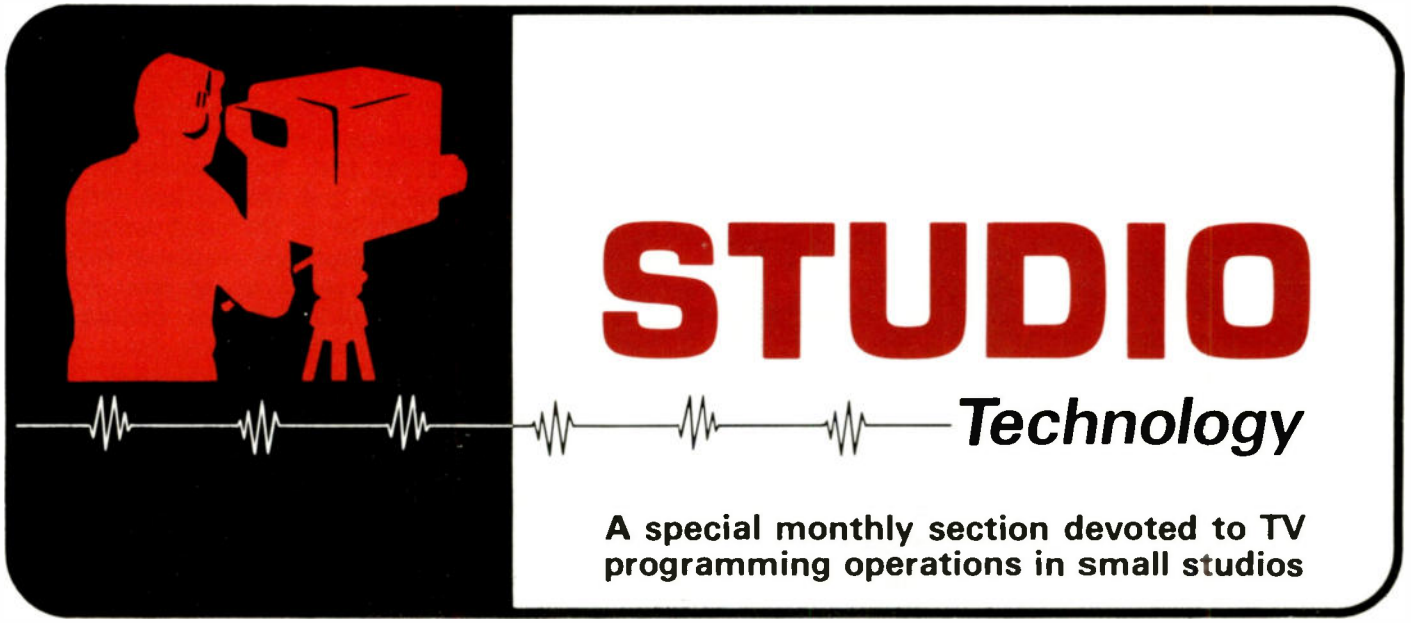


The Right Test Equipment For Your Origination System

Part one of a two-part article on the test gear a cable operator should have to keep his studio and control room operating at peak performance.

By Jack A. Rickel

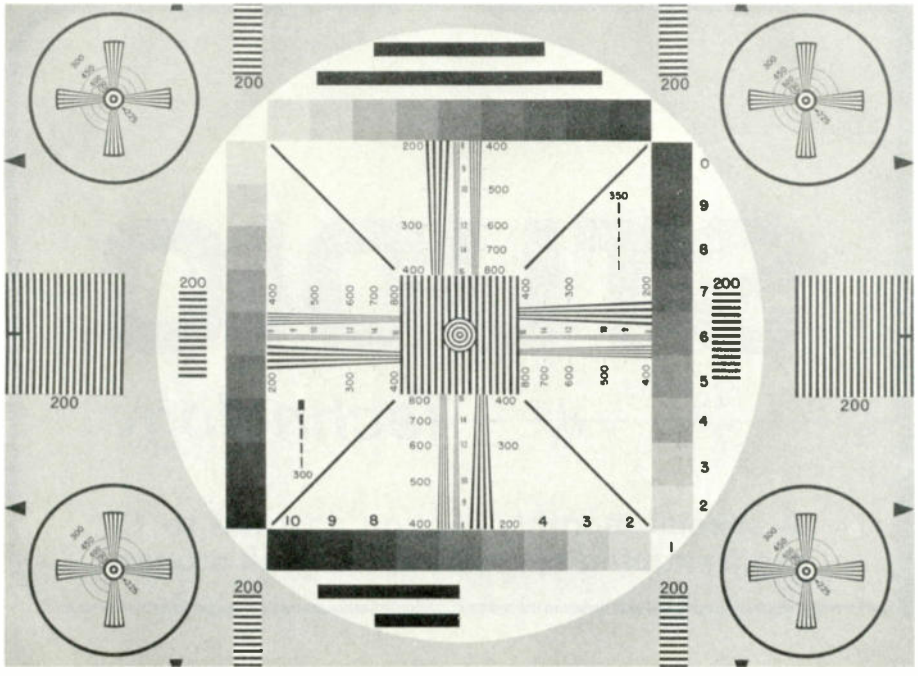
Most of the television equipment used by CATV systems for origination is far less complex and critical than that used by broadcasters. There are fewer knobs, internal or external, and they require "tweaking" less often. But those relatively few adjustments can make a big difference between a "blah" picture and a sharp, clean signal.

The Oscilloscope

Some test equipment is necessary to keep the system in good condition. The most important piece of test equipment in video origination other than, perhaps, a multimeter, is an oscilloscope. This is true even where waveform monitors are available and it is far more important in smaller systems which rely on some simpler form of video level display.

A waveform monitor is designed primarily to display video waveforms of standard frequency components and standard voltages, while the waveforms found inside a camera or video tape recorder vary over a wide range. Furthermore, even standard waveforms have many important components which cannot be shown on a level meter

This oscilloscope (EU-70A Heath Dual-Trace) has the triggered sweep feature, recommended for studio testing.



Test charts such as this one are used with electronic generators to test geometric linearity, resolution and contrast.

or waveform sampler.

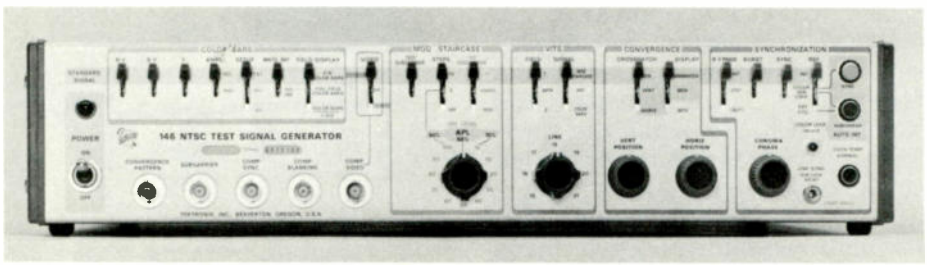
An oscilloscope has three main parts, excluding power supplies, which include: (a) the cathode ray tube which provides the visual display; (b) the horizontal deflection circuit which causes the electron beam to move at a steady rate from left to right on the CRT; and (c) the vertical deflection amplifier which causes the beam to move up or down, depending on the instantaneous voltage of the incoming signal. The resulting display is actually a graph of voltage vs. time.

Most oscilloscopes can measure from less than one-tenth volt to over a hundred volts. The beam can be made to sweep across the display CRT in a few microseconds or less, or take several seconds, so that very fast or very slow voltage variations can be observed.

Better models are calibrated, allowing measurements of voltage and time directly from the screen. They also allow the horizontal sweep to be triggered; that is, a horizontal sweep occurs only when a signal of the proper voltage and polarity comes along. The trigger pulse can be the one to be measured on a different pulse, from another source.

This feature is particularly useful in television because it allows comparing the time relationship of two different signals, or careful examination of the exact voltages and shapes of all the various pulses throughout a system. A surprisingly large percentage of problems in systems, or in individual pieces of equipment, can be traced to a sync or driving pulse not arriving at the right place, arriving at the wrong time, or having the wrong voltage or shape.

There are many general purpose oscilloscopes available. Prices range from around $150 to over $2,000. Triggered-sweep models start around $400, and most models above that price have this feature, which is well worth the extra cost. Care should be taken to see that the vertical deflection amplifier of the oscilloscope has a flat frequency response from 30 Hz or below to at least 5 MHz, since video signals contain this range of frequencies. Manufacturers of wide-band (wide frequency response) models with triggered-sweeps include Tektronix, Hewlett-Packard, Heath and others.



The Tektronix 146 NTSC test generator provides for a full range of signals for video testing.

The Vectorscope

For those systems doing or planning color origination, there is a more specialized type of oscilloscope, called a vectorscope. This is more like a waveform monitor in that it is designed to measure certain standard waveforms. However, it is as much for actual measurement as for monitoring.

Specifically, a vectorscope is designed to measure precise phase and amplitude relationships in color video signals. Variations which are not critical or even noticeable in black and white can have a considerable effect in color.

A widely used vectorscope is made by Tektronix. This unit, which costs over $2,100, has conventional waveform monitor displays as well as the circular (polar) phase display. At the other end of the scale, a Heathkit vectorscope with built-in color pattern generator is available for less than $200. This unit, however, is specifically designed for color receiver testing.

Testing Procedures

So far, we have considered means for measuring intermediate or output signals. It is equally important to consider where these signals come from. There are basically two types: video and synchronizing. Video signals are those which appear in a picture. Sync signals keep cameras, video tape recorders, picture monitor (and receivers) locked together so that pictures do not jitter, roll, tear or shift color. These are

usually produced by a sync generator and fed to all parts of a system.

Video signals come from cameras and test generators. For testing purposes, certain standard signals or pictures are used so that results can be easily and quickly evaluated. The most common of these is the camera test chart consisting of circles, grey scales, and resolution wedges. Equivalents of these may also be generated electronically.

One of the most common and noticeable mis-adjustments in television systems is geometric linearity. This shows up as a circle which is obviously not a true circle. When this circle is on a test chart in front of a camera, however, one has no way of telling whether the non-linearity is in the camera or the picture monitor. It may be in both, and it is even possible that non-linearity in one may tend to cancel non-linearity in the other.

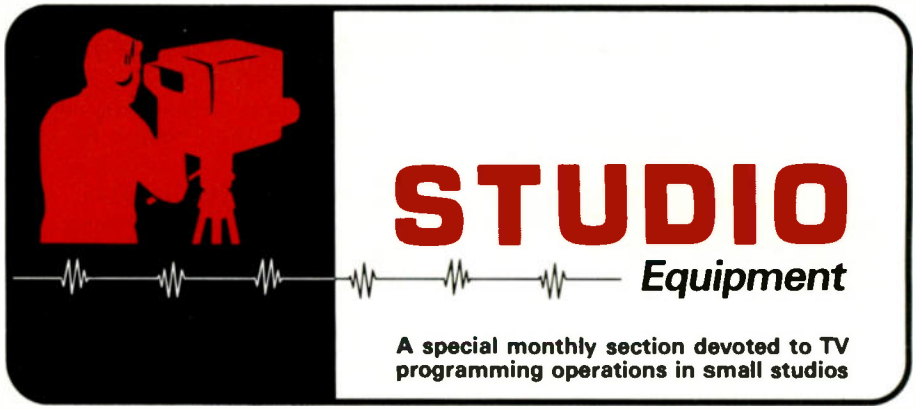
To avoid this uncertainty, it is best to begin by using an electronic cross hatch, or grating, generator to adjust monitors for as linear a pattern as possible. If this pattern is then electronically superimposed, as with a switcher/fader or simply a T-connector, on a camera picture of a ball chart, then the camera linearity can be checked, even if the monitor is still not perfectly linear, by noting how well the rows and columns on the chart line up with the vertical and horizontal bars.

When using a test chart with a camera, it must be remembered that the relative positioning of the chart, lighting and the lens can also cause problems. If a camera has a zoom lens, it should be replaced with a good fixed focal length lens before attempting critical adjustments. Best results are obtained using a so-called "normal" lens of around 25 mm focal length for black and white vidicon and Plumbicon cameras. It should be set at a middle f-stop, f/5.6 to f/8. Lighting must be even, and the chart must not be tilted with respect to the camera.

These problems may be overcome by replacing the lens with a diascope. This device, attached directly to the camera, has its own optical system and calibrated light source. It has a built-in test chart or can take various slides.

Resolution is checked by noting the point on the wedge of converging lines where individual lines cease to be distinguishable. With the image of the test chart just filling the screen, the numbers beside the wedges indicate equivalent resolution at those points. A good camera in proper adjustment should clearly show at least 500 lines. As with linearity, this is the resolution of the combined system of lens, camera, amplifiers, cable and monitor. Something as simple as a defective connector or improperly terminated cable can seriously reduce resolution.

This article will be continued next month in *TV Communications.* In the March issue, we will discuss the use of the multiburst generator for testing resolution, and the use of test charts and the stairstep generator for testing contrast range. Also included will be consideration of audio test equipment. TVC



Data Technology Offers a Low Cost Digital Message Display System

Data Technology, 1050 East Meadow Circle, Palo Alto, California, has announced the model 5702 Time/Temperature Message Display System, which is suited for CATV systems requiring display of public service, advertising or other announcements.

The system provides a fixed display of time and temperature, plus a seven-line "scroll roll" display of locally generated messages. The "scroll roll" messages are inserted by means of a keyboard which offers unlimited flexibility and ease of use. This combination of time/temperature, plus message display, provides an attractive revenue producing opportunity for the cable system operator. The intermixing of public service announcements with local advertising can increase subscriber interest and generate advertising income. Basic unit is $2,695.

The text is entered via standard TWX type keyboard. Message entry requires no special skills. The edit monitor displays the message as it is being composed, and additions or deletions to the text are easily made. Solid-state memory stores up to eight lines (32 characters/line) of text, and a simple plug-in modification will expand it to 32 or 64 lines.

The standard video output is compatible with CATV systems. There is one output to the video monitor, and one output to the CATV distribution system. All electronics are contained in the keyboard console. Field installation by customer is straightforward; no special tools are required. A temperature sensor and 100 feet of cable are also provided.

The Data Technology keyboard (shown here) contains all the electronics for the message display system. The monitor is used to edit messages before they are exposed to viewers.

PARAGOULD CATV TOWER DESTROYED...SERVICE RESTORED THANKS TO E.R.S.

After tornadic winds leveled Paragould Cablevision Company's 450 ft. tower September 4th, 1970, an E.R.S. temporary tower restored partial service in 24 hours and full service to all CATV customers in 48 hours!

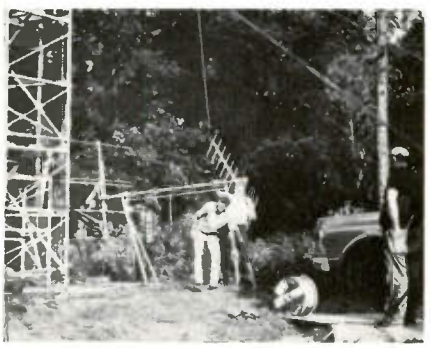
This quick response by Emergency Restoration Service (E.R.S.) prevented loss of thousands of dollars in revenue as well as permanent loss of subscribers who could not be expected to wait a month or more until a new tower could be constructed.

HOW MUCH TIME AND MONEY WOULD YOU LOSE IF YOUR TOWER WERE DESTROYED BY HIGH WINDS, VANDALISM, STRUCTURAL FAILURE, ICE OR LOW FLYING AIRCRAFT?

Let us tell you how E.R.S. can protect your service and revenue anywhere in the United States. Call us collect at 314 966-2116, today!

E.R.S. Division of
J. C. BARNARD & ASSOCIATES
Consulting Communications Engineers
10121 Manchester Road, St. Louis, Mo. 63122

Broken tower of Paragould Cablevision Co. hidden by trees.



Fifteen man crew assembling 300 ft. tower.

E.R.S. semi-trailer truck loaded with emergency tower, antennae, tools and coaxial cable.

Gentlemen: Please send me detailed information on your EMERGENCY RESTORATION SERVICE.

Name _____

Firm _____

Address _____

City _____ State _____ Zip _____

Phone _____

Films and Syndications: Are They for Your System?

How much "canned" programming is good business? What kind is best? Where to get it? These and other important questions are considered in this second article in a series of four by this seasoned programmer.

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

Last month's issue of *TVC* covered a basic approach to locally-produced programming for the typical cablecaster. This month let's take a look at another important area of programming . . . films and syndicated shows.

Before delving into the "pros and cons" of film product for your system, allow me to briefly explain the complexities of film buying. First, word usage in the film industry may require explaining. "Films" usually refers to movies. "Syndicators" or "series" generally refers to half-hour or longer programs that have appeared on the networks and are now available to the individual TV station or cablecaster.

Examples of this type of show would be: *The Dick Van Dyke Show*, *The Rifleman*, *The Munsters*, *I Love Lucy* and hundreds of others. "Runs" refers to the number of times you may show each segment of the series or the number of times you may "run" the movie on your system. Color print charge refers to an additional charge each time you "run" a color movie. You are paying for the additional cost of printing a color film.

"Bicycling" a tape of film simply means that each week one station will ship the program to another predetermined station or cable system. That operator will in turn ship it, the following week, on to another predetermined station. When bicycling a tape or film, you pay the shipping costs only one way.

How Syndication Works

Here is how the system works. Film companies or suppliers will obtain the rights to a large number of movies. These movies are then "packaged" and sold to only one television station in each market. The station that buys the film package has exclusive rights to those films. Usually this protection extends out to at least their Grade "A" contour. For the period of the contract, perhaps three years, only that TV station may run those particular movies in that market.

If your system is within the Grade A contour of one of several stations, then you will probably be unable to purchase the same film packages. Frankly, when you discover the price of really good first-run films, you'll almost be glad you can't buy them.

If you doubt my word, phone a TV station in one of the top-100 markets and ask the manager what he pays for good movies. I mention *good* movies because the old pre-1950 material won't be of much value to you. We'll discuss that in more detail shortly.

The film salesman will discuss with you the number of "runs" available for each film purchased An example would be a package of 25 movies. The salesman may offer three runs or perhaps unlimited runs. This simply means that during the life of the contract you may show each of the 25 films three times or, in the case of unlimited runs, as many times as you choose. Question . . . how many times can you successfully run the same movie on your system within a six-month or one-year period?

Keep in mind that you will not retain these films on your

premises. Arrangements are made between you and the film company's booking office to ship certain movies to you on specific dates. You will be required to pay for the air freight shipping charges, so always add your shipping costs into your film costs.

After you receive the film, it should be cleaned and inspected for bad splices, torn sprocket holes, etc. The day after showing the movie, you must ship it back to the booking office.

Factors to Keep in Mind

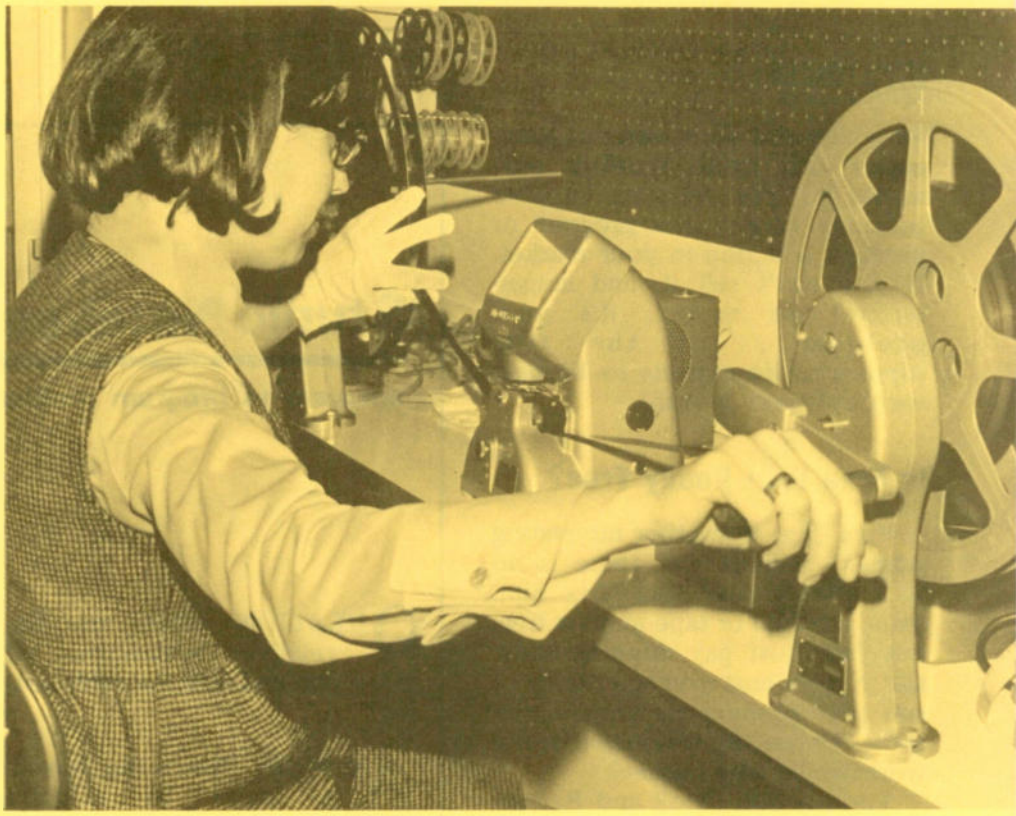
Several factors must be decided upon before you purchase film or canned programming: (1) It is highly doubtful if the FCC will accept such programming as true local origination. (2) Can you afford it? Whether or not you can, depends on your ability to sell enough advertising in the movie or series to make a profit, or at least break even. (3) Are the films available to you worthy enough to gain an audience?

The cablecaster and the film companies are faced with a dilemma. That dilemma is price and product. The film companies have, to date, failed to offer the average cablecaster any worthwhile product at a price the cablecaster can afford. The old, old movies and syndicated shows that are fifteen or twenty years old are of little value to the cablecaster.

Even if you can purchase old film product at ten or fifteen dollars per hour . . . what good is it; Will that type of programming attract any viewers? Can you sell it to advertisers? The answer to both questions is NO!

The cablecaster need not fill twelve or eighteen hours per day with any and all types of programs. Far better to produce a few hours each day of locally oriented, interesting shows and then return to your weather channel . . . than to fill that void with unproductive and costly film.

The Center for Communications Seminar in Los Angeles last December brought out the fact that the vast majority of cablecasters now in operation are not using any purchased film product and most do not plan to do so.



Deborah Hopple, a member of the programming staff at the Cablecom-General system in Colorado Springs, Colorado, is using a Moviescop to inspect film before it is shown to cable subscribers. Film received from syndicators, etc., should always be checked for bad splices and torn sprocket holes before the scheduled use. The March edition of TV Communications will carry an article on film as a medium for local programming.

The main reasons would appear to be the lack of worthy product that is available and, of course, price. The film producers are faced with a real challenge.

Perhaps the old Ziv style of selling will return. This approach entails the film salesman first approaching the local advertiser and once having sold the show to him, then he approaches the station or cablecaster to purchase the time necessary to air the show. This way the cablecaster would be relieved of the sales burden and still be guaranteed a reasonable price for his channel time.

When talking about worthy film product, I am primarily referring to movies and off-network shows that have gone into syndication. Obviously, there are excellent movie packages and other film series available but not in the price range that a cablecaster can afford.

The Most Successful Films

Cable systems that are now running film products have had the most success with sports features, children's programs, cartoons, and some situation comedies. Once again, we come back to analyzing your market and knowing what *all* of the TV stations you carry on cable are programming . . . and when.

Products such as wrestling or Roller Derby may do very well for you, providing that no regular commercial TV station is showing them. Special film packages such as horror movies, *The Bowery Boys*, *Olsen and Johnson* movies and others of that type seem to pull an audience. If these are available in your market, they might be worth looking into. Just be sure you promote them properly.

Those few cable systems located outside the Grade A contour of stations carried . . . and those systems unable to pick up independent stations . . . will find a ready audience for movies. All three networks carry nightly talk shows; therefore, a good movie in the same time slot might be a welcome addition to your potential viewers. Cartoons and children's shows such as "Green Valley" should do well during the morning hours when the regular stations are programming to adults.

Just a few words of advice.

Move forward with caution! Remember that your monthly payments to the product supplier continue even if the program or package is a flop in your market. If you can't sell it, and consistently lose money, it's your problem . . . not the film supplier's. He expects to be paid each and every month.

Is Free Film Really Free?

Free film is another interesting subject. Believe me, there is no such thing as absolutely free film. True, the film or tape may be free, but you must pay shipping costs, and it does cost you something to run that product on your equipment. Unless the product is really worthwhile, why bother?

Various State Park and Recreational Departments have color films available as do the Armed Forces and NASA. Free film may also be obtained from Modern TV with offices throughout the country and from Associated Films, Inc., in New York.

The National Audiovisual Center in Washington, D.C., has an excellent catalog of films available on a lease basis. Your state university will also be a source of product, so check with them.

The August, 1970, issue of *TVC* is an excellent ready reference for film product, and of course, *TVC's* monthly "CATV Programming" column will keep you up-to-date.

There is certainly a marketplace in cablecasting for the film companies, and that marketplace will grow in the years ahead, but only the individual system can make the decision as to what type of films and syndicated shows will enhance their programming.

Before buying any film or tape product, I suggest you contact a cooperative broadcaster who is familiar with film buying. An informative chat with him could save you much disappointment and a great deal of money.

Next month we'll discuss sales and rate cards so that you, hopefully, will attain enough money to pay for the various local shows and film product you are presenting (or will present) on your system. TVC

Studio Notebook

answers to program problems

By Ken Lawson

QUESTION: What are the relative advantages of videotape and film for cablecasting?

ANSWER: This is the third in a series of columns answering this question. Two months ago we tried to give an overall perspective of the different roles of film and videotape in cablecasting. Last month's column concentrated on the use and processing of 35 mm slides. This time we look at 16mm film.

Most cablecasters are familiar with the fact that the bulk of entertainment and educational materials available to them are on standard 16mm film. Some of these subjects will gradually appear on several non-interchangeable formats of one-inch helical scan videotape. The new half-inch reel-to-reel and cassette machines may be able to improve their formats sufficiently in the future for CATV . . . it is still a question.

Like the broadcaster, you will probably be using both film and videotape for the foreseeable future. Standardization on film, tape, or cassette will be affected by more than technical considerations. The CATV industry will have to put together a comprehensive plan to generate more revenues to cover the high costs of prepackaged color entertainment so that large volumes of software can justify any standard at all. I hope that the NCTA, with the aid of its members, will set up an experimentation station to test all possible playback systems to meet specific CATV transmission and reception requirements.

Another one of my hopes for 1971 is that CATV systems with color filmchains will experiment with 16mm film cameras for color reporting of local news and community events and personalities. Even if the problem of film processing prevents the cablecaster from doing daily local film clips, I would like to see at least a weekly local roundup of people and places on film. You can probe every nook and cranny of your community with a good film camera with only a small fraction of the personal effort required with a color video camera and recorder system. With 16mm and 35mm cameras, you can put together some impressive color advertisements with shots taken outside of the studio.

Remember that if you are going to put your own sound on film, you will require a film projector that accepts "magnetic" as well as "optical" sound tracks. I recommend that you begin by using a "silent" camera and graduate to a "single system" sound-on-film camera later. With a simple silent camera, you can still dub sound, such as narration, on your film after processing and editing, if you purchase film with a "sound stripe" on it.

Next month we will review the costs involved in the use of film for locally-produced programming. TVC

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What's more the highly conductive back treatment reduces the static attraction of airborne contaminants that cause dropouts and damage to tape and VTR heads.

Make your next video tape investment in "Scotch" Brand's Guardsman — the ideal tape for CATV originations. For more information, call collect to Mr. Jack Bondus (612) 733-7627.

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PHONE: (area code_____)_____

TYPE OF VTR EQUIPMENT_____

TVCI

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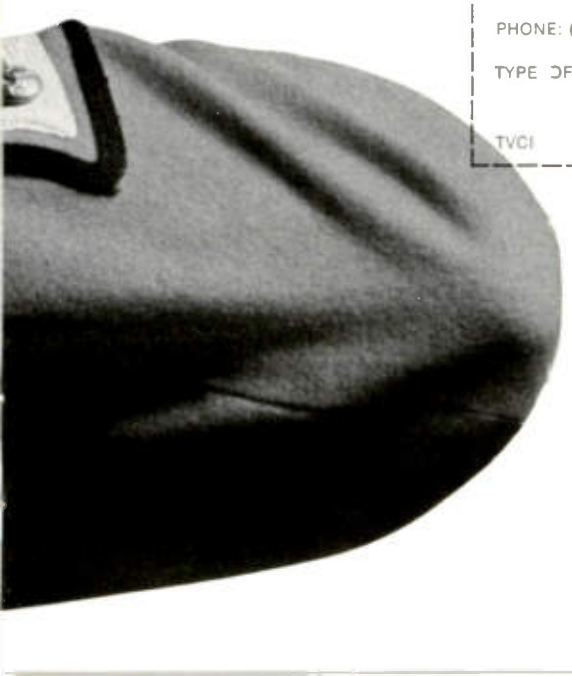

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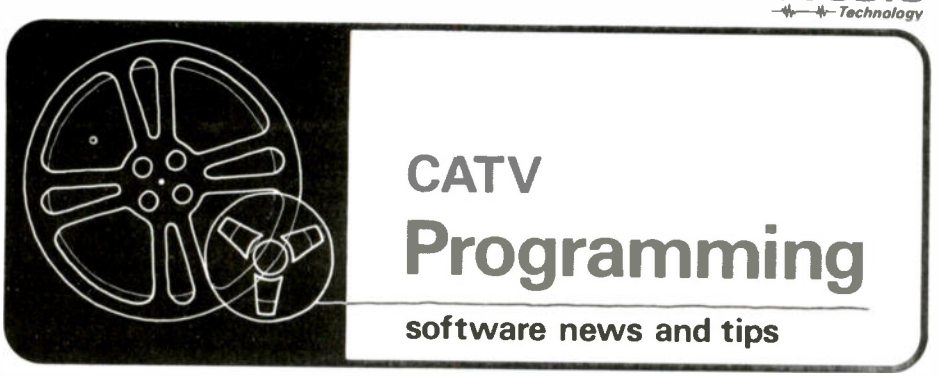


CATV Programming

software news and tips

Additions to Software Directory

Modern Talking Picture Service, Inc., 1212 Avenue of the Americas, New York, N.Y. 10036, was not listed in the August, 1970 *TV Communications* Directory of Software Suppliers. Modern TV distributes free films to cablecasters. The firm reports that it had over 21,000 certified cable shows in 1969. Gene Dodge, director of special distribution for Modern TV, describes the firm as "the largest free film distributor in the world . . . the largest distributor of 1" pre-recorded, free tape. Our primary function, however, is the distribution of 16 mm sponsors' films."

The CATV Software Directory also failed to include a listing for Local Origination Television Systems, Inc. It seems LOTS has a new address (1253 Diamond Avenue, Room 200, Evansville, Indiana 47727) and did not receive *TVC's* listing forms. They provide 18½ hours of entertainment programming, weekly, on one-inch video tape (Ampex, IVC or Sony format). Included are feature films, the Las Vegas Fight of the Week, a country 'n' western show, sports, adventure and children's programs.

Free Films Available

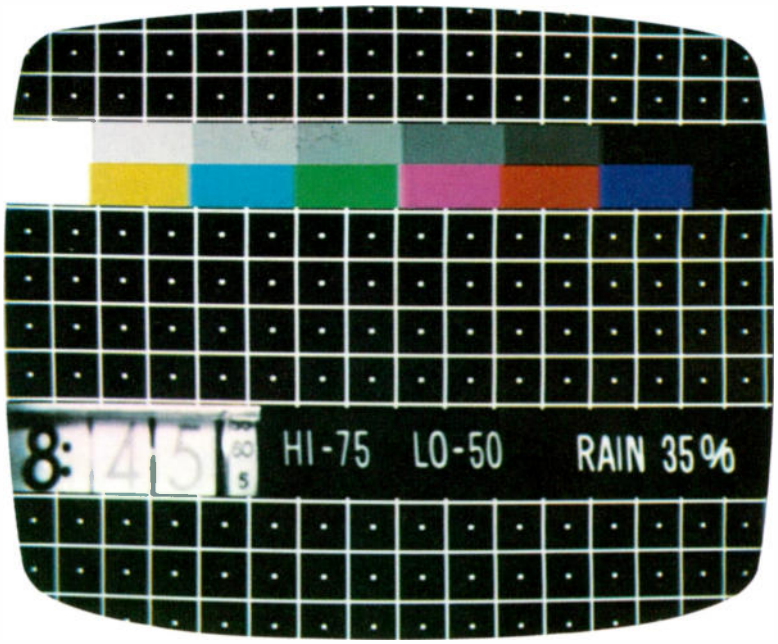
"Dogs: Born for Action" is the title of a 28-minute, color film that has been released by Ralston Purina, for use "on a loan basis." If you think you might like to use the film, write to: Ralston Purina Company, Mr. Harold Bahr—SS, Checkerboard Square, St. Louis, Missouri 63188.

A free film is offered by Harper's Bazaar magazine for use by cable systems. The film, "The Now Way of Walking," was originally developed for retailers across the country for use in sales training and in customer fashion shows. Because of "strong consumer reaction to the film," Harper's is offering it to CATV programmers. The 15-minute, 16 mm, sound/color film was produced and narrated by Harper's fashion creative director. If you want to use the film, call Jacqueline Neben at (212) 935-2712 or write to her at 717 5th Avenue, Room 1104, New York, New York 10022.

CATV Newsmen Are Welcome

At a recent Radio and Television News Directors Association International Conference, the RTNDA set up a committee to make plans for welcoming CATV newsmen into their group. The group's new president Jim McCulla (ABC Radio, Los Angeles) said a constitutional amendment will be necessary, but the organization will open its membership to cable people. One CATV newsman was received into RTNDA as an associate member recently. The 1,000 member professional group puts out a monthly newsletter containing news and "how to tips" for the newsman. Rob Downey, executive secretary for RTNDA, is the man to contact about membership. Write to him at WKAR, East Lansing, Michigan 48823. TVC

New... TV Signal Generator Designed for CATV



A master sync generator for local program origination

The TEKTRONIX 144 NTSC TEST SIGNAL GENERATOR is a source of high-quality television test signals for cable and broadcast TV systems. It provided the test signals for the composite test pattern pictured above. This unique pattern is of special interest to CATV operators. It contains up to five different signals in each field: CONVERGENCE (crosshatch lines and/or dots), COLOR BARS, GRAY SCALE (color bar luminance levels only) for checking gray-scale color balance and luminance/chrominance registration, and two EXTERNAL VIDEO inputs with manual horizontal wipe. By connecting TV cameras to either or both external video inputs, local programming such as time and weather may be inserted in the convergence pattern. The signals are displayed according to an internally preset pattern. Each signal location and duration is easily programmed by the user with insulated plug-in jumpers.

COLOR BARS or MODULATED STAIRCASE are also available as full-field and/or VERTICAL INTERVAL TEST SIGNALS.

The 144 is not just a signal generator. It is also a complete EIA SYNC GENERATOR with a temperature-controlled color standard providing excellent frequency stability. Digital integrated circuits are extensively used to achieve stability, accuracy, and reliability. Outputs are subcarrier frequency, composite sync and blanking, vertical and horizontal drive, burst, composite video and the convergence pattern signal.

A choice of rackmount or cabinet configurations, compact size and low power consumption (40 watts) make the 144 ideal for CATV or standard broadcast in either control room, bench testing, or field operation.

144 NTSC Test Signal Generator $2100
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(includes rackmounting hardware) $2100

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February 1971

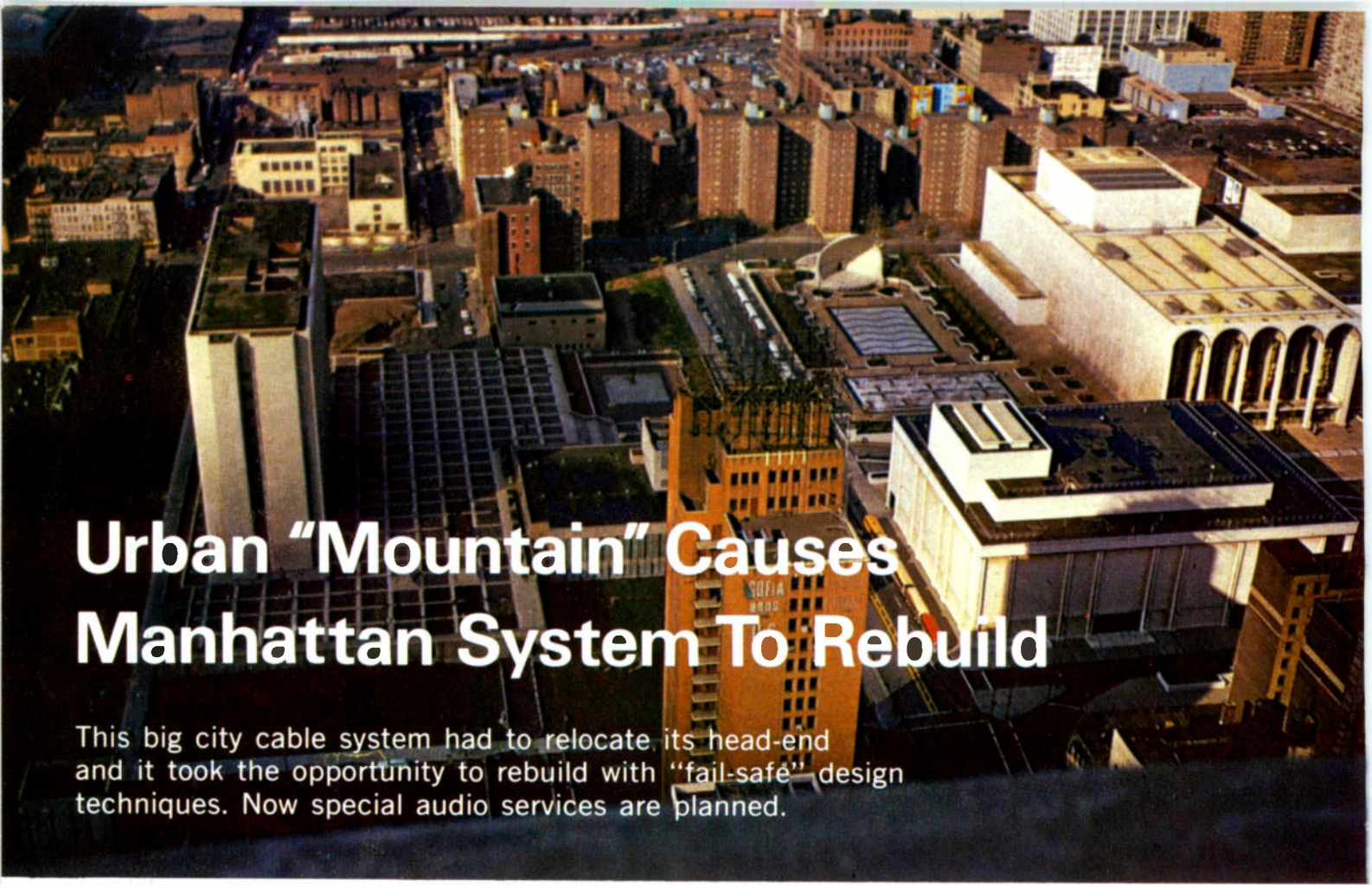
TV Communications

CATV Technician

This Month...

Home Interactive Terminals
Manhattan Head-end Rebuild
New Industry Products

At Phoenix, Arizona, Kaiser CATV tests a complete (32 trunk amplifier cascade) cable system in their Environmental Testing Chamber.



Urban "Mountain" Causes Manhattan System To Rebuild

This big city cable system had to relocate its head-end and it took the opportunity to rebuild with "fail-safe" design techniques. Now special audio services are planned.

Sterling Manhattan Cable Television (SMCTV) serves the southern part of New York City's Manhattan Island. In 1961 the company started to originate and distribute informational programs to mid-town hotels via its own cable system.

The present CATV system was started in 1965 and now serves approximately 30,000 subscribers. The trunk cable is located in ducts rented from the telephone company. Blocks are entered to feed sub-distribution systems. Buildings are wired similar to MATV systems, but with CATV quality equipment.

Sterling has invested over $15 million in New York City so far. Subscriber growth has been very good despite the fact that every year one-third of the population moves. Sterling charges $9.95 for hook-ups and $6.00 for monthly service. This charge includes $1.00 for a converter.

Set-top converters are used in all installations since local pickup is universally present. No subscriber is located more than 3.5 miles from the transmitters on top of the Empire State building.

With the multitude of tall buildings in New York City, reception of ghost free pictures is very difficult. In the early days of the Sterling system, the tallest building on the west side of town (27 stories) was selected, and the antennas were installed at the top. This site yielded a clear, direct shot to the Empire State building.

A new high-rise building boom in New York City gradually deteriorated the reception conditions. A final blow was dealt when a 47-story building was erected almost next door. A man-made mountain arose in front of the antennas.

After long negotiations, the 47-story building became available as a new antenna site. Sterling took the opportunity to build a new head-end with the following features:

(a) As Fail-safe as possible.
(b) Automatic program substitution when stations go off the air.
(c) Easily traceable rack wiring, with all wiring on front of the rack (no rat's nest behind panels).
(d) Ready stand-by facilities for all VHF channels.

A total automatic stand-by

ABOUT THE AUTHOR

Fred J. Schulz is vice president in charge of engineering at Sterling Communications, Inc. In this capacity he guides Sterling Manhattan Cable Television and other Sterling subsidiaries in technical matters. He earned his MSEE degree from Newark College of Engineering in 1958.

system for all possible cases of failure was worked out, but was abandoned when the necessary circuitry turned out to be too complex . . . and by that very fact might have turned out to be less reliable than no, or relatively simple, stand-by gear. The stand-by system chosen for one of the 7 VHF channels is shown in Figure 1.

Switch S1 at this time is a simple DPDT toggle-type, mounted on the filter/test point panel, immediately above each channel processor. Provisions are made so the switch can be replaced readily with a relay, for activation from the service department (located a block away). Twisted pairs for this purpose are already installed or totally automated should this become desirable in the future. However, the arrangement as it now stands has the great advantage of simplicity.

Anybody from the service department, reaching the head-end room in a few minutes, can activate the stand-by gear without having to be a head-end expert. The very size of the SMCTV system makes it impossible to have personnel knowledgeable about every phase of the system. The technicians are specialists in their branch of work.

The continuous U.S. Weather Bureau broadcasts (162.55 MHz) are transmitted as weather scan sound. Modulators with IF output provide an easy means to inject a substitute signal into a number of channel processors (in our case Jerrold Channel Commanders II).

Switching Is Automatic

The automatic switching eliminates the need for a preset program switcher when the primary channel is a station with a schedule varying from day to day. Details of the switching arrangement are shown in Figure 2.

Relay RY1 and diode switch D1 are mounted inside the Channel Commanders while the plus or minus 12 volt power supply is located outside. A stand-by battery/AC power unit with automatic switch-over feeds the key channels for added reliability.

Activation of the new head-end offered the opportunity to re-arrange the plant for additional reliability. Loss of the trunk amplifier power supply in the former head-end meant the loss of all service to many subscribers. Similarly, the loss of one of the first two amplifiers meant the loss of a large portion of the system.

The new layout provides five first amplifiers, each one powered backwards from a separate power supply. While it is convenient and economical to power a number of amplifiers from the hub location, the added reliability seemed well worth the small extra cost of a few amplifiers, power supplies and some extra cable.

Additional lines are also provided in the Columbus Circle head-end area so, should a local disaster strike (e.g. a water main break) one can switch to substitute lines by reconnecting the input feed to some amplifiers.

The distance between the old and the new head-end is a mere 550 feet directly along West 61st Street; however, no duct was available so a 3,500 feet route via 58th Street now connects the two locations (one simply does not set poles on Broadway). The channel 6 modulator is located at the studios, at the old head-end site, and the signal is carried on a size 500 coaxial cable to the new head-end without amplification.

The new head-end had to be pre-planned very carefully, since for instance, it is not possible to simply add more cables between the antennas and the head-end room, should it become desirable in the future. The only reasonably available room for the head-end gear was in the sub-basement of the building, approximately 50 feet below ground. This makes the cable distance from the antennas (610 feet above ground) about 800 feet. Room for these cables had to be provided by cutting through 6" of concrete, and a steel deck, on each of 43 floors.

Signal level is no problem. The antennas yield more than 50 dBmV on all channels, with one channel at a clear 1 volt (60 dBmV). The antennas are 1.4 miles from the Empire State building.

The change-over to the new head-end went quite smoothly despite the 18 degrees F. weather. It was started at 2 a.m. with service to one system leg restored at 2:30 a.m. . . . and all other legs by 4 a.m.

Fortunately no irate customers called, as had been the case on some prior short shut-downs at about the same time. It seems that New York City never sleeps. The night before the scheduled cut-over, an electric fire in the building shut down all supply of electricity. On a few occasions our technicians had to evacuate the building on account of bomb scares. Life is never dull.

The local pickup problem in New York City gave rise to the development of the set-top converter. Now it is the key to the carriage of additional channels. All Sterling subscribers have converters.

24 Channels by July 1973

The area served by Sterling has close to 400,000 dwelling units and encompasses an area of two by six miles. There are approximately 60 miles of trunk.

The recently awarded 20-year franchise specifies the use of the channels as follows: Channels 2 through 13 for carriage of all local VHF and UHF channels with one channel reserved for the company. Five additional channels must be provided by July 1971, and a total of 24 by July 1973. The use of these channels is divided between the City, the Public and the Company.

The Company's local origination program facilities include studio cameras, RCA TK-27 film chain, two 2" VTRs, etc. The programming is a balanced mixture of local interest programs, sports (from Madison Square Garden), and classic, uninterrupted movies (see May 1969 issue of *TV Communications* for details).

All CATV operators fear loss of service to their customers . . . either loss of a single channel (as might occur with a head-end failure) or worse, the loss of all service. Equipment failure is one problem; however, in Sterling's

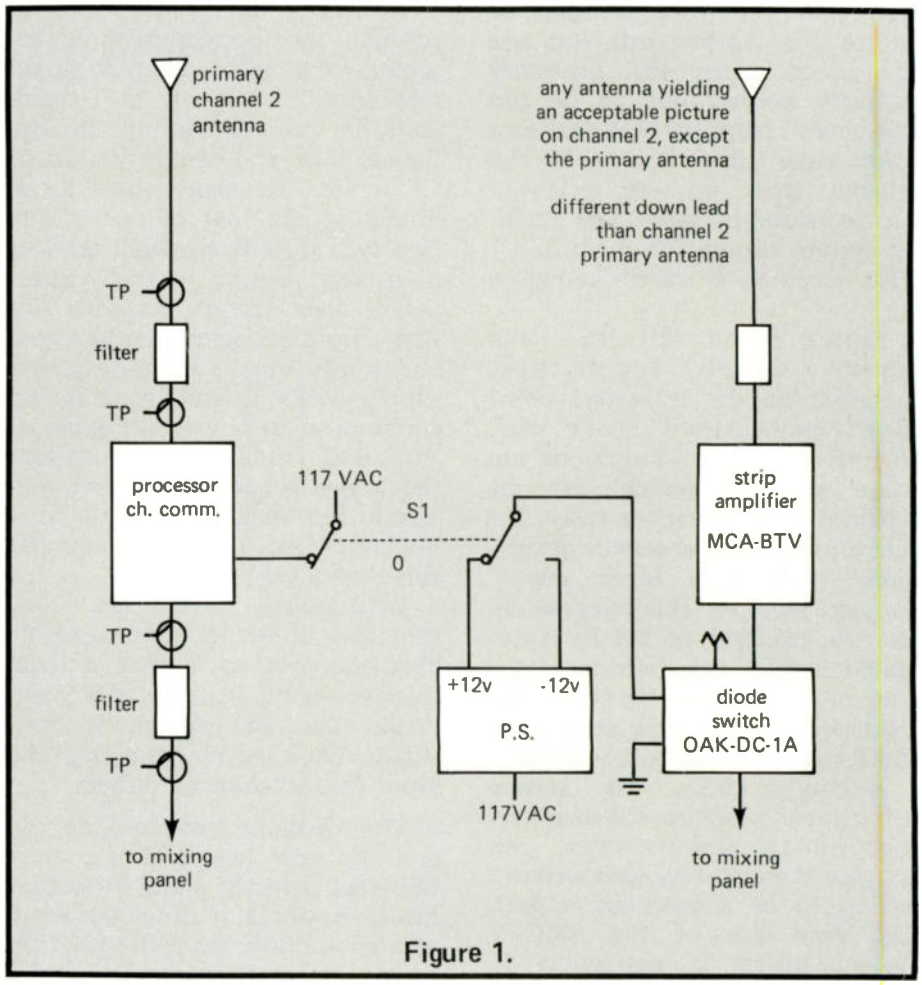


Figure 1.

New York experience it has been less of a factor than man-made failures such as cable cuts by work crews of the utilities, water main breaks, power failures or simply results of human imperfection.

A system which provides stand-by or switch-over facilities at various points in the plant is clearly preferable to one which provides stand-by's of individual pieces of gear. Sterling's master plan foresees four head-ends arranged at the corners of a rectangle with double cable (one in each direction) connecting all legs.

Two such head-ends are in operation now and the interconnecting cable provides the necessary cross-over points to install automatic switching gear, the design of which is finished on paper (suitable commercial gear is not available). Multichannel CARS band equipment and optical transmission links for normal and stand-by purposes are being evaluated as well.

Approximately 4,000 subscribers are served in Peter Cooper Village/Stuyvesant Town, a large complex of 12-story apartment buildings. A series of unrelated system failures prompted many complaints and action had to be taken. First, an additional feed via 6th Avenue was activated to bring the signal from the Columbus Circle head-end. Second, an antenna was installed at the central distribution point to provide at least the 7 VHF channels, should both CATV cable feeds fail.

All feeds, including the normal U.N. head-end feed via 2nd Avenue, were hooked up to a patch panel. An individual was put on duty 7 days a week during the prime TV time, ready to take action should the picture disappear on one of the two TV sets he had to watch constantly.

The solution was costly and did not provide 24-hour service. The design of an automatic system was undertaken, since no commercial off-the-shelf gear was available. The most desirable system would

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

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

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

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

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

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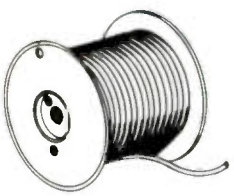

Nom. Attenuation per 100 feet				
MC	Belden 8228 db loss	RG-59/U db loss	Foam RG-59/U db loss	Foam RG-11/U db loss
50	1.5	2.4	2.1	1.0
100	2.1	3.4	2.9	1.5
200	3.1	4.9	4.1	2.2
300	3.8	6.1	5.1	2.8
400	4.5	7.1	5.8	3.3
500	5.0	7.9	6.5	3.7
600	5.5	8.9	7.1	4.1
700	6.0	9.6	7.7	4.5
800	6.5	10.3	8.2	4.9
900	6.9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

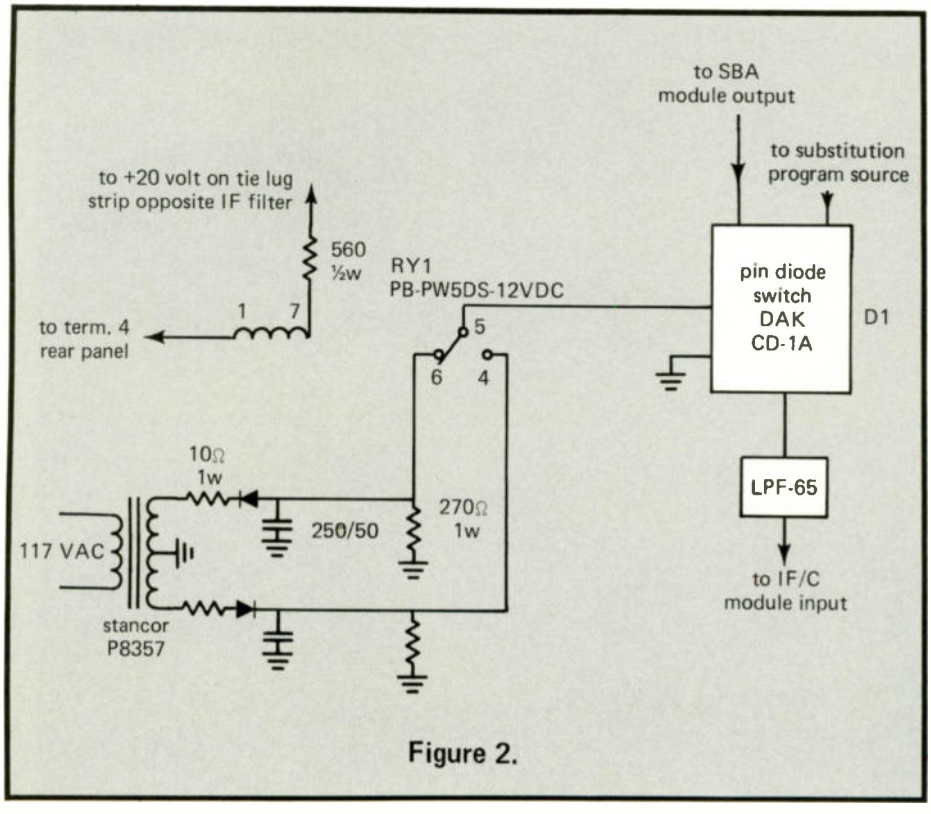

Figure 2.

switch to stand-by whenever one of the carried channels goes into snow or into cross-modulation. Such a system would, however, be very complex.

It was decided to detect the pilot carrier levels of both the 2nd Avenue and 6th Avenue feeds, and initiate switching when the levels fall by approximately 5 dB. Since amplification of the incoming signals was required, it was decided to switch the signals by switching the A.C. feed of standard trunk amplifiers.

To facilitate set-up, and to double check proper operation without signal interruption, test facilities were built right into the gear. The pilot carrier sensors are standard AEL AGC amplifiers with a take-off added at a suitable point in the AGC circuitry.

The amplifier AGC level control can be set so a voltage remains zero until the pilot carrier drops by 5 dB and then rises to 2 volts. The sensing signal is standardized in a buffer, fed to a time delay R/C network, and from there drives relays, which in turn feed power to the appropriate pass-amplifier.

In the normal *automatic* mode, the system is fed from 2nd Avenue. If a failure occurs, the 6th Avenue feed is switched-in. Should it fail too, the MATV feed is activated (including a pilot carrier). The system resets itself automatically when service on either 6th Avenue or 2nd Avenue is restored.

Lights on the front panel indicate the status of the equipment, including a ready light for the stand-by 6th Avenue feed. The equipment status and the switching layout is arranged so it can be observed and activated at the service department at 43 West 61st Street, via two leased telephone lines.

A separate emergency power supply panel is provided so one of the pass-amplifiers can be powered from it should the automatic equipment fail. The equipment has rendered satisfactory service for over a year, and performed its intended function on a few occasions. (See Figure 3.)

There are forty FM stations within 35 miles of New York City. Nineteen transmitters are located in Manhattan. SMCTV would like to bring all receivable FM stations to the subscribers . . . and not make a selection among them. FM receivers, like TV sets, suffer from local pickup, so shifting of the strongest FM stations is necessary

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

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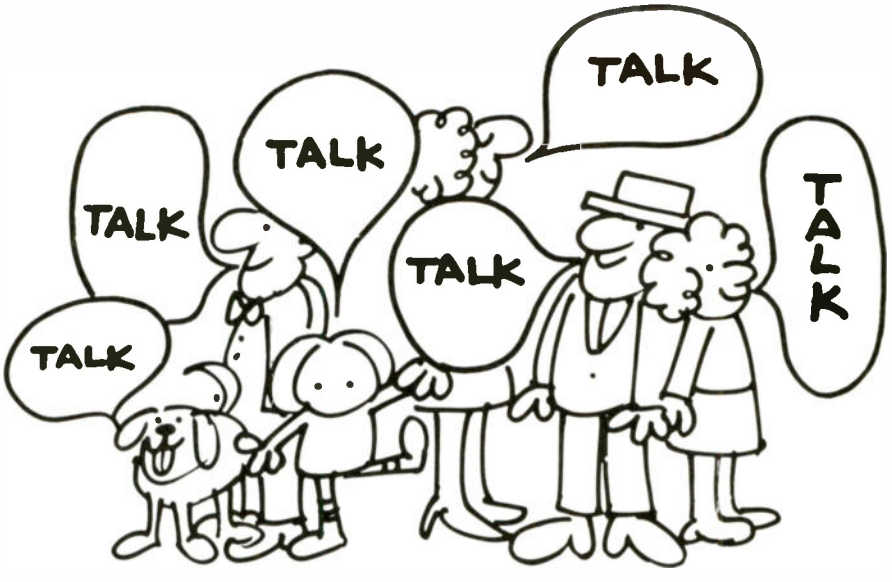


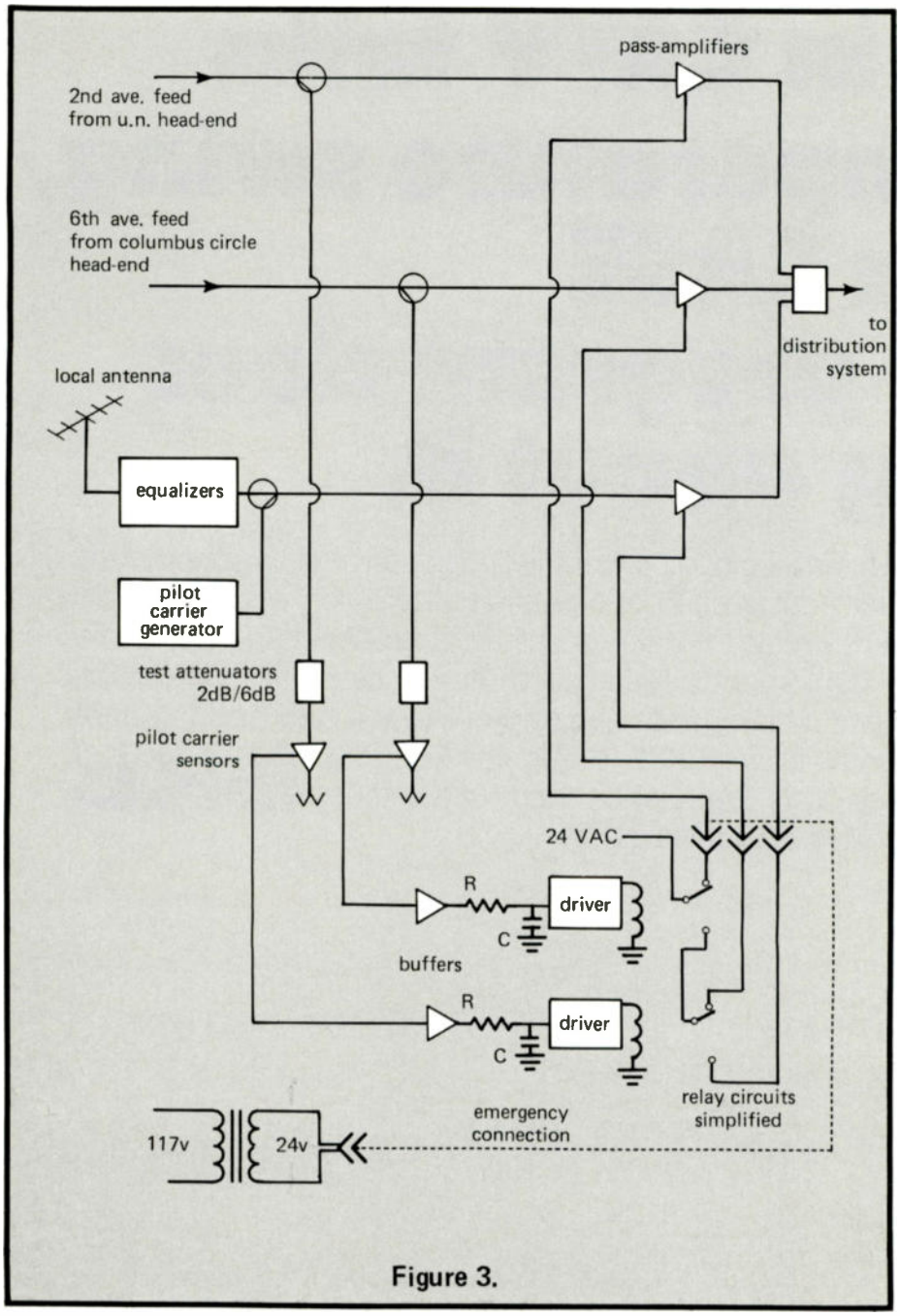


Figure 3.

. . . or better, a converter must be used.

The necessary converter consists of an FM front-end, an IF amplifier and an up-converter. The subscribers' FM receiver, with their often very good and nicely styled tuning arrangements, would stay tuned to a clear spot on the dial.

Prototypes of such a device were built. But, it was felt that a very good tuning mechanism and dial would have to be provided to satisfy Hi-Fi listeners. A converter similar to a top FM tuner would be costly, so this solution will be used only if other approaches fail.

Upon further checks, it was found that the FM signals received at the old head-end site were plagued with multipath distortion, and it was further found that there is no industry standard on measuring multipath quantitatively. The model MI-3 McIntosh scope presentation (CRT display with audio on horizontal and AGC signal on vertical) is apparently a good indication of the presence of multipath. However, a quantitative measurement against a tolerable limit value would be of great help in maintaining the quality of received FM signals.

The equalization of FM signals, by means of tunable traps, is hopeless when desired weak signals are within a few hundred KHz of a desired strong station. The only solution is the processing of every station carried on the system.

SMCTV is now favoring the following approach:

(a) Shift the strongest FM stations to new dial locations to avoid, or at least minimize, local pickup.

(b) Process all remaining FM stations with heterodyne processors, but without shifting the frequency. Such processors are now available from several sources (on special order from some).

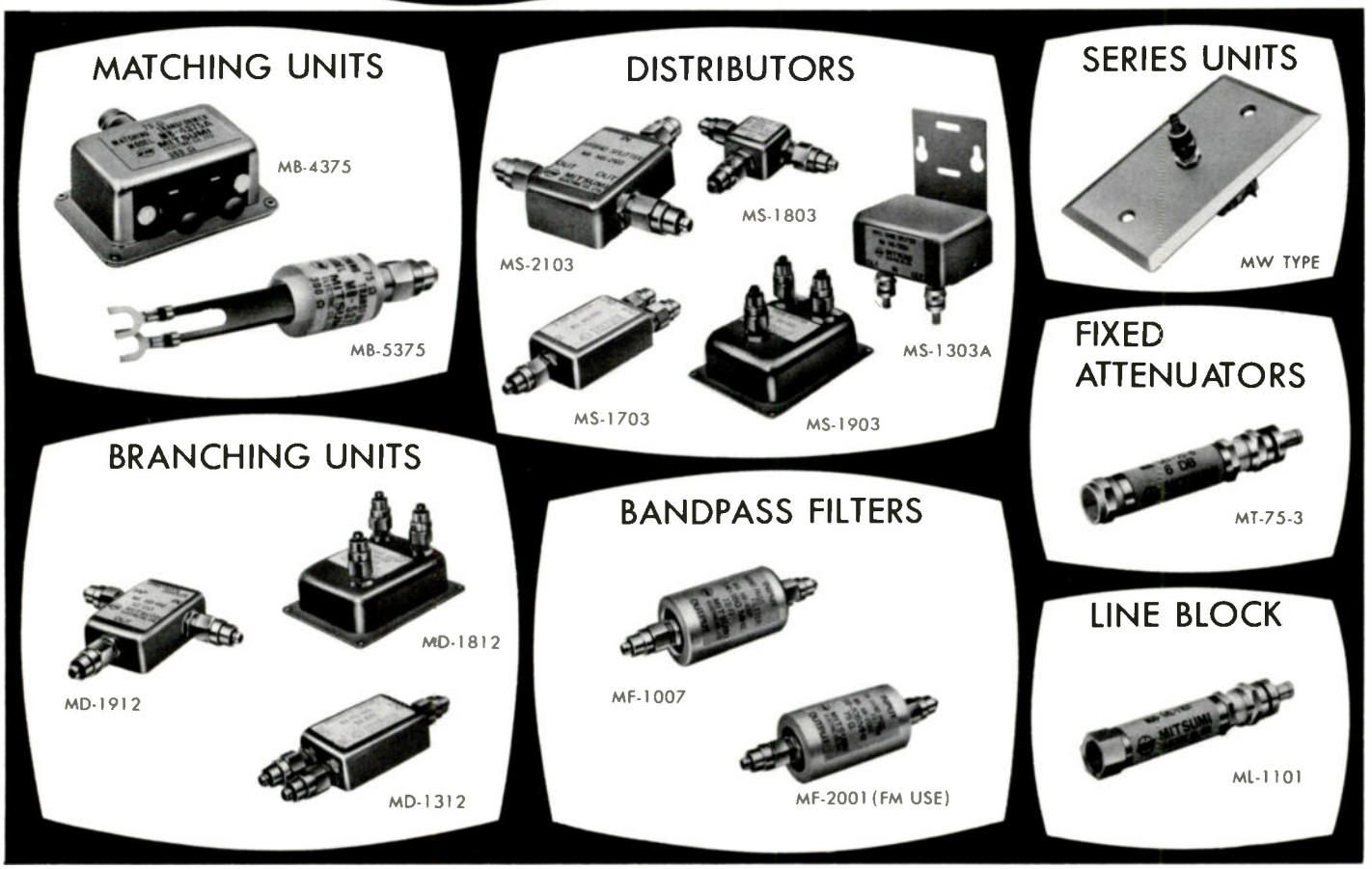
(c) Bring new broadcast signals to the subscribers (by use of special receivers and FM modulators), such as:
   (1) Selected AM stations.
   (2) Short wave programs; Voice of America, BBC London, Radio Moscow, Radio Havana, Radio Vatican, Etc.
   (3) WWV time signals.
   (4) Continuous U.S. Weather Bureau forecasts at 162.55 MHz (already used as background voice on the weather scan).
   (5) Possibly quad stereo and other special music programs.

Sterling is operating under a comprehensive franchise, requiring not only additional channels, as indicated earlier, but also requiring the division of the system into not less than 10 districts. The sub-dividing will facilitate transmission of different programming to various neighborhood communities.

A time limit of four years has been set, by which all residents wishing to subscribe must be able to be served. Work on two-way communication has been started, and other projects dealing with the vast potential of business services are under study.

The problems in New York City are great, but so is the potential. SMCTV is doing its best to advance CATV beyond its traditional role.

MITSUMI'S CATV RECEIVING EQUIPMENT



Mitsumi Electric Co., Ltd., a specialized electronic component manufacturer which claims Japan's most modern production plants, has developed "CATV receiving equipment" by mobilizing its total engineering capacity.

The "Mitsumi CATV Receiving Equipment," which promises clear and sharp images and beautiful video pictures, both in areas of poor reception and in home viewing, are manufactured under outstanding design and processing techniques, scrupulous quality control, strict product inspection and with the use of streamlined and the latest production facilities that are available at Mitsumi—the specialized electronic component manufacturer. They are, of course, superb in reliability, performance and durability. They are products of international quality level that will offer every satisfaction to both domestic and overseas users. Mitsumi CATV Receiving Equipment that satisfies the most severe specifications, claims a large number of features including:

- flat frequency characteristics
- wide band
- high separation
- low insertion loss
- extremely low unmatching attenuation
- miniature size and
- long service life

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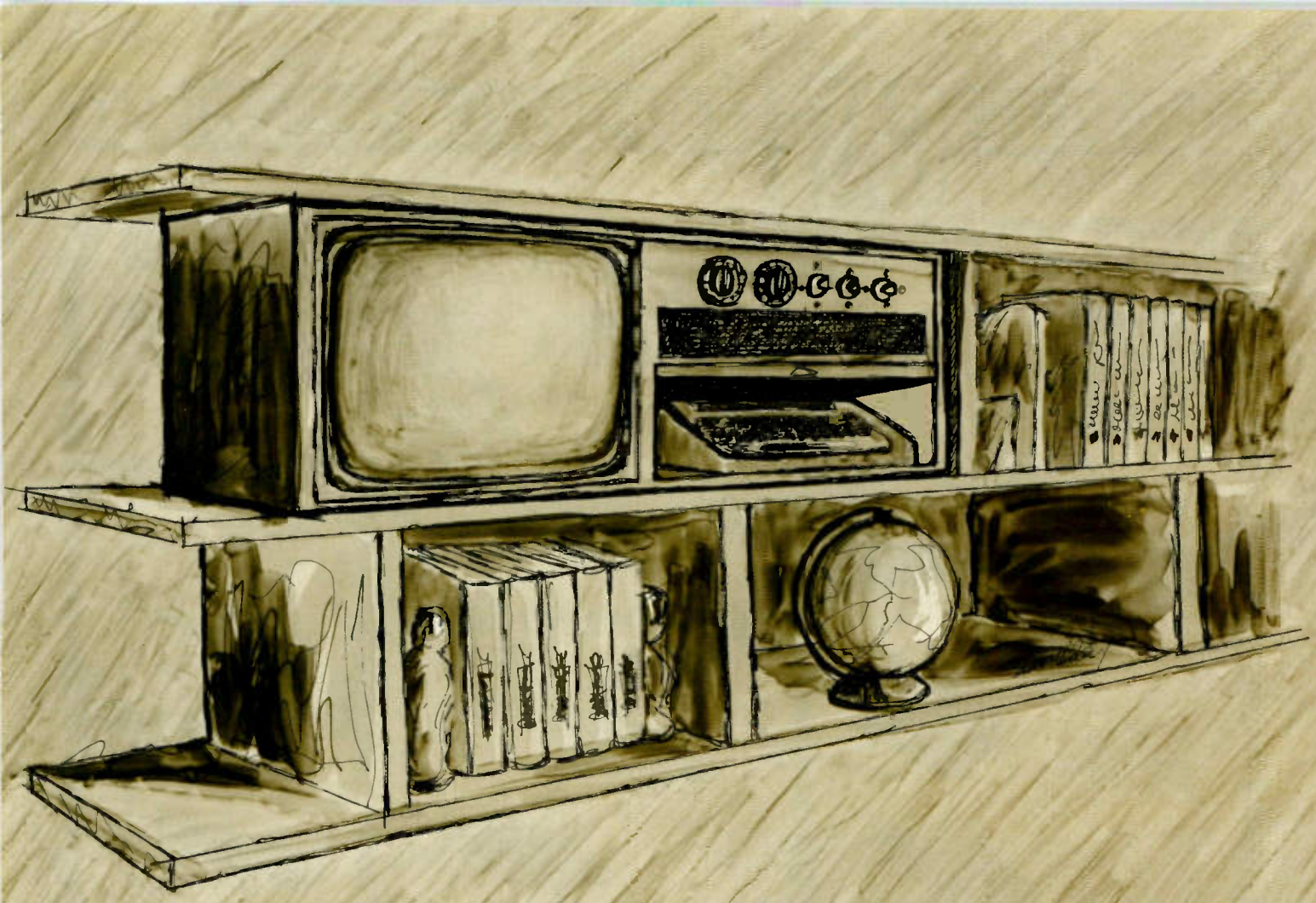


Would You Like to Build A Home Interactive Terminal?

This is part two of a two-part discussion of some of the problems involved in the design of a truly versatile home terminal system.

Last month, in the first installment of this article, we discussed the home terminal and its components and also gave consideration to the design of the computer system required for this application. In this second and concluding part of the article, we will consider the special design requirements for a system using home interactive terminals and discuss the problems of choosing an adequate return line system.

Design Requirements For Such a System

The purpose here is not to propose a prototype system, but rather to define some of the functional requirements for a system, and to give some guides for design that hopefully may prove to be practical.

Figure 3 is probably how the system will look, if we use telephone lines instead of cable return. It will simplify our discussion if we have telephone lines; however, it makes no difference in this section which return line scheme is used. One possible difference with the ultimate systems of the future might be the need for series to parallel converters; but the authors feel that conversion must be done by some machine . . . whether computer or the specialized devices.

Assuming 100,000 keyboards

and a maximum load factor of 20%, we would have a maximum of 20,000 active keyboards. The telephone exchange would have to sort them out and deliver them to the 20,000 converters. Finally, the computer system would receive the keyboard signals in parallel form and store them.

Figure 4 is a more detailed look at the computer system configuration. The routing computer takes the parallel signals from the converters, reads the functional code of the signals of a terminal in turn, and routes them to the appropriate function computer. If the code were, say, GAMES, the routing computer would route the terminal to the GAMES (functional) computer. This computer would do most of the work pertaining to the GAMES service: asking the customer what game he wanted to play and play it with him, figuring the billing charges, telling the CATV station what pictures to send, etc. The overseer computer for the CATV station would take care of the picture sequencing, give the address to the vertical interval digital code generator (addressing generator) in the station, and in general oversee the operation of the CATV station. The billing computer, of course, will do the billing work, sending the bills by mail.

The Return Line: Phone Lines or Cable?

The home terminal receives still television frames on a cable line (CATV or equivalent) and stores them in a frame storage device. The home terminal is also capable of transmitting alphanumeric data from the keyboard to the computer center via some return line. Here we have two choices for the return line: the telephone line or the cable line. That is, we could make the cable two-way by adding components and modifying a CATV system. The other alternative is simply to rent the telephone lines from the telephone company.

This question is more important than one might suppose. Consider two networks, one using telephone lines the other cable lines. It is possible that a typical terminal in a cable system will differ considerably from the terminal using telephone lines. There probably will be considerable differences in the economic and engineering factors of both schemes.

Before we begin our comparison study, we should postulate some characteristics of a system for our purpose. In a large city we might have a network with as many as 100,000 customers. Assuming a maximum load factor of 18%, the system should handle 18,000 terminals on line at any time. If we use twenty video channels, that's 900 customers per channel at any time. Actually "at any time" means "during a time sharing interval of thirty seconds." This figure was selected based on the assumed maximum time that the customer would wait patiently for the next TV frame. Thus, a computer system could serve 900 customers in each thirty second interval per channel under maximum load.

It might be possible to service 1,800 customers per thirty second interval with current CATV technologies because television fields could be split and each individual picture could be sent, one per field, giving a vertical resolution of about 250 lines. There may be little point in having a 500 line vertical resolution, since we have less than 300 actual lines of horizontal resolution in color transmission. Actually, this is as far as the transmission system is concerned; we assume that we can serve up and transmit 900 or 1,800 pictures to the respective terminals, in proper sequence and on time, which is no mean feat.

Now, consider a cable return system. If the customer-computer interactions are relatively complex and sophisticated, as in branched CAI programs or Socratic type dialogue with the computer, the multiplexing problem would become extremely complex if the customer did not have a single dedicated channel to the computer center during the full time of his inquiry. The problem would be that the computer would have to sort out anew each time he asked a different question. The operation of the whole system, which is serial, would be slowed down considerably.

Now, we get into the nitty gritty. Let us assume that all of the 18,000 customers currently on line cannot use their return channel simultaneously. We could undoubtedly design a system so that more than one could use it simultaneously, but it would seem that the filtering, R.F., and intermodulation problems would preclude more than a thousand or so simultaneous return signals, perhaps less. The authors feel that to put many thousands of simultaneous return signals on the return cable could create severe problems. While it probably could be done technically, the economics, noise, intermodulation, and reliability are all open questions. The authors would appreciate comments on this matter.

If it turns out that we cannot put these thousands of return signals on line simultaneously, then we must time-share the return channels just as we time-share the video channels. This means we must have a polling system in the computer switching network handling the on-line customers. To poll 19,000 customers sequentially, of course, involves the polling time per customer together with the transmission time to and from the customer. Assuming the customer is an average of ten miles from the polling computer, making a propagation distance of twenty miles, and assuming a relative propagation velocity of 0.66, the propagation delay for 18,000 customers is about 2.8 seconds (if instead of 0.66, we have 0.96, the figure is about 2 seconds).

Since we can't wait for each customer to key in his message, we cannot use touch tone keying, and we need a buffer memory in every home terminal, and that buffer memory probably needs at least a 250 character capacity if we want to do programmed home computing and compete with the mails in a message service. The buffer memory must be read serially, of course, taking at least 1,000 microseconds per customer poll. We probably wouldn't need

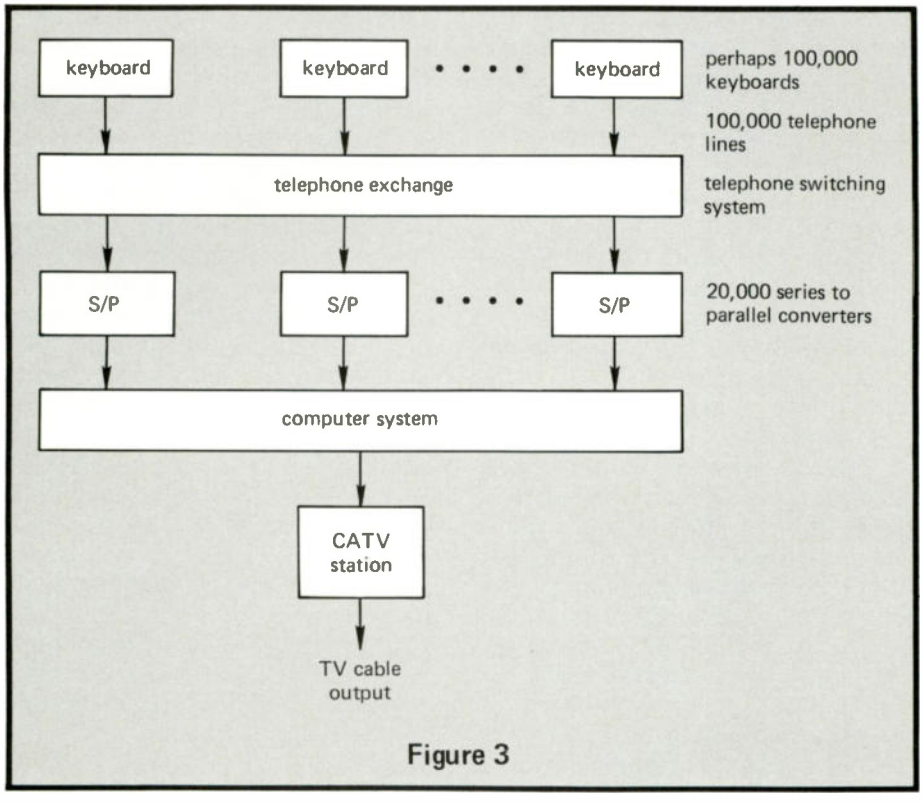


Figure 3

to read every character every time but we have added at least fifteen or twenty seconds to the wait time. What is equally bad is that the system needs 82,000 additional buffer memories, since every customer would need one whether he was on-line or not. In the telephone system we would need only 18,000 buffer memories (our maximum load factor design determines that) since we would need only one for each customer on-line.

Without individual lines the maximum wait time has been stretched to almost a minute, and we have yet to duplicate the telephone switching system we will need on the other end. It might be better to rent the lines and the switching system rather than incur considerable capital and operating costs to build and maintain a similar system. Also, this would mean additional delay until the network is finally completed, if we should decide on cable.

In a talk with Pacific Telephone people some time ago, one of the authors learned that existing telephone lines, and most of the same switching system, might suffice as a return line system for the most part. The phone company might simply use frequencies outside the voice band: a black box in the system would shift the frequencies of the keyboard signals out of the

voice band, and thus the twisted pair line might carry both voice and keyboard signals simultaneously. Alternatively, one might "piggyback" the signals over the voice band in some manner causing minimum interference. In any case, it probably would be possible to use a single line for both telephone conversation and home terminal return data. This adds two important areas of efficiency to the phone company service; first, much more use (and therefore more revenue) is obtained from the telephone and its backup equipment, and second, very little in additional equipment is needed to make the two-way data communications system possible.

However, despite the Pacific Telephone people's demonstration of enthusiasm in the talk, it appears that there may be some difficulty in getting the telephone companies to look on this as a new business revenue source rather than as an undesirable competitor. If they continue to avoid jumping in, two-way cable systems will ultimately be developed despite the difficulties involved.

There is one way the telephone companies could move into this field fairly soon. Through telephone company switching gear and long lines and alphanumeric technology already current and relatively inexpensive, (perhaps ultimately) a man could send a letter to anyone in the country via CATV. The letter would be displayed on the addressee's TV screen. If he happened not to be at home, the letter could be stored on the frame store for later display. The system could be built so that the keyboard at one terminal could address the frame store at another through the central computer.

You will note that the authors have chosen to ignore various regulatory decrees of the Federal Communications Commission, the Anti-trust Division of the Department of Justice, and the Post Office. This is a privilege of "academic types" writing articles such as this.

We have attempted here to delineate some of the problems we see in the establishment of a truly versatile home terminal system. Despite these problems, the authors feel this communication form has a great future, if regulatory and technical problems can be overcome.

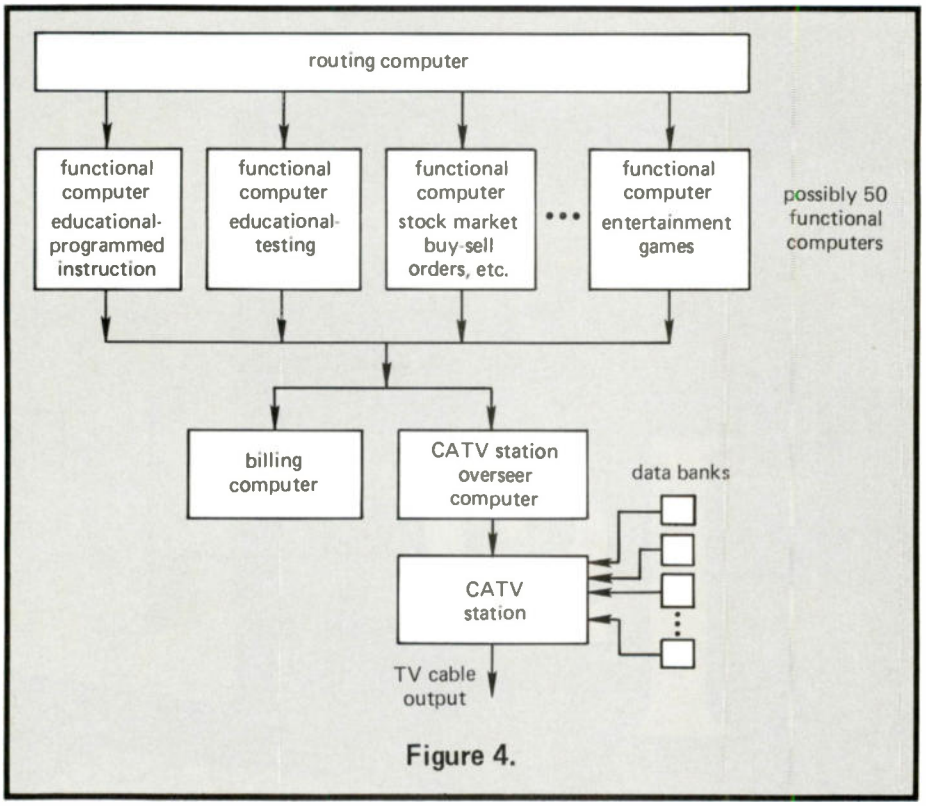
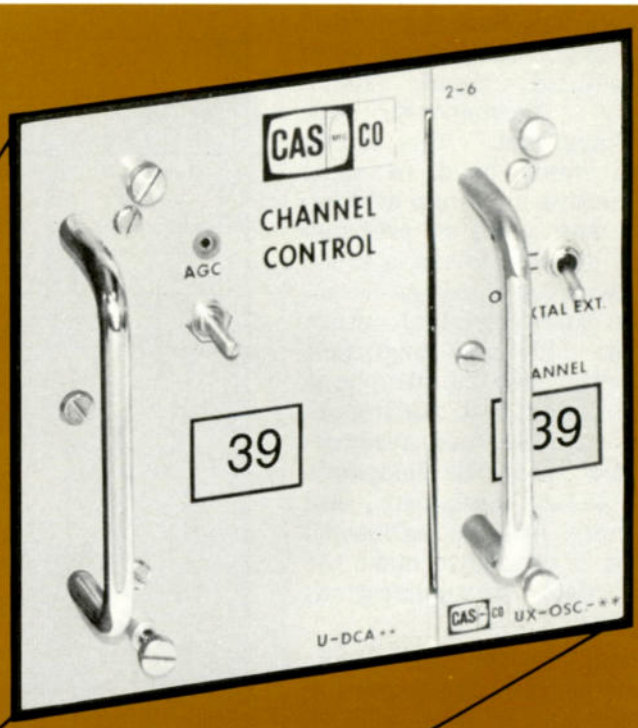
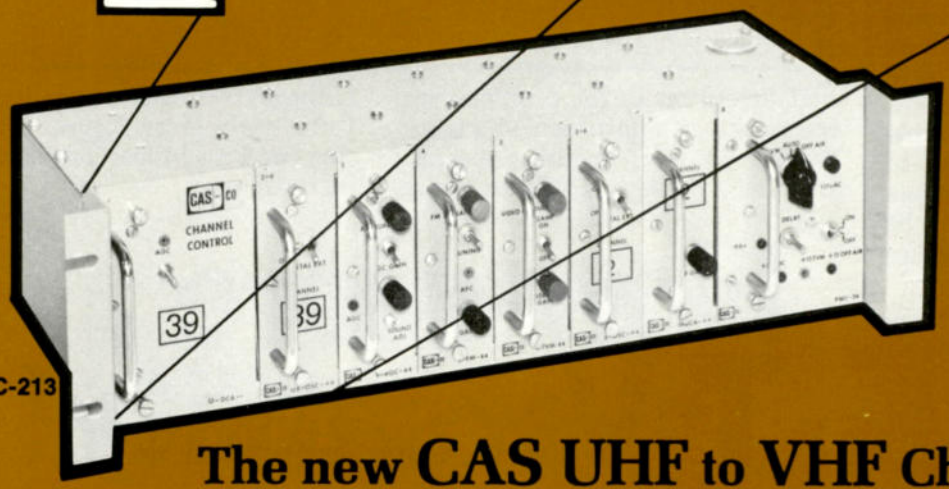


Figure 4.

Another CAS 1st





U-CC-213

The new CAS UHF to VHF Channel Control
also adaptable to any existing CAS Channel Control

UHF to IF Conversions

The UHF Down Converter module (U-DCA), when used in conjunction with the UHF-OSC module, receives a specified off-air UHF signal. This channel is converted to the standard TV intermediate frequency (41.25 Mhz sound carrier, 45.75 Mhz video carrier) through a balanced mixer. A UHF bandpass filter precedes the balanced mixer.

A highly selective bandpass filter tuned to the intermediate frequency (41.25 Mhz to 45.75 Mhz) makes the signal suitable for further processing.

The U-DCA module is a direct replacement for the standard DCA used in the CAS CC-213 Channel Control.

The UHF-OSC module replaces the standard VHF off channel conversion oscillator in the channel control unit.

Specifications

Input Frequency	UHF Ch thru Ch 60
Output Frequency	41.25 MHz sound 45.75 MHz video
Impedance	75 ohm
Input Return Loss	16 db
Response	± ¼ db
Minimum Input	– 20 dbmv
Maximum Input	+35 dbmv
Recommended Input	+12 dbmv
Noise Figure	+12 db
Adjacent Channel Rejection	50 db
*Sensitivity	100 uv (– 20db) input for +55 db output
*Dynamic Range	60 db
IF Bandpass	41.6 MHz 45.75 MHz
Gain	20 db

*When used in conjunction with V-agc-44 in CC213

CAS MFG CO

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DALLAS, TEXAS 75247
214/253-3661

PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

"FAIL-SAFE" SVP TUBES MARKETED BY SIEMENS

New power-type "Fail-Safe" gas-filled surge voltage protector tubes have been developed by Siemens Corporation, 186 Wood Avenue South, Iselin, New Jersey 08830, to protect circuits and equipment against lightning, power surges and other transients.

"Fail-Safe" is a term used to describe the protector's ability to provide a permanent short when it is subjected to an extraneous current exceeding the protector's discharge capability. By shorting, the SVP prevents the transient from destroying valuable equipment. Additional parts, such as special holders or heat-sensitive components, are not required for the SVP to function.

E-Z WAY PRODUCTS, INC. ANNOUNCES NEW TOWER

E-Z Way Products, Inc., 4014 W. Kennedy Blvd., Tampa, Florida, has announced the 4000 series towers. A new and complete family of utility towers, the 4000 series is engineered, manufactured and planned to satisfy the needs of the mass market. These rugged, inexpensive and simple-to-erect towers are in production now, and are currently being delivered.

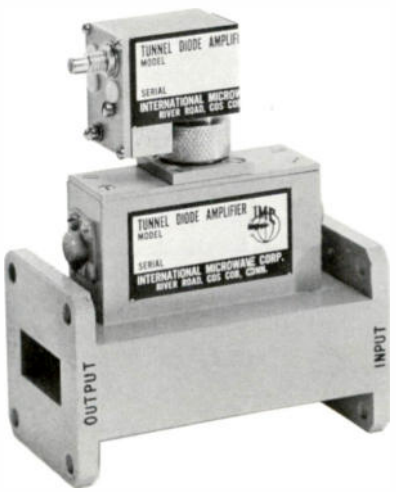
Made from high strength steel, all towers have welded construction and are hot dip galvanized. The towers rise to a height of 300 feet, and can withstand wind velocities to 111 miles per hour.

These versatile towers offer the customer a choice of 7½ or 10 foot sections, which are interchangeable, and weigh as little as 20 pounds per section. These towers are easy to handle and transport, and are simple to erect with minimum tools, people, and equipment.

E-Z Way Products, Inc., also manufactures other selected products for the consumer, and specialized industries.

IMC'S AGC AMPLIFIER SOLVES FADE PROBLEMS

International Microwave Corp., 33 River Road, Cos Cob, Conn. 06807, is now offering an AGC tunnel diode amplifier to solve CATV problems due to rain, temperature inversion and selected channel fades, without adding intermodulation distortion in a multi-channel receiver system. The use of the



AGC TDA prior to channel preselection filters allows one amplifier to serve all channels when needed rather than individual continuously operating units in each channel. The TDA is connected into the AGC loop of each receiver through a diode matrix which enables the lowest gain channel to control the tunnel diode amplifier gain. Therefore, during normal system operation, the TDA is passive only providing gain during fade conditions. This gain control minimizes possible intermodulation problems and provides the needed fade margin for good multi-channel CATV operation.

TOMCO INTRODUCES NEW CONVERTER

TOMCO Communications Inc., 2239 Old Middlefield Way, Mountain View, California 94040, has introduced the TOMCO Cableselect II. The unit is an all solid state, varactor-tuned converter with push button tuning of 24 or 26

channels in the frequency range of 50 to 252 MHz. The output channel is either 12 or 13 and the unit is available with or without AFC.

ITI HAS NEW VIDEO LEVELER FOR DISTRIBUTION SYSTEMS

ITI Electronics, Inc., 369 Lexington Avenue, Clifton, New Jersey 07015, announces a video AGC amplifier, or leveler for use in video distribution

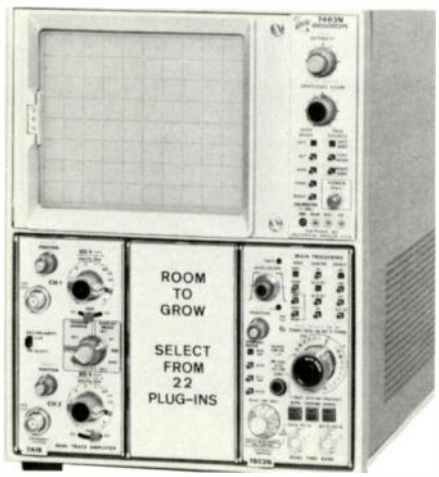
systems subject to level fluctuations.

The type IT-334 video leveler will accept composite video from 75 ohm or high impedance source in the range of 0.4V to 4.0V peak to peak, and deliver a constant 1.5V peak to peak output to a 75 ohm load. Frequency response is within ± 0.5 dB to 10 MHz. 60 Hz squarewave has less than 1% tilt.

The IT-334 is particularly useful in distribution systems for cameras where manual monitoring of video level changes due to camera or switching fluctuations is not practical.

NEW EQUIPMENT FROM TEKTRONIX

Tektronix, Inc., P.O. Box 500, Beaverton, Oregon 97005, has added another mainframe and two more plug-ins to its popular 7000-Series Oscilloscope System. The 7403N mainframe with 7B53N time base and 7A18 amplifier plug-ins offers a 6½ inch CRT, 5-mV dual-trace, delaying sweep, 2% accuracy, and a third plug-in compartment.

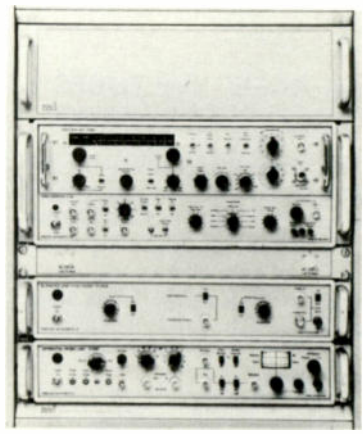


By electronically switching between vertical plug-ins, the 7403N provides measurement options which are only available with 7000-Series Oscilloscopes. Offered are: two dual-trace units, a differential comparator, an AC current probe amplifier, two single-trace units, a 10-uV differential, a low-capacitance FET probe amplifier, sampling (to 14 GHz) and TDR units. Any two of these amplifiers can be used simultaneously. The only exception being that sampling and conventional units cannot be used together (this capability is available in 7000-Series four-plug-in mainframes).

Since the output amplifier is in the mainframe, the vertical amplifier plug-ins need only contain a preamplifier. This means that the 7000-Series amplifier units are generally lower priced than those with comparable performance offered by other manufacturers who choose to place the complete vertical amplifier in each plug-in.

MARCONI ANNOUNCES NEW SWEEP ANALYZER

Marconi Instruments, 111 Cedar Lane, Englewood, New Jersey 07631, announces a new television sweep analyzer, model 0A2900, with specifications suitable for the new and stringent performance requirements of the latest video transmission equipment.



The main features of this analyzer are: frequency range of 25 KHz to 300 MHz with a flatness of ± 0.05 dB, provision of its own frequency marker generator, locking of the sweep to TV field, its own sync and blanking mixing facility, and performance of differential measurements with extremely high resolution.

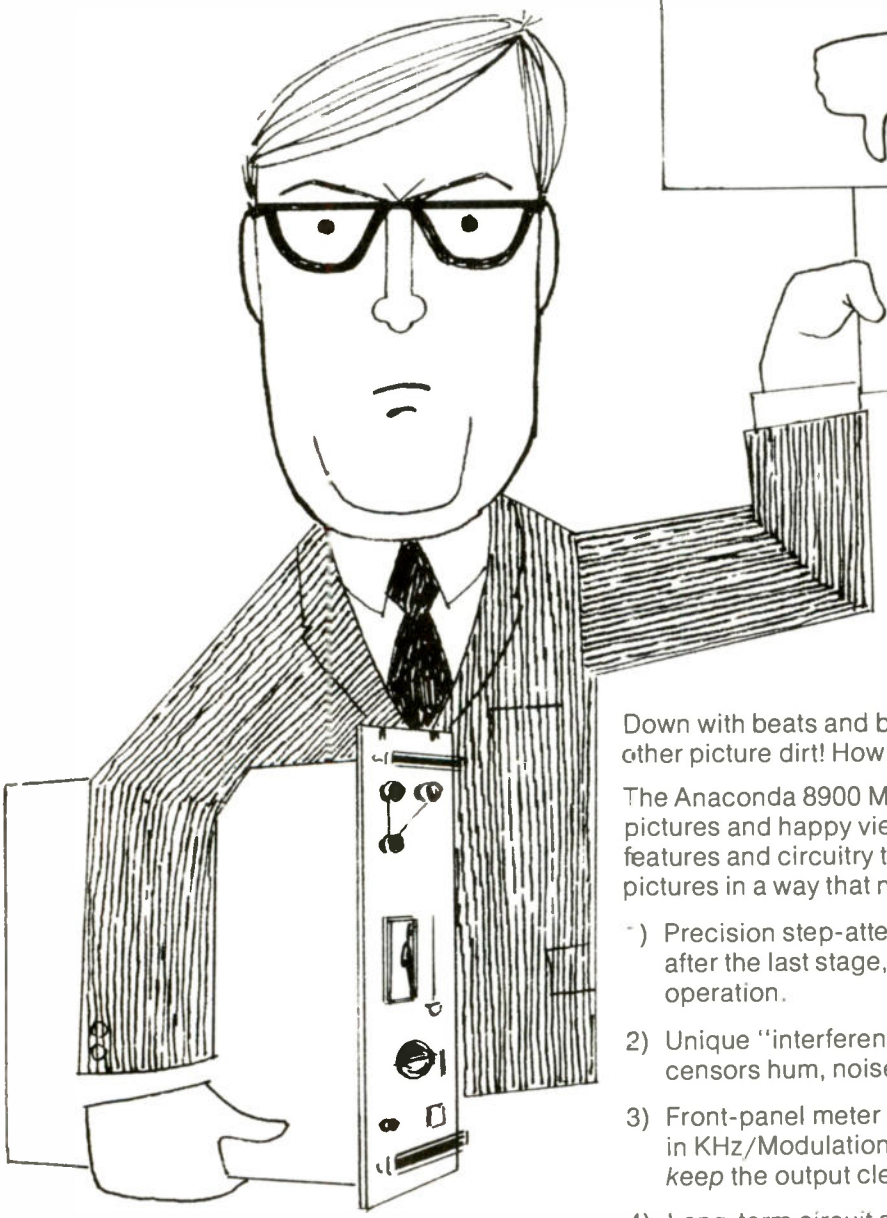
NEW COLOR GENERATORS FROM B&K-DYNASCAN

Two all-new I.C. digital color generators have been announced by B&K-Dynascan, 1801 W. Belle Plaine Ave., Chicago, Ill. 60613. They are the deluxe model 1246, and the standard model 1243.

Both models check convergence, color, linearity, size and focus. Rock-steady patterns are guaranteed through the use of flip-flop circuits for all counting functions. The composite video signal, produced algebraically from the ultra-stable synthesized pulses, closely approximates TV broadcast standards. Precision crystals are used in both the master countdown and color oscillators. Dot and vertical line width are adjustable.

The Deluxe Model 1246 is billed as "the most advanced color generator on the market today—offering broadcast station stability." It has crystal-controlled picture carrier oscillators for

DOWN WITH DIRTY PICTURES



Down with beats and birdies, color distortion and other picture dirt! How far down? More than 60 dB!

The Anaconda 8900 Modulator delivers clean pictures and happy viewers. It has the extra features and circuitry to give you clean, clean pictures in a way that no other modulator can:

1) Precision step-attenuator controls output level after the last stage, doesn't affect amplifier operation.
2) Unique "interference trap" filtering system censors hum, noise and spurious beats.
3) Front-panel meter reads Frequency Deviation in KHz/Modulation Depth in % so you can *keep* the output clean.
4) Long-term circuit stability holds color clean and true, so the 8900 Modulator thrives on a lack of attention.

Start your own Clean Picture Crusade Just call your nearest Anaconda office to get all the facts . . . and an 8900 to try in your system.

ANACONDA
ANACONDA ELECTRONICS
A DIVISION OF ANACONDA WIRE AND CABLE COMPANY
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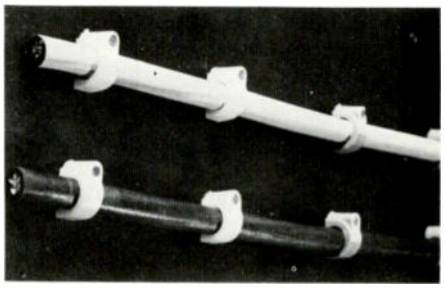
In the Rockies, call Bob Hannon: (303) 222-2054.
In the Southwest, call Dean Roberts: (404) 366-9270.
In the West, call Kirk Hollingsworth: (714) 635-0150.

Ch. 3 and 4; a 4.5 MHz unmodulated carrier (a valuable tuning aid); and red, blue and green color killers. It provides a total of 9 patterns, including 1 x 9 and 9 x 1 crosshatches and the ultra-helpful Center Dot. The patterns are so jitter-free, they resemble still photos. The 1246 also offers a B&K exclusive: an "Instant-Use" carrying case that protects the instrument at all times. A carrying handle is provided, but the 1246 is so compact (2¼ x 7 x 10¾") it fits right in the tube caddy. Price of the Deluxe Model 1246 is $149.95.

The Standard Model 1243 provides 6 jitter-free patterns; is tunable to Ch. 3, 4 or 5, but factory set to Channel 3. Operates on 115 vac. Weighs less than 3 lbs. Size, 2¼ x 7 x 9¾". The 1243 sells for $99.95.

NEW, EASY METHOD FOR CABLE INSTALLATION

Electrovert, Inc., 86 Hartford Avenue, Mount Vernon, New York 10553, introduces the new Hiatt Clip which attaches to cable easily and remains in position for simple mounting. The clips are molded of polystyrene and come with a captive cadmium plated steel nail so that one man can



handle the entire job of mounting cable on wood, brick, mortar or plaster surfaces without assistance.

The Hiatt Clip comes in ten sizes that will fit virtually every size cable in general use from .10" to .43" in diameter. The clips are available in Natural, Black or Gray high impact, shatterproof, weatherproof, shockproof polystyrene.

Electrovert's Hiatt Clips are designed for firm, fast cable installation without drilling or screwing. The contoured design provides maximum support without crushing the cable. Hiatt Clips are ideal for coaxial cable, commercial sound, coin operated vending machine or mobile home installations.

JENSEN ANNOUNCES "DETECTIVE" TOOL KIT

A new tool kit for field engineers and electronic technicians has been introduced by Jensen Tools and Alloys, 4117 N. 44th Street, Phoenix, Arizona.

Known as the JTK-16 "Detective" kit, it was designed strictly for professional use, providing a complete set of

tools in a compact package. Multi-purpose tools have been furnished wherever possible, providing broad versatility.

Each kit contains three regular screwdriver blades, three Phillips-type blades, a set of jeweler's screwdrivers, three netdriver blades, an adjustable wrench, a 10-piece Allen-hex wrench set, a 10-piece Bristol-spline wrench set, utility-type pliers, long nose side-cutting pliers, miniature side-cutting pliers, chain nose pliers, a wire stripper, two multi-purpose handles, a knife, saw blade, 6" scale, miniature soldering iron,

solder, solder aid, burnisher, alignment tool set, and a needle file. The tools are compactly presented in a padded zipper case with customized pockets to hold each tool in place.

The JTK-16 tool kit is furnished with a Simpson No. 355 VOM miniature tester and is priced at $104.50. Without the tester the kit sells for $54.50.

KLEIGL INTRODUCES NEW 1000W SPOTLIGHT

A new U.L. listed 1,000 watt luminaire for theatre and television use has been introduced by Kliegl Bros., Inc., 32-32 48th Avenue, Long Island City, New York.

The new fixture offers an 18° field angle and a typical throw distance of 50-60 feet. At 50 feet the unit will deliver 55 foot candles of illumination with an EHS 500 hour halogen lamp.

The new ellipsoidal reflector spotlight is rated at 1,000 watts. Its lens is 6" by 8" and it is designed to be used with tungsten halogen lamps.

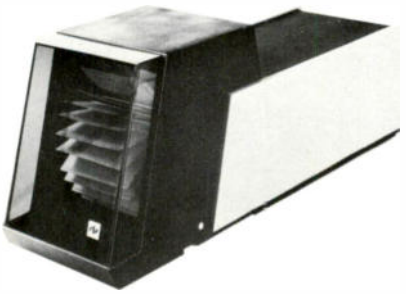
The fixture is equipped with a specular Alzak aluminum reflector as well as a pattern slot and four framing shutters. The unit is Kliegl model 1357/6. It is priced at $145.00 and is available on an off-the-shelf basis.

MESSAGE PROGRAMMER NEW FROM NEWELL

A new low cost video message programmer has been introduced by Newell Industries, Inc., 795 Kifer Road, Sunnyvale, Calif. 94086. Designed primarily for CATV and CCTV use, the Newell Video Flip Chart incorporates many unique design features in an especially compact and efficient package.

Already proven in numerous field-test installations, the Newell unit provides a pleasant video display of up to 45 changeable messages and/or pictures. The card carrousel system, developed by Newell, simply flips each message card into the viewing area on a preset time cycle. Each message change is instantaneous and the message card does not move on the screen.

The Video Flip Chart operator may



select either of two operating modes: Consecutive display of all messages or a stationary display of one message. The 3½ by 5 inch message cards may be changed in less than one minute while the unit is in operation.

JFD INTRODUCES 2/3" VIDICON CAMERA

A new high performance 2/3" vidicon TV camera has been introduced by the JFD Systems Division of Riker Communications, 142 Central Ave., Clark, N.J. 07066.

Designated Model 600, the new camera is unusually compact, weighing only four pounds. Resolution exceeds 400 TV lines, for excellent detail. A built-in automatic light compensator keeps output constant even with scene illumination changes as great as 4000 to 1.

Both video and RF outputs are available simultaneously. The RF output is tunable to TV channels 3 thru 6. Silicon transistors and modular PC board construction assure reliability.

An automatic target control circuit, plus simplified operating controls make the new 2/3" vidicon camera unusually easy to use.

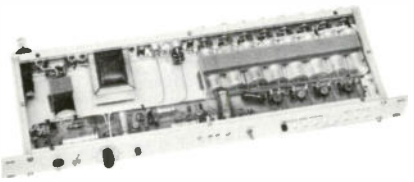
To facilitate its use in Master Antenna TV (MATV) and Cable TV (CATV) systems, the Model 600 uses standard 75 ohm F output connectors.

Available for immediate delivery, the 600 lists for $236.00, complete with an F 1.6 16 mm lens.

NEW EQUIPMENT AVAILABLE FROM INC

International Nuclear Corporation, 608 Norris Avenue, Nashville, Tennessee 37204, has introduced a new line of solid-state video switchers, video and pulse distribution amplifiers, sync generators and audio equipment. INC's new product line, while meeting the most stringent demands for full color reproduction and the ultimate in professional reliability, provides the small studio, CATV, educational television, CCTV, and others with fine equipment at low cost.

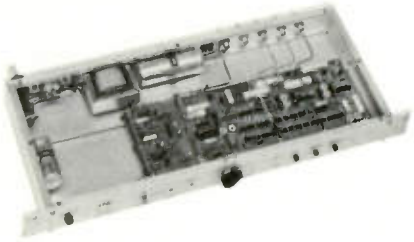
The TDA2-D/8 video/pulse distribution amplifier is compact, completely



transistorized, solid-state, with differential input and 8 Video outputs. It replaces all tube-type amplifiers with no alteration of existing cables.

The TSG-502-LL sync generator is a monochrome generator designed for broadcast, CATV, CCTV, ETV and small studio video origination. Switch selected for Ext. 31.5 KC, crystal or line lock or drive from INC model TCS2 color standard. Solid-state with integrated circuits, it produces composite sync, composite blanking, hori-

zontal drive and vertical drive signals in accordance with EIA-RS-170 and broadcast standards.



Also available in INC's new VMS-110 video switcher which provides 12 video inputs (6 non-composite and 6 composite inputs); 2 source terminated outputs; program and preview, solid-state video switching and mechanical, illuminated push buttons, mixer/fader control for fade-in, fade-out, lap-dissolve or super-impose two video signals with any desired degree of mixing.

CBS LABS ANNOUNCES VIDIFONT DISPLAY SYSTEM

CBS Laboratories, High Ridge Road, Stamford, Conn. 06905, will unveil a television display system that makes it possible for the first time to produce on command and in real-time word messages from several desired type fonts and sizes.

The new generation Vidifont heads a wide range of advanced electronic audio and video products being produced and marketed by the CBS Laboratories Professional Products Department.

Vidifont enables the user to produce more creative and informative video displays for television broadcasting, advertising and film production, and a wide variety of application areas for dynamic information display. Its unique type font (CBS News 36) has resulted in characters with high resolution, attractive design and maximal viewer readability. Language symbols such as Japanese, Hebrew, Greek or Russian, can also be used with the new Vidifont.

Proportional character spacing is a

(Continued on page 89)

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. . . with our new 107 Coaxial Cable Fault Finder - which fills one of CATV'S major needs: it's an accurate, portable and economical TDR (Time Domain Reflectometer). Sending a fast rise time pulse down the cable under test (up to 2500 ft. of .412) the return pulse pinpoints shorts, opens and both inductive or capacitive mismatch, all within ±2% accuracy. You owe it to yourself and your system to talk with your Craftsman representative about it soon.

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INDEX OF DISPLAY ADVERTISERS

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

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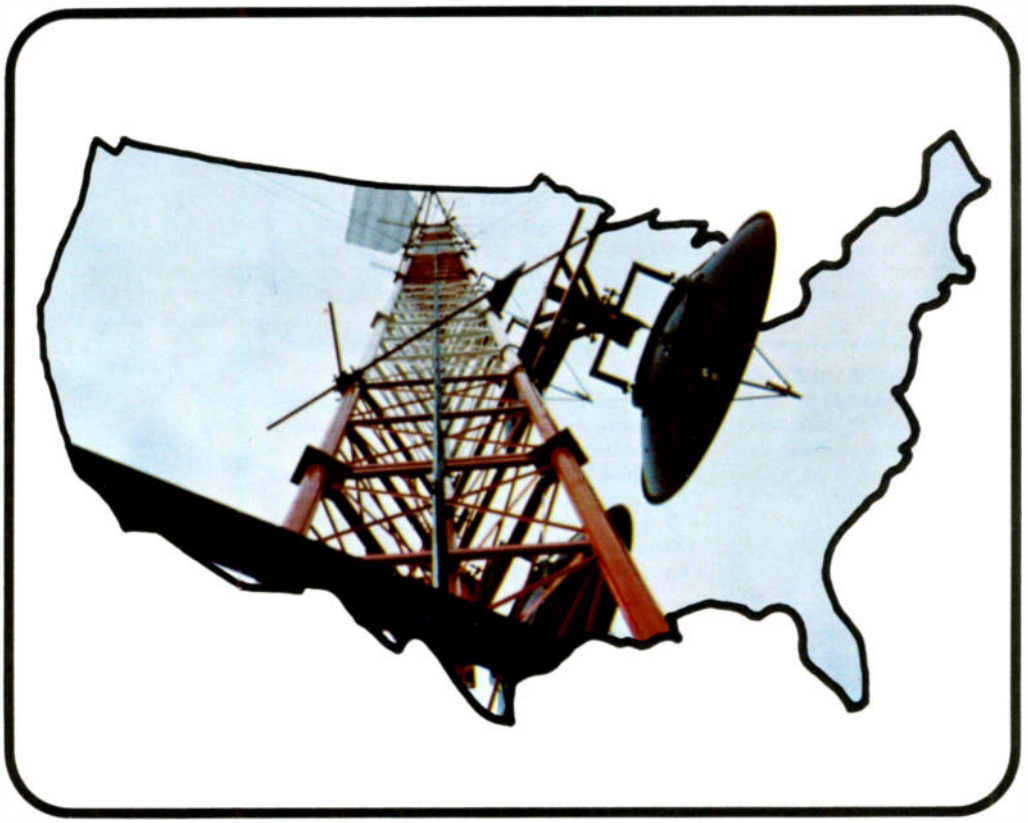

NATIONWIDE

■For almost 20 years, we've been building CATV towers across the United States. And wherever your site is located, we'll give you the same quality product and fast delivery enjoyed by hundreds of other system owners. We're geared for emergencies as well as non-rush orders. And we've built our reputation on dependability and quality.

■CATV towers are our speciality, not a sideline. And we offer a complete array of specialized support equipment to go with them including head-end buildings, microwave reflectors, equipment lifts and other related items. You get maximum performance with a perfect match of equipment and accessories.

■One more thing—high-quality products don't have to be high priced, and Fort Worth Tower Co. features economical prices throughout its line.

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■Designed expressly to house CATV and microwave electronic equipment, Fort Worth Mobilt Head-End Buildings withstand any climate or location problem. . .house electronic equipment according to the most rigid standards. Mobilts are completely portable. . .Simply drop on your site, and connect the service inlet. Complete wiring is installed at the factory. Many options are available in size, outside finish, wiring and ventilation. There's one exactly suited for your system.

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Fort Worth Tower Co., Inc.

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FORT WORTH PH. (817) JE 6-5676 • DALLAS PH. (214) AN 4-2822

THE CATV CLASSIFIEDS

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

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

USED MICROWAVE EQUIPMENT WANTED

Wanted One, Two, or Three channels of used (CAR) band Microwave equipment. Complete One Hop — Must be equipment that can be relicensed. Advise Equip. Brand, Age, and asking price.

Priv-O-Line TV Cable Co.
1122 That. Blvd.
Safford, Arizona 85546

FOR SALE

Latest Entron high and low band tube type equipment and pole boxes for sixty miles of CATV plant. These items are being offered at rock bottom prices. Any reasonable offer will be considered. Delivery of the items to be F.O.B. Monterey. Alarm Corporation, 2455 Henderson Way, Monterey, California 93940. Phone (408) 373-4171.

SALES MANAGER

The person we are seeking is a Manager with a "capital M" . . . has special expertise in the CATV and independent telephone industries . . . and possesses a depth of sales and management knowledge which can make him a possible candidate for a General Sales Manager position.

In other words, a leader knowledgeable in the broad area of sales management, with a proven track record and specific knowledge of the CATV and independent telephone industries.

SALARY—it's open. However, if you wish consideration, be sure to include salary history.

GEOGRAPHY—we're located in Connecticut.

Write full details in confidence to:

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An equal opportunity employer

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

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This ad is to run _____ month(s).

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

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

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FOR SALE

Close out of Ampex 1" Video Recorders and cameras. New — Demo — and used equipment. Priced to go. VR-7800, VR-7500, VR-5100, VP-4900, CC324, CC6400. Reply to TV Communications Dept. T-171-2.

TOP TECHNICIANS
For South Florida

Positions available now for the right men. Must be able to run complete system proof of performance. Excellent working conditions and fringe benefits. Reply to Box T-171-3.

Two Mobile TV Vans
For Lease or Sale.

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

FOR SALE
USED LOWBAND CATV EQUIPMENT
in perfect A-1 Condition

2—150 Jerrold Powers supplies	$60 each
12—Jerrold UBC-26B Amplifiers	$40 each
8—Entron LRA-40D AGC Amplifiers	$60 each
5—Westbury ABB-14 lowband AGC Amplifiers	$25 each
6—Westbury ABB-13 highband AGC Amplifiers	$25 each
200—Capacity Taps Jerrold and Viking Misc. Values	25 cents each

We also have some pre-amps, Band Pass Filters, Single Channel Jerrold Strips, Jerrold Converters. Write for information.

Phone: 602-1313, Mr. Haralson
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Safford, Arizona 85546

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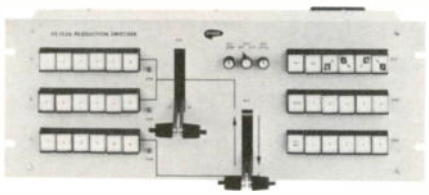
P.O. Box 336, Coalport, Pa. 16627
814/672-8733

(Continued from page 84)

key feature of the system, and character display color control is provided on a word-by-word basis.

DYNAIR ANNOUNCES LOW-COST SWITCHER

Dynair Electronics, Inc., 6360 Federal Boulevard, San Diego, Calif. 92114, recently introduced a new low-cost vertical-interval production switcher. The VS-153A is a remote-controlled unit with a full color programming capability. Ideal for the more sophisticated small studio, it has provisions for eleven video inputs with basic single re-entry effects and mixing. The control panel is only 3½ inches thick, allowing it to mount in the 7-inch arm of inexpensive consoles. The electronics unit is remoted by means of a multi-conductor DC control cable.



Special effects capabilities include inserts from each of the four corners, full horizontal and vertical wipes and internal or external keying and matting. The inserts can be expanded horizontally, vertically and diagonally. Illuminating pushbuttons and automatic preview are also provided.

Literature is available on request. Price: $2895.00.

ELECTRO-VOICE MARKETS NEW "QUIET" LAVALIER

Annoying friction noise, usually a deterrent to the use of lavalier microphones, has been eliminated with the introduction of the new RE85 dynamic lavalier microphone, from Electro-Voice, Inc., Buchanan, Michigan 49107. One design technique that allows this claim is the unique double-wall construction of the unit, with two separate cases being used. One case is nested inside the other and completely insulated from all shock and vibration with highly compliant rubber. The internal case is a capsule containing the generating element and isolated to a degree never before known in the microphone industry. Even cord-conducted noise has been eliminated with this sophisticated shock-mounting technique. Another factor contributing to the friction-free claim is E-V's use of extra smooth microphone case finish and special, smooth coated cable. No grain or bumps are present to set up

friction even when the microphone or cable is brushed against the user's clothing.

REYNOLDS LETERON MAKES TELEVISION TITLES

A new product that makes possible professional printing on most surfaces without the usual difficulties of ordinary lettering processes is announced by the Reynolds Printasign Co., 9830 San Fernando Rd., Pacoima, California 91331.

Called the Leteron Tapesigner, it is a practical method of quickly die cutting letters in sequence from continuous

pressure sensitive tape. Words and sentences separate from the tape and transfer to almost any surface in a single step.

The Leteron Tapesign machine produces sharp, clean, opaque white letters for television titles, overlays, presentations, charts, nameplates and displays. Tape comes in several colors including opaque white for television titles on dark background. Type sizes range from 5/16" to 1¼" high. TVC

Be a doubter

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

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

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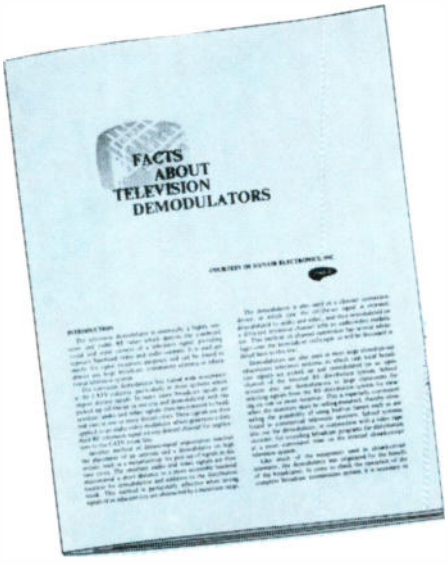
1700 Industrial Road,
San Carlos, California 94070.
Or telephone (415) 591-7611.

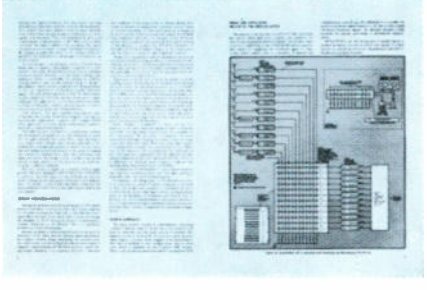
TELSTA DIVISION General Cable



If you're wise, you won't purchase a demodulator until you read this free paper.

You learn a lot while spending five years and several hundred thousand dollars in a research and development program. And, when you tell your story, wise people listen.

DYNAIR has included a wealth of original information about demodulators in an 8-page paper called "Facts About Television Demodulators." We think that you will find it very informative, particularly if you are planning a system which involves the pickup of off-the-air signals.

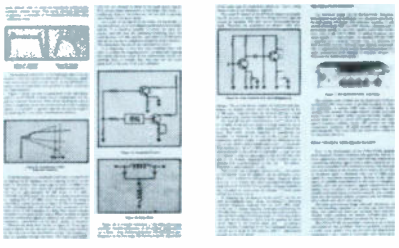


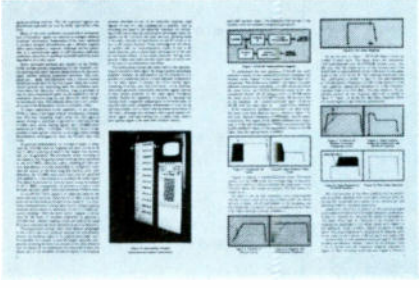
At first thought, it would appear to be a relatively basic design task to engineer a demodulator. Logically, it is often related to the tuner, IF and detector portions of a standard television receiver. However, it is one thing to design a demodulator which is acceptable for driving an ordinary viewing monitor and entirely another thing to design a demodulator which will be acceptable for testing purposes or for the regeneration of broadcast quality television signals. The demodulator portion of even the most sophisticated commercial television receiver would prove highly inadequate for applications such as those mentioned earlier in terms of sensitivity, stability and the amount of distortion introduced in the process of demodulation.

Until recently, the only available demodulators were of vacuum-tube vintage. These were designed years ago for monochrome applications; however, the complex NTSC color signal and its critical phase relationships require a much more sophisticated approach.

DYNAIR has been involved in a continuous research and development program on the color demodulator problem. After experimenting at great length with virtually every known approach to demodulation, a design was arrived at which contains many new and unique circuits, particularly in the areas of trapping, the control of envelope delay and other distortions and signal restoration. The design is now a product and, at this writing, a large quantity of the units are in the field, performing to industry standards.

The paper we are offering describes many of the problems we encountered





in designing the first quality solid-state color demodulator. The product is also briefly described, along with the many problems it will solve for the cable systems and broadcast engineer.

Shouldn't you add it to your information file?

It's yours for the asking.

DYNAIR

DYNAIR ELECTRONICS, INC.

6360 Federal Blvd. • San Diego, Calif.
ZIP 92114 • Phone (714) 582-9211

Please send me a free copy of "Facts About Television Demodulators."

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TITLE_____

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CITY_____

STATE_____ ZIP NO._____

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- INTERMEDIATE BRIDGING

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