

GED™

Special
Tech Review

Western Show Wrap-Up



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Communications-Engineering Digest
Reporting the Technologies of Broadband Engineering

January 1980
Volume 6, No. 1

A man in a dark suit, white shirt, and red patterned tie stands in a technical room. He is holding a large red folder. In the foreground, there are several cardboard boxes, some with the 'OAK' logo. The background shows shelves with electronic equipment.

“Channel Expansion the painless way.”

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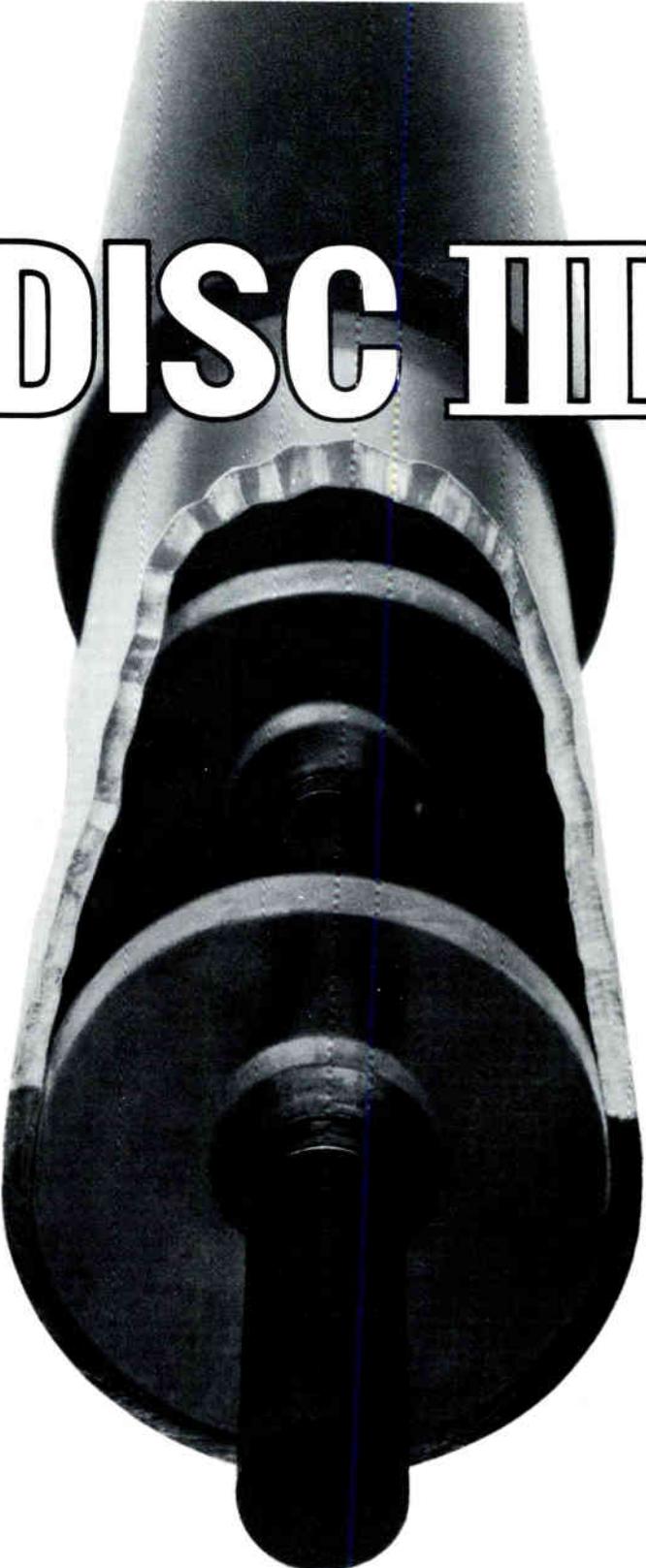
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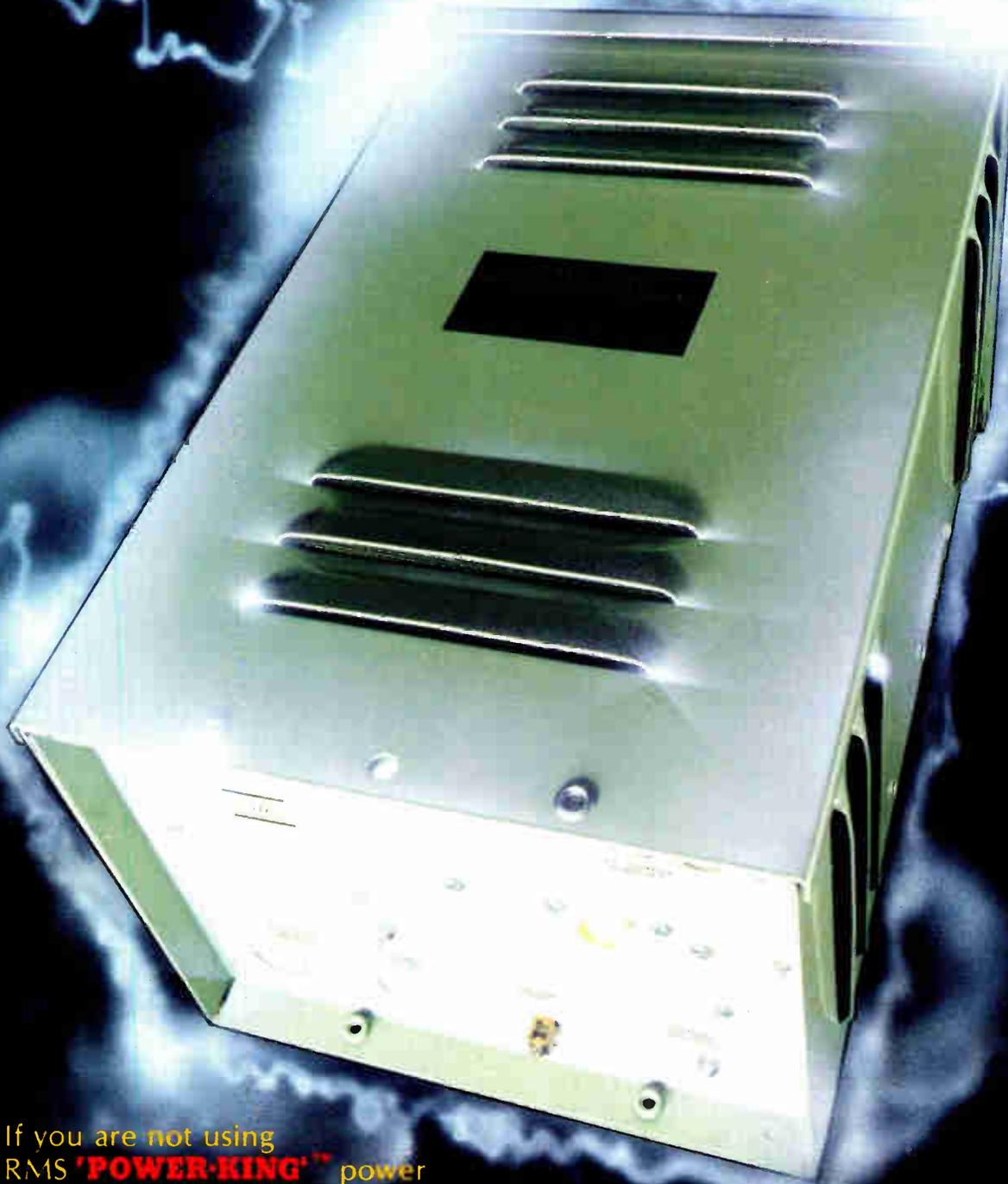
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C-ED News at a Glance

WASHINGTON, D.C.—**The National Cable Television Association is now developing the technical program for the 29th Annual Convention, May 18-21, 1980, in Dallas Texas.**

Papers and Program suggestions are welcome from all realms of the telecommunication technologies. Possible topics might include:

- Small Earth Stations
- Training and Continuing Education in the Cable Industry
- Direct Satellite-to-Home Broadcasting
- Telex/Viewdata Services
- High Speed Data Transmission
- Implications of WARC for the Cable Industry
- Two-Way Services
- Pay Cable
- Fiber Optics
- Low Cost Microwave
- Advanced Techniques
- Teleconferencing
- Computer Interface
- Rural Distribution of CATV Signals

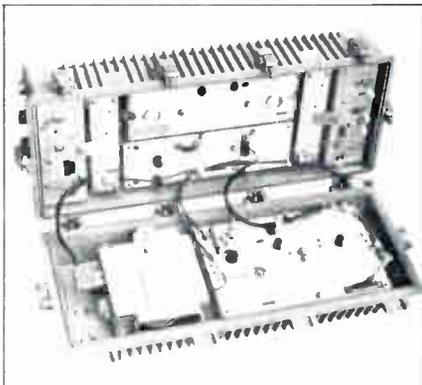
NCTA is calling for papers, topics and suggestions that cover the widest scope of telecommunications issues and technologies. We want to generate interest across as broad a section of the industry as possible. Recommendations of excellent speakers and panelists are also welcome. Displays of industry or related hardware in a non-commercial, hands-on setting are encouraged, as well as demonstrations of potential new technologies that might have some bearing on the cable industry.

Slide and transparency projectors, as well as other audio/visual equipment, will be available. Visual aids are highly encouraged.

Please submit your abstracts, comments, and suggestions to: Chris Weaver, Vice President of Science & Technology, National Cable Television Association, Washington, D.C. 20006, 202/457/6700.

WASHINGTON, D.C.—**"As we move into the 1980's, optical fiber system technology has reached the product phase,"** according to **Dr. Charles K. Kao**, vice president and chief scientist with ITT Electro-Optical Products Division. Kao, who has worked in optical fiber communications since 1963, said **the perceived advantages and limitations of optical fiber systems are now well defined, so that products for applicable markets can be designed and manufactured.** Kao was involved in the first in a series of seminars on technological developments sponsored by the FCC and designed for both staff and members of the public.

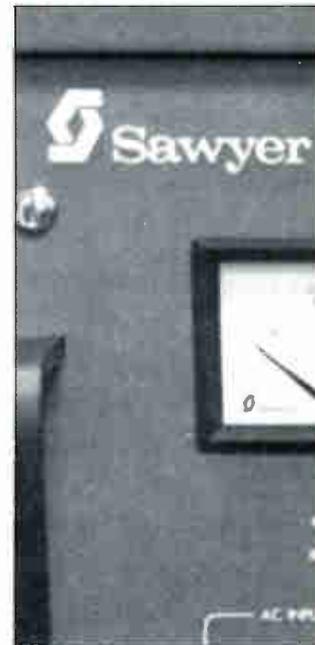
WASHINGTON, D.C.—**According to the FCC's Kalmann Schaeffer, the United States delegation to the World Administrative Radio Conference accomplished 95 percent of its objectives.** Schaeffer, just back from Geneva, reported to the Commissioners that **in no instance was the national interest significantly compromised.** He explained that the anticipated clashes with the third world did not materialize and no distinctive pattern of disagreement emerged between any interests. Concern was expressed, however, that upcoming conferences in 1982, on structuring the International Telecommunications Union, and in 1983, on the use of satellites in the Western Hemisphere, could be actually more critical than the recent WARC.



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Cover: Photo courtesy of NASA. Not Pictured: Satcom !!!

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Editor's Letter

The opening presentation of the Western Show was entitled "The New Technology," and featured a panel discussion centering upon cable's relationship to—and competition with—other new technologies, including video discs, MDS, and STV. It was all fascinating.

But, for us anyway, the most fascinating part was a slide presentation by Dr. David C. Russell of Satellite Business Systems. His subject was business information link-ups via satellite, and the possible role cable TV will play in the dissemination and transmission of business data.

Pointing to the newly developed SBS system as an example of the emerging integrated network technology for business data transmission, Russell said that the SBS system is "designed to provide an integrated data, voice, and imagery system to serve the full spectrum of communications needs of a large community of business and governmental organizations." Dr. Russell went on to say that "the anticipated explosive growth of cable TV systems in the 1980s suggests that business communications should be included as an integral element of future systems planning." The most immediate harbinger of this expected trend is the current operation of data transmission services by cable systems in the borough of Manhattan.

Now, the implications of all this present an incredible challenge to cable engineers and technicians: to keep up with the most recent technical advances, and products, and applications. And not only that, but also to be aware of the direction in which all these developments will take us.

With that in mind, we give you beginning on page 26 the special tech review section of C-ED.

Paul A. FitzPatrick

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SCTE Celebrates Birthday

By Judith Baer,
Executive Vice President



Happy New Year SCTE—and happy Birthday! During 1980, you celebrate your 12th birthday. You've successfully passed from infancy to adolescence and you've got many things to be very proud of. Considering the fact that your numbers are increasing at about 100 new members each month; you've taken the responsibility for the development and employment of a staff of four; you're staging nearly a dozen meetings around the countryside this year; and, you're welcoming an active and interested new slate of officers and directors next month, you'd think that you might sit back and rest on your laurels for a few months. Take my advice SCTE—don't stop now! While your achievements over the past three years are phenomenal, for everything you've accomplished there are at least ten more things left to be done for the benefit of your membership and for your industry.

Nobody knows it better than you—and nobody can **do** it better than you! So don't slack off now . . . keep moving!

Continued growth in member numbers is important to SCTE, not just to keep on breaking records or toot horns, but to keep expanding member services and keep those member dues easily affordable. More technical meetings are important because your industry is changing and your members deserve the opportunity to keep abreast of what's coming. More technical and management development meetings are needed to bring newcomers up to speed and refresh the veterans. You just couldn't schedule too many meetings, just as you couldn't possibly ever provide too many member benefits. Your charter is management development, training and education. Remember that your industry is diverse in its many levels of talent and expertise. Try your best to program something for everyone—make some reach—cause all your audience to grow.

What do **you** want to be when you grow up? Well, SCTE, that's going to take some long range planning now!

Your industry is growing and you have a potential of about 25,000 members, if you do your job properly **now** and plan for the future. What will you do with those 25,000 members? How will you service them? How will your staff and office requirements change as your numbers increase and your dues revenue base expands? How will you stage your technical meetings in 1983 and beyond? Will you develop some sort of certificate program in the next couple of years? How about correspondence programs? Will you go to satellite-transmission of meetings and training programs? Are you thinking about such things now, in 1980? Or, will you be caught in the midst of confusion and insufficient planning? Will your structure change, perhaps including "section" memberships for those with specific interests in microwave, or testing, or system design or the myriad of other "specialty" segments developing?

Gives you cause to pause, doesn't it?

In behalf of the SCTE staff, be assured that all of these questions are seriously being considered, right now, in early 1980. They must be addressed now if you're going to keep on going ahead as a professional organization and your members are going to be able to keep up with what's going on in the world of cable/broadband communications. Your SCTE staff and officers are looking out for your future and we plan to keep you on track, the best we can, as we respond to member de-

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and Chapter News

mands, ideas and innovations. Most of the new things you've developed since 1977 came from one of your members' fertile thoughts. Staff only investigated the possibility and then executed the deed. As long as your members continue to let you know what they want, and you keep your ears and your eyes open, you'll do fine, Kiddo!

SCTE—let's face it—being a teenager can be difficult. Those older tell you that you haven't earned your stripes and you'd better watch yourself in one breath and then turn around and tell you to act like an "adult" the next. The young upstarts try to trip you up sometimes but ask for input, knowledge and the benefit of your wisdom the next time they see you.

My advice to you would be to reach for the stars and push for adulthood. Don't let anybody tell you that you **can't** do something. Weigh it, consider it, investigate it, whatever it is that is proposed. Be a little pushy. Go ahead and make decisions. Learn from your experience and the experience of others. Listen to your members. Watch what others are doing, the good **and** the not so good. Don't get too big for your britches too soon. Give yourself time to evaluate your past as well as plan for your future.

That's it for now kid, except to remind you that you **are** still just a kid, SCTE. If you keep that thought, even when you're an "old" 40 or 50, you'll still be happily celebrating the passing of each year.

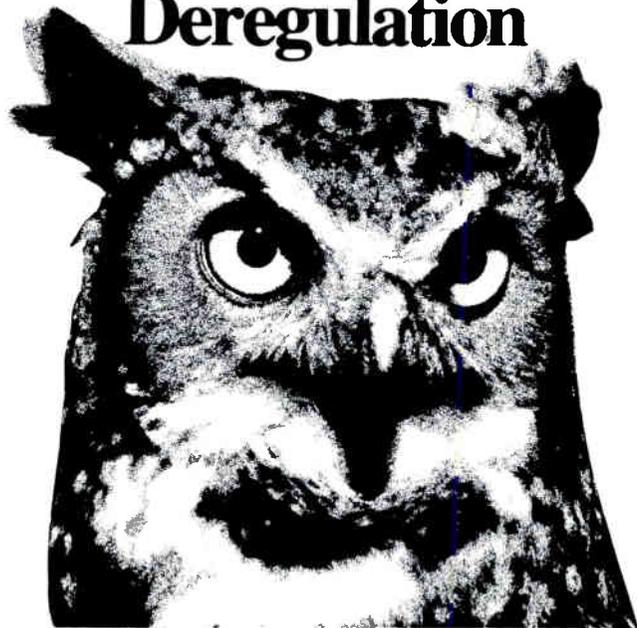


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The Premium
Entertainment Magazine

CableVision

A Word To The Wise About Earth Station Deregulation



Deregulation to TVRO earth stations is here and with it comes long awaited benefits. You can now get satellite derived signals into revenue service quicker since an FCC license is not required prior to construction.

But it is important to recognize that even though the FCC no longer requires frequency coordination and licensing for TVRO's, in no way is the chance for interference lessened. The interference sources are still there transmitting the same potentially harmful signals which could render your TVRO partially or totally useless.

Wise old birds still call on our experienced staff for rapid response to their earth station siting problems. Call or write Harry Stemple, President, for more information about our frequency coordination services.



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IN GRAND PRAIRIE, TEXAS, FOLKS SUPPORT THE SHERIFF, THE COWBOYS, AND TWO PREMIUM PAY SERVICES.



It was a classic Texas showdown. When Storer Cable TV introduced Showtime and (dare we say it?) Home Box Office to a new build market just outside of Dallas last July, a lot of people in the industry were skeptical. After all, when the two big guns come to town, one of them has got to get out by sundown, right? Wrong.

As of October 25, 1979, the figures show that of all basic cable subscribers, 94% have opted for pay TV. And, of those, an astounding 65% have chosen both SHOWTIME and the other maxi service!

Why?

Because Storer presented a total entertainment package to Grand Prairie. And since most subscribers looked at cable as a way to maximize their viewing options, they took both pay services so they wouldn't "miss anything."

They were right.

Many of you think the two services offer the same programming. They don't.

For instance, Showtime offers a wide range of totally unique blockbuster specials. Superstars like Elton John, Willie Nelson, Tony Bennett, Crystal Gayle, and Juliet Prowse taped live in concerts from Moscow to Nashville. Dazzling Las Vegas reviews. Uncensored comedy from Chicago, New York, Houston, and San Francisco. Exclusive productions of Broadway and Off Broadway shows. And movies and mini series produced especially for us.

Packaging the two pay services together, Storer was able to give the Grand Prairie audience more options, more convenience, and better selection than ever before.

And Showtime is committed to working closely with the cable system to successfully package these dual service advantages to the consumer.

The teamwork paid off.

In a new build, dual market situation, both Showtime and the other major pay service experienced high penetration



numbers and overwhelming success. And the affiliate reaped the benefits of both!

By offering Showtime and another pay service, Storer's maxi pay revenue increased by a whopping 85%.

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RCA Reassures Customers But Makes No Announcement on Satcom III

PISCATAWAY, NEW JERSEY— Reassurances from RCA that it will accommodate all its cable customers with transponder time on a satellite has all allayed, at least temporarily, industry fears that the loss of Satcom III could spell disaster for the cable programming business. RCA customers contacted by this reporter appeared calm and confident that the common carrier would deliver on its promise to find transponder space for all services. But at press time, RCA had yet to make an official announcement regarding the loss of Satcom III, much less detail its plans for meeting the industry's satellite transmission needs.

While claiming to still be investigating the December 10 disappearance of Satcom III, RCA has been in discussions in recent weeks with other carriers to find necessary transponder space for customers expecting to transmit programming on either Satcom I or III. Most customers with contracts for space on Satcom III will be able to be accommodated with transponder time on Satcom I. By moving the message traffic now occupying two transponders on Satcom I to another satellite, RCA will avail two more transponders for cable programming, thus providing time to two of the four companies which were to be leased transponders when cable traffic was moved from Satcom I to Satcom III this spring. The criteria for deciding which of the four—Home Box Office, Southern Satellite Systems (for the Cable News Network) Showtime and National Christian Network—would be awarded transponders on the cable-only satellite has yet to be determined. Only two of those companies will be given full time use of a transponder on Satcom I, but another could be accommodated, on an occasional use basis by using transponder 14. Transponder 14 is inoperable several months out of the year due to sun outages on the equinox.

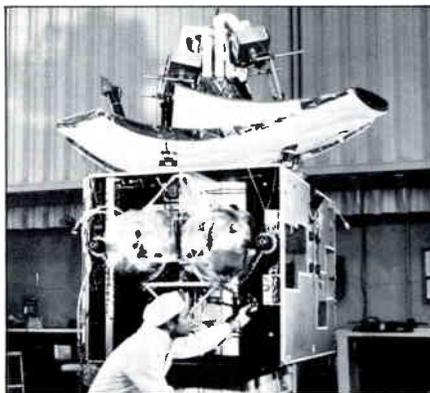
To provide for the nine customers who were to be part of the second cable satellite network (those who were to have space on Satcom I after existing cable traffic was moved to

Satcom III), RCA has been looking for space on another carrier's satellite. RCA has been in discussion with both the Canadians and AT&T to determine which would best provide ample transmission capacity for the second network of cable services.

While RCA has official protection agreements with the Canadians, there was speculation that the Canadian Telesat system could not provide the necessary number of protected transponders. Unofficial word was that AT&T, with considerable unused transponder time on Comstar, would be better able to provide time. An RCA spokesman said negotiations with AT&T were underway, but declined to report on the progress of those talks.

In addition, it was learned that RCA was considering speeding up its time schedule for launching Satcom IV. Although RCA would not confirm the fact, there are rumors that the common carrier has already contracted with NASA for launch time in April, 1980, which would mean speeding up the launch of that satellite by over a year. Since Satcom IV is still in the preliminary stages of construction, some industry observers pointed out that RCA would have to work around the clock to pull off a spring launch of its fourth satellite.

The December 10 loss of Satcom III represented the first time a satellite, once successfully launched, had simply disappeared. The loss of the satellite, which vanished while being put into geostationary orbit, was an obvious embarrassment to RCA since it—not NASA—was in control of the maneuvers that ultimately resulted in the disappearance. RCA engineers in Vernon Valley, New Jersey, gave the signal that fired the apogee kick motor



intended to put the satellite into its permanent orbit 22,280 miles above the equator. RCA has yet to issue a formal explanation of Satcom III's disappearance, but unofficial speculation suggests that the satellite either blew up or is lost in deep space.

RCA claims to be continuing its investigation—an investigation it says will take several weeks to complete. But industry experts suggest that such an investigation could easily have been completed in a much shorter time span and that RCA is simply buying itself time to make back up plans.

The loss of Satcom III will have minimal financial impact on RCA. Satcom III was insured by RCA with Lloyd's of London for \$70 million. The cost of that policy to RCA was approximately \$5 million.

Cable Industry Mourns the Loss of CCTA's Walter Kaitz

OAKLAND, CALIFORNIA—Walter Kaitz, executive director of the California Cable Television Association, died at the age of 63, December 29, 1979. Cause of death was unknown at press time.

Introduced to cable in 1959, through his work for the California Real Estate Association and the California Broadcasters Association, Kaitz joined the California Cable Television Association (CCTA) later that same year. He subsequently was named as the association's general counsel and spent the rest of his life structuring the CCTA upon an unwaivering pragmatic philosophy.

Kaitz's philosophy found its sources in the streets of South Boston where at an early age Kaitz became "enthralled with the give and take of interests," and realized that "the essence of our democratic process is compromise." These guidelines were further reinforced and defined during his years in the Army during World War II, under Generals Patton and MacArthur, and then followed by further education at the University of California at Berkley's Boalt School of Law. Compromise was the cornerstone of Kaitz's philosophy, and Kaitz held firm to his belief that "we must become a nation of laws; it's the

only civilized way. In politics, you've got to be willing to compromise."

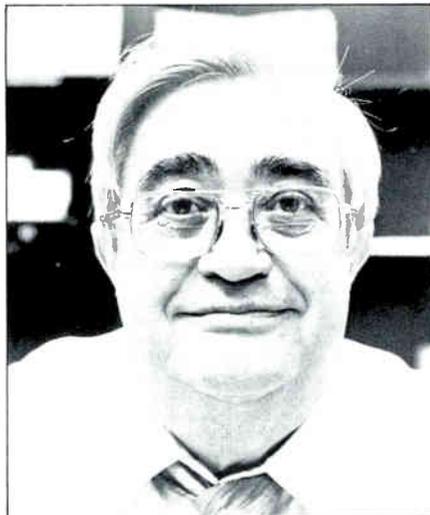
However, there were four points on which Kaitz would not allow the CCTA to compromise: "the right to be free from bureaucratic harassment; the right to make a profit; the right to serve the people unfettered by despotic governmental demands; and the principle for the private enterprise aspect of our [cable] business." These staunch principles played a decisive role in winning cable industry advocates in the state legislature and, occasionally, in the governor's office.

Through 21 years with the CCTA, Kaitz kept a watchful eye on legislation concerning cable, yet that eye was not a hostile one. "He was a great friend and representative to the cable industry; he was one of the most respected, well liked legislative cable advocates," both in Sacramento and Washington, D.C., according to California State Senator Al Alquist.

An advocate of state regulation, Kaitz felt the increasing need for the National Cable Television Association (NCTA) to develop strong leadership at the state level, and that, specifically, through the CCTA's grass roots political awareness, California local operators have a responsibility toward assuming state regulation, and toward making their local origination channels more available to city, state and federal officials, with the outcome of "cementing relationships with city councils and staffs."

Through his years at the CCTA, Kaitz had a "Combat Front Program" with five main fronts he and the CCTA urged other associations to adopt. Number one is the CCTA's effort to ensure that the industry not be subjected to state PUC regulation; number two, deregulation; number three, rate increases (according to Kaitz, a year ago, rates should have been raised to ten dollars); number four, expansion of cable systems and increased saturation; and number five, property taxation.

These goals along with his years of dedication not only to the CCTA, but also to the cable television industry caused Walter Kaitz to be held in the highest esteem by his peers. Kaitz taught the industry how to "play the cable TV game." He lent continuous



Walter Kaitz was a mentor as well as a friend to many in the cable industry.

optimism and was a mentor as well as a friend to many in the industry. He left a legacy through his teachings and work in cable television.

It is still too early to determine how the vacancy left at the CCTA will be filled. Perhaps his son, Spencer, who has been following in his father's steps, may assume Walter's position. The void is large and it will be difficult to find another man like Walter.

It was fortunate that Walter was able to attend the Western Show last month, as the NCTA's National Award for Outstanding Contributions through a state or regional association was renamed the Walter Kaitz Award, in recognition of Kaitz's many years of dedication to the cable industry. Additionally, the Kaitz family, in conjunction with the CCTA, has announced the establishment of the Walter Kaitz Foundation, in memory of Kaitz's 30 years spent with the California State Legislature, Sacramento, and the 20 years spent with the CCTA, to encourage further public participation particularly in the area of California legislative processes.

"Walter Kaitz had a particular gift for consolidating different points of view and a unique degree of integrity, both of which will be hard, terribly hard, to do without. He left us with a challenge to fulfill his own goals in bringing cable to a position of leadership in each of our communities." Tribute paid to Walter Kaitz by David Lewine, Times Mirror Television, and CCTA president.



Finally... A Functional Coring Tool



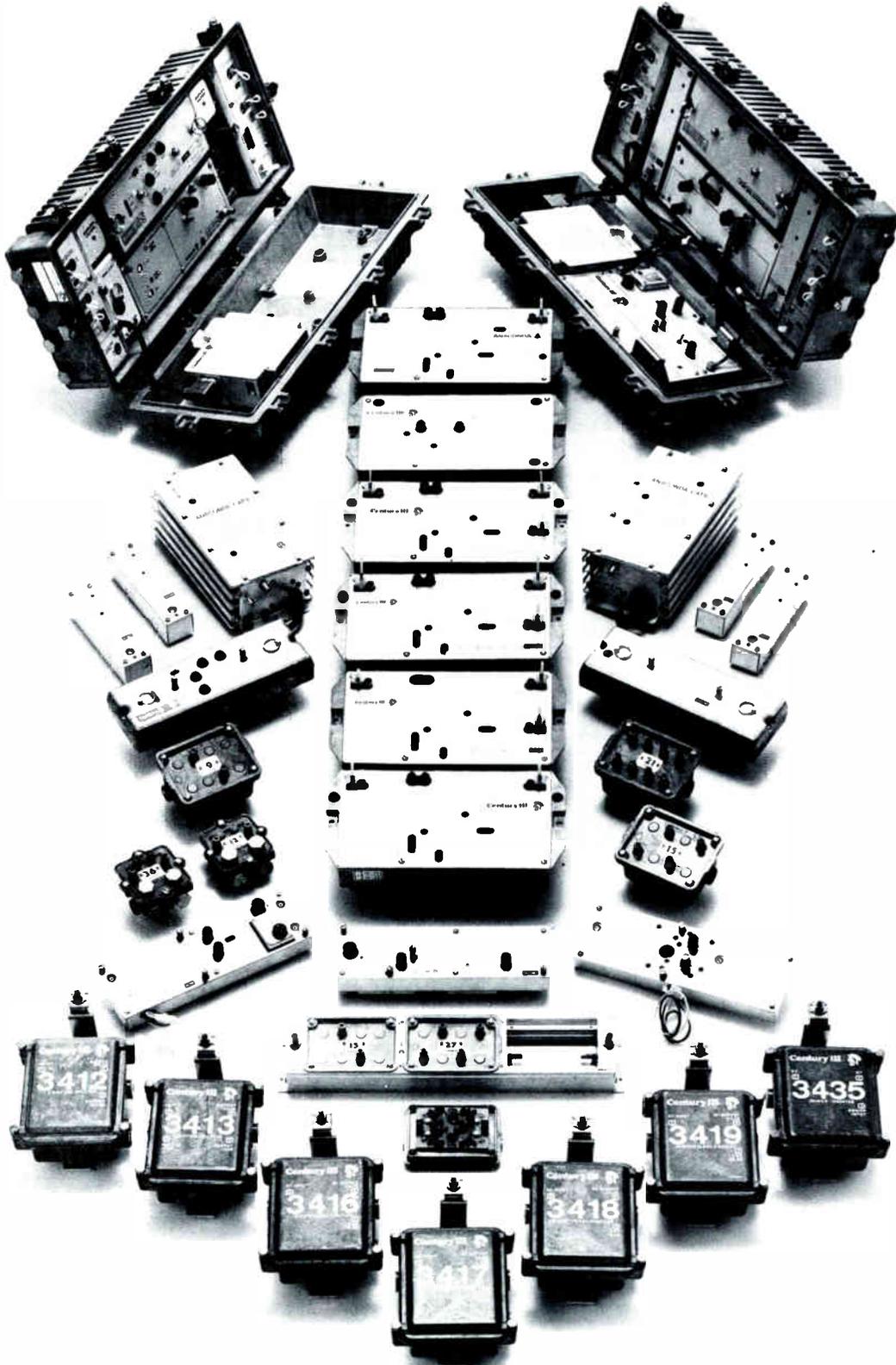
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Western Show Wrap-Up

By Gary Witt, Executive Editor

It was the largest Western Show ever—with a attendance climbing to more than 3700 (an increase of about 1000 over last year), and more exhibition floor space than ever before.

Included on the agenda was a series of technical seminars, conducted on December 13, and averaging between 100 and 150 attendees per session. Each of the four sessions used a panel discussion format, and coordination for the series was provided by Ross Wileman of Storer Cable TV.

The first panel focused its attention on the theme "Underground Construction—A New Era." Ron Goodno, plant manager for Times Mirror in Costa Mesa, California, served as moderator for the discussion, and also presented the introductory paper, which concerned itself with problems and considerations in the use of conduit compared with direct burial. Among the considerations highlighted by Goodno were the additional expense associated with conduit, problems related to soil conditions and backfill, street and highway crossing maintenance problems, long-run construction, and rodent problems. Goodno emphasized the importance of protecting the physical plant, and pointed to the ease of replacement allowed by conduit installation. He then explained some of the pros and cons surrounding the choice between polyvinyl chloride, poly-duct and steel conduit. In addition, Goodno recommended the use of sweep-markers to establish optimum performance of the system, and he stressed common sense in determining riser locations. Lastly, Goodno reminded his audience to obtain the tension specs on whatever cable they install, and also to use a good pulling compound to draw the cable through the conduit.

Whereas Goodno was clearly in favor of the extensive use of conduit in the installation of underground cable, the next speaker, Frank Caliri of Falcon Cable TV, came down squarely on the side of direct burial. His primary point was that the additional expense of conduit is not always justified, especially where replacement costs are



Darrell Bye, Gary Moore, and Ron Goodno

fairly low and installation conditions are favorable.

Gary Moore of Sonic Cable TV, the next scheduled speaker, was unable to stay for the entire seminar; however, his paper on joint trenching was presented by Ron Goodno. Essentially, Moore's paper analyzed a few of the problems inherent in trying to coordinate the trenching activities of cable franchises and other utilities in a new development, as well as in a subsequent conversion of overhead lines to underground.

Following Moore's paper was a presentation by Darrell Bye of Multi-View Systems spotlighting the problems and procedures behind obtaining underground permits from the governing bodies of franchising cities. Bye also examined the requirements of a typical underground ordinance and some important considerations in meeting those requirements.

The final speaker for the underground construction seminar was an independent contractor by the name of Ken Fitzgerald. Fitzgerald was there to explain the use of a new rock cutting tool in the installation of cable beneath streets. This new device allows a crew to install at the rate of 1000 feet per day, cutting out a trench four inches wide and twelve inches deep. By setting up the boxes ahead of the trenching crew, Fitzgerald is able to cut through and

then tie the cable in. The method has apparently been used extensively in Marin County and in San Francisco, to avoid the problems associated with trenching through yards. Fitzgerald noted that by keeping the cable in the street, there is no problem with landscaping. The only problem is that the cost of this mode of installation is currently running about five dollars per foot. Several members of the audience pointed out that the costs thus involved are quite prohibitive. For example, with a 50 or 100 foot frontage, the average cost per home passed could range between \$250 and \$500, without considering additional costs of cable and other apparatus and labor.

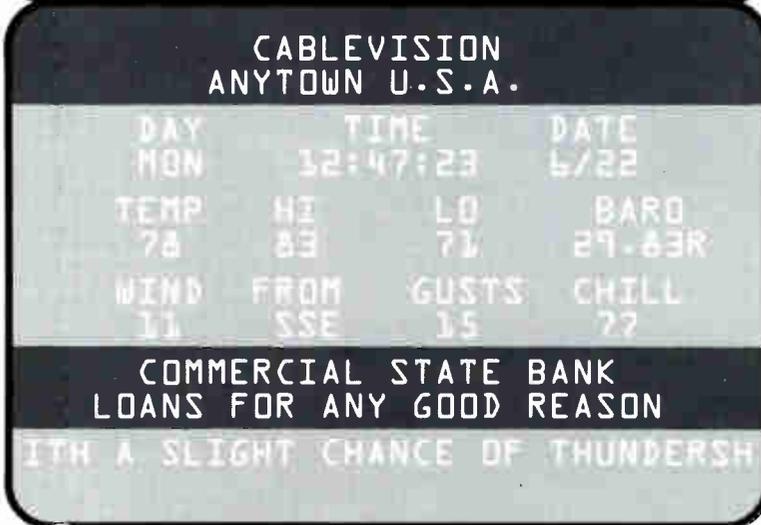
The next seminar featured Cliff Paul of the FCC's Cable Television Bureau who spoke on radiation and aviation frequency problems. Paul pointed out a recently released FCC advisory committee report on cable signal leakage which was compiled by Dr. Robert S. Powers and Ralph Haller. The report will be used to formulate FCC rules altering the current section 76 of the FCC regulations. As it stands now, a notice of proposed rule-making (docket #21006) is expected out early in 1980 to revise the procedures and standards applied to the alleviation of interference between aviation frequencies and cable systems. Currently,

(Continued on page 23.)

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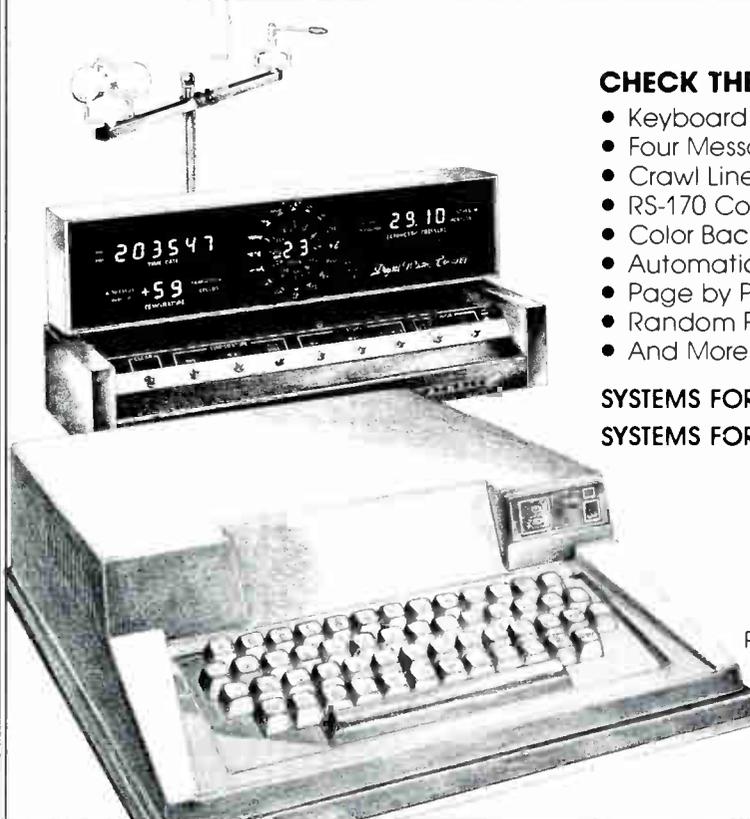
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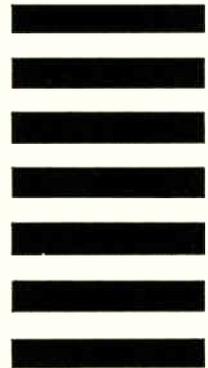
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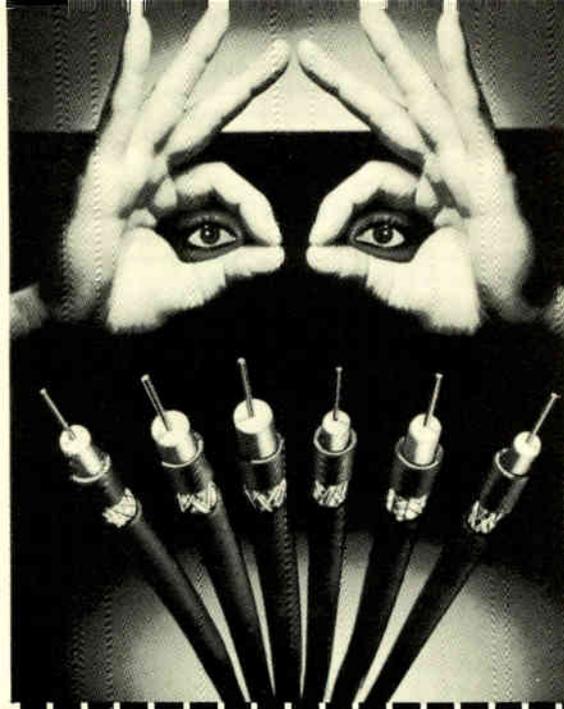


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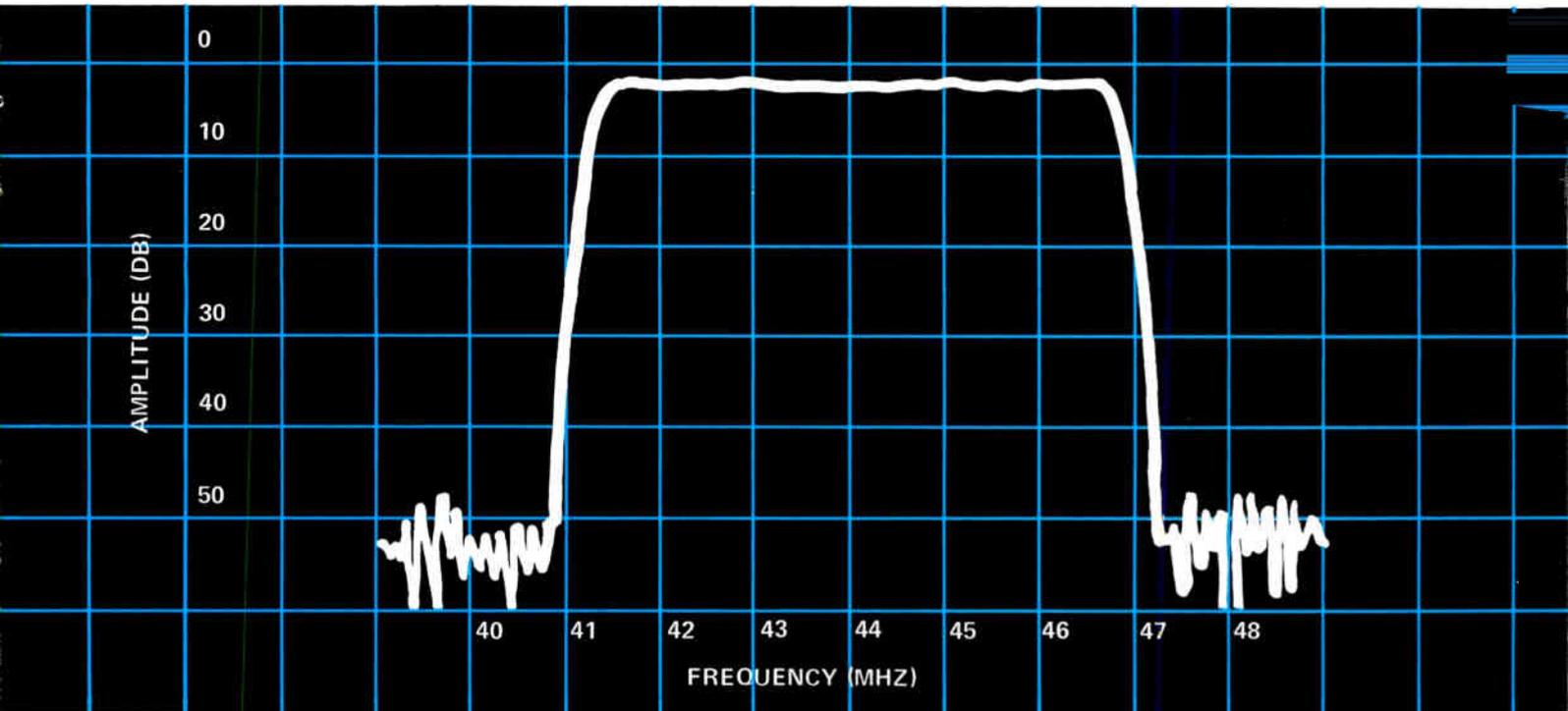
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The Prestel Show

A highlight of VIEWDATA 80, will be the "Prestel Show", presented by the British Post Office in an adjacent auditorium. Over 12,000 specially invited guests from industry and the public will be attending this event, with the BPO scheduled to spend over £1 Million in advertising and promotion on the Prestel Show alone. The Prestel Show should provide the participants with the first major "hands on" opportunity for the public to observe user response and obtain feedback from the ultimate videotex consumer!

The International Conference

The VIEWDATA 80 Conference will offer three parallel streams of six half-day sessions presented by over 60 internationally noted speakers in 18 panel and roundtable discussions. Speakers will include: Dr. John Madden, Dept. of Communications Canada; Mr. Gary Rosch, FCC and CCITT Videotex

Standards Chairman, Washington; Sam Fedida, the Inventor of Viewdata, London; Professor Terrence Easton, Chairman, Dept. of Telecom Mgmt., Golden Gate University, San Francisco; Geoffrey Hughes, Director, Oracle, UK; Roy Bright, Directeur Generale, Sopritel, France; Alex Reid, Director, Prestel, UK; Bernard Rogers, Director, ITT among many others.

Organizations presenting papers include CBS, Link, Butler Cox, Communications Studies & Planning, Bell Canada, Quantum Sciences, Financial Times, British Rail, the French PTT, the Information Industry Assn (USA), the Associated Press, Oak Communications, Zenith, Control Data, and 40 others.

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For VIEWDATA 80 North American Tour reservations, call REGENCY TRAVEL SERVICE, 800-227-3477 (in California and in Canada call 415-956-1660), or write Matt Golden, RTS, 100 Pine Street, Suite 1340, San Francisco, CA 94111.

(Continued from page 15.)

76.601 of the FCC regulations deals with the elimination of such interference. New systems are required to report to the FCC 60 days prior to the use of any frequency; during that sixty-day period, the commission will determine whether such use will interfere with aviation use, and if so, to what extent. The FCC is required to coordinate frequency use with the Department of Defense, and the Federal Aviation Administration, as well as private users.

One tool in the selection of a frequency for cable use, said Paul, is a quarterly publication of the National Technical Information Service defining channel uses in given sections of the U.S. The publication gives all normal channel usages, up to 100 kHz on both sides of each channel, to help an operator determine whether a clear frequency is available. (The title of the publication is **The Aeronautical Frequency Assignment Near Cable TV Carrier Frequencies**. Subscriptions are \$36.00 per year and available through the NTIS, catalogue number NTISUB/239.)

In the event there is interference, the FCC has three options: 1) it may grant a waiver if the interference can be shown to be within tolerable limits, 2) it may coordinate frequency use by offsetting the cable user in relation to the others, and 3) it may require the cable operator to reduce output below 10^{-5} watts (effectively shutting down the system). Paul emphasized, however, that this third alternative is a last resort, to be used only in the event that the first two options become unfeasible. The primary concern in all this, said Paul, is to allow air traffic a clear channel, and to insure the safety of air travelers.

Paul went on to explain the current status of docket number 21505, relating to periscope antennae, cable relay service, and the coordination of frequencies. The current rules have gone through notice of inquiry, notice of proposed rule-making, and have been compiled into a Report and Order of the FCC. However, the American Broadcasting Co. has petitioned for a stay in the enforcement of the order, as well as for reconsideration. The FCC has yet to act on those petitions; however, it is clear that the FCC is opposed to the use of periscope antennae, and is moving to eliminate them.



Tom Polis, and Dick Covell

The third seminar topic was "The Complex World of Satellite Receivers," and featured panelists Dan Yost of Compucon, Marvin Shoemake of Scientific-Atlanta, and Jim Emmick of Koenig Electronics.

Yost began the discussion by outlining a few of the considerations that go into equipment selection, including the recent deregulation of earth stations and the loss of RCA's Satcom III. Yost noted that deregulation will probably result in an increase in the introduction of new products and services, and that the loss of F-3 points up dramatically the need for flexibility in equipment.

According to Yost, there are four basic steps in the selection of earth station equipment. The first, of course, is to determine what performance standards and technical specifications are available from each manufacturer. The second is to determine what options will be necessary in view of the over-all characteristics of the system. The third is to give careful consideration to problems of interference. And fourth is to examine other outside influences which may affect reception and distribution.

Yost went on to discuss signal to noise relationships, pointing out that a 40 percent S/N is average, 50 percent is good, and 52 percent is ideal. As far as carrier to noise is concerned, Yost recommended working within the 14 dB range.

Yost was followed by Marvin Shoemake, whose presentation centered upon various factors related to the selection of earth station location. The panel concluded with Jim Emmick, and an explanation of some practical

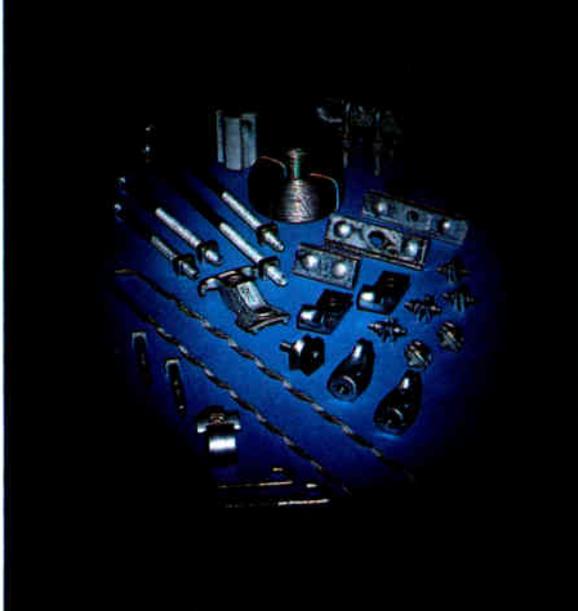
aspects of earth station construction, including the stress factors of concrete and a few of the problems cable operators are likely to encounter in dealing with contractors.

The next seminar was entitled "Fulfilling the Technical Needs for the '80s," and it focused on the problem of finding capable technical personnel. On hand were panelists Al Burnett, from Cox Cablevision, Mark Stuckey from Times Mirror, Paul Kaplan from Theta Cable, Al Shine from the Urban League, and William Dabney from the East Bay Skills Center. The moderator for the session was Joe Van Loan from Viacom. The panelists emphasized the cable industry's responsibilities under the Federal Equal Employment Opportunity Act, and also noted that, to a large extent, the technical personnel necessary to wire America are going to come from outside the industry. Larger operators have already instituted training programs, and the panelists each urged expansion in this field.

The final seminar of the day examined the topic of expanded bandwidth for the future. Participants included Dave Randolph from Storer, Dick Covell from Sylvania, Kerwin Mahon from RMS, Tom Polis from Magnavox, Fred Shuh from General Instrument, Jim Eachus from Motorola, Larry Nelson from Comm/Scope, and Israel Switzer, an independent consultant. Discussion centered around recent technical advancements and their implications for the future.

In general, the tech sessions were well attended, and frequently produced a lively dialogue and debate between panelists and members of the audience.

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Tech Review

This special January tech review features the various types of equipment displayed at the Western Cable Television Show in Anaheim, California, December 12-14. In addition to the new products unveiled at the show, we have included top-of-the-line equipment from major manufacturers.

Below is a handy reference, in alphabetical order, for locating specific equipment for your requirements.

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Cable Equipment

Cerrocom Introduces Cerrofoam-GXX

Cerrofoam-GXX is a new gas expanded polyethylene trunk and distribution cable now available in .412 inch, .500 inch, .750 inch, and 1.00 inch sizes. The GXX features extra low-loss transmission, and extended frequency compatibility to 400 MHz.

For further information, contact Cerro Communication Products, Halls Mill Road, Freehold, New Jersey 07728 (201) 462-8700.



Datrex Introduces New Cable Measurement Device

The Datrex Corporation of California has come out with a new portable instrument for measuring reel-partials and random lengths of all CATV cables. This new instrument provides a convenient, fast and accurate way to measure all those partials in the field: RG 59, RG 6, as well as virtually all trunk and distribution type cables utilized in the industry today. The Datrex model 101/102 is a portable, battery-operated meter for the installer, the construction crewman, and the technician. It is fast and accurate, with a direct digital readout and a range exceeding 5000 ft. It measures all 75 ohm cables, and comes with a one year warranty on parts and labor. Price: \$339.95, available through the Cable TV Supply Company, Los Angeles; Houston; Decatur, Georgia; Addison, Illinois; and Cinnaminson, New Jersey.

For further information, write Datrex of California, 531 Flume Street, Chico, California 95926, or call the Cable TV Supply Company in Los Angeles, (213) 204-4440.

General Cable's Fused Disc III

General Cable has recently introduced Fused Disc III coaxial cable, available in .412 inch, .5 inch, .75 inch, and 1.00 inch sizes. The cable consists of a solid inner conductor of

either copper or copperclad aluminum, disc insulation and an outer conductor of aluminum. The inner conductor is annealed copper or copperclad aluminum. A thin adhesive coating is applied overall. The dielectric consists of compartments of air and thermoplastic discs. These discs are uniformly spaced and hold the inner conductor centered within the aluminum outer conductor. The discs are fused to the coated inner conductor. The outer conductor then consists of an electrical grade welded aluminum tube drawn down in a compression fit over the discs in order to impede moisture migration.

This basic cable construction is then afforded one of four varieties of protective jackets, depending upon the intended use of the cable. For example, if the cable is to be applied to aerial construction, a black high molecular weight polyethylene jacket shall be extruded over the cable. When flooding is specified for aerial application, a rubber modified asphalt flooding compound will be applied between the outer conductor and the jacket.

When direct burial jacketing is specified, a black high molecular weight polyethylene jacket shall be extruded over the cable, and a clear, viscous flooding compound shall be applied which will flow to fill any minor construction damage in the overlying jacket.

Figure 8 (messengered) cable is composed of a support wire parallel to the coaxial cable, and covered by a black high molecular weight polyethylene jacket to form a figure 8 cross section. The support wire used with Fused Disc III is solid .109 inch galvanized steel.

In addition, direct burial jacketing may be reinforced and armored by covering it with .006 inch steel tape, corrugated and longitudinally folded around the jacket with positive overlap. Flooding compound is then applied to cover both sides of the corrugated steel tape. A black high molecular weight polyethylene jacket is then applied over the flooded steel tape.

For further information, contact General Cable CATV Division, 1 Woodbridge Center, P.O. Box 700, Woodbridge, New Jersey 07095, (201) 636-5500.

Submarine Armored Fused Disc Coaxial Cable

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Intercept Produces New PED Metal Cable Closure

The Intercept PED 6000 is a 5 3/4 by 5 3/4 by 20 inch metal cable closure used for mounting traps, splitters, and related equipment for underground construction. The unit features a low silhouette design with lockable padlock hasp. The closure is fabricated from heavy gauge hot-dipped galvanized steel to protect against rust.

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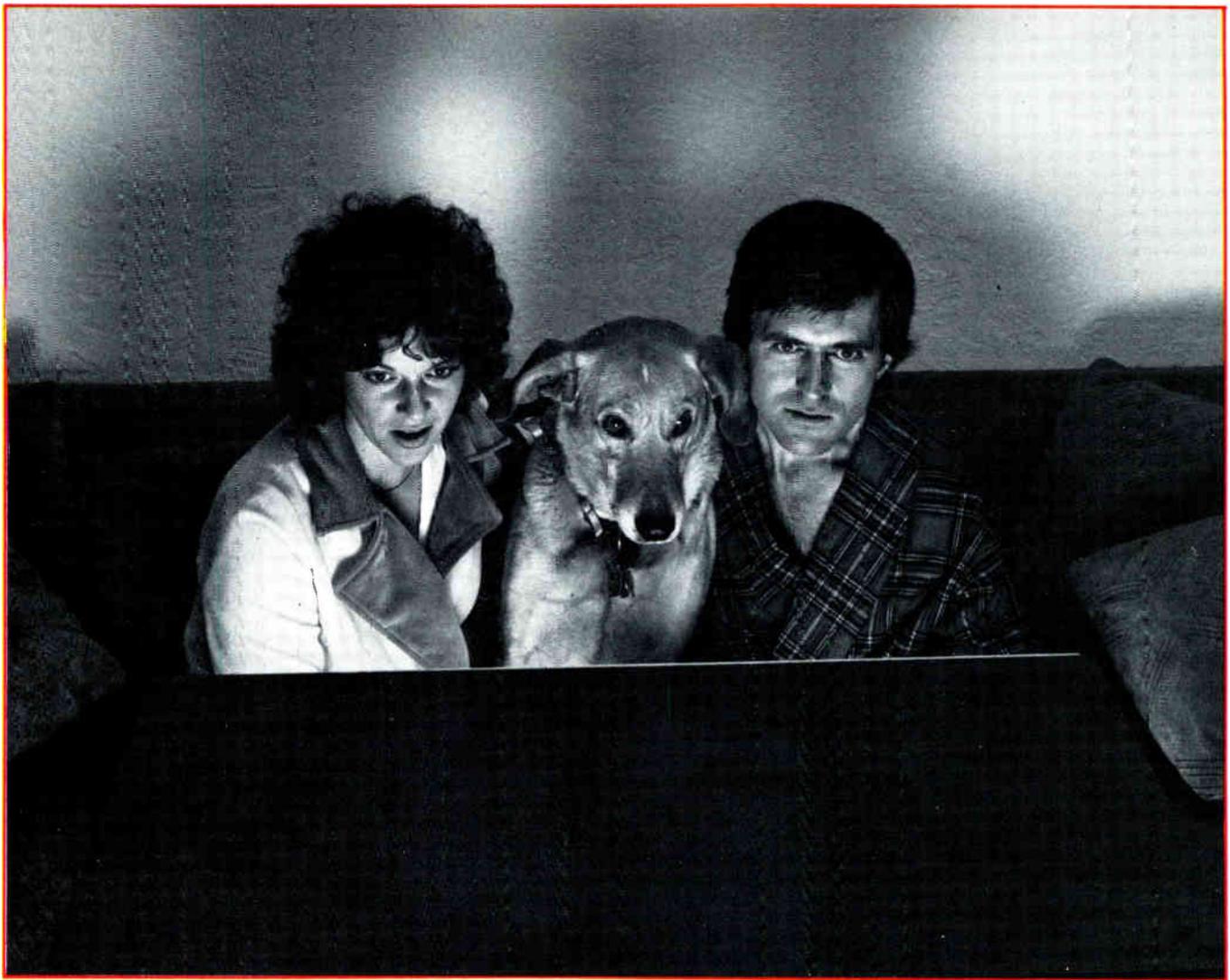
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For further information, contact Intercept Corporation, 140 Delawanna Avenue, Clifton, New Jersey 07014, (201) 471-2212.

New Cable Technology Increases Channel Capacity

Valtec Corporation, whose Catawba, NC, Comm/Scope subsidiary is the nation's leading supplier of coaxial cable for CATV systems, has introduced a new cable, Parameter III Plus, which increases the number of channels which system operators can offer to subscribers.

"We call it the 'Cable With Room at the Top' because it offers access from five to 450 megahertz, or 50 percent more bandwidth," said Valtec President Frank M. Drendel. The exact number of channels would depend on the cable system operator's electronics, but new transmission equipment expanding capacity to 52 channels from 35 has recently entered the market, the Valtec President explained.

"Parameter III Plus will cost from 10 to 20 percent more based on customer's desired configuration, but it allows CATV system operators an additional capacity otherwise possible only by using two cables," he said.

"Until about a year ago, most CATV people were talking in terms of 24 to 35 channel systems. Now, they're discussing 50 and up. One example is Boston where a commission just recommended a single, city-wide 80-channel system which would employ two 40 channel cables. One cable



would deliver programs to homes, and the other would service institutions. The Boston planners also propose technology which would allow two-way communications between viewers and cable operator. This could be used to gather information, such as opinions about a show, or for other instant referenda.

The Catawba manufacturer of high quality cable assures stable attenuation to 450 MHz. Return loss (SRL) for PIII Plus cable maintains a minimum of 30 dB (SRL) throughout 5-450 MHz. One inch cable is 26 dB throughout 5-450 MHz.

For further information, contact Comm/Scope Company, Route 1, Box 199-A, Catawba, NC 28609, (704) 241-3142.

Line/Headend Equipment

Century III Presents the 3100 Series Feedforward Amplifier

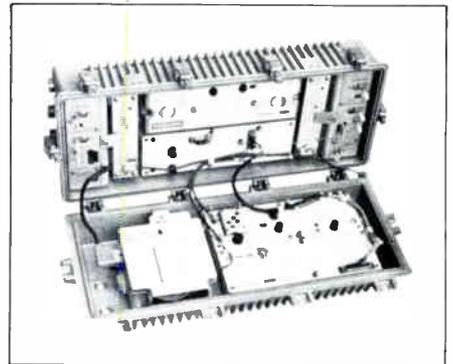
The Century III Feedforward Super-trunk amplifier uses the latest advancements in integrated circuits, coupled with a unique method of noise and distortion cancellation, to provide reliability and stability throughout a wide temperature and frequency range; and which will produce an overall system that is relatively free of noise and distortion. This ability to cancel the distortion products of the amplifier allows the implementation of relatively long coaxial cable systems while still maintaining a quality signal at the far end.

The 3100 Century III Series trunk amplifiers are designed for long-haul super-trunk systems of high-level distribution applications. This series of trunk amplifier stations provides a wide range of capabilities and versatility within a 45-300 MHz bandwidth.

Optional redundant power supply module (2154R) allows operations from 30 to 60 VAC or 50 to 100 VAC. Power transformer taps are selectable for optimum use and safety circuits include a Crowbar circuit, a foldback circuit and an automatic switch-over should a failure occur. Two LED's give visual indication of power supply performance. When used with the optional status monitoring system, an alarm read-out of power supply condition

can be obtained at the head-end. The unit is convertible to sub-split or mid-split 3200 series amplifier stations with the installation of appropriate modules and interconnecting RF cables. Feeder outputs in bridger stations are protected by self-resetting, 4 ampere circuit breakers, limiting the current in each feederline to a safe level.

Ordering information: specify name, model number, frequency, 2 or 4, bridger outputs, AGC carriers, equal-bridger outputs, AGC carriers, equalizer value. For example, AGC/BR Trunk Station, Model 3104-4/300 MHz, 8 dB, channel 4 and 13 AGC carriers, 4 output bridger. Century III Electronics Inc., 3880 East Eagle Drive, Anaheim, California 92807, (714) 630-3714.



Cerro Communication Products Releases Compilation of Passive Devices

A brochure released at the Western Show by Cerro Communication Products details the entire line of Cerro passives, including: MATV directional taps (82 channels for UHF or VHF); MATV indoor matching transformers and band separators; two-output MATV die cast splitters for indoor/outdoor installation; MATV wall plate directional tap assemblies for the 54 to 890 MHz range; VHF/UHF/FM MATV indoor band separators; and indoor/outdoor matching MATV transformers.

For further information, call Cerro at (201) 462-8700.

Eagle Comtronics Unveils Its Line of Cable Splitters

This year, Eagle Comtronics has added a line of cable splitters to its family of products. According to an information sheet released by Eagle, the new line of splitters has five features that set it apart significantly

from others. First, all Eagle splitters have grounding blocks, provided with no additional cost. Second, all Eagle splitters have sealed F-ports. Third, all have machined threads on the F-ports—not outmoded forged threads. Fourth, Eagle splitters are designed and built with a variety of configurations suitable for all applications. And finally, all Eagle splitters feature a unitized diecast housing with a super corrosion-resistant coating.

Eagle splitters are subjected to stringent acceptance testing before shipping, to insure quality control. Design specifications include: isolation tap-out 35 dB minimum, bandwidth 5 to 300 MHz, impedance 75 ohms, return loss (in and out) 20 dB minimum.

For further information, call Eagle Comtronics toll-free at (800) 448-3311.

Gamco's New 8 Output Directional Tap

Gamco's latest product development is an eight output directional tap with internal traps, for four or eight subscribers. Model GTT 5508 has a frequency range of 5-300 MHz, and a

response flatness of plus or minus 0.5 dB. Return loss at the tap, as well as at in and out, is a minimum of 20 dB; power capacity for the unit is six amps, AC or DC.

The model 608 plug-in subscriber trap module has typical trap attenuation of 55 dB, and return loss (plus or minus 10 MHz from trap) of 18 dB. Bandwidth at 45 dB is as follows: 200 KC at low band, 400 KC at mid-band, and 800 KC at high band. Insertion loss amounts to 0.3 dB at a range of 5-300 MHz, and increases to 2 dB at a variance of plus or minus 6 MHz from trap frequency. In addition, the unit registered temperature drift (-40°F to +140°F) as follows: 50 KC low band, 200 KC mid-band, and 350 KC high band.

For further information, contact Gamco Industries Inc., 291 Cox Street, Roselle, New Jersey 07203, (201) 241-7500.

Intercept Presents ICM 2 And 4 Output Multi-taps, and Hybrid Splitters

The ICM series of multi taps from Intercept Corporation provide 2 or 4

way subscriber taps over a broad range of tap values. Modular design enables the operator to remove the base plate and circuit board as a unit without removing the center seize or the strand mounting. Changing the base plate will not affect downstream operation. The housing is fabricated from a corrosion resistant aluminum alloy. Stainless steel hardware is used throughout, including the strand clamp. The housing and all ports have separate moisture sealing gaskets and the subscriber ports have a puncture sealing rubber membrane. All connector ports, including subscriber ports, have large shoulders and anti-slip ribs for use with shrinksleeving. Housing and cover plate as well as the subscriber taps have drip skirts. The unit can be either messenger or pedestal mounted. The ICM is color coded to denote the dB value of the component unit. Specifications for the multi-taps include a bandwidth of 5-300 MHz, return loss on all ports of 20 dB minimum, tap-to-tap isolation of 30 dB minimum, response flatness of plus or minus 0.25 dB, 6 amp power capacity, impedance of 75 ohms, with a tap loss of plus or minus .5 dB of assigned value.



CATV Antennas

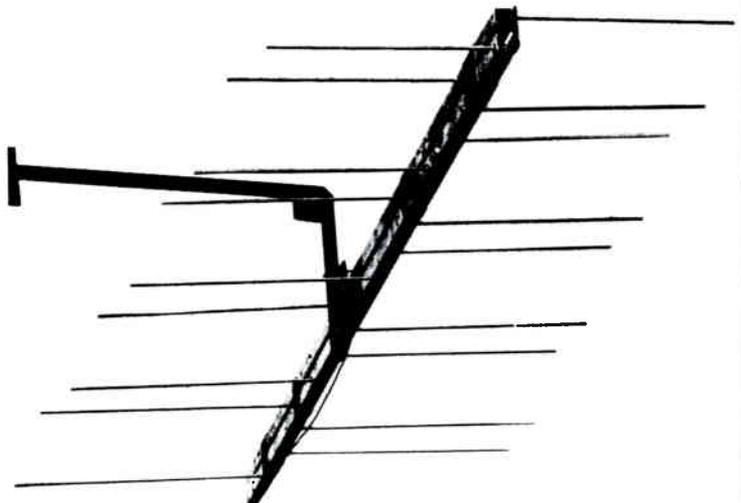
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FEATURES:

- *Extra Rugged Heavy Duty Construction
- *Superior Forward Gain
- *Maximum Front-to-Back Rejection
- *Excellent 75 ohm Match
- *Solid Replaceable Aluminum Rod Elements
- *Fast Assembly Time
- *Wind and Ice Resistant
- *Minimum Shipping cost... Mounting U Bolts Furnished

Full line of CATV products include; UHF & VHF Low Noise preamps, UHF dish Ant. Yagi VHF & UHF Log Ant. U/V & V/V Converters, Line Extenders, FM Equalizer, Band-pass filters, Superhet Modulators & Processors, NOAA Weather Converter, Civil Emergency Alert System.

CADCO Inc., 2706 National Cr. Garland, TX (214) 271-3651



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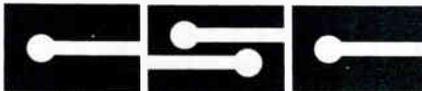
useful battery life!)

MAX-100 is comfortable anywhere, monitoring nearby RF transmitters with its built-in mini-whip antenna. Or any other CW, AM, or FM signal via clip-lead cable or accessory low-loss tap-off cable. Powered by your choice of alkaline cells or rechargeable nicads with battery eliminator/chargers that operate from car cigarette lighter, 110 or 220 VAC mains.

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The new HS200, HS300, and HS400 hybrid splitters are built with quad mounted housing to give flexibility to allow for strand or eave mounting, flush wall mounting, or horizontal mounting when drops are coming up from the floor or in cabinets when all the ports are needed to face down for real ease of installation. The housing is a sealed die cast for outdoor use and further protected from the weather elements with our new super black chromate finish. Each port is machine threaded to insure a perfect F connector fit and then weather sealed. All three models meet all FCC signal leakage rules, and are built, tested, and quality assured to work over the full CATV range—including the new 400 MHz bandwidth with low insertion loss.

For further information, contact Intercept Corporation, 140 Delawanna Avenue, Clifton, New Jersey 07014, (201) 471-2212.

Lindsay Offers Two-way Apartment Amplifiers

At the Western Show in Anaheim last month, Lindsay Specialty Products Ltd. of Canada was showing its 700 series apartment amplifiers, which, Lindsay says, offer greatly improved radiation security and cooler operation to solve the two most significant problems of apartment amplifier installations. The cast aluminum housing employs a metal mesh radiation gasket similar to Lindsay's outdoor amplifiers, to provide total radiation shielding. The heavy wall aluminum casting efficiently conducts heat away from areas where it is being generated and dissipates it over the entire outer surface. The IC is attached to a milled surface of the casting to keep the flange at the lowest possible temperature. The combination of series pass power supply and IC RF circuitry minimizes power consumption and decreases heat generation. These advanced features, according to Lindsay, result in the coolest running amplifier in the industry and greatly improved reliability.

The series 700 amplifiers accept a plug-in reverse amplifier and an AGC module to permit maximum system flexibility.

In addition, Lindsay has introduced its model CM 2W 24 Control Master Cabinet. The Control Master 2 way system comprises a family of lockable steel cabinets, three model 700 amplifier gain options and 35 CFTL multi-tap

4 and 8 way plate values. The system can provide from 4 to 128 apartment connections per cabinet, totally secure, highly reliable and fully RFI shielded.

For further information, contact Lindsay Specialty Products Limited, 50 Mary St. W., Lindsay, Ontario, Canada K9V4S7, (705) 324-2196.

McMartin's New Fixed Frequency FM Tuner

The McMartin FMR-1D is a low cost, high performance, crystal controlled broadcast tuner. This tuner insures high reliability, high quality audio signal for station or studio monitoring or for use in sound distribution systems.

The RF front end of the FMR-1D is crystal controlled and utilizes a diode protected dual gate D-MOS (FET) field effect RF amplifier and a dual gate MOS-FET mixer. The D-MOS (FET) provides greater than 50 dB linear AGC control resulting in an overall tuner dynamic range of over 100 dB with minimum cross modulation. The AGC does not produce any skewing or detuning of the high "Q" RF tuned circuits.

The FMR-1D utilizes only 1-3/4 inch of vertical rack space. An illuminated front panel power switch is provided.

For further information, contact Northern CATV Sales, Inc., 115 Twin Oaks Drive, Syracuse, New York 13206, or call toll-free (800) 448-1655 (in New York, call (315) 463-8433).

Merrill Cable Equipment Co. Introduces the Super Nova-300 Two-way Line Extender

New from MCE, the Super Nova-300 Two-Way 5-300 MHz Line Extender. Premium quality two-way capability at single-ended cost.

Brand new features include state of the art field-proven integrated circuitry, with higher gain up to 28 dB. Improved distortion characteristics, with an output capability of plus 51.5 dBmV through all thirty-five channels.

The Super-Nova-300 retains other time valued features of modular constructed cast aluminum housing that's weatherproof and RF proof. Dimensions of only 9-3/8 inches long by 5-5/8 inches deep allow mounting in a standard six inch pedestal. Easy plug-in,

input attenuator pads, cable equalizer, and thermal equalizer.

Also standard at no extra cost are In-Thru-Out power mode selector with surge protection on both the RF input and output, and built-in two way capability. The input and output test points are accessible through the housing lid. AC input voltage of 20 to 60 volts is possible by simply changing the transformer tap position.

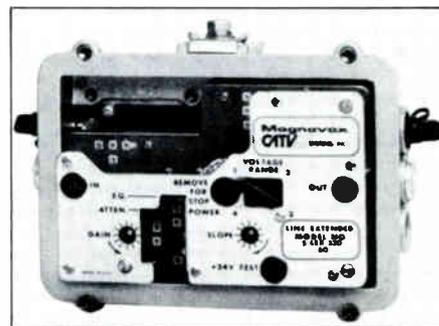
For further information, contact MCE, P.O. Box 13741, Phoenix, AZ 85002, (602) 271-9181.

Extended Capacity and Features for Magnavox Product Line

Magnavox CATV Systems Inc. is currently spotlighting expanded 330 MHz capacity for its line and head-end equipment products. Examples include the MX-504-X Mainstation Amplifier, System Sentry II Remote Status Monitoring and Feeder Disconnect, Line Extender Series, and MX-3700STX tap series.

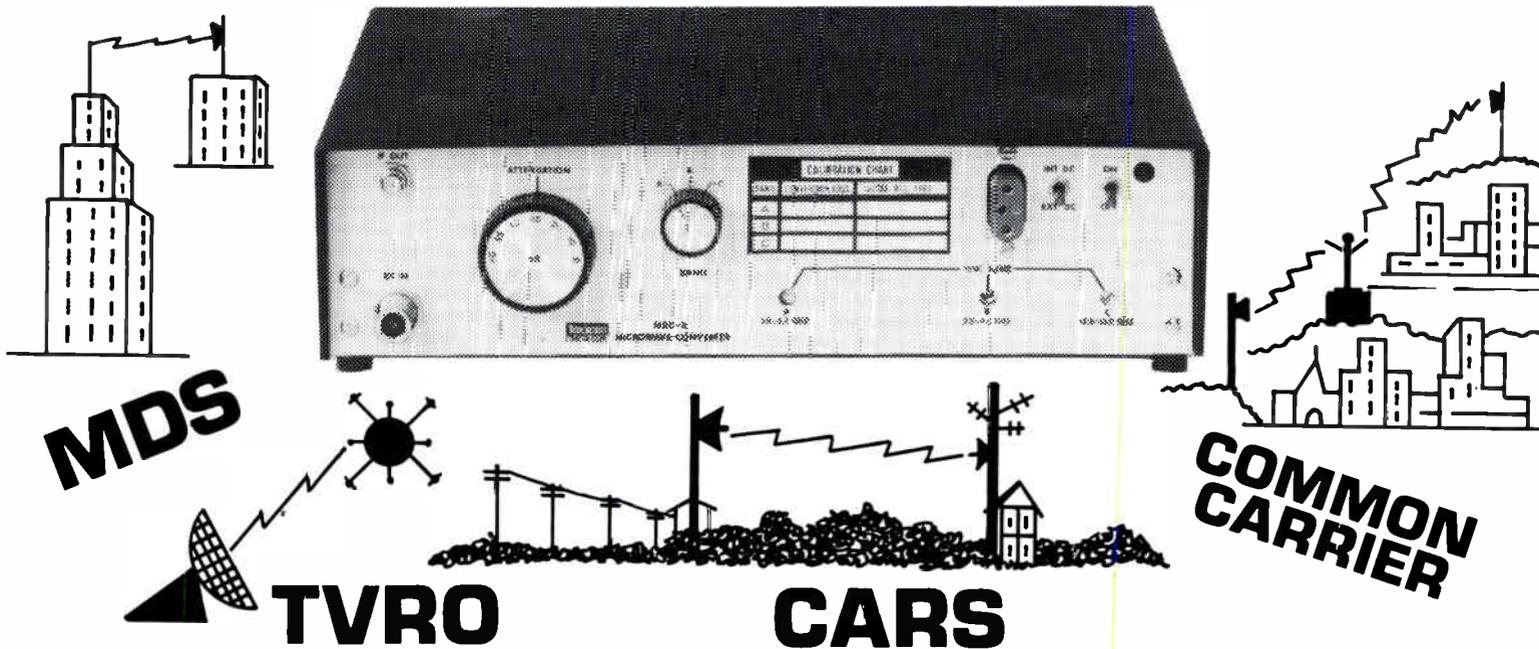
The MX-504-4 Mainstation Amp is comprised of the high quality 4TH/7PS housing and power supply, the new 5-MX-2X module chassis, and a complete new line of 330 MHz amplifier modules. Features include: modular design, which accepts all 330 MHz, 300 MHz, 270 MHz modules, and all special application modules; high quality 4-TH housings, constructed of die cast No. 360 aluminum alloy; optional plated housing for seacoast and industrial areas; optional housing having extended connector entry bushings and a bottom 7th port connector entry; model 7PS power supply with multi tier surge protection; fully isolated chassis, having bi-directional diplex filters, surge protection and total coaxial isolation.

The MX-504-X System Sentry II is a continuous monitoring of signal levels throughout an entire MX-504-X amplifier system. From the headend, hub or



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Texscan's microwave down converter permits measurement in the MDS (2.1 GHz) TVRO (3.7 GHz) and CARS (12.7 GHz) band with existing VHF test equipment. Spectrum analysis, signal strength and even microwave sweeping are possible with the MDC-3.

Available as an option are three bandpass filters which speed and simplify the measurement process. The filter kit is required for sweep operation. The MDC-3 has a calibrated insertion loss and adjustable local oscillator for each band. Other frequencies are available.

Texscan

office, visual and audio alarms identify failure locations or trouble areas. By the pinpointing of trouble locations, less maintenance, manpower and mobile equipment is needed. Having the ability to move directly to the trouble area, less downtime is incurred.

Also featured in the Magnavox product line is the MX-504-X line extender series, with bandwidth capability tested up to 330 MHz. Optional gains of 12, 28, 34 and 40 dB are available for the entire 50-330 MHz bandwidth. All MX-504-X line extenders use the well-proven 5-LH housing and are offered in the special plated version. Features include: optional return amplification, optional automatic gain control, multi-tier surge protection, low distortion and noise figures, low power consumption, and new 5-EE330 line extender equalizers tailored for the 330 MHz bandwidth.

Now also, Magnavox taps are available in an extended bandwidth version: models MX-3700X and MX-3700STX. Since the advent of the Magnavox "Super Tap Series," the Magnavox passive design has been upgraded to achieve well beyond the 300 MHz performance. The MX-3700X and 3700STX are tested and aligned to the 400 MHz bandwidth for use with all Magnavox 330 MHz active equipment. Both 3700X and "Supertaps" range in tap value from 4 dB to 32 dB in the two port version and 8 dB to 35 dB in the four port version. Features include: die-cast No. 360 aluminum alloy construction to provide a high corrosion resistance; optional "super" plating; modular design providing easy upgradability from two port to four port usage; Sealport™ shoulders on all connector bosses to enhance shrink seal protection; superior r-f-i protection; full two-way system capability in the 5-330 MHz bandwidth.

For further information on the entire line of Magnavox CATV products, contact Magnavox CATV Systems Inc., 133 West Seneca Street, Manlius, New York 13104, or call (315) 682-9105.

Phasecom Highlights Three Products

At the Anaheim show, Phasecom exhibited three of its products for the Eighties: its modulator model 2105, demodulator model 2205, and the heterodyne processor model 2300.

The standard Modulator provides

for either separate baseband video and audio inputs, or video combined with 4.5 MHz subcarrier aural input. For baseband audio input, separate rear panel jacks accommodate the following inputs: 600 ohm audio (balanced or unbalanced), and high impedance audio (VTRs or FM tuners). Signal flexibility has been optimized by the incorporation of a three position IF switch that allows for the following types of operation: 1) channel output and a decoupled IF OUT at a second connector, 2) IF OUT only, 3) external IF IN for substitute programming.

The Demodulator is available for either VHF or UHF input with an easily changeable input converter module. Input converter modules (model 2710 for VHF and model 2720 for UHF) avoid the long term reliability problem associated with plug-in connectors. The incorporation of improved FET devices allows the model 2710 to be used with a multitude of high level adjacent carriers with minimal intermod product generation.



Modulators and demodulators are also available in the coherent configuration using Phasecom's "Direct Synthesis" technique. Phasecom has published a special brochure detailing the characteristics of the various coherent and harmonically related headend system.

The Heterodyne Processor model 2300 contains a modular input converter (model 2710 or model 2720, as detailed above), the same as Phasecom's modulator and demodulator. Converter output is "jumpered" on the rear panel to the input of the IF processor section. The input converter is easily changeable while avoiding the long term reliability problem associated with plug-in connectors.

The Heterodyne Processor also features Automatic Notch Control (ANC), a unique filter that attenuates the aural carrier only to a selected level of between 9 and 30 dB below the video carrier and automatically maintains it at that differential. This minimum signal "tampering" avoids the intro-

duction of the group delay and color subcarrier attenuation associated with conventional sound traps. As a result, this processor is conservatively specified as having a maximum group delay of 50 nanoseconds at the color subcarrier.

For further information, contact Phasecom Corporation, 6365 Arizona Circle, Los Angeles, California 90045, (213) 641-3501.

A New Line Extender from RCA

RCA's Model 250 Line Extender series is part of a new generation of cable distribution equipment which incorporates the recent advances made in CATV technology. The Line Extender provides amplification in the feeder lines when extending the lines. The 250 Line Extenders utilize the latest state-of-the-art hybrids and have many improved electrical and mechanical features.

Model 250 Line Extenders are available with manual control or with a new slope-compensated AGC which uses a single pilot to correct for cable attenuation. Either a modulated video signal or CW signal may be used as a pilot for the AGC. The AGC is isolated in a separate compartment to eliminate any interference with the amplifier response.

The new RCA line extenders can be ordered with two-way circuitry as an integral part of the module or with downstream capability only. The reverse hybrid needs only to be "plugged in" to the amplifier module for an active two-way station. The hybrid can also be turned around to operate in the downstream direction for testing or special applications. Built-in diplexers minimize field alignment and facilitate interchangeability.

For further information, contact RCA Cablevision Systems, 8500 Balboa Blvd., Van Nuys, California 91409, or call toll-free (800) 423-5651 (in California, call (213) 894-8111).

RMS Unveils Directional Couplers

The RMS "Unipower" series introduces a new concept in engineering design for power passing line splitters, directional couplers, and power inserters. Now for the first time, a "Micro-circuit" (basically a miniaturized hybrid network) is built into each unit to



We Thrive on Rejection..

and with VITEK's Band Reject Filters so can you!

You know VITEK Filter Cable Traps offer the best security because they're passive, negative and on-the-pole . . . and have the durability of coaxial cable.

What you may not know is that in addition to single and multi-channel traps, they are also offered in 3 different Band Reject configurations . . . with 50 dB min. attenuation (-20° to +120° F).

Now you can market blocks of channels in either Mid-band or Super-band (or both) to your subscribers. Or, you can start out with a single premium channel in either mid-or super-band, and, utilizing the band reject trap and a converter, you'll have all the security you need.

If you are rejected . . . so is their Pay TV Signal.

If a block is sold . . . simply remove the trap.

And if at some future date you wish to expand to additional

premium channels and programming it's easy to do with VITEK Single or Multi-Channel Traps.

- Forget about illegal converters or varactor-tuned TV sets.
- Forget about maintenance, returns, "lock-outs", loaners and other TV security problems.

With Vitek you get maximum security . . . with maximum flexibility . . . at minimum expense.

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assure absolute stability of electrical specifications despite extreme temperature variances, excessive line vibration, shock due to accidental dropping or in-transit abuse.

Each output leg is individually fused with a 15 amp fuse that can be removed to cut power feed-through on any selected output port. When the fuse is removed, there is zero degradation of RF signal feed-through. This feature eliminates the previous necessity of cutting choke coils to cut power that usually resulted in RF degradation. The fuses can be replaced when resumption of power feed-through is required. Replacement of the 15 amp fuse with higher amp fuses can be made without any change in specifications or performance.

The micro-circuit network feature is available on models CA-3808 and CA-3812 power passing directional couplers. And recently added to the Uni-power series of power passing directional couplers (in addition to 8 dB, 12 dB, and 16 dB) are the new values of 20 dB and 24 dB, model numbers CA-3820 and CA-3824, for application in the high level systems.

For further information, contact RMS Electronics, Inc., 50 Antin Place, Bronx, New York 10462, (212) 892-1000.

Scientific-Atlanta Introduces 400 MHz Equipment

Scientific-Atlanta, Inc. has announced the introduction of a complete line of 400 MHz products for the cable TV industry. The new family of distribution products allows expanded bandwidth, greater channel capacity and two-way communication to be achieved with the use of a single cable. Prior to the development of 400 MHz equipment, this added capacity and program capability could be achieved only by dual cable trunk and distribution system.

Scientific-Atlanta's new 400 MHz family of products includes distribution amplifiers, taps and passives, 54-channel set-top terminals and head-end electronics. This new equipment has been designed using the latest engineering and component technology. The products are available to serve the new cable TV systems being constructed in cities which require many channels and two-way capability. The products can be used to modernize

many existing systems to 400 MHz operation at a significant cost savings over the addition of duplicate equipment.

For further information please contact: Ben Forrester, National Sales Manager, Cable Communications Division, Scientific-Atlanta, Inc., 3845 Pleasantdale Road, Atlanta, Georgia 30340, Telephone (404) 449-2000.

Standard Communications Presents its MDS System

At the Western Show, Standard Communications presented its new MDS System, including MDS down converter, model MDSD-10/12, and the Ancon II fully integrated, self-contained antenna-converter package.

The MDSD-10/12 unit receives a microwave television signal between 2150 and 2162 MHz on either MDS Channel 1 or 2 and converts it to VHF frequencies for input into a standard VHF television receiver. Designed for exceptional performance, the converter features a low-noise RF preamplifier for use in fringe reception areas. A temperature-stabilized local oscillator operating at the fundamental frequency eliminates spurious responses.

The Ancon II system is a complete, fully integrated MDS receiver system designed by Standard Communications to deliver optimum performance. The system infuses into its individual components the sensitivity and performance of bulkier, higher priced MDS components.

For further information, contact Standard Communications Corporation, P.O. Box 92151, Los Angeles, California 90009, (213) 532-5300.

Video

BEI Now Marketing Alphanumeric Display System

Broadband Engineering, Inc., has introduced the latest addition to its product line, the BEI Marquee, featuring random display of message pages, page by page display time, automatic centering, full editing functions, an elastic length crawl line, and a low cost weather package. The BEI Marquee incorporates a microprocessor and large scale integrated circuits for fewer components; options by program and

board changes, not by pre-wired frame; all electronics built into the keyboard housing; and a Heathkit digital weather computer for local weather instrumentation.

For further information, contact Broadband Engineering, Inc., 15315 South 169 Hwy., P.O. Box 106-A, Olathe, Kansas 66061 (913) 764-1900.

CADCO Introduces New Modulator/Processor

The CADCO Modulator 400 can be set up as either a processor with UHF or VHF input modules or with various modulators, modules accepting composite baseband audio and video or separate raw video and audio. This concept allows maximum interchange in commonality between modules, comprising an off the air microwave, satellite, and local origination fed headend.

The video modulator requires composite video, sync negative input at a level of 0.5V peak-to-peak minimum for 87.5 percent depth of modulation. Impedance for the unit is 75 ohms, with input VSWR less than 1.2:1 for input, and less than 1.35:1 for output. The output level is continuously variable between +40 dBmV and +60 dBmV; and output frequency is compatible with any standard VHF channel, 2-13, midband, A-I, or superband I-M.

Frequency tolerance is rated .005 percent at 77°F, plus or minus 5°F. Frequency stability is plus or minus 0.01 percent between +40°F and +140°F. Frequency response lists at plus or minus 5 dB from 10 Hz to 4.2 MHz. The vestigial sideband response for both the lower adjacent channel sound carrier and for the upper adjacent channel video carrier is measured at -35 dB. The group delay response meets FCC predistortion requirements for color transmission. Modulation capability ranges from 0 to 90 percent, continuously variable. White level limit present to 10 percent of sync tip level, adjustable from 0 to 50 percent of sync tip level. Differential gain is a maximum of plus or minus 5 dB at 87.5 percent modulation.

For further information, contact CADCO, 2706 National Circle, Garland, Texas 75041, (214) 271-3651.

Colorado Video Model 285 Digital Slow Scan Transceiver

Colorado Video announces a new

Get Your "Hands On" High Technology

Fiberoptics. Microwave transmission. Earth stations. Addressable taps. Broadband communications technology is ever-changing and increasingly complex. In fact, sometimes it's hard for a busy technical person to get a handle on just what's happening.

It's a far cry from the old days, when all a technician had to know was how to climb poles. Now, technical people in cable television have to cope with things like transponder downtime, increased system channel capacity, and a bewildering array of pay-TV converters and descramblers.

Communications-Engineering Digest can help. **C-ED** is the magazine for directors of engineering, chief engineers and field technicians. Since 1975, **C-ED** has been helping technical people in cable television get their hands on

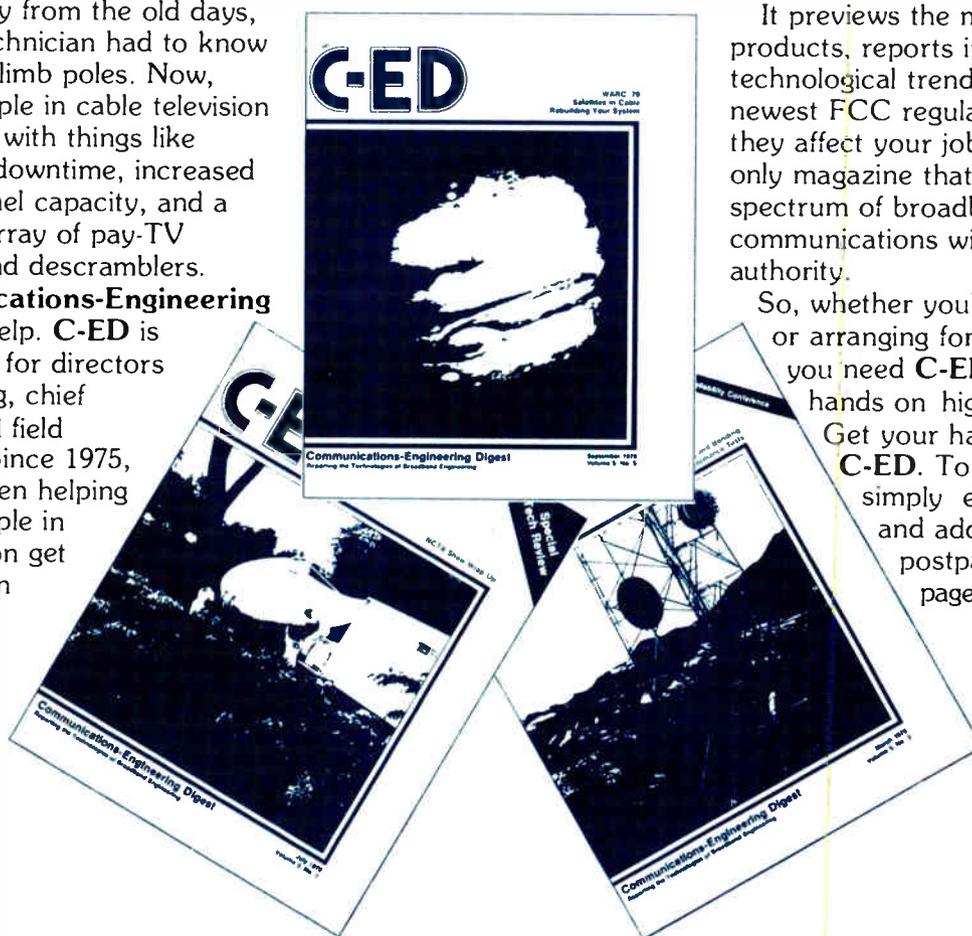
high technology. In fact, **C-ED** is the official publication of the Society of Cable Television Engineers. **C-ED** covers it all: from blue sky to technology to down-to-earth daily maintenance.

C-ED explains hardware usage in your own technical language.

It previews the most promising products, reports important technological trends, and covers the newest FCC regulations and how they affect your job. **C-ED** is the only magazine that covers the whole spectrum of broadband communications with originality and authority.

So, whether you're installing taps or arranging for a satellite uplink, you need **C-ED**. Get your hands on high technology.

Get your hands on **C-ED**. To subscribe, simply enter your name and address on the postpaid card on page 69.



Get Your Hands On C-ED

generation of slow scan television equipment in the Model 285 Digital Slow Scan Transceiver. This unit is available in transceiver, transmitter, or receiver configurations and provides quality TV picture transmission over a wide variety of data channels.

The 285 incorporates frame freeze for stop-action at the transmitter, a repeating "freeze-and-scan" mode for surveillance applications, and continuous display at the receiver as each new image "wipes off" the previous one.

The 285 features synchronous serial digital transmission at rates from 2400 to 500 kilobits/second and requires no adjustment when changing rates (i.e., the 285 tracks the modem clock rate). Modem interface is EIA RS232C and MIL STD 188C compatible.

The 285 accepts standard TV signals from camera, video tape recorder, or video disc recorder, and produces a standard TV output signal for viewing on conventional CCTV monitors. Images from the 285 may be recorded on video tape for permanent file copy.

The operator of the 285 may choose left-to-right or top-to-bottom scanning to suit the subject matter, and may transmit either a single field (shorter transmission time at reduced resolution) or a full frame of video (normal transmission time at full resolution). Transmission times vary according to the gray levels chosen, either 64 (6-bit) or 256 (8-bit) resolution, and bit rate. Data may be encrypted (externally) for security.

Price of the 285 starts at \$9,000 (receive only); delivery is 90 days a.r.o. For full particulars, contact COLORADO VIDEO, Box 928, Boulder, CO 80306 USA, or phone 303/444-3972.

Microdyne's new Tuneable Television Modulator

Microdyne Corporation has recently released a new product information bulletin on its model 1100 HEM television modulator. The model 1100 HEM Tuneable Television Modulator utilizes the latest technology in synthesizers and voltage tuned filtering to bring to the industry a completely self-contained agile television modulator.

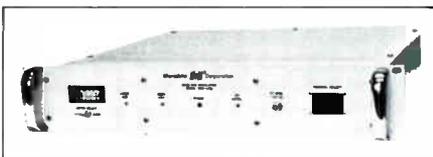
The standard unit generates the vestigial sideband television signal on channels 2-13, including the midband A through I. Changing the output frequency is accomplished by simply selecting the channel desired via the

front panel switch. No crystal or output filter/converter changing is required.

Upon loss of video (no sync), the modulator will automatically squelch the visual and aural carriers preventing overdeviation by noise.

The 1100 HEM readily interfaces with any 600 ohm balanced audio source (normally 0 dBm), and 75 ohm, negative sync (normally 1Vp-p) video source. The unit features video and audio metering (standard), peak white level clamping, synthesized tuning, -40 dB RF monitor test point (standard), and immediate backup for existing channels.

For further information, contact Microdyne Corporation, 491 Oak Road, P.O. Box 7213, Ocala, Florida 32672 (904) 687-4633.



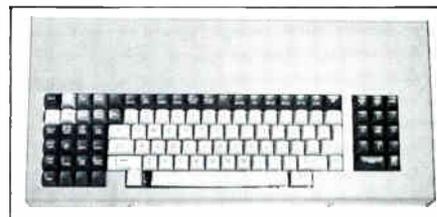
MSI Spotlights the Flexi-Kim and Flexicaster

At the Western Show in Anaheim last month, MSI exhibited its latest alphanumeric video display system, the Flexi-Kim and the Flexicaster. Flexi-Kim is MSI Television's newest keyboard interface module set. These printed circuit cards are designed to plug into all standard MSI character generators and provide 112 lines of memory together with outstanding display flexibility. Flexi-Kim enables a CATV operator to tailor alphanumeric presentations on a line-by-line or page-by-page basis from the keyboard to fit individual requirements. Flexi-Kim utilizes 8-bit microprocessor technology and sophisticated program coding to provide, among other things: control of background colors, character size, character colors, and graphic line separator colors by means of single key operation; 112 lines of memory which can be organized into pages of any desired size by the operator from the keyboard; variable display modes, such as page print, splash, bang, roll, or crawl; variable display times and print speeds settable from the keyboard; and sequencing of information, including skipping of pages as desired.

Flexicaster is the latest version of MSI Television's microcomputer memory controllers. Flexicaster is used in

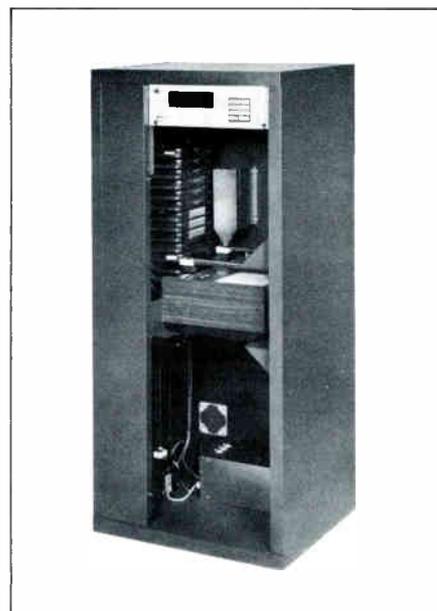
applications requiring more memory than the 112 lines provided by Flexi-Kim and for more sophisticated control situations such as news-splitting, data guide applications and non-duplication switching control. Flexicaster can be used equally well as a stand-alone single channel memory addition or to provide data and control for up to eight separate character generator channels.

For further information, contact MSI Television, 4788 South State Street, Salt Lake City, Utah 84107 (801) 262-8475.



Phasecom Introduces "The Director"

The Director, from Phasecom, is an automatic programmable video cassette player/changer which represents a revolutionary approach to video cassette utilization. Rather than time-link a series of VTRs, the technologically sophisticated Director manipulates and plays a stack of video cassettes through a single VTR. Essentially, it is an electro-mechanical robot teamed with microcomputer technology to provide you with great versatility of system design and programming capability.

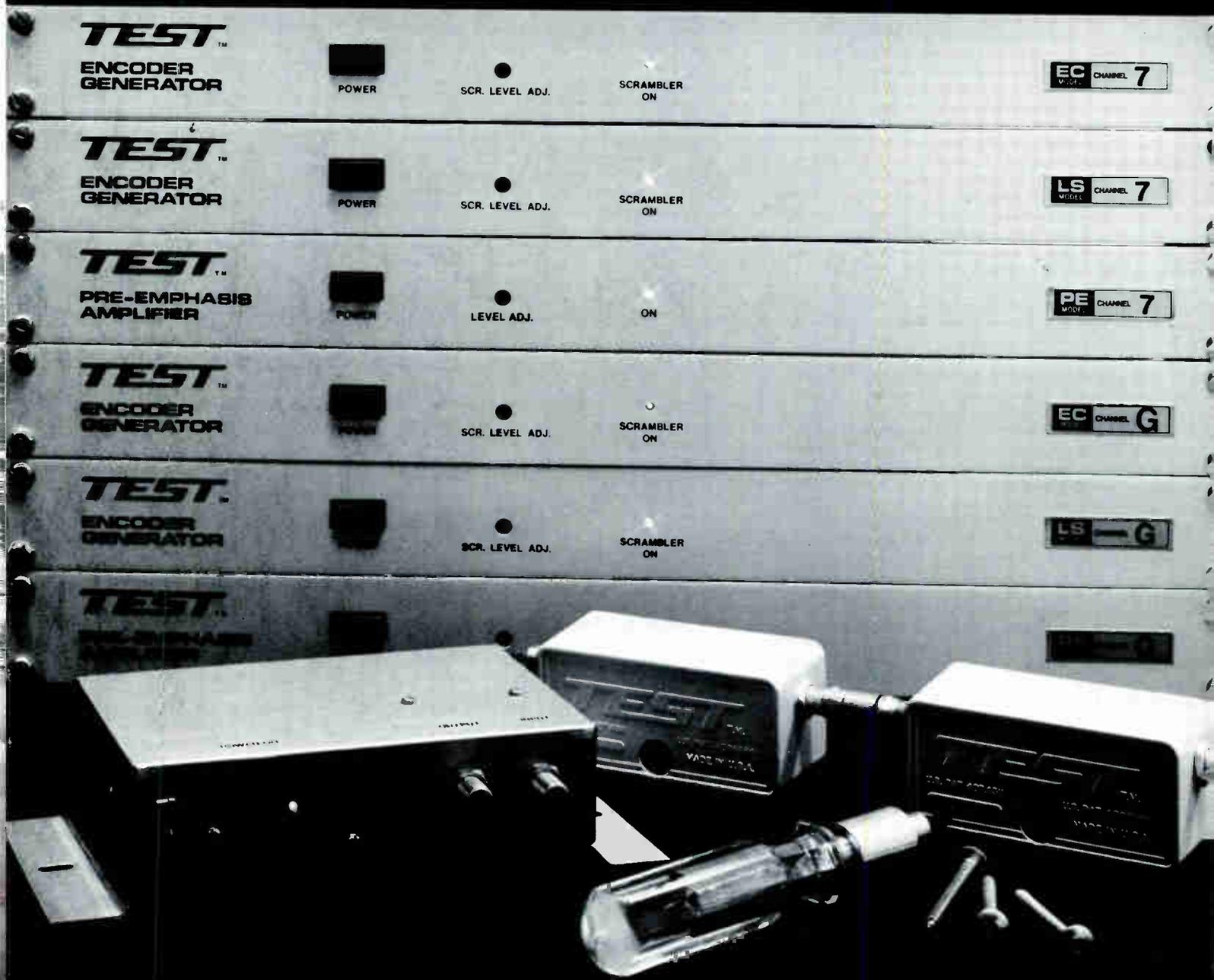


(Continued on page 42.)

THIS IS ALL YOU NEED!

A formula of proven dependability
1 Encoder for Scramble, both audio and video (LS-PE optional)
1 Decoder for Descramble, easy installation with special tool
add 1 Scramble Booster for 15 dB more gain for apartments and for added versatility
2 Decoders cascaded for Multi Tier programming capabilities
All this and it's economical too! About half the cost of other cable security systems.
Ask the over 2 thousand cable systems using T.E.S.T.

For further information call or write:
TEST Tanner Electronic Systems Technology, Inc.
16130 Stagg St., Van Nuys, California 91409
Telephone (213) 989-4535
Atlanta, Georgia, (404) 993-7249





SEE FOR YOURSELF. THE MOST RADIATION-PROOF CABLES IN THE INDUSTRY.

Today, when radiation from drop cable has become a serious concern to many people, Times has taken action to alleviate the problem significantly.

To begin with, we've developed an instrument called the Radiometer which, for the first time, measures radiation definitively. Until now it was anyone's guess. Radiation characteristics were based on relative ratings and not always accurate. But the Radiometer measures capacitive coupling and transfer impedance. The characteristics of the test sample and the test chambers are measured separately. So now we have radiation data that's absolute, accu-

rate and dependable.

Number two and more important, we've used the Radiometer in Research and Development to bring you improved drop cable. How good is the cable? Thanks to the Radiometer, you can see for yourself in the comparative tests shown on the right.

Times 2245, with its sealed foil/double braid construction, is proven to be far superior to every other cable on the market. The best competitive cable (a sealed foil type) was higher in transfer impedance and capacitive coupling. The worst competitive sample we tested was a dry foil construction. And just as a point of reference, we includ-

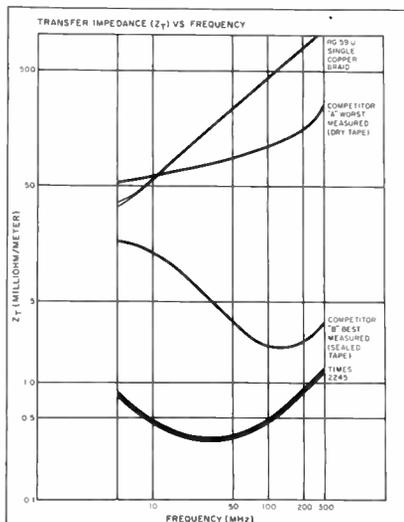
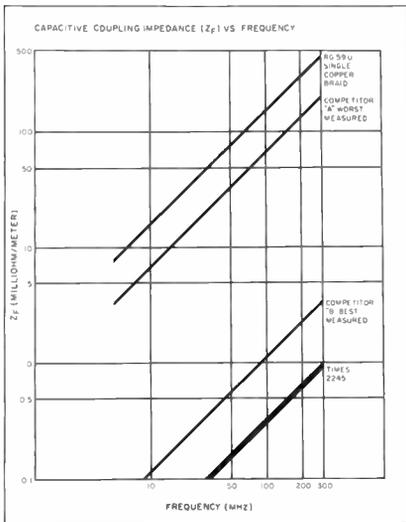
ed standard MIL SPEC RG59U, the original CATV drop cable.

Not shown but also vital is data taken after flexure testing. After many hours of being subjected to simulated severe wind conditions the radiation from one competitor's cable increased by a factor of 40. But the tough construction of Times 2245 kept it from degrading one iota. What's more, we've improved all of our drop cables. Times can offer you cable with the lowest radiation in every price range construction. And this is no idle boast. Radiometer tests prove it.

The Radiometer, however, isn't limited to duty at the manufacturing level alone. CATV operators can utilize its unique ability to check quality of every reel of drop cable purchased. That's why Times is making the Radiometer Model TNX-247 on a production basis. Selling price: \$975.00 including three different size test chambers to cover all RG-59, RG-6 and RG-11 cable.

So now that radiation is such an important issue, there's never been a better time for Times—our Radiometer and our drop cable.

Times Wire & Cable, 358 Hall Avenue, Wallingford, Ct., 06492. 800-243-6904.



Times Wire & Cable
The #1 Cable Company
DIVISION OF TIMES FIBER COMMUNICATIONS, INC.

(Continued from page 38.)

The Model 11, with its added abilities resulting from an integral Z-80 microprocessor, now succeeds the previously marketed Model 10.

The Director has random access to nineteen video cassettes and the capability of programming an entire week or seven distinct schedule days, for automatic and continuous video distribution throughout a closed circuit or cable television system. Each cassette may contain an assembly of programs, with options for automatic intermission displays between each program or cassette. Once programmed, no personnel assist is ever required. The Director goes on working seven days a week, week after week.

For further information, contact Phasecom Corporation, 6365 Arizona Circle, Los Angeles, California 90045, (213) 641-3501.

Scientific-Atlanta Exhibits New Television Modulator

At the Western Show, Scientific-Atlanta unveiled its new Series 416, a basic television modulator that delivers Scientific-Atlanta's traditionally high quality at an economical price. This product was designed for use where the need for flexibility is minimal, but the demand for quality and reliability in CATV, MATV, and ETV systems is critical.

The Series 416 television modulator accepts an audio and video signal and generates a high quality vestigial sideband television signal. VHF, mid-band, and superband channels are available. Surface acoustic wave (SAW) technology is used to provide outstanding vestigial sideband response characteristics with superior adjacent channel performance and excellent group-delay characteristics. Vestigial sideband filter adjustments are virtually eliminated by the SAW filter, and temperature stability is significantly improved over conventional methods.

In order to conform to standard FCC pre-distortion requirements, a delay predistortion network is provided as standard. A peak white-level clipper limits video modulation to 95 percent, eliminating the possibility of carrier cutoff or phase reversal, a major cause of sync buzz. Automatic phase-lock circuitry provides accurate video-to-sound carrier separation.

The standard version Series 416 is powered by, and operates as an acces-

sory to the Series 6600 Video Receiver. An optional AC powered version enables the modulator to operate with any receiver. Both have a front-panel RF output port for monitoring or testing.

For further information, contact Scientific-Atlanta, 3845 Pleasantdale Road, Atlanta, Georgia 30340, (404) 449-2000.

System Concepts' New Display System.

At the Anaheim Show, System Concepts demonstrated its newest Cable product, the Q-VI/M Merchandiser™ Automated Mass-Memory Display System. It is capable of displaying over 3,000 rows of information automatically.

The Merchandiser is a software and hardware modification of the QuantaFont™ Q-VI Teleproduction Graphic Titler that gives the Q-VI programmable control over a digital cassette tape transport (DCO-2).

Merchandiser permits the 192-row resident memory of the Q-VI with all display capabilities of the titler and all display instructions to be recorded (written) on a digital cassette tape up to 17 times.

Each of the 17 "blocks" of digitally recorded memory has its individual playback information which determines how that block is to be displayed.

A keyboard controlled automatic mode in the titler then calls back the information from the cassette, by block, for display according to the instructions in that block.

The system will read, display, rewind and repeat an elastic number of blocks automatically for as long as desired. Transfer time per block is ten seconds with a static, holding page, on display.

For further information, contact System Concepts, Inc., 395 Ironwood Drive, Salt Lake City, Utah 84115, (801) 486-3833.

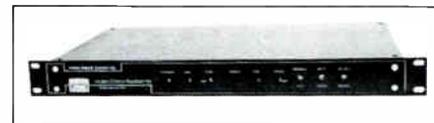


Video Data Systems Introduces New Video Time and Error Corrector

Video Data Systems' new V-TEC, video time base corrector utilizes the latest CCD memory technology to provide full bandwidth video and excellent signal to noise ratios. Several innovative circuit designs (patents pending) correct the real world problems encountered with video tape signals, principally designed as an error averaging system for clean-up of video tape signals involving dubbing, CCTV or transmission over cable television, V-TEC does not provide genlocking for synchronous switching or superimposures.

V-TEC provides features not previously available in low cost units: processing amplifier, video level monitoring, dual chroma AGC, pulse cross of both corrected and uncorrected signals, adjustable added blanking width, corner insert split screen display, automatic sensing of color or monochrome signals for burst and chroma channel kills, and dual outputs.

For further information, contact Video Data Systems, Hauppauge, New York, (516) 231-4400, or call their Western Regional Office in Salt Lake City, at (801) 272-9296.



Zenith Announces Cable Ready Television Set

At the Western Show in Anaheim, Zenith demonstrated its new 105 channel, touch-command television set, allowing access to 12 VHF channels, 23 additional channels in the CATV mode, and UHF access up to channel 83. The unit utilizes a phase-locked loop for drift-free tuning. In addition, the new Zenith model features low noise; channels 2-13 measured within a range of 3.5 to 5.5 dB, channels A through I measured between 4.5 and 9.0 dB, and superband channels J through W came in at between 5 and 8 dB. Finally, comb filters are utilized for picture improvement.

For further information, contact Zenith Radio Corporation, 1000 Mil-

waukee Avenue, Glenview, Illinois 60025.

Security/Converters

AEL Features Three New Products

American Electronics Laboratories highlighted three new products at the Anaheim show: their seven channel push button converter, dual-channel converter unscrambler, and descrambler.

The dual-channel converter unscrambler, model AEL-DCU, operates on a fully-loaded, 12 channel system to convert and unscramble two mid-band or super-band non-adjacent channels to a low-band channel.

The descramble model AEL-D is an on-channel scramble/descramble system that can be used on any channel of either a 12 channel system or in conjunction with a converter. It is compatible with other descrambler systems, and features improved isolation and RFI shielding.

The AEL seven channel push button

converter, model AEL-PB7, converts seven mid-band channels to a low-band channel (output channels 2, 3, or 4). Input channels B through H each operate on increments of 6 MHz, with a video range of 127.75 MHz to 163.75 MHz and an audio range of 123.25 MHz to 159.25 MHz. With selector switch off, the converter is bypassed with maximum attenuation of 2.0 dB. Gain ranges from a minimum of 10 dB to a maximum of 16 dB. Noise figure maximum is 9 dB. Cross modulation, measured with 19 channels (2-13 and B through H) input at +15 dBmV reaches -70 dB in the worst case, with input signal level of 10 dBmV on all specified picture carriers.



For further information, contact the CATV Communications Division of American Electronic Laboratories, Inc., P.O. Box 552, Lansdale, PA 19446, or call toll-free (800) 523-5354.

Cablebus Systems Corporation Announces Production of New Home Terminals

Don Tuite, Marketing Manager for Cablebus Systems has announced that the company has begun to produce addressable home terminals with bus output to allow operators to stack modules to design custom systems. Some of the units currently available include an alarm/reporting module, a cable control module (with on/off taps), a utility meter reporting module, an energy control module with four inputs and four outputs, and an installer's module, with automatic self test to determine status of the system. The network is tied in at the headend to a Digital Equipment Corporation model LSI-11 computer running on proprietary software.

Basic price for head-end installation is \$39,000. Addressable terminals at the subscribers' end run \$150 per

the new Mark III LOW FREQUENCY ADAPTOR from SADELCO



The new Mark III Adaptor extends the frequency range of Sadelco SLM's down to 4.5 MHz.

New circuit design using a balanced mixer plus extensive input and output filtering provides the Mark III with a very low spurious response characteristic at a high input level capability.

Maximum Input: Plus 34dBmV with no attenuators in.
Maximum Input: Plus 60dBmV with all attenuators in.
Conversion Gain/Loss: 0dB \pm 1dB.

The Mark III Adaptor fits conveniently into the accessory compartment of all Sadelco meters.

Available at major CATV Distributors
Call or write for free color brochure

Sadelco, Inc. 75 West Forest Avenue, Englewood, New Jersey 07631 • 201 569-3323

General representative for Europe: Catec AG Luzern/Switzerland, Habsburgerstr 22. Tel. 041-41-75-50 Telex TELFI 78168. IN CANADA: Comm-Plex Electronics Ltd.



OFF ON
 HOLD HOLD TEST BRIGHT COAT
 ● ● ● ● ● ● ● ●
VTR 1



OFF ON
 HOLD HOLD TEST BRIGHT COAT
 ● ● ● ● ● ● ● ●
VTR 2
 MICHELL 25 CARLSON



OFF ON
 HOLD HOLD TEST BRIGHT COAT
 ● ● ● ● ● ● ● ●
VTR 3

REMOTE ENABLED

VTR 1

VTR 2

VTR 3



OFF ON
 HOLD HOLD TEST BRIGHT COAT
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CHYRON 4 C



OFF ON
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FILM 2
 MICHELL 25 CARLSON



OFF ON
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FSS 1



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 MICHELL 25 CARLSON



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PHOTOGRAPH BY MICHELL 25 CARLSON

The one that's performance-tested for your success.

HBO means superb penetration for basic cable subscribers and homes passed during launch and post-launch. But that's just for starters. We also keep down disconnects so you won't see profits going out the door.

The trick is no trick at all, simply the most extensive on-going pre- and post-programming testing that has been done so far in the industry. And television's first true program quality control index obtained from a variety of research techniques that includes questionnaires, consumer diaries, telephone coincidentals, direct mail surveys, focus studies and more.

We find out who watched what, and how much they enjoyed it.

The result? An incredibly low disconnect rate. Because the more customers get what they want to see, the more they'll watch.

That means we do well, and that means you'll do well with us. So call one of our General Managers now: Peter Frame in New York (212) 841-4241, Bill Hooks in Dallas (214) 387-8557, or Don Anderson in Los Angeles (213) 557-1010.

The HBO logo is rendered in a bold, black, sans-serif font. The letters 'H', 'B', and 'O' are solid black. The 'O' is a circle with a white center, creating a ring effect. A small registered trademark symbol (®) is located at the bottom right of the 'O'.

Where Research is Fact.

unit, when purchased in quantities of 100.

For further information, contact Cablebus Systems Corporation, 7869 Southwest Nimburs, Beaverton, Oregon (503) 595-6926.

CADCO Introduces NOAA CATV Converter

The CADCO NOAA CATV Converter is a low noise figure, crystal controlled receiver tuned to the NOAA continuous weather cast broadcast of 162.5 MHz. The output is in the lower portion of the standard FM Broadcast-band—88 MHz to 108 MHz. This portion of the FM band was originally assigned to educational stations and is less dense. The customer can select one of three frequencies between 88 and 92. (Special frequencies can be selected at a slightly higher cost and additional crystal lead time). The output circuitry contains notch filters for lossless mixing of the NOAA signal with the FM normally carried by the system. The notch filter, additional, improves the skirt selectivity of the FM processor filter, lessening the chance for ch. 6 feed through on the FM channel. (A common ghost problem on ch. 6). The NOAA processor doubles the modulation index of the narrow-band signal transmitter making it more compatible with home FM receivers.

For further information, contact CADCO, 2706 National Circle, Garland, Texas 75041, (214) 271-3651.

Eagle Comtronics Introduces Addressable Multi-Tiered Service Controller

Eagle Comtronics has introduced the latest development in its line of Eagle Quality products. The Eagle Addressable Controller provides the system operator maximum control at minimum cost plus the opportunity to significantly increase system revenue. The system is comprised of a set top descrambler and addressable tap, which may be purchased separately. Addressable from the head-end, the unit accommodates basic service plus three additional tiers, and permits metering by minutes of use for customers not purchasing the service on a month-by-month basis. At the end of a program, the unit shuts off and can be re-enabled by the viewer; billing information may be handled by a computer.

In addition, Eagle now offers a directional tap compatible to 400 MHz. Minimum return loss for the unit is 25 dB on all ports, with a depth-to-tap isolation of 35 dB, to 400 MHz.

For further information on both new products, contact Eagle Comtronics, 8741 West River Road, Baldwinsville, New York 13027, (315) 638-2586.

Intercept Presents The Expander 7000

Intercept Corporation of Clifton, New Jersey, has unveiled its new Expander 7000 midband to UHF block converter. The unit converts seven midband channels to UHF without subscriber switching. Crystal controlled, this new member of the Intercept family features a UHF noise figure of 8 dB, and adequate gain (-1 dB in VHF, and +5 dB in UHF) to provide quality pictures, even with old model UHF television sets. The Expander 7000 may be placed in basements, attics, or on the television set, and one unit is capable of feeding several TVs. The Expander 7000 upconverts incoming midband channels A-3 through H by mixing them with a crystal controlled local oscillator which converts these signals to lower UHF channels 14 through 24. Frequency range is 50-300 MHz (VHF) and 470-536 MHz (UHF). Return loss varies between 10 dB (VHF) and 12 dB (UHF); power requirement, 30 MA @ 117 VAC 60 Hz; cross modulation, 7 channel @ -6 dB @ 12 dBmV input; and required connectors are 75 ohm standard F female.

For further information, contact Intercept Corporation, 140 Delawanna Avenue, Clifton, New Jersey 07014, (201) 471-2212.

Jerrold Unveils System 400 and Starpack

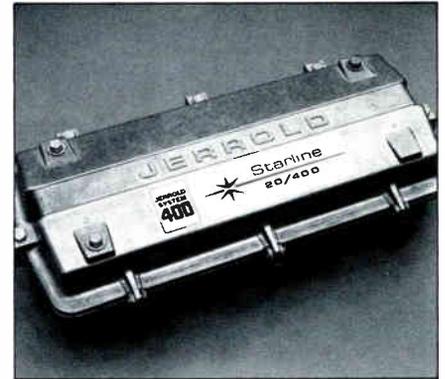
Jerrold Electronics, a division of General Instrument, is currently marketing two new product lines: the System 400, and the multi-level Starpack.

Starpack consists of two different descramblers, and five types of indoor control units. The descramblers, model SD and Model SRD, each provide for one, two, multi-level, and tiered services, and each has a separate controller. In addition, the model SRD contains a preamp for low drop levels and a built-in self-destruct, anti-tamper mechanism.

The System 400 consists of: Jerrold's Commander IIIA headend systems, available with standard frequency assignments or phase-lock for 52 channel systems; Starline 20/400 trunk amplifiers, incorporating quad amplifier circuitry; JLE line extenders, with circuitry design to 400 MHz (Jerrold recommends that you order 350 MHz components now and then convert them to 400 MHz when ICs are available); and Jerrold's 400 System passives, FFT taps, SPJ power inserters, STC series splitters and directional couplers, and FFE feeder line equalizers, all now redesigned to 400 MHz.

In the near future, Jerrold plans to introduce a new 52 channel converter, compatible with the System 400.

For further information on the full line of Jerrold products and services, contact Sam Compton at Jerrold Electronics, P.O. Box 487, Hatboro, PA 19040, (215) 674-4800.



Leaming Industries Presents Stereo Multiplex Transmission System

Leaming Industries is now producing a WFMT up-converter which bears the endorsement of United Video, Inc., to assure the best possible reproduction of station WFMT-FM Stereo, Chicago. The FMT-201 Stereo Multiplex Transmission System receives an off-the-air signal at some location, usually a long way from the broadcasting station and converts it to a form suitable for transmission over microwave facility to some remote location where the signal is reconverted to its original form for distribution over a cable TV system. Thus, this system enables a community (wired for cable TV) to receive high quality FM stereo broadcasts from stations otherwise too far away to be received.

(Continued on page 50.)

New far-out idea from Toner: Earth stations without hassle.



There's a big difference between the earth station packages now being offered by Toner and those from the giants.

The difference is that Toner earth station packages are hassle-free. And that can make all the difference.

We don't shuffle you from department to department. When you talk to Toner about an earth station package—as with everything else in cable TV—you talk to an informed expert.

We stock everything but the dish: Microdyne receivers, AFC antennas, Avantek LNA's, Blonder-Tongue modulators, power supplies and accessories. The dish is shipped direct to your pad by our supplier.

We bring it all together into a smoothly functioning turn-key project, with Toner project management: Single source responsibility, with one very accessible expert in charge. What on earth could be better?

Before you do more than think about an earth station, make a toll-free phone call to Toner. Find out how much nicer it can be without buck-passing and finger-pointing. Call toll-free: 800-523-5947. In Pennsylvania 800-492-2512.

Toner
cable equipment, inc.
969 horsham road
horsham, PA 19044

A high-angle, low-contrast photograph of a city skyline at dusk. The sky is a deep, dark blue, with a large, bright, white cloud formation in the upper left. In the foreground on the right, a large, white, cylindrical object, possibly a roll of paper or a container, is partially visible, with a dark, metallic-looking rim. The city skyline below is illuminated by warm, golden light, with several prominent skyscrapers. The Chrysler Building is clearly visible in the center, with its distinctive Art Deco spire. Other buildings of varying heights and architectural styles are scattered across the horizon, their lights beginning to glow as the day ends.

**INTRODUCING
"ROOM AT THE TOP"**

ANOTHER FIRST FROM COMM/SCOPE. NEW PATENTED PIII PLUS[™] COAXIAL CABLE 30db SRL* 5-450 MEGAHERTZ.

6 Reasons why PIII Plus[™] coaxial cable offers you more.

1. PIII Plus cable means 50% more bandwidth with access from 5-450 megahertz. Now that's "room at the top."
2. Return loss (SRL)* is tested to assure that PIII Plus cable has a minimum of 30 db (SRL)* throughout 5-450 MHz.
3. Stable attenuation is assured to 450 megahertz, the same super low loss characteristics you've learned to expect from our standard PIII cable.
4. The mechanical characteristics of PIII Plus coax are identical to those

time proven properties that have made patented PIII so successful.

5. Even with all this increased capability and "room at the top," PIII Plus cable uses the same connectors as PIII.
6. Comm/Scope's reputation and commitment to manufacturing only the highest quality coaxial cable stands behind every reel of new PIII Plus coax.

PIII Plus is the ultimate cable for all your telecommunication needs. For more information on how to put a plus in your system, contact Comm/Scope Company.

*Available in copper clad aluminum center conductor. Additional non-magnetic configurations are available from Comm/Scope.

"See us at the Texas Show
Booths 301 and 402"

Light years ahead in cable innovation

 **Comm/Scope Company**

ROUTE 1/BOX 199-A/CATAWBA, N.C. 28609
TELEPHONE: 704-241-3142/TELEX: 800-521



COMM/SCOPE

(Continued from page 46.)

For further information, contact Leaming Industries, 180 McCormick Avenue, Costa Mesa, California 92626, (714) 979-4511.

Merrill Cable Equipment Corporation Shows New Cap-Tap

MCE recently announced production of all new Nova 5-300 MHz Cap-Tap, the most advanced customer tap in the CATV industry. It provides complete control of subscriber access to your system for standard service, and premium television channels. Simple to program, the Nova Cap-Taps are useable with any new or existing dedicated systems, with no other system equipment changes needed.

For further information, contact MCE, P.O. Box 13741, Phoenix, AZ 85002, (602) 271-9181.



New Inexpensive Converter from Magnavox

Magnavox CATV Systems, Inc., has recently introduced its model MX-40CC UHF channel converter, the only converter on the market priced at under \$20.00. This is roughly 1/3 the price of the other manufacturers' converters. The Magnavox unit offers liberal channel capacity to handle expanding subscriber needs for program variety, and easy channel selection using a "Cable Conversion Chart." The chart equates cable channels 2 through 6 with UHF channels 43 through 47; cable channels 7 through 13 with UHF channels 63 through 69; cable channels A through I with UHF channels 54 through 62; and cable channels J through W with UHF channels 70 through 83.

Units are self-contained—no push buttons or switches required—and allow for easy customer installation.

For further information, contact Magnavox CATV Systems, Inc., 133

West Seneca Street, Manlius, New York 13104, (315) 682-9105.



Oak Announces MDS Program Security and Addressability

Oak Communications Inc., CATV Division, is introducing a system which will eliminate several problems which confront the MDS-TV programmer. The Oak MDS-Pay TV system will also enhance the TV programmer's competitive position as compared to other forms of Pay TV. The Oak system will:

- 1) Eliminate theft of program by unauthorized viewers.
- 2) Provide specific program material to specific viewers while restricted to a single transmission channel.
- 3) Eliminate the necessity for frequent viewer fine tuning.

The Oak system for MDS-Pay TV utilizes addressability and control techniques originally developed for STV and CATV. Transmitter site equipment to scramble and add program address information is included. A new crystal controlled downconverter and an addressable version of Oak's Econo-Code VHF descrambler are used at the receive site.

For further information, contact Oak Communications, CATV Division, 200 South Main Street, Crystal Lake Illinois 60014, (815) 459-5000.

Phasecom's New 35 Channel Headend Converter

Phasecom has announced the introduction of a 35 channel headend converter with crystal control output, adjacent channel traps, programmable scan with variable dwell, and a choice of channels 2, 3, or 4 outputs.

For further information, contact Phasecom Corporation, 6365 Arizona Circle, Los Angeles, CA 90045, (213) 641-3501.

Scientific-Atlanta Presents Its New Set-Top Terminal Series 6700

The Series 6700 Set-Top Terminal marks another high point in the long Scientific-Atlanta record of producing equipment of outstanding reliability and performance for the cable television industry. Designed for extended life in the home environment, the terminal also provides streamlined good looks and operational simplicity for maximum appeal to the cable customer.

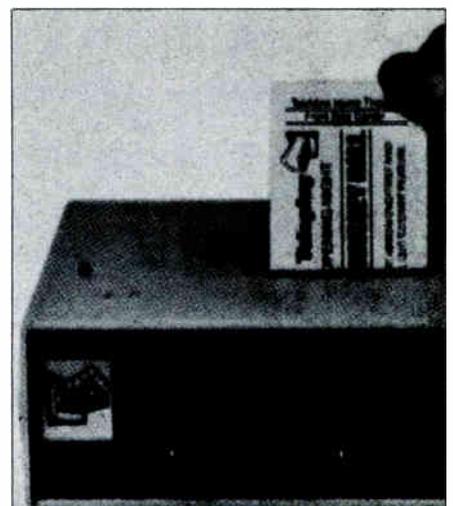
The basic one-piece unit can be factory equipped to authorize reception of any designated set of channels. With the addition of this "soft security" feature, channels 25-29 become parental discretion and can only be activated by inputting a customer designated four digit code. Hard security is achieved by field upgrading the terminal to descramble up to 40 channels. Further field upgrade to a two-piece wireless remote completes the package.

For further information, contact Scientific-Atlanta, 3845 Pleasantdale Road, Atlanta, Georgia 30340, (404) 449-2000.



The TeleMline MC

The MC is a descrambler control box



using magnetic cards, that provides a totally controlled payment system of your premium program subscribers. One programmed plastic card per month, paid for in advance, permits the viewing of a full month's pay-TV service. In addition to the monthly subscription card the MC also handles four random pay-per-view selections each month. As a pay-per-view device, the magnetic stripe on the card is encoded with the date, time, and duration of the program. When the special program is being viewed, the monthly channel is automatically pre-empted for the duration of that specific program.

For further information, contact TeleMine, Inc., 888 Seventh Avenue, New York, NY 10019, (212) 489-7231.

T.E.S.T. Introduces the Scramble-Guard

Scramble-Guard from T.E.S.T. constantly monitors the scramble encoder level and automatically attenuates the premium channel should the scramble level drop. The Scramble-Guard can be user adjusted to respond to scramble level drops of as little as 6dB.

High reliability of the Scramble-Guard is assured by operating the unit's "state of the art" CATV quality semiconductor components at conservative power levels. Moreover, the Scramble-Guard has an internal fail-safe, which activates in event of tampering, internal component failure or power outage.

Consistent with T.E.S.T.'s user oriented philosophy, installation of the Scramble-Guard is easy. The small 6X4X1½" unit is equipped with standard "F" connectors for monitoring the Scramble encoder and the through line for the premium channel. Specifications for the Scramble-Guard are as follows: minimum input level, 22 dB; trigger threshold, 6 dB (drop in scramble level); sensitivity flatness, 1.5 dB (50-300 MHz); isolation, 45 dB (fail safe mode); return loss, 18 dB.

For further information, contact Tanner Electronic Systems Technology, Inc. (T.E.S.T., Inc.), 16130 Stagg Street, Van Nuys, California 91409, (213) 989-4535.

Theta-Com Unveils New MDS Converter

At the Western Show, Theta-Com/

Texscan presented its new MDS converter model TCC-1, which utilizes an ultra stable crystal controlled oscillator. The unit carries the following specifications: frequency in ranges from 2.1 to 2.2 GHz, with output on any VHF channels 2-13; gain stands at a minimum of 30 dB; noise figure, 5.5 dB; temperature range, -40°F to +140°F; output test point, -20 dB; maximum output level, +55 dBmV; minimum input level, -56 dBm for 45 dB C/N; operating voltage, 25 VAC; aluminum housing; and mast or tower mounting using standard stainless hose clamps.

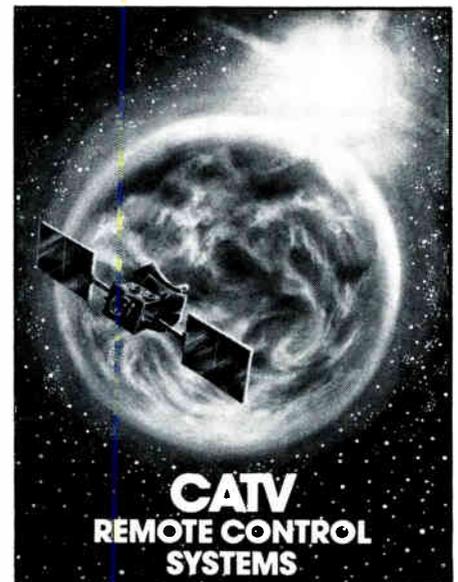
For further information, contact Theta-Com/Texscan, 2960 Grand, Phoenix, AZ 85017, or call toll-free (800) 528-4066.

The TOCOM Central Data System

TOCOM has introduced a data processing system for specific application with two-way cable technology. TOCOM's new system is comprised of the TOCOM III-A central data system and the TOCOM III-B security and communications system, either or both of which may be used in conjunction with the TOCOM HT-3B home terminal.

The TOCOM III-A central data system (CDS) can monitor and control as many as 3000 HT-3A or HT-3B home terminals through miles of coaxial cable plant. It can store up to 64 characters of demographic information for each home terminal, which the system operator logs into the CDS with an easy to learn English type command structure. Usually the information consists of subscriber's name, address, medical history, and other emergency related facts.

The TOCOM III-B security and communications system is a highly sophisticated computer-based, general-purpose data acquisition and control system that communicates over bi-directional coaxial cable. The system is designed to provide the basic capability for home security alarm monitoring services such as fire, medical emergency, and so forth. As many as 64,000 homes may be monitored in the fully expanded system configuration (11,000 initial capacity), with the alarm status of each home checked every few seconds. The system also incorporates design features that will easily allow expansion to provide additional functions, such as energy (load) man-



From Monroe Electronics, Inc.

Satellite Cue Tone Receiver Model 3000R-64



- Features up to 8 cue tone decoders
- Monitors 4 program channels
- Provides 4 balanced audio and
- 4 co-axial SPDT switches for base band video or IF switching
- Isolation in excess of 80 db at 4.5 MHz
60 db at 41.25 MHz



See Monroe 6-page brochure

Satellite Cue Tone Signaling Products

Also ask for data on Emergency Access Units 3000R7-R71-R72. They provide for dial up access to cable audio for emergencies.

NEW DEVELOPMENT
AGILE RECEIVER
CONTROLLER 3000R-82

for dial-up telephone remote control of most brands of frequency agile receivers. Permits selection of channel and polarization by telephone call. Phone Monroe for all your tone signaling needs:

Northern CATV Representatives:
800-448-1655
Monroe Electronics Factory:
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toll free (800) 231-8220

Cable TV Supply Company
502 Winthrop
Addison, IL 60101
(312) 543-9800
toll free (800) 323-1785

agement, meter reading, information retrieval, pay-per-view TV, opinion polling, etc.

Optional equipment allows remote terminals to be installed at a guard station, fire station, police station, or hospital.

For further information, contact TOCOM, Inc., P.O. Box 47066, Dallas, Texas 75247, (214) 438-7691.

Vitek Announces Production of Midband Converter

Vitek Electronics introduces a new, inexpensive, and highly reliable seven-channel Block converter, featuring transposed carriers, single switch/high isolation, integrated circuit power supply regulator, fine tuning control, and UL approved/FCC certified components.

Input channels A through G range in frequency from 127.75 MHz to 163.75 MHz (Video) and from 123.25 MHz to 159.25 MHz (Audio), with a resulting output on channels 7 through 13. The output is selectable from a two position switch; position 1 is a feed through of channels 2 through 6 and 7 through 13 without conversion, position 2 converts the seven midband channels to channels 7 through 13. The unit's specifications are as follows: input levels range from -5 to +10; gain varies from 0 to 5 dB; response flatness is 1.5 dB P-V maximum; noise figure stands normally at 13 dB; cross modulation and intermodulation (second order) are both measured at a maximum of -60 dB (Cross modulation is measured with 19 channels @C +10 dBmV. Intermodulation is a two-tone test @ +10 dBmV.) Signal/Spurious ratio figures out to a minimum of 60 dB; input return loss is 12 dB, and output return loss is 16 dB.

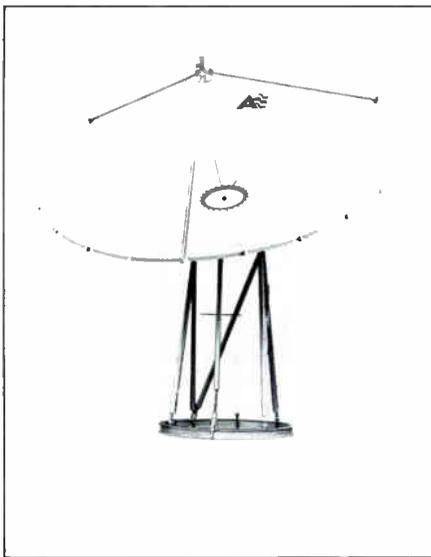
For further information, contact Vitek Electronics, Inc., 4 Gladys Court, Edison, NJ 08817, (201) 287-3200.

Earth Stations

New Equipment Package From Anixter-Prusan

Anixter-Prusan is now offering "Off The Shelf" delivery of earth stations. The equipment package features antennas by Anixter-Mark, receivers, LNA's and a complete line of modulators. The complete Earth Stations will be

stocked by Anixter in Wharton, N.J., Elk Grove Village, Ill., and Santa Ana, Ca.



Collins Introduces New Series 4 Satellite Video Receivers

The SVR-4A, SVR-4T, and SVR-4F satellite video receivers are all designed for wide-band video carrier reception via international and domestic C-band satellites.

The SVR-4A has easy to reach local or remote tuning. A front panel channel selector for local tuning and a rear chassis BCD interface for remote tuning. Channel selection in the 24 channel SVR-4A matches the RCA satellite frequency plan. The odd numbered channels match the Westar satellite 12 channel frequency plan.

The SVR-4T is manually tunable, using an RF design for continuous tuning over the total 3.7 to 4.2 GHz frequency band. And, a simple adjustment on the chassis allows continuous band tuning. No more replacement of filters or long lead crystals.

The SVR-4F is a low cost, single channel receiver that can be retuned in the field by changing the RF channel filter. The channel change requires no special tools or test equipment. The RF design of the SVR-4F allows the LO to be continuously tuned over the total 3.7 to 4.2 GHz frequency band.

Alarm circuits on all models monitor the audio subcarrier, video, and RF level. A summary alarm contact closure is provided, as well as front panel LED lamps, and internal logic prevents summary alarm for an unmodulated carrier. A unique threshold extension

technique improves audio and video performance when operating with a low carrier to noise (8.0 dB C/N).

For further information, contact Collins Transmission Systems Division, Rockwell International, P.O. Box 10462, Dallas, Texas 75207, (214) 996-5340.

Compact Video Produces New Portable Earth Station

The COMPACT 42 from Compact Video is the ultimate in uplink and downlink portable facilities. When completely set up, this 42-foot fifth wheel trailer functions as a fully self-contained earth station. User's option provides full monitoring and test facilities for remote broadcasts or feeds to meet user requirements. The special five-meter Scientific Atlanta dish has been adapted by Compact Video Sales to fold down for easy transportation, and unfold for broadcast capability in a minimum amount of time. In fact, the entire unit can be set up, operated and maintained at maximum efficiency by one man.

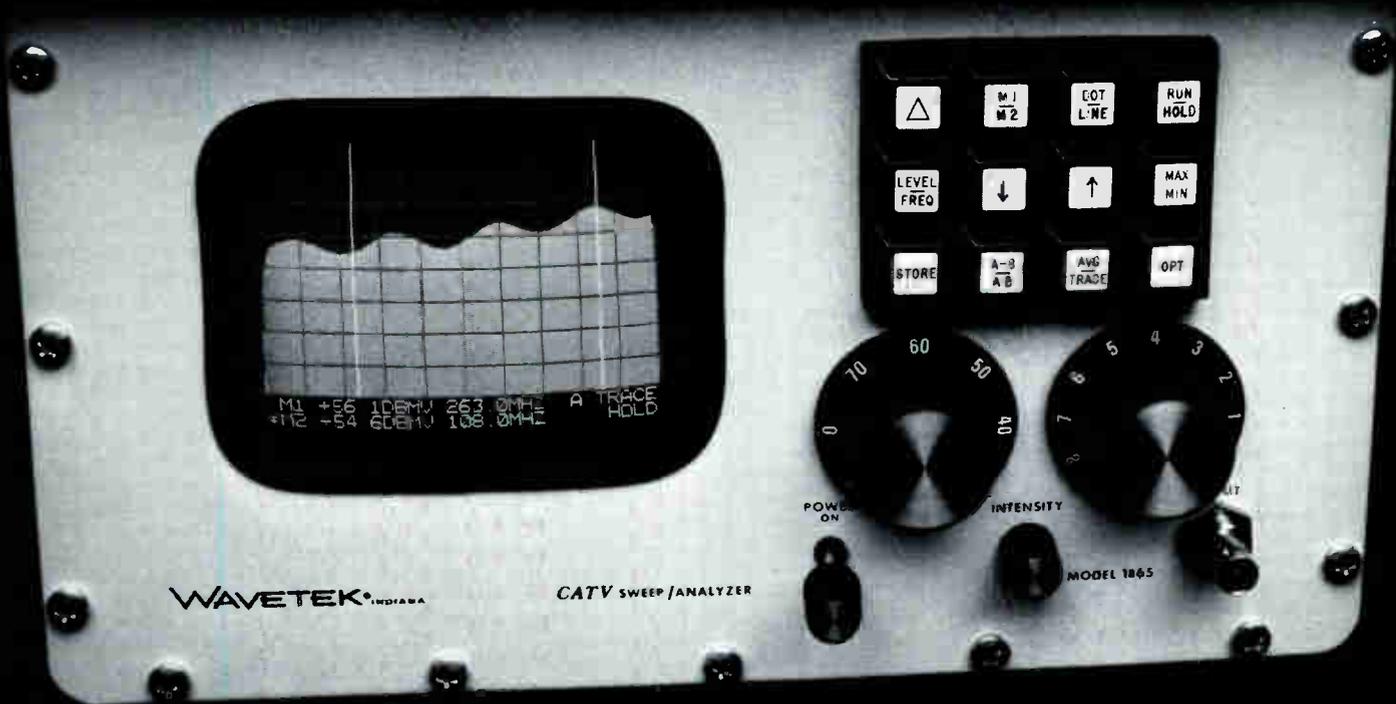
Utilizing dish panels from Scientific Atlanta, Compact Video designed the microwave dish to collapse into two sections (12 panels each). It opens up into a perfect, fully articulated parabola which retains the same electronic specifications as Scientific Atlanta's fixed-base antennas.

Other notable features:

- The Compact 42 can be hooked up to any standard road-worthy tractor for transportation from location to location.
- Standard electronics configuration supplied by Scientific Atlanta.
- Landing gear stabilizes rear platform for dish mounting.
- Transmits on the standard uplink frequency band (6 GHz).
- Downlink frequency (for feeding of satellite transmissions into live broadcasts) is 4 GHz.
- Short hop microwave transmission capability.
- Optimum quality transmitting and receiving. No distortion.
- VHF/UHF communications.
- Non-redundant and fully redundant systems.
- Optional Compact Video 60KW sound-proofed power generator.
- Fuel tank on trailer allows generator to operate as a separate system. No supplemental fuel required.
- Can also plug into alternate power source.
- Five-ton air conditioner.



**We predict this new program
will sweep the nation.**



It's the Model 1855/65 Sweep Recovery System, an action-packed display of microprocessor ingenuity and Wavetek precision.

Here's the plot: You hand one of these to your system technician, then watch how fast it sets up, how accurately it portrays your system performance, how easily he can balance your trunk.

What will the home viewers think? They won't see a thing, thanks to the unique combination of high speed (down to 1 millisecond) and low level. However, they'll probably notice a steady improvement in your signal.

The star of the show is our microprocessor control. It takes care of most of the setup that used to take so long. Digital signal processing lets the display continuously refresh itself for a bright,



accurate picture of the most recent sweep. There's a future option planned for storing the display on magnetic cards or tape. Sweep this fall, rerun next summer.

Alpha-numeric readouts on the screen give amplitude, frequency, even deviation between peak to valley. You

haven't seen anything this easy to understand since Sesame Street. The price of the basic Model 1855/65 is \$6450. How's that for a happy ending?

To carry this (no copyright) program on your system, call collect: (317) 783-3221, CATV Dept., Wavetek, Indiana, P.O. Box 190, 66 North First Ave., Beech Grove, IN 46107.

WAVETEK®



- 3'x3' optional storage area.
- Air ride suspension.
- Sleeping accommodations for two.

Additionally, the COMPACT 42 is available with other equipment, both manufactured and installed by Compact Video's Engineering Department as needed.

For further information, contact Compact Video Systems, Inc., 2813 West Alameda Avenue, Burbank, California 91505, (213) 843-3232.

Three New Products from Comtech

Comtech Data Corporation now offers a new automatic LNA switch, series RCV 450 LS. Features include continuous carrier monitoring, automatic switching of redundant LNA, manual LNA selection, individual LNA selector, horizontal and vertical polarization protection, fault indicator, LNA power switch, and optional remote operation. The unit requires no adjustments or calibration.

The RCV 450 LS was designed to operate in conjunction with the reliable Comtech RCV 450 series of video receivers. It provides maximum program protection by monitoring on-line receiver signals. After the appropriate settling period, the RCV 450 LS will automatically switch in the back-up LNA is a carrier failure is detected.

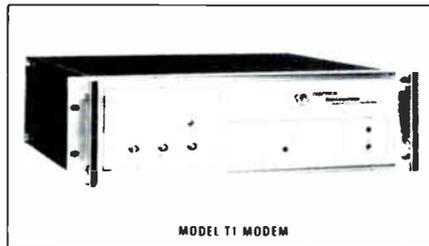
Front panel fault indicators show when a fault has occurred. Latching relays assure operation in the back-up mode until the reset switch is operated. Controls include a mode switch (for manual or automatic operation), LNA select, fault reset switch, and power switch. Along with the power and fault indicator, there is an LNA select indicator (horizontal and vertical).

In addition, Comtech has introduced a new satellite earth station automatic video switch, model 450 S, providing automatic substitution of the 450 A Agile Receiver for any one of up to six on-line failed receivers. The redundant receiver is automatically switched to the channel and polarization of the failed receiver. Each on-line receiver has a priority assigned. In the event of multiple failures, the redundant receiver replaces the highest priority channel.

Manual and remote overrides are included in the unit. The automatic switch requires no external power since it derives power from all the receivers in use. The front panel has

LED lamps showing failed receivers.

Features of the 450 S include: 1 for 6 back-up, switches in 100 milliseconds, manual and remote override capability, priority system for replacement of signals, optional polarization switching, and automatic restoration.



Also from Comtech, the Comtrunk model T-1 modem, designed to provide high-speed data communications capability for a standard CATV network. Four 1.544 Mb/s data circuits occupy the space of a six megahertz TV channel. The T-1 modem is ideal for trunking multi-plexed telephone channels from one PBX to another via an existing two-way CATV network. The modem will accept carriers from T-1 channel banks or from switching computers.

The transmit section of the T-1 modem accepts a bipolar signal and separates clock from data. The data is scrambled in order to limit undesirable spectral components. Data is processed with a proprietary poly-binary encoder and low pass filter. Data is then used to deviate a highly stable oscillator. The resulting signal is mixed with a synthesizer and matched to a CATV standard. The receive is the reverse function.

Features include CATV compatibility, a T-1 carrier, B/W efficient, remote looping, reliability, and easy maintenance. For further information, contact Comtech Data Corporation, 613 South Rockford Dr., Tempe, AZ 85281, (602) 968-2433.

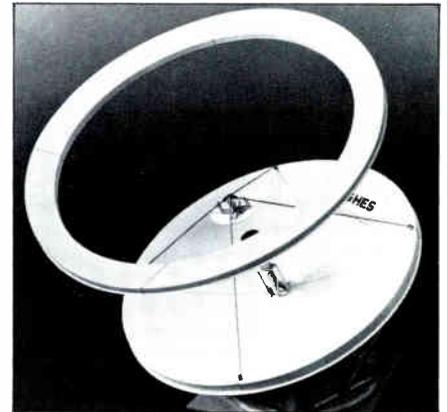
Low-Cost Satellite Reception Provided in New Hughes System

A new satellite receiving system, designed to provide for low-cost channel expansion, has been introduced by Hughes Aircraft Company's microwave communications products. The system is compatible with any existing earth station receiving equipment.

The receiving system consists of separate downconverter and receiver modules. The downconverter, Model

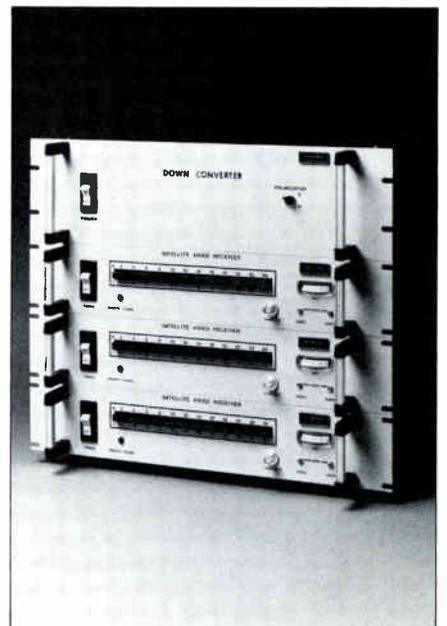
IDC-472, converts the entire 3.7-4.2 GHz band to 0.95-1.45 GHz for input into the receiver. Significant cost savings can be obtained by connecting up to 12 agile receivers to a single downconverter on either horizontal or vertical polarization.

The 24-channel receiver Model SVR-463, provides means for push-button channel selection, conversion to a second intermediate frequency, automatic gain control, demodulation and video/sound processing. Utilizing state-of-the-art microwave integrated circuitry for highest reliability, the receiver is an outgrowth of receiver-



development work performed by Hughes for NASA.

A unique expansion ring, designed to provide more than 1.5 dB additional gain, is now available from Hughes Aircraft Company's microwave communications products for use with its 5-meter low-cost satellite earth terminal for CATV systems.



(Continued on page 60.)

NEW

NOW IN STOCK! IMMEDIATE DELIVERY

NEW

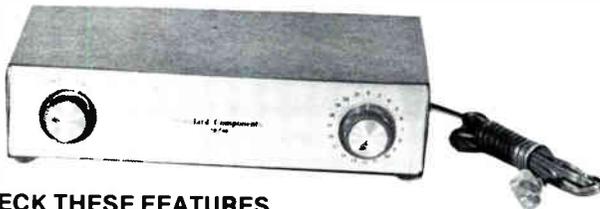
TWENTY CHANNEL ONE PIECE SET TOP PROGRAMMABLE CONVERTER

40 CHANNEL ACCOMMODATION

A twenty detent position rotary varactor control unit with each detent position capable of being preset to any channel in the 50-324 MHz spectrum.

OUTPUT CHANNELS, 2, 3 OR 4

CATV tuner which is a varactor tuned double conversion unit with an I.F. of 612.75 and an output frequency preset to either channels 2, 3, or 4.



CHECK THESE FEATURES

- 12 Month Factory Warranty
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- Underwriters Laboratories Approved
- Attractive Profile Design
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- One Piece Set Top Unit
- Rotary Varactor Control
- Stable Power Supply
- Most Cost Effective Design
- Convenient Fine Tuning Control
- Power Surge Protection
- Quality Performance with Security Systems
- Greatest Ratio Of Performance To Price Available

MID BAND CONVERTERS



1, 2, 3 OR 7 CHANNEL

SEVEN CHANNEL MID BAND CONVERTER DOUBLE CONVERSION



CONVERTS UPRIGHT MID BAND CHANNELS A THRU G or B THRU H TO 7 THRU 13 RESPECTIVELY

CHECK THESE FEATURES

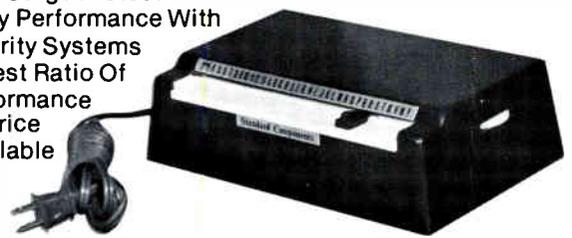
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- Convenient Fine Tuning Control
- Power Surge Protection
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- Greatest Ratio Of Performance To Price Available

36 CHANNEL CONVERTERS

CHECK THESE FEATURES

- 12 Month Factory Warranty
- Durable Construction
- Underwriters Laboratories Approved
- Attractive Profile Design
- Excellent Picture Quality
- Hi Speed Switching
- Set-Top or Remote Units Available
- Virtually Maintenance Free
- Most Cost Effective Design
- Higher Switch Reliability
- Power Surge Protection
- Quality Performance With Security Systems
- Greatest Ratio Of Performance To Price Available

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MANUFACTURED BY:
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Satellite Cablevision Equipment Inc.

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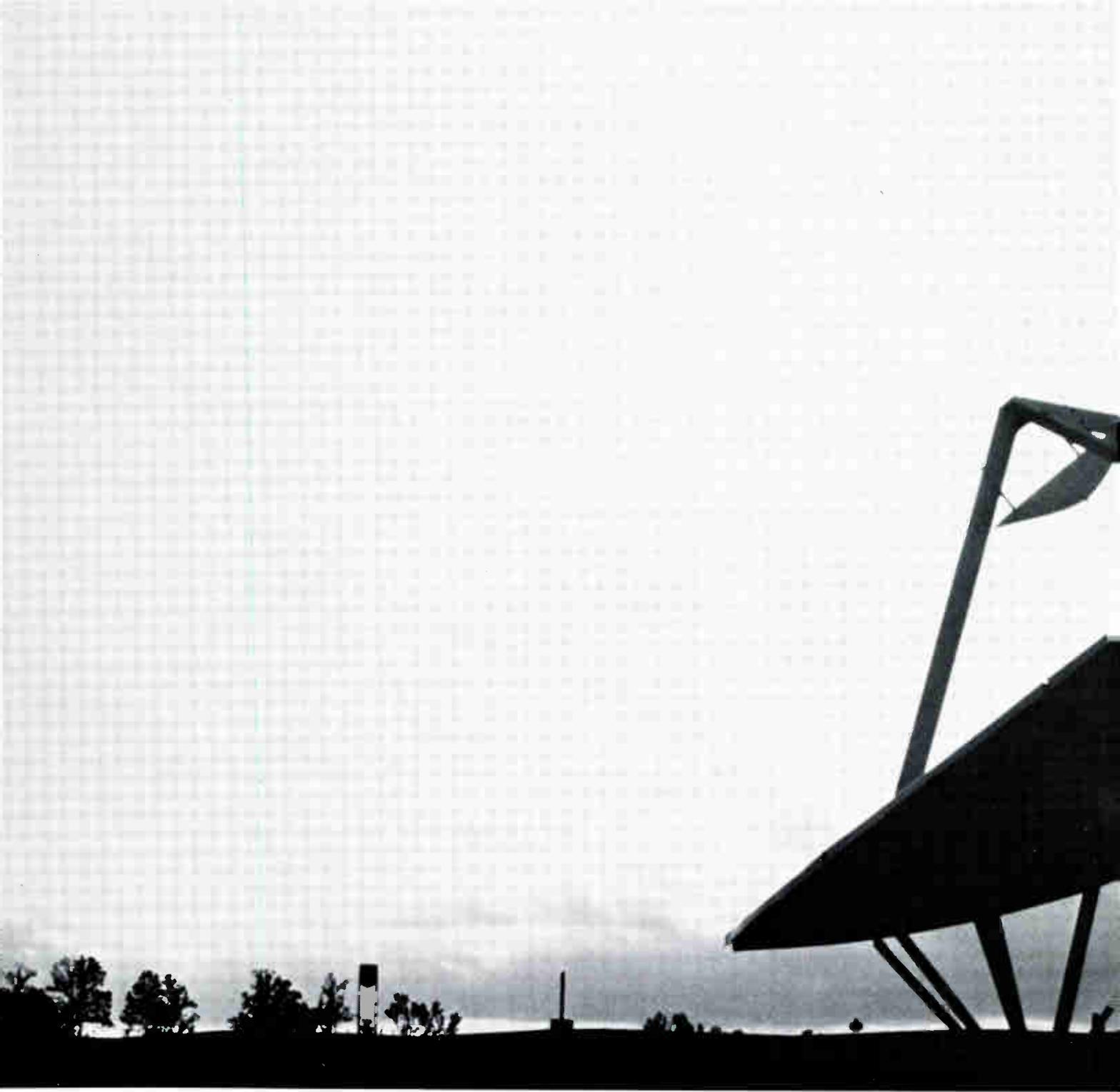
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This earth station goes up before the sun goes down.

Compare the new Scientific-Atlanta 4.6 meter antenna with any other, and you'll find its installed cost the lowest in the industry. To save you money, we've developed another innovation in engineering—a new steel pier anchor design. And it means you can now erect your earth station in just one working day, including the antenna foundation. At the same time it saves you up to \$1,000 because you don't have to pour a monolithic slab. We know of nothing that beats it.

The engineers from the world's largest manufacturer of earth stations have incorporated other significant advantages so that now you can enjoy an earth station package that is totally attractive in terms of cost and versatility. There's a single axis mount that makes the antenna easier to point. And changing satellites is accomplished with one simple adjustment. As for the antenna itself, it has an efficiency that is unparalleled in the industry.

As a part of our package you can get frequency coordination, FCC filing and a choice in our line of 6600 receivers...and if you add to that our new economical 416 modulator the package price becomes even more attractive. What's more, we'll install it for you if you want us to.

So check us out. We're the only full line supplier in the cable television industry. We work the hardest to save your system money. And a low cost earth station that goes up before the sun goes down is just another example. For more information, call Mike Smith at (404) 449-2000. Or write us.

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Telephone 404-449-2000. TWX 810-766-4912. Telex 054-2898.
Canada: 1640 Bonhill Road, Unit 6, Mississauga, Ontario, L5T
1C8, Canada, Telephone 416-677-6555, Telex 06-983600.



(Continued from page 56.)

The new expansion feature, which actually converts the 5-meter unit to a 6-meter diameter, adds 43 percent more surface area to the antenna. It is intended to allow the user the flexibility of obtaining additional gain in cases of satellite or transponder changes and signal degradation.

Additional standard features of the receiver include threshold extension, remote tuning capability, and built-in test/alignment circuitry. An AGC output terminal aids in locating and aligning the antenna to the satellite.

The receiving system, when combined with an antenna, low-noise amplifier, and integration electronics constitutes a complete satellite video receive terminal. The system was displayed for the first time at the Western CATV show, Disneyland Hotel, Anaheim, Calif., Dec. 12-14, 1979.

Microdyne Introduces New Satellite Earth Station Receiver

At the Anaheim Show, Microdyne Corporation showed its new Model 1100-FFC(X1)(S) satellite earth station receiver, featuring frequency synthesized 24 channel reception, crystal-free channel selection, dual video outputs, a threshold of 8.0 dB C/N, compact size (only 1 3/4 inches high), and additional audio subcarrier demodulators available.

The 1100-FFC(X1)(S), Microdyne 7th Generation Satellite TV Receiver incorporates the performance, reliability, and technical know-how gained from years of specializing in receiver design to meet customer requirements. Because of this specialization, Microdyne receivers are recognized as the standard of performance throughout the industry.

This frequency synthesized receiver can be manually tuned, using front panel controls without the use of crystals through the 24 channels available via satellite. The unique threshold extension circuitry (patent pending) is a standard feature that insures optimum video performance in the presence of low carrier-to-noise ratios.

The receiver is fully EIA and CCIR compatible and is specifically designed for the reception of wideband FM signals via domestic and international satellites. Application include CATV as well as broadcast television stations. It readily interfaces with any existing

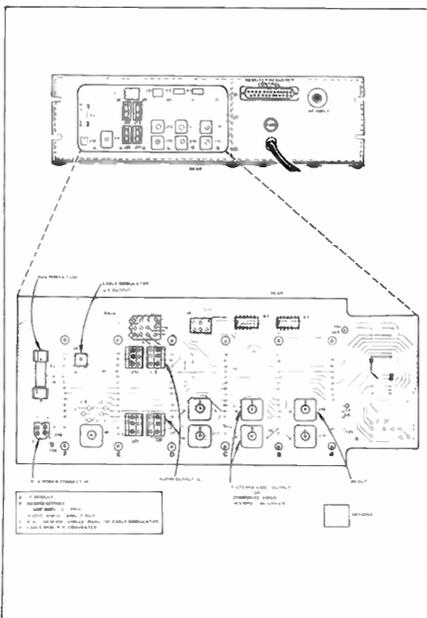
TVRO terminal and can be supplied separately or as part of Microdyne's complete Satellite Television Receive Only Terminals.

Additional flexibility is available with an optional Model SCB-1 Subcarrier Demodulator. This self-contained, 1 3/4 inch rack mount unit provides up to four standard or special subcarrier demodulators covering a range from 4.5 to 8.0 MHz. Separate slow scan video, high fidelity audio, data, cueing, and various switching modes are thus available without interference with the receiver's regular video and audio programming.

For further information, contact Microdyne Corporation, Box 7213, 491 Oak Road, Silver Springs Industrial Park, Ocala, Florida 32672, (904) 687-4633; or the Kansas City office, 12204 NW 66th Street, Kansas City, Missouri, 64152, (816) 891-7030.

Microwave Associates' New TVRO Package

Microwave Associates Communications is now offering a complete TVRO package including antenna, 120° LNA with 100 feet of DC cable, a model VR-3X satellite receiver, 100 feet of 1/2 inch heliax with type N connectors, grounding kits, and tie wraps, along with a handpump dehydrator, tee, gauge, and tubing. This basic package sells for \$9,172. In addition, a dual polarization add-on unit, which includes 120° LNA, 100 feet of 1/2 inch foam with type N connectors, grounding kits, and an LNA power jumper, is available at a price of \$1,382.



Microwave Associates Communications offers several equipment installation packages ranging from the installation guidelines in their instruction manual to a complete turn-key system. By selection of one of these different packages, the installation can be tailored to your individual requirements.

With respect to its TVRO package, Microwave Associates also offers a choice of two satellite receivers. The new VR-4X satellite receiver has 24 channel frequency agility via the front panel frequency selector or external frequency control from the rear panel connector.

The VR-3X is Microwave Associates' receiver with manual frequency agility. A screwdriver is the only tool required to manually tune the receiver across the entire band.

On both the VR-3X and the VR-4X, automatic frequency control locks the receiver to the signal of the selected channel. Standard features include a threshold extension demodulator that produces a 3 dB extension when compared to a 30 MHz IF bandwidth. An extra video output and composite baseband output allow flexibility of service needed in today's systems. For example, the baseband output reproduces all subcarriers that may be present on the satellite including such information as news and music.

Both the VR-4X and VR-3X may be used to feed a cable system directly when the optional cable modulator module is employed. This option eliminates the need for an external cable modulator. The radio also provides a 4.5 MHz subcarrier composite consisting of video plus program audio at 4.5 MHz. It can therefore simultaneously feed a cable system and a microwave system directly.

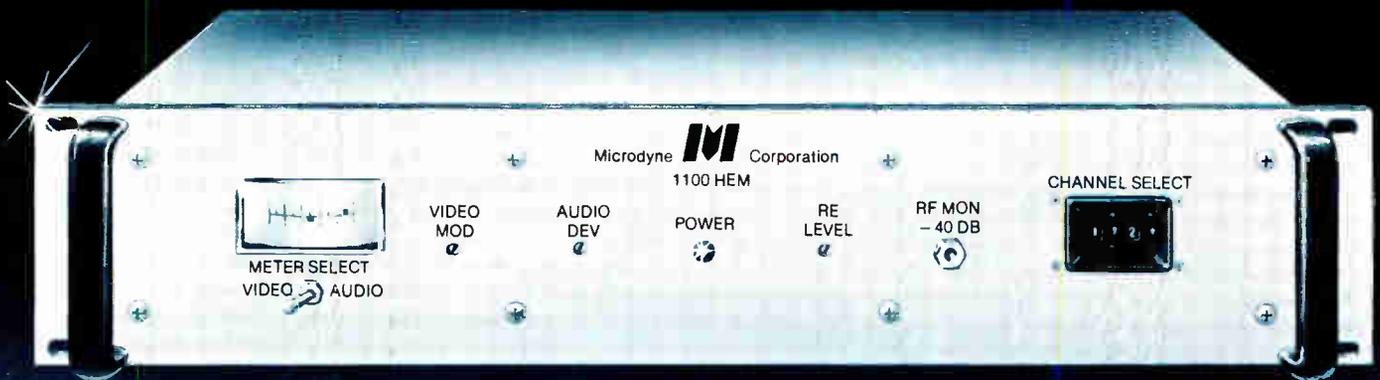
For further information, contact Microwave Associates Communications, 63 Third Avenue, Burlington, Mass. 01803, (617) 272-3100.

Power Supplies/ Test Equipment

AEL Produces 30/60 VAC Power Supply

The CATV Communications Division of American Electronic Laboratories, Inc., has announced production of its model CPH-12B power supply.

The First



The first tunable Head End modulator...

Introducing the first fully tunable Head End Modulator (HEM). Once again, Microdyne will be the first to introduce a new product to the Cable TV Industry, The 1100 HEM is "State of the Art" technology and is fully tunable to include mid-band channels A through I.

and antenna input. Now, we are the first to market a Tunable Head End Modulator and low cost synthesized Receiver.

When you're interested in high quality equipment, look to the first and foremost manufacturer of Satellite Communication equipment... Microdyne. Call us today.

The first low cost synthesized receiver...

Introducing Microdyne's new crystal-free Synthesized Receiver. Microdyne's 1100-FFC(X-1) (S) receiver does not require crystals for tuning. The new synthesized receiver will pull in all the channels you are used to receiving. Now, you no longer have to change crystals to change channels.



The first...

Microdyne Corporation is the first and foremost supplier of Satellite Communication Equipment in the Cable TV Industry.

We were the first to manufacture a "tunable" crystal receiver and first to introduce a 24 channel receiver with automatic polarity selection. We were also the first to develop a

Be the first...

I would like to be one of the first to place a Tunable Head End Modulator or Synthesized Receiver in my system. I understand I am under no obligation and would like an application's engineer to contact me.

Name _____ Title _____

Company _____

Address _____

Telephone Number _____

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Ocala, FL 32672 (904) 687-4633



Microdyne Corporation
Marketing Dept. 912G P.O. Box 7213
Ocala, FL 32672 (904) 687-4633
TWX 810-858-0307
Kansas City, Missouri 64152
816-891-7030

along with information pertinent to the dispatcher or repair technician.

The duty operator or dispatcher may at his option zoom in on a particular section of the map to assist in directing a repair crew to the location. A different command allows the display of a bar graph showing the signal level during the past half hour at one minute intervals. This is, of course, a tremendous aid in determining if the signal, although within spec, has degraded recently. For long term logging, a printer can be added to print a log of the levels once each day. Such a log allows management to be assured that the system is in top-notch shape and that customer satisfaction is high.

As the graphics are displayed on a standard TV monitor, the video can be used to modulate an unused mid or super band channel on the cable system. The cable system personnel such as the manager or chief tech can then view the system status at home during off-duty hours.

Specifications are as follows: operating frequency, 5.0 to 5.63 MHz; signal input, 100 MV to 10 MV (-20 dBmV to +20 dBmV), all channels with plus or minus 5 dB in this range; sampling rate, 1 second per channel; conversion accuracy, plus or minus 3 percent absolute or plus or minus 0.5 dB relative to normal RF level.

For further information, contact Control-Com, Incorporated, 123 Ragland Road, Jackson, Tennessee 38301, (901) 668-1002.

Pax Citation to be Available in March

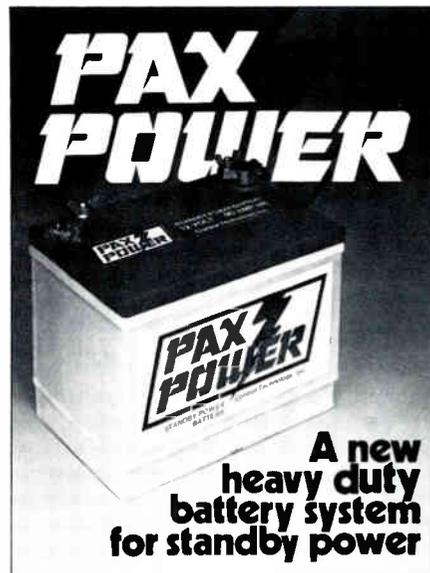
Control Technology, Inc., has announced that it will produce a new stand-by power system—the Pax Citation—to be available around March 15, 1980. The new system features output voltage regulation in both the primary and standby modes, and will include a precision cycle battery charger to extend battery life up to a factor of three, and permit adaptation of the unit for different types of batteries.

The system is smaller, more compact than most, and is enclosed in a lockable, lightweight, corrosion-resistant plated aluminum housing. Included in the unit are a three function mode indicator light, and solid state shutdown for overloads (inverter mode), with automatic foldback in the primary mode.

Pax Citation options include pedestal mount, battery heaters, and four battery system for extended stand-by capability. All critical components are overrated for maximum reliability. Dimensions are 16 by 17.5 by 15 inches. Output is 720 watts, 60 VRMs or 30 VRMs. The unit also features an external disconnect so all 110 VAC can be eliminated inside the housing.

In addition, Pax also produces maintenance-free batteries specifically for use in standby power systems.

For further information, contact Control Technology, Inc., 620 Easy Street, Garland, Texas 75042, (214) 272-5544.



A new heavy duty battery system for standby power

CATV Standby Power from Lester Powervision, Inc.

The Powervision NB113B provides an uninterruptible source of 12 amperes of clean 30 or 60 volt square wave power to CATV systems. It includes a Powervision PS750 ferroresonant CATV power supply as standard equipment. A solid state static switch transfers the cable load between the ferroresonant regulator output and the inverter output as required. The position of this switch is controlled by a line voltage detector which monitors utility line voltage. During utility power failures or brownouts, the load is switched to the square wave inverter output operating from a 36 volt battery pack. Thirty seconds after utility power returns within limits, the solid state switch transfers the load to the normal power supply and the battery conditioner within the 113B recharges the battery pack.

The Powervision NB115B is similar to the NB113B, except that the PS750 power supply is not included. This unit is designed to operate with existing CATV systems where the power supply has already been installed. The mounting hole pattern accommodates most CATV power supplies.

The PS750 module converts unregulated utility power to 12 ampere 30 or 60 VAC square wave power with a line regulation of plus or minus 1 percent. Surge protection prevents amplifier damage from line transients and lightning. The module includes a power service entrance and circuit breaker, lightning surge and transient eliminator, convenience outlet and power insertion filter. The dual output power combiner provided accepts standard 5/8" cable connectors.

The inverter drive supplies 12 amperes of 30 or 60 VAC square wave power. Output voltage regulation with load is less than plus or minus 10 percent. The inverter current limits at 15 amperes and can operate continuously into a direct short without damage. The module operates from a 36 VDC battery pack, has a 30 amp input fuse and internal reverse polarity protection.

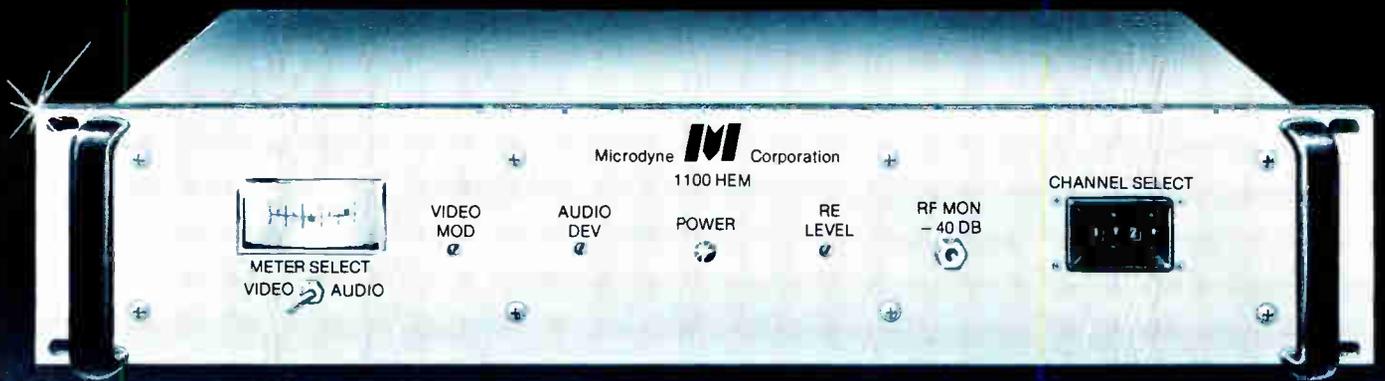
The Power Alarm lamp indicates when the load is being supplied from the battery. Power On lamp indicates power delivery from either source to the cable system.

The Powervision NB113B and 115B measure 24 by 12½ inches and weigh 75 pounds without batteries. Enclosure is designed for easy mounting; pole or pedestal mounting provisions are standard. In bypass mode, the electronic modules may readily be installed or removed without interrupting cable service.

The unit is equipped with a solid state transfer switch rated at 15 amperes, rms, to transfer the cable load (either 30 or 60 volt) between the utility power regulator and the standby power inverter. The switch is controlled by a line voltage detector with a 92.5 VAC preset low voltage trip point. The transfer time is less than 16 milliseconds. After the utility line voltage has returned within limits, a thirty second delay is provided before the unit transfers back to normal power.

The unit is provided with a utility power input circuit breaker. The battery charger and battery output circuits are fused. Failsafe relays and

The First



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Introducing the first fully tunable Head End Modulator (HEM). Once again, Microdyne will be the first to introduce a new product to the Cable TV Industry, The 1100 HEM is "State of the Art" technology and is fully tunable to include mid-band channels A through I.

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The first...

Microdyne Corporation is the first and foremost supplier of Satellite Communication Equipment in the Cable TV Industry.

We were the first to manufacture a "tunable" crystal receiver and first to introduce a 24 channel receiver with automatic polarity selection. We were also the first to develop a



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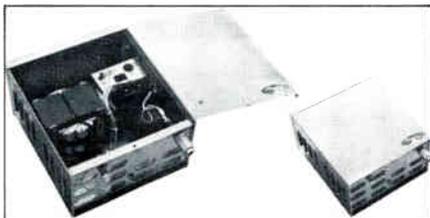


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Kansas City, Missouri 64152
816-891-7030

The transformer, the heart of the unit, is produced by AEL in its own plant. It exceeds ordinary commercial requirements since it is designed with the rugged demands of military use in mind. The insect and rodent proof outer case of aluminum is finished in a light color that makes the unit visible despite foliage, and the unit is easily mounted, with ready access to its interior. Sudden weather changes as well as extreme weather conditions do not harm the function of this power supply.

Features include knockout top and bottom for cable connections, pole or cross-arm mounting, test point, primary input circuit protection, on-off primary overload circuit breaker, auxiliary AC convenience outlet, fault indicator light, lightning and surge protector, and external grounding plug. Specifications include a line input of 95-130 V 60 Hz, maximum output of 30/60 VAC at 15 A, line regulation of plus or minus 2 percent 95-130 V, and load regulation of plus or minus 2 percent 3A to 15A. Pole weight of the unit is 50 pounds.

For further information, contact American Electronic Laboratories, Inc., CATV Communications Division, P.O. Box 552, Lansdale, PA 19446, (215) 822-2929.



Best Energy Systems for Tomorrow Offers Automatic Stand-By Power Systems

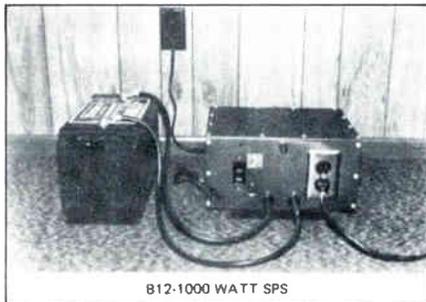
Best Energy Systems for Tomorrow, Inc. introduces two inexpensive SPS models (B12-1000 watt SPS, and BR24-2500 watt SPS) which solve the need for a low cost, quickly installed, dependable, automatic stand-by power system for equipment in the 100-2500 watt range.

Power blackouts no longer need to be of concern to equipment users. When a power blackout occurs, the BEST SPS continues to supply the 120 VAC load with the System Batteries providing the DC power. The BEST SPS models are static, 90% efficient DC to AC power inverters with an

Internal or External Float-type Battery Charger, and an Interval 25 amp DPDT Transfer Relay Switch. The transfer time from commercial line power to inverter power is less than 1/25 of a second (40 milliseconds).

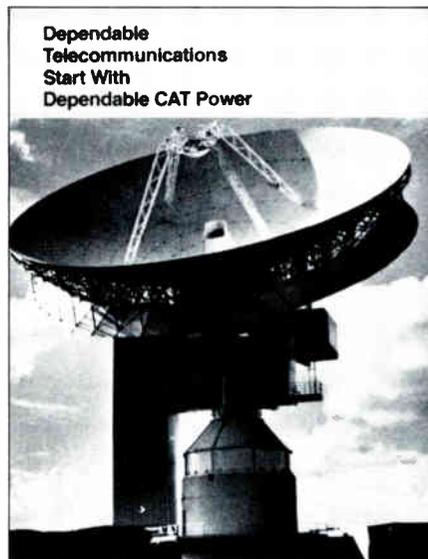
In addition to being noiseless, fuel-less, maintenance-free, these SPS models are equipped with AC power cords and Duplex receptacles for instant installation. (Direct wire option available also).

For more information, contact Steve J. Paul, Vice President of Best, Inc. Toll Free No. (800) 356-5794.



Caterpillar Prime and Standby Power for Telecommunications

Whether providing prime or standby power, Caterpillar Generator Sets are powering telecommunication installations throughout the world. A new brochure from Caterpillar Engine Division shows applications at a television facility atop Mt. Pisgah in the United States; earth station antennas in Nicaragua, Puerto Rico, Australia, Alaska, and Indonesia; and Mexico's telephone company in Mexico City. Ask your Caterpillar dealer for "Dependable Telecommunications



Start with Dependable Cat Power," Form LEDX9010, or contact R.K. Beckenbaugh, Caterpillar Engine Division, at (309) 578-3236.

ComSonics Introduces its Uninterruptible LNA Power Source

At the Western Show, ComSonics released information concerning its new uninterruptible LNA power source. The unit supplies 15 VDC nominal, at 4.5 watts totally isolated from the 115 VAC or 220 VAC primary mains. This eliminates the possibility of coupling a line generated overvoltage transient to the vulnerable LNA circuitry. Isolation is accomplished through the use of a DC/DC converter operating from two service-free gel cell type lead acid batteries. The "in-service" battery supplies operational power while the other battery receives a full charge.

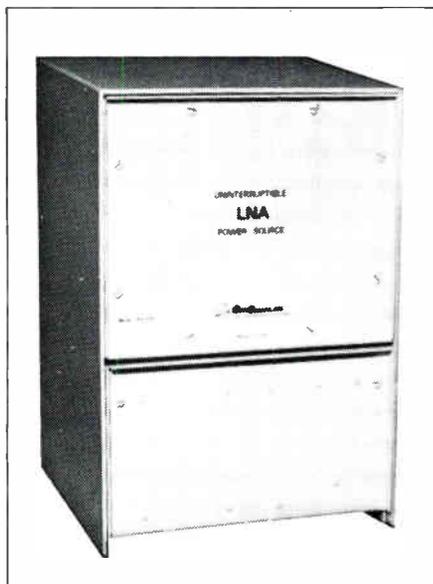
A precision voltage sensor monitors the terminal voltage of the in-service battery. When a level of 12.60 plus or minus 0.25 VDC is reached, the sensor causes the batteries to change functions, thus placing the freshly charged battery in-service, and the depleted battery in a charge cycle. As the second battery becomes discharged, the first is charged. The in-service battery sensor will cause the cycle to repeat continuously. At the same instant the batteries change states, a second sensor monitors the in-service time. If this time is less than approximately five hours, the "short life" indicator for the battery under test will illuminate. When "short life" illuminates, approximately two months of battery life can be expected and the user is urged to procure a replacement battery.

Operating reliability was a major design criterion for the unit. All semiconductor components in the charger regulator are 10x overvoltage rated for power dissipation. Circuit operation is guaranteed over a temperature range of -40° C to +60° C, thus allowing the source to be located in close proximity to the LNA. Because of the relatively short distance between the supply and LNA, the possibility of induced overvoltage transients is greatly reduced.

Specifications for the unit include: input power requirements of 115-220 VAC, 50-60 Hz, 60 watts total maximum (24 watts charger, 36 watts battery heater); battery requirement of a 2-Globe GC 6200 Gel Cells (6VDC @ 20

AH); output of 12.5-17.70 VDC @ 4.5 watts (suitable for dual/single LNA powering); a DC/DC converter frequency of around 20 kHz; surge protection by means of 10 KA gas discharge and varistor in combination for primary main protection and transient suppressing diodes used on output DC lines. Standby capacity is approximately 5 hours, and the service requirement is an estimated life of two years, when service-free batteries are utilized.

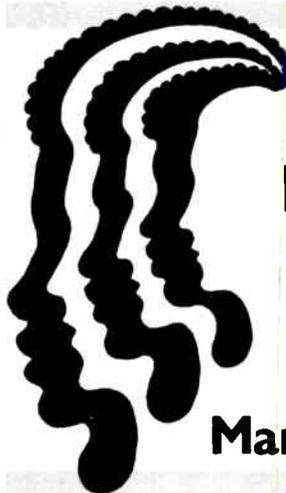
For further information, contact ComSonics, Inc., P.O. Box 1106, Harrisonburg, VA 22801, (703) 434-5965.



The Control-Com Status Monitor System

Control-Com, Inc., has developed color videographics status monitoring equipment which will interface directly with any off-the-shelf status monitor system. The Control-Com status monitor system presents a color graphics picture indicating whether the signal levels in a cable system are within acceptable limits or not. The display system was developed as a means to make status monitoring a more useful and used tool, and supplies meaningful information to management, front office personnel, technicians, and others as well as the engineering staff of a cable operation. There is provision for the system microcomputer to periodically scan up to 64 amplifier locations and to paint the monitored location with a red or green dot indicating if the amplitude is in or out of spec. In addition, if the level is out of tolerance, the address is displayed

People Power

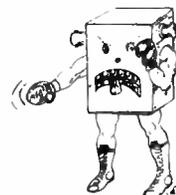
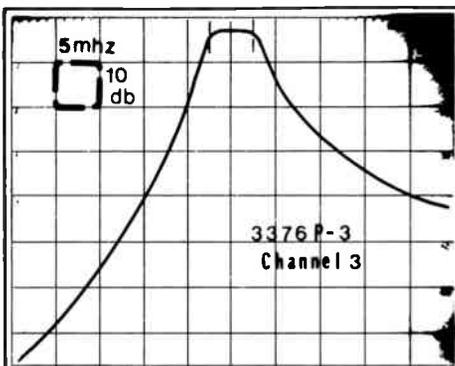


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along with information pertinent to the dispatcher or repair technician.

The duty operator or dispatcher may at his option zoom in on a particular section of the map to assist in directing a repair crew to the location. A different command allows the display of a bar graph showing the signal level during the past half hour at one minute intervals. This is, of course, a tremendous aid in determining if the signal, although within spec, has degraded recently. For long term logging, a printer can be added to print a log of the levels once each day. Such a log allows management to be assured that the system is in top-notch shape and that customer satisfaction is high.

As the graphics are displayed on a standard TV monitor, the video can be used to modulate an unused mid or super band channel on the cable system. The cable system personnel such as the manager or chief tech can then view the system status at home during off-duty hours.

Specifications are as follows: operating frequency, 5.0 to 5.63 MHz; signal input, 100 MV to 10 MV (-20 dBMV to +20 dBMV), all channels with plus or minus 5 dB in this range; sampling rate, 1 second per channel; conversion accuracy, plus or minus 3 percent absolute or plus or minus 0.5 dB relative to normal RF level.

For further information, contact Control-Com, Incorporated, 123 Ragland Road, Jackson, Tennessee 38301, (901) 668-1002.

Pax Citation to be Available in March

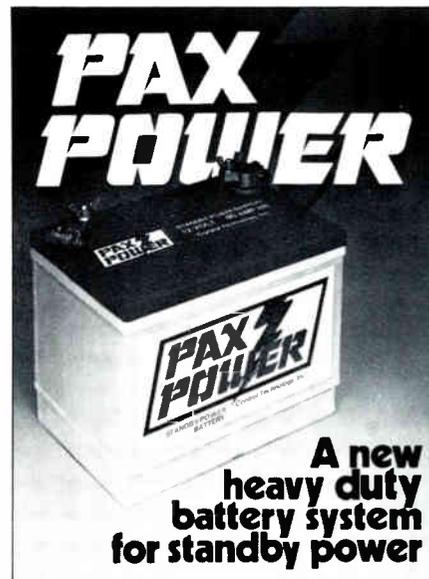
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The unit is provided with a utility power input circuit breaker. The battery charger and battery output circuits are fused. Failsafe relays and

A New Line Extender from RCA



Compact, Efficient Design • Optional Automatic Gain Control • “Plug-in” Hybrids, Surge Protectors and Two-Way Capability

Versatility, high performance and design features that lower maintenance time; we've put it all in our new Model 250 Line Extender amplifier.

An optional slope-compensated Automatic Gain Control (AGC) is isolated in a separate compartment to eliminate any interference with the amplifier response. This new AGC utilizes a single pilot which can be either a modulated video or a CW signal.

The reduced overall size and lighter weight of the RCA 250 Line Extender mean shorter lead lengths, less insertion loss and better adaptability to underground installation.

New accessible plug-in surge protectors combine with built-in delay networks to ensure proper operation and protection of the amplifier under lightning storm conditions.

Maintenance time is reduced with the efficient Model 250 design which incorporates external test points, built-in diplexers and alignment controls and provides easy accessibility to the internal hardware.

For bidirectional operation, an optional reverse hybrid can be “plugged in” to the amplifier module. The hybrid can also be turned around to operate in the downstream direction for testing or special applications.

For more information on the new Model 250 Line Extender call our toll free number: (800) 423-5651. In California, call collect: (213) 894-8111. Or write: RCA Cablevision Systems, 8500 Balboa Boulevard, Van Nuys, CA 91409.

RCA



redundant protective circuitry prevent accidental reflection of power into utility lines during standby operation. Fast acting MOV surge suppressors clamp both input and output voltage levels. Unit magnetics and battery pack provide further buffering from utility lines.

A front access toggle switch removes power from system electronics and locks unit in normal power mode for easy installation or removal of modules for maintenance, without interrupting cable service. Lights indicate unit status.

The unit operates over a temperature range of -40°F to 140°F, at any altitude from sea level to 10,000 feet. Internal and external surfaces are coated to resist salt spray, battery acid, and frost wedging; will not chip, scratch, or degrade from sunlight.

For further information, contact Lester Powervision, Inc., P.O. Box 1, Manhattan Beach, California 90266, (213) 374-1035.



MCE Delivers "Precise Power"

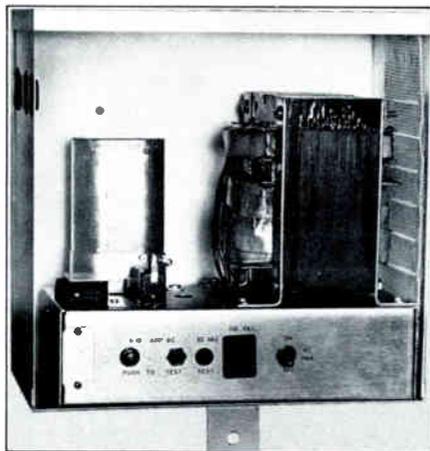
At the Anaheim show, Merrill Cable Equipment Corporation featured two power supply units which are now being advertised by the firm as giving "precise power." The ATPS-10/35 power supply provides an output of 35 volts AC at up to 10 amps, and the ATPS-12/60 power supply provides an output of 60 volts AC and up to 12 amps. Constant-voltage type transformer incorporates a special winding with parallel capacitance to produce a nearly constant output voltage. Output will be maintained within plus or minus 0.7 volts of the rated output voltage despite input variation from 105.3 to 128.7 volts.

The primary circuit is protected by a lightning surge protector, a self-

resetting thermal circuit breaker and a slo-blo fuse in an indicating-type holder.

The front panel carries a voltage test jack, a current test jack and a push-to-test switch, an AC convenience outlet and a double-pole primary switch. Primary power connection is via a heavy-duty three-wire terminal block, and output power is fed through a plug-in connector which is furnished with the unit or through coaxial cable interface connectors. For aerial applications, MCE recommends the use of their Nova AH-4 housing with the power unit.

For further information, contact Merrill Cable Equipment Corporation, P.O. Box 13741, Phoenix, AZ 85002, (602) 271-9181.



Meg-Chek For Preventative Maintenance

A modern, fingertip operated megohmmeter for easy measurement of electrical equipment in the shop or in the field has been introduced by Associated Research Inc., Chicago.

Meg-Chek® Model 2201 is designed for quick, accurate electrical maintenance measurements and testing of motors, wiring, appliances and other electrical equipment. It can measure megohms, ohms, and AC/DC volts without changing lead connections. The megohm ranges measure insulation resistance, the ohm ranges measure insulation resistance, the ohm ranges measure circuit or winding resistance and the voltmeter ranges measure connected line or other circuit voltages. And an instant battery condition test switch is on the face of the meter.

Periodic insulation resistance tests possible with this meter due to its ease of use and portability can be used to

predict electrical component failure. Careful record-keeping on insulation values of devices such as motors oftentimes will reveal an abrupt, sharp drop in insulation resistance. This is a key warning that insulation is about to fail . . . and a tipoff that maintenance will be needed and can be planned for.

The "Meg-Chek" Model 2201 is furnished complete with two 12-foot long test leads and resistance card set, instruction manual and self-contained carrying case.

For more information on the new Associated Research "Med-Chek" Model 2201, contact C. Riggio, Vice President, Associated Research, Inc., 8221 North Kimball Avenue, Skokie, Illinois 60076.



RMS CATV Division Introduces Its Power-King Series

At the Western Show, RMS unveiled the latest addition to its product line: dual power supplies available in a single housing for 30 or 60 volt application with dual cable systems. The new model 30/30 delivers to the cable system two voltage regulated square wave 30 volt at 14 amps outputs. It is equivalent to having two separate 30 volt power supplies contained in a single steel enclosure.

Individual output voltages are connected in phase. Each output circuit is individually filtered and by-passed for radio frequency interference. An RF filter assembly consisting of a ferrite tuned RF choke and two RF by-pass capacitors installed in each of the cable seizure output circuits prevents random unwanted RF off the air pickup

from entering the cable system. All of the by-pass capacitors are rated at 1600 volts working voltage (3000 volts test voltage) in order to better sustain damaging voltage transients and power surges.

In addition, each of the cable output ports is protected by a gas filled voltage surge protector with a high speed response to transients of 8×20 micro-seconds at 10 kilo amps (10,000 amps) single impulse surge discharge current. Isolation resistance at 100 volts is in excess of 10,000 megohms.

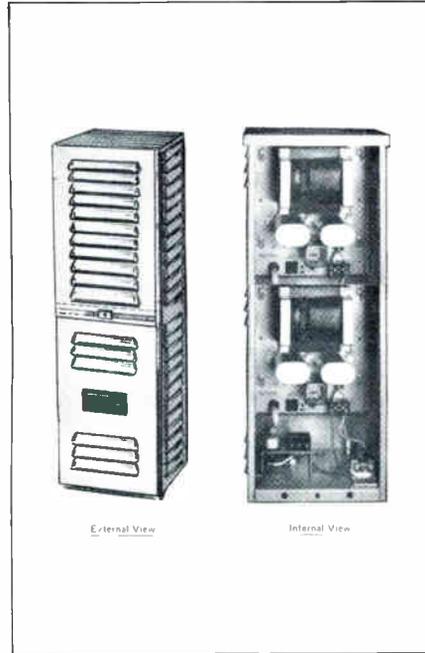
A separate long life LED type pilot light indicator is provided for each of the 30 volt output circuits, and each of these circuits are individually relay switched during the 10 second time delay function after a power outage.

This power supply is virtually obsolete-proof. At any future date, should the cable system be rewired for 60 volt square wave operation, the two 30 volt windings can be hooked up internally in series connection (instructions are included) to furnish a single 60 volts output at 14 amps current capability.

Specifications for the model PS-30/30 power supply include the following: line input, 95-130 V, 60 Hz; line

regulation, plus or minus 2 percent, 95-130 V; load regulation, plus or minus 2 percent, 1/3 to full load; pole weight, 60 pounds; shipping weight, 67 pounds.

For further information, contact RMS Electronics, Inc., CATV Division, 50 Antin Place, Bronx, New York 10462, (800) 223-8312.



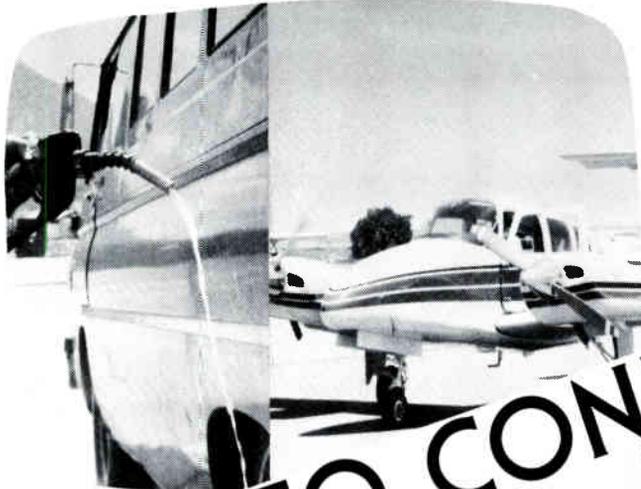
Sawyer Industries' New UPS Mark III

Sawyer Industries, Inc., presents their new UPS Mark III; the unit provides continuous AC powering for applications that require zero transfer time from line to standby. The Mark III is available in two models, the 500 VA, and the 1 KVA.

The design uses SCR technology which allows the inverter to act as a battery charger during AC operation. This aspect of the unit allows the Mark III to have up to 90 percent efficiency. In addition, the UPS Mark III systems utilize a ferroresonant transformer which gives excellent line and load regulation and noise immunity. The



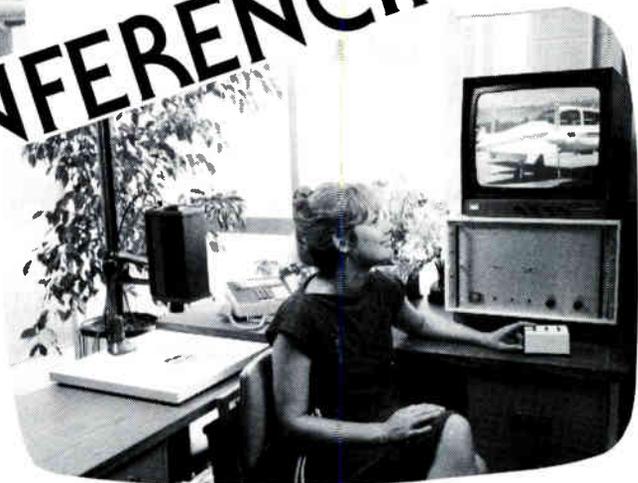
(Continued on page 73.)



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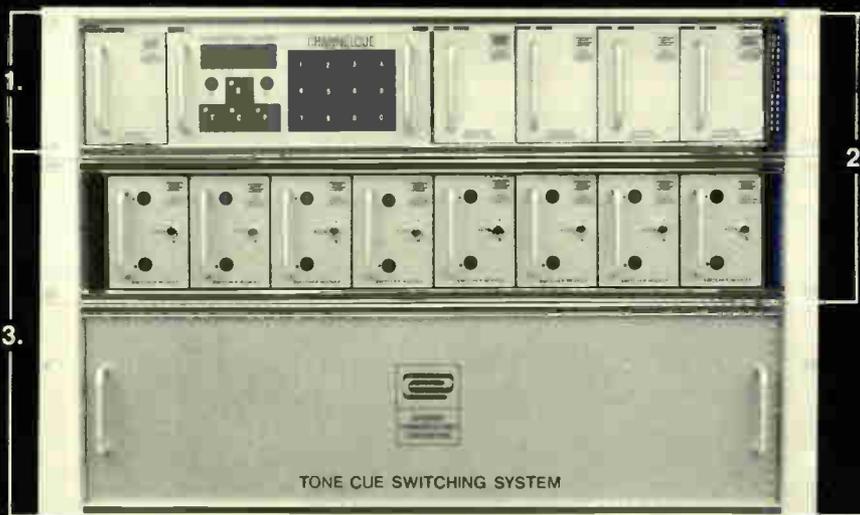
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2.
Expanded Basic unit provides time switching for up to eight channels with 2,552 switch functions.

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You get more than your money's worth with the new Gardiner CHANNELCUE™. Because it's the most versatile programmable switcher on the market today. CHANNELCUE™ is unique because with Channelcue's video switching there's no worry about troublesome external relays. And only CHANNELCUE™ offers field-programmable tone modules. If command tones change, you simply reset the binary switches on the tone card. CHANNELCUE™ offers you four options and more too. You purchase only what you need. With option

(1) or (2), you can program for time switching to comply with non-duplication or syndicated exclusivity requirements. And also, for those video services on fixed time schedules. Where tones are required because of uncertain program length or other complexities, the tone control option (3) may serve your needs. If there are combinations of time and tone requirements, option (4) can do it all. Call our toll free number today. In the U.S.A. 1-800-231-2602. Texas only, 1-800-392-9646 or see our new line at the Western Show, Booths 7 and 8.



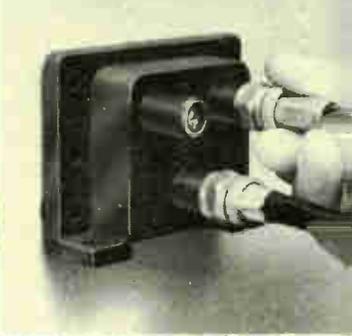
HS200 HS300 HS400 2, 3 & 4 WAY HYBRID SPLITTERS



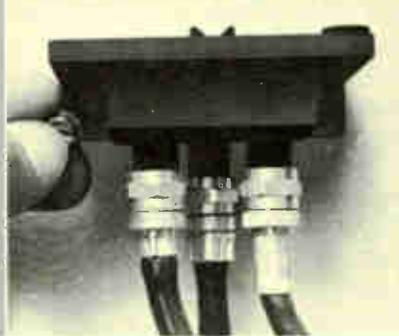
Under Eave Mounting



Wall Mounting



Horizontal Mounting



Strand Mounted



The new HS200, HS300 and HS400 Hybrid Splitters are built in the most unique housing on the market today! The quad mounted housing gives real flexibility to allow for strand or eave mounting, flush wall mounting, or horizontal mounting when drops are coming up from the floor or in cabinets when all the ports are needed to face down for real ease of installation.

The housing is a strong die cast for outdoor use and further protected from the weather elements with our new super black chromate finish. Each port is machine threaded to insure a perfect "F" connector fit and then weather sealed.

- Unique *quad* mounted housing
- Sealed die cast housing
- Super black chromate finish
- Machine threaded ports
- Meets all FCC signal leakage rules
- Built, tested and quality assured to work over the full CATV range
- New 400 MHz Bandwidth with low Insertion loss
- 20 units to a master pack

INTERCEPT

We are serious about our passives...that's why we treat them like our actives.

Specifications

HS200

Bandwidth	5-300 MHz
Insertion loss	3.5db max.
Isolation	30db min.
Input match	20db min.
Output return loss	24db min.
Impedance	75 ohms
Connector Type	F61

HS300

Bandwidth	5-300 MHz
Insertion loss	3.5db max.
-at the port indicated	
Insertion loss	7.0db max.
-at two ports indicated	
Isolation	30db min.
Input match	20db min.
Output return loss	24db min.
Impedance	75 ohms
Connector Type	F61

HS400

Bandwidth	5-300 MHz
Insertion loss	7db max.
Isolation	30db min.
Input match	20db min.
Output return loss	24db min.
Impedance	75 ohms
Connector Type	F61

(Continued from page 67.)

ferroresonant characteristic is preferable in some applications because of its lower peak-to-RMS voltage ratio of 1.23 compared to 1.41 for a pure sine wave.

The units are enclosed in a standard 19 inch rack mount design. Batteries are not included and the rack mount cabinet is optional. However, Sawyer Engineering can recommend proper external battery type and capacity for the 2000 series based upon individual systems' temperature and standby time requirements.

Specifications for both the 500 VA and 1000 VA models are as follows: transfer time, zero; voltage, 125 V; current, 4 A and 8 A respectively; power factor, plus or minus .8; regulation, plus or minus 2 percent; frequency stability, plus or minus 3 percent; maximum efficiency, 90 percent; operating temperature range, - 40°C to +60°C.

For further information, contact Sawyer Industries, Inc., 5649 Peck Road, Arcadia, California 91006, (213) 442-5981.

Sparks' New Power Unit

Sparks Equipment Company recently introduced a model SRL-24 battery operated standby system for pole, pedestal, or wall mounting. The cabinet is designed with a shelf area of 14 by 9 by 9 inches for various brands of power supplies. The model SRL-24-30/60 features a lectra power supply for new construction areas. These units feature a dynamotor for 120 VAC output of 8 amps 800 watts sine wave. Units come complete with full floating charger and a 10 second return delay with circuit breakers on incoming power and standby power. Only two 12 volt batteries are required with this system. Sparks equipment company is presently using the same concept on a larger model with an output of 15 amps 1600 watts sine wave with a non-interruptible transfer for computer standby.

The same circuit breaker protection located on the REDI-LINE DA-24A-LV is also protecting the standby unit. Low voltage shut down protection is offered. If standby time goes beyond the battery capabilities, it shuts down to avoid equipment damage. At this time the REDI-LINE output is approximately 100VAC. The system will not reactivate until the charger brings the batteries back to minimum 24VDC.



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Video Data Systems

VIDEO DATA SYSTEMS, corporate office, New York, NY (516-231-4400);
VIDEO DATA SYSTEMS, National Sales, Salt Lake City, UT (801-272-9296);
International Sales, ADCOM ELECTRONICS, LTD., Ontario, Canada
(416-251-3355); CATEC AG LUZERN, Luzern, Switzerland (041-22-66-19).

Recharge time is approximately 14 hours.

Sparks Equipment Company also offers a one year warrantee on all components.

For further information, contact Sparks Equipment Company, P.O. Box 413, Plymouth, California 95669, (209) 245-6967.

Standard Communications Introduces Three New Test/Power Supply Products

At the Western Show in Anaheim, Standard Communications exhibited three new additions to its current product line: the VPS-10 variable power supply, the AFTC-10 automatic fine tuning control power supply, and the MDST-20 MDS test set.

The VPS-10 variable power supply features fine tuning control, compact size, and easy installation. Designed for precise, reliable frequency control, the VPS-10 supplies variable regulated DC power to operate all MDS down converters where automatic fine tuning is not required. An antenna change-over switch is provided with associated input/output Type F connectors. The sensitive components are isolated and shielded in a trim, compact cabinet to prevent pick-up of strong television signals. The unit is supplied with a plug-in, 120 VAC, 60 Hz power transformer designed for easy wall mounting.

The AFTC-10 automatic fine tuning control power supply is fully automatic, with precise frequency control and single-lever switching. The AFTC-10 is ideal for use in applications where the power supply is remotely located from the subscriber's television set, such as in apartment installations where unattended operation is required. As on the VPS-10, an antenna change-over switch is provided with associated input/output Type F connectors, and components are isolated and shielded to prevent pick-up of strong television signals. The unit is also supplied with a plug-in, 120 VAC, 60 Hz power transformer designed for easy wall mounting.

The MDST-20 is a testing device which provides accurate indications for the adjustment of components of a typical MDS TV system. Built to exacting standards and engineered for optimum reliability, it satisfies a variety of applications, such as antenna positioning and local oscillator tuning.

The MDST-20 measures 3¼ by 5½ by 7¼ inches and weighs only 3 pounds. This allows the unit to be suspended in front of the operator by means of an accessory leather case with a chest harness, providing convenient, "hands-free" operation. The MDST-20 affords uncomplicated operation with its "go-no-go" indicators. This takes the guesswork out of interpreting indications on the testing unit. Separate indicator lights for "on" and "charge" are provided, and a battery status indicator warns if the battery needs a charge. The MDST-20 can be customized to the area where it is being used, and is available for use on television channels 2, 3, or 4.

The heart of the MDST-20 is a completely self-contained automatic fine tuning controller and voltage standard. The AFT provides precise meter indications for setting the mechanical frequency tuning of the antenna-mounted converter before installation. A voltage meter and tuning indicator are standard features of the testing unit.

The MDST-20 has a calibrated, dual-range signal level meter which offers the flexibility of locating stations in weaker signal areas. Additionally, it helps in completing the final positioning adjustments for on-site installation of the various MDS components, and in confirming appropriate signal levels to assure the best possible reception.

A rechargeable Ni-Cad battery powers the MDST-20. An overnight charge from either an accessory variable power supply or AFT power source permits over 6 hours of trouble-free operation. The Ni-Cad battery can be recharged countless times, saving you the cost of frequent battery change. A "low battery" indicator lamp shows battery condition.

For further information, contact Standard Communications, P.O. Box 92151, Los Angeles, California 90009, (213) 532-5300.



Wavetek's Model 1855/1865 Sweep Recovery System

The model 1855/1865 Wavetek Sweep Recovery System makes full use of microprocessor technology and a unique new processed sweep technique to provide a combination of accuracy, resolution, and ease of operation never before possible for frequency response measurements. This revolutionary system virtually eliminates subscriber interference—which means that routine performance tests/adjustments, FCC headend and plant proof-of-performance flatness tests, and troubleshooting can be done at any time of the day or night, without fear of subscriber complaints. In addition to exceptionally reliable performance, the system offers these standard features: minimum front-panel controls, to make operation quick and simple; digital storage and refreshed display, which keep a display on the CRT as long as needed; alphanumeric readout; battery saver, which increases battery life up to 30 percent; and tilt control, to compensate for tilt loss from the sweep insertion point of the combining network to the outgoing trunk test point, or to compensate for specific drop cable loss.

The Model 1855 is a microprocessor controlled, bench or rack-mounted sweep transmitter. Using the front panel keyboard and the easy-to-read LED readouts to verify entry and control settings, it takes only about 20 seconds for the operator at the head end to enter into Model 1855 the desired output level, sweep duration, sweep repetition rate, and start/stop sweep frequencies. Once the parameters have been entered, the unit requires no additional attention unless a change in one of the parameters is desired. A microprocessor in the Model 1855 stores and automatically transmits the entered data on a phase modulated 50 MHz pilot carrier operating 20 dB below the sweep output level.

Model 1855 uses a frequency counter to accurately set the start/stop sweep frequencies. (This same counter insures accuracy when the 1855 is in the CW mode.) Up/down keys provide convenient automatic tuning in 100kHz intervals from 1 to 400 MHz. Remote selection of the Operate or Standby mode is possible through external contact closure via a rear-panel connector. Model 1855 may be

used as a normal bench sweep generator by selecting the continuous sweep mode.

The model 1865 Sweep Analyzer is a portable, battery operated unit packaged in a high impact plastic case. This unit features microprocessor technology, digital storage, refreshed display, alphanumeric readout, a unique moveable cursor/measurement system and a battery-saver circuit. The Model 1865 receives the transmitted signal from the Model 1855, decodes the phase-modulated pilot carrier, and instantly and automatically presets itself for the sweep duration, sweep repetition rate, and Start/Stop sweep frequencies that were entered into the Model 1855 at the headend.

The Wavetek Processed System obtains optimum sweep signal display by using a subtractive process. The Model 1865 first detects information on the cable (carriers, sync pulses, etc.) without the presence of a sweep signal. This waveform is then stored. After a time equal to one TV frame, the Model 1855 transmitter will sweep the cable with the preset output parameters. The Model 1865 Sweep Analyzer will detect

the information on the cable, subtract the response that was in memory, and enter the resultant response into memory. The memory will retain the resultant response and refresh the CRT with that response until the next sweep occurs. (A wave form can be retained and presented indefinitely if the HOLD key is depressed.) Once the



swept signal has been detected and the resultant waveform stored, the battery-saver circuit will shut down any circuits not required for the storage and display of the waveform; these circuits will remain deactivated until the microprocessor re-energizes them when it is time to receive and process the next signal. The battery-saver circuit increases the life of the rechargeable battery to about 3 hours between

charges—an increase of 20 to 30 percent.

The Model 1865 has a unique cursor system which allows easy, but very precise measurement of the frequency and amplitude at any point on the displayed response curve. When in the frequency mode, either of the two cursors, M1 and M2, can be moved horizontally (independently) across the face of the CRT. The amplitude and frequency at the point where each cursor intersects the displayed response is automatically indicated on the CRT in alphanumeric characters.

The Delta key provides direct alphanumeric readout of the difference in frequencies at M1 and M2, and also the difference in dBmV at those frequencies. The LEVEL/FREQUENCY key rotates M1 and/or M2 90° so that the cursors will appear as horizontal lines across the CRT. Either or both cursors can be moved vertically to any position on the CRT. For flatness measurements, M1 and M2 can be adjusted so that they coincide with the maximum and minimum points on the response curve. The absolute dB level represented by each cursor is automatically indicated on the display. Depressing

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the DELTA key will provide readout of the flatness deviation.

For further information, contact Wavetek Indiana, Inc., 66 North First Avenue, P.O. Box 190, Beech Grove, Indiana 46107, (317) 783-3221.

Miscellaneous

Arvin Shows New Weather Satellite Receiver

At the Western Cable Television Convention, Arvin CATV of Carroll, Ohio, the company that introduced weather radar to CATV, unveiled a spectacular new video weather product.

Arvin "Weather-Sat" (TM) produces color satellite weather pictures from NOAA's geostationary ("GOES") satellites.

NOAA (National Oceanographic & Atmosphere Administration) receives pictures from weather satellites. A computer processes the satellite data to produce pictures that show enlarged sectors with enhancement to give better tonal separation than the original satellite image.

NOAA transmits coded pictures by phone lines that are accessible everywhere in the U.S.A.

The Arvin "Weather-Sat" converts the NOAA phone signal automatically into video, in realistic sea, land and cloud colors.

Included in the compact (7"x19"x19" rack mount) unit is a decoder that selects specific transmissions, and a memory that stores the picture.

Until the introduction of "Weather-Sat," satellite pictures could only be received as mono-tone facsimile prints that needed studio camera work, or on costly computer systems.

For further information, contact Arvin/CATV, 4490 Old Columbus Road, NW, Carroll, OH 43112, (614) 756-9211.

Introducing Compact Video's Standard Line of Mobile Units

A. The Compact 20 handles productions requiring one to four cameras and up to two one-inch VTRs, and answers a wide range of electronic news gathering and electronic field production demands.

B. The Compact 21, offering up to two cameras and one VTR, features a

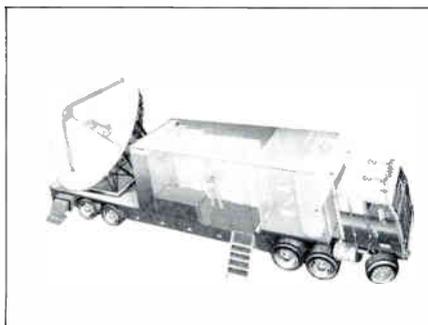
special hydraulic lift that raises to a lens height of 24 feet. It is ideal for golf tournaments, auto races, conventions, and so forth.

C. The Compact 27 offers up to six cameras and three VTRs and provides a spacious operational area for a production staff of ten.

D. The Compact 40 affords the user the ultimate in remote facilities, providing up to eight cameras and four VTRs.

E. The Compact 44 is a five-meter portable transmitting and receiving earth station. With the push of a button its articulated five-meter dish hydraulically unfolds, is pointed to the selected satellite and, in minutes, you're on the air.

For further information, contact Compact Video Systems, Inc., 2813 West Alameda Avenue, Burbank, California 91505, (213) 843-3232.



Compucon Introduces New Service

Compucon, Inc. now provides service area coverage and interference analysis for transmitting facilities operating in the Multipoint Distribution Service (MDS) band. This service provides reports and technical data that can be used in satisfying requirements of Exhibit H of the FCC application form 435. Included in this new service are: a data base area search to identify other MDS licensed or proposed transmitters located within 50 miles of your site; the 45 dB service area coverage contour overlaid on a topographic map of suitable scale; interference analysis report indicating along 15 degree radials the extent of coverage, the limiting factor, and the interfering station (if one exists); and radio horizon distance along 15 degree radials for the disturbed transmitter and all potentially interfering transmitters within 50 miles.

The price of this service is \$600 for the coverage and interference analysis

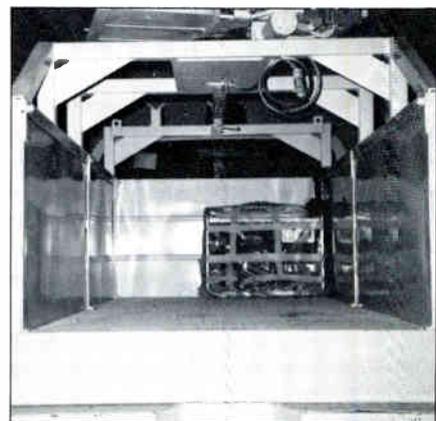
of your station. Coverage and interference analysis for neighboring stations will be supplied for \$350 per station. Normal turnaround time is two weeks after receipt of all required technical data.

For further information contact either Dave Land or Mike Walker at (214) 233-4380. Or write to Compucon, Inc., 13749 Neutron Road, P.O. Box 401229, Dallas, Texas 75240.



Continental Lift Corporation Shows New Addition to Product Line

Continental Lift Corporation is now marketing a new model in their line of personnel lifts. Model SB-CLC-32 is now being offered with a variety of options, each with specific applications within different industries. For example, the SB-CLC-32 is available with: insulated upper boom; choice of three fiberglass buckets—insulated, splicer or standard; totally hydraulic, electric, or standard hydraulic lift; bridge mounting for service bodies; complete usage of cargo space; feathering central on electric/hydraulic units; and easy-mounting, interchangeable units.



Of special interest is the large, open cargo space allowed by the SB-CLC-32.

For further information, contact Continental Lift Corporation, Highway 218 South, Austin, Minnesota 55912, (507) 433-7387.

Service: S.A.L.'s Most Valuable Product

When Hurricanes David and Frederick hit the SE coast of the U.S., cable TV systems were faced with massive damages. The range of destruction hit not only trunk and distribution lines but also subscriber drops. One call to S.A.L. resulted in immediate delivery of everything needed to get systems operating within hours! In most instances cable systems were back on-line even before telephone and power.

On December 21, subscriber response to a New England cable TV system's pay TV launch was so overwhelming that the system was left empty-handed. With subscribers eagerly awaiting service, a call to their distributor was a necessity. S.A.L. set their emergency delivery procedures in motion. 3 hours later the material was at their door!

Be it an emergency situation or the intricacies of day-to-day operations, S.A.L.'s full line distribution policy of product and service has been designed to anticipate and respond to your needs.

For information, contact S.A.L. COMMUNICATIONS, INC., 10 Hub Drive, Melville, NY 11747, (516) 694-7110. East of the Mississippi, toll free (800) 645-9030. In the Southeast, toll free (800) 241-2928.

The Energy Monitor from Dupont

At the Western Show in Anaheim, there was a demonstration of a new product from Dupont called the Energy Monitor, a unique device that installs easily in a home or an office to give a constant and current readout, in dollars and cents, of the electricity being consumed by your household or business.

The lighted panel displays eight functions: current dollars spent in consumed energy, projected amount of next bill, amount of last bill, billing date, your energy budget, the cost per kilowatt hour, the date, and the time of

day. An information sheet released at the Western Show noted that substantial savings on monthly electric bills can be achieved as a result of the awareness created by the Energy Monitor. For example, one study cited found that projected energy savings averaging between 25 and 35 percent could be achieved.

The unit is available in two models: with and without a control output feature. The standard unit, EM-10, provides the user with accumulating read-outs in dollars or kilowatt-hours, accumulated read-outs showing usage to date, projected read-outs if use persists at present rate, and a visual alarm when projected usage exceeds the amount budgeted for the month. The control unit, on the other hand, provides the user with the additional benefit of an electrical closure contact activated when over-budget. By simply connecting an outside cycling or control device to this unit and to his heating and air conditioning controls or your hot water heater, the user assures himself of not exceeding his budget during the month.

For further information, contact Energy Control Concepts, Inc., distributor for the Dupont Energy Monitor, 1459 Peachtree Street, NE, Suite 125, Atlanta, Georgia 30309, (404) 892-9932.

Fleetmaster Fiberglass Bodies

Van Ladder's revolutionary "Fleetmaster" fiberglass modular bodies are



perfect workshops designed to fit either the economy-minded compact or full-size pickups. The bodies have several access points and each is protected with quality lockable hardware for added security. Each body is equipped with several removable work trays to facilitate inventory control and good organization of components. Optional shelving, interior lighting and ladder rack packages are available to maximize the utilization of the body.

These bodies are designed strong to last and are even strong enough to support Van Ladder's "all electric" aerial ladders. Other Van Ladder products include self-propelled man-lifts for maintenance and construction work and broadcast units for remote broadcasting.

For further information, contact Van Ladder, Inc., Box 709—Industrial Park, Spencer, Iowa 51301, or call toll-free (800) 831-5051.

Zenith Announces Three New Hotel/Motel Television Receivers

Zenith Radio Corporation has introduced three new 19-inch diagonal System 3 color television receivers for hotel/motel use.

"These specially designed sets feature Zenith's Electronic Video Guard tuning system, and average lower power consumption than previous Zenith models," Joseph P. Stephano, manager, special markets, said.

All three receivers incorporate Zenith's System 3 technology. This concept combines Zenith's Triple-Plus chassis with 100% modular design, Tri-Focus picture tube with the patented EFL electron gun, and Color Sentry automatic color control.

The Plaza (model S1954W) and the Beaumont (model S1952W) provide one-knob VHF and UHF channel selection, with no exposed color controls for guests to misadjust.

The Plaza also offers a custom built-in AM/FM radio.

The Interlude (model S1956W) features wired remote control. Two types of wired remote control units featuring on/off/channel selection and volume control are available for ease of guest operation and viewing.

For further information, contact Zenith Radio Corporation, 1000 Milwaukee Avenue, Glenview, Illinois 60025, (312) 391-8181.

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CHIEF TECHNICIAN

Capable of handling the maintenance and operation of a 200 mile, 35 channel system still under construction in Southeast Massachusetts Earth station and microwave experience helpful. Opportunity to join a rapidly expanding MSO company. Paid benefits include life and health insurance, retirement plan, and tuition refund program. Contact: Greater Fall River Cable TV Inc., P.O. Box 671, Fall River, MA 02722 (617) 675-1171 EEO

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CORPORATION ENGINEER

Outstanding opportunity for the right applicant. Must have solid CATV background. Construction, Head-End, Earth Station and Line Maintenance Experience required. Must have management ability. A Virginia MSO with all systems located within state. Excellent salary commensurate with experience. We need to fill this position immediately. Send resume and salary requirements to: W. K. Bowles, DoKel Communications Corp., P.O. Box 465 Farmville, Va. 23901 (804) 392-8144

TECHNICIANS

IL, IA and FLA systems need technicians with construction and fire up experience. FCC license helpful. Send resume or Call: Country Communications, Meridith Burgess, P.O. Box 1101 Rantoul, IL 61866 or (217) 672-8392

SUNNY SOUTHERN CALIFORNIA

We are a rapidly expanding 30 channel system located in an ideal climate. We have immediate openings for experienced technicians, installers, and installer trainees. We are looking for career-minded self starters. Good pay and benefits. Send confidential resume and salary requirements to: Personnel, Southwestern Cable TV, 9670 Aero Drive, San Diego, CA 92123. Division of American Television and Communications EOE-M/F

CHIEF ENGINEER

Capable of handling the operation and maintenance of sophisticated 35 channel system in Central Texas. Also should have experience in satellite and microwave equipment. Salary open. Call collect: Tom Campbell (713) 463-3543 or write 5228 Highway 6 North, Houston, TX 77084

DIRECTOR OF ENGINEERING High Versatility Industry Position Washington, D.C.

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- Subscriber installations and service practices
- Satellite receiving and transmitting technology and operations
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Successful candidate will, in addition, have good interpersonal skills:

- To manage engineering department personnel and subcontractors
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- To assist with technical presentations of franchise applications

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CHIEF TECHNICIAN

Fresno Cable TV is seeking a chief technician for its expanding system. Experience is needed in electronics, microwave, video and audio equipment, earth station and supervision. Must have second class FCC license. Salary commensurate with experience and background. Send resume to: Director of Admissions, Fresno Cable TV, 1945 North Helm, Fresno, CA 93727 EOE A/A

CHIEF TECHICIANS

Immediate openings available in rapidly expanding Northeast Ohio market, with state-of-the-art two way 40 channel system. The right person will be a self-starter, experienced in system maintenance, from head-end to subscriber FCC testing, TVRO, and construction experience helpful, but not necessary. Excellent salary and benefits package. We are an Equal Opportunity Employer. Please send resume or contact Douglas MacLeod, Regional Engineer, Continental Cablevision of NE Ohio, 322 Broad Street, Elyria, OH 44035 (216) 323-9923

Miscellaneous

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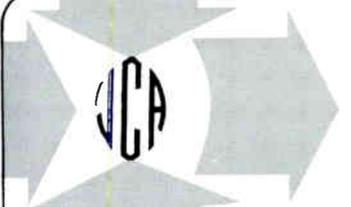
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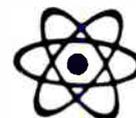
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Transporting Earth Station Signals to the Head-End

By James B. Wright, Engineering Manager, CALTEC Cablevision

Often terrestrial microwave interference dictates that an earth station be located some distance away from the head-end, perhaps several thousands of feet, or more. The problem then becomes one of how to join this remote signal source to the head-end, and is compounded when one wishes to use many different transponders simultaneously, or to use baseband signals. Several transportation schemes are reviewed.

Method No. 1. Perhaps the most used, because best understood, is the straight-forward technique shown in the block diagram of Figure 1. Here a

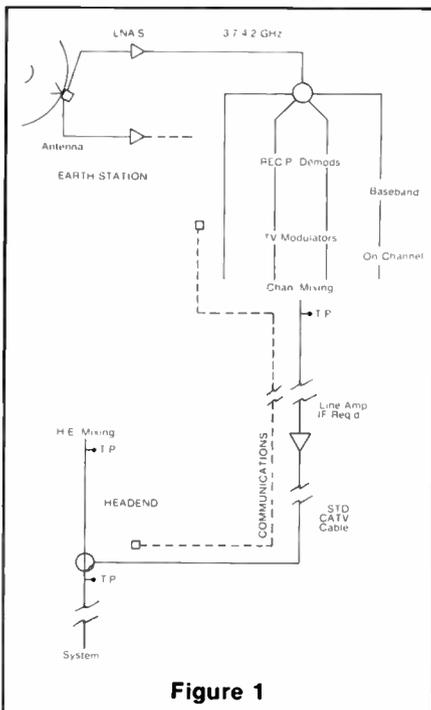


Figure 1

separate building is constructed to house the E.S. receivers and the necessary TV modulators. The outputs of the modulators are mixed and brought to the head-end by a coaxial cable where they are mixed with the other channels and sent into the cable system. Switching of transponders is accomplished at the remote site, and if this site isn't too far away the system works quite well.

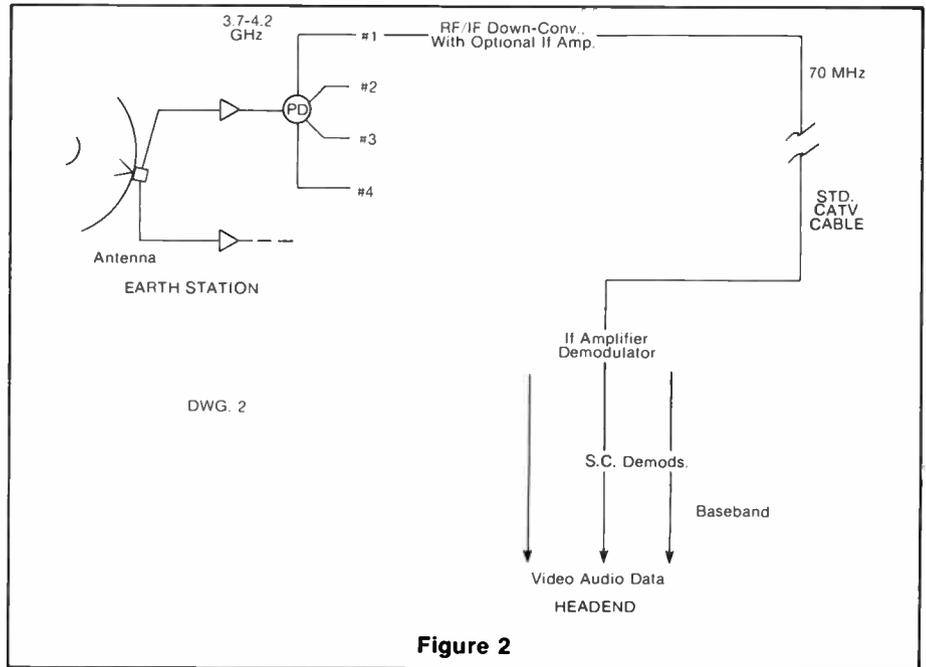


Figure 2

Assigning adjacent channels minimizes mixing balance problems.

Method No. 2. This method (see Figure 2) may be used when one wishes to utilize base-band video and audio switching and to recover and use the various subcarriers and tone-cues. Here the satellite receiver is broken into two parts, (1) a down-converter with power-supply, and (2) an IF-amplifier/demodulator with power-supply. In that all IF signals are to 70 MHz, a separate cable must be used for each channel transported. If the distance to be covered is sufficiently great, a second IF amplifier can be incorporated with the down-converter. If this is done the IF amplifiers should each have greater bandwidths than normal so that the composite bandwidth of the two in cascade is not narrowed below acceptable limits.

A scheme of diplexing three channels on one cable was devised for interim use at Caltec (Figure 3) where up-converter/down-converter pairs were planned using 175 MHz and 245 MHz as carrier IF's. With this system five channels were transported 1000 ft. over three existing buried cables, using 70 MHz and 245 MHz on two

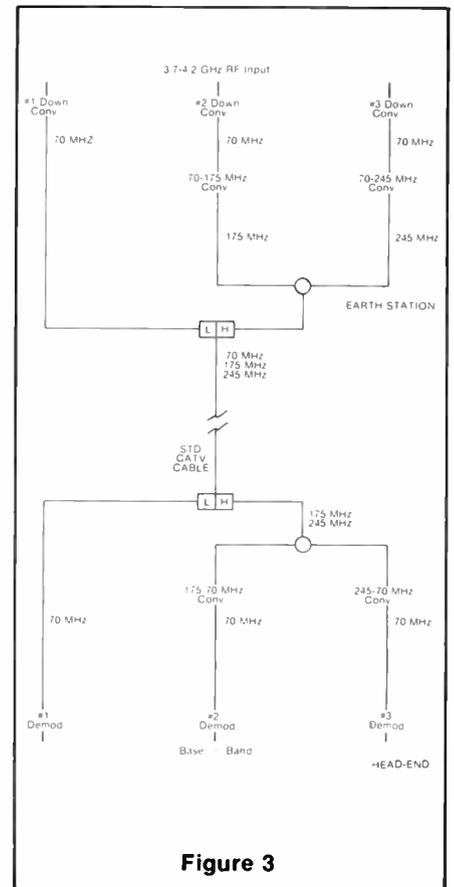
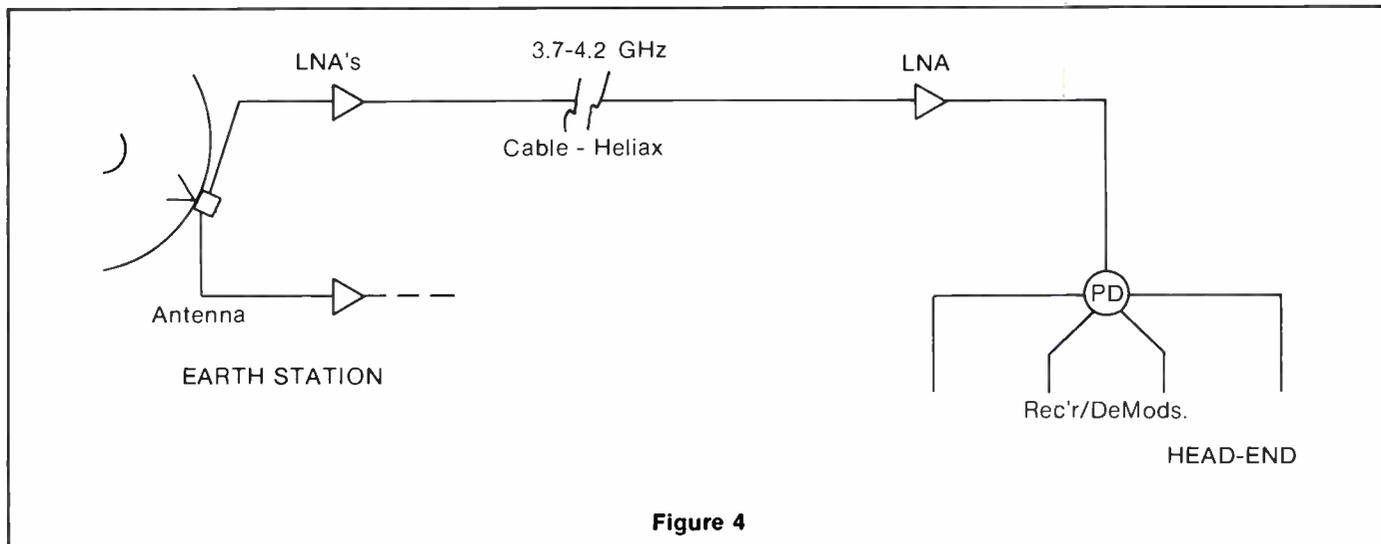


Figure 3

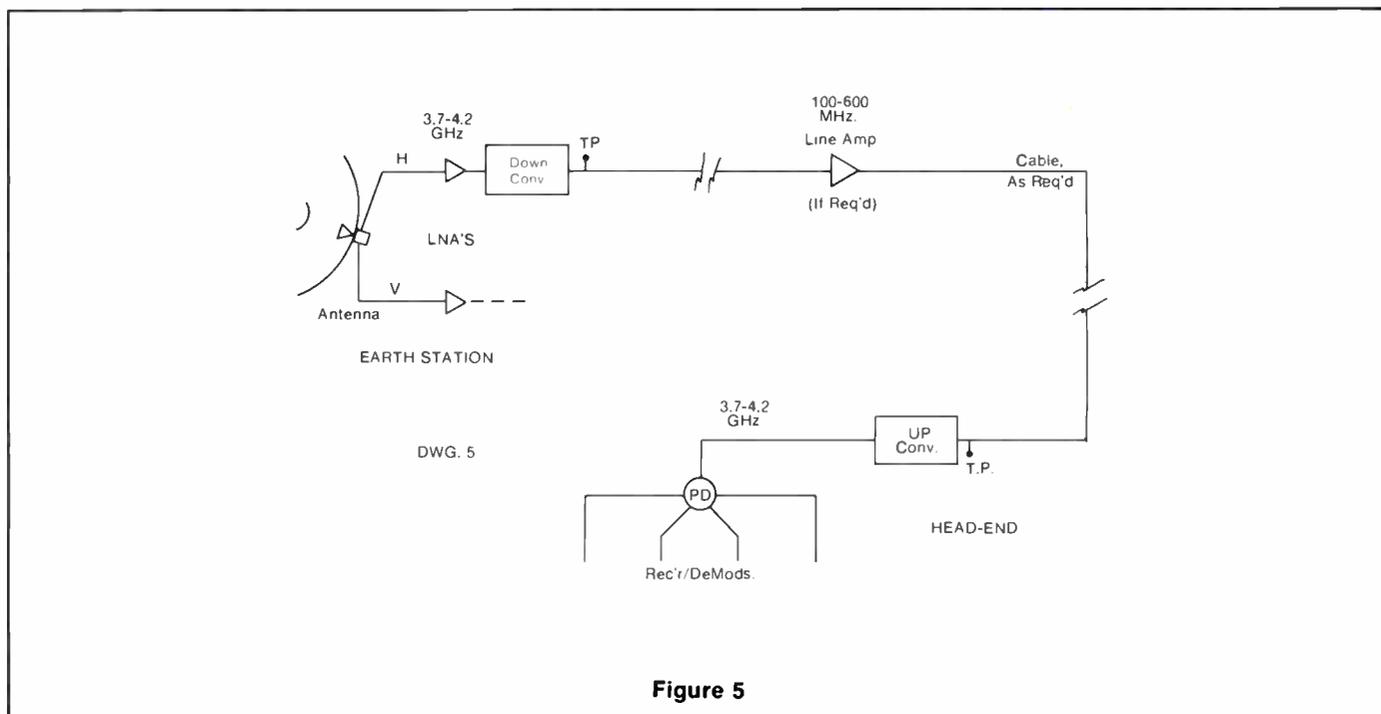


cables and 70 MHz only on the third. This method gave access to the demodulated baseband signals (without degradation) but did not solve the remote switching requirement.

Method No. 3. Figure 4 shows a

Method No. 4. Figure 5 shows a new system developed at Caltec (for use with the same existing buried cables) to transport 12 Transponder signals on a single CATV type cable. Here each LNA output is converted from its 3.7-

regular, trunk-only, dual-cable system. No signal degradation is observable in the abbreviated system we are using and the advantages of having the receivers in the head-end are fully realized.



brute-force method where a high-frequency coaxial cable is driven with the LNA and, along the way, another LNA boosts the signal as in any broadband cable system. Here the E.S. receivers are located in the head-end and all is well—if the distance isn't too great and you can afford the heliax and additional 4 GHz amplifiers.

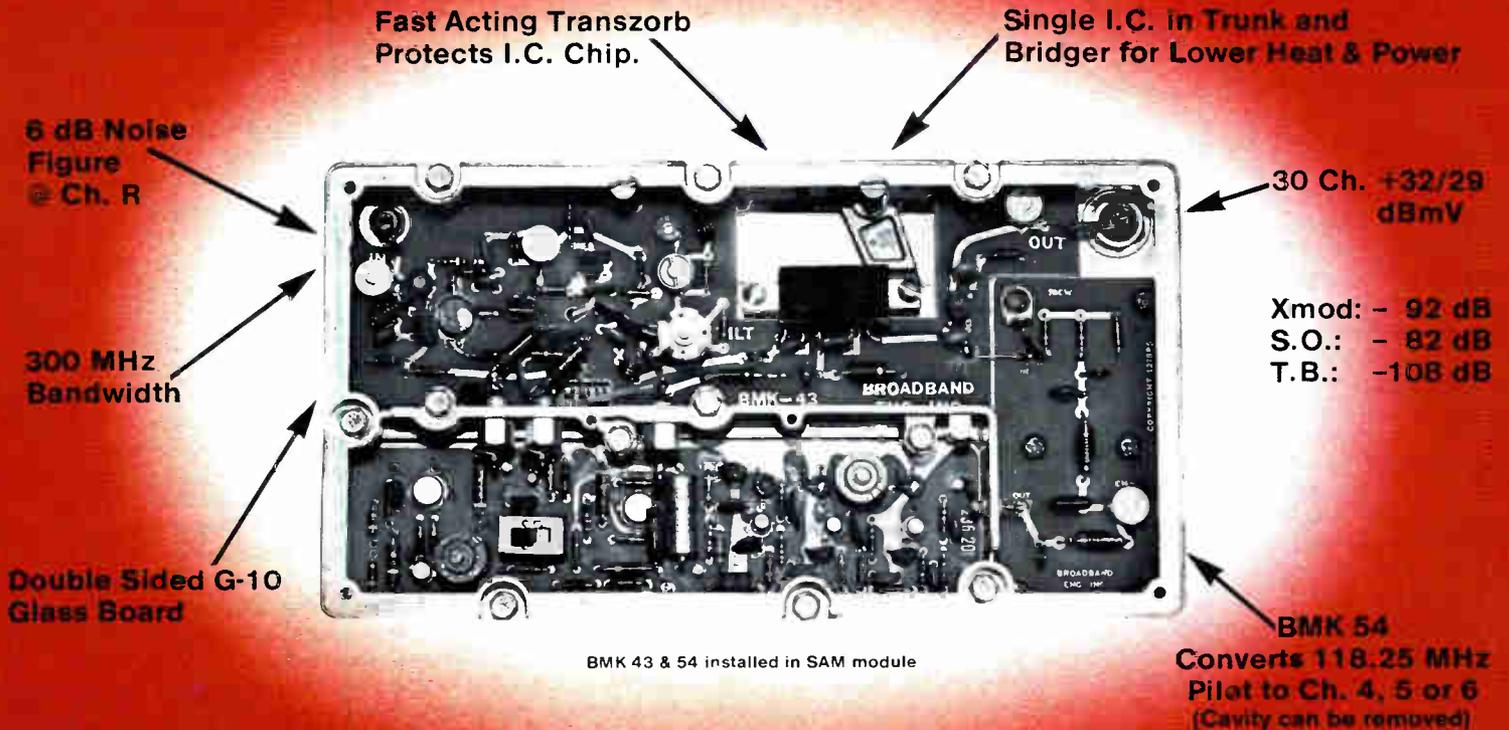
4.2 band to a 100 to 600 MHz band, then transported the 1000 ft. and re-converted back to the original 3.7-4.2 GHz frequency. The system, as built, will accommodate about 26 db of cable and equalizer losses, as well as the insertion losses of the converters. Line amplification can extend this system over many miles for about the cost of a

The remote earth-station electronics can now be reduced to two LNA/Down-converter packages mounted at the ortho-coupler, feeding two standard CATV coaxial cables, with power from the head-end. Standard SLM's can monitor enough of the converted spectrum to confirm proper antenna/LNA/Converter performance.

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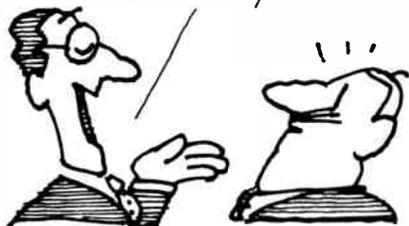
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New Brochure Describes the Dranetz 606 Power Line Disturbance Analyzer

A new brochure describing the electronic solid-state portable Power Line Disturbance Analyzer, Series 606, has been released by Dranetz Engineering Laboratories. The Bulletin 606D describes how the Series 606 monitors any single phase or all three phases of an AC Power Line. Its ability to classify, store and print out the information on three types of voltage disturbances: Impulse, Sag or Surge and Slow Average is also detailed.

The Introductory section of the 12 page brochure describes: What The Series 606 Does, Where The Series 606 Is Used, and How The Series 606 Works. A full page is devoted to the Series 606 At A Glance, with pull-outs and descriptions of all its functions. Two pages are devoted to a detailed analysis of Typical Printout and Interpretation plus samples of impulse analysis printouts.

A section of the bulletin describes the Series 606-PA Impulse Analysis Adaptor which allows the Series 606 to measure, record and print a record of transient impulses, expressed in terms of volt-seconds, direction or origin and polarity.

Specifications for the Series 606 and the Impulse Analysis Adaptor are included plus descriptions of other accessories. Copies of the 606D Bulletin are available upon request.

Dranetz Engineering Laboratories, Inc. is a leading manufacturer of precision electronic instrumentation equipment for computer service organizations, manufacturers of communication equipment and electric power companies. The company's other lines of high accuracy digital instrumentation products are used by industrial, standards and development laboratories throughout the world.

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For additional information contact Stephen J. Tharp, Dranetz Engineering Laboratories, 2385 South Clinton Avenue, South Plainfield, N.J. 07080, (201) 755-7080.

American Modem Corporation Releases Catalog

American Modem Corp., Bohemia, N.Y., announces the availability of three short form catalogs classifying the company's broad line of data modems into three groups: broadband coaxial data modems, microwave data modems, and data modems for satellite service.

The Broadband Coaxial Data Modems catalog represents a "breakthrough" listing of products, their specifications and capabilities, since American Modem Corp. pioneered the first full-scale use of broadband coaxial cable and CATV systems for data communications by the successful development and manufacture of these state-of-the-art interface devices. The broadband coaxial data modems are precipitating growing application of coaxial cable in industrial and commercial data communications systems, process control and monitoring systems, energy management, municipal traffic control systems and computer-controlled systems.

The Microwave Data Modem catalog describes sophisticated developments including QASK modems with capability to 230.4 kBs; QPSK modems to 6 MBs and CODEC modems with 40 bit error correction.

The third catalog lists the company's Data Modems for Satellite Service and includes a state-of-the-art line of products that are finding wide application in terrestrial and satellite programs. Included are BPSK Modems to 256 kBs and QPSK Modems to 6 MBs.

For further information and catalogs contact Ms. Pat Welzel, marketing dept., American Modem Corp., 169 Wilbur Place, Bohemia, N.Y. 11716. Phone: 567-7887.

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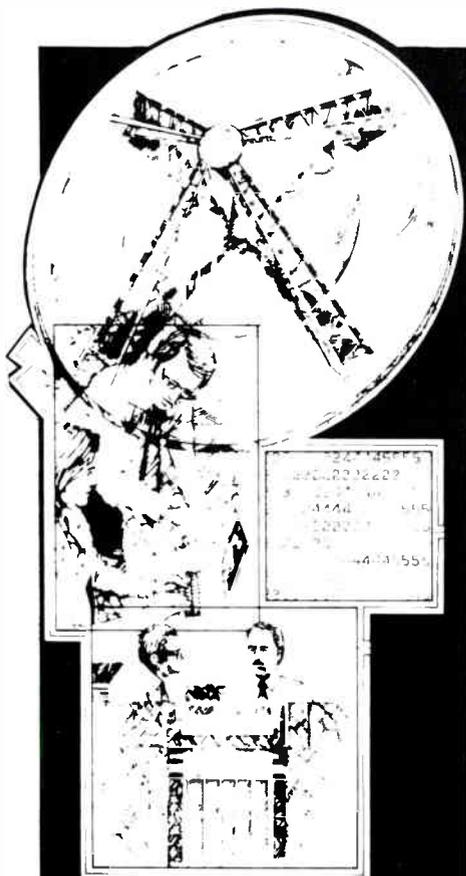
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★ **Stanley Loose** has joined the sales engineering staff of **Magnavox CATV Systems, Inc.** of Manlius, New York. he is responsible for accounts in Pennsylvania, New Jersey, Delaware and Maryland. Loose has had extensive experience designing CATV and CCTV systems, engineering microwave systems and in CATV field engineering. He operates out of Hatboro, Pennsylvania.



Stanley Loose

★ **Tymshare, Inc.**, has promoted **Suzanne S. Cowing** to branch manager of the company's San Francisco branch. She joined **Tymshare** in 1976 as operations analyst, and was appointed sales representative in 1977.

Prior to joining Tymshare, she was programming manager for Systems Development Corporation (SDC) and, before that, systems analyst with Atlantic Richfield Corporation (ARCO). She holds a B.A. in mathematics and an M.S. in economics, both degrees from the University of California, Berkeley. Cowing is also a licensed actuary.

Tymshare, an international computer service company based in Cupertino, California, provides computer services via its communications network. It has offices and computer centers throughout the U.S. and provides services through its affiliated operations in Canada, Western Europe, and Japan.

★ **Jeff D. McOmie** has joined **System Concepts, Inc.** as Design Engineer. His duties for the Salt Lake City based character generator manufacturer will be hardware and software engineering directed to implementation of video-

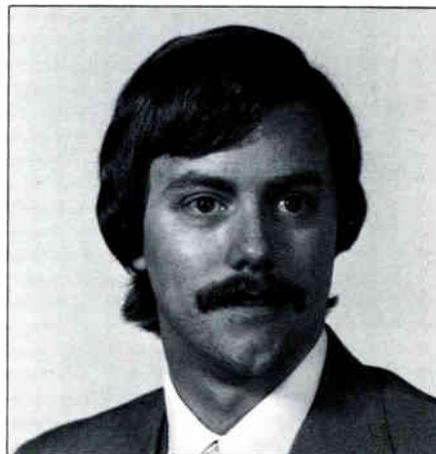
graphic systems for both CATV and teleproduction equipment.

Prior to joining Systems Concepts, Jeff was with MSI Television, where he designed Flexi-Kim and the display of Flexicaster.

★ **Magnavox CATV Systems, Inc.** in Manlius, New York is pleased to announce that **Mr. Gary Danielson** has been appointed to the position of Data Processing Manager. Mr. Danielson will be responsible for implementing the data processing hardware and software for Magnavox's new total company on-line system.

A graduate from Alfred State College, Mr. Danielson is a member of A.P.I.C.S., The American Production Inventory Control Society.

His extensive manufacturing data processing background includes Manager of Programming and Operations at Anaren Microwave, Syracuse, New York and Senior Programmer/Analyst for Oberdorfer Foundries, Inc. of Syracuse, New York.



Gary Danielson

★ **Larry Seehorn**, original developer of the EPIC computerized video tape editor has left **Harris Video Systems**, formerly **Consolidated Video Systems** to devote full attention to his own firm, **Control Video Corporation. CVC** developed the forerunner of the EPIC computerized video tape editor currently being offered by **Harris**. The company will continue to develop products for the control of VTR's and associated equipment. Currently in process are a SMPTE time code reader, SMPTE generator and a controller to interface all types of VTR's. An NAB introduction is planned.

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