CED

Communications Engineering & Design/The Magazine of Broadband Technology

January 1984

TECH II
Taps
and traps

Suppliers: Down to earth '84 forecast

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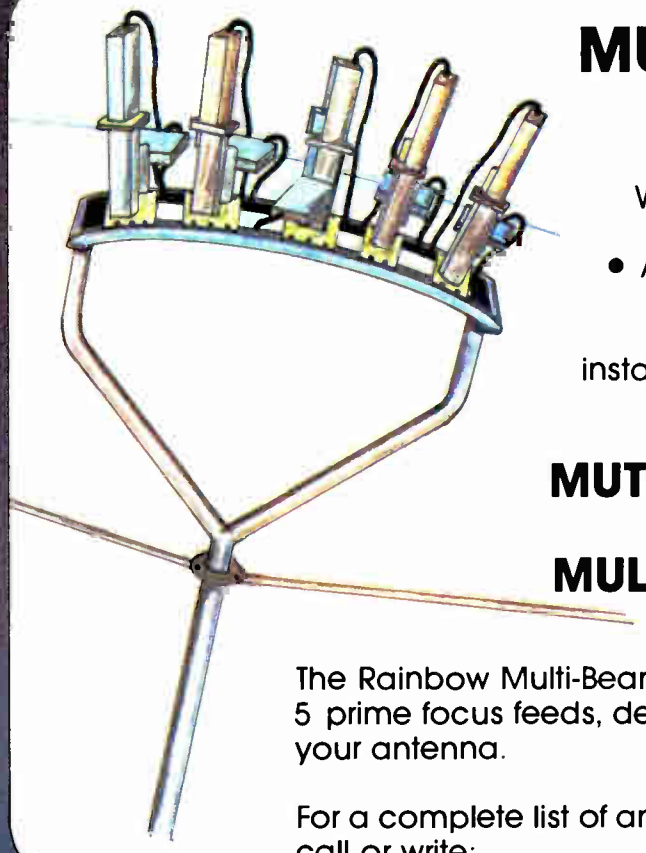
5 Star General



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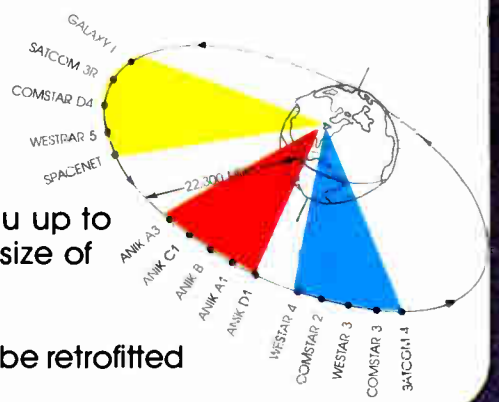

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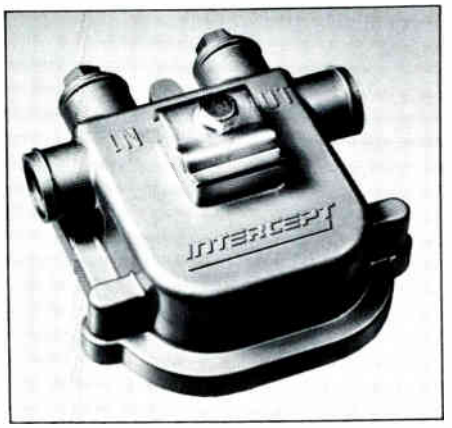
CED™

January 1984

Lawrence DeGeorge, chairman of Times Fiber Communications; Michael Shaughnessy, new president of Oak-Times Systems Corp.; and Everitt Carter, chairman of Oak Industries Inc. announced the joint venture at the 1983 Western Show.

About the cover

CableVision photographer Rob Stuehrk captured several "pseudo space travelers" on their way to the Showtime/The Movie Channel annual casino party at the Western Show. The cover gives a futuristic look at the featured topic for this month.



Intercept tap

This month's **Product Profile** focuses on taps and traps.

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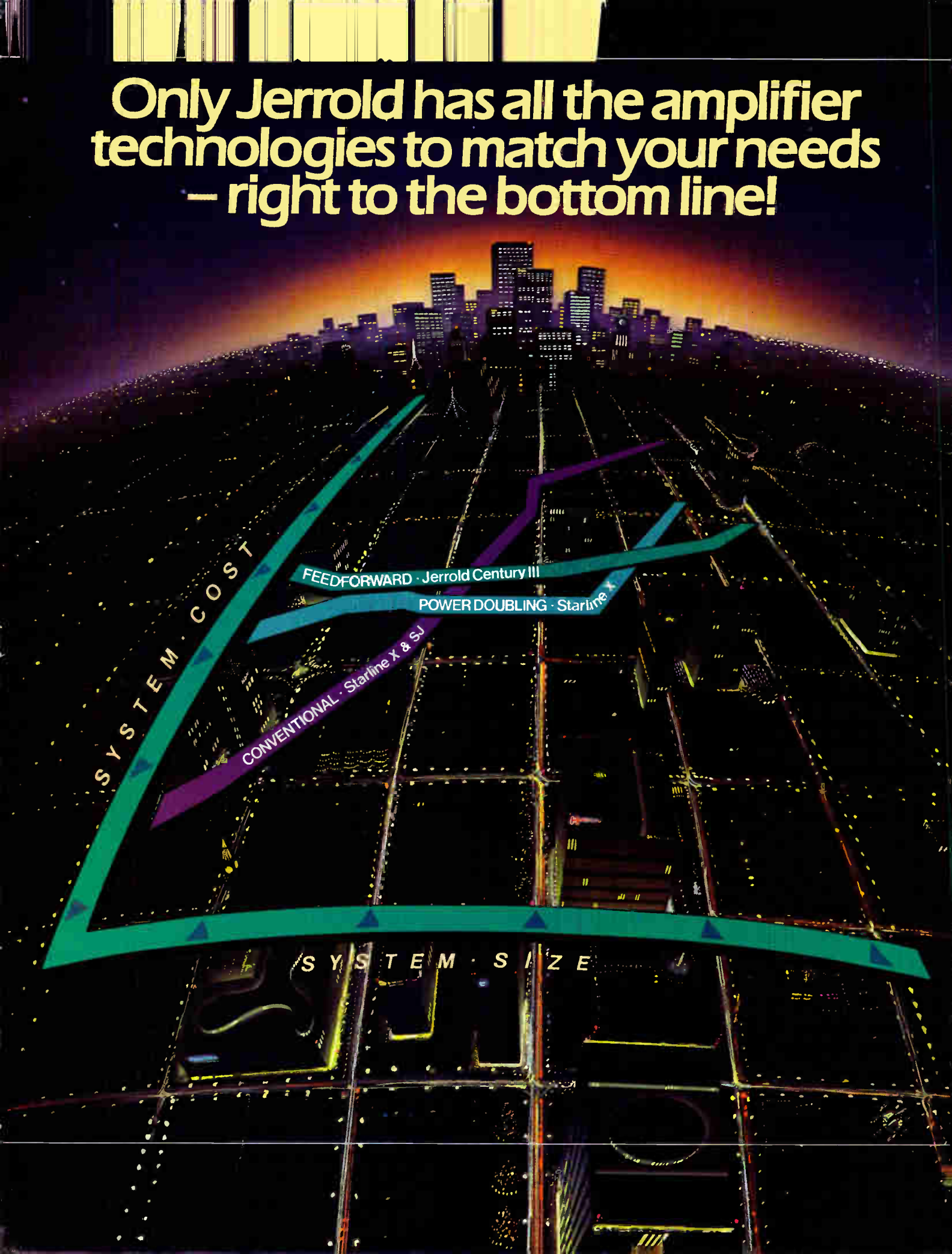

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Let us help you design it, and build in the best technology to meet your needs. So you won't "over-invest." Or miss an opportunity. Only Jerrold can deliver feedforward, power doubling, and the most advanced conventional hybrid amplifiers now. We can suggest what's right for you because only Jerrold has it all.

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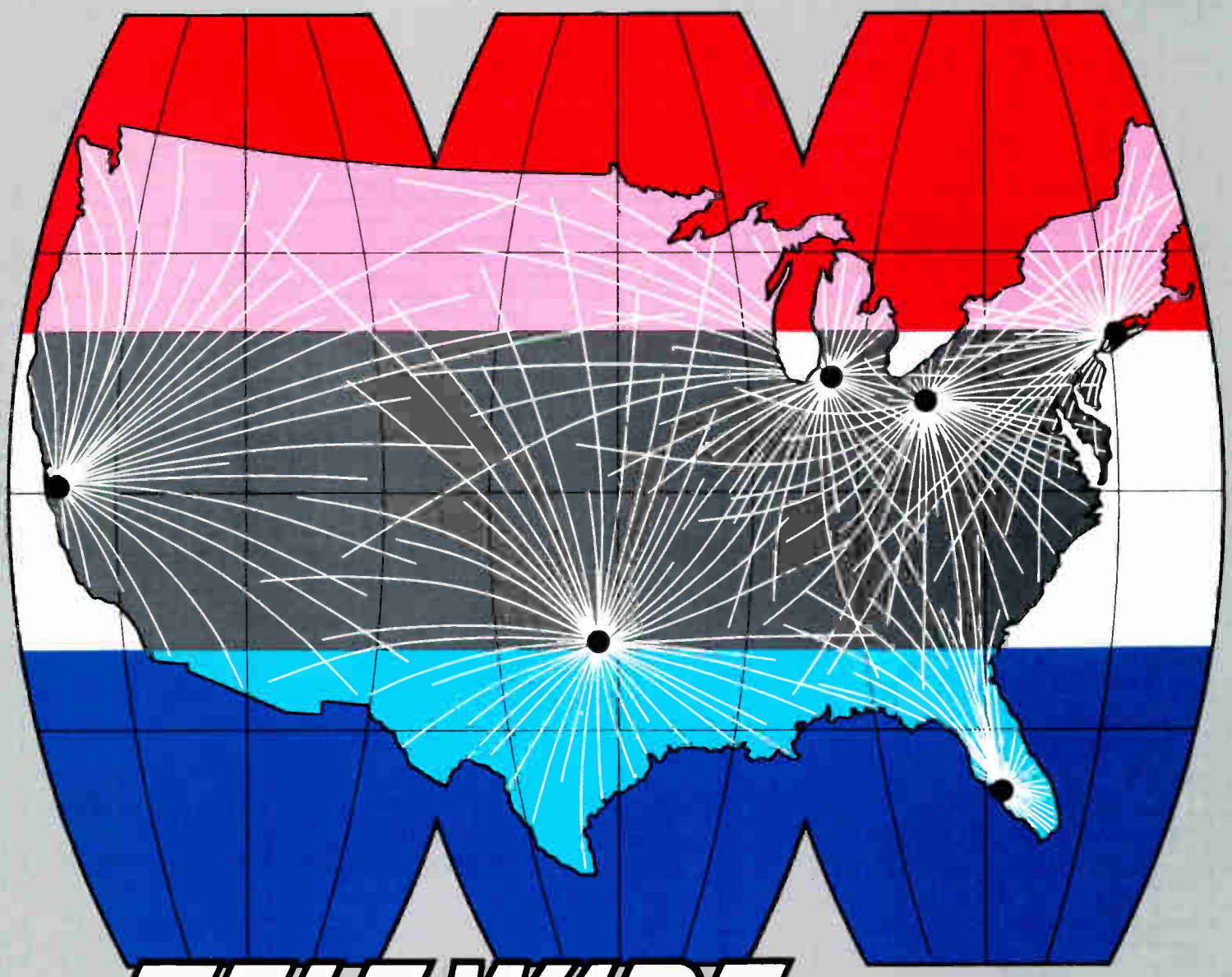

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Cal/OSHA's standby power position

It has come to our attention that the Techscope section of your October 1983 issue contained a statement regarding a "federally issued warning or (standby) on power assemblies." We are writing because we are concerned that this statement may contain erroneous information which may mislead your readers.

We are unaware of any federally issued hazard alert pertaining to standby power assemblies. However, in August of 1983, the California Division of Occupational Safety and Health (Cal/OSHA) did consider issuing a hazard alert on this subject and went as far as to prepare a draft alert. Upon further review, our technical staff determined that such an alert would not be required at this time.

Some copies of this draft apparently found their way outside of the agency. The language quoted in your October article precisely duplicates the language in the first paragraph of our draft hazard alert. The hazards and remedy mentioned in your article are also the same as those detailed in our draft alert. Thus, we have reason to believe that is is our draft alert, not any federally issued warning, to which your magazine refers.

We would like to clarify any misunderstandings your readers may have regarding Cal/OSHA's position on stand-by power assemblies. As your article states, we currently have no regulation which requires that battery operated standby power assemblies be equipped with an adequate venting apparatus plus an overcurrent protective device. Cal/OSHA does have safety orders which require that battery charging installations be adequately vented to prevent build-up of excessive concentrations of flammable gas and that precautions be taken to prevent open flame, sparks, or electric arcs in battery charging areas. Should we issue any hazard alert in the future, such an alert would be a warning only and would not mandate any specific action beyond the general protective terms of our safety orders.

If you wish further information on this matter, please contact Mr. Jack Cottrell, Division of Occupational Safety and Health, Research and Standards Development Unit, 525 Golden Gate Avenue, San Francisco, Calif. 94102.

Michael D. Mason
Chief Counsel
State of California
Division of Occupational Safety and Health

Technological turkey

Stereo audio faces serious problems, said members of a Western Show panel on multichannel sound. Ned Mountain, director of marketing for Wegener, expressed concern that the FCC is "about to adopt a technological turkey" when it decides on a stereo transmission standard for broadcast TV. The NCTA is hoping that broadcast stereo will not be must-carry via cable, citing compatibility problems. But, Mountain cautioned, that even without must-carry, "if multichannel sound were instituted today, 38 percent of the sets would receive it via cable." Besides the stereo compatibility problems, stereo cable will have its own troubles with scrambling and degradation through line

amplifiers and through the actual cable, panelists said. Alex Best, Scientific-Atlanta R&D manager for the communications product group, said that in worst-case scenarios, the signal would be "bruised" to the point where it doesn't sound like stereo. The Electronics Industry Association is scheduled to vote Dec. 23 on a broadcast stereo system, which then will be proposed to the FCC.

Bravo goes stereo

Bravo will be broadcast in stereo as of Jan. 1, 1984. Bravo's original performance programming and much of its acquired performances are produced in stereo. Regular program audio will continue to be delivered by the 6.8 MHz audio carrier, the standard audio subcarrier for cable television earth station receivers. The stereo portion of Bravo programming will be delivered on a separate subcarrier, 5.8 MHz, and will be modulated in full multiplexed stereo. In order to offer Bravo to their subscribers in stereo, operators will need to purchase an additional piece of equipment, available from several manufacturers, to up-convert the 5.8 MHz subcarrier to an FM radio-compatible frequency specified by the local affiliate. Some affiliates may already have purchased this up-converter for use with other cable services.

Luksch named Texscan head

James Luksch has assumed the presidency of Texscan Corp., succeeding Carl Pehlke, who continues as chairman of the board. Pehlke says "the move is an effort to recognize the job responsibilities Mr. Luksch has been performing for the last several years," as executive vice president, secretary and director of Texscan. Pehlke and Luksch have been with the corporation since its creation.

Atlantic City to remain show site

Bowing to the desires of equipment suppliers and cable operators, the 1984 Atlantic Cable Show now is slated to remain in Atlantic City rather than shift to Washington, D.C., as originally planned. The cable associations of Maryland/Delaware, New Jersey, New York and Pennsylvania also announced Oct. 30-Nov. 1 as the date for the next show. Atlantic City also will be the site of the 1985 Atlantic Cable Show, scheduled for September 1985.

Picking up Apple

The faltering fortunes of Apple Computer could be picked up a bit, if discussions now going on between the company and Rogers Cablesystems bear fruit. Rogers is considering offering Apple computers and software to subscribers in its Portland, Ore., system, downloading programs in the same manner as the NABU Network, which is testing its system in several Rogers outlets in Canada. The deal would be a first for Apple, but a continuation of Rogers' belief that downloaded services can be a successful device for generating additional revenue. CED

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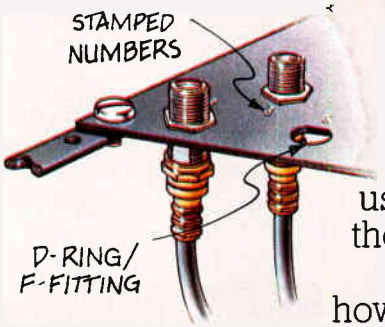

Best of all, it has to be destroyed to be removed. Chances are, you already use Labelocks. But the Labelock is just one example of how CWY has been addressing your problems with unique, cost-effective solutions for 25 years. Another is our new Omni-Rack™ system that uses a panel and rail design to make multiple dwelling enclosures more orderly, secure and serviceable. The Omni-Rack means quick and easy audits and subscriber status changes. Your service personnel save time, so you save money.

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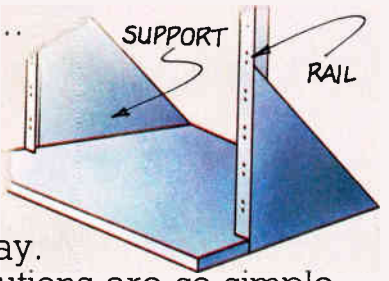

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CED

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Crystal balls and Big brothers

Predicting the future is easy for such people who excel in such a business—oracles, soothsayers, prognosticators, predictors, seers, clairvoyants, Alvin Tofflers, John Naisbitts, IRS staff, etc.

But for those mortals who must depend on the advice and wisdom of others, it is a bit harder to predict what is beyond the next door, or lies in the days ahead. Weathermen are probably the worst at this, perhaps only buoyed by the lackluster records of Jimmy the Greek and Pete Axthelm.

Forecasting is what we've done in this issue of *CED*. The focus is on suppliers and the goal is to give our readers a view of 1984 from the suppliers' standpoint. Associate Editor Gary Kim conducted a series of interviews with various cable industry suppliers over the course of the past month and generated a substantial article on what these suppliers expect will move in terms of equipment in 1984. This year 1984 is a fresh start, although, admittedly, there is most likely a sizeable stockpile of products and equipment left over from what was forecasted to move in 1983, but didn't. This inventory will probably move first as suppliers attempt to clean their shelves before ordering new product, or, depending on the supplier's accounting system, it could be last.

But this isn't a course in accounting principles. The topic at hand is on equipment and the suppliers are trying to move it. As we report in a staff commentary on contractors in *TECH II*, there is a general feeling of optimism that the construction end of the business will begin to move forward again toward second quarter 1984. And when the operators start more aggressively wiring their systems, as the weather thaws out, then they'll start utilizing contractors once more. And with that growth comes increased orders of appropriate equipment, both from the MSO and the contractor. And the supplier sends down the product and restocks his warehouse. Then the manufacturer gets more orders and beefs up his production.

If the Western Show is any kind of indicator, the business should be there. The contractors, suppliers and manufacturers are waiting for it. The operator, after doing all the retrenching he could withstand, should be sitting on a more comfortable cash reserve—a reserve that could probably be used—conservatively, this time—to make the first move on construction and other necessary hardware for the system. And then the cycle begins.

Let's just hope that the kind of cycle that we experienced in 1983 doesn't repeat itself. Can anyone out there give us any odds on the next boom or gloom?

Certainly, this isn't the time of year to feel gloomy. Company differences, unemployment and other problems should be put aside for a brief spell as we all share in the joy of the holiday season and finally put the old clamper down on '83. For some, the year wasn't all bad. The cable business came out of it a bit weathered, with a few leaks in its balloon, but if we can withstand this kind of period, the cable business can stand on its own. And from various sources around the industry, 1984 should offer a lot of exciting promise to the business in the form of new products and services. And it's probably safe to say that wwe all look forward to new investors, new faces and new blood within our industry.

Competition is probably the biggest factor to get our blood pumped. There are at least seven new characters searching for ventures, partners and businesses to embrace, enter and/or engulf. Will telcos worry the cable industry? Some clairvoyants are predicitng that the telephone companies will prove to be—out of necessity—partners to the cable industry. "Cable needs that other line," they say.

Who *is* to say at this point? Maybe the phone companies can become good partners in various ventures, a big brother so to speak. In other situations, cable operators may be adamantly opposed to conducting any business with the BOC. It really depends on the situation. And the location. The political climate. The state of the economy. Etc. etc. etc.

And it's 1984. A landmark year if there ever was one. Are we sure George Orwell isn't running AT&T?

Peter Evanow

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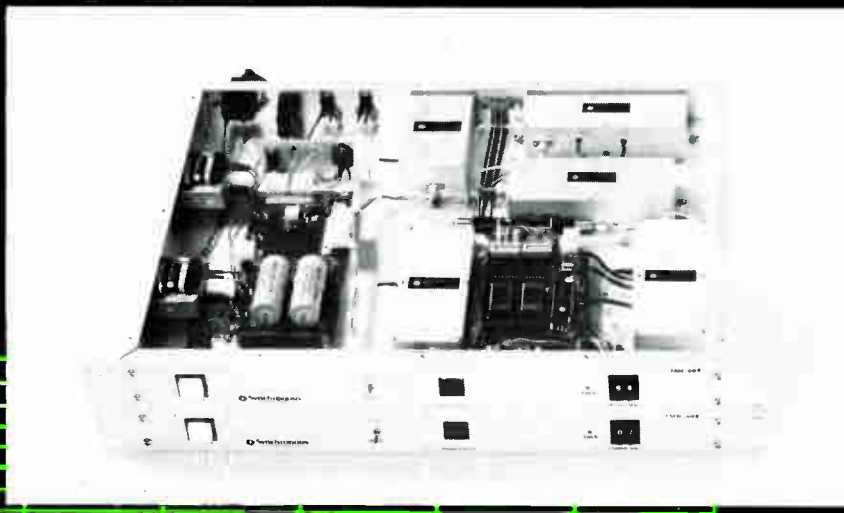

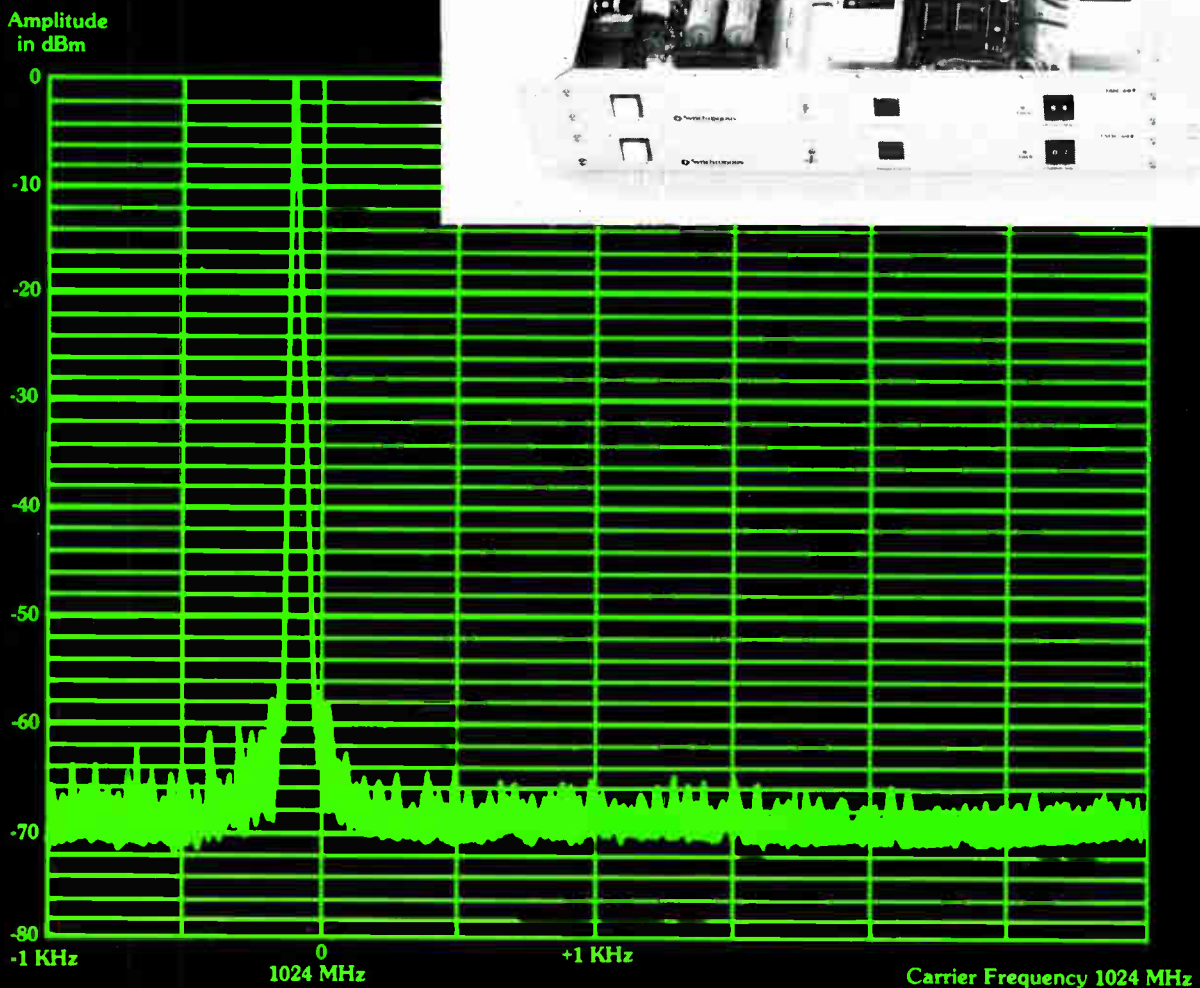

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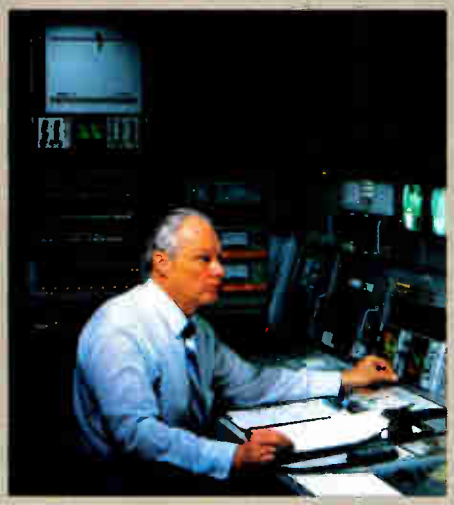

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ANSWER is the time-saving approach to systems evaluation. Major signal sources and critical points in each transmission path can be checked automatically. Testing an entire system takes much less time than it would to make the same measurements manually; personnel workloads and constraints of time need no longer be an obstacle. In addition, graphs and hard copies provide a permanent technical record that serves as an accurate basis for trend analysis and reference for future maintenance.

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Seminars

January

8-11: PTC '84, the sixth annual conference of the **Pacific Telecommunications Council**, will be held at the Sheraton-Waikiki Hotel in Honolulu. Contact (808) 949-5752 or 941-3789.
10: A meeting of the **International Association of Satellite Users** will be held at the Twin Bridges Marriott in Washington. Contact Donna McCaughey, (703) 437-5457.
11-13 and 16-18: Magnavox CATV Systems will hold a field training seminar with its Mobile Training Center in Detroit. Contact Laurie Mancini, (800) 448-5171; in New York (800) 522-7464.
16-18: LPTV West, sponsored by the **National Institute for Low Power Television**, will be held at the Disneyland Hotel in Anaheim, Calif. Contact Darlene Geller, (203) 852-0500.
17: A meeting of the **Southern California Cable Association**, with Satellite Television Corp. Senior Vice President Ron Castell as guest speaker, will be held at the Los Angeles Airport Hilton. Contact (213) 653-6187.
18: A seminar on "Buying/Selling Cable TV Systems" sponsored by **Paul Kagan Associates** will be held at the Marriott Hotel in San Antonio, Texas. Contact (408) 624-1536.
18-20: The annual convention of the **Texas Cable TV Association**, the Texas Show, will be held at the San Antonio Convention Center. Contact W.D. Arnold, (512) 474-2082.
23-25: The **National Satellite Cable Association** and **Eagan & Associates** will hold a PC/SMATV workshop in Monterey, Calif. Contact Larry Hannon, (904) 237-6106.
24-26: A **Blonder-Tongue** "MATV/CATV/LPTV/TVRO/SMATV" technical seminar will be held at the Holiday Inn/South in Atlanta in conjunction with **Adams and Associates**. Contact Betty Karas, (201) 679-4000; or Tom Adams, (919) 272-6838.
31-Feb. 2: Communication Networks 1984 conference and exposition with be held at the Washington (D.C.) Convention Center, Contact (617) 879-0700.

February

6-8: The second annual National Mobile Communications Expo, produced by **Cahners Exposition Group**, will be held at The Disneyland Convention Center and Hotel in Anaheim, Calif. Contact (213) 826-6070.
7-8: The annual meeting of the **Arizona Cable Television Association** will be held at the Phoenix Hilton Hotel. Contact (602) 257-9338.
8-10 and 13-15: Magnavox CATV Systems will hold a field training seminar with its Mobile Training Center in Jacksonville, Fla. Contact Laurie Mancini, (800) 448-5171; in New York (800) 522-7464.
14: A meeting of the **International Association of Satellite Users** will be held at the Twin Bridges Marriott Hotel in Washington. Contact Donna McCaughey, (703) 437-5457.
20-22: The 1984 Office Automation Conference sponsored by the **American Federation of Information Processing Societies Inc.** will be held at the Los Angeles Convention Center. Contact, (703) 620-8955.
21-23: A technical seminar sponsored by **C-COR Electronics Inc.** will be held in Dallas. Contact Deb Cree (814) 238-2461.
22-24: The annual convention of the **North Dakota Cable Television Association** will be held at the Holiday Inn, Fargo. Contact Claude Edwards, (701) 280-0033.

March

5-7: Cable-Tec Expo '84, sponsored by the **Society of Cable Television Engineers**, will be held at the Opryland Hotel in Nashville, Tenn. Contact (703) 823-1911.
11-13: The 19th annual convention of the **Ohio Cable Television Association** will be held at the Hyatt Regency/Ohio Center in Columbus. Contact Daniel Helmick, (614) 461-4014.
13: A meeting of the **International Association of Satellite Users** will be held at the Twin Bridges Marriott Hotel in Washington. Contact Donna McCaughey, (703) 437-5457.
14-16: The annual convention of the **Arkansas Cable Television Association** will be held at the Excelsior Hotel in Little Rock. Contact Floyd White, (501) 898-2626.
14-16: The International Security Conference and Exposition sponsored by the **Security Equipment Industry Association** will be held at the Anaheim (Calif.) Convention Center. Contact (213) 826-6070.
15-16: A "Technology Outlook" seminar conducted by the **University of Wisconsin-Extension** will be held at The Wisconsin Center in Madison. Contact (608) 262-3748.
22-23: The annual convention of the **Georgia Cable Television Association** will be held at the Ritz-Carlton Buckhead in Atlanta. Contact Nancy Horne, (404) 252-4371.

April

17-19: A technical seminar sponsored by **C-COR Electronics Inc.** will be held in Columbus, Ohio. Contact Deb Cree, (814) 238-2461.
23-25: The **National Satellite Cable Association** and **Eagan & Associates** will hold a PC/SMATV workshop in Chicago. Contact Larry Hannon, (904) 237-6106.

May

5-9: EUROCAST '84, sponsored by the **Society of Cable Television Engineers** and **Satelliten Rundfunk**, will be held at the Swiss Industrial Fair in Basel, Switzerland. Contact Mark Voss, (713) 463-0502.
15-17: C-COR Electronics Inc. will conduct a technical seminar in San Francisco. Contact Deb Cree, (814) 238-2461.
15-18: An international exhibition of telecommunications, radio and information technology, **Communications '84**, will be held at the National Exhibition Centre in Birmingham, England. Contact (201) 652-7070.
21-23: A conference and exhibition for the East Coast entertainment production industries, **Production East**, will be held at the New York Hilton. Contact Victor Harwood, (212) 475-3356.

Looking ahead

Jan. 18-20: Texas Show, San Antonio Convention Center, San Antonio, Texas.
Feb. 6-8: National Mobile Communications Expo, Disneyland Convention Center, Anaheim, Calif.
Feb. 9-14: National Association of Television Program Executives convention, Moscone Center, San Francisco.
March 5-7: Society of Cable Television Engineers Cable-Tec Expo '84, Opryland Hotel, Nashville, Tenn.
March 27-28: Cabletelevision Advertising Bureau conference, Sheraton Centre, New York.
June 3-6: National Cable Television Association convention, Las Vegas (Nev.) Convention Center.
June 11-14: Canadian Cable Television Association convention, Capital Congress Center, Ottawa.

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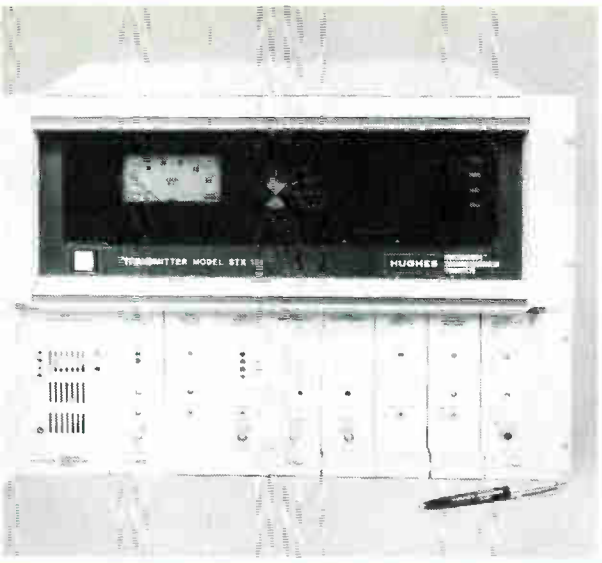

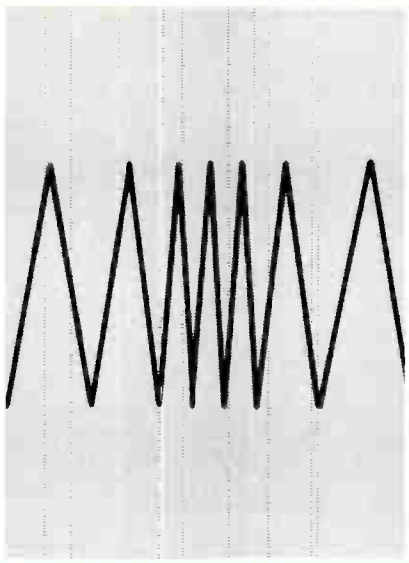

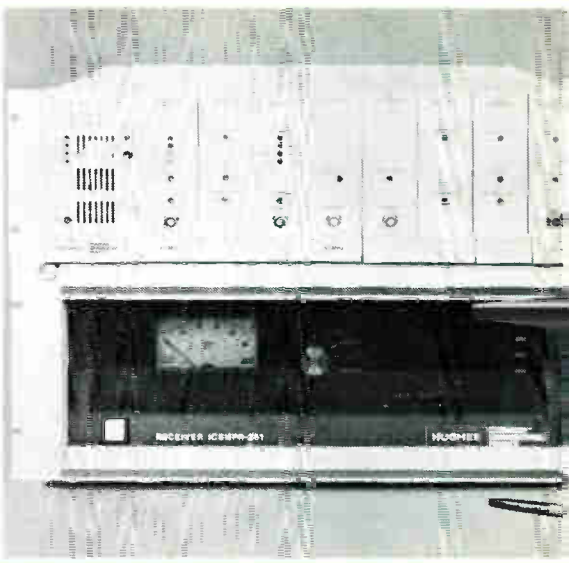

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Reader Service Number 16

Hardware highlights

Oak, Times Fiber team up, Magnavox announces its first off-premise addressable converter/descrambler series

ANAHEIM, Calif.—Among the highlights of this year's Western Show was the surprise announcement by Oak Industries and Times Fiber Communications that a joint venture between the two companies would start up Jan. 15. The new company, Oak-Times Systems Corp., will act as the marketing arm for Oak's on-premise converters and Times Fiber's Mini-Hub network products.

Two new products, Oak's addressable Sigma system and Times Fiber's Mini-Hub II, were unveiled at the show and will be marketed by the new company.

Magnavox CATV Systems Inc. announced its first off-premise addressable converter/descrambler series, the Magna 8400 addressable multiple dwelling unit. The unit has been specially designed for apartment house and other multi-unit subscriber buildings, costs an estimated $125 and will be available in the second quarter of 1984, the company said.

M/A-COM highlighted VideoCipher II, a low-cost satellite television scrambler system.

First Data Resources Inc. demonstrated its one-way addressable interface with the Oak Communications Sigma System. Oak's Sigma System offers signal security and user features controlled from the headend, company officials said.

Anixter Communications and Channell Commercial Corp. announced an agreement that gives Anixter national distribution of the Channell pedestal line. Anixter also announced that an agreement has been signed with Alpha Technologies giving Anixter national distribution of Alpha standby power supplies.

E-COM Corp. described its plans to increase production of two data modems for cable operators. The TRM 159 operates over coaxial cable, fiberoptic or microwave systems. The TRM 202 offers microprocessor-controlled synchronous or asynchronous full-duplex data transmission.

ComSonics Inc. introduced a modified and improved version of the Sniffer signal leakage testing device. The Sniffer II has an updated transmitter design, a variable level squelch, a variable RF level and other features.

Catel/Tomco Telecommunications announced a new multichannel signal processing system. The processor allows creation of customized in-house CATV lineup without the need for installation of converters.

Sun Software released information on its Sun/Response-Basic, a computer system for cable/pay TV companies with less than 20,000 active subscribers. The system operates on a time-share or in-house basis with Hewlett-Packard 3000 series computers.

Times Fiber Communications displayed a new version of its T4 cable line. T4 Plus, the new product, is completely seamless and continuously bonded from conductor to jacket. Significantly improved handling characteristics are claimed for the new cable.

AT&T Information Systems will market a call management system that automates pay-per-view orders, the company said during the show. Under terms of an agreement with Perception Technology Corp., AT&T's Horizon (R) call management system is married to PTC's Interactive Data Entry/Voice Response System.

New York Times Cable TV and Kanematsu-Gosho (U.S.A.) Inc. announced plans to install 5,000 Sprucer II two-way addressable baseband converters in the New York Times Cable Co. Audubon, N.J., system next month. The Sprucer II converter, jointly developed by Kanematsu-Gosho and the Matsushita Electric Industrial Co., had been undergoing tests in the NYT system prior to the announcement. Officials said an additional 18,000 Sprucer units will be installed after the initial 5,000 are in place.

Zenith unveiled its Z-View system at the show. Through the use of "rediplug" connections, the applications of Zenith's Z-Tac addressable decoder can be extended to include teletext, videotex, electronic mail and other two-way services. The Z-View system can be connected to the Z-Tac decoder and configured to offer impulse pay-per-view, opinion polling, status monitoring and maintenance services.

Gary Kim

O'Brien explains GI exit

Former vice president wanted more responsibility, will pursue other interests

HATBORO, Pa.—Colin O'Brien, vice president and deputy group executive of General Instrument's Broadband Communications, whose early November resignation was announced by the company Dec. 16, said he left the company because he was unable to "move into the type of position" he wanted within his personal timetable.

"I wanted to take on more responsibility, and that couldn't be accommodated within General Instrument within my time frame," O'Brien said. When asked what his time frame was, O'Brien said: "Something about now."

In a statement released by a General Instrument spokeswoman, Fred Shuh, Broadband Communications senior vice president, said O'Brien left General Instrument to "pursue other interests."

"Recent changes placing more autonomy with the subscriber and distribution divisions accommodate both Colin's decision to leave GI and our need for greater decentralization," Shuh stated.

O'Brien said discussions about his responsibilities within General Instrument, with the possibility for reorganization, had been going on for about a year. A couple of months ago, he said, he began to "entertain other propositions" as the division started to reorganize. O'Brien said he believed General Instrument waited to announce his resignation to ensure an "orderly transition."

"Those in GI knew about it. If it had been announced (publicly) earlier without plans in place, it would have caused disruption within the organization. I have a lot of myself in Jerrold, and I'd like to see it go along successfully."

Present plans call for Shuh to take over O'Brien's responsibiities.

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Reader Service Number 17

Times Fiber-Oak form new company

In an unexpected move, two manufacturers announce joint venture at the Western Show

ANAHEIM, Calif.—At the opening day of the 1983 Western Cable Convention here, Times Fiber Communications and Oak Industries, captured the attention of the cable industry, with an unexpected announcement concerning a joint venture between the two hardware manufacturers. According to officials from both entities involved, the venture will manifest itself in the Jan. 15, 1984, formation of a new company, called Oak Times Systems Corp.

The new company will be headed by Oak Communications' former vice president of sales and marketing Michael Shaughnessy.

According to Everitt Carter, chairman and CEO of Oak Industries, and Lawrence DeGeorge, chairman and CEO of Times Fiber, Oak Times Systems Corp. will act as the marketing organization for the Oak Communications' line of on-premise converters and converter/decoder systems and the Times Fiber Mini-Hub star switched network products.

Two new products that the companies unveiled here also will be included under the new company's marketing auspices. These products are Oak's addressable Sigma System and Times Fiber's Mini-Hub II, the latest version of the company's star switched Mini-Hub.

Another function of Oak Times System will be "to address the immediate needs of those systems desiring hybrid approaches," according to Shaughnessy.

"Right now, Oak and Times Fiber engineers are developing the computer software to allow both technologies to be driven by the same addressable control computer. A parallel effort is underway to develop interfaces to the most popular business computer systems so that the hybrid subscriber control system can be run transparently from a system's business computer. Right now, the hardware that will allow the use of Oak's current Vari-Sync dynamic R.F. scrambling and Times Fiber Mini-Hubs on the same distribution trunk is being developed," Shaughnessy explained.

In essence then, the merging of these product lines will enable operators to take advantage of a "hybrid" approach with respect to addressability. Operators can use both Oak's on-premise addressable equipment and Times Fiber's star switched network to control program selection and authorization from within and outside of the home.

Another purpose of the joint venture, according to Charles Radloff, president of Oak Communications, is "to achieve greater market penetration for both companies as a result of their ability to integrate both on-premise and star switched subscriber control technology." Part of the plan to increase market penetration will involve the development of subscriber control systems specifically engineered to address the individual needs of each operator. Such a customized system will entail thorough analysis of franchise requirements, software, field service and system maintenance.

According to Steven Westall, manager of new business development for Times Fiber, the new company is "as of this morning (Dec. 13, 1983) a 100 million dollar annual sales company," involving a 50/50 split ownership between Oak and Times Fiber.

Constance Warren

SCTE: The next phase

The society adds to its staff and sets future goals

WEST CHESTER, Pa.—The Society of Cable Television Engineers is firmly on its way to re-establishing its current and long-range plans following the appointment of Stephen Cox as SCTE's new executive vice president.

Cox was appointed to the post following a vote by the society's board of directors, led by SCTE President Tom Polis. Cox is president of Unity Construction Corp. of Philadelphia and took leave of absence from his company to concentrate on the society's activities. He will be responsible for the day-to-day administrative duties and will be extensively involved in the cable industry's technical community.

Upon receiving confirmation of his appointment, Cox stated that his major objectives will be "to continue and enhance the extensive services offered by the organization to its membership and improve the financial status of the society."

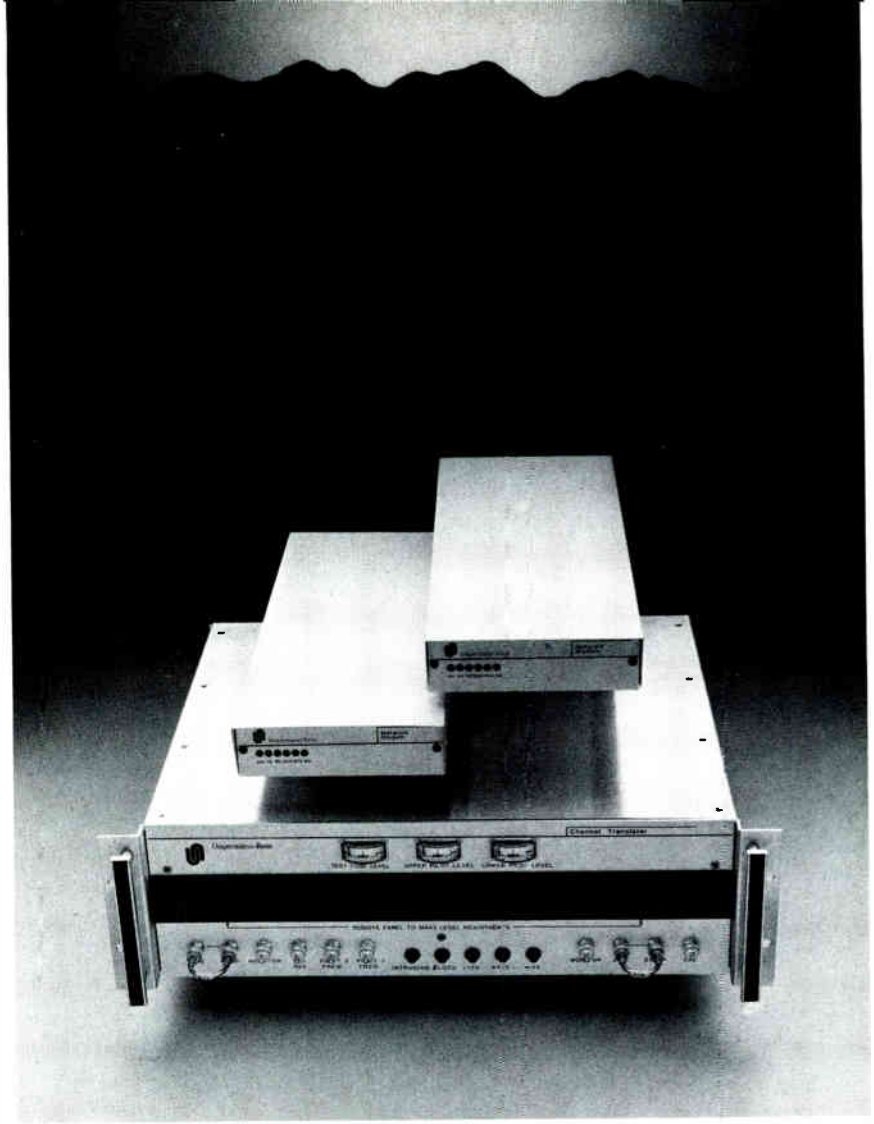
Turning to the most immediate task, Cox will spend the next few months on CableTec Expo '84, to be held in Nashville, Tenn. on March 5-7. Presently, Cox said that sales of exhibit space are currently running ahead of the 1983 Expo.

Polis remarked that the addition of Cox to the society was the first step toward building SCTE further. While membership drives and charter development continues to be important facets of SCTE's operations, Polis said the right leadership was a necessary quantity.

"We feel confident that the SCTE will continue to maintain the leadership position which we have enjoyed in the past and can continue to grow and contribute to this exciting and dynamic industry," he added.

Additionally, movement has been made by the PCTE Committee to firm final planning of the SCTE's designation program for engineers. The name will be changed from Professional Cable Television Engineer to Broadband Communications Engineer (BCE) and a second classification will be added, the Broadband Communications Technician (BCT). The second program has been designed to provide a vehicle for technicians to receive the BCT designation and continue to work toward the BCE classification. Such designations should be released in early 1984.

SCTE leadership consists of the newly named executive vice president of the society, Stephen Cox (left) and President Tom Polis.



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TCI, USA buy ICR 'Workstation'

Research company combines computerized database with free hardware

NEW YORK—International Communications Research is installing IBM microcomputers and its online cable information software in the headquarters of TCI, the nation's largest MSO, and USA Network, ranked among the top five ad-supported cable programmers.

The hardware and software package, trademarked as "The Cable Planner's Workstation," consists of customized machinery and application programs plus training and service. The microcomputers and related hardware (plotter, printer, color monitor, hard discs) are free to database subscribers, who pay usage fees to access all or some of the CableProFile statistics. (CableProFile is a much-enhanced outgrowth of C*able*F*ile*, the annual directory published for the last seven years by Titsch Communications, which also publishes this magazine.)

Updates to the database are downloaded regularly from ICR to its clients.

The workstation concept is "the first to harness the revolution in the microcomputer industry to cable's information needs," said ICR President Dean Kilpatrick. Applications software developed by a nine-person ICR team over the last three months provides decision-making support to cable planners, who may or may not have computer experience beyond the training provided by ICR.

"Compared to the online Workstation, timesharing systems are so complex, they're often relegated to the MIS department, at some remove from the people who really need to assess and analyze the data for policymaking," said Kilpatrick.

Because the Workstation does provide online access, it can be adapted easily so the client can add in proprietary information to the CableProFile base.

TCI Marketing Director Scott Weeker commented on the ease of use, as did USA Network President Kay Koplovitz. "This is the first time we've seen thoroughly user-friendly programs and hardware for the cable industry," Weeker said. "We've jumped 100 years in capability. We immediately saw ways to use this as a management system."

Koplovitz attributed the choice of the Cable Planner's Workstation, "after a careful review of alternative cable data sources," to ICR's "ability to provide a high level of analytical support."

TCI plans to use the package for three general purposes, Weeker disclosed: financial assessments of acquisitions, marketing strategy and program administration.

"We'll be able to project growth opportunities by comparing our performance to other MSOs in similar markets," said Weeker. "We can also use it to lay out the variables of different program packages to test their impact quickly and track cash flow. And we can tell how many subscribers there are in each system to administer both license fees to programmers and co-op ad payments earned and applied for."

An additional advertising application, added Kilpatrick, lies ahead with an upcoming demographics package to be added to the database in the first quarter of next year. "In the absence of any effective metering of cable viewing, buys must be made on the basis of demographic analyses. We'll be providing information down to the census tract level, specific to franchise boundaries."

That will also allow MSOs, as Weeker noted, "to cross-tabulate systems' market performance. We'll be able to assess what performance we can expect, based on certain area demographics."

ICR expects to install some 30 to 50 custom-configured Workstations within the next 12 months, said Kilpatrick. During 1984, the company will introduce a financial planner's version of the Workstation, opening a sales avenue to analysts requiring pricing and profitability projections.

Download

■ **Calma Co. has announced the formation of a Government and Custom Systems Organization.** The new operation will market the company's computer-aided design/computer-aided manufacturing (CAD/CAM) systems exclusively to the U.S. government and its departments. The venture will market CAD/CAM systems that serve electronics, mechanical, and architecture, engineering and construction business applications. Also, the operation will provide custom system software and interface services, including equipment exchange and data conversion allowing a buyer to convert equipment or data base to Calma products.

■ **Digital Equipment Corp.'s Field Service Group has announced that the company will service selected non-Digital products incorporated into Digital's computer systems.** Among the products Digital will service are Printronix and Data Products printers, CDC and DSD disks, Kennedy tape drives, Emulex and Westpercorp controllers and Able communications equipment. The first service-representative agreement is with Ampex Memory Products Divsion for mainframe memory.

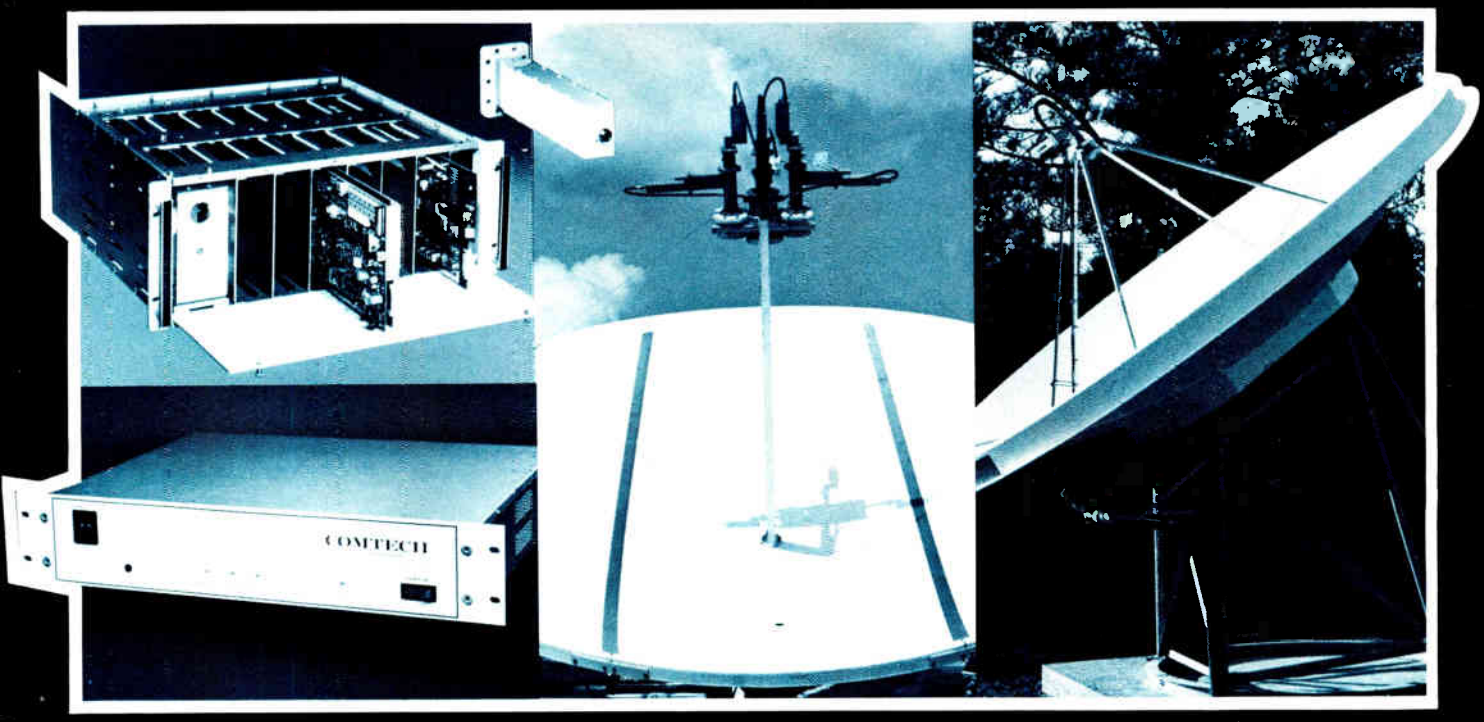
■ **The Canadian Department of Communications has signed an agreement with NASA to work toward developing a space program to meet the needs of the mobile communications industry.** The two groups will be collaborating with each other and with telecommunications carriers in both countries to develop a mobile satellite system.

■ **A three-day conference to be held in Hawaii Jan. 31-Feb. 2 will concentrate on videotex roles in transportation and energy.** The conference will be sponsored by Hawaii's Energy Division of the Department of Planning and Economic Development. For more information, call (301) 984-8586 or (808) 945-1019.

■ **Advanced Business Communications Inc. and Hughes Aircraft have signed a contract through which Hughes will construct two high-power Ku-band communications satellites for ABCI.** The two satellites, to be launched by 1986, will each have 16 transponders capable of business communications, video distribution and teleconferencing.

■ **Solar Satellite Communication Ltd. has launched its seventh SMATV system at Timerline apartments in Denver, Colo.** The limited partnership now owns SMATV systems passing 2,155 multi-family units in the Denver area and has four systems under contract that, when constructed, will pass an additional 1,110 units.

THE PERFORMANCE PACKAGE



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Reader Service Number 19

Playing a role in local data

A telecommunications analyst foresees future role for cable in local data services

ANAHEIM, Calif.—The cable industry has a role to play in local data services, but not in voice services, according to telecommunications analyst Dale Hatfield. "I don't see the telephone companies being competitive in the area of wideband services because they'd have to rebuild their whole network," he said. "On the other hand, cable can't compete easily in switched network voice services. There the phone companies have an advantage."

But in areas like home security and data services, the cable industry can stake out new territory as certain telecommunications issues are settled. Among the issues are cross-ownership, the subsidy of local exchange services by long distance users and the levying of special charges on local loop bypass systems, Hatfield said.

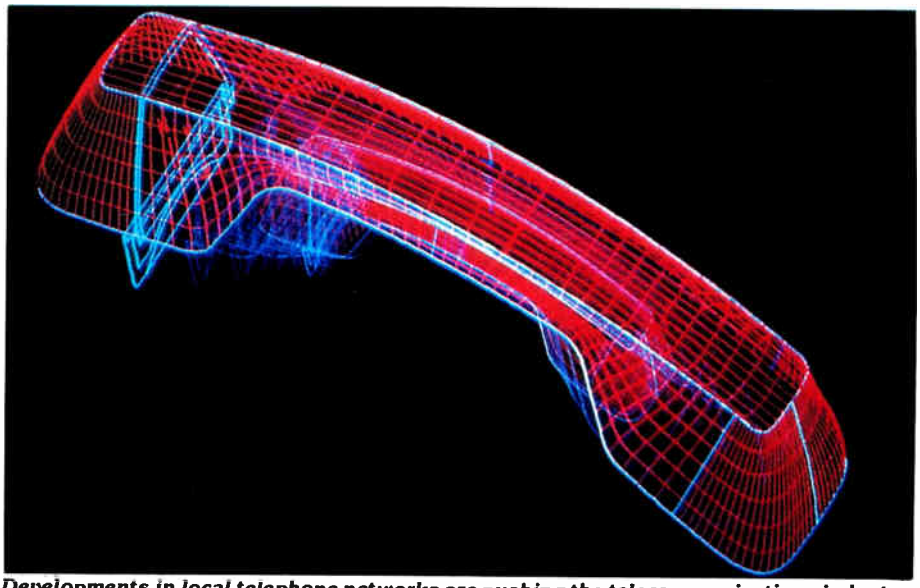
How rapidly cable companies can move to offer data and other enhanced services also will depend on depreciation rates the industry is allowed. The regulatory boundary between basic and enhanced services will also need to be defined, Hatfield said. "How network and deregulated customer premises equipment is treated also will be a factor," he said.

The cable industry's opportunities are a result of the phone network's technical limitations. "The system was designed to handle voice signals, call durations of only three to four minutes and one or two calls during peak periods," Hatfield said. "The system is optimized for voice, and precisely because of this it is not well suited for telemetry services with very short holding times."

What Hatfield means is that it's inefficient to tie up a whole phone line for 10 to 20 seconds to transmit security information that requires only milliseconds. The existing phone network isn't efficient for terminal-type data communications when transmission is intermittent and surrounded by long holding times.

In other words, if a user wants to play a chess game on Compuserve for a few hours the line is tied up continuously, even though the actual sending of data lasts only microseconds at a time. It's also difficult to push very-high-speed data or voice signals through the existing copper wire system, he said.

But existing developments in local telephone networks are pushing the telecommunications industry into digital electronics and transmission, Hatfield said. The present voice-based system is evolving into a network that can handle voice, data and video interchangeably.



Developments in local telephone networks are pushing the telecommunications industry into digital electronics and transmission, according to analyst Dale Hatfield.

Why the move to a digital system? "It saves money," Hatfield said. "By using digital techniques like pulse code modulation and multiplexing, you add capacity without stringing more wire." There are also performance advantages. "With an analog signal, the integrity of the message deteriorates as the information is moved through repeater stations. A digital signal, on the other hand, can be replicated easily, producing a perfectly regenerated signal every time.

Marketplace demands are also driving the system toward digital technology. "Customers are demanding a network which can handle voice, data and video information," Hatfield said. "Loops with loading coils and bridged taps are okay for voice transmission, but limit broadband applications. There are limitations to high bit rate transmission even on non-loaded loops, and the switched network can't handle videoconferencing."

The significance of the move toward a digital system is cable's increased ability to function as a local loop bypass for telecommunications services. And while the new business could be stifled by the levying of charges for the use of bypass services, telephone industry economics make local loop alternatives feasible, Hatfield said. "While technology has driven down the costs of long-distance service, local loop costs are huge, fixed and insensitive to traffic," Hatfield said. "About 15 percent of the nation's investment in plant is for long distance, while 61 percent is tied up in the local exchange facilities."

Furthermore, the costs of maintaining the local loop vary tremendously from state to state and company to company, Hatfield said. "In 1982, the nationwide average cost to maintain the local loop was $12.82 per month. But it was $28.27 in Wyoming and only $9.69 in Maryland." And despite the heavy capital investment, the typical local line is used only 20 minutes a day, he said.

Up to this point, national telecommunications policy has been to subsidize local service at the expense of long-distance. "Right now, 25 percent of the phone system's costs are assigned to long-distance, although only 8 percent of the costs originate there," Hatfield said. With deregulation, local loop costs are going to rise closer to the actual cost of providing those services, opening the door for competing services that can offer lower costs.

Gary Kim

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Suppliers present mixed views

Industry players guardedly optimistic in predicting products to be hot items in '84

By Gary Kim

Cable industry suppliers have mixed feelings about their sales prospects for 1984. Kerwin McMahon, senior vice president of RMS Electronics, projects 1984 sales "close to what we sold in 1981, which was a peak year for us." North Supply Co., on the other hand, has made a decision to leave the cable industry supply business entirely. For most suppliers recently interviewed by *CED*, expectations ranged from mildly optimistic to confident. Converters, test equipment, electronics and earth stations are some of the items that are expected to move unusually well in 1984.

"Electronics—headend equipment, distribution products and earth stations—will move better than hardware and strand because the focus of the industry now is rebuilds and smaller builds," said Derwin Otwell, national CATV manager for Power and Telephone Supply. "Each small system needs a headend, regardless of the number of miles of cable."

McMahon sees a big industry need for converters in the coming year, because "operators have had problems with addressables." He also sees descrambler programs being a major factor in 1984. "There are lots of systems with non-addressable converters and it doesn't make good sense to scrap them. The descrambler provides a way to salvage old converters," he said. "It permits up to 16 tiers of unlimited channels of scrambling at minimal cost. Using it, an operator can get into scrambled security at minimal cost and can buy another few years until addressable technology has proven itself."

McMahon says RMS customers report that the biggest problem with many existing converters is that they're not stable. "They're just not doing the job, and that opens up the salvage market, which ought to be very big in 1984."

Tom Calabro, general manager of sales for Pioneer Communications, agrees that converters will be in demand. "There will be lots of activity in addressables. Right now we're developing a two-way interactive converter for Warner Amex featuring 450 MHz, all-channel control and infrared." Calabro said demand for the company's one-way addressable converters has also been strong during the last five months.

Gordon Halverson

Tom Calabro

Dave Crawford, director of sales and marketing for Pico Products, agrees that converters and other off-premise equipment will be hot products in 1984. "People are looking, but want the market to settle a little," he says. "Operators are also very conscious about rebuilds."

Richard Richmond, president of CATV Services, agrees with that assessment. "The rebuild situation will keep us going next year. Last year our product mix was up strongly in rebuild and used equipment," he says. "People are more budget conscious now." Richmond also expects to sell upgrade products, which are needed for expanded bandwidth, as well as test equipment. He also sees "a hot market for addressable converters needed by the the new pay services."

Earth stations were the big mover for Midwest Corp. last year, and the company expects a similar trend in 1984. "We see more earth stations being added by SMATV operators as well as franchised cable companies," said Roy Williams. "Video distribution products and local origination equipment are other items which I expect will move."

Wegener Communications expects a good year for cable stereo products, because several new audio services are up and running. The company also sees healthy sales of satellite addressability and data transmission products, because both programmers and operators will be maximizing their use of channels and looking for new ways to generate revenue. Teletext-related equipment, on the other hand, has not moved as well in 1984, and there's even a possibility that some data-related equipment will sell, company spokesmen feel.

Electronics is the magic word for Cable TV Supply. "We're making a big push in the area of headend design, fabrication and installation," said John Hyde, director of corporate communications for the company. "We've also had good luck with satellite dishes, LNA and LNC receivers." The firm is also hopeful about the future for power supplies. "There has been some debate within the industry about the values of power supplies, and dual power equipment is now coming to market," Hyde said. "This could be significant for the industry."

Replacement and new construction should also provide markets for suppliers in 1984. "There will be a tremendous number of 10-mile rebuilds, of the mom-and-pop systems with 12 channels," said Gordon Halverson, Anixter Communications vice president for sales and marketing. "Pretty soon there will be a million miles of cable plant installed in the United States, so just replacing the existing plant will be a healthy business."

RMS Electronics is also gearing up for what it hopes will be a healthy rate of new construction by introducing a new line of construction hardware. "I expect to more than double our sales of Poleline tools in 1984," said McMahon.

Kerwin McMahon

While some suppliers are unabashedly bullish about the industry's growth in 1984, others are cautious. "I hope that the industry turns around, but I see no firm signs of recovery yet," says Cable TV Supply Co.'s Hyde. "Intense price competition is still the watchword on the supply side of the industry." Otwell of Power and Telephone Supply is also guarded. "As far as I can see, the industry has flattened out, and will flatten out even more in 1984. Competition will be keen and there will be some churn on the distribution end of the business, not just on the software side," he says. "A lot of suppliers may not be financially sound, and it's a volatile industry."

CATV Service's Richmond expects to survive the supplier shakeout. "I think we'll see company growth of 15 to 20 percent in 1984," he said. "1984 might not be a really outstanding year, but it should see an accelerated rate of orders compared to 1983."

Having seen several months of very strong sales, Anixter Communications sees 1984 volume larger than the previous year. "I don' see a flat market at all," said Halverson.

RMS Electronics also experienced a late-1983 sales improvement, although the gains were erratic. "For 1983 there was an overall drop in industry purchasing, and although we don't have solid indicators yet, (we) are projecting 1984 sales as very healthy," says McMahon. "We're seeing operators making plans for construction. They're more confident about the economy being stabilized, but we're also seeing a wait-and-see attitude. Everybody seems to be waiting for the other company to make the first move.

"People have waited as long as they can, and now must meet obligations for new construction," he said. "In 1983

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- Status indicator lights.
- Metered battery voltage & output current.
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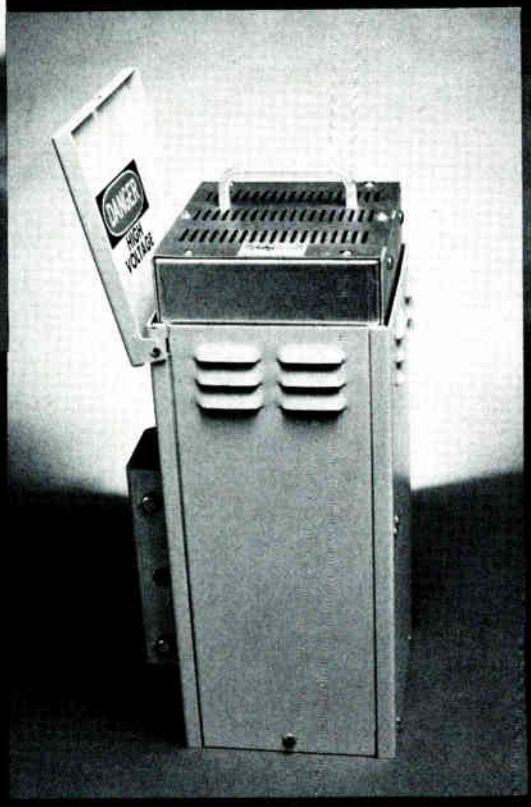

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- 5% load regulation.
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- MOV surge protection standard.
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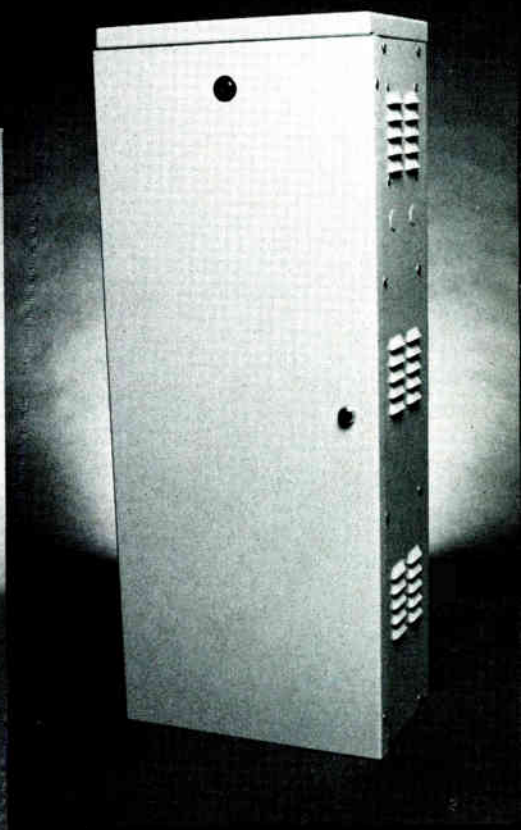

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everybody was just trying to hang on, and while nobody will be making foolish expenditures, 1984 looks very, very promising."

1984 will also be the year that some suppliers make a move for telephone industry business, joining Anixter, which has been selling telecommunications equipment for some time. RMS Electronics, for example, recently started a telephone utility division, which will sell anything required for construction of a phone system.

Midwest Corp., on the other hand, is trying to move into the low-power television market, "if and when it takes off," said the company's Roy Williams. "We don't expect too much business until the third or fourth quarter of 1984, though."

W. Mathew Hart, vice president of S.A.L. Cable Communications, sees a leveling of total industry spending in 1984 and 1985. "I think there will be more consideration for equipment which will last 14 to 15 years," he said. "In 1983, the industry booked $1 billion and shipped $800 million. In 1984, I estimate that booking will be up by $15 million. But in 1985 and 1986, I think booking will drop by $300 million to $400 million each year. There is a slight possibility of a rise in 1986 orders if digital technology becomes cost-effective," Hart said.

George Ferguson, sales manager for Cable Services Co., summed the situation up nicely. "In 1984, the hottest items will be converters, headend equipment and earth stations. Converters will move for two reasons. There will be an increase in addressable systems and a greater need for security," he said. "Earth stations and headend equipment will move because operators are concentrating on upgrading at the heart of the systems; adding channels to capacity.

"Upgrading, of course, affects the need for converters," Ferguson added. "These same items were the strongest sellers in 1983, and for the same reasons.

"Because of the decline in new-builds, 1983 wasn't a good year for distribution equipment—cable, strand and hardware—which constitute the nuts and bolts of a system," he said. Ferguson also expects test equipment to move well in 1984, because there's a need for better monitoring of system performance as operators milk performance out of limited budgets.

Operators: Forecasting 1984's hardware

By Constance Warren

If the results from an operators poll administered at the 1983 Western Show bear any credence at all, 1984 hardware purchases promise to extend across quite a few equipment lines, with no particular item likely to be singled out as the dominant force driving the hardware side of the industry in the year ahead.

Operators at the show said they were considering everything from 550 MHz addressable gear to microwave and test equipment. A consensus of sorts, however, was reached with respect to addressability, with many operators expressing a keen interest in addressable converters.

John Kurpinski, Bucks County Cablevision, Janison, Pa., and "director at large" for the SCTE, forecasted a "trend toward 550 MHz" and "away from dual cable" in 1984. He called 550 MHz a "good tradeoff" with dual cable systems since a 550 MHz system is less expensive to build than dual cable and also retains enough channel capacity to comply with existing franchise requirements and to meet any future channel capacity needs. Another factor in 550 MHz's favor, he added, is that it circumvents the low penetration problems associated with dual cable.

John Kurpinski

Kurpinski also expects operators to move toward addressability even though

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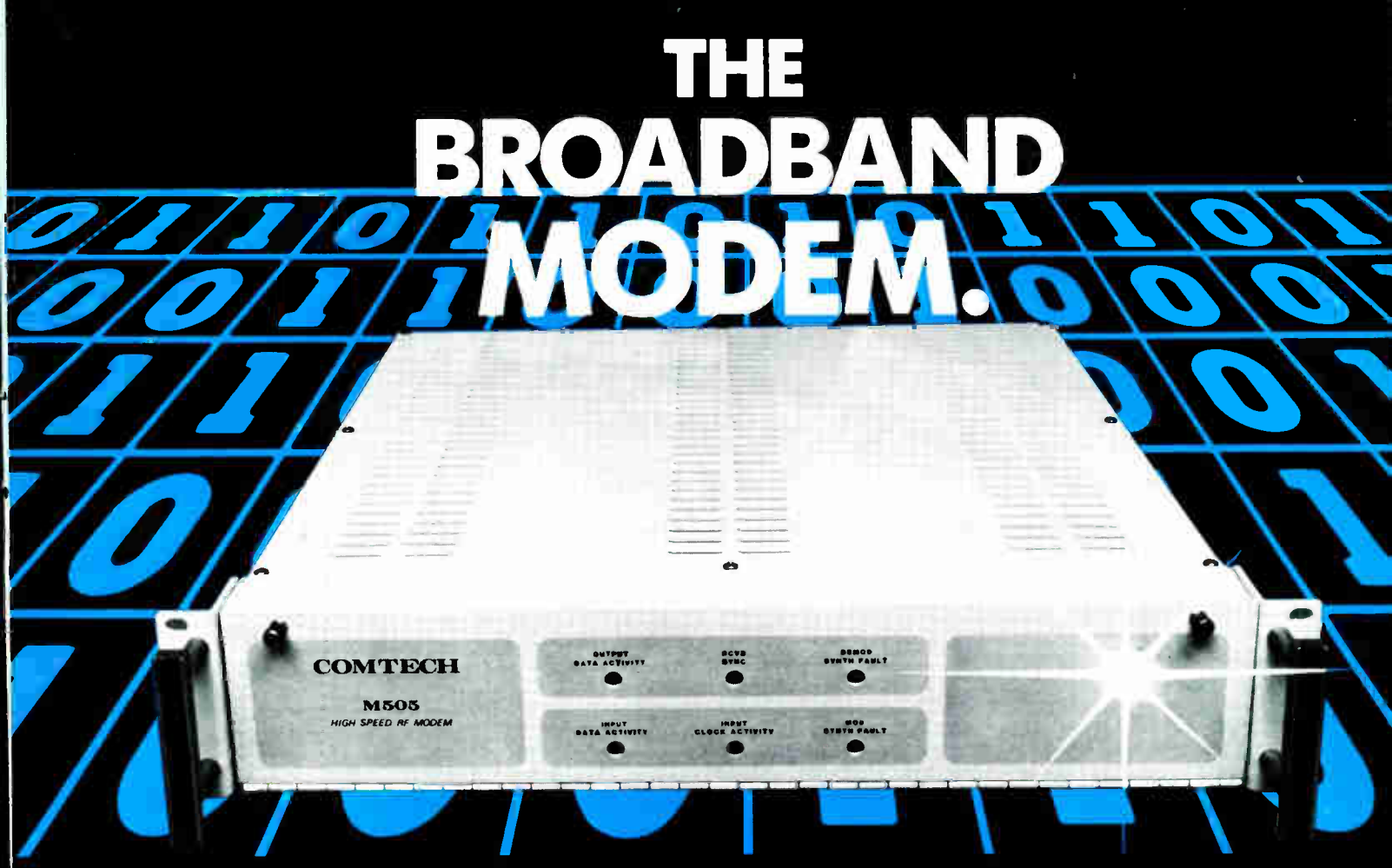

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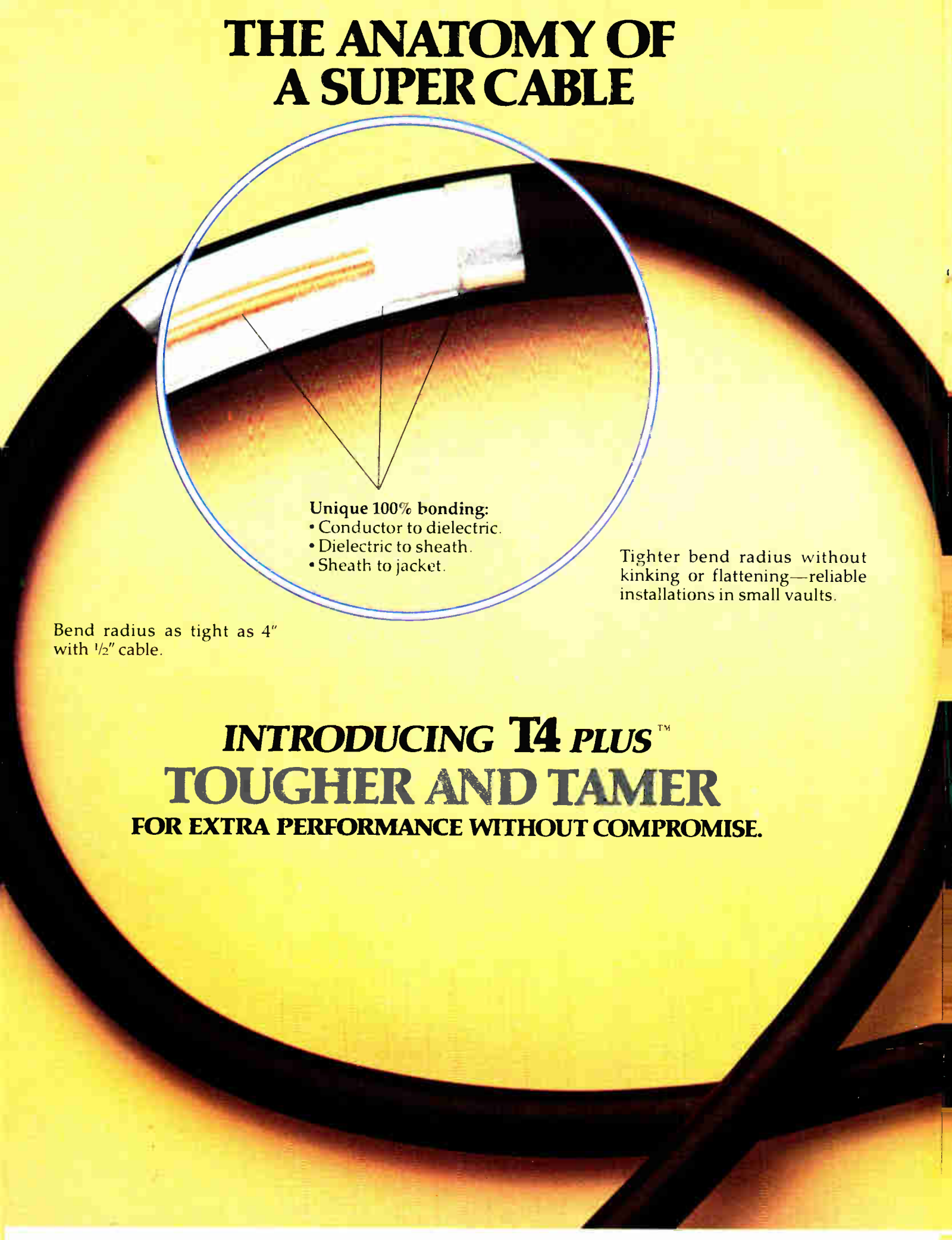

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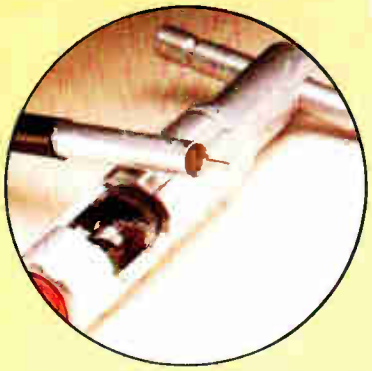
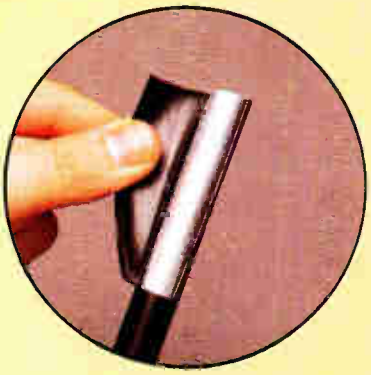


Easy coring with standard tools. Full-wall seamless aluminum tube, resistant to connectorization abuse. No objectionable non-conductive dielectric residue left on aluminum ID.



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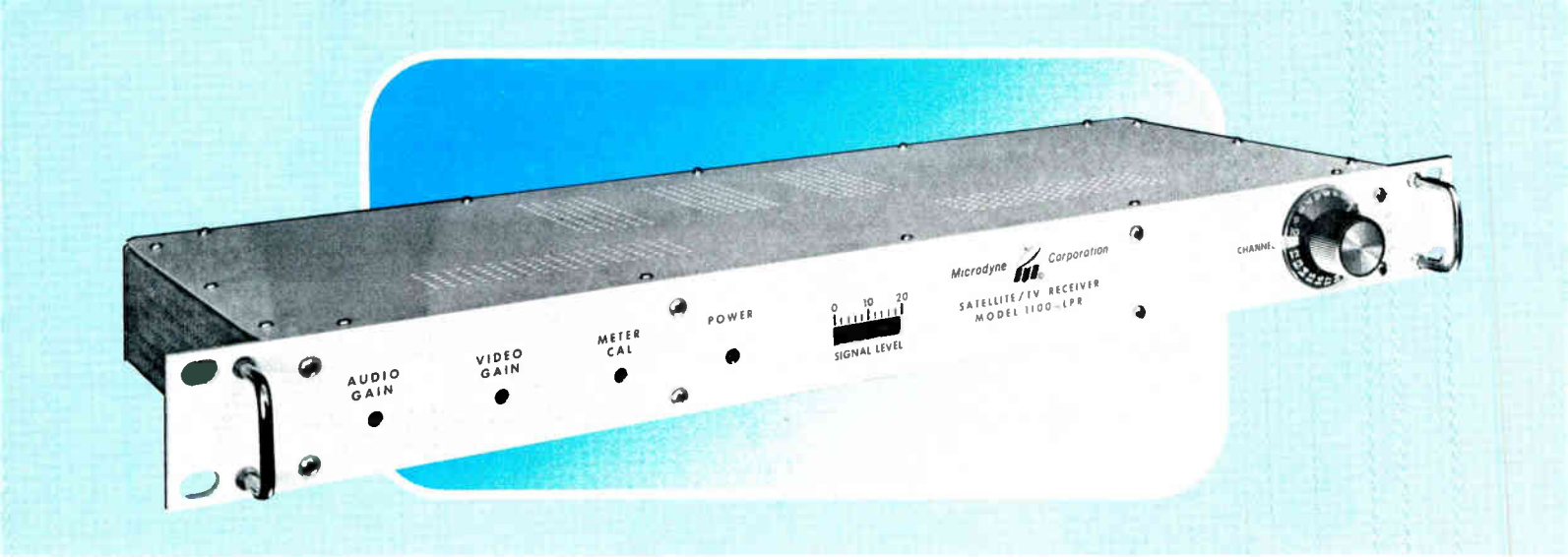

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Make comparisons. Ask your distributor to set up a side-by-side or A-B comparison test (switching from one receiver to another). Often you can see the difference in picture quality. And if *you* can see the difference, so can your subscribers.

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That's over 9 years.

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We have nine nation-wide factory authorized distributors who routinely stock our equipment, so it's a pretty good bet that you'll be able to get just what you want, when you want it. And our distributors are selected on the basis of their experience, knowledge and willingness to provide the support you need.

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You have already seen several big, established companies abandon the TVRO market. But not Microdyne. We have been involved in satellite communications since it all began, and we are here to stay. TVRO isn't a sideline for us; it's our business.

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And our Customer Support covers all the bases: site surveys, turnkey transmitting and receiving system installations, customer training, program management of network systems, on-site service, and a 24-hour toll-free phone number for emergency engineering support.

By now you may have one more question — Where is my nearest Microdyne Distributor? For the answer, call our Marketing Department at (904) 687-4633. We'll also send you our new TVRO Systems brochure, free.

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"it is more costly up front." But, the cost of the boxes "is coming down," he emphasized, and the units "are getting more reliable." The major advantage of addressability, Kurpinski cited, is that it allows operators to easily change services from the headend, thereby avoiding service calls, and to add on additional services, which is "starting to happen right now."

David Kiner of Kiner Cable TV, a small system in Samuel Manual, Ariz., said he was scouting out scrambler/descrambler and security devices as part of an effort to offer "things like Playboy" on the system without engendering any antipathy in the local community.

"Remote control" was the item on the top of Ken Lahey's list, the president of Lakeshore Communications. This LaPorte, Ind., 54-channel system is in the process of being built, and Lahey is using "remote control" as a marketing tool to gain and retain subscribers. Out of the system's current 50 subscribers, 70 percent have shown interest in the unit, Lahey said.

Two representatives from a small-and medium-size system cited standby power as one piece of equipment that would be needed in the new year. Steve Kaplan, vice president of engineering for a 925-sub system in Avon, Ohio, said that the move from rural areas to big cities "was obsoleting old hardware" and that operators in big cities were "looking out their back doors" toward the wiring of apartment complexes and other high density buildings in an effort to "suck out more revenue." Standby power, he continued, will enable the operator to exploit these new market opportunities.

Frank Shelly, vice president and general manager of Rockford Park Cablevision, Rockford, Ill., is looking at standby power for a different reason. His interest in the product is motivated by a desire to improve the performance of his system and commensurately, to avoid system outages. This endeavor has led him to consider status monitoring gear as well.

Since the Rockford, Ill., system is more than a purveyor of entertainment services, with one small institutional network already in operation, Shelly has added data sets, or modems, to his 1984 equipment lists.

Echoing Kurpinski, Michael Harris, vice president of engineering for Century Communications, said he intends to examine addressable converters during 1984. With the new-builds, the signal has to be scrambled, he explained. Other factors operating in addressability's favor, he pointed out, are "there's no big price difference anymore" between non-addressable and addressable hardware, and the options addressability offers the operator in terms of upgrading, downgrading and adding new services. Addressability allows all these changes to be effected, he explained, without requiring any major effort from the operator. Another product Harris is examining is feedforward amplifiers.

Similar to Century Communications, the Rocky Mountain Cable Inc. in Salt Lake, which has three systems in Utah, is surveying addressable hardware. According to Rick Harris, supervisor for all three systems, addressability is likely to figure into the system's upgrades, which are scheduled to begin in 1984.

At the General Electric Cablevision Corp. system in Vacaville, Calif., however, addressability is not an issue. The system already "is addressable." The system uses GE's Comband system, which will be available to the public in 1985.

According to the GE California system's Manager Edward Litton, what the system really needs is an on-line computer system that "allows him to get away

from the cumbersome manual system" of billing subscribers. Other products under review include test and installation-related equipment.

Computer hardware has caught the eye of Peter Kirkpatrick, director of marketing for McCaw Cablevision, Medford, Ore., as well. He's searching for a "computerized call-out system" that is capable of tallying the number of installations and of calling up subscribers to inform them when their installation is scheduled.

John Dawson, chief engineer for the Mile-Hi Cablevision new-build in Denver, said he's "looking at everything," and especially at equipment that offers an economically attractive solution to the problem of wiring hotels and motels. He dismissed 550 MHz gear as premature, saying "you first have to get 450 MHz to work."

On a more humorous note, James Cavanaugh, vice president of operations for Tribune Cable Communications, claimed he was "looking for lower prices." He also is in the process of reviewing "several options" with respect to addressability. Contrary to Dawson and other 550 MHz opponents, he believes "500 MHz is on its way" and said "we're looking at that too."

Other operators polled expressed similar diverse hardware interests. One even said he was searching for "new things in microwave."

Despite all this diversity of opinion though, it is possible to discern certain trends and directions toward which the industry is leaning. "Addressability," "550 MHz" and "feed-forward" were terms that cropped up in conversation more than once. So, even though operators may be at odds over whether addressability is worth its cost or wonder if the extra channel space offered by 550 MHz is really needed, it is safe to assume that these areas will dominate.

Anixter: Flourishing in the '80s

By Gary Kim

In 1982, the pixels on Anixter Communication's 550 computer terminals danced to the tune of $537 million in sales, and within six years those green phosphor screens could register sales as high as $1 billion. Operating from an international network of more than 100 distribution and manufacturing plants, the company carries more than 40,000 products needed by the cable and telephone industries. And information on all of those 40,000 products is available on-line and in real time on the firm's powerful computer system, which "is one of the most sophisticated in the industry, and possibly one of the best used by any distributor," according to Julie Anixter, company manager of trade relations.

The firm's 50-person information services staff includes 25 to 30 software writers, and Anixter's three IBM mainframes allow the company to maintain more than 315 million pieces of information in 20 modules of disc storage. Contained in the computers' mass storage areas are the names of more than 150,000 customers, their addresses and sales histories, plus such things as average usage of products at each location. The revenue rankings of products, monthly and daily usage statistics, accounts receivable and product manufacturer information are all available on the system.

So armed, the company's employees can instantly monitor the status of inventories at nearly all the firm's locations at any one time. Which means that when a customer says "I need it now," chances are good that the company can deliver. But product distribution isn't what makes Anixter interesting. Anixter Communications didn't become the dominant force in cable and telecommunications products distribution just because it knows how to store thousands of items in dozens of warehouses. And although the Skokie, Ill., concern says that "Service is Our Technology," other cable industry suppliers also emphasize attention to the customer.

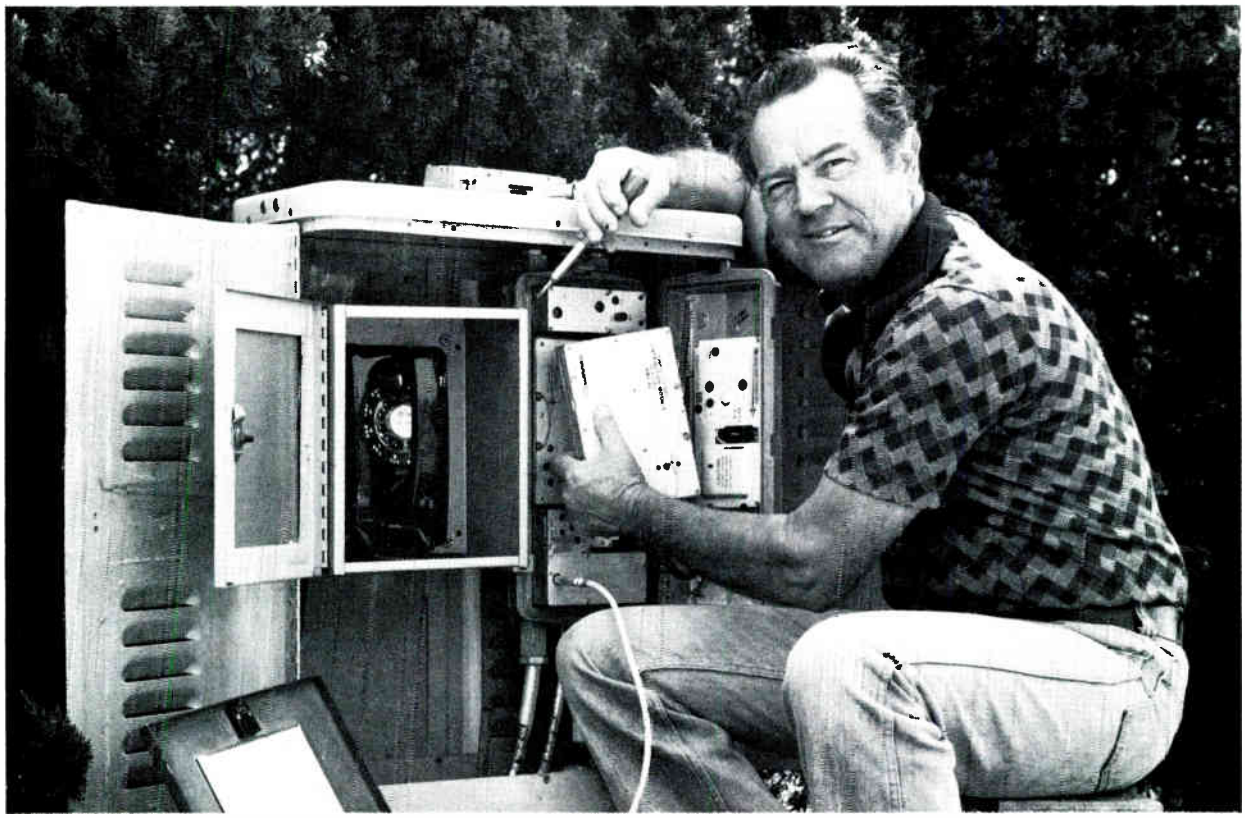
Certainly, Anixter does a good job of working for a manufacturer as a sales and marketing arm. The firm's vast resources and potent staff can bring a company's entire line to market, producing technical literature and handling all the promotion required, Anixter says.

But what really sets Anixter apart from other industry players happens before the first keystroke queries the IBM mainframes about a product's availability. "Because of its expertise, the firm can work closely with a manufacturer to develop products which don't exist yet," Anixter says.

Raychem, a company mentioned in the recent best-seller *In Search of Excellence*, pioneered the development of aerospace plastics. The firm recently decided to make products for the cable industry, which it knew nothing about, Anixter says. "They came and asked us what was needed in the industry, and recently developed a new pin type and splice Thermocrimp connector, which is heat fused. Any technician can install it just by applying heat."

Anixter is also pioneering in other areas. Until a few years ago, most, if not all, of the company's growth had come from the distribution business. And as a distributor, the firm had a great deal of expertise in the area of inventory control. Anixter also had surplus computing and storage capacity on its IBM mainframes. Combining the assets, the corporation started a materials management business. "We'll handle the shipping and receiving of all materials needed by a cable or telephone company for a fee," said Gordon Halverson, Anixter vice president of sales and marketing.

Under terms of an agreement with Storer Cable Communications, Anixter has assumed full responsibility for warehousing and distribution of Storer equipment at several locations. "We're supply specialists with the flexibility and leverage to provide unusual services for clients," Anixter said. "Our ability to act as a materials manager saves our clients money. And one of the ways we've



"My original 20-channel system now passes 36 channels and will pass 54 next year - all without rebuilding!"

Jonathan Lippitt, Signal Master - San Diego, California

"I operate a small cable system. With only 1,100 customers I have to watch every penny. I can't afford a staff of technicians, racks of test equipment or a large inventory of repair parts.

"Yet when it's time to refranchise and the city asks, 'Is your system truly state-of-the art?', I can tell them 'Absolutely!'

"We use Jerrold Starline 20®equipment. Since 1977 we've been sending our amplifiers to Broadband for repair. Each month we ship them our defective amplifiers — sometimes we add a few working spares.

"But instead of repairing them, Broadband installs new electronics. This year they've been installing their BMK-53 modules in our SLE line extenders, BMK-60's in our bridgers and BMK-62's in our distribution amps. All have 400 MHz, 54-channel capability.

"When I get the upgraded units back, I plug them into my system. I have been replacing my trunkline amps in sequence, starting at the headend. My original shakey 20-channel system now passes 36 channels with flying colors. Last year, when we expanded our service from 12 to 23 channels, all we had to do was adjust a few equalizers.

"Right now one-third of my system has been upgraded to 54 channels, and its reliability is much better than the original equipment. It may be a long time before there are 54 channels available, but my system will be ready for it next year.

"This is the best way I know to compete with the major systems while working on a shoestring. I have a system that is always state-of-the-art and for not much more than the cost of normal repairs. The little extra expense of having Broadband install replacement electronics has been truly cost effective."

Whether you're an MSO or operate a smaller system like Jon's, Broadband's replacement electronics can work wonders for your system's performance and profitability.

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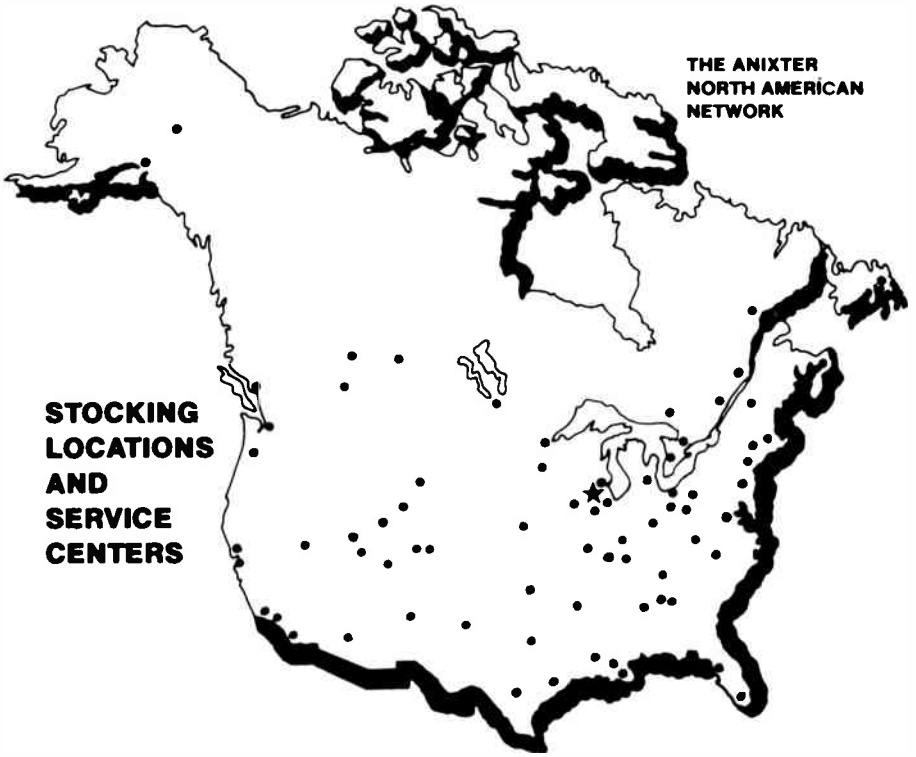

survived the recession is to help operators cut costs."

In turn, Storer has use of Anixter's computer system, which operates on a "fishbowl" system. Customers and Anixter reps always have access to the inventory management system because the software is "transparent." Twenty dedicated phone lines link the system's video display terminals to the host computers, and more than 190,000 transactions occur each working day.

Called OPTIMUM, for Outside Plant Terminal Inventory Material Utilization and Management, Anixter's materials management system also serves American Television and Communications Corp.

And warehousing is by no means a minor cost. Anixter estimates that an MSO's storage costs for inventory can run as much as 30 to 35 percent of what was spent to acquire the parts in the first place. Warehouse construction, maintenance, taxes, staffing and utility bills are just a few of the costs that create a sizable expense for inventory control.

Some industry observers have estimated that there is as much as $250 million worth of inventory sitting in the warehouses of the top-10 MSOs.

Anixter attributes the firm's explosive growth to an emphasis on service and quality, and not necessarily low price. "The computer system is part of the reason we've grown so much since 1957, but the fact that we provide technical and engineering support for what we sell is also important," she said. "We offer a cooperative approach with combined support from the manufacturer and Anixter."

A selective approach accounts for Anixter's exclusive marketing agreements for certain products like Raychem's Thermocrimp. Hamlin and Pico have also signed exclusive pacts with Anixter, in keeping with the company's tradition of dealing only with selected manufacturers.

"If you deal only with the top firms, you build strong relationships," said Halverson. "Quality and reliability are important to us," Anixter said. "We've just signed an agreement with Alpha Technologies giving us national distribution of their power supplies, and we've also arranged to carry Channell Commercial Corp.'s line of pedestals." Channell makes a plastic pedestal, and by keeping its corporate ear to the ground, Anixter found out that people want plastic pedestal housings. "By keeping our finger on the industry's pulse, focusing on quality and undertaking joint selling and marketing agreements, everybody comes out ahead," Anixter said.

"The customer comes first with us," she added. "For example, we've held off on addressable converters. We wanted to wait because there are two schools of thought within the industry of RF and baseband converters, and a lot of people want RF converters. We believe in giving the customer what he or she wants; we're there to supply their needs."

Already a big winner in the basic business of distributing wire, cable and electronic components to the cable industry, Anixter is chasing clients in the telephone industry as well. Although the cable television distribution business will continue to figure heavily in the company's future, it is also eyeing the new markets created by the divestiture of AT&T. Anixter hopes to become a preferred single-source supplier to the 22 Bell operating companies spun off by AT&T. The market is estimated at $3 billion.

Halverson sees the firm's role growing in the future. "Distribution becomes more important as an industry matures, and that's not always understood by manufacturers." The history of the telephone and electrical equipment industries provides a precedent for this view, he says. "It's a distribution and marketing business once the bulk of new plant is in place."

"We like to see ourselves as an extension of a manufacturer's sales force," Halverson says. "Some large manufacturers tell us they're so busy they can't go after the smaller rebuilds, but that's where we come in. They can't efficiently serve the mom-and-pop systems, but we can."

"In the smaller builds we're competitive price-wise with headends and earth stations," Halverson said. "We can reduce freight charges because we're close; we have warehouses everywhere and can pass the savings on to the customer." Anixter also prides itself on the quality of its sales force, many of whom have worked for MSOs, Halverson says. All of the company's new sales personnel undergo a three-month training program, which covers everything from warehouse operations to climbing poles at ATC's Denver training facility.

"We'd rather have reps who know a great deal about a selected number of suppliers and products than people who have only a little knowledge about the whole range of products," according to Halverson. If a customer requests a product that Anixter doesn't carry, the company's salespeople are trained to tell the client what the firm does carry, and explain the advantages. "If we offered everything, it would only confuse everyone," Halverson says.

And the company displays the confidence that comes with being the biggest in an industry. "There's room for DBS, SMATV and all the other technologies," Anixter says. "Industry suppliers won't fold with the end of cable's massive new-build period," Halverson adds.

Engineers envision cable's future

Members of a 1983 Western Show panel address cable's technological future

By Constance Warren

At a 1983 Western Show session entitled "The Technological Future in Non-Technical Terms," two separate themes were sounded.

Speakers addressed the issues of quality and transmission and examined the possible impact of these two areas on cable's near and long-term future and its ability to compete with new emerging technologies—such as MDS, DBS, SMATV, LPTV, STV and videocassette technology.

Rick Clevenger, director of corporate engineering for Cox Cable Communications, stressed the need for the cable industry, and the operator in particular, to re-evaluate "the perpetuation of expanding bandwidth" that has been motivating the industry in recent years and said the industry must "evaluate more thoroughly the increasing demand to do rebuilds." As far as determining where the technology is leading the industry, he said that the three separate components of a cable distribution system—i.e., transmission medium, topology and transmission mode—must be examined first and the various viable options available to the operator considered before one can attempt to ascertain the configuration of cable's future distribution system.

Clevenger said hybrid topology, involving some sort of combination of the traditional tree network design with the star/switched fiberoptic approach, was "starting to look" particularly attractive, especially with respect to the recent proliferation of off-premises equipment. In summation, he emphasized that a "strategic perspective" was essential to cable's "survival."

Similarly, Tom Elliot, speaking on behalf of Dave Willis, director of engineering, Tele-Communications Inc. noted that there was an "overabundance of channels" resulting in overcapitalization and maintenance problems that must be "resolved through economic reality" before the cable entertainment business can garner a basis for an economic existence in the future.

Another area the operator must consider, Elliot cautioned, was "quality." "(Our) next move forward really needs to be in the area of quality," he underlined. If the quality of cable's entertainment services and delivery of those services is improved, he insinuated, cable's future will be more secure. And, if this improvement is realized, along with a more sensible allocation of channels, he continued, MDS, DBS and other emerging technologies will pose little threat to cable.

Dave Randolph, speaking for Gill Tash, vice president and director of engineering for Times Mirror Cable Television, referred to cable's history to determine where cable would be in the next decade. Based on his analysis of cable's past, he predicts 100 channels will be transmitted into the subscriber's home in the next decade. In order for cable to accomplish this transmission as efficently as possible, he said, fiberoptic transmission and a "star/switched network would be desirable" since it would be better to deliver 45 MHz into the home instead of 700 MHz. He also said that in the future, reliability, reduction of service costs and diversity of signal transmission will be the prominent issues dominating the industry. CED

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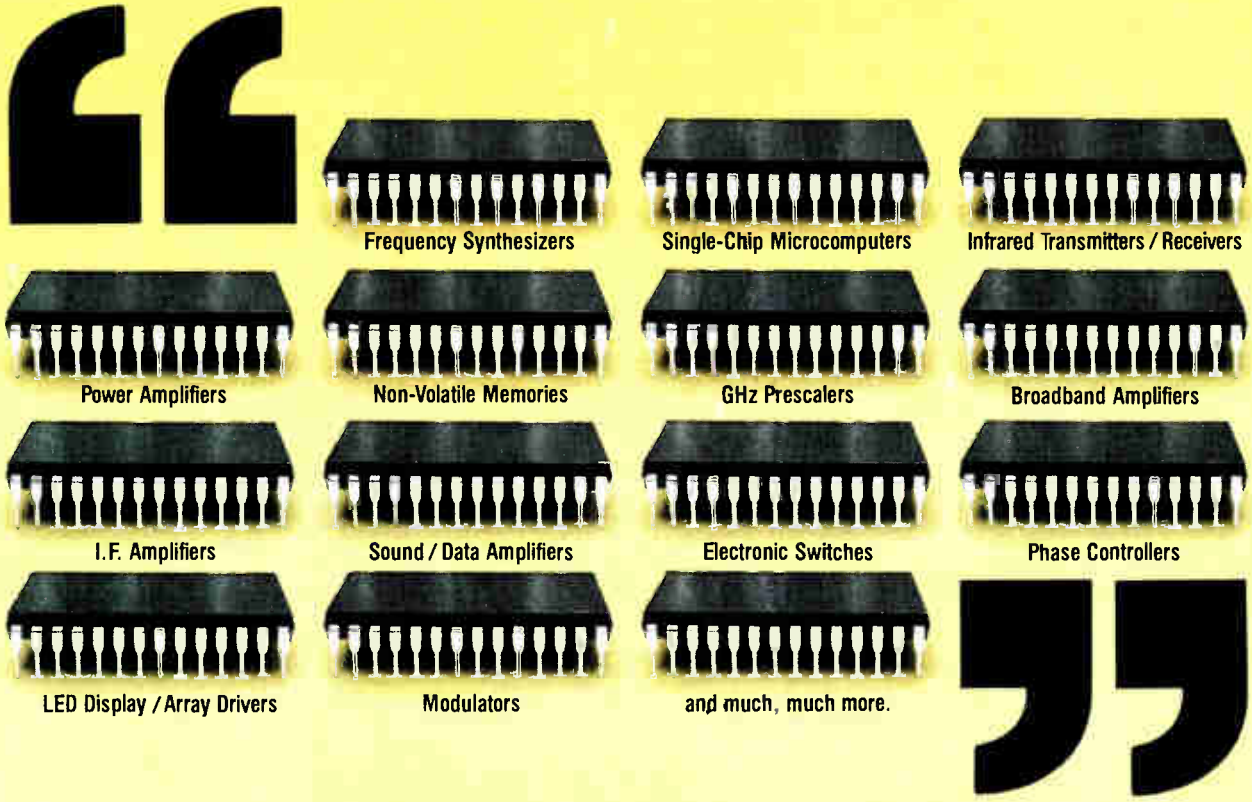

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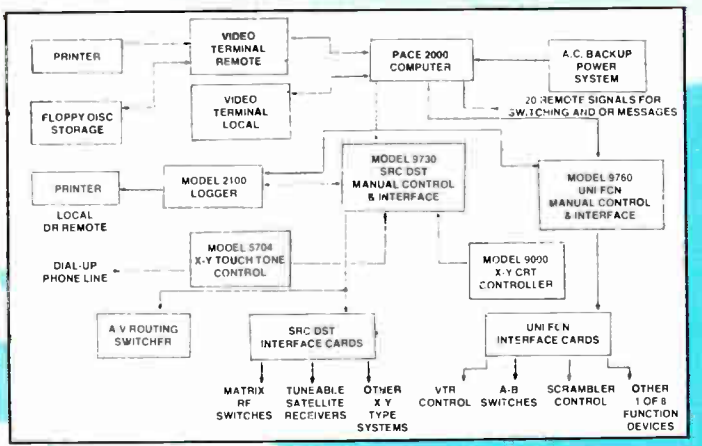

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Stepping up to the plate

The cable contractor should be prepared to handle some pinch hitting as well as a few starter positions in 1984.

After a tragically slow year for construction, manufacturers, operators and contractors alike are hopeful of a return to a more prosperous year of system builds in 1984. Judging by the number of contractors that were evident in 1983 (250±), the shake-out that affected much of the programming and operations sides of the industry had to have crossed over and removed some of the players from the construction scorecard.

Indeed, many of the smaller contractors that serve distinct and primarily local markets were the ones largely impacted by the slowdown. As operators sought to strengthen their cash flow positions and held back on construction jobs where they could, cable contractors felt the pinch most of all. And even with some companies removed, the field will not get any easier since the emergence into the contracting business of the spun-off Bell Operating Companies. In the District of Columbia, the local BOC, C&P Telephone, recently sent out letters to 18 cable companies offering to build and provide a transport system to interested operators bidding for the franchise. This is just one example of the move the telephone companies are making on the construction end of the business.

So where does this leave the contractor for fiscal 1984? Although the early part of the new year will mirror much of 1983 in terms of the pace and naturally, the weather will play its part in preventing or rather, slowing construction in many parts of the country, contractors in general are confident that business will pick up. As the economy begins to strengthen, more subscribers will come back on line, and operators, buoyed by the additional influx of revenue, will return to building or extending their systems. In some cases, the local city councils have been conciliatory in loosening the deadlines faced by operators building the city's system, cognizant of the money problems. But this sort of behavior cannot last forever and operators must return to the elaborate task of construction.

Signs of newbuilds

Signs of new construction remain optimistic, however. According to the "Cable stats" section of *CableVision* (Dec. 26, 1983 issue, pp. 70-72), many new towns and cities have recently awarded, or are expected to award franchises soon. A listing of some of the largest franchises (5,000 homes ±) follows. (This is not to discount the smaller franchises that also necessarily warrant contractor attention.) It is, however, evidence to demonstrate the fact that further newbuild construction still awaits the contractor business. Comments from all quarters of the cable industry that claim that newbuild construction is all but over

Taps

Model	Bandwidth	Output ports	Return loss	Power passing	Tap-to-tap isolation	Hum modulation	Mount
American Technology 300 series	5-450 MHz	four-way	20 dB min.	6 amps	25 dB avg.	N/A	strand or pedestal
Blonder-Tongue DMT series	5-450 MHz	two-,four-, and eight-way	17 dB, 20 dB min., depending on unit used	6 amps	25 dB, 28 dB min., depending on unit used	70 dB max.	strand or pedestal
Colormax multitaps	5-400 MHz	four-way	20 dB min.	7 amps	30 dB min.	N/A	aerial or pedestial
Eagle Comtronics EC series	5-500 MHz	two-,four-, and eight-way	18 dB min.(400-500 MHz); 20 dB min.(5-400 MHz)	6 amps	30 dB(5-400 MHz); 20 dB(400-500 MHz)	75 dB	aerial or pedestal
Gamco 5500 series	5-500 MHz	two- and four-way	20 dB	6 amps	30 dB	N/A	N/A
Intercept IMT series	5-500 MHz	two-,four- and eight-way	20 dB-400 MHz 18 dB-500 MHz	6 amps	5-400 MHz-30 dB; 500 MHz-20 dB	75 dB	aerial or pedestal
Jerrold SPT 2/4	5-600 MHz	two,-four-way	(in-out) 20 dB min., (taps) 18 dB min., 10-600 MHz	6 amps continuous	20 dB min., 10-600 MHz	70 dB below signal	pedestal or strand
FFT 8-*G	5-600 MHz	eight-way	20 dB min., (in-out) 10-450 MHz; 18 dB taps, 450-600 MHz	6 amps continuous	20 dB min., 5-600 MHz	70 dB below signal	strand
Magnavox 8000 tap	5-600 MHz	eight-way	20 dB	7 amps	28 dB	-70 dB @ 10 amps	aerial or pedestal
RMS Electronics Unitap series	5-450 MHz	two-,four-,six- and eight-way	17 dB min.	6 amps	25 dB min.	64 dB max.	aerial, pedestal, underground
Scientific-Atlanta SAT series	5-450 MHz	two-,four- and eight-way	18 dB min., 330/450 MHz; 20 dB min., 5-300 MHz	6 amps	25 dB min.	70 dB max.	aerial or pedestal
Texscan T4DTM	5-450 MHz	N/A	20 dB, 300 MHz; 18 dB, 300 -450 MHz	7 amps	30 dB	-70 dB	strand or pedestal
Trans USA OT series	5-450 MHz	two- and four-way	20 dB, 300 MHz; 18 dB(in), 16 dB(out); 20 dB(tap)-300-450 MHz	N/A	28 dB min.-450 MHz; 30 dB min.-300 MHz	N/A	aerial or pedestal
Winegard T85 series	5-500 MHz	two- and four-way	18 dB min., 5-10 MHz; 20 dB min., 10-450 MHz; 18 dB typ., 450-500 MHz	6 amps	25 dB min., 5-10 MHz; 28 dB min., 10-450 MHz; 25 dB typ., 450-500 MHz	65 dB min.	aerial or pedestal

Traps

Model	Minimum rejection depth	Lower adjacent channel video	Lower adjacent channel audio	Upper adjacent channel video	Insertion loss	Return loss	Temp. stability
Eagle Comtronics							
single channel super traps							
ST-NF-2-6	-75 dB	0.5 dB	-4 dB	-0.5 dB	0.2 dB	N/A	-40°-140°F
ST-NF-G-1	-75 dB	1.5 dB	-7 dB	-1 dB			
ST-NF-7-11	-75 dB	2 dB	-19 dB	-2 dB			
ST-NF-P-W	-70 dB	3 dB	-25 dB	-3 dB			
Single channel standard							
NF-2-6	-60 dB	1 dB	-7 dB	-1 dB			
NF-G-1	-60 dB	2.5 dB	-25 dB	-2 dB			
NF-7-8	-60 dB	3.0 dB	-25 dB	-2.5 dB			
Gamco							
605/606 2-6	-60 dB	-1.0 dB	-7 dB	-0.5 dB	1.0 dB	18 dB	-40°-140°F
605/606 G-I	-60 dB	-2.5 dB	-15 dB	-1.0 dB			
605/606 J-W	-60 dB	-3.0 dB	-25 dB	-4.0 dB			
Multi-channel 5-pole							
619/620-ABC	-55 dB	-2.0 dB @ 108 MHz		-3.0 dB @ Ch. D			
619/620-J-W	-55 dB	-50 dB @ Ch. 13		-20 dB @ Ch. A-2			
619/620-HPAZ	-55 dB	-20.0 dB @ Ch. 6		-1.0 dB @ Ch. A-2			
Intercept							
PTVA-40	-60 dB	-0.5 dB	-4 dB	-0.5 dB	N/A	N/A	N/A
PTV-100/200/300	-60 dB	-0.5 dB	-4 dB	-0.5 dB			
Microwave Filter							
3355-5	-60 dB	1 dB	-3 dB	2 dB	N/A	N/A	-10°-140°F
3345-3,4,6	-45 dB	5 dB	-2 dB	2 dB			
Pico							
NF series traps (3 pole, single channel notch filters)							
lowband (Ch. 2-6)	-60 dB nom.	-2 dB	-12 dB	-1 dB	N/A	N/A	-40°-140°F
midband (Ch. A-I)	-60 dB nom.	-3 dB	-16 dB	-3 dB			
highband (Ch. 7-13)	-60 dB nom.	-3 dB	-16 dB	-9 dB			
SNF series super traps (four pole single channel super notch filter)							
lowband (Ch. 2-6)	-70 dB nom.	-1 dB	-3 dB	-1 dB	N/A	N/A	-40°-140°F
midland (Ch. A-C)	-70 dB nom.	-1 dB	-4 dB	-1 dB			
(Ch. D-F)	-70 dB nom.	-1 dB	-5 dB	-1 dB			
(Ch. G-I)	-70 dB nom.	-1 dB	-6 dB	-2 dB			
highband (Ch. 7-13)	-70 dB nom.	-1 dB	-8 dB	-3 dB			
Vitek single, dual and multi-channel traps	-50 dB, -65 dB	not effected more than 4 dB	40 dB	N/A	0.5 dB	N/A	-20°-120°F

are false, and only serve to further demoralize the industry.

However, judging from the number of contractors exhibiting at the recent Western Show, the anticipation of future business is evident on their part. From the standpoint of construction of new plant, all indications are that 1984 will bring new jobs to the cable contractor. From systems in Iowa serving 200 homes to the cities of New York, Los Angeles and Chicago, the demand for contractors should be great. Again, such demand will depend on the location of the build and the contractor, as many franchises have clauses stipulating that either local contractors and businesses must be utilized wherever possible, or requesting that specific companies, minority or otherwise, be used.

The largest concentration of contractors is based in the Southern states, stretching from Texas to Florida and as far north as Virginia. The heaviest pockets tend to be Texas, Tennessee and Florida. The Midwestern states form the second largest geographical spread of contractors running from Michigan to Kansas, with the majority of companies based in Ohio and Wisconsin. The states anticipating the bulk of construction over the next few years include several found within the latter region; principally Illinois, Michigan and Minnesota. But two other states, California and Massachusetts, which have relatively few contractors based in each, will also experience a growth of cable construction. This is not a tremendously positive note, however, simply because it is generally up to the MSO or cable independent awarded the franchise to select the contractor. If the MSO uses a particular company (or companies), it can be expected that that company, or its subsidiary, will perform the construction work in the new franchise area. Nevertheless, by pointing out where the bulk of newbuild construction will occur over the next few years, contractors can get a lead on the cable companies charged with wiring their respective cities and present them with appropriate bids. A contractor should not be hesitant to expand from his normal, established territory to seek new business.

Signs of rebuilds

At this point, nothing has been said about rebuilds. This business should also figure more importantly within the next two years. More franchises are up for renewal within this time period, which actually began in 1982, and will stretch into 1985. During this timeframe, more than 200 systems will be affected. And,

Construction callbook

This chart lists those communities of 5,000+ homes that have awarded a franchise since March 1983.

California
Chino—RFP issued proposals due 12/14/83 (12,000 homes).
Claremont—proposals received from Group W and Cablevision of Claremont, awaiting report from consultant 12/83 (9,800 homes)
Costa Mesa—negotiating with Copley Colony Cablevision; award expected 1/84 (32,637 homes).
East San Fernando Valley—award to United Cable 9/16/83; (166,000 homes).
East Yolo—RFP issued 10/11/83; proposals due 11/18/83 (10,000 homes).
La Puente—statements of interest being accepted until 1/30/84 (8,600 homes)
Lomita—award to Colony Communications 9/6/83 (8,137 homes)
Los Altos—RFP issued proposals due 12/12/83 (9,000 homes)
Los Angeles—award to Community Cable Entertainment Services System 9/16/83 (180,000 homes)
Norco—award to Falcon Cable of Riverside 9/21/83 (6,300 homes)
Palo Alto—proposals received from Century Federal, City Cable Partners, Pacific Telephone, Marsh Media/Public Service Cable and Cable Communications Co-Op of Palo Alto; awaiting consultants recommendation 12/83 (22,000 homes)
Pico Rivera—proposals received from Public Service Cable/Marsh Media, California Cable Systems Inc and United Cable Television of Los Angeles; award expected 1/84 (15,500 homes)
Sacramento—award to Cablevision Systems 11/22/83 (360,000 homes)
San Gabriel—Falcon Communications sole bidder; award expected 12/83 (11 600 homes)
South Monrovia—award to Falcon rescinded 8/83; beginning process (5,450 homes)
Sunnyvale—refranchising award to Sunnyvale Cable TV (TCI) expected by 2/84 (43,000 homes).
West Covina—award to Falcon Communications (28,000 homes).
Yorba Linda—statements of interest bieng accepted until 11/30/83 (12,000 homes).

Connecticut
Windham, Lebanon, Scotland et. al (cable area 13)—award to Telemedia Company of NE Connecticut 7/21/83 (31,137 homes).

District of Columbia
RFP issued; proposals due 2/16/84 (254,000 homes).

Illinois
Chicago—City Counil awarded first negotiating rights for each area as follows: Area I to Cablevision Systems (300,000 homes); Area II to Group W (217,000 homes.) Area III to Group W (193,000 homes); Area IV to Chicago Cable Communications (TCI/Cross Country joint venture) (226,000 homes); Area V to Continental Cablevision (188,000 homes), award expected by 1/84
Dawner's Grove, Darien—negotiating with Continental Cablevision (6,430 homes).
Elmwood Park—RFP expected 11/83 (9,500 homes).
Glen Ellyn—award to Group W expected 11/83 (7,000 homes)
Naperville—award to Centel expected by 12/83 (17,500 homes)
St. Charles, Geneva—negotiating with Centel; award expected 12/83 (10,000 homes).
South Holland—award to Multimedio 3/15/83 (7,400 homes)
Villa Park—negotiating with Multimedia (7,100 homes).
Westmont—(uninc areas of DuPage County)—final award to Continental Cablevision 4/18/83 (10,000 homes)

Kentucky
Danville—negotiating with RV Cablevision and Communications Systems; award expected 11/83 (12,800 homes)
Greenville, Central City and Muhlenburg County—negotiating with TCI; award expected by 11/83 (13,000 homes).

Maryland
Carroll County—award to Prestige Cable 10/14/83 (30,000 homes).

Massachusetts
Braintree—franchise awarded to Adams-Russell 4/83 (10,000 homes).
Hingham—award to American Cablesystems 7/14/83 (6,323 homes)
Marshfield—final award to Greater Southshore Cablevision 6/83 (10,000 homes)
Nahant—only proposal from Warner Amex; no action until summer 1984 (1,433 homes)
Sandwich—RFP issued, proposals due 11/28/83 (5,000 homes)
Seekonk—proposals received from Prestige Cablevision, Massachusetts Cablevision Systems, Rollins, Inland Bay Cable, Cable TV of East Providence, Seekonk Cablevision and Seekonk Cable TV (6,000 homes).
Shrewsbury—final award to Shrewsbury Electric Light (8,500 homes)
Walpole—preliminary award to Massachusetts Cablevision appealed by Adams-Russell (5,676 homes)
Waltham—award to Waltham Telecommunications (TCI) 5/17/83 (18,000 homes).
Wellesley—awarded to Continental Cablevision of Boston 5/31/83 (8,000 homes).
Westport—preliminary award to United Cablevision Funding appealed by Westport Cable Television (5,500 homes)

Michigan
Bloomfield Township, Bloomfield Hills—award to Booth Communications 9/12/83 (15,000 homes)
Clarkston—final award to Multi-Cablevision 3/29/83 (7,200 homes)
Dearborn Heights—final award to Continental Cablevision 4/12/83 (23,000 homes)
Detroit—award to Barden (471,000 homes).
Lake Orion, Orion Township—statements of interest being accepted until 2/1/84 (7,800 homes).
West Broomfield, Keego Harbor, Orchard Lake, Sylva Lake—negotiating with Continental Cablevision (16,437 homes).
West Oakland County—award to Greater Media 11/23/83 (32,581 homes).
Westland—only proposal from Continental Cablevision (29,000 homes).

Minnesota
Afton, Cottage Grove, St. Paul Park, Denmark, Grey Cloud, Newport, Woodbury (South Washington County Cable Commission)—Telephone and Data Systems is sole bidder; award expected 12/83 (12,664 homes).
Belle Plaine, Le Center, Le Suer, Lonsdale, Montgomery, New Prague—expect RFP to be issued 11/83 (5,227 homes).
Blaine, Centerville, Circle Pines, Coon Rapids, Lexington, Ham Lake, Spring Lake Park (North Central Suburban Cable Communications Commission)—award to Group W 9/9/83 (27,191 homes)
Burnsville, Eagan—final award to Group W 7/8/83; (12,849 homes)
Forest Lake, Forest Lake Township, Columbus Township, Scandia Township.—award to Citation Cable 11/83 (5,619 homes).
Minneapolis—Storer in north sold to Rogers in south 8/83 (170,000 homes)
Minnetrista, Spring Park, Shorewood, Medina, St. Bonifacius, Excelsior, Deephaven, Woodland, Victoria, Tonka Bay, Orono, Minnetonka Beach, Greenwood, Long Lake (Lake Minnetonka Cable Communications Commission)—proposals received from Dowden, Communication Systems and Combined Cable; award expected 12/83 (11,682 homes).
North St. Paul, Birchwood, Dellwood, Gem Lake, Grant Township, Lake Elmo, Landfall, Mahtomedi, Maplewood, Oakdale, Pine Springs, Vadnais Heights, White Bear Lake, White Bear Twp., Willernie—final award to Group W 5/13/83 (33,568 homes)
St. James—award to Dowden 5/83 (1,820 homes).
Stillwater, Bayport, Oak Park Heights (Central St. Croix Valley area)—award to Telephone and Data Systems 8/12/83 (6,000 homes).

Missouri
St. Louis—proposals from Archway Cablevision, St. Louis City Communications and STC Cablevision Partners, award expected 2/84 (178,000 homes).

New Jersey
Patterson—plans municipal ownership; seeking bids for construction 12/83 (55,000 homes)

New York
Mayville—negotiating with U.S. Cable (5,430 homes).

North Carolina
Burke County—award to Cable TV Support Services 4/5/83 (10,000 homes).

Ohio
Garfield Heights—award to Space Cable 9/23/83 (12,000 homes)

Oregon
East Multnomah County—final award to Rogers UA Cablesystems; 4/7/83 (80,000 homes).
Milwaukie—final award to Tribune Cable 5/3/83 (7,500 homes).

Texas
Plano—award to TeleCable 8/83 (30,000 homes).
Richardson—award to TeleCable 3/83 (23,082 homes).

Virginia
Fairfax City—award to Media General 6/14/83 (6,500 homes).
Hanover County—award to Continental Cablevision 5/25/83 (5,600 homes).
Loudon County—final award to Cable Communications 4/18/83 (11,500 homes).

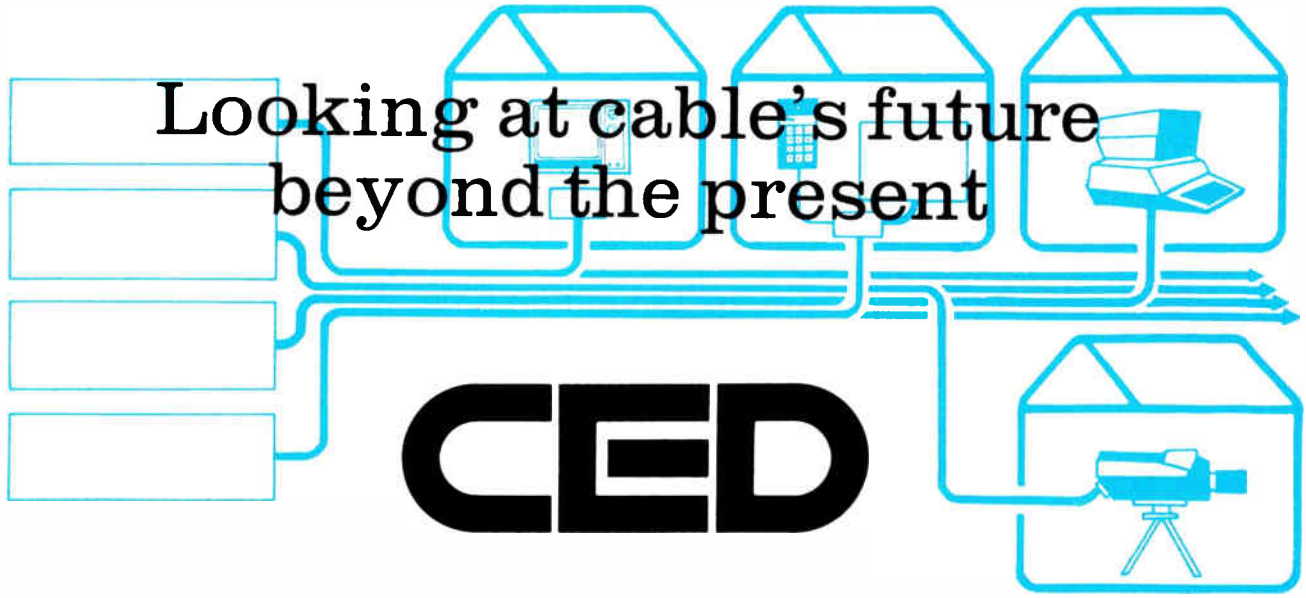
Washington
Granger, Toppenish, Wapato, Zillah—award to McCaw Communications 9/83 (5,300 homes).

Wisconsin
Kenosha—final award to Total TV 7/5/83 (29,500 homes).
Milwaukee—final award to Warner Amex 5/5/83 (253,000 homes).

Wyoming
Gillette—negotiating with Westel (7,500 homes).

Source: ICR, Cable Information Service—a Titsch Communications division.

The Right Stuff



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as history has dictated, the majority of the operators of these systems may be faced with rebuilding, upgrading or at least refitting their systems to concede to local council members' wishes. Adding new plant to an existing system, therefore, is the most common approach in terms of upgrading. Thus, the potential for contractors to do increased business in this growing end of the industry should be highly regarded.

Although more than one operator has commented that 1983 was a flat year in terms of construction, more than enough has been said about the possible cures to the ailing cable business. "Trimming the fat" has been the most common, and subsequently, staffs have been cut substantially among many businesses. Purchases of construction equipment have been reduced, and some operators have been forced to seek less costly subcontractors or in-house construction operations in an effort to eliminate some overhead expense.

Taking in all issues

However, only so many layoffs can be withstood, and delays in construction of systems can be tolerated only for so long. There is a high degree of confidence that the construction business and its related fields will return to a level of activity that was most evident in 1982. As the larger cities begin to settle into a regime of consistent construction patterns, the contractor should be able to anticipate additional business. The contractor can also anticipate that the requirements of building the larger systems will force him to make certain adjustments and change traditional methods in order to accommodate the city and its shape. This will most likely result in additional expense to the contractor who should pass this on to his client, provided such expenses or costs have been anticipated or budgeted. Weather patterns and other unforeseen complications are generally unanticipated, but in especially large systems requiring a period of years to build, such costs should be built in. Any experienced contractor, whether or not he has built a large system, should recognize such possible mishaps and their related costs.

A cable contractor in 1984 faces a number of different issues. One naturally is competition. This is competition not only within the cable industry, but from the telcos and other communications construction companies eager to expand their own businesses from primarily telco to cable.

A second issue is that of the economy. Indications are that the construction business will come back as operators consilidate and attempt to return to a pace where construction patterns were high. As the industry picks itself up and pushes ahead, all facets of the business should share in the projected growth.

Finally, the contractor must prepare himself to diversify and expand beyond his present limitations. As the trimming is complete and overhead is low, the time to move ahead cautiously, but aggressively, is now—as the market dictates. As competition moves in, 1984 is the year to take the offensive. The construction business in cable television will remain a steady part of the entire industry, and it is a field that requires the participation of competent players in order to build the showcases—whether they are 12-, 24-or 104-channel systems—that cable can boast about.

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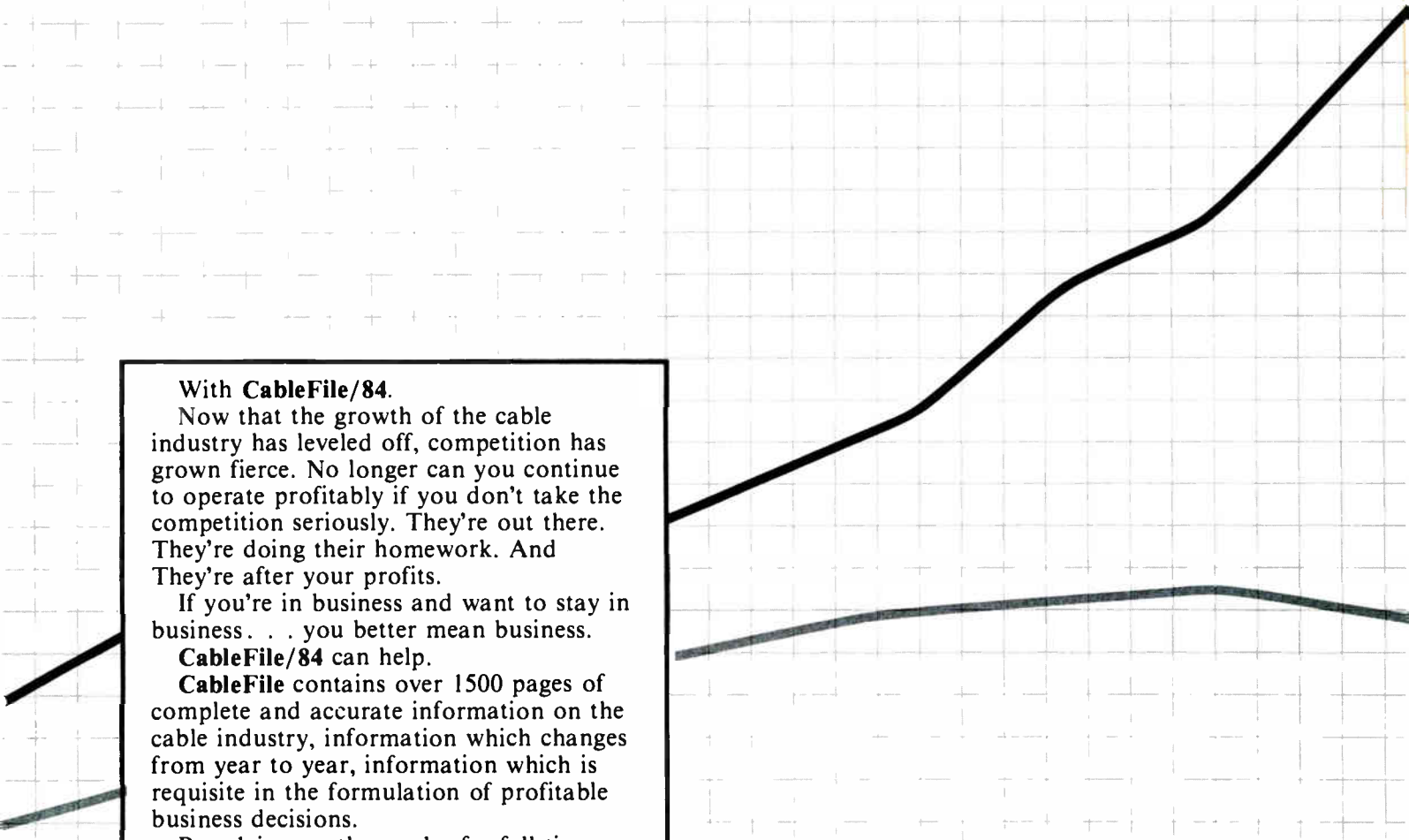

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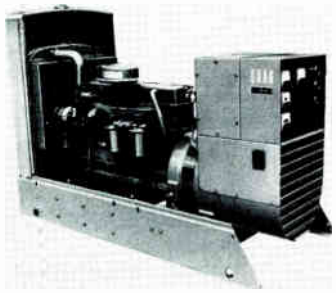

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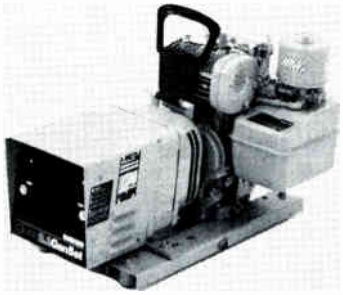

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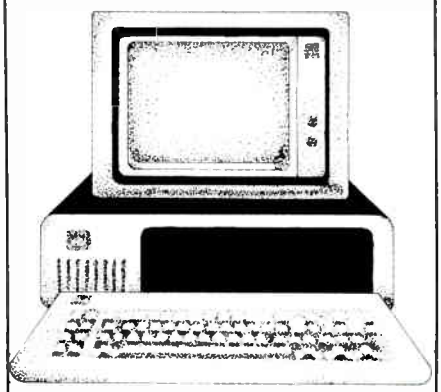

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125	SAM-PT	Automatic trunk module	$ 186.62	$ 23,327.50
125	SMM-PT	Manual trunk module	113.40	14,175.00
197	SDH-P	Terminating trunk module	72.00	14,184.00
221	SBM-P	Bridger module	79.38	17,542.98
14	SAS-300	Automatic slope module	186.62	2,612.68
78	SJAS-301	Automatic slope module	186.62	14,556.36
36	SJMM-301	Manual trunk module	113.40	4,082.40
31	SJDL-301	Terminating trunk module	72.00	2,232.00
80	SJBM-301	Bridger module	79.38	6,350.40
				$ 99,063.32

NON-OPERATIONAL MODULES (needs repair)

QUANTITY	MODEL NUMBER	DESCRIPTION	PRICE EACH	TOTAL
16	SAM-PT	Automatic trunk module	$ 62.21	$ 995.36
38	SMM-PT	Manual trunk module	37.80	1,436.40
18	SDH-P	Terminating trunk module	24.00	432.00
69	SBM-P	Bridger module	26.46	1,825.74
11	SJAS-301	Automatic slope module	62.21	684.31
3	SJMM-301	Manual trunk module	37.80	113.40
14	SJBM-301	Bridger module	26.46	370.44
3	SJDL-301	Terminating trunk module	24.00	72.00
6	SJAS-400A	Automatic trunk module	51.24	307.44
4	SAS-300	Automatic slope module	62.21	248.84
200	SCD-2W	Chassis ("Mother Board")	37.20	7,440.00
54	SPPS-60	Power Pack 60 Vac	13.00	702.00
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EQUALIZERS (functioning satisfactorily when removed from service)

QUANTITY	MODEL NUMBER	DESCRIPTION	LUMP SUM PRICE
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132	SEP-260-H	Equalizer	
7	SEP-260-S	Equalizer	
17	SEP-274-L	Equalizer	
18	SEP-274-H	Equalizer	
3	SEP-274-TL	Equalizer	
3	SEP-274-ST	Equalizer	
24	SEP-304-TL	Equalizer	
37	SEP-304-ST	Equalizer	
63	SEP-304-H	Equalizer	
53	SEP-304-L	Equalizer	$ 4,000.00
96	SEE-260-6	Equalizer	
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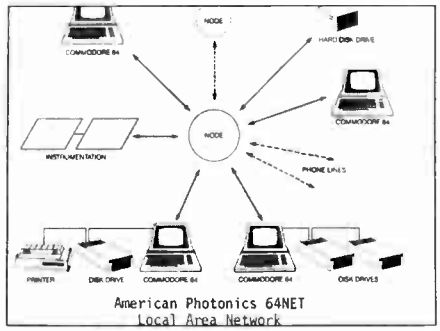
Advertisers' Index

Hardware Hotline

Fiberoptic LAN available for PCs

American Photonics Inc. has introduced a fiberoptic local area network, called the 64NET. In this LAN, as many as 24 Commodore 64 personal computers with associated disc drives and printers interact over fiberoptic transmission lines. 64NET supports message transfer or file sharing, reducing floppy disc handling in typical school or small business applications, and allows as many as 24 users to cross-communicate simultaneously. In addition, fiberoptics provide greater distance between computers and the active star mode, small cable size, freedom from electromagnetic interference and ease of installation.

For additional information, contact, American Photonics Inc., 71 Commerce Rd. Brookfield, Conn. 06804, (203) 775-8950.



American Photonics' 64NET

Home videotex terminal unveiled

Quazon Corp. has unveiled a low-cost home videotex terminal and simultaneously announced agreements with four videotex information services to offer videotex services with the terminal. The "user-friendly" videotex terminal, called the Quik-Link 300, is being offered directly to the consumer at the retail level, at a suggested retail price of less than $250. The videotex services offered with the unit are The Source, CompuServe, Dow Jones News/Retrieval and Comp-U-Store. "Persons purchasing the Quik-Link 300 will have the option of subscribing to as many of these services as they want," Jim Lokey, Quazon's vice president of administration and marketing said. "But they are not limited to these four. They can subscribe to any other information service that uses the ASCII protocol."

For more information, contact Quazon Corp., 3330 Keller Springs Road, Carrollton, Texas 75006, or call (214) 385-9200.

M/A-COM tests data security unit

After undergoing successful field tests this summer, M/A-COM Linkabit Inc. has begun production of its LC76CF data security unit for 56Kbps circuits. The LC76CF uses the National Bureau of Standards data encryption standard (DES) to protect data transmitted over synchronous communications links. The equipment works with data rates from 1.2Kbps to 100Kbps. By using the DES in one bit cipher feedback mode, the LC76CF gives the user a totally transparent cryptographic device that is also self-synchronizing independent of data format and character set used.

M/A-COM Linkabit also designed the LC76CF with an eye toward market requirements for "fault tolerant" networking and physical space limitations in communications and computer centers. The unit fits in a standard 19" rack, using only 7" of vertical space and is available in three configurations: single channel, dual channel per chassis and redundant with automatic failover on detection of a fault condition.

For further information contact, M/A-COM Linkabit, 3033 Science Park Rd., San Diego, Calif. 92121, (619) 457-2340.

Belden develops hybrid wire

Belden Electronic Wire and Cable has designed a hybrid wire and optical fiber duplex cable for use with computer teminal systems. The cable is composed of one optical fiber and two 20 AEG tinned copper conductors with one 20 AWG tinned copper drain wire. The copper conductors are enclosed in a polyester foil shield and the optical fiber is surrounded by Kevlar® yarn for additional strength. Both optic and metallic conductors have a common PVC outer jacket arranged in a "figure eight" design so that the optic and metallic portions can be easily separated for connectorization. The jacket also provides abrasion and crush resistance.

The optical fiber in the hybrid cable replaces four shielded pairs of 26 AWG copper wire and is utilized to transmit digital information from the CPU or terminal controller to the CRT display terminal. The metallic pair transmits the

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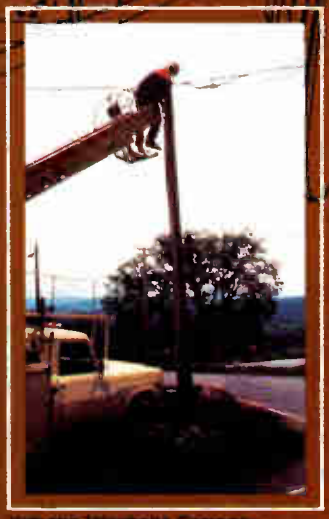
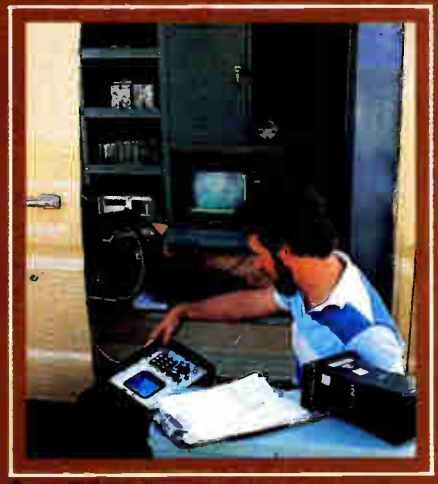


Visicalc Telephone Computer



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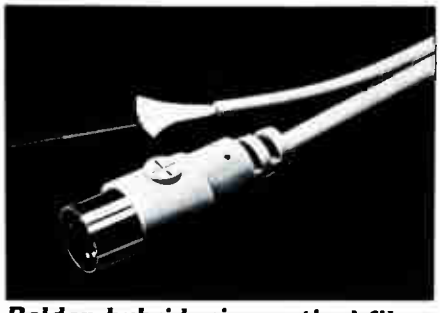
power to the CRT. According to company officials, the advantages of the hybrid cable over its metallic counterpart are light weight, high strength, and EMI free transmission of the data.

For more information, contact Manager, Marketing Communications, Belden, 2000 S. Batavia Ave., Geneva, Ill. 60134.

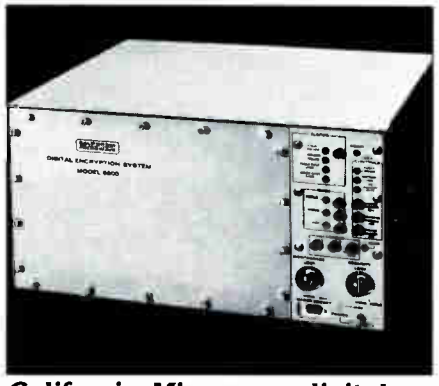


Belden hybrid wire, optical fiber duplex cable

Digital encryption system debuts

California Microwave, Inc. has introduced a digital encryption system that operates from 75-5 Mbps. This system, model CD5800, is for use in government and industrial applications, in data, video and voice networks. The CD5800 utilizes the data encryption standard as specified by the National Bureau of Standards, and features an electronic keyloader, separate master and working keys, battery backup for key retention, 16 standby keys with automatic key change and down-line key management capabilities. Alarm reporting circuits allow access to 11 status alarm outputs. Maintenance assistance is provided by equipment self diagnostics, system and local loop test modes and bypass operation.

For more information, contact California Microwave Inc., 990 Almanor Ave., Sunnyvale, Calif. 94086, (408) 732-4000.



California Microwave digital encryption system CED

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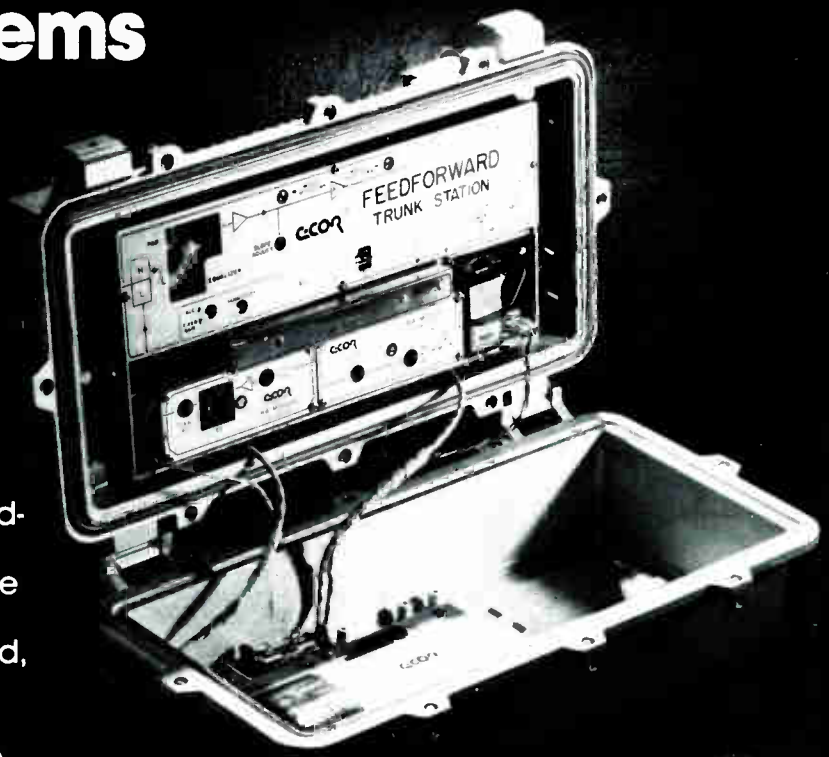

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Reader Service Number 41

Erika Bell has been appointed vice president, CATV materials management for Anixter Communications, it was recently announced. In her new position, Bell will be responsible for Anixter's material management program in the CATV industry. Bell joined Anixter in 1975. She was most recently district manager, national accounts, operating from Anixter Communications' Denver facility.

S.A.L. Cable Communications, the hardware and electronics company based in Melville, N.Y., has named **Marvin Eisner** president of the firm. Eisner replaces Alan Scheinman, the company's chairman, in the presidential post. Scheinman will continue as chairman. Before accepting the S.A.L. job, Eisner was executive vice president at Arrow Electronics Inc.

Robert Bilodeau, exeuctive vice president and general manager of Suburban Cablevision, the country's sixth-largest cable system, will join RT/Katek next month as its chairman and chief executive officer. RT/Katek, a pairing of two companies based in New Jersey, was formed early last month and made public at the Atlantic Show (CV, 11/14/83, p. 12). The firm provides installation and converter repair services to the cable industry. Bilodeau will assume duties there Jan. 1. Bilodeau also was elected to RT/Katek's board of directors.

BE&K Inc. announced the appointment of **Billy Jones** as president of BE&K Communications Inc., Atlanta. Jones was formerly president of Burnup and Sims Cable Com Inc. and has more than 20 years experience in the installation and management of cable television systems. Jones also will be a director and partner in the new company. BE&K Communications provides construction services to the telecommunications, cable TV and cellular radio industries.

BE&K Communications Inc. recently announced the election of **Robert Gruno** as the company's executive vice president. A 22 year professional in the cable TV and telecommunications industries, Gruno, 48, had previously served as a corporate vice president for Burnup & Sims' holding company in Fort Lauderdale, Fla. Since joining that firm in 1969, he had held various executive positions, most recently directing four Burnup & Sims' national subsidiaries engaged in cable TV and telecommunications.

Paul Chung has been promoted to controller, North America, for the Clare Division of General Instrument Corp. Chung, who previously served as assistant controller, reports to William Watson, vice president and general manager for the division. Prior to his duties at Clare Division, Chung was group manager of accounting systems for the General Instrument Components Group. Before joining General Instrument in 1980, he held accounting and finance positions at Cherry Electrical Products Corp., Waukegan, Ill., and Johnson & Johnson Personal Products Co. Inc., Wilmington, Ill.

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Reader Service Number 43

Harris Corp. has appointed **Douglas Morais** vice president and general manager of the company's Farinon division, which is headquartered in San Carlos, Calif. In taking this position, Morais, who formerly served as vice president, microwave operations for the Farinon division, effectively replaces William Gibson, who recently resigned from Harris for personal reasons.

General Instrument Corp.'s Components Group has appointed **Russell Mills** director of staffing and development. Mills most recently served as director of human resources planning and development for Howmet Aluminum Corp. in Greenwich, Conn.

Satcorp, Inc. has appointed **Gary Epstein** director of advertising sales. In this new post, Epstein, who previously headed his own company, Audiovid Marketing Inc., will oversee all advertising sales and sponsorship programs for Campus Network, a Satcorp company providing specialized video programming to a nationwide network of college campuses.

James McLane has been appointed manager of marketing for the Catel/Tomco Telecommunications Division of United Scientific Corp. McLane's new post will involve him in the marketing of broadband cable transmission products and in the expansion of interconnect system applications and company's fiberoptic product line. McLane comes to Catel/Tomco with more than 18 years of previous experience, accrued at GTE Lenkurt, where heheld numerous positions.

Bernard Thyssen has been appointed vice president of operations at Vitek Electronics Inc. Thyssen formerly served as the director of operations of GTE's CATV division in El Paso, Texas, where he was in charge of GTE's consumer electronics operations in Latin America and Europe. In his new post, Thyssen will supervise all the manufacturing functions, quality control and materials management for the company's plant facilities located in Edison, N.J., and El Paso, Texas. **Edward Knapp** was named marketing manager at Vitek Electronics. Knapp previously was marketing manager for Triangle PWC Inc., New Brunswick, N.J. **Stephen Dragos** also has been elected human resources manager of Vitek Electronics.

E. Knapp

S. Dragos

Western Video has announced the following personnel changes: **Earl Hatton** to vice president of operations and **Michael Kurtz** to vice president of production. Hatton has been with Western Video for eight years, while Kurtz's tenure with the company has spanned five years. CED

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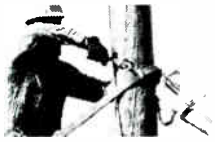

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BET	Daily	8 p.m./2 a.m.	406*/#	12X
Daytime	Daily	(E) 1 p.m./9p.m.	None	12D
The Disney Channel		24 hrs.	None	5X, 6X
Dow Jones		24 hrs.	None	2X, 3X
FNN	Weekdays	7 a.m./7 p.m.	738*/# 975*/#	1D
Madison Square Garden	Daily	7 p.m./1 a.m.	None	8D
The Nashville Network	Daily	(E) 9 a.m./3 a.m.	674*/#	9D
Spotlight (West)		24 hrs	None	11D
WOR-TV		24 hours	None	2D
Satcom 4				
BizNet	Weekdays	7 a.m./2 p.m.	None	15
Bravo	Daily	5 p.m./6 a.m.	None	2
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70		Southern Pacific-2 (Oct. 84)**
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74		Galaxy-2 (mid 84)
79	Westar-2	
83	Satcom-4	
87	Comstar-D3	Telstar-2 (1984)
91	Westar-3	Spacenet-III
93.5		Galaxy-3 (June 84)
94	SBS-3**	
95	Comstar-D1 & D2	
96	Telstar-1	
97	SBS-2*	
99	Westar-4	
100	SBS-1*	
103		GTE-1* (1984)
104.5	Anik D-1	
106		GTE-2* (1984)
108.5		Anik C-1
109	Anik-B** & C3	Anik D-2
114	Anik A-3	
116	Anik A-3	
117.5		Anik C-3
119	Satcom-2	Southern Pacific-1
122		Spacenet I (Feb. 84)
123	Westar-5	
127	Comstar-D4	Telstar-3 (1984)
131	Satcom-3R	
134	Galaxy I	
136	Satcom-1	
139	Satcom-1R	
143	Satcom 5	

* Ku Band
** Dual Ku/C Band

Orbital slots and launch dates often change without notice

Signal	Day	Start/ Stop	Alert Tone	Trans-ponder
Home Sports Entertainment(Dallas)	Daily	6:30p.m. 10:30p.m.	None	4
Home Sports Entertainent(Houston)	Daily	7:15 p.m./ 1:00 a.m.	None	11
KKGO-FM		24 hrs.	None	17
National Christian Network	Daily	24 hrs.	073*/#	7
The Playboy Channel	Daily	8 p.m./6 a.m.	869*/#	12
SCAN		24 hrs.	None	3
SPN		24 hrs.	429*/#	3
Trinity Broadcasting Network		24 hrs.	None	17
Satcom 3R				
ACSN-The Learning Channel	Weekdays Weekends	6 a.m./4 p.m. 6 a.m./1 p.m.	192*/#	16
AP News Cable		24 hrs.	None	6
ARTS	Daily	9 p.m./12 a.m.	311*/# (E,C,M) 519*/#(P)	1
Cable Health Network		24 hrs.	361*/#	17
Cable Jazz Network		24 hrs.	None	8
CBN		24 hrs.	414*/#	8
Cinemax		24 hrs.	None	20 (E,C) 23 (M,P)
CNN		24 hrs.	024*/#	14
CNN Headline News		24 hrs.	635*/#	15
C-SPAN		24 hrs.	None	19
Daytime	Weekdays	1 p.m./3 p.m.	307*/#	22
Dow Jones Cable News		24 hrs.	None	3,6
Electronic Program Guide		24 hrs.	None	3
ESPN		24 hrs.	048*/#	7
Eternal World Television Network	Daily	8 p.m./12 p.m.	762*/#	18
HBO	Daily	24 hrs.	None	24 (E,C), 13 (M,P)
HTN	Daily	4 p.m./4 a.m.	207*/#	16
Lifestyle		24 hrs.	None	3
Love Sounds		24 hrs.	None	8
Moody Bible		24 hrs.	None	3
Modern Satellite Network	Weekdays	10 a.m./1 p.m.	243*/# 421*/#	22
The Movie Channel		24 hrs.	None	5
MTV: Music Television		24 hrs.	None	11
National Jewish Television Network	Sundays	1 p.m./4 p.m.	None	16
Nice and Easy		24 hrs.	None	8
Nickelodeon	Daily	8 a.m./9 p.m.	311*/# (E, M, C) 519*/# (P) 749*/#	1

Contact programmer's technical department for more information on transponder use and alert tone

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