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BROADCAST COMMUNICATIONS

THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

(USPS 536930)

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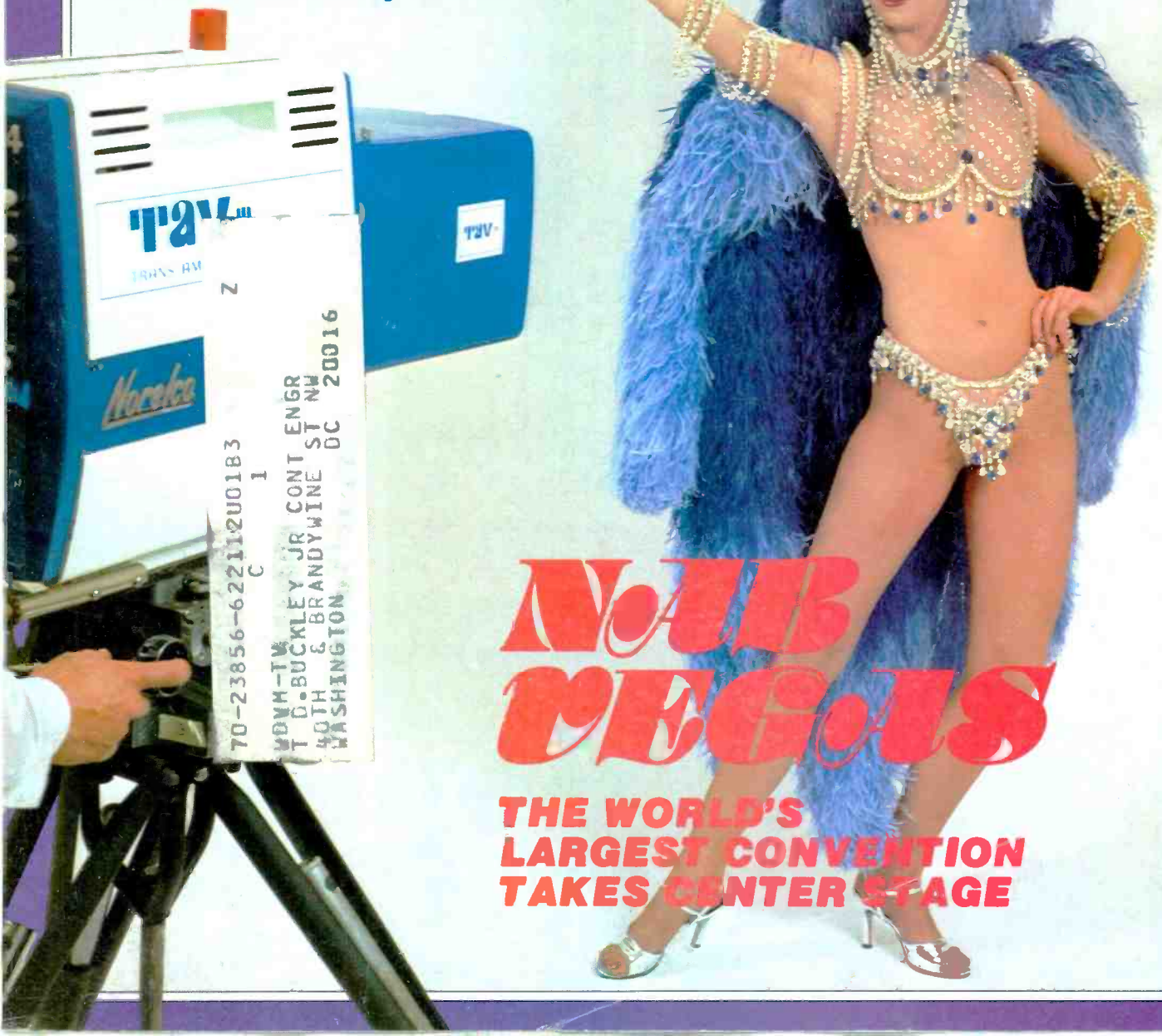
Getting There and Back

STATION CONSTRUCTION:
Building Today For the Future

SPEECH SYNTHESIS:
What Will It Say Next



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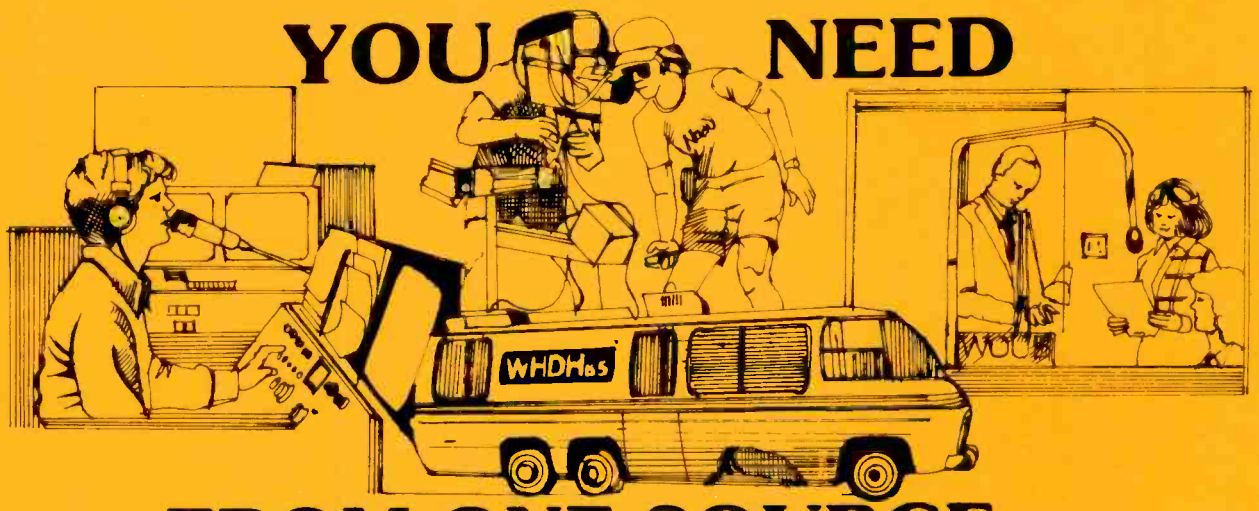

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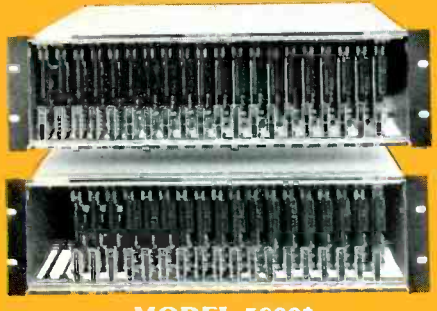

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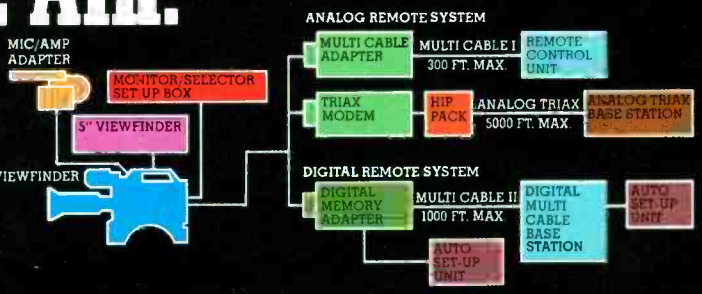

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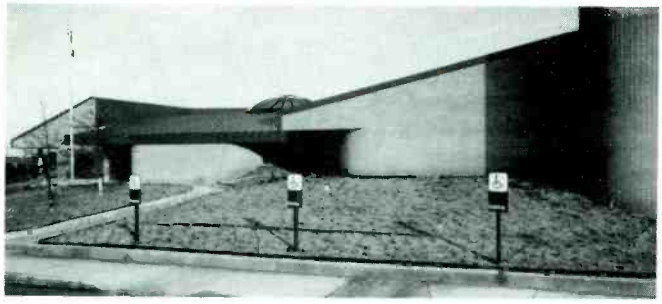

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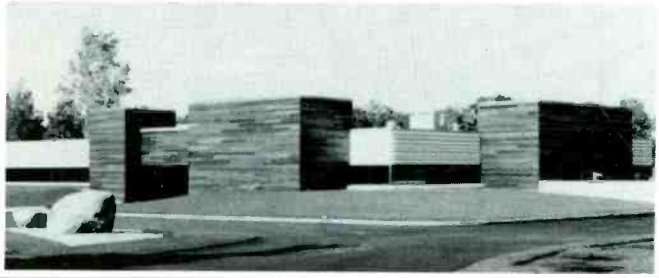

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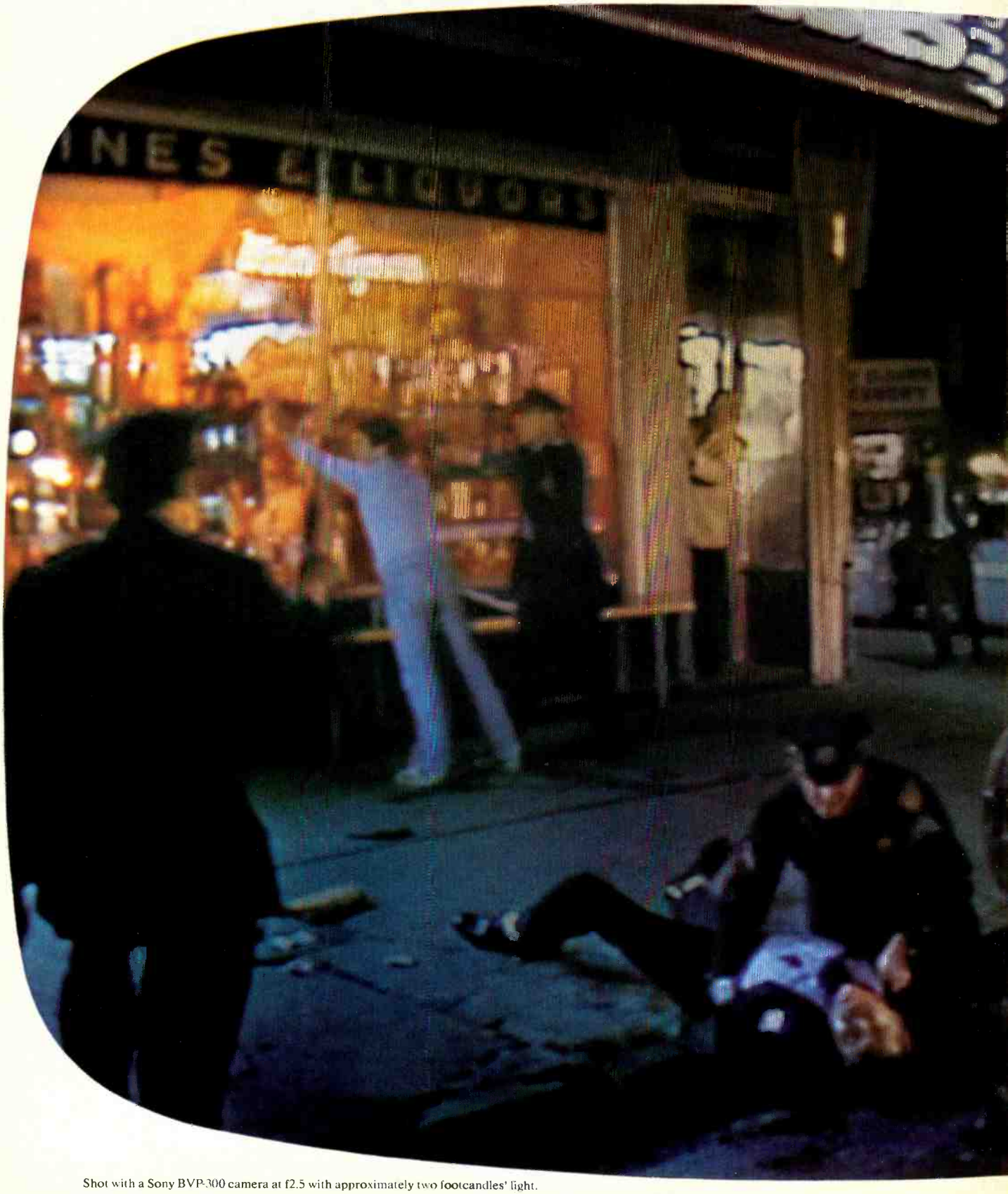
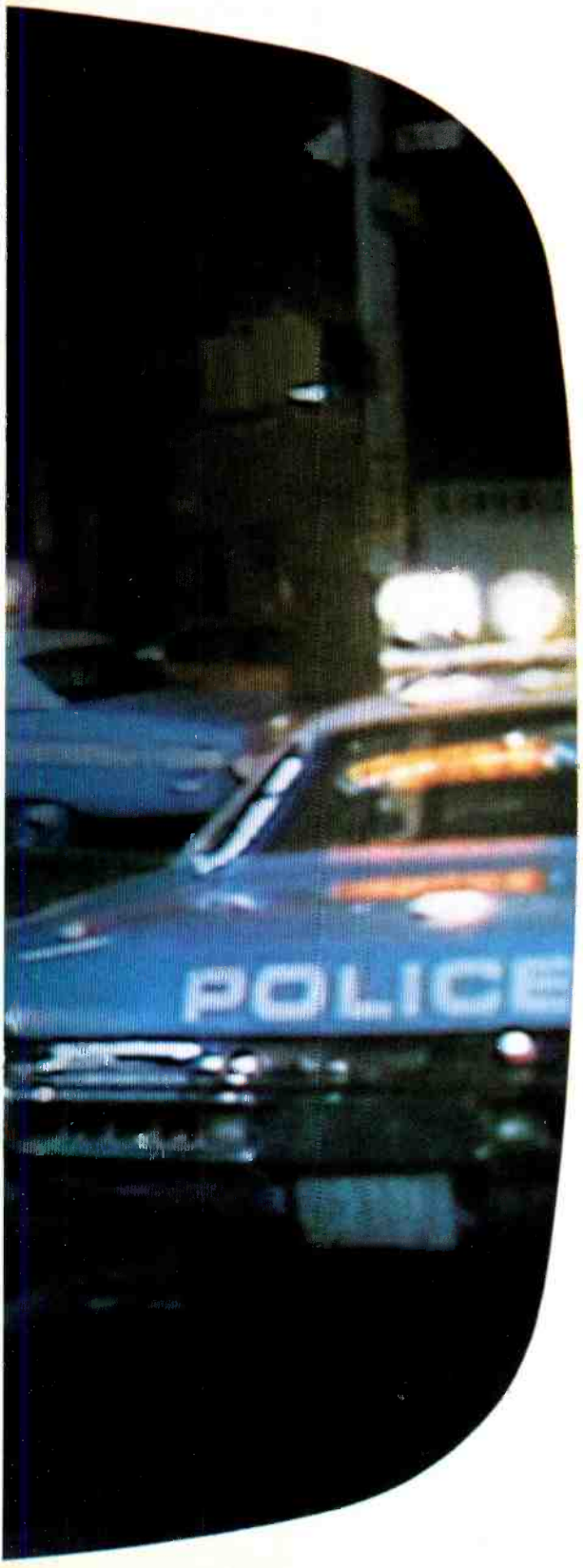


Shot with a Sony BVP-300 camera at f2.5 with approximately two footcandles' light.

DARK SIDE OF A CITY, YOU CAN'T WITH BRIGHT LIGHTS."

Henry Sheppard, WCCO-TV, MINNEAPOLIS



"There are news-gathering and documentary situations where the use of artificial light is just too intrusive or difficult to achieve," says Henry Sheppard, Chief Engineer of WCCO-TV, the CBS affiliate in Minneapolis.

"That's why our Sony portable BVP-300 cameras are such a big plus. With them, we can shoot in low-light conditions and get a lot of detail other cameras might not pick up. We even get good pictures with as little as two footcandles of light."

WCCO-TV owns seven Sony BVP-300's, which the station's photographers use together with Sony BVU-50 recorders. The cameras are used to shoot public-affairs programs and segments of PM Magazine, as well as for ENG and documentaries.

"We're very particular about picture quality," says Sheppard. "And before we committed ourselves to Sony, we evaluated just about every portable color camera available.

"Sony's colorimetry is excellent, its signal-to-noise ratio is high, and it always turns out pictures that meet our standards. Many of our engineers find its quality comparable to studio cameras. And our photographers like the way Sony handles. For example, in a helicopter, they can cradle the camera on one shoulder to reduce vibrations and get a very steady picture.

"And with the Sony system, each photographer can operate independently, without a second person along to monitor sound."

When asked about Sony durability, Sheppard replied: "We don't coddle our cameras here. Each one gets handled by about 15 or 20 different photographers. They come in in the morning, grab their equipment, throw it into the back of the car, and they're off. Sony takes that kind of treatment remarkably well, and it's a good thing, because we can't afford to have our cameras down."

Of course, Sony makes a full line of one-inch broadcast equipment, including cameras, recorders, editors and the BVT-2000 digital time base corrector.

For information, write Sony Broadcast, 9 W. 57th Street, New York, N.Y. 10019. Or call us in New York at (212) 371-5800; in Chicago at (312) 792-3600; or in Los Angeles at (213) 537-4300.

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ON-THE-AIR

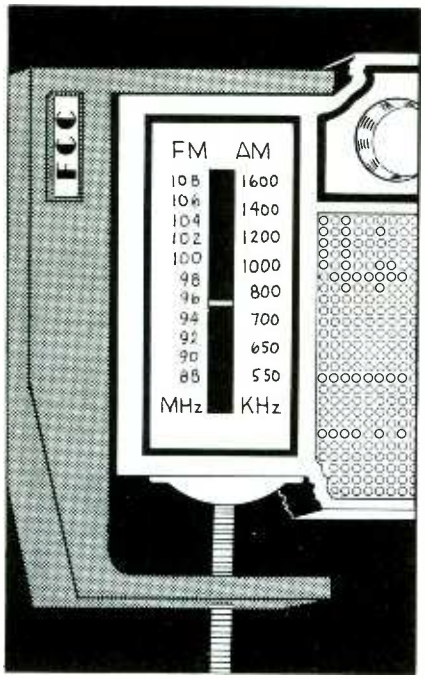
RON MERRELL

Some good news, and some bad

News releases from the FCC these days are beginning to sound a lot more like "good-news/bad-news" stories.

The good news is that unless there are legal roadblocks ahead, community ascertainment is gone. Public interest at most operations was always guaranteed by ownership integrity. So ascertainment paperwork and the details it required were more a burden than an aid to anyone.

The good news on logging also will make life a bit freer. But more stations probably will continue logging as usual, because reasonable logging is a good way to conduct a business. So DJs who read agency copy beyond the spot time can be creative without fear of reprisals outside the marketplace.



What's more, if you can sell more than 18-20 commercial minutes an hour, deregulation is good news again. Here's a case where the marketplace will be the judge.

Clearly standing somewhere in the middle is the docket on First Class licensing. Other than the potential for union problems, there are numerous industry counterattacks due for this one. Most engineers want to keep the FCC license. It's another case, though, of whose ox is being gored. Management could opt for less competent people (at a lower pay scale) to run the technical side of the station. The bad news for management in the face of what should be good news is that (1) the station will still be responsible for meeting rules, and (2) if the chief engineers leave, the stations will lose their technology interpreters at a time when they have never been more important.

And sometimes what starts as good news veers off into wonderland. Like the FCC says non-entertainment programming won't need to be something for everyone. Well-balanced programming in all instances will not be required. But hang on. The FCC says, "...FCC inquiries will focus on whether a licensee's programming judgments are reasonable." So, in fact, it remains a relevant issue for petitions to deny. Sometimes rules are better than open-ended judgment. Was 6 percent for FM and 8 percent for AM unreasonable? I wonder!

As for 9 kHz spacing, the potential for problems here could get a real shove toward havoc if engineering testing is dropped. Maybe it's no small coninCidence that reduced spacing, low-power TV and the like are pushed across the table along with deleting the First Class license. If the estimates for hundreds of new stations are true, where would the engineering talent to man these plants come from?

But as the good ship FCC sails into the '80s, the good news will be continued attempts to reach other worthwhile deregulatory ports of call.

And no doubt about it, everyone will applaud the appearances of Bob Hope and Rich Little at this year's NAB convention in Las Vegas.

Rich Little will help kick off the opening-day festivities, while Bob Hope will take over the closing-day luncheon.

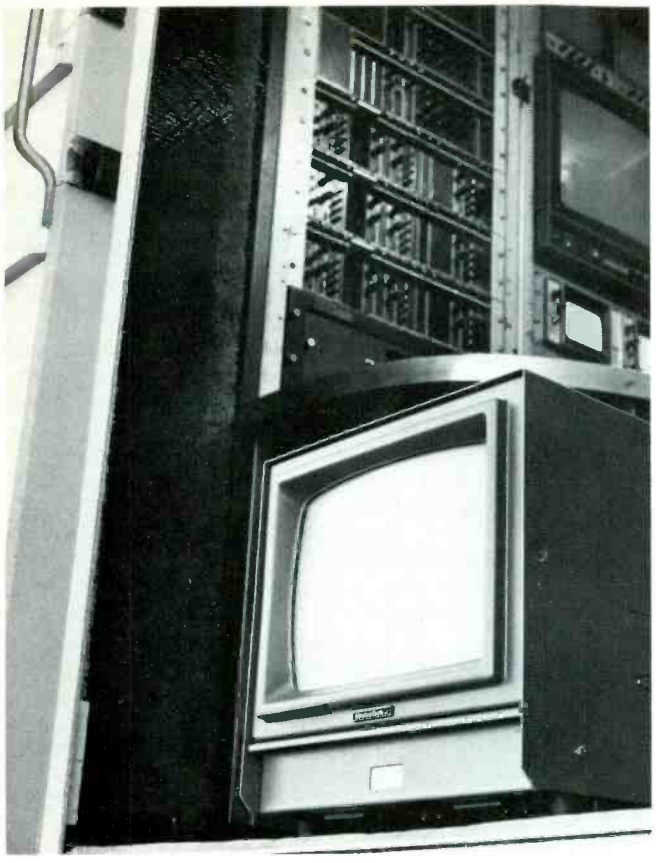
And this brings us to the point of "damned if you do and damned if you don't." The NAB will have to face the fact that when there are over 400 exhibitors in the exhibit area, and with just 32 total hours of exhibit time, an NAB convention attendee will get just a few minutes at each booth...and then only if he doesn't take time out to eat or go to the sessions.

In other words, the convention has grown to the point where it is worth considering adding an extra day for exhibit time.

One thing we've found that helps is a good map of the exhibit area. The No-Nonsense Map in this issue is called just that because it uses the state highway map format. If you look up the manufacturer's name, you'll find a location indicator, like F6. Just as you'd use a highway map, the location letters run across the top and the numbers down the side. Zero in the two, and presto, you've found your booth.

To give you an idea of how much time this saves, take the *BC* challenge: once you've located the company name on the alphabetical list on the side of the map, I say you should find any booth in under 30 seconds. If you're really good at map reading, you should find the booth in less than 20 seconds. An NAB convention veteran could do it in 15 seconds. Turn to the map and try it.

Next month On-The-Air will be back into the mail bag. Of course we invite your comments and ideas on these and any other relevant broadcast issues. Just drop a line to: On-The-Air, Broadcast Communications, 4121 West 83rd Street, Prairie Village, Kansas 66208. We'll put you on the air. BC



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NAB '81 provides right directions

BY VINCENT T. WASILEWSKI

As the communications arena continues to explode, broadcasters are searching continually for the most effective ways to compete in the technology age. The upcoming 1981 convention of the National Association of Broadcasters will supply radio and television broadcasters alike with the "Directions" they need now and in the future.

This year, the convocation, appropriately christened "Directions," represents months of planning—with input from every area that affects the industry. From legal briefs to legislation, from teletext to videotext, from video captioning to MDS, from cable to satellites, we will be reviewing the most significant advances in broadcasting's state-of-the-art during the sessions and providing the practical information available necessary for success in the marketplace, today's and tomorrow's.

On Sunday, we'll start the show with the presentation of the prestigious Distinguished Service Award—broadcasting's highest honor. This year, it goes to Arch Madsen, president, Bonneville International Corporation, Salt Lake City, Utah. Madsen's enormous contributions to the industry will be recognized during the opening ceremony. Comedian Rich Little will then lighten the activities with some levity and laughter before we get down to a serious look at the business of broadcasting.

On Monday, broadcast engineers will meet face to face with the Federal Communications Commission staff who will furnish updates on rule interpretations for directional antennas, composite clipping and television blanking, as well as with rulemakings such as 9 kHz, AM stereo, low-power TV, and FM stations.

Those engineers involved in television will be privy to the most current information on "portable" power through the use of batteries, on the construction and design of broadcast facilities, and how to deal with the government's "design" for your operation. They will find out if those cameras with automatic set-up really work well enough to substitute one for a video operator, and how VHF transmitter efficiency can be increased in order to increase your station's savings. The SMPTE will be with us again this year offering the latest engineering facts, and the EIA will discuss the recommendation of a single teletext standard with representatives of each of the systems, who will describe the pros and cons of their own system.

Radio engineers will be talking about telephones, and learning how to use

them to their stations' advantage. As more and more progress is being made toward the use of satellites for high-quality audio transmission, factors such as stereo, noise reduction techniques, lower costs, smaller dishes, and the sharing of earth stations become increasingly important. There will be a sessions dedicated to understanding why. We will be examining radio use of ENG; taking a look at some of the excellent systems currently in operation; and we'll be reviewing the latest equipment, techniques, and practices in the art of using audio processing equipment.

We've scheduled workshop times so that both radio and television engineers will be able to shop at the "Electronic Supermarket," the largest exhibition of broadcast equipment in the world. Exhibit hours have been expanded so that you will have all the time you need to see this spectacular showcase.

This is an industry meeting—the program is not limited to engineers. Television and radio managers alike have three days of workshops and general sessions designed to prepare them for broadcasting today, tomorrow, and beyond.

Television broadcasters will find out first-hand exactly what the new Congress has in mind for them. Many senators and congressmen will be with us to share their views on broadcasting and regulations facing the industry.

We'll be examining the issues that are important to TV broadcasters, like low-power TV, cable regulation, and FCC requirements. Broadcasters will also have the opportunity to express their views, challenge their opinions, and ask questions.

Representatives from the Television Bureau of Advertising, National Association of Television Programming Executives, and Radio and Televison News Directors Association will also conduct sessions.

For those in the small television market, we realize you face special challenges. "Smart Management for Small Markets" will provide you with the solutions for your unique problems.

Radio's small markets also get special attention this year, with a four-hour legal clinic logged in Monday night that will focus on the legal problems of the small-market radio broadcaster. Tuesday's legal clinic is open to all markets—mini, maxi, or medium; and it will supply the answers to any station's legal questions.

NAB believes in closing the convention with a bang, and this year Bob Hope will help do that. Bob will take center stage at Wednesday's luncheon and will supply us with lively live entertainment.

NAB '81 holds every promise of being our best convention ever. It is the one, the only complete broadcasting industry meeting held annually. And it is incumbant upon the members of our industry to be there. I don't think you can find a better buy anywhere. The combination of workshops and sessions—from beginning to end, from exhibit floor to hospitality suite, from speeches to spouse program—makes this the most important broadcasting event in 1981. I look forward to seeing you there. BC

Vincent Wasilewski is president of the National Association of Broadcasters.

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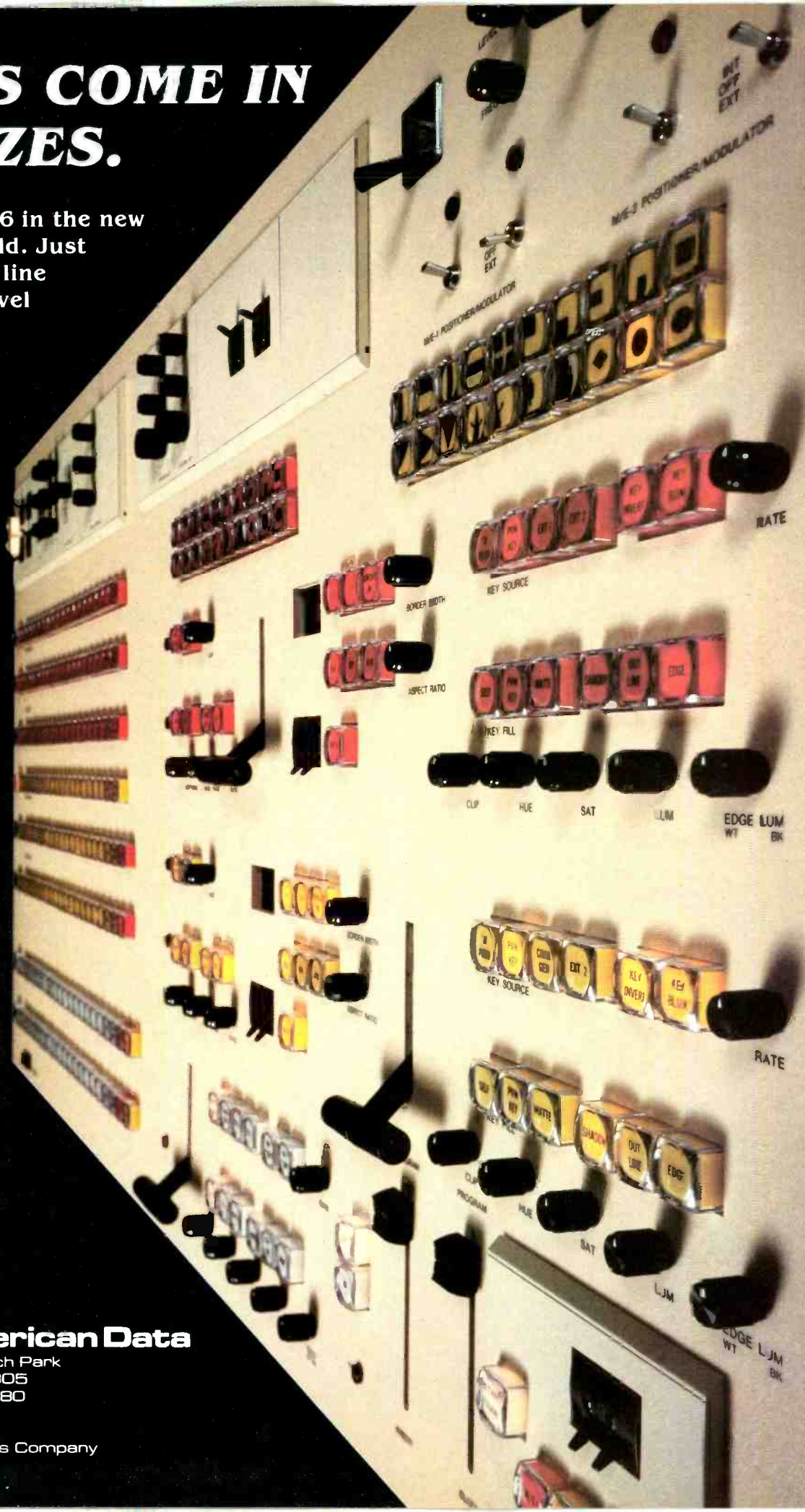

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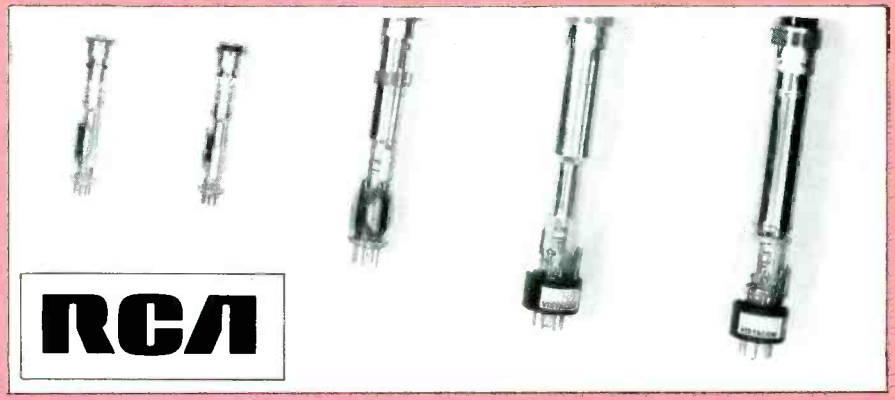

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Circle (11) on Action Card

SMPTE makes digital impact

The SMPTE Television Conference just completed far exceeded the expectations of its organizers, both in the impact of the digital video demonstrations that preceded it, and on the interest the high-definition TV presentation aroused from members and visitors.

Francis Ford Coppola made a special point of visiting the HDTV display put on by NHK Research Labs, and he and his staff spent some time looking at the large screen displays, with an eye toward future applications in electronic cinematography. The exhibits, which all had products related to the technical topics being presented in the lecture hall, spanned a wide gamut of audio and video devices in tune with the latest trends in image and sound technology.

Three major events dominated this conference, and its preliminary and supplementary activities. The preconference period (February 2-5) was dedicated to a series of digital video demonstrations set up at KPIX and intended to show the participants' component coded digital video in all its myriad combinations. These included sampling rates of 768, 864, and 912 samples per line, and luminance/chrominance sampling ratios of 4:4:4, 4:2:2, 4:1:1, and 2:1:1.

These demonstrations showed clearly the quality of color television images obtainable through all forms of digital and analog conversions. In addition, there was also a digital VTR demonstration using two modified BVH-1100 tape transports (1-inch Type C helical) and common digital electronics. This DVR, for the first time, showed the possibility of recording and reproducing color pictures with a sampling rate of 14:7:7 MHz. Pictures from these recorders were excellent, even down to the 20th generation. Error correction and concealment techniques were used to achieve these perfect picture results. As a last part of the DVR demonstration, the shuttle mode was shown, with recognizable but impaired images. Electronic editing was also exhibited with these machines.

At a press conference following the digital demonstrations, Joe Flaherty, executive vice president of the Society, and engineering vice president at CBS, stated that this was really the threshold of digital television, and the decisions made regarding the technical standards adopted are as important as those taken when American television went from monochrome to color. The industry may have to live with this digital standard until the end of the century, so it had better be the right one, Flaherty said.

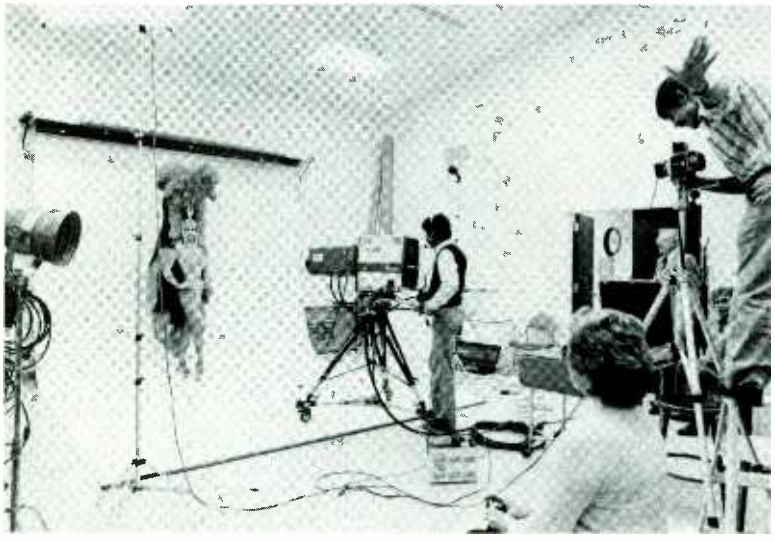
With that phase completed, the conference opened with a series of papers on digital video recording. The main theme of these papers was to explain the technical complexities of designing and building a commercially viable digital VTR.

The bottom line was that no one seemed ready to bite this magnetic bullet, preferring to wait until some uniformity of purpose comes out of the digital VTR study group that is gathering information about this potential. As one speaker succinctly put it, "The user wants a DVR that is smaller, lighter, cheaper, and less tape consumptive than the current analog machines. Unfortunately, from what we know today about building digital VTRs, it looks like they will be bigger, heavier, more costly, and will use more tape than the 1-inch helicals they are supposed to replace."

The second session on Friday afternoon covered new camera technology and digital techniques—all interesting topics with good papers explaining them. It was on Saturday morning that the delegates' attention focused on a whole new field of television as yet almost untouched in the real world. Under the heading of "Future Directions for Television," a series of papers on high-definition TV and stereo sound for TV broadcasting stirred tremendous interest.

Stereo, high-quality sound is already on the air in Japan, and the first speaker described that system. The next three papers dealt with the future direc-

Continued on page 16



Uncovering the cover story

Janet Ford, who will be a principal (nude) dancer in the new Donn Arden spectacular for the MGM Grand when it reopens in July 1981, was an understudy for a principal dancer in the Hallelujah Hollywood production which set attendance records during its five-year run at the resort. The new show, "Donn Arden's Jubilee," will go into rehearsal in April.

Ms. Ford is the daughter of Nevada State Senator Jean Ford. She is 24, 6' 1" tall, and single. She was born in Washington, D.C.; attended the University of Nevada at Las Vegas; and previously appeared in the Lido de Paris in Paris, the Lido de Paris in Las Vegas at the Stardust, the Casino de Paris at the Dunes, and the Folies Bergere at the Tropicana.

The costume she is wearing is one of the new costumes for the new show and will not be seen by the public—other than on this month's cover—until July. With high heels and the headdress, Ms. Ford and the costume extend nearly nine feet above the floor. *(Cover shot in studios of the Las Vegas News Bureau by Lee McDonald)*

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tion HDTV should take, and descriptions of two proposed systems: a theoretical one in Germany, and a practical one in Japan. The Japanese system, developed by NHK Research Labs, had been brought over from Tokyo and was on display in the hotel. The superb color images, using 1125 lines and a Cinemascope aspect ratio, attracted hundreds of visitors to the NHK display all during the conference.

The closing session dealt with the potential of an all-digital studio, and with a strong plea from the last speaker, Tom Robson of the IBA, for a digital standard which he claimed would be "now or never." A panel discussion that followed, however, revealed that there are still a lot of compromises to be made before the "golden number" of a digital sampling rate can be agreed on, especially on an international basis.

Indeed, the international aspect of this conference was very evident from the fact that the EBU Technical Bureau chose to hold its standard deliberations in San Francisco, immediately following the SMPTE conference. In this way, those delegates could also see the digital component coding demonstrations and could participate in the papers session. Last, but certainly not least, they could have liaison meetings with the SMPTE digital groups, to try to hammer out differences between the 50 Hz PAL, SECAM world and the 60 Hz NTSC world.

Regardless of what commonality is achieved, or what standards are eventually established, there is no question that the SMPTE Television Conference was a watershed event in the continuum of advancing television technology.

Video Expo adds to program

Video Expo New York is being held in Madison Square Garden/New York Statler on October 20-22, 1981.

This year's program has been expanded to include seminars on over-the-air broadcasting and TV commercial production, and will attract numerous exhibits of broadcast equipment. To accommodate the expanded program and exhibition requirements, the organizers of Video Expo have reserved the Felt Forum at Madison Square Garden, in addition to the Rotunda, the auditorium in the Fox, Kirschbaum, Fox building and seminar rooms in the Statler hotel. This conference will be the only major television exhibition in the eastern U.S. between November 1980 and October 1982.

Continued on page 20

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Thanks To You, Ampex Looks Back on 25 Great Years.

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The past 25 years have been exciting! Ampex innovation and the talents of the men and women in broadcasting have made the past quarter century one of significant achievement.

You made it happen like this.

1956. Ampex introduces the VR-1000, the first commercial videotape recorder. Later that year, history is made with the first videotape delayed coast-to-coast broadcast of Douglas Edwards and the CBS News.

1957. One of the first videotaped commercials featured Dennis James presenting Kellogg's Corn Flakes.

1959. Richard Nixon and Nikita Khrushchev were videotaped in Moscow during their celebrated "Kitchen Debate."

1960. Broadcasters began an Ampex tradition by capturing the 1960 Rome Olympics on videotape.

1962. Ampex introduces the first electronic editor.
1964. Ampex introduces a major breakthrough, high-band color videotape recording.
1967. Ampex introduces instant replay.
1972. Ampex introduces an automatic video cassette recorder.
1976. Ampex introduces an automatic tracking system.
1980. The VPR-2B becomes the world's best selling videotape recorder when Datacommunications takes delivery of number 2,000, in Paris.
1981. Delivery to McDonnell Douglas of the 3,000th VPR-2B continues the legacy. The VPR-2B remains the world's most widely used videotape recorder.

We'll share the future.
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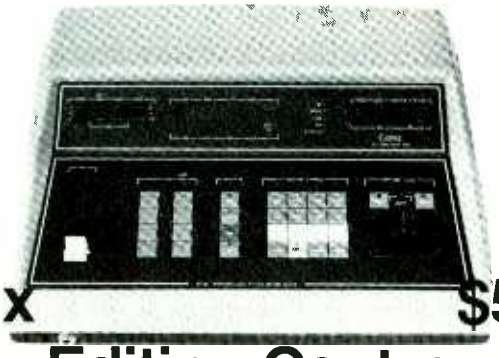

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Well-known television consultant Irving S. Rosner has been retained to manage the seminars. BROADCAST COMMUNICATIONS magazine has been selected as the exclusive co-sponsor of the broadcast program.

For additional information about registration or exhibit space, contact Anne Stockwell at Knowledge Industry Publications Inc., 701 Westchester Avenue, White Plains, NY 10604; (914) 328-9157. Note the new address and phone number.

SBE certification exam dates set

The Society of Broadcast Engineers (SBE) will give the eighth round of certification examinations from June 6 through June 20. All applications must be received at the SBE national office by April 20.

Since the SBE Certification Program was adopted in November 1975, 1,684 broadcast engineers have been awarded certification. At present, 1,053 of the certified are SBE members and 631 are non-members.

The objectives of the Certification Program are to raise the professional status of broadcast engineers by providing standards of professional competence in the practice of broadcast engineering, and to recognize those individuals who meet those standards of professional competence. It is also the interest of the SBE to encourage broadcast engineers to continue their professional development.

According to Jim Wulliman, certification chairman, interest in the program is growing. During the last six months, the number of inquiries for information on the Certification Program has increased dramatically. Wulliman stated that many employers are urging their engineers to become certified, and when hiring are seeking "certified" engineers.

There are two classes of certification; each are valued for a period of five years:

The Broadcast Engineer level requires that the individual have five years of suitable experience in broadcast engineering to be eligible to take the exam. For the Senior Broadcast Engineer level, one must have 10 years of responsible broadcast engineering experience. Broadcast engineering-related education may be substituted for up to four years of the experience requirement.

The examinations are prepared by the National Certification Committee and are administered by the local SBE Chapters under the supervision of proc-

Continued on page 24

Hitachi-5 Competition-0

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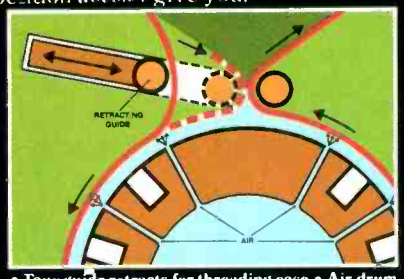

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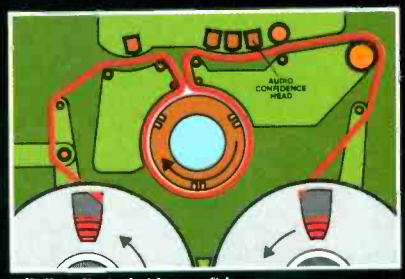
The others only let you *see* what you're taping. We let you *see* and *hear* everything being recorded...simultaneously.

5. Non-contact Tape Shuttle System
In shuttle and standby modes, tape rides on a cushion of air. Increases head and tape life immeasurably. Cuts frictional resistance, yielding shuttle times of only 80 seconds end to end.

We could go on. With impressive features like microprocessor control; broadcastable slow motion; one-touch shuttle and jog; front access circuit boards; audio spot erase; and on and on. But why run up the score, when it's already no contest? See the Hitachi HR-200, it's equally impressive portable HR-100 model, and companion TC-200 Time Base Corrector.



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• "PRO" tape path reduces dropouts

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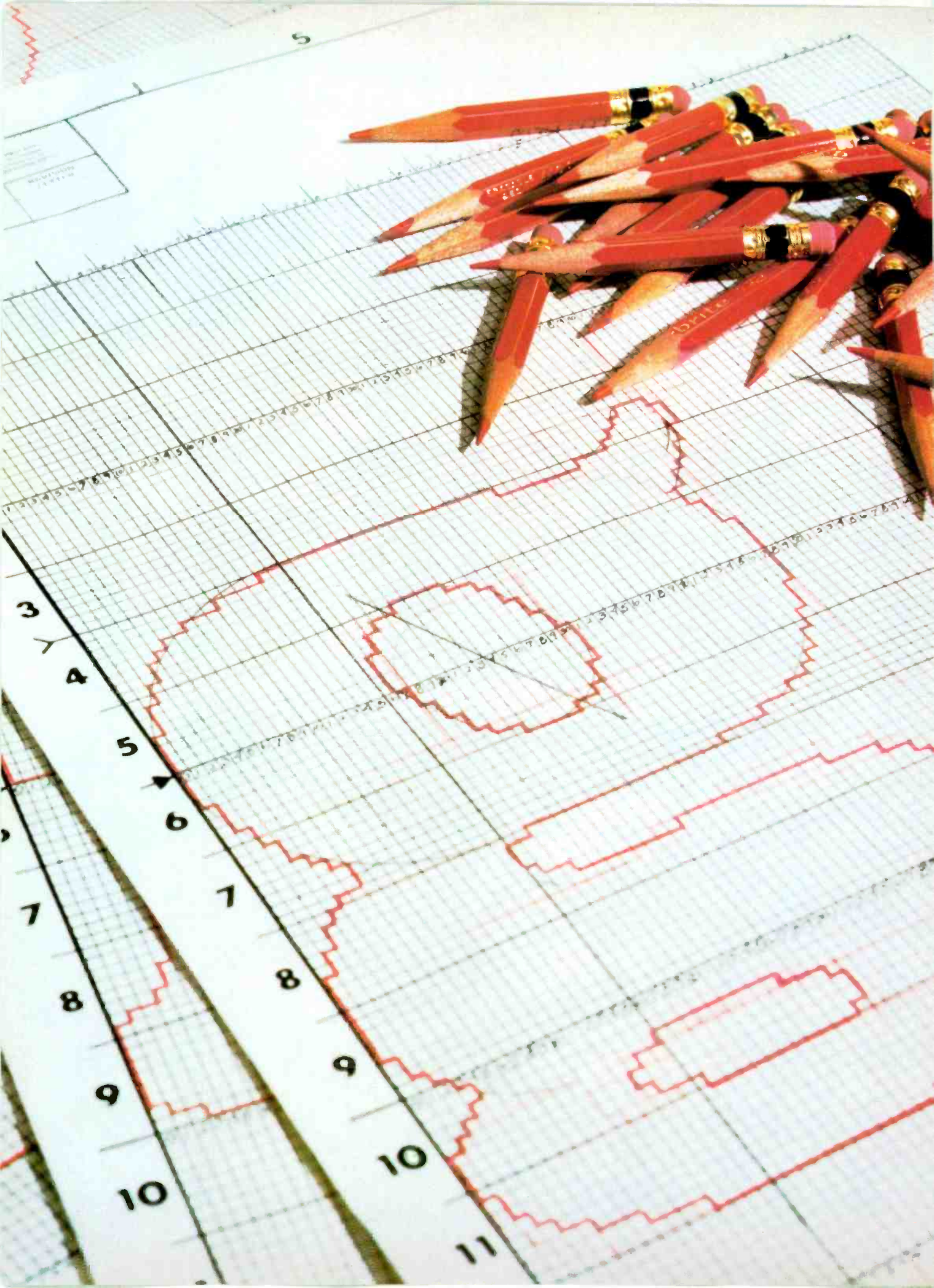

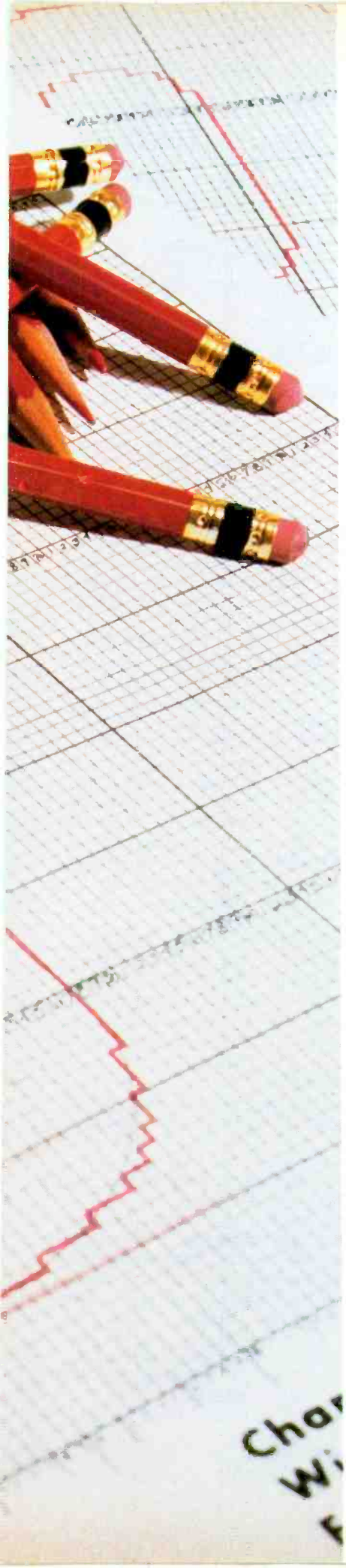

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Circle (18) on Action Card

tors who themselves must be certified. Special arrangements may be made for anyone eligible for the exam who does not live in an area of an SBE Chapter. The fall 1980 certification exams were given in 33 cities in the United States and one in the Philippines.

Due to the workload of *recertifying* the initial group of certified engineers, SBE will not be giving the exams in the fall of 1981. There will be a special exam session in February 1982 for those engineers wishing to recertify by examination rather than professional credits. (A note to those who were certified by SBE in 1977 under the grandfather provision. If you are *not* a member of SBE, you must update your address with the national office so information on recertification may be sent to you.)

Anyone interested in the spring certification exams may request a copy of the Certification Program booklet and an application by writing to the Certification Secretary, SBE, P.O. Box 50844, Indianapolis, IN 46250. Included in the booklet are sample test questions, suggested study material, and a list of the SBE Chapters where the exam may be taken.

The SBE is also holding its national meeting on Saturday, April 11, in Las Vegas, prior to the opening of the NAB convention.

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Radio voice remains strong

Despite all the discussion about "one voice" in the industry, there is continued, and growing, interest among radio broadcasters to prevent *their* voice from singing backup to television's lead.

An indication of this growing concern for the specific needs of radio is the increasing membership in the National Radio Broadcasters Association (NRBA).

According to figures just released, the NRBA currently has 1500 members, with more than 400 commercial radio stations and radio-related companies joining last year.

Commenting on the growth of the NRBA, Abe Voron, executive vice president, said, "It has been a year of high visibility for radio. National advertisers and advertising agencies re-discovered the pulling power and economy of radio in 1980, while the FCC submitted proposal after proposal that would be either costly or would continue to erode license stability.

The vitality and growth of NRBA is no accident," Voron continued. "More and more station owners and managers recognize the need for an organization whose sole interest is radio and whose management is its board of directors made up of broadcasters rather than a large professional staff."

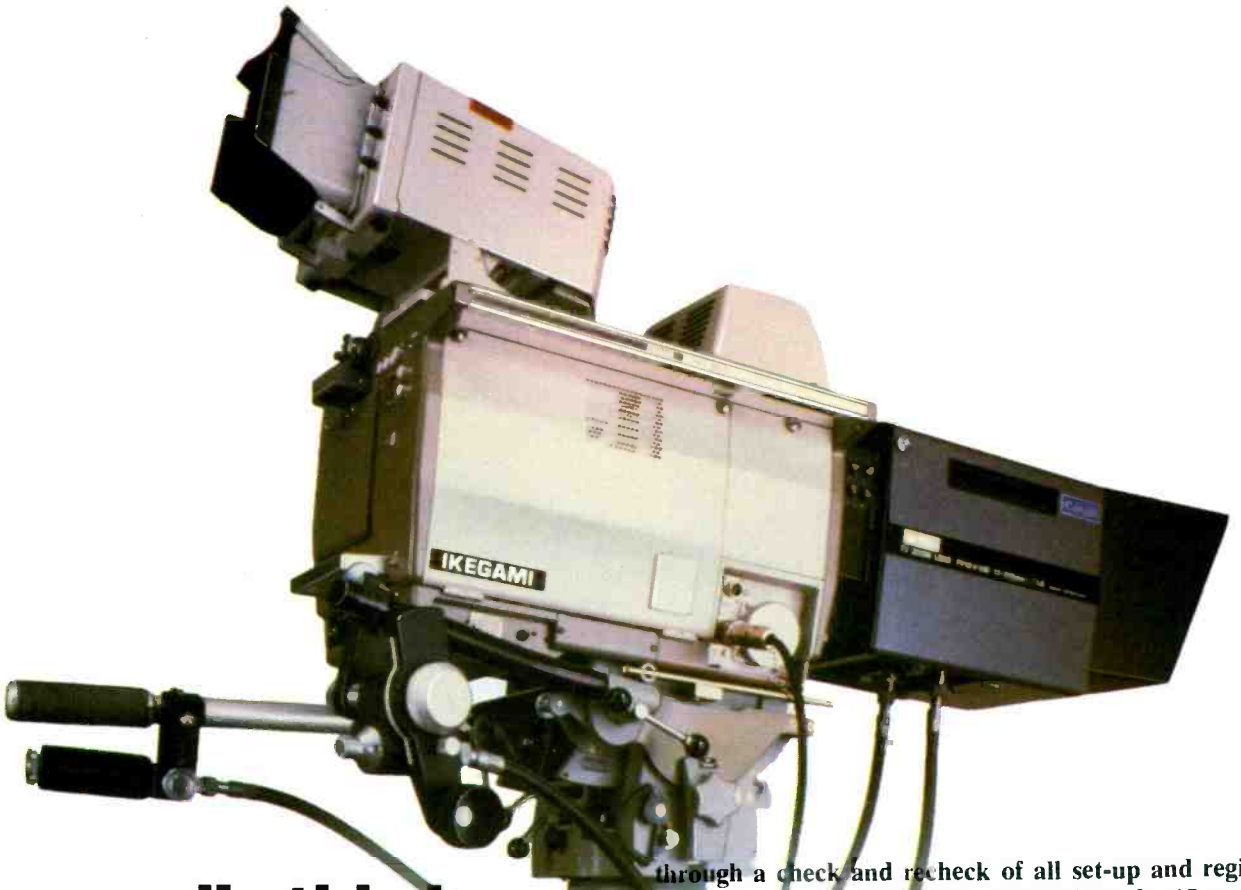
The 412 new NRBA members include independent and group-owned stations from 47 states, the District of Columbia, Puerto Rico, and Canada.

Of the 342 new commercial stations, 149 are independent and 193 group-owned, while the 70 new associate members are radio-related manufacturers, distributors, suppliers, consultants, and educational radio stations.

States attracting 10 or more new members were Alabama, California, Florida, Illinois, Indiana, Massachusetts, Michigan, Mississippi, New York, Ohio, Pennsylvania, Texas, Virginia, and Wisconsin.

Major, medium, and small markets are represented by the 28 groups that joined NRBA in 1980. They include Bristol Broadcasting; Chartcom Inc.;

Continued on page 26



Ikegami's third microprocessor-controlled camera reduces registration set-up time and cost

The ideal camera for field broadcast television assignments must meet three major criteria. It must be air-ready moments after arrival at the camera site. It must deliver pictures of studio-quality color, crispness, and clarity. And it must be consistently reliable.

The Ikegami HK-357A meets those criteria in the field and is equally suitable as a studio camera. And it allows the camera crew to concentrate on creative aspects of their assignment instead of on time-consuming set-up and readjustment tasks.

Once on-site, the HK-357A requires hook-up to only three cables and power source. Then, a push of the microprocessor activate button automatically cycles it through a check and recheck of all set-up and registration adjustments. This takes approximately 45 seconds per camera (up to six cameras can be handled). No external registration and chip charts are necessary because a test pattern projector (diascope) is built into the lens. Camera distance from the compact base station can be nearly a mile with triax, or 2,000 feet with TV-81 multicore cable.

Because the HK-357A optimizes the capabilities of the newly developed Diode Gun Plumbicon®, the picture output is of very high resolution, low lag, low noise and wide dynamic range. Dynamic Beam Stretch to reduce comet tailing; Geometric Correction for near-perfect registration; auto iris and auto white balance – all contribute to the superior color picture program output of this camera.

The HK-357A is notably versatile too. It offers selectable contrast compression levels; built-in chroma keyer; gen-lock to Sync and SC or VBS/BBS; and several other features, including an unusually compact CCU, optional RCU, tiltable and rotatable 7-inch high-resolution electronic viewfinder.

The performance record of Ikegami cameras at the major networks in the United States and around the world attests to their consistent reliability and long, trouble-free service life.

If you are upgrading, a demonstration may well reveal that the other cameras you've considered may already be obsolete when compared against the HK-357A.

Ikegami HK-357A

Visit us at Booth 817 at NAB.

Broadcast Products Division, Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, N.J. 07607; (201) 368-9171. **West Coast:** 19164 Van Ness Ave., Torrance, CA 90501; (213) 328-2814; **Southwest:** 330 North Belt East, Suite 228, Houston, TX 77060; (713) 445-0100; **Southeast:** 522 So. Lee Street, Americus, GA 31709; (912) 924-0061.

Circle (29) on Action Card

Columbia Pictures Radio Broadcasting; Community Service Broadcasting; Eastern Broadcasting; Elyria-Lorain Broadcasting; Fairbanks Broadcasting; First Media Corp.; Golden West Broadcasters; Great Trails Broadcasting; Lotus Communications; MacDonald Broadcasting; Meredith Broadcasting; Mid-America Media; Mid-West Family Stations; Mooney Broadcasting; Nationwide Communications; New South Radio Network; Radio South; Rau Radio Stations; Rust Communications Group; Sconnix Group Broadcasting; Shamrock Development Corp.; SJR Communications; South Minnesota Broadcasting; Southwestern Broadcasting; Virginia Broadcasting; and Vogel Communications.

NRBA's 1980 convention in Los Angeles was a further indication of radio broadcasters' interest in exchanging the latest information on operations, programming, sales, promotion, management, and engineering. More than 4,300 registered for the Los Angeles meeting. NRBA expects a simlar turnout at its 1981 meeting, September 20-23, at the Diplomat Hotel in Hollywood, Florida.

FCC REPORT

CNN gains temporary use of Satcom I

BY RON MERRELL

The FCC has extended temporary authority to the Cable News Network (Ted Turner's CNN operation) to use one Satcom I satellite channel to transmit CNN's all-news programming to cable operators in the U.S., Hawaii, Puerto Rico, and the Virgin Islands. The extension is for a six-month period that will end in September, and the temporary aspect of it is a blow to CNN.

CNN got onto Satcom I as an emergency relief measure, because CNN had geared up to launch its network on Satcom III. That satelite was lost shortly after its launch, and its failure left CNN in ulcer gulch. While everyone is being enticed to look to satellites for remotes and programming, the fact is that you can't just jump into any old satellite an onto any transponder. CNN estimates it could cost as much as $11 million to establish an alternate distribution system.

On the direct satellite-to-home (DBS) front, the Commission says it has found no basis for the FCC to determine that traditional types of regulation are necessary to assure that this new mode of delivering satellite programming serves the public. So much for consistency!

But deregulation is the buzz word in Washington. Commenting on the most recent actions and striking directly at community ascertainment, the NRBA's Abe Voron makes an interesting point. "Upon first hearing," he said recently, "it appears that the Commission's deregulation action is a mixed bag for radio broadcasters. While it eliminates some red tape and paperwork, it also seems to add a considerable amount of uncertainty, vagueness, and subjectivity. Calling this deregulation seems to me to be a misnomer. Re-regulation is a more accurate term."

Well, even inside the Commission, nagging doubts and unanswered questions exist even today.

Commissioner Abbott Washburn, commenting on the subject, put it this way: "What do we mean by a 'generalized obligation'? This is not clear from our document. Without a fuller explanation, I feel that the broadcasters will be unable to discern what it is that the Commission expects of them. The result will be a good deal of uncertainty and differences of interpretation.

Washburn continued, "I also wonder how the general public will react to our conclusion that the market forces can be relied upon to assure programming responsive to community needs. There are significant portions of a station's community that have little market power—such as the elderly, the urban poor, and the handicapped. How, then, will the marketplace assure these groups of programming responsive to their needs?" Score another one for consistency.

Meanwhile, an Atlanta station was nailed for broadcasting illegal numbers information, and it cost them $10,000. It had been recommended that the station lose its license, and it was saved only by a public affairs, public service, and non-entertainment record that had the station ranked near the top of these categories in a 21-station market.

In the dits and dahs column . . . the FCC has eliminated the deadline for non-commercial educational Class D FM stations to file construction permit applications to increase their power in the reserved band . . . a Chicago experimental teletext service gets one-year authorization. The service will be run over the broadcast facilities of WFLD-TV, Channel 32 . . . the FCC has allocated a portion of the spectrum for a new digital electronic message service. It'll run between 10.55 and 10.68 GHz.

Business Hotline

HOWELL LABORATORIES—Paul Wescott, president of Howell Laboratories, has announced the purchase of Shively Laboratories of Raymond, Maine. Shively Laboratories is a leading manufacturer of FM antenna systems and components for the broadcast industry.

The Shively Division's production will continue uninterrupted, using its present facilities and personnel, pending a move to a new facility being built in nearby Bridgton, Maine. This larger plant will permit a significant production expansion. Edward Shively, the founder and president of Shively Laboratories, will continue to be associated with the business on a full-time basis.

Howell Laboratories is a major supplier of shipboard dehydrators to the U.S. Navy. The acquisition of Shively Laboratories gives the company access to non-military markets. The corporate offices for all products will be located at Gibbs Avenue, Bridgton, Maine 04009. The phone number is 207-647-3327.

SINGER BROADCAST PRODUCTS—Arthur A. Singer, chairman of Singer Products Company of Westbury, N.Y., has announced the formation of Singer Broadcast Products, which will manufacture both CCA and Sintronic transmitters.

The new company has purchased the assets of CCA Electronic Corporation and will produce the complete line of CCA AM and FM broadcast transmitters and UHF and TV transmitters at CCA Electronic Corp.'s former plant in Cherry Hill, N.J. The Sintronic AM and FM line will also be manufactured at the Cherry Hill plant.

Donald A. Richardson has been appointed executive vice president and Joseph T. Consaldi has been named vice

Continued on page 28

ADM

Control the complete audio spectrum

Our ADM 1600: modest but mighty

Although it's a desk-top model, our 1600 Series audio console offers a brilliant array of features and capabilities for handling the most demanding program material.

One of our new breed of consoles, the ADM® 1600 is available with up to 16 discrete inputs, 4 submaster and 2 master outputs. Combined with a host of pre-selector, buss selector and processor modules, the ADM 1600 creates perfect harmony with today's video. Like all ADM consoles, the 1600 is designed to exacting standards and manufactured to the most rigid tolerances. Each ADM console is backed by an exclusive 5-year warranty.

Make sure you control the entire audio spectrum. Contact ADM Technology, Inc., *The Audio Company*, 16005 Sturgeon, Roseville, MI 48066. Phone (313) 778-8400. TLX-23-1114. West Central Sales Representative, Gordon Peters. Phone (817) 467-2990.

president for sales and marketing.

The production of both lines by one company will benefit broadcasters, according to Mr. Singer. Improvements will be seen in customer service, whereby Singer Broadcast Products will offer parts and service for all CCA and Sintronic transmitters. Also there will be a major investment in research and development. "We intend to show a new commitment to broadcasters," says Mr. Singer.

Sinter Products Company Inc. is the parent company of Singer Broadcast and is one of the nation's leading international marketing and management companies.

CSI ELECTRONICS—CSI Electronics, a major manufacturer of AM and FM broadcast transmitters, has been purchased by its original founder, Bernard Gelman, and Ft. Lauderdale, Florida-based broadcast equipment suppliers Ken and Betsy Ebert Cameron, owners of Broadcast International Inc. CSI is moving into newly constructed headquarters located at 18248 East Rogers Circle, Boca Raton, FL 33431; (305) 737-5626. CSI will continue to market through their regional sales managers, and distribution of CSI products in Latin America will be handled by the Electrex Company.

XEDIT CORPORATION—Beginning in January 1981, Editall (founded in 1952 by Joel Tall) has been acquired by Xedit Corporation. Xedit, with its own extensive experience in the design and manufacture of precision splicing blocks and electronic products, will base this combined operation from its plant at 133 South Terrace Avenue, Mt. Vernon, N.Y. Their telephone number is 914-668-0388.

ACRODYNE INDUSTRIES—Acrodyne Industries, manufacturer of low-power television translators and transmitters, has moved into new facilities. The larger, more spacious facility is surrounded by 10 acres of property located in a modern industrial area on Township Line Road, Blue Bell, Pennsylvania. The company is presently located in Montgomeryville, Pennsylvania.

CENTRAL DYNAMICS—Central Dynamics has added more than 20,000 square feet of manufacturing space (30 percent increase) to their existing main plant and headquarters in Montreal, Canada. The latest automated and processing equipment has also been installed, including PCB assembly and metal fabrication equipment, and a REDAC computer system used for PCB design, layout, and artwork. In addition, the most advanced software development DEC computer system has been installed in Central Dynamics' Montreal R&D facility.

UTAH SCIENTIFIC—The National Broadcasting Company (NBC) recently purchased a Utah Scientific large audio switching matrix for installation at WRC-TV in Washington, D.C. The matrix was configured as 160 inputs by 180 outputs audio only, with circuit cards initially furnished for 120 inputs by 120 outputs.

ROBERT WOLD COMPANY—Cox Broadcasting Corporation and the Robert Wold Company have signed an agreement whereby Cox will acquire 20 percent of Wold stock. The agreement also provides for possible increased participation by Cox in the future.

SBE MONTHLY LOG

CHAPTER 2 — Northeastern Pa. George Anderson, sales engineer, measurement products, Tektronix, gave a presentation on the Tektronix AA501 Distortion Anaylzer/SG505 Oscillator combination.

CHAPTER 9 — Phoenix, Arizona. Jerry Kerr, 3M Company, Mincom Division, presented a program on "Usage of Microprocessors in Switching and Machine Control Application."

CHAPTER 18 — Philadelphia, Pa. Jim DeStefano, vice president of applications engineering, Emcee, discussed low-power UHF. He discussed the FCC decision to license several hundred low-power UHF stations around the country, and what this will mean to other broadcasters.

CHAPTER 20 — Pittsburgh, Pa. Tony Mattia gave a presentation on the new Lenco 300 Sync Generation, Timing, and Distribution System, plus the Lenco model 430 Videoscope.

CHAPTER 22 — Syracuse, N.Y. Emery Grady of Videotek gave a presentation on picture and waveform monitors.

CHAPTER 26 — Chicago, Ill. C.E. Anderson, director of long-range product planning of Ampex, presented a paper on the latest development of digital techniques. He covered digital audio as well as digital video. This was a joint meeting with the Chicago SMPTE.

CHAPTER 28 — Milwaukee, Wis. Howard Elovitz and Lyn Bienert of Tektronix presented an interesting and detailed program on the uses of spectrum analysis.

CHAPTER 43 — Baltimore, Md. Wally Warren, Pat Morgan, and Nick Hudak of RCA gave a talk on the new RCA BTA-5ss, their new all-solid-state 5 kW AM transmitter. This machine has been under development for several years and is now being released for regular broadcast use. It is the first solid-state machine in this power class.

CHAPTER 47 — Los Angeles, Calif. Dale Manquin of Altair Electronics demonstrated a comprehensive diagnostic method of measuring tape transports for flutter, scrape flutter, and amplitude modulation.

CHAPTER 48 — Denver, Colo. The chapter meet for a round-table discussion on experiences and topics of current interest.

CHAPTER 50 — Fort Collins, Colo. The chapter is starting a technical library that will be for the use of members, who will be allowed to check out the books. First books to be ordered are the group written by the late Harold Ennes on AM, FM, and TV broadcasting. All current officers were re-elected for another year.

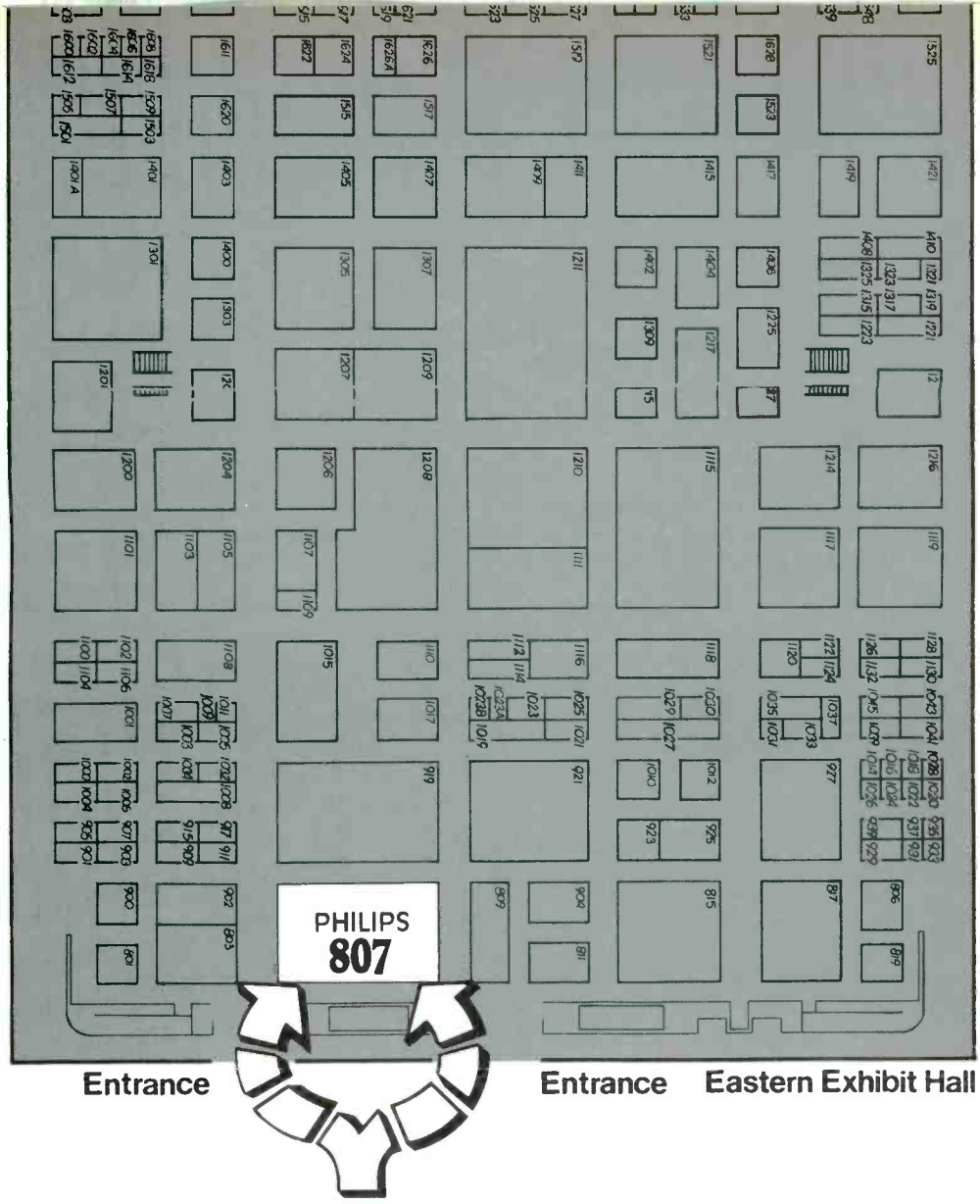
CHAPTER 53 — South Florida. Dave Walters of Tektronix demonstrated and discussed the new AA501 digital audio analyzer plus the model 308 data analyzer.

CHAPTER 60 — Richmond, Va. An appreciation award was given to Mrs. Edythe Kyle in honor of her late husband, James Kyle. Mr. Kyle was a pioneer of television engineering and a friend of his fellow engineers. New officers for the coming year are Leonard Cowherd, chairman; Joe Sheets, vice chairman; and Donny Stevenson, secretary/treasurer.

CHAPTER 62 — Salt Lake City, Utah. Harris Video Systems Division of Harris Corp. brought in for display and operation their model 630 digital frame store synchronizer/time base corrector. They explained the design and uses of such devices as related to broadcast and other related fields.

CHAPTER 68 — Birmingham, Ala. Sonics Association Inc. demonstrated the new microphone PZM. Use of real time analyzer with computer demonstrated the superiority of the PZM mike in most situations and applications, especially in stereo.

CHAPTER 69 — South Texas. Russ Thalaker of Lenco, gave a presentation on using the SCH timing monitor scope to read and adjust color burst phase to meet FCCRS-170-A specifications.



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GLOBALVIEW

A video encounter

Video professionals from around the world will gather May 11-15 in London for the first International Video Week, a multifaceted encounter featuring several major video events running concurrently.

Site of the events is the National Film Theatre, located in the middle of London's arts complex, with the nearby Royal Festival Hall, Hayward Gallery, and Queen Elizabeth Hall. Sponsors of the events are the British Film Institute, the British Industrial & Scientific Film Association, The Economist, and the International Television Association.

The Economist Video Conference, scheduled for May 11-12, will feature sessions on current business and technical developments in video. Emphasis will be on the interaction between video and satellite TV, cable TV, video theatres, broadcasting, publishing, and the film industry.

The First International Video Festival, May 13-15, will cover non-entertainment videotapes in a variety of categories, including sales, education, public welfare and social questions, public relations, recruitment, training, medical, and internal communications.

The International Video Forum, slated for May 12, is being hosted by the British Film Institute. The forum will bring the video press and those professionals involved in the industry together with subjects of mutual interest on the agenda.

Other events for Video Week include a video banquet, ITVA video workshops, and independent video production session.

For more information, contact Coordinating Chairman of International Video Week, John Chittock, 37 Gower Street, London WC1E 6HH (tel. 01-580 2842).

"The 1980s will be a decade of reaction to big monolithic institutions and organizations. If commercial television continues to try to appeal to a mass audience that never really existed in the first place, then commercial television is doomed to go the way of Life, Look and The Saturday Evening Post."

—Sy Yanoff, vice president and general manager of WBZ-TV, Boston, in comments before the Harvard Graduate School of Business Administration.

"R" you ready?

Who says sex doesn't pay?

In Phoenix, Arizona, the local subscription TV service, ON TV, is reaping the rewards from adding an "R" factor to its program offerings.

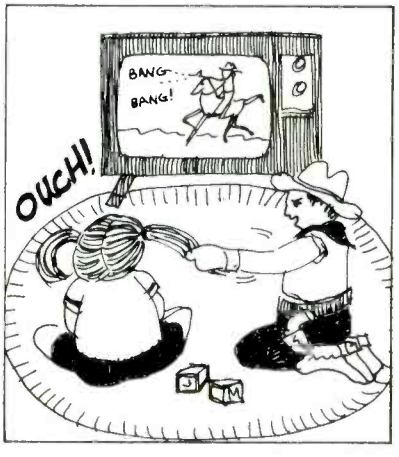
In this case, the R-factor consists of R-rated motion pictures shown late at night.

Since October, when ON TV began promoting its "Adults Only" programming package, over 12,000 new subscribers have signed up.

Commenting on the success of ON TV, Richard Whitman, vice president and general manager, said 65 percent of all new subscribers purchased the service during its inception period and to date, 63 percent of ON TV's subscribers have responded to the innovative adults-only service.

ON TV's success is even more incredible when it is considered that there has not been any advertising push regarding Adults Only programming since October.

In keeping with the public interest, ON TV has agreed to show movies containing R-rated material no earlier than 11:30 p.m., Tuesdays through Saturdays.



The violence factor

The effects of television on children is perhaps the most thoroughly researched, hotly debated subject in the English-speaking world.

The controversy is still simmering in the U.S., and it is gathering momentum in such countries as Canada and Australia.

But what does the evidence show?

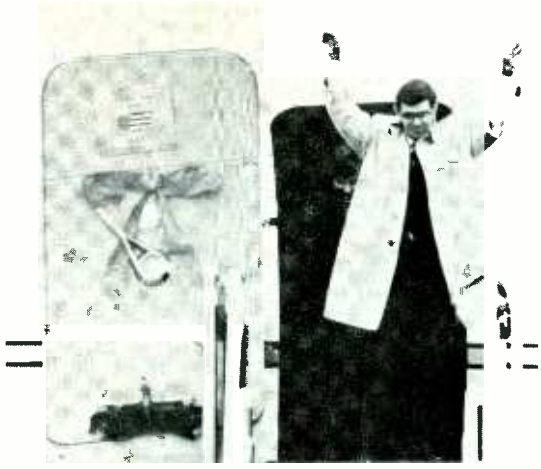
In a recent article in COMBROAD, Dennis List, senior research officer for the Australian Broadcasting Commission, summarized some of the findings.

In a review of 67 studies on the impact of television violence on children, three found viewing TV violence was inversely related to personal violence, 14 showed no relationship, and 56 showed a positive relationship between viewing and committing violence.

As far as the effect TV has on children's other activities, List says since children view television during their spare, unstructured time, there is "little effect on social activities, hobbies, and reading."

Despite the many studies on the effects of television, however, little has been done in the area of imitation of behavior, speech, and thoughts seen on television.

Says List: "...studies of TV's effects have mostly concentrated on unusual behavior, such as violence, which by definition, does not affect everybody. Therefore, much of the research on imitation of behavior seen on TV (apart from violence) has focused on altruistic or pro-social behavior. Studies have found that TV can teach children to share, increase their self-control, and allay fears about dogs and dentists.



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NEWSMAKERS

Leonard Kahn, president of Kahn Communications, was recently honored by the Radio Club of America for his outstanding achievements in the field of AM stereo broadcasting. For his contributions, Kahn received the prestigious Armstrong Medal, named after the inventor of FM radio.

Ron Seaberg and **Dick English** of the TelComm Products Division of 3M Company accepted the annual Anixter-Pruzan Suppliers Appreciation Day award for 1980 during ceremonies at Anixter-Pruzen headquarters in Skokie, Illinois.

Dr. Douglas A. Pinnow, director of optical fiber research and development at Times Fiber Communications, has been appointed chairman of the Optical Communications Technical Group of the Optical Society of America. Pinnow's primary job will be organize various sessions of the Group and to contribute to the Society's annual report. Dr. Pinnow was also elected chairman of a joint steering committee for planning future meetings on optical fiber communications that are sponsored by the IEEE and OSA.

Mark O'Connell takes over as news director for KGCT-TV in Tulsa, Oklahoma. O'Connell came to KGCT from Tulsa radio stations KRAV/KFMJ where he also served as news director. He is a member of the board of directors of the Oklahoma Associated Press Broadcasters, and has experience as a reporter and anchor with WRIT/WBCS in Milwaukee.

Darrell Aune, sports director of Portland radio station KEX and voice of the Oregon State Beavers, has been named Oregon's "Sportscaster of the Year—1980" by the national Sportscasters and Sportswriters Association. Aune became sports director at KEX in 1970. This is the seventh time in those 11 years that he has received this award. He will be honored at the annual Sportswriters Association's awards program in Salisbury, North Carolina, April 5-7.

Richard Kale resigned as president of Golden West Broadcasters' radio division to pursue other interests. Commenting on his decision, Kale said, "This is solely a personal decision. After 12 years with the company, I feel I need to pursue some new challenges.

Vincent Casalaina, **Frank Jett**, and **Edith Munk** have joined the staff of Premiere, the newly formed satellite programming network. Casalaina is the new director of in-studio productions. Jett, named network uplink manager, will be responsible for the administration of the broadcast origination faciity in Bristol, Conn., for the East and West Coast network feeds. Munk was named affiliate services coordinator.

Lee Ann Lee has assumed the position of director of development for Vermont ETV. Lee, a Vermonter who has been managing public television development for a Texas station, will head fund-raising activities at ETV.

Continued on page 36

Building Blocks for System Automation

NAB 1733

How would you like computerized videotape editing, automatic program start/stop & VTR switching, and automatic window dub production? Too expensive? Not with CVC's "Building Block" approach to system automation.

It's All In The Cards

Begin with CVC's microprocessor-based Intelligent Controller™. Plug in the Controller card, and you have machine control. Touch a button, and the Intelligent Controller automatically inserts time code and puts your VTRs in the appropriate recording mode.

Add CVC's Keyer and Reader cards, and you can burn in a window so you can position SMPTE, machine status, X's play, and other data on the monitor.

Plug in CVC's Synchronizer card and you can lock video to video, or video to audio.

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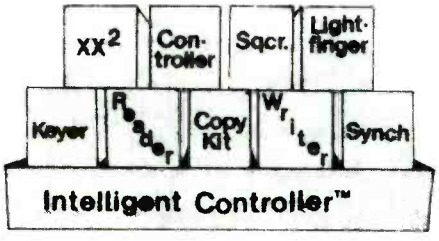

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Outstanding electrical parameters include extremely low RF loss, smooth impedance co-efficient, and conservatively rated power handling capability.

Wellflex is available with either air or foam dielectric with copper corrugated outer conductor, solid and corrugated inner conductor (depending on size), and with a tough, durable, corrosion resistance polyethylene jacket suitable for burial and prolonged life.

Air Dielectric Wellflex in smaller diameters, (½" and ⅞") offer a field proven, fixed helix design called Spirafil II-a single, continuous extrusion which locks the center conductor coaxially within the outer conductor, resulting in a near perfect impedance coefficient throughout the entire length of line.

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Larger Diameter Air Dielectric Wellflex Cables, (1⅝", 3", 3½" and 4½", feature a unique vertabra helix design to achieve optimum crush and tension strength. Its "pillar effect", using less volume of dielectric, provides lower loss and higher power handling capability due to the more rapid dissipation of heat from the center conductor.

Wellflex has it all: low loss, low VSWR, higher power handling, smoother impedance coefficient, and rugged, long dependable life.

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Circle (24) on Action Card

Business Moves

Jesse Blount, Jr., has been named vice president and general manager, and **William H. Borman**, director of marketing, at the ADDA Corporation. Blount is a founder of the four-year-old company and was formerly vice president, marketing. Borman, who was national sales manager, will assume Blount's marketing responsibilities. In his new post, Blount will be reponsible for all line operations including marketing, manufacturing, engineering development, and special products.

Andy Rector has been appointed executive vice president of manufacturing at International Tapetronics Corp. Rector has been with ITC since its formation in 1969. Also at ITC, **Larry Cutchens** has been appointed marketing manager. Cutchens joined the company in 1978 as technical service manager and assumed the duties of sales manager in 1979.

Jeffrey Halnon and **John Paul Grogan** have joined Candex Pacific, an engineering consulting firm in Redwood City, California. Halnon comes to Candex with experience in both circuitry and software design of data-communications and military-testing systems. Grogan is a recent engineering graduate of Purdue University, where he was involved in several projects in microcomputer digital design.

J.A. "Tony" Martinex is the new regional sales manager for Central and South America and the Caribbean area for Opticam S.A. of Geneva, Switzerland, general sales agents for Angenieux products in most parts of the world. Martinex, formerly with RCA, will be based in Miami, Florida.

Ian Robertson, formerly engineer for KING-AM/FM in Seattle, has joined Audio & Design Recording, the U.K.-based signal processing equipment manufacturer. Robertson will head up the broadcast division at Audio & Design's U.S. headquarters in Seattle.

Steve deSatnick recently accepted the position of vice president, operations, at California-based U.S. Video Corporation. DeSatnick was formerly with Community Television of Southern California; KCET, as vice president, operations and engineering; and prior to that was director of engineering for Boston Broadcasters Inc. He will be in charge of all operations for the Hollywood and Burbank facilities of U.S. Video.

Patric Donaghy is the new national marketing coordinator for AKG Acoustics. His responsibilities include the management of the artist endorsement program at AKG and other public relation activities. All promotional literature, sales/incentive programs, and advertising scheduling will also be coordinated by Donaghy.

James G. "Butch" Fadely, recently named regional manager for RF Technology, is representing the company in sales of microwave systems and wireless microphones in the Midwestern states from the Canadian border to the Gulf of Mexico. BC

You Name It...

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Circle (26) on Action Card

Inflate your station's promotions

BY LYNNE WALKER

Imagination has always played an important part in the appeal of radio; though mental images differ from listener to listener, the old timers among us know exactly how "The Shadow" looks, while our children have strong pictures of Elton John's "Pinball Wizard."

In the past few years, imagination, coupled with a taste for the innovative and a feel for whimsey, has led some stations to conjure up images of their own, in the shape of oversized air-filled figures and billboards that use "the third dimension."

Designed and manufactured in San Diego by Robert Keith & Company, the cold-air filled forms are made from colorful puncture-resistant, heavy-gauge, vinyl-coated nylon, sewn and welded into all sorts of shapes.

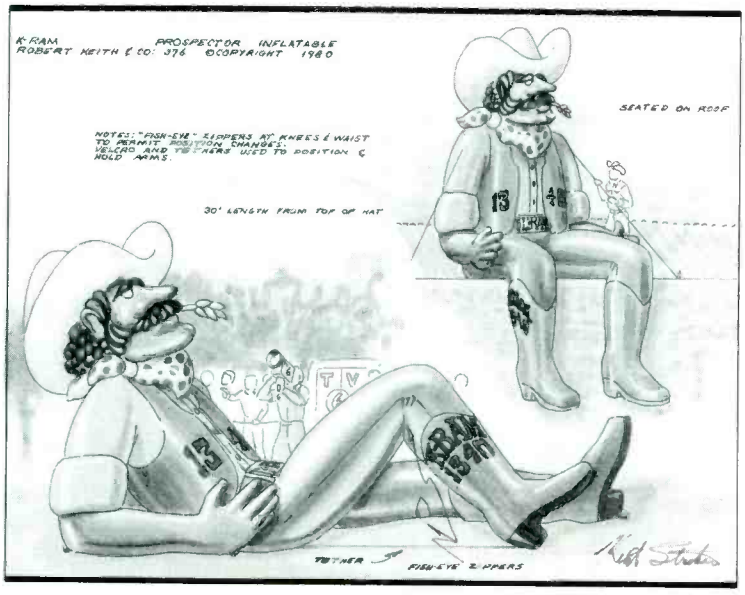
"Though we've designed inflatables and 'The Third Dimension' billboards for hundreds of clients throughout the world for five years, we haven't focused on the radio market, so stations still have the opportunity to be 'first in town' with an inflatable," says Robert Vicino, president of Robert Keith.

Word of mouth has been effective; even without a sales campaign, the number of inflatables made for radio promotion is increasing.

The newest—and sexiest—of the radio figures is KRAM's 30-foot-tall cowboy, who can assumme the reclining pose of Burt Reynolds a la *Cosmopolitan* magazine or sit more sedately atop a building, legs dangling over the side (see illustration). Booted and blue-jeaned, haystalk in mouth, the Las Vegas cowboy can hold either a banner or a 6½-foot diameter helium ballon that may also be used separately for remotes. Already booked for a March parade and rodeo, the inflatable's first major Las Vegas appearance will be at the NAB convention in April.

The cowboy will travel in his own van to several locations daily, chaparoned by a three-person crew, according to Bill Berkey, KRAM's general manager.

In tandem with the oversized figure, KRAM also commissioned a 12-foot-high cowboy head for rotary billboard displays throughout the year, spending two months at each of several prime locations in the city. Imprinted on tee shirts and belt buckles, the cowboy head has long been a part of KRAM promotions, but the body is new . . . designed by Robert Keith.



"If a radio station already has a mascot, adapting the design into an inflatable is easy; it only takes imagination on the part of the station and a willingness to try something different in promotion," notes president Vicino, who cites the success of one San Francisco station that transformed its mascot into an enormous bit of whimsey.

"When I suggested a larger-than-life inflatable replica of our camel, the powers-that-be at KMEL looked askance but took the risk," remembers Rick Lee, vice president and general manager of the album-oriented rock station.

It paid off. Known as "The Beast of the Bay," the 30-foot fellow has drawn free publicity, appeared in numerous area benefits, visited children's hospitals, toured neighboring communities, all the while creating positive public response.

With uncertain winter weather, use of the camel has been limited, but during the rest of the year demand is high——school dances, resorts, grand openings for station clients, auto and boat shows, shopping malls—the settings vary daily.

At KMEL's sister station in St. Louis, there's Sweet Meat the Pig, a pig's head named 14 years ago in a KSHE listener contest, now reproduced in red nylon, complete with earphones and sunglasses. With blinking lights installed inside the head, Sweet Meat appeared at KSHE's "Night at the Blues" to honor St. Louis' pro hockey team; he's also attended rock concerts and was part of a national cerebral palsy telethon. As an album-oriented rock station aimed at listeners between 18 and 34, KSHE also uses Sweet Meat in community projects involving young adults.

"We chose an inflatable for promotions for three reasons: our pig's head lent itself well to the unusual structure, our sister station had incredible luck with the KMEL camel, and we wanted to have the first inflatable in St. Louis," according to Shelley Grafman, KSHE executive vice president.

Not all radio inflatables are "living." A cross between Toonerville and "I think I can," WTRW's Tower Trolley was inspired by Detroit's three renovated trolleys that run longside the city's river.

"We think of the trolley not as a promotional vehicle," puns Terry Sobania of WTRW, "but as the station's tribute to Detroit." The 15-foot-long streetcar, the first self-propelled inflatable that Robert Keith has made, can carry people on each of two platforms. After making its debut in the nationally

Continued on page 40

The Trend Setter

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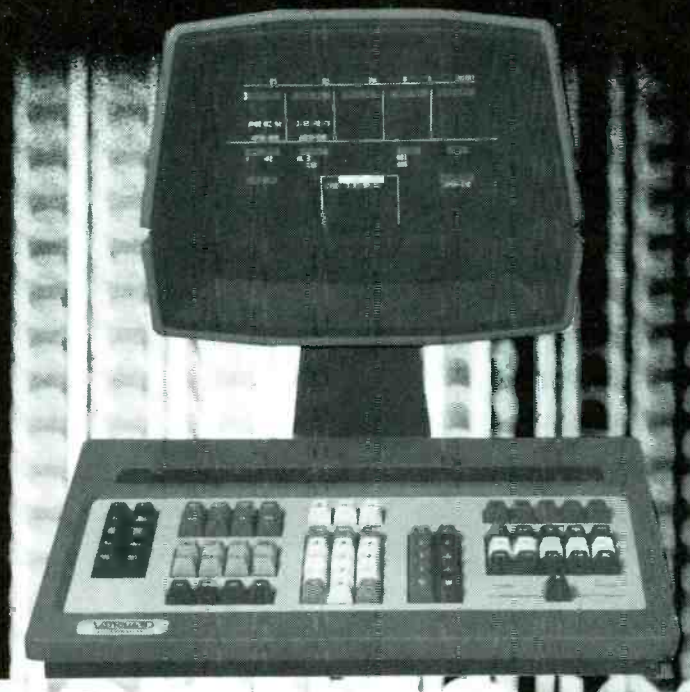

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MAKING CREATIVE EDITING AFFORDABLE

Circle (17) on Action Card

televised J. L. Hudson's Thanksgiving Day parade, the trolley was displayed at Detroit's Renaissance Center, home of Tower 92. No extensive plans have been made for station promotionals, but Sobania anticipates use of the trolley in parades and for community celebrations.

Not all radio inflatables are free-standing. The KRLD football billboard has generated more positive response than any other KRLD outdoor campaign, observes the station's vice president and general manager, Carl Brazell.

Extending 12 feet from the board, the football was flanked by "Cowboy Football, CATCH IT!" on one side and "KRLD" on the other, calling attention to the Cowboy's flagship station.

"It's difficult to come up with visual concepts to advertise radio, especially for an all-news station. We want all our promotions to say *wow*," Brazell says. "The football board was an exciting exploitation of a novel concept in outdoor advertising, a natural for an inflatable, and was received enthusiastically by the Dallas team."

KRLD used the same design of four flat boards. "The effect of the inflatable was fantastic, especially if you'd seen the one-dimensional boards. People who say the 3-D version certainly did a double take," he says.

Only one television station has entered the "inflatable market," so the chance to be a front-runner in outdoor promotionals is available, Vicino notes. WTOG in Florida saw the local version of *PM Magazine* gain in shares after putting up two billboards, each featuring a 15-foot-tall hot-air balloon in rainbow colors and with real wicker baskets, promoting *PM Magazine*.

Look closely for four Portland disc jockeys peering through the windshield of a flying KEX Volkswagen. The winged auto extends 12 feet from the board.

Robert Keith is in the process of developing two- to three-foot-long mouth-inflated versions of larger inflatables, to be sold as premiums or given away as contest prizes.

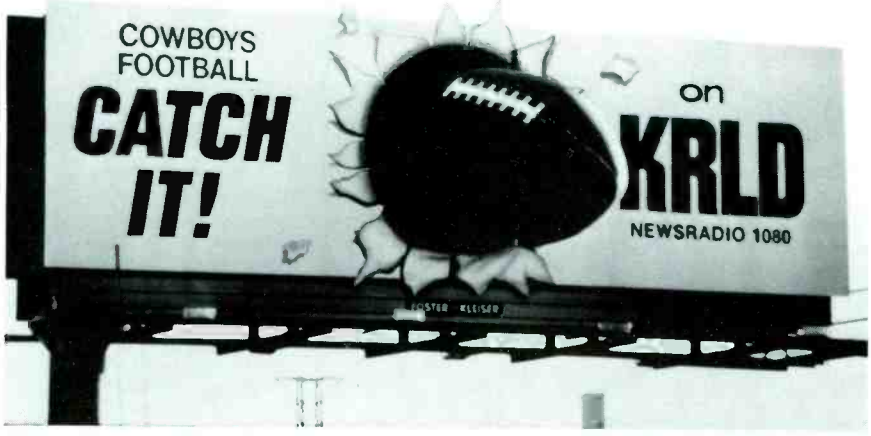
Recognizing how difficult it can be to find a design for a station that has no visual themepiece or mascot, Vicino finds that his company becomes an ad agency by suggesting possible designs. "There are hundreds of possibilities for interesting and novel inflatables or billboards—call letters or a symbol that represents the station, such as cowboy boots or hat for a country music format," Vicino says. His firm has already designed a generic billboard that features a transistor radio along with phrases that identify individual stations.

The station that has a small advertising budget might consider purchasing a helium balloon or blimp that costs as low as $350, can be personalized with call letters or a station logo, and works well as a continual display or for remotes, Vicino suggests. A banner can be hung from the form, to customize the display for each promotional event.

One or two people can inflate and anchor a cold-air free-standing figure in less than a half hour, using a 110-volt electric fan/blower system that forces cold air into the form. The oversupply of air compensates for normal air leakage and keeps the form inflated in case of punctures, which are easily repaired. The billboards operate on the same principal, but are easily mounted on existing boards with as few as 12 bolts.

While durability of the inflatables makes permanent display practical, portability and ease of installation makes it possible to transport the figure to different sites, an asset for varied radio promotions. Resistant to puncture or damage from high winds, rain, snow, or freezing temperatures, the inflatables are guaranteed for one year, though Vicino estimates a five-year life and suggests amortizing the cost over a 24-month period. He notes that, despite almost constant use over nine months, the KMEL camel is still in mint condition.

Cost depends on the complexity of the figure and detail of artwork. Robert Keith & Company is located at 8847 Complex Drive, San Diego, California 92123; (714) 565-1507.



It's catching on. . . The "Third Dimension" in outdoor display advertising is illustrated by this oversized puncture-proof inflatable football that seems to explode through a Texas billboard. Killer whales and aluminum cans are also among the nylon figures that can protrude up to 10 feet, are quickly attached and easily rotated to existing boards. Designer is Robert Keith & Company of San Diego, California.

Lynne Walker is with Nuffer/Smith Associates, San Diego, California. *For more information on the Broadcasters Promotion Association, contact BPA, 248 W. Orange Street, Lancaster, PA 17603; (717) 397-5727.*

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Circle (28) on Action Card

Voice synthesis sounds like help

BY PETER BURK

Speech synthesis is not a new concept. Development work has been under way for years (particularly in Europe) and practical systems are now serving a wide variety of applications.

Until recently, most systems were expensive or required extensive software support. Now, thanks to several relatively inexpensive synthesizer boards, automatic speech is well within the reach of many industries, including broadcast.

One particularly useful synthesizer is produced by Telesensory Systems Inc. of Palo Alto, Californa. The unit is self-contained (except for power supply and audio amplifier) on a three-inch square PC board, and features up to 64 words of vocabulary. The speech synthesis micro-controller was originally developed for the Speech Plus calculator, but with different vocabulary chips, the applications expand dramatically.

BROADCAST COMMUNICATIONS evaluated the S2C model, which contains a 64-word "ASCII" vocabulary. We found many broadcast applications, and tried several of them in a radio station environment.

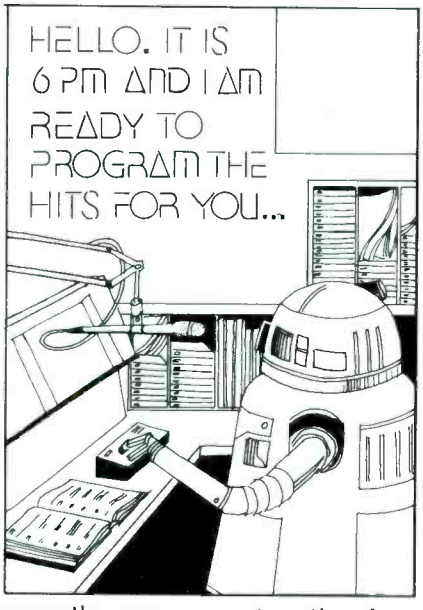
Just to see what the unit sounded like, we bread-boarded simple TTL interface and made the 64 words switch-selectable. The voice is very intelligible, but certainly no challenge for your morning man. You probably wouldn't want to use the voice on the air except for special effects or novelty application. There are still many applications that the unit can handle well. Here are a few that we considered:

A means of checking the operation of the transmitter plant while away from the station has always seemed like a good idea. If the system required no special hardware at the remote location, even better. The S2C handles this chore easily. We interfaced the synthesizer to the transmitter control system at WKBW. By calling a special number you can listen to a report on the plant status. It sounds something like this:

"BEEP...EP equals nine point two six KV...IP equals six point zero three A...ICP equals three two point four A..." etc.

The loop repeats indefinitely. While it would be possible to make the system interactive using a touch-tone decoder, it would then be restricted to touch-tone phones with polarity guards, and would of course be much more complex.

Another application involves using the synthesizer to verbalize alarm messages, both in the station and by pager to the on-call engineer. WKBW



presently uses an automatic alarm dialer to report any of eight alarm conditions to a list of phone numbers, including several tone and voice pagers. The number of each alarm that is active is beeped out any time there is a change in alarm status. The addition of an inexpensive S2A synthesizer will permit an untiring male voice to calmly annunciate the eight alarms. The house monitors can be fed with the same information.

Some stations provide a weather line for listeners to call for current conditions and the forecast. The forecast and sponsor messages are best done on tape, but the current conditions can easily be reported by synthesizer.

The unit could be interfaced to a Heath weather computer or similar digital weather instrumentation to constantly provide the most recent readings. In fact, this system would allow a simple means of gathering remote weather information in locations where the weather at the studios is not typical of the area being served. The weather station can be located at a remote point such as someone's house, and accessed by telephone with no special equipment required to decode the information.

Automatic RPU transmitter identification is another candidate for synthesis. The synthesizer and logic to control it represents only a slight increase in cost over a CW identifier, and makes a nice enhancement to the system.

A voice slate in the production room can be used to mark master tapes with sponsor identification and the number of the cut. The number can be entered by setting BCD thumbwheel switches. The BCD values are then sequentially sent to the synthesizer using a simple TTL interface.

If you use a slow-speed logger or a recorder activated by the mike switch to air check, you might consider putting the time on the second channel using a synthesizer. Certainly not as elegant as a SMPTE time code generator, but a lot less expensive.

Your imagination is the only limit on the number of broadcast applications for a speech synthesizer. Custom vocabularies can be created for just about any imaginable use, although their cost suggests that an attempt should be made to live with the standard vocabularies now available.

Another approach is to use a synthesizer that allows programming in "phonemes," a sort of phonetic language. The only real objection to this approach is that it commits you to using a mini- or microcomputer to build and store the vocabulary. Most of the applications discussed here don't require that much support. That's the biggest attraction of the mini speech synthesis boards from Telesensory Systems: add an amplifier, power supply and a handful of TTL parts, and you have a system ready to operate.

Editor's Note: As we pointed out in last month's Technical Symposium, Telesensory Systems uses a linear predictive coding (LPC) speech-synthesis device.

LPC breaks the speech parts into four parameters (amplitude, frequency, pitch, and voicing) and puts them into a ROM (read-only memory) chip. The advantage of LPC is that software uses these basic parameters to create sound,

Continued on page 44

Peter Burk is the radio editor.

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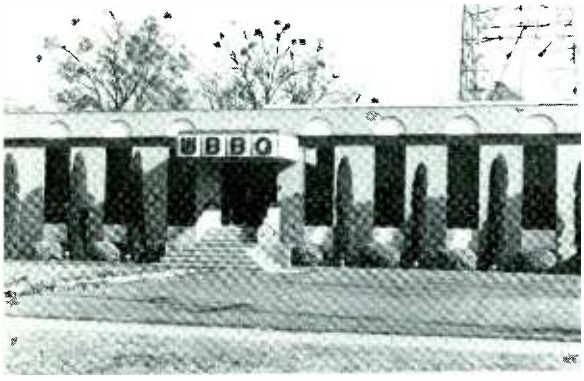
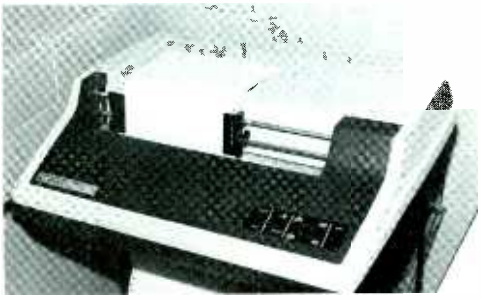


Harley Drew
Operations Manager
WBBQ, Augusta, Georgia



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BASIC TEST PROGRAM

```
10  Input"Message:",M$
20  FOR I=1 TO LEN(M$)
30  A=ASC(M$I,I))-32
40  OUT 0,A+128
50  IF INP(1) THEN 50
60  OUT 0,A
70  NEXT
80  GOTO 10
```

Listing 1. As this example in North Star Basic shows, software overhead is minimal.

INTERFACE TO MICROCOMPUTER

Parallel Out Port	Pin	S2C Function
Bit 0	7	Data 5 (LSB)
1	8	Data 4
2	K	Data 3
3	H	Data 2
4	F	Data 1
5	5	Data 0 (MSB)
6		
7		
8	6	Start
Parallel Input Port		
Bit 0	D	Busy

Figure 1. Interface to a microcomputer requires only a pair of parallel ports.

64-WORD "ASCII" VOCABULARY

Data Code (Decimal)	Word				
000	space	022	six	044	L
001	x-point	023	seven	045	M
002	quote	024	eight	046	N
003	number	025	nine	047	O
004	dollars	026	colon	048	P
005	percent	027	semicolon	049	Q
006	and	028	less than	050	R
007	apostrophe	029	equals	051	S
008	left paren	030	greater than	052	T
009	right paren	031	mark	053	U
010	star	032	at	054	V
011	plus	033	A	055	W
012	comma	034	B	056	X
013	minus	035	C	057	Y
014	point	036	D	058	Z
015	slash	037	E	059	lower case
016	zero	038	F	060	tone
017	one	039	G	061	upper case
018	two	040	H	062	up arrow
019	three	041	I	063	control
020	four	042	J		
021	five	043	K		

Figure 2. Vocabulary for Telesensory Systems S2C Synthesizer. Five other vocabularies are standard, including several foreign languages.

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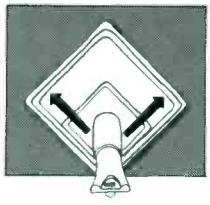
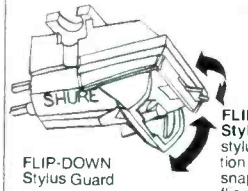
The SC39 offers the professional undistorted playback, even on the toughest-to-track, "hottest" recordings—plus the kind of durability necessary to stand up to the job: even to slip-cuing, backcuing, and occasional stylus abuse.

What's more, the SC39 offers three unique features:



SIDE-GUARD Stylus Deflector: Protects against side-thrusts by withdrawing stylus tip and shank safely into cartridge body.

SIDE-GUARD Stylus Deflector



FLIP-DOWN Stylus Guard

FLIP-DOWN Locking Stylus Guard: Offers stylus tip positive protection when not in use; snaps out of way with a flip of the thumb, positioning a high-visibie cuing aid.

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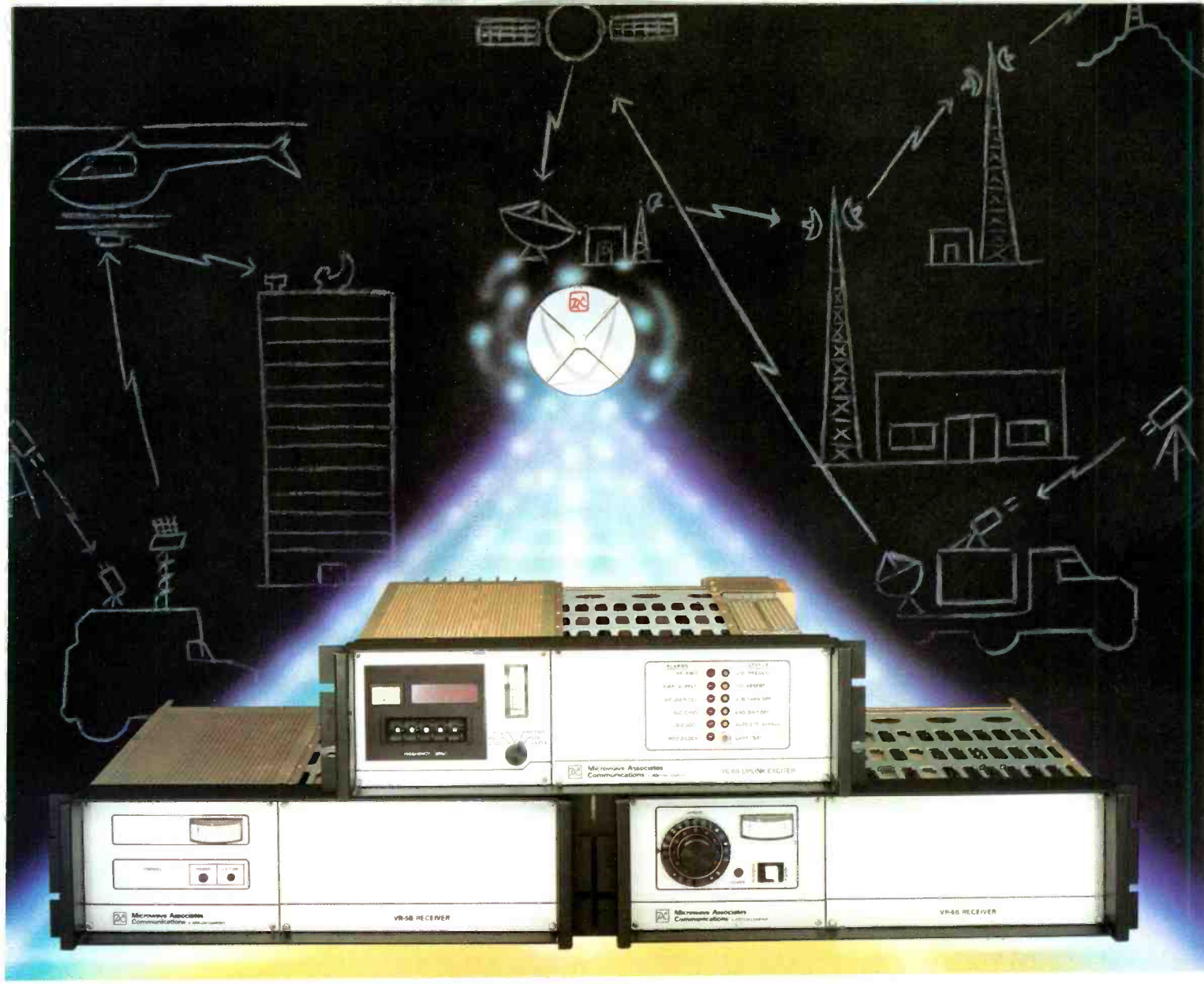

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IN SEARCH OF . . .

New remedies for architectural headaches Part 2

BY GEORGE GHETIA

Part 2 of our series will cover flooring and ducting options; the cost of energy-efficient upfront design costs vs. standard construction; how fuel savings help pay off initial costs; how to save fuel costs even when you have cathedral ceilings; and where to draw the line between renovation and new facility costs.

The questions *BC* posed were based on problem areas fed to the editors by broadcasters. So the responses by the architects at Rees Associates Inc. are relevant to all markets and facility sizes. If there are additional problem areas in station design and construction down the line for your station, contact the editor and we'll help you find the answers.

For now, let's get back to our interview and ask the architects about computer floors in the engineering and production areas of the station.

Computer floors (also called access floors) are popular in stations, especially in engineering areas. How much do computer floors add to the design and construction of a new station?

Computer, or access floors, are virtually a must in engineering equipment areas within the broadcast facility. Typical access flooring is designed as 24- by 24-inch removable panels that can quickly and easily be removed with simple suction lifting tools.

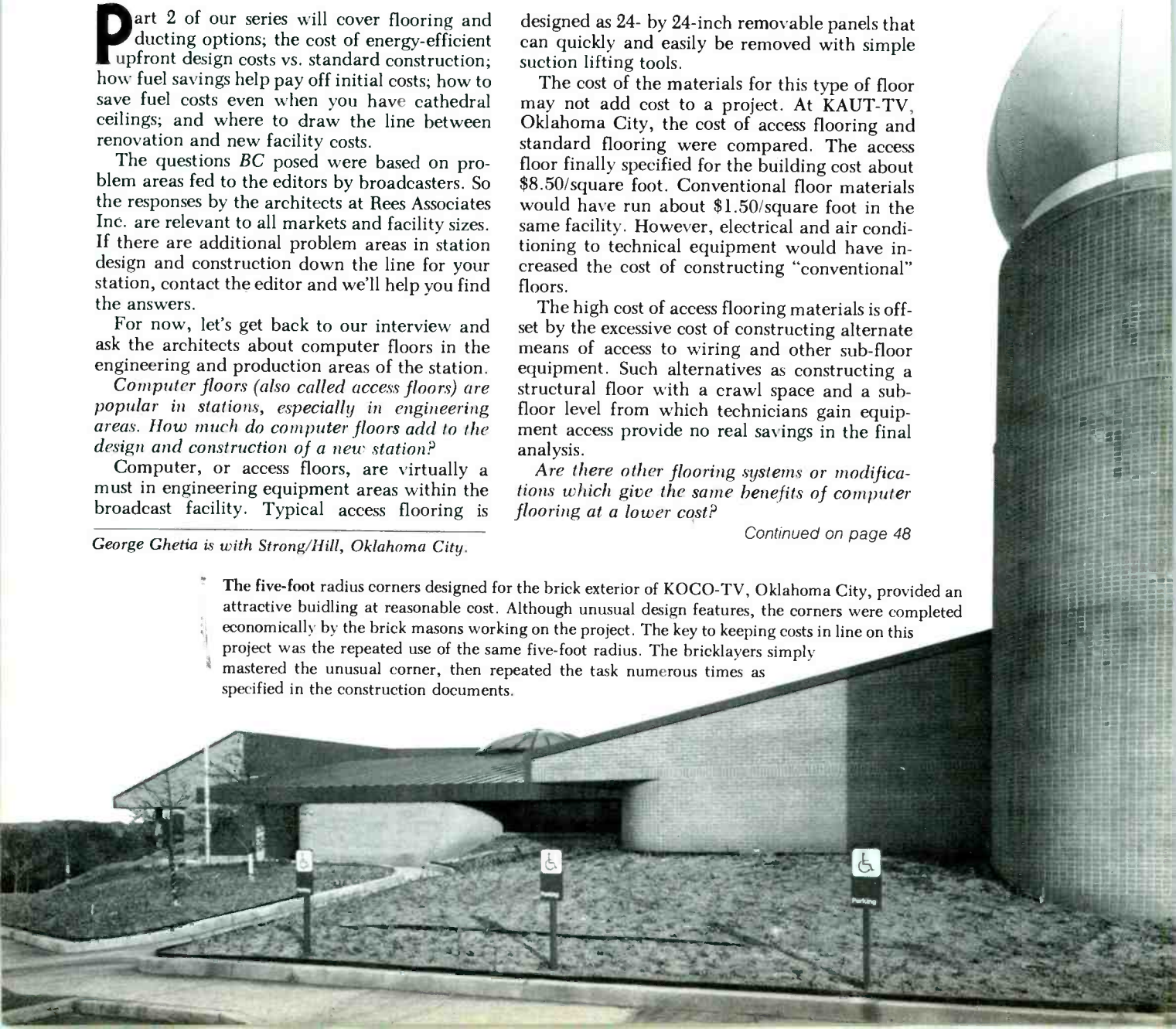
The cost of the materials for this type of floor may not add cost to a project. At KAUT-TV, Oklahoma City, the cost of access flooring and standard flooring were compared. The access floor finally specified for the building cost about $8.50/square foot. Conventional floor materials would have run about $1.50/square foot in the same facility. However, electrical and air conditioning to technical equipment would have increased the cost of constructing "conventional" floors.

The high cost of access flooring materials is offset by the excessive cost of constructing alternate means of access to wiring and other sub-floor equipment. Such alternatives as constructing a structural floor with a crawl space and a subfloor level from which technicians gain equipment access provide no real savings in the final analysis.

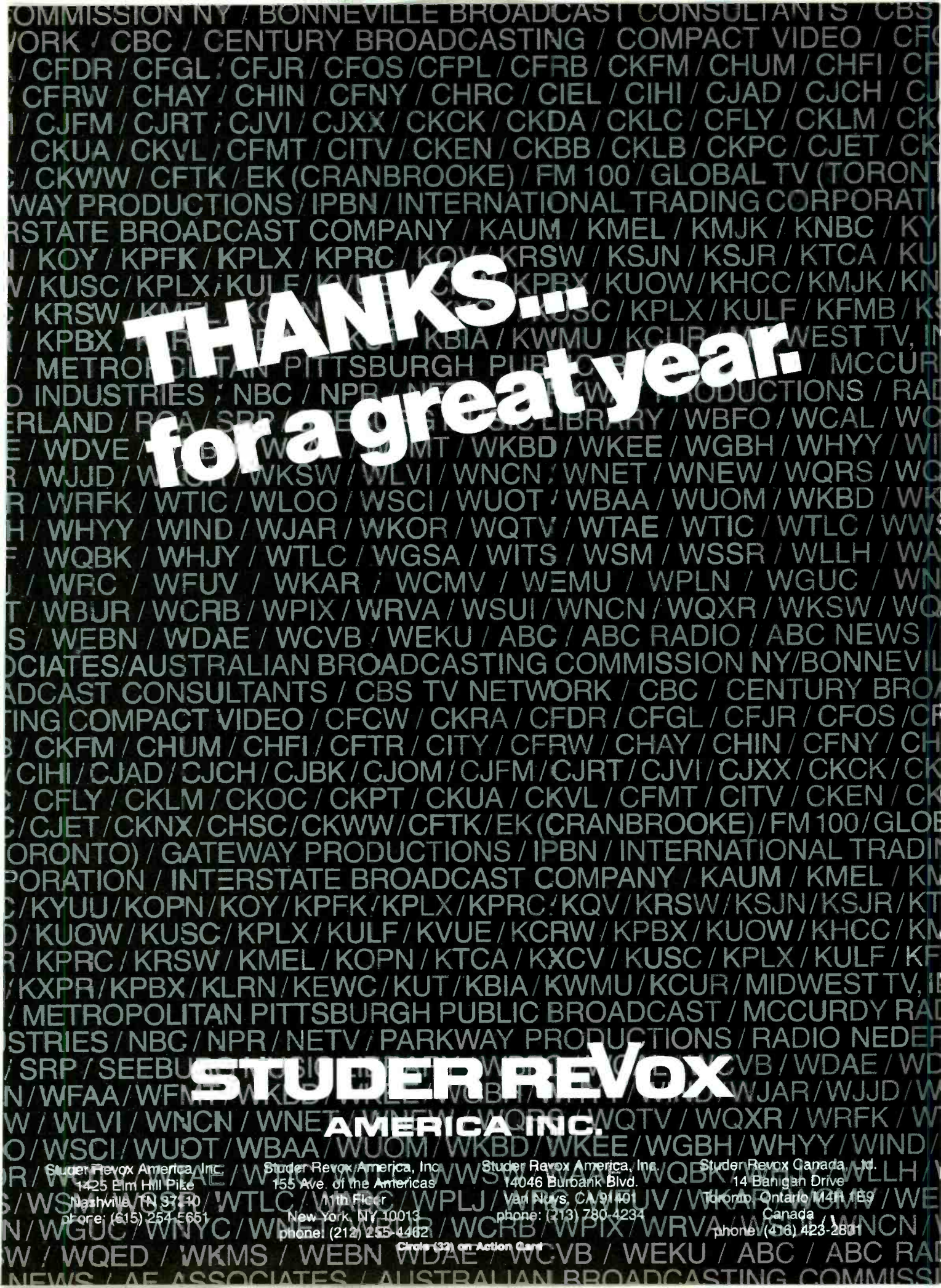
Are there other flooring systems or modifications which give the same benefits of computer flooring at a lower cost?

Continued on page 48

George Ghetia is with Strong/Hill, Oklahoma City.



The five-foot radius corners designed for the brick exterior of KOCO-TV, Oklahoma City, provided an attractive buidling at reasonable cost. Although unusual design features, the corners were completed economically by the brick masons working on the project. The key to keeping costs in line on this project was the repeated use of the same five-foot radius. The bricklayers simply mastered the unusual corner, then repeated the task numerous times as specified in the construction documents.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There are two basic ways to allow below-floor access to equipment. The first is to recess the floor slab and make the access flooring at the same floor elevation of the building. The second method is to raise the access flooring so that anyone entering the area walks up two or three risers to the floor level.

There are some floor design alternatives, such as bus duct areaways, which provide access to electrical distribution to equipment. Structural floors with crawl space underneath, and standard floors can be designed to provide access to electrical service through the ceiling. For the type of space in which computer flooring is normally used (master control, tape air film projection) the overall benefits of a computer floor are difficult to develop in other ways. Flexibility of design is required to enable changes in the kind of equipment which may be added after the station is built. Often, areaways in the floor for electrical distribution don't fit new equipment requirements. In such cases, computer flooring actually costs less than a structural floor, which must be drilled through for the distribution of electrical service underneath the floor.

Also, using a computer floor is a very good method of getting cool air and ventilation to equipment, keeping down the operating temperature of equipment that generates excessive heat. If equipment is added at a later date, access can often be provided at the base of the equipment rack so that cool air can be passed through the rack from below. This can be done without any specific relocation of heating or air conditioning ducts under the floor, something that's impossible to accomplish under a standard slab on grade.

Is an energy-efficient broadcast facility more costly to design and construct than a standard building?

An energy-efficient broadcasting facility can mean many things. Energy-efficient facilities, the way we design them, are more likely less expensive than a "standard" building or a building with no concern for energy efficiency. While design work or material costs may be higher than those for a standard building, a building that is designed with energy efficiency in mind will more than likely require a reduced expenditure for heating and air conditioning equipment. This savings is realized because of the way the building envelope is designed, and reduced operating costs often offset the initial cost incurred in designed for energy efficiency in a very short period of time.

For example, money spent for insulation in walls and roof construction will probably be less than the capital expenditure for a larger heating and air conditioning system, which would be necessary if there was not a highly efficient building exterior.

Many times the architect will utilize berms (soil) to cover the bottom four to eight feet of an exterior wall. The berm provides thermal insulation and reduces energy use within the building at low cost. At the same time berms eliminate the need for expensive exterior surface on the portion of the wall covered by the berm. Consequently, a berm, if properly designed, will actually reduce the cost of the wall.

When an architect considers using berms in a building design he also strives to locate the building at the site in accordance with the resulting cut and fill requirements. If a site has a low area which rises to a higher area, the elevation of the building floor is set to reflect the average elevation at the site. This type of placement evens out cut and fill requirements. Earth that is removed to get down to the floor elevation is used to fill the flow areas at the site. This eliminates the need to haul material to or from the site at high cost.

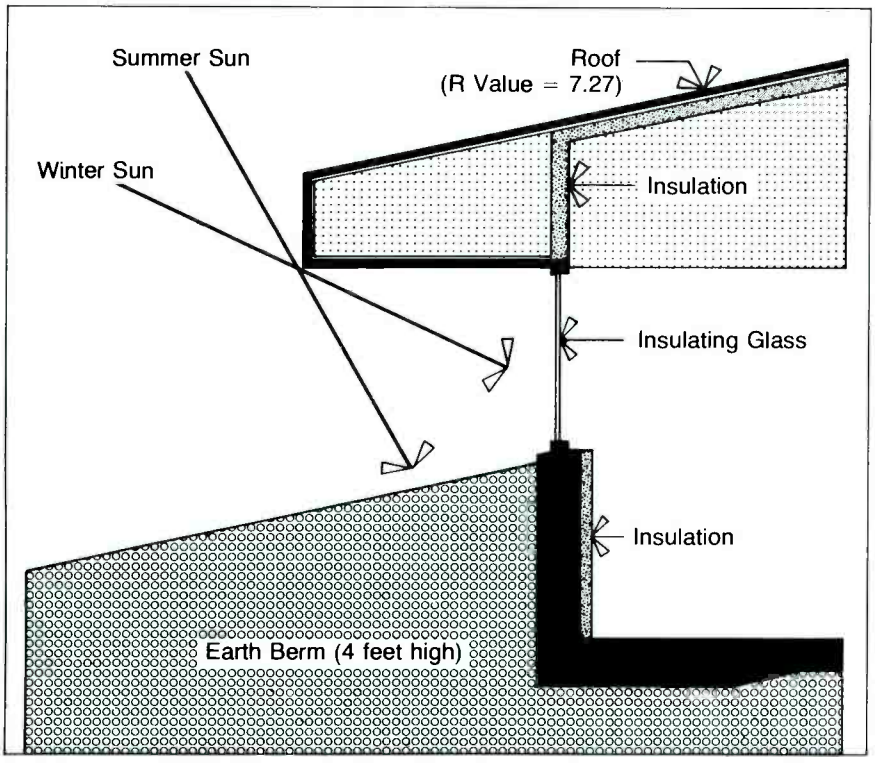
When a berm is to be used, floor elevations are set to produce excess excavation. The additional material removed provides the fill used to construct the berm.

A knowledgeable architect is capable of designing an energy-efficient building at the same cost as a non-efficient building. However, a designer can very easily spend more money developing an energy-efficient building design. In other words, the answer to the question relates to professional competency more than any direct increase in building cost.

Design options open to the architect for developing an energy-efficient design include passive solar systems, location at the site, insulating materials and methods, and aspects of the building design itself.

Passive solar systems include the consideration of building orientation. Southern exposure enhances solar heat gain. Window overhangs admit the sun's rays during the winter while shading glass building surfaces from hot summer sun. Glazing is often kept to a minimum to keep building operating costs in line. It should be noted that there is a point at which the surface area of glass greatly limits the energy savings associated with window overhangs and the use of insulated or reflective glass.

Continued on page 50



Earth berms at KOCO-TV provide thermal insulation and reduce energy use within the building. Other design features which contribute to the building's energy efficiency include wide window overhangs, insulating glass, and extra insulation in the building roof and walls. Sprayed-on insulation runs along the top of the building roof and continues to the top of exterior walls. The insulation system seals the building and prevents the escape of tempered building air to the outside. *(Illustration courtesy of* i.f. *magazine)*

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Alternate insulation systems each have their specific benefits. To make the best choice, the architect must consider the building itself, the climate at the site, and any special space requirements within the building. For example, some insulation material provides a higher R-value (the greater the R-value of the material, the greater its insulation properties) than other materials.

The greater the R-value of the material, the less material need be used to do the job. Thicker insulation in walls means less usable space within a building. The cost and associated benefits of each material must be considered in the process of selecting the system to be used. Insulation alternatives available include air spaces designed into walls, loose "spray type" materials, batt insulation (Fiberglas), rigid insulation (styrofoam), and berming (earth).

KOCO-TV, Oklahoma City, for example, is completely sealed with a sprayed-on insulation which runs along the top of the building roof to the top of the exterior walls. This system prevents any tempered air inside the building from escaping to the outside.

Extremely sophisticated energy-efficient systems and equipment quite often will add only moderate additional costs to a project. Such investments are usually paid off between three and five years from the purchase date.

One example is the water-cooled air conditioning system at KOCO-TV. The system was specified instead of a standard air-cooled air conditioning setup. This equipment cost an additional $2,000, but it generated savings which will pay for the system in less than two years. Variable-speed fans were used for the air-handling units that provided heating and cooling in the studios at the same facility. This equipment cost an additional $1,500, which was recovered in the first eight months of operation.

Will the fuel savings associated with energy-efficient equipment and designs pay back the owner for any additional front-end costs?

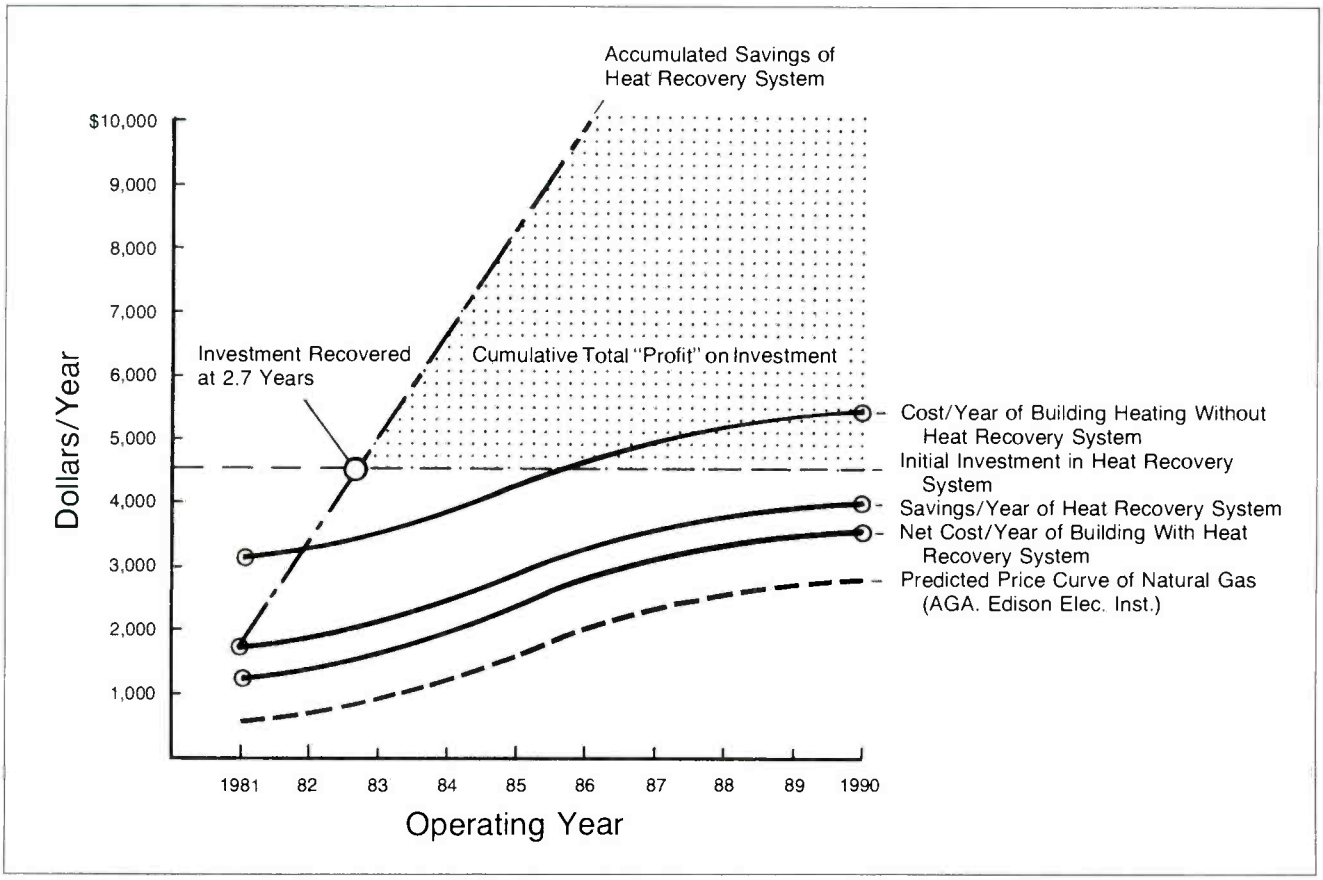
Fuel savings very often can pay back the cost of any special energy-efficient design feature such as computerized control systems that turn air-handling systems on and off. With some systems the amount of outside air entering a building is determined by computer. Quite often, pure outside air is used during the period of time when its temperature will actually heat or cool the building. However, minimal outside air is utilized at a time when the differential in temperature between inside air requirement and ambient exterior temperature are too divergent.

This type of a computer system will usually take two to three years to pay for itself, but will generate significant long-term savings for the owner. At KAUT-TV a sophisticated heat-transfer system was utilized to use the waste heat energy from the UHF transmitter to provide the majority of the heating for the television station. The system is projected to require approximately four and a half years to pay for itself, and after that will provide something in excess of $5,000 per year to the owner in ongoing savings.

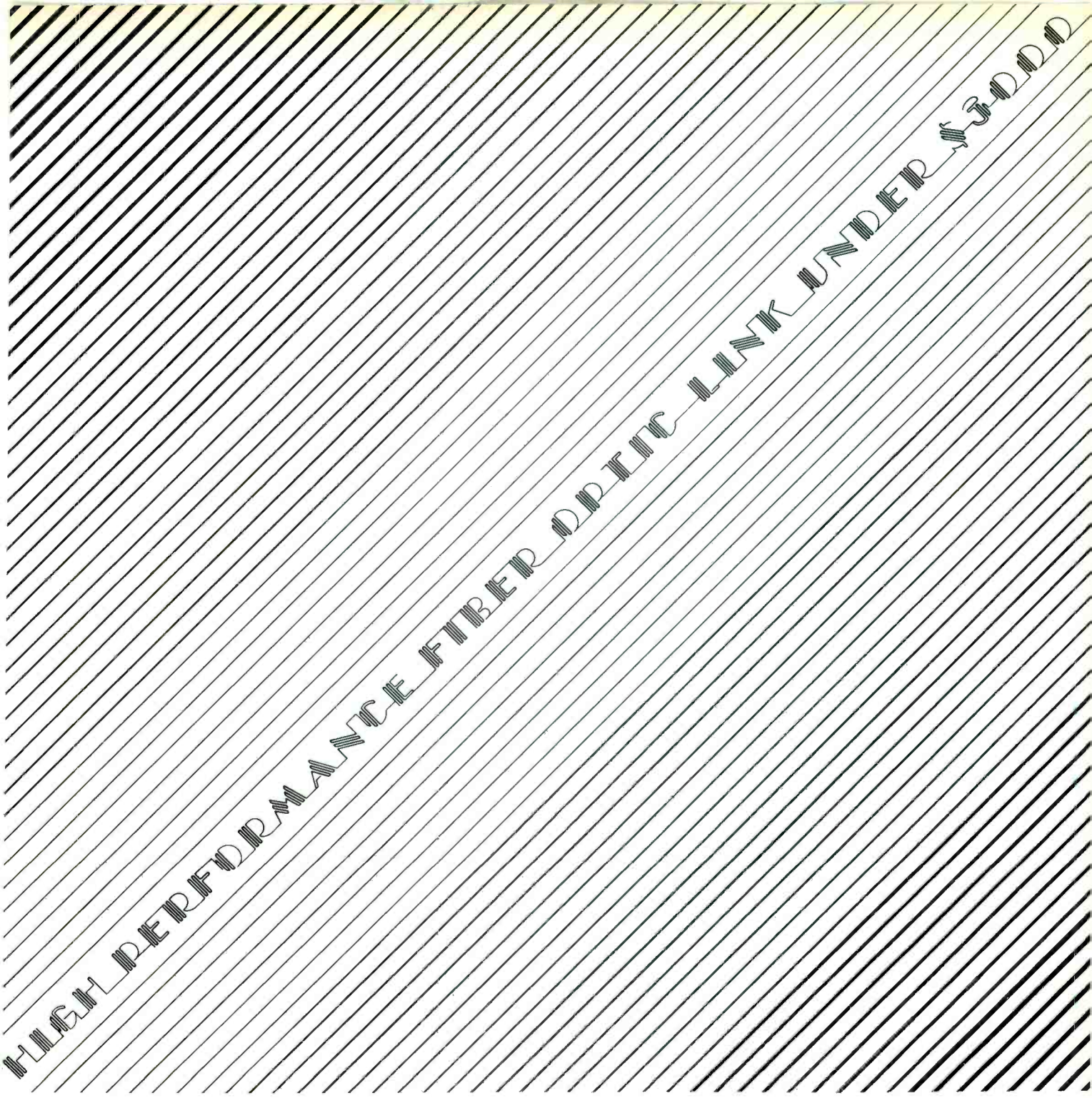
Are there specific design procedures that will save both energy and original design and construction costs?

There are specific design procedures that do help to regularly save both energy and original construction costs. These procedures are a function of the

Continued on page 52



The KAUT Energy Savings Profile was prepared by the Rees Associates project team to enable the client to evaluate the savings associated with the insulation of the station's unusual transmitter cooling/building heating system. Although the system required an initial investment above and beyond that of conventional equipment, the cost in ongoing energy savings makes the custom-designed cooling/heating system an excellent long-range investment. *(Illustration courtesy of* i.f. *magazine)*



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management of the design process more than any specific approach to design or materials.

Time is money, and the management of the time spent on the design process on the part of the architect and the owner has a significant effect on the cost of a building.

An example, based on current inflation rates and interest costs, is that every month spent designing a project means that the project will cost 1½ percent more, or with a fixed budget, the client will receive 1½ percent less building. With KAUT-TV, the amount of time saved by the rigid management of the design process resulted in a savings to the client which was greater than the total fees paid to the architect.

The five-month time savings generated as a result of the working relationship equalled about 7½ percent of total building cost.

Open areas in new buildings or design features such as high or cathedral ceilings, give a feeling of openness; however, it is the opinion of many broadcast executives that the public tends to think of these design features as energy wasters. Is there anything which can be done to make these design amenities more energy efficient?

Many large-volume areas are really not energy wasters when they are properly designed. As an example, the news department of KOCO-TV makes use of a very high-level clear storey to provide an appropriate lighting level within the news department. This results in a greatly reduced use of electrical energy for lighting based upon the extensive natural light brought into the building. The net result is that this large space is, in effect, an energy saver vs. an energy waster. However, large cathedral ceilings, unless properly designed, can be energy wasters.

In essence, there are steps which can be taken to make design amenities energy efficient. It is merely a result of appropriate design and design management decisions.

How can a broadcast executive determine when it will cost more to renovate an existing structure than it will to design and build a new one?

One important aspect of such planning is instructing the architect to initiate a comprehensive master plan to project future facility needs, and therefore, costs.

The broadcast facility executive can make an intelligent decision as to whether or not to remodel or to build a new facility by going through a very detailed, yet simple process with the architect. Steps in this process are as follows:

•Determine the long-term and short-term goals and objectives of the broadcast facility.

Does the organization intend to own and operate the station for an extended period of time? Or, as an example, is this the smallest station owned by the company that probably will be sold if the company has an opportunity to acquire a station in a larger market?

•Determine the long-term organization status with regard to the number of people who will be working in the broadcast facility.

•After determination of long-term goals, and the number of people and pieces of equipment necessary to achieve the long-term goals, the size of a building can be projected using a mathematical modeling process similar to the approach used for WTNH-TV, New Haven, Connecticut. WTNH was able, with assistance from Rees Associates, to project the quantity of building necessary to serve the needs of

Continued on page 54

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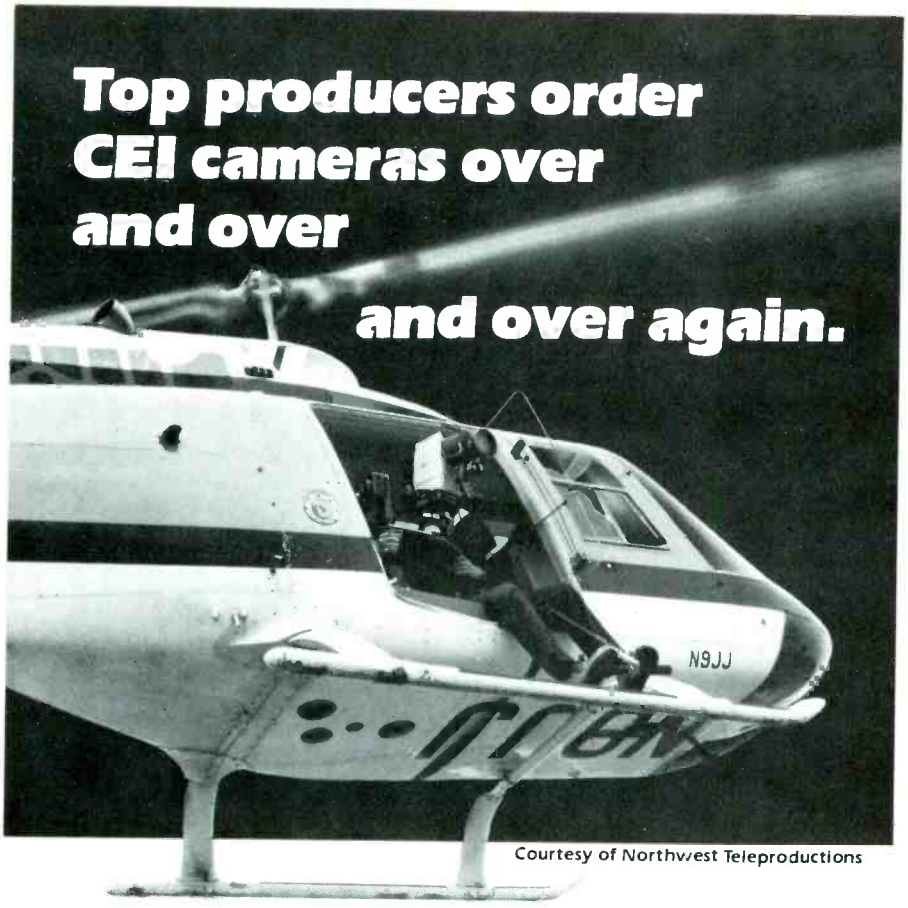

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Northwest Teleproductions, Minneapolis, constantly move their 7 CEI 310s and 2 CEI 330s around the country. "Their reliability is outstanding," Sherwood continued, "If I had written engineering specifications for a camera, including our operational requirements, the CEI 310 would fit those specs...and then some."

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1980-85 with an estimate of their requirements in 1990.

•Once the quantity of building necessary has been determined, an evaluation can be made regarding the cost of providing a new building to serve the space needs. This can be compared to the cost of renovating or expanding an existing facility to meet the same needs.

•The cost of the renovation project vs. the cost of the new construction project can be compared and if the salvage (sales) value of the existing facility is appropriate. Quite often, a new building might provide the lowest cost solution. If there is not a market for the existing television facility, the overall lower cost may be realized through renovation or expansion of the existing building.

This approach will provide a broadcast executive with the information he needs to make a decision as to the future of his facility. This information can be generated by experienced broadcast facility planners and architects at a relatively low cost to the client. This enables the client to make an appropriate decision.

A detailed discussion of this process can be found in a recent issue of *i.f. Magazine*, a publication of the television division of the National Association of Broadcasters (Volume II, No. 4, Winter 1980).

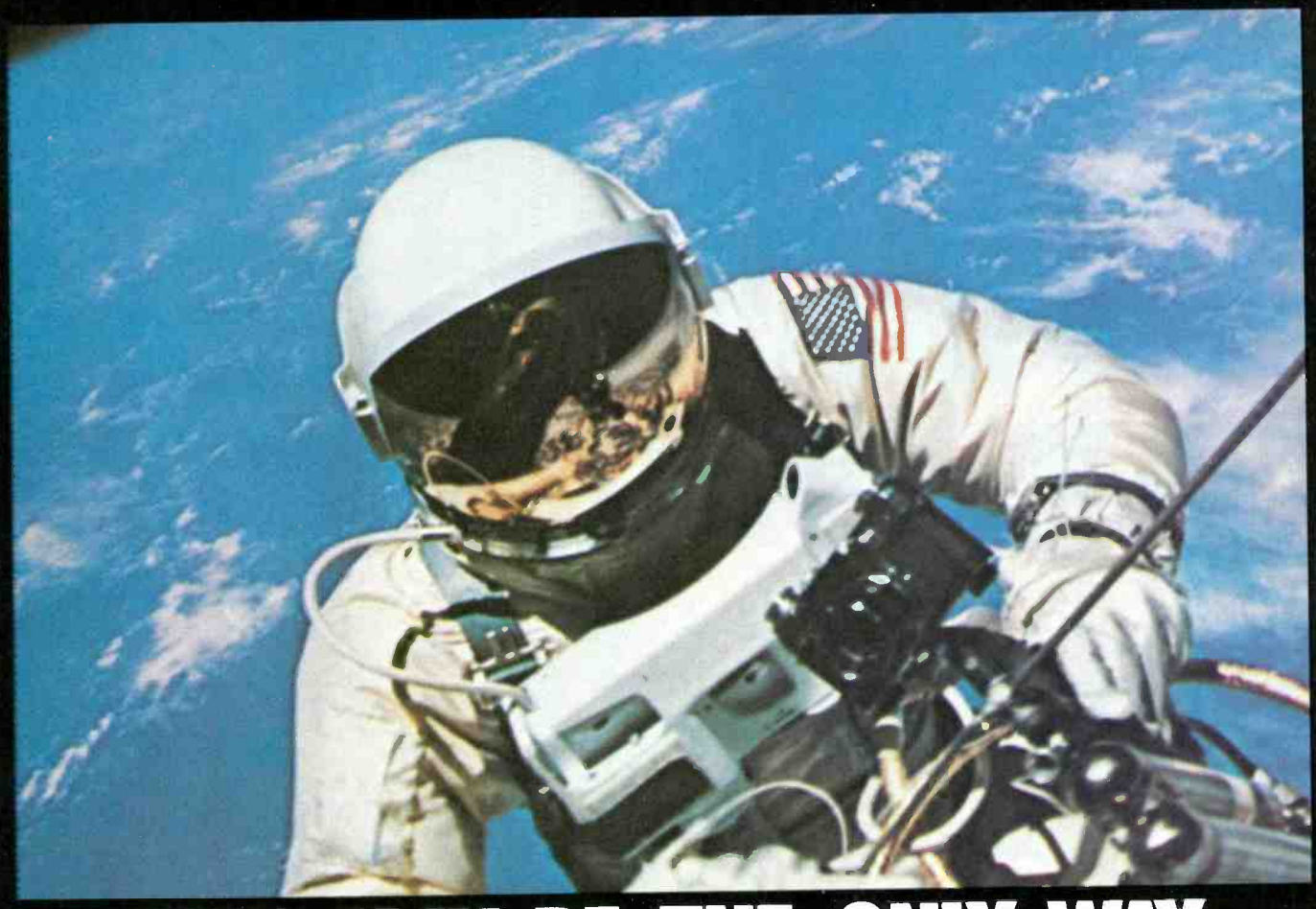
The importance of consulting a competent estimator quickly becomes evident in attempting to evaluate the benefits of renovation vs. new construction. The estimator works as a consultant to the architect and specializes in gathering and comparing building trends and their associated costs.

His evaluation takes into account local construction indexes which detail the cost of various construction methods and materials.

Editor's Note: To our knowledge, this is the first article series in this industry that tackles the most asked questions and sheds light on the most commonly misunderstood procedures in new station construction. At the upcoming NAB convention, Frank Rees will conduct a session dealing with many of these points. It should be a session your staff will want to attend.

For a direct interface, you can reach Frank Rees at Rees Associates Inc., Fifth Floor, 722 North Broadway, Oklahoma City, Oklahoma 73102. The business number is 405-235-8240.

Meanwhile, this magazine invites your comments and ideas on this and any other subject of interest to broadcast stations. Whether remodeling, renovating, or starting new, we'll help you share your pride worldwide. BC



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Cost-effective remotes are waiting in the sky

PART 2
BY RUTH MACY

A little girl and a yellow macrame bracelet. That's what Paul Conti, projects manager at WAST-TV, Albany, will tell you is the reason for his station's recent and unexpected plunge into satellite ENG.

"Believe me, as late as Monday, we had absolutely no dream that on Wednesday we'd be on the air live from Washington, D.C., with our own correspondent standing in front of the Capitol," says Conti.

All this came about, according to Conti, because of a story WAST had done at the time the 52 American hostages left Iran for Algiers. The story showed a young Albany girl removing the yellow bracelet she had worn during the hostages' captivity.

The engaging seventh-grader captured the attention and hearts of many in Albany. And so on Monday night, when a local congressman secured a VIP pass for the girl to Wednesday's welcome home ceremonies at the White House, Paul Conti decided to send a crew down to Washington to follow her.

But Conti soon realized that there would not be enough time to tape the story, ship it back to Albany, and edit it before the 6 o'clock news. He decided to find out how much it would cost to use a transportable satellite uplink.

"We didn't feel that the cost was exorbitant," says Conti. "And those of us in news certainly felt that the news value of the event justified the expense. But we needed the approval of the general manager.

"Since several other stations were to be using the transportable uplink on a shared basis, the price we were quoted reflected that sharing arrangement. So we told the general manager first what the sharing price would be and then we told them what the cost would be if there weren't any other sharers."

"He coughed once and said 'let's do it.'"

On Tuesday Conti phoned Wold Communications, and within about 45 minutes he completed the arrangements.

But within those 45 minutes, Conti laughs, "It seemed like every five minutes I was calling back with another question. I felt like a real pest, but I had never done anything like this before."

According to Conti, who served as field producer (he was accompanied to Washington by one correspondent and one photographer), Wold's engineers asked him what he was planning to do and then told him what equipment he would neet to do it (e.g., lights, cable, camera and microphone, power source, telephones, adapter devices, etc.). A Woldcom technician also asked if Conti had made downlink arrangements on the Albany end. Conti told him that, by coincidence, WAST had just accepted delivery on a new 7-meter Scientific-Atlanta RO (receive-only) antenna, and that installation would be completed by the next day. He hoped.

From approximately 6 p.m. to 6:15 p.m. Wednesday night, Albany viewers got their only opportunity to see 12-year-old Cory Chartrese and Congressman Gerald Solomon live in Washington. During this 15-minute segment, which opened the WAST newscast, correspondent Ellen Miller interviewed the girl and the congressman and introduced network pool tapes of the day's events, which were rolled from Albany. In addition, by using a telephone hook-up, Miller was able to field questions from the anchors in Albany.

The live-via-satellite feed marked the first use of WAST's downlink, which had become operational just hours before the telecast.

"It was so exciting," says Conti, who, now that he's had a chance to reflect on the experience, adds: "Considering that you're at the mercy of who-knows-how-many silicon chips, it's really a miracle that it worked."

The fact that it did "work" has brought praise from many sources. "Some of the nicest compliments came from our competition," says Conti. "Some of them were a bit green-eyed."

The competition, in fact, is one of the reasons why WAST elected to do the live satellite feed in the first place. The station currently is number three in a three-station market. Conti believes that such innovative newsgathering techniques may just give the station the edge that it needs.

Another station that tested the satellite ENG waters for the first time to cover the hostages' return was KSTP-TV, St. Paul. (Actually, KSTP, an ABC affiliate, had covered the 1980 Democratic and Republican national conventions live via satellite facilities that the ABC Television Network had provided its affiliates. This, however, marked the first time that KSTP had to make its own uplinking and downlinking arrangements.)

According to KSTP news director Stan Turner, two of the hostages had families in Minnesota and KSTP had been following these families closely throughout the ordeal.

"The story was very important to the people in this area," says Turner. "We knew that the network wouldn't be able to cover the local angle of the story as well as we could, so we decided to do it ourselves.

The competition was also a factor. KSTP is close on the heels of WCCO-TV, Minneapolis, which currently is on top in the four-station market. WCCO also used a transportable satellite uplink in Washington.

"Since we began transmitting on Saturday and WCCO didn't start until Monday, we actually had exclusive coverage over the weekend," beams

Continued on page 58

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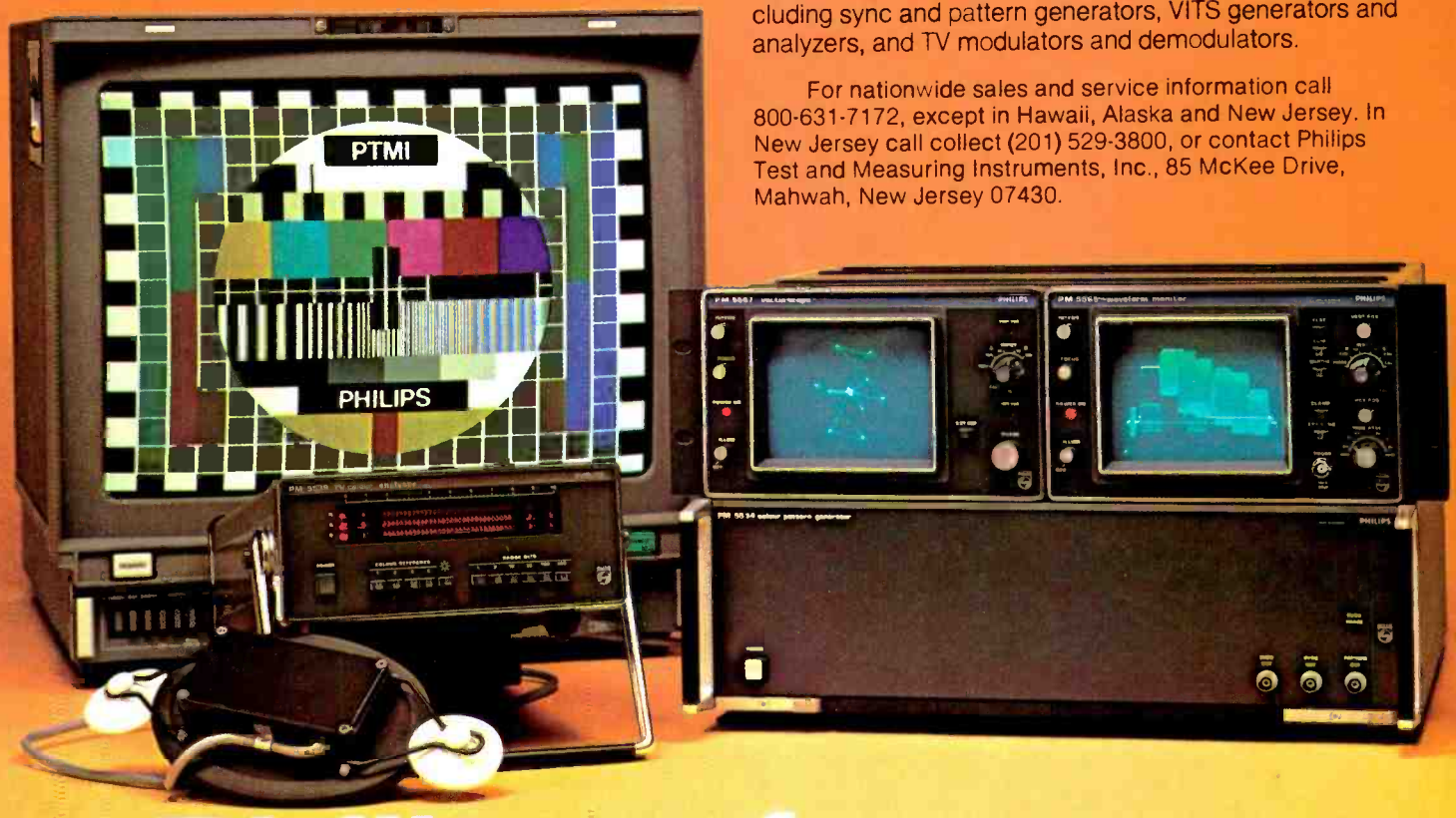

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Turner.

When asked how much of a factor cost was in the decision to feed or not to feed live from Washington via satellite, Turner replied: "Cost is always a serious consideration, but in our view, the weight of the story easily justified the expenditure."

Whereas WAST's crew numbered only three, KSTP's Washington contingent included two reporters, three photographers, one editor, one engineer, and one field producer. Likewise, the amount of equipment the KSTP crew brought along, including a BVU 200 videotape machine, a time base corrector, a TK-76 camera and a BVU 110 field VTR, color monitors, and an IFB system, greatly eclipsed the resources of WAST.

But despite its extensive array of equipment and despite the advance planning, KSTP found itself on location without phones.

"Luckily," says KSTP assistant news director Tom Wayne, "we found that, in this situation, everyone sort of bands together and shares. We were able to pick up a couple of phones by bartering our BVU 110 and time base corrector."

But phones weren't the only problem that the KSTP crew encountered. They found themselves engaged in last-minute scrambles for standup locations and for downlinks, too.

"We had wanted to originate on Monday from the Rayburn Office Building," says Wayne, "and we understood that cable had already been laid. But when we got there, we found out that the cable had been laid by WCCO—our competition. Rather than put anyone on the spot, we just decided to go find another location."

That situation was resolved by the next day, when Wold Communications laid its own cable at the Rayburn Building. But by this time, KSTP personnel were scrambling for downlinks.

"We weren't familiar with satellites, and therefore weren't prepared for the quick operational changes that sometimes have to be made," says Wayne. "At one point, we were switched from one satellite to another, which meant that our receive dish had to be repositioned in order to receive the signal."

KSTP transmitted both live standups and preproduced tape packages over a four-day period.

"Although a small part of our video wasn't 100 percent, I'd have to say that, overall, everything went very well," says Wayne. "Especially considering that it was our first time."

Wayne is anxious to use a transportable satellite uplink again, but hopes to have his engineer attend a "how-to" course prior to the next use. (The International Association of Satellite Users in McLean, Va., is prepared to offer such a course if it receives sufficient interest.)

Engineer Bob Sutherland operates the controlling devises for the earth station. The Scientific-Atlanta package will automatically locate and polarize for each satellite which is currently airborne and can be expanded to include future "birds" without additional cost or equipment.

On-the-job experience, however, seems to be the best teacher. For Elden Hale, executive producer, KXAS-TV, Dallas, the Reagan inauguration marked his station's third use of a transportable uplink.

Both Monday and Tuesday, the KXAS 5 o'clock newscasts included live inserts from Washington. The 6 and 10 o'clock newscast were co-anchored in Dallas and Washington. Behind the Washington anchor stood the Washington Monument.

"Of course, you can't out-network the networks," says Hale, who used network pool tape for the ceremonies and the parade. "We were in Washington to cover the Texas angle, people like George Bush and Senator John Tower."

And cover it they did—so well, in fact, that the *Dallas Morning News* labeled their coverage of the local angles "enterprising and entertaining . . . a mission accomplished."

The transmissions went off without a hitch, and, as Hale himself admits, "We've gotten to be pretty good at setting up these satellite feeds."

But Hale still finds downlinking to be a bit tricky. A Woldcom traffic coordinator assisted KXAS chief engineer Tom Bedford in arranging for an RCA downlink in Houston and then for AT&T landlines from Houston to Dallas.

"The only difference between doing ENG here in town and doing it by satellite," says Hale, "is that when you're going by satellite, you've got to stay on top of things more closely. At any moment, they may have to change transponders on you."

Another satellite ENG veteran, Dave Underhill, chief engineer of WCVB-TV, Boston, arranged (and pulled off) what were probably the most complex remote transmissions done by a local station at the inauguration.

Using the mobile production facilities of Mobile Video in Washington, WCVB was able to switch not only between Boston and Washington, but also between live remotes from two different Washington locations. And at one point, a WCVB reporter in Washington did a live voiceover while an edited ABC tape rolled in Boston. (So that the Washington reporters would not hear an echo in their earpieces—caused by the slight time delay of satellite transmission—mix-minus was sent down from Boston to Washington and the Washington reporters were then added in real time.)

Since the advent of portable ENG cameras several years ago, going live clearly has been where it's at. And going live by satellite has become an economical means for providing up-to-the-minute, localized coverage of national events—coverage that is unavailable from any other source.

"I think our audience has come to expect that we will be live, whether that means locally or anywhere else," states Rick Gevers, executive producer of KSDK-TV, St. Louis.

Jim Thistle, vice president of WCVB-TV, Boston, has come to the same conclusion. "It's expected that Channel 5 will provide live coverage. In fact, I think we would have heard about it had we not been in Washington for the inauguration. This is a very political state."

Paul Conti of WAST-TV, Albany sums it up:

"Satellite technology has opened new doors. It has become clear to local stations that their local boundaries have been redefined. You used to stop your coverage where your signal area ended. Now your coverage area extends as far as whatever affects your viewers."

And what is the cost for this enhanced local coverage?

Wold's base price for exclusive use of a transportable uplink is $10,000 for the first day and $1,000 for each successive day. Added to this base rate is a $250-per-hour uplinking charge, satellite transponder time (which varies by satellite and by time of day), and a ground transportation charge, billed at

50 cents per mile to and from the site and Washington, D.C.

A shared-use package similar to those Wold Communications has offered at the 1980 Republican and Democratic national conventions, and for coverage of the Reagan inauguration and the hostage return, can be had for a small fraction of the above rates.

How these costs are viewed, of course, will depend on the value that the station places on the benefits to be achieved. In any event, the cost of satellite transmission is almost always less expensive than telco.

"In 1977, we covered the inauguration live via telco. This year, we used satellite, and I know it cost us a lot less to do it this time," says Jim Thistle of WCVB.

For those local stations considering getting their feet wet with satellite ENG, it all begins with a phone call. In addition to Wold Communications, other organizations that provide transportable uplink service include the Public Service Satellite Consortium, Southern Satellite Systems, and Western Tele-Communications Inc.

Sometimes it is the news director who places the call; other times it is the chief engineer.

In the case of a shared-use package, the caller may be responding to a telex sent our by Wold Communications, advising stations of the availability of transportable uplink service for coverage of a specific high-interest event. Or, the caller may be phoning on behalf of a group of stations that have gotten together on their own and decided to share a transportable unit.

Whoever the caller is, whether he or she is interested in shared use or exclusive use, there are certain basic questions that will be asked: What is to be the origination site? What are the date(s) and time(s) of tranmission? What is the receive location(s)?

"Basically, the transportables can go anywhere in the contiguous 48 states," says Robert E. Wold, vice president in charge of radio and television sales for Wold Communications. "And the only restrictions on where they can be parked are that they must have a clear, unobstructed view of the satellite and they cannot interfere with any local terrestrial microwave."

Wold Communications will arrange for microwave or a local telco loop from the point of origination to the uplink location. For stations participating in a Woldcom shared-use package, the price for the microwave or telco loop usually is included in the package price, according to Wold.

Stations are advised to call in as early as possible, both to reserve a transportable unit and, in the case of a shared-use situation, to reserve specific time slots.

"As far as lead time is concerned, the only limiting factor is on-the-road travel time. Sometimes it may require as many as three days for a transportable uplink to reach its destination. That would be the case, say, if the unit had to travel from Washington, D.C., to Washington State," says Wold. "Once in place, however, the unit can be transmitting within an hour and a half."

Because certain time slots tend to be more popular than others (namely, those that fall within the 5, 6, and 11 o'clock local newscasts across three time zones), Wold urges stations to reserve early for the slots they need.

Sometimes, because of heavy demand, limitations must be placed on the amount of time available to any one station. "During our uplink service for the return of the hostages," says Wold, "we had to limit stations to one 15-minute block of time every three hours."

Stations planning to use the transportable for both feeding tape and doing live remotes will have to coordinate their transmissions with such limitations in mind.

Broadcasters who are unsure about what equipment and/or personnel they will need to bring along also can get assistance with those matters.

"When a broadcaster seeks our advice, the first thing we need to find out is what he wants to accomplish," says Wold. "And once we know what he wants to do, we can determine what facilities and personnel are needed.

"Some stations come with crews of three—a correspondent, a photographer, and a field producer. Others come with three of each plus a couple of technicians. Some stations will need only one phone; others may need four. Some stations can get by with their everyday ENG gear. Others will require remote studios and switching and editing facilities. It all depends on the complexity of what they're doing."

In case there are still any raised eyebrows out there regarding the simplicity of satellite ENG, consider the words of Jay Newman, news director of KOVR-TV, Sacramento, who used a transportable uplink for the first time to cover the inauguration.

"It's not that complicated. Basically, it's not different from doing any remote via either telco or microwave. You use the same equipment. You plug in and you're ready to go."

Well, almost.

Editor's Note: If it had been questioned before, the local station satellite ENG coverage of dramatic news events in the last six months proves that it's neither blue sky nor technical overkill. And, as some of the stations covered in this article see it, satellites are one way to get the competitive edge you need.

Our thanks to the Robert Wold Company for their cooperation in bringing satellites down into the real world. By the way, the Wold telephone number is 213-820-2668. BC

From left to right: Photographer John Basko, reporter Ellen Miller, Congressman Gerald Solomon, and Corrie Chartres, on the South Lawn of the White House.

Small-market remotes can be cost effective

BY W. LEROY SCHNECK

Just reading the January issue of BROADCAST COMMUNICATIONS demonstrates that radio is getting out of the studio and into the streets...and that's good. At WNAE/WRRN, a small-market operation in Warren, Pa., we have been doing remotes for a long time.

For three or four years we used a motor home for a remote studio. This had some advantages. A 5000-watt generator made us self-sufficient from outside power sources and we did have our kitchen and bath facilities, but these contributed very little to the quality of our remotes.

W. LeRoy Schneck is general manager of WNAE/WRRN, Warren, Pennsylvania.

The energy situation prompted the sale of the motor home and left us without a mobile studio. Equipment for broadcasting from the motor home was lugged in and out, and on more than one occasion someone had to go back to the studio to get something that had been forgotten. A rolling studio for broadcast-purposes-only was our goal. So we went shopping.

A small, used, 16-foot travel trailer in very good condition was found at a decent price for the basic vehicle. A 16-foot trailer has a floor area about 12 feet long, which gives adequate space for a disc jockey and the other people and equipment necessary or desirable for a variety of remotes.

Most of the trailer's normal housekeeping equipment was removed and a much larger rear window was installed. This became the main studio window. To make the mobile studio habitable, a combination air conditioner-heater was added. This unit was one of the major expenses, but it was worth it.

We have two AC input connections. One for the electronic gear and the other for the atmospheric control.

For a decent studio sound, we carpeted not only the floor but also the walls. To give us a permanent studio we had a console table built in, and then

Continued on page 62

Large rear window and awning were added for maximum visibility in both directions.

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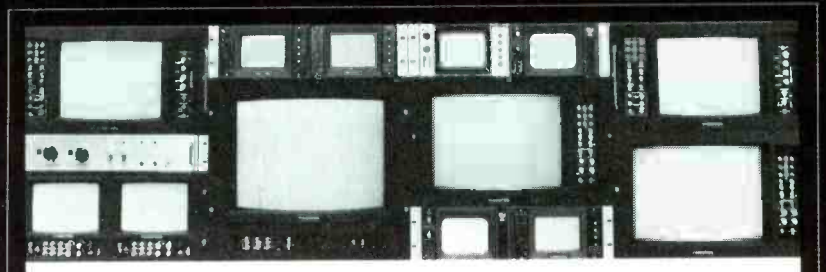

The same Videotek monitor bank whose color pictures are shown in the photograph above.

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(Above) Antenna mast bottom section is mounted permanently. Tourist information sign was part of a two-week on-the-street promotion. "Kinzua" refers to a large up-river dam that is the focal point of the tourist business locally.

we permanently installed most of the equipment.

A five-channel Sparta console used for a number of years in a news studio was moved into the trailer and a new console was bought for the news studio. All the trailer wiring is in place for cart machines. And to date we have been taking a couple of machines out of the studio for remotes.

To avoid as much as possible the "plumber's syndrome" (having to go back to the shop for forgotten tools) most of the equipment was built in. An AM/FM tuner is rack-mounted along with a PA amplifier for the speakers (mounted outside at both ends of the unit) and the regular monitor speaker inside.

We have not reached the degree of affluence that allows us to dedicate a Marti RPU to this unit alone, but all the wiring is in place so all that has to be done is to set the transmitter on a shelf, plug in the AC, the antenna and the audio input, turn it on and wait for a cue from the studio.

A permanent base for the antenna is mounted on the trailer hitch and two or three sections of extension pole with either a halo or yagi antenna can be put in place in a matter of minutes.

We tried to consider all contingencies in designing the equipment layout. An additional mike outlet was installed at the front of the trailer where the bench-table had been retained, an ideal spot for separate interviews or additional staff people. In a small panel behind a locked door on the outside of the trailer, a telephone block was installed along with additional mike outlets, additional speaker connections, and terminals for a separate remote amplifier.

Regular trailer jacks are carried along to level the unit and give it stability when on location.

Our total investment was around $3,000. Originally we had considered doing a good deal of the build-in work ourselves. But since we are a little shy of carpenters and carpet layers on our staff, we had this done by pros and the results were well worth it.

Naturally, the engineering staff did the wiring. Some of the original lockers were retained to provide space for additional equipment such as mikes, stands, cable, etc.

The control room (below) includes two turntables and a five-channel Sparta mono console.

An extra mike setup (bottom left) was installed in the front end of the trailer.

Since this mobile studio is not pulled over long distances, it should serve us for years. It is light enough that it can be towed by almost any vehicle. The company stationwagon, the chief engineer's car, and the news director's Jeep are all equipped to tow it.

It has been used on the main street, in front of business establishments, at malls and shopping centers, and at the county fair. It generates additional revenue, gives the station a good image, and it's the only moving billboard in town. BC

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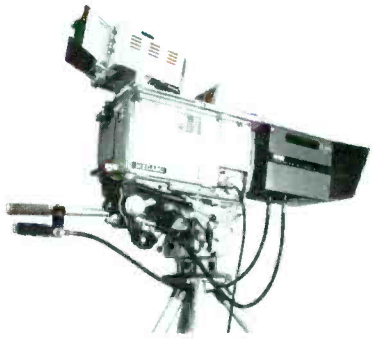

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STATION CONSTRUCTION:
Building today for tomorrow's needs

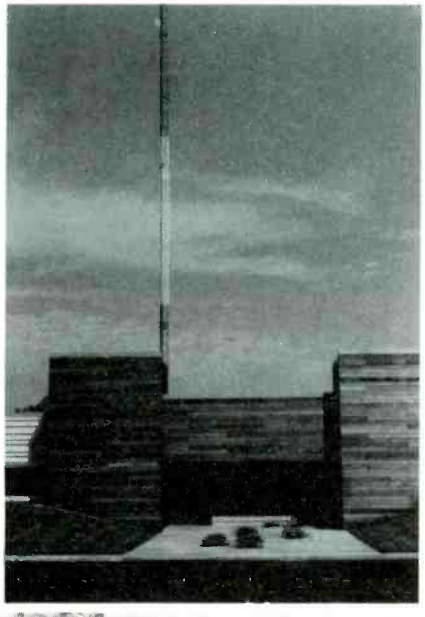
BY MIKE HENDRICKSON

WJON Broadcasting Company is located in one of Minnesota's fastest growing areas, St. Cloud. Fortunately, this has been reflected in a similar growth at WJON. Eventually, the price of growth for a growing station is lumped into a new facility.

Life was simple in 1950 when WJON went on the air. It wasn't until 1970 that the real growth began to take place. That year the company added WWJO-FM. We had 15 full-time employees and three part-timers.

In 1975 WWJO changed frequency and jumped its power to 100 kW. In three short years the WJON Broadcasting Company had grown to a staff of 40 employees and four part-time employees. All these people were working in a 3,000-square-foot building. Obviously, a major facility expansion program was in order if the company was to give first-class service to central Minnesota.

It was during the summer of 1978 that planning began for some type of building expansion. A number of meetings were held between department heads and Fred Wemlinger of Frederic Wemlinger and Associates, a local architectural firm. At these meetings, the department heads were requested to project their growth over the next five to ten years. They also had to relate the relationship of each department to each other. As part of this planning, Fred Wemlinger and I visited several stations in the upper Midwest and Winnipeg, Manitoba. The purpose of these visits was to gain ideas from other stations. Pictures were taken of each station to help convey these ideas when we returned.



By the summer of 1979, the planning was complete and we began considering the actual construction. The decision was made at this point to hire the construction management firm of D. W. Hutt Consultants. The reason for hiring the construction management firm was to enable WJON to act as its own general contractor. This permitted WJON to negotiate directly with the subcontractors.

Ground was broken during November 1979, and the building was completed 10 months later. We moved into the new facilities on October 3, 1980.

The new building is located by the AM broadcast tower. The size of the lot required that it be positioned beneath the guy wires. The ground radials had to be replaced beneath the new parking lots and the building floor slab.

The building is 12,027 square feet, all on a single floor. It consists primarily of two physically separated areas of production and general offices planned to control access to production spaces. The production area consists of two broadcast studios and three production studios. These five studios have support ing areas of three announce booths, a newsroom, record library, transmitter room, and a shop area.

The studios have been constructed with soundproof walls, ceilings, windows, and doors; they also have extensive interior acoustical treatment to accommodate the broadcast function. The studios are constructed, in effect, in a building within the basic building to provide excellent vibration and sound

Continued on page 66

Mike Hendrickson is chief engineer at WJON, St. Cloud, Minnesota.

WJON Broadcasting Company's new facility is located by the AM broadcast tower. The building is one floor and covers over 12,000 square feet of space. It consists primarily of two physically separated areas of production and general offices planned to control access to production spaces.

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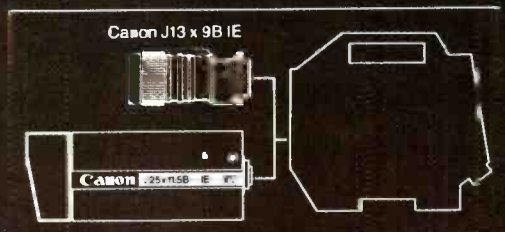

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transmission control and isolation.

The studios are designed to permit any one studio to go on the air if the main control room fails. Each of the studios are laid out identically to permit a board operator to go from studio to studio with a minimum of trouble. The operating position requires the announcer to either be standing or to use a high stool if he/she wishes to sit.

All the audio and control wire is routed from each studio to the audio terminal closet in the transmitter room. All studio interconnections are made at this location. This design permits a change to be made in the audio feed to a studio without extensive rewiring.

The general offices include a reception area with a children's room, executive offices, sales offices, meeting rooms, lunch room, washrooms, and other support areas. The sales office contains the sales office proper, plus the bookkeeping offices, traffic department, and copywriting department. The north wall of the sales office can be knocked out later when WJON requires additional space.

The building is gas heated and electrically cooled by multiple roof-top units, providing flexibility and back-up systems, should failures occur. The production studios are provided with a separate sophisticated air-handling system to provide silent, individual studio temperature control.

The electrical system of the building consists of three separate parts. The first part is the studio complex wiring and selected lighting throughout the building.

This part is backed up by a stand-by 30,000-watt generator. The third part is the air conditioning wiring. The electrical system was divided like this to prevent surges in the last two parts of the system from bothering the studio operation. WJON made a point of insuring that the incoming electric service was of low an impedance as we could get.

After this summary of the new facility, it should be pointed out that we ran into a few snags (and learned a lot) before life in the new WJON facility settled down to business as usual.

Behind any interesting new broadcast facility, there are moments in the building process of agony and ecstasy. So the following may help you the next time the subject comes up at your station.

The first problem WJON Broadcasting ran into was educating the architect. He was familiar with standard office buildings, but was not aware of the special needs of a radio station. These needs concerned locating the studios in relatively quiet areas of the building; using the hallways next to the studios as a sound lock; locating the restrooms not closest to the highest number of people, but closest to the studios; and getting the specifications worded so that no site work could be done unless a station engineer was present. (The new building was within the ground system of the AM broadcast tower.)

The next problems we ran into were with the mechanical and electrical engineers employed to design the air-handling and electrical sysems. We had to convince the mechanical engineer that if we could hear the air movement in the studios, it was too noisy. Each studio had to have its own thermostat because the studio might not be occupied for a time and then have four people in it for a recording session. We also had to get the air-handling systems located as far as possible from the studios.

The electrical engineers had to be educated on ground loops. We specified that all studio outlets had to have an isolated ground with an insulated ground wire pulled back to the electrical panels. They had to specify incandescent lighting in studios. (Not energy efficient, but does not cause electrical noise.)

After we received the first specifications for the project, we had to change several things. The electrical system was overdesigned. We required a major overhaul of that system. The mechanical system was overhauled as well.

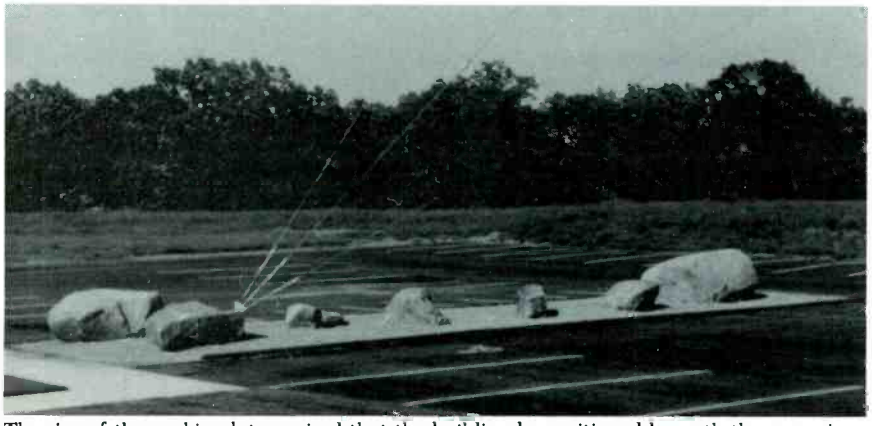
At this point, I have several recommendations. When you sit down with the electrical and mechanical engineers, discuss different options and *discuss prices.* Typically, architects and engineers are paid a percentage of the total project cost. The higher the project's cost the more they get paid. It is your responsibility to see that the project cost does not get out of line. Keep an eye on the quality of everything installed. You generally do not need top-of-the-line quality in everything that goes into a building. You may have several hundred light fixtures and outlets in your building. A difference of only a few dollars can quickly amount to a large sum of money. In other words, ask questions! Don't let them lead you blindly down the road to a new building. You have to use the building as well as pay for it, not the architects or engineers.

As soon as the building construction begins, be sure the station engineer is there or is quickly available. The engineer should be on site at least once a day. Be sure you notify the police that you are building and request night patrols to prevent theft and vandalism. (WJON's new building just about went up in smoke because some vandals turned on the propane lines in the building; 370 gallons of propane were vaporized in the building.)

At some time in the building project, one of the contractors will want to make some changes. As the owner or owner's representative, you have the final say as to whether a change is made. If you have any questions regarding the change, check with the architects. They should be approving any changes as well as you.

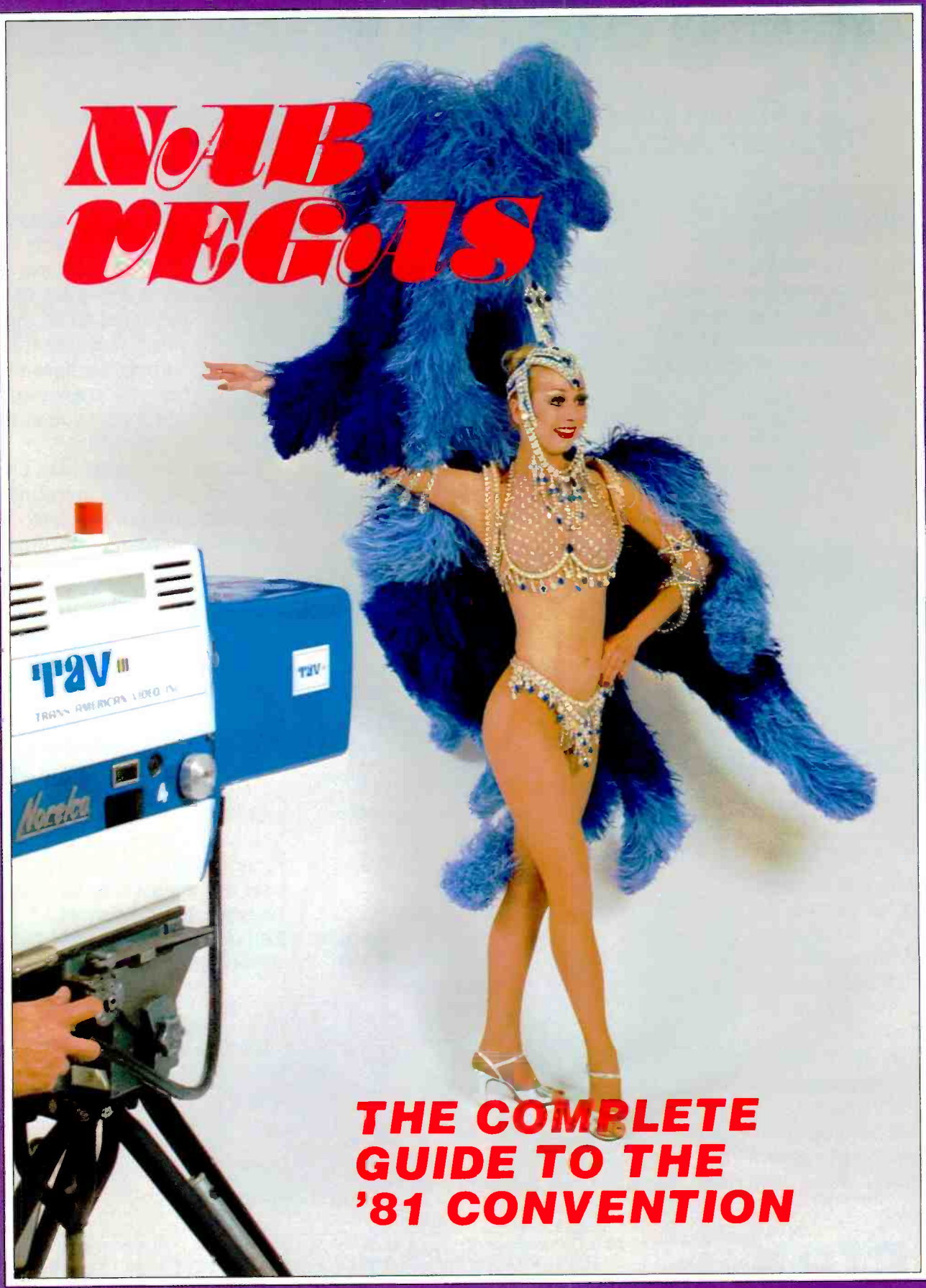
Finally, do not pay anyone in full until you are completely convinced their part of the project is complete and works as specified.

The WJON building project was aimeded at accommodating the present operation and anticipating future growth. But a key factor was that no cost overruns were permitted. The result was an on-target investment and a functional facility that will keep out stations in step with our area as it continues to grow. BC



The size of the parking lot required that the building be positioned beneath the guy wires. The ground radials had to be replaced beneath the new parking lots and the building floor slab.

NAB VEGAS



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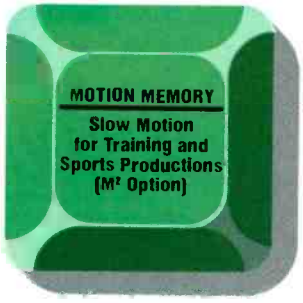

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Editing never ends with CMX because our staff editors provide complete 340X training that never stops growing. This training is supported by advanced seminars, newsletters, an editors' advisory panel, plus worldwide experience in post-production that only the editors at CMX have.

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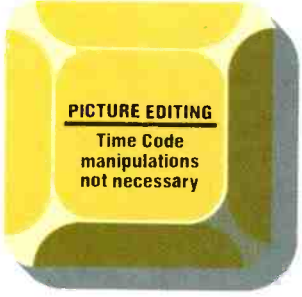
Editing never ends with CMX because your initial investment is protected from absolute simplicity to total performance. Before you invest in post-production, look at the difference in total investment between competitors' limited systems and CMX.



The 340X has replaced many other systems; and every CMX user has stayed with us when he expanded his system. Editing never stops with CMX when editing starts with CMX.

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AT THE NAB . . .

We Could All Be WINNERS

BY RON MERRELL

It's about time for the NAB convention again. So shuffle up the deck, and what do you get? A return to Las Vegas, April 12-15, and a very familiar looking hand. Our aces look more like jokers, and there aren't any wild cards.

As for the setting, it's a return to that strange place where people are entertained by losing money. And a place where hotel fires will be on our mind.

It's a city where some said an NAB convention would be a loser. Too many distractions and all that. The record of past Las Vegas NAB conventions will show they were the best ever. . . both for attendees and exhibitors. But the agenda record will show that the best place to deal with the nagging problems of our industry is the forum the show provides. . . no matter where it's held.

Now if anything has happened since the last NAB convention—and plenty has—the NAB has been involved. If the NAB were always as effective as it is vocal, broadcast communications would have a different look today.

One strong suit of any NAB convention (and it may be even more true this time) is the opportunity to hear other broadcasters in sessions and informal discussions airing the issues. Unfortunately, the crunch of time at the convention (for example, 32 hours of exhibit time) has cut so severely into the dialogue between broadcasters and exhibitors that we tend to forget how vitally interested they are in the problems that plague the industry. That's unfortunate because while they do want to sell equipment, they are as concerned about the issues as broadcasters are. Look around the room in any session, and you'll find exhibitors ready to participate.

Well, we can change dealers, but the results are alarmingly familiar. The more we change, the more we stay the same!

Looming changes, especially in the last year, aren't as dramatic as command-performance FCC actions. But they're equally important. For example, if we're getting closer to an acceptable teletext system, won't that affect the way television stations do business? And won't AM stereo at least get radio sales people in a more competitive frame of mind?

The prospects for the future are in line for a real boost from the technology, and this makes the broadcaster-manufacturer interface infinitely more important.

Any satellite-related booth in the exhibit area should get a priority. As another article in this issue says, satellite ENG is not just a new catch word or quarterly trend. Instead, it adds a new dimension to the news slot and it is very cost effective. Anyway, the whole subject of satellite programming will be pushed to center stage. The eventual programming flexibility satellites will provide are enticing our industry entrepreneurs to accept the competitive tidal waves as a challenge to surfing.

Further down the aisles, we can talk about digital's growing importance to the industry with the people who breathe life into chips. Or with those who want an audience for fiber optics.

While there's little doubt that endless conversations will focus on technology, it's a sure bet that the new administration and the FCC will be vowing for equal time. Generally, broadcasters will at least initially see the new administration as a positive move for the industry. However, the educational broadcasters might want to argue that point.

But over the past year we've seen a number of actions by the FCC that prompt good-news/bad-news jokes. At the last NAB we heard that a system had been selected for AM stereo. Then when we got home we found the subject on hold again. At the last NAB there were indications that deregulation and relief might really be on the way.

Community ascertainment could have been a major victory. The way it looks now, the latest action does away with some of the red tape, but the uncertainty of how the FCC will access what is reasonable programming is a lot more frightening then red tape ever was.

Community ascertertainment falls neatly into what the NRBA's Abe Voron calls re-regulation, not deregulation.

Dropping the First Class license and its exam, now that's deregulation. And where that idea came from, no one is sure. The barrage of negative responses filed by industry engineers has forced this one onto the back burner. The NAB and other interested parties would like to see a new, more comprehensive exam. No would would disagree with that. But early on, the NAB and the NRBA came out backing the docket that would drop the First Class license. And even if they were really more interested in a new exam than in dropping the license, these were very unpopular actions in the industry.

Chances are that the licensing matter will get the long, hard look it deserves. If so, everyone will benefit.

But most of the deregulation action is aimed at radio. TV? Too complicated, too political, and too hot to handle.

The input BROADCAST COMMUNICATIONS is getting from TV broadcasters is that they feel they can live with the increasing competition, but they don't know how long they can live with it if they are not given the same freedoms as their competitors.

Radio deregulation looks as if it's going to leave survival to the marketplace. Somehow, that's not appropriate for

Continued on page 70

TV. But it is for cable?

Since the last NAB convention the industry has argued about 9 kHz spacing, low-power TV, TV drop-ins, and renewals. And it's been downright discouraged about rising energy costs. And that's what makes an NAB convention so essential to the industry. It provides the platform and the forum we all need for the important issues that come to us whether we solicit them or not.

Fortunately, when each convention day ends on its own, we can slip into the Las Vegas night life and appreciate a bargain in comic relief. BC

(At right) The first broadcast via tape took place at CBS in 1956. CBS in Hollywood, shown here, replayed *The Douglas Edwards Show* three hours after it aired in New York.

Videotape recording marks 25th year

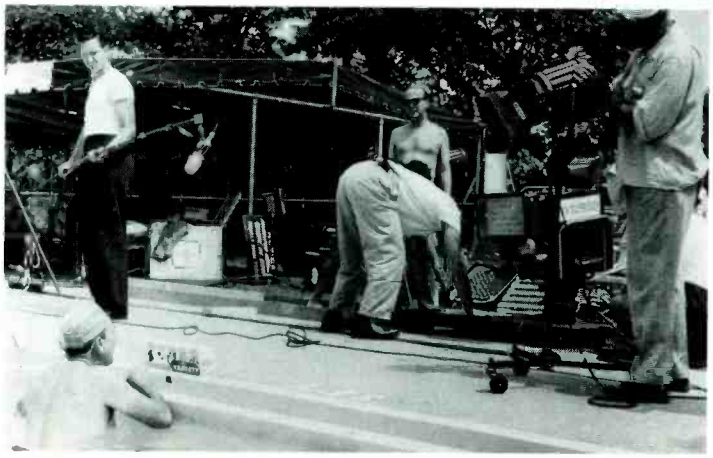
It was 25 years ago that videotape recording was introduced to broadcasters at an NAB convention. Actually, it was first demonstrated at a meeting of 200 CBS affiliates in Chicago. The Chicago audience of TV engineers, realizing they were witnessing history, stood up, stamped, cheered, and whistled their approval. Indeed, it revolutionized the industry.

Ampex, no doubt, will come to the convention with innovative products. But they will be exhibiting the pride they have for the part Ampex played in the videotape revolution. Charles P. Ginsberg is credited by his colleagues for not only the concept but, more importantly, the momentum of the project in the face of seemingly unattainable objectives. The Ampex team included Ray Dolby, Charles Anderson, Alex Maxey, and Fred Pfost. Shelby Henderson was the machinist who designed and built the mechanical components.

Today, the worldwide broadcast industry has absorbed well over $1 billion worth of high-quality VTRs and accessories.

And it should be remembered that companies like 3M also made a historic contribution with videotape that, like the machinery itself, is under constant research and improvement even today.

Chief engineer Ed Benham checks one of KTTV's (Los Angeles) recorders (at left) for one of the first tape syndications of local programs, *Divorce Court*.



No less than eight commercials were shot in two days at the Englewood Golf Club in New Jersey (above) back in 1959. The producer says it was the first time videotape facilities had been used in this manner for making network commercials.

(At left) *What's My Line?* In this photo it's announcer Dennis James (in the pool) doing a Kellog commercial in 1959.

(Photos courtesy Ampex Corporation and 3M Company)

Scotch" is a registered trademark of 3M.

For the second year in a row, Scotch® 479 won the award for the best picture of the year in a test of one-inch video tapes.

We scored well in all of the twelve categories tested, but especially well in the categories that commonly represent picture quality: color dropouts, high frequency dropouts, chroma noise, signal-to-noise ratio and stop motion.

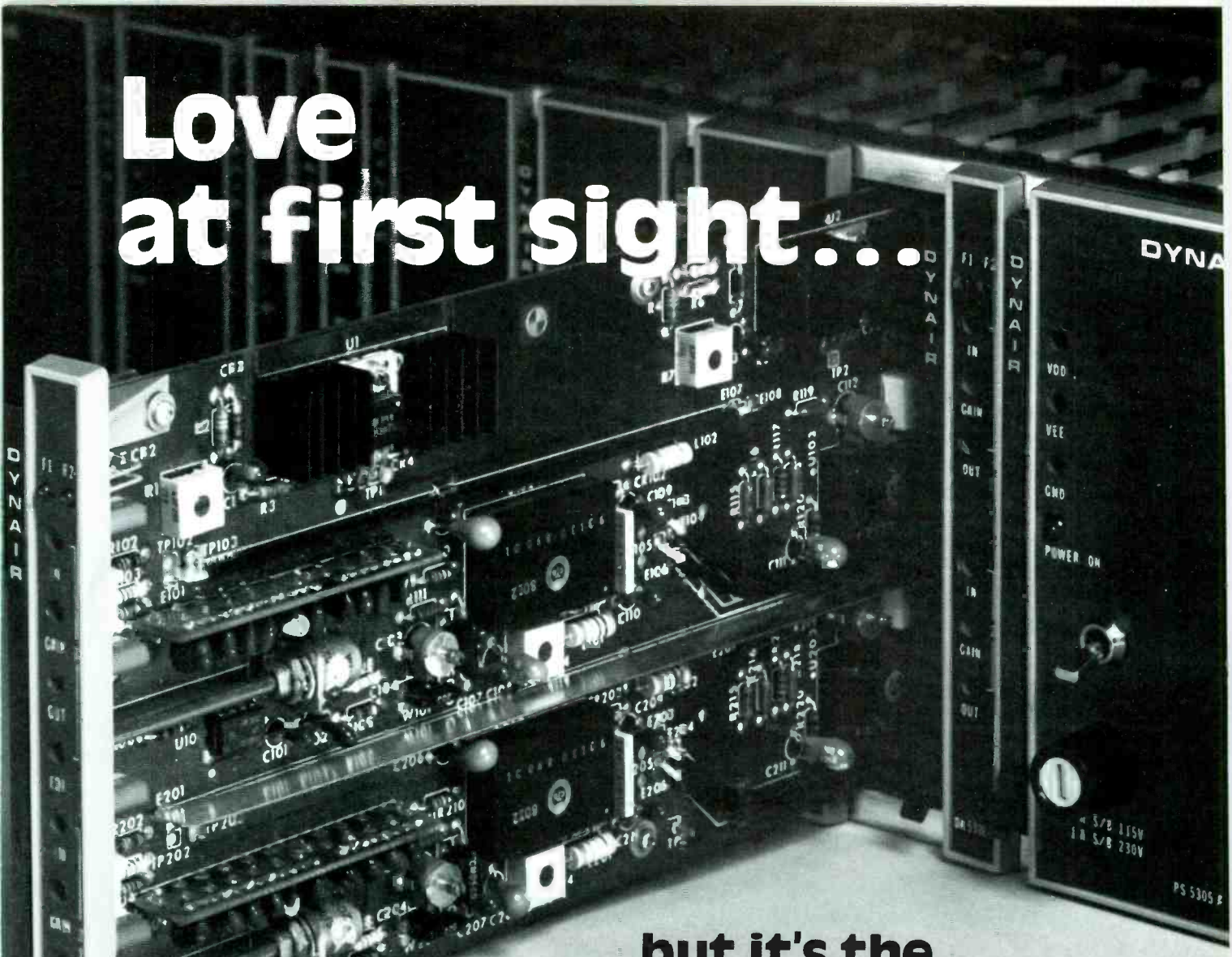
These were scientific, quantitative tests, conducted as you would conduct them yourself, with no room for brand bias. The meters didn't play favorites. The standards were the same for every brand tested. And we tested every brand.

These kinds of test results don't surprise us. We pioneered the invention of video tape. And we've been setting the standard for quality ever since.

Our quality has always been consistent from the first replay to the last. In fact, our sophisticated binder and oxide coating are more advanced than the binders and oxides on some quad tapes. They had to be advanced to meet the special durability demands of one-inch video production.

So choose Scotch 479 for your one-inch video production. You'll find it looks good from repeated mastering all the way through post production. And we've seen the test results to prove it.

3M



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Hum and Noise: 65 dB RMS below 1 V p-p, 10 MHz bandwidth
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* Dual 1 in – 2 out and 1 in – 10 out models available. 75 ohm unbalanced or 124 ohm balanced inputs available on all models.

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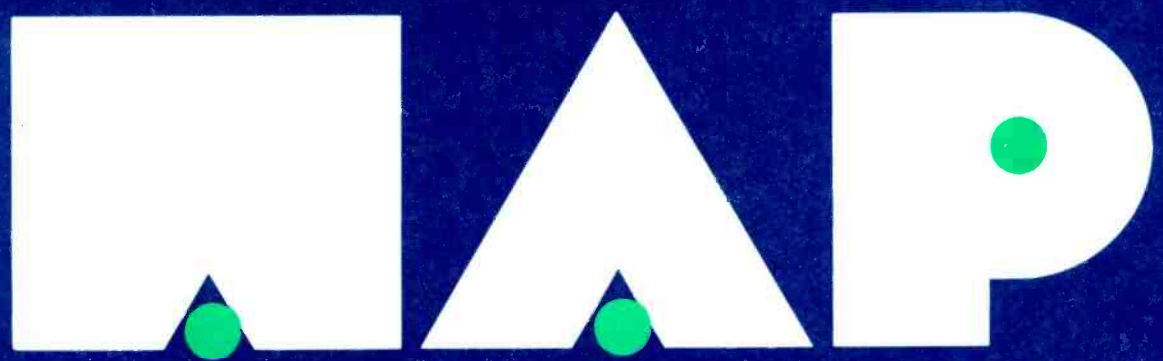
The no-nonsense



to help you locate any exhibitor without really trying

NAB Vegas: more than 400 companies exhibiting thousands of pieces of equipment spread over 200,000 square feet of exhibit area. And you have just 32 hours to see, hear, touch, and comprehend it all.

Impossible? Yes, unless you plan your time well before the trip to the convention...and especially before you begin your trip down the aisles.

You can make your convention experience a successful one by using BROADCAST COMMUNICATIONS' exclusive, proven No-Nonsense Map—designed to help you move down the crowded aisles...without getting spun around, trampled, and confused.

Turn to the exhibitor alphabetical listing on the following page. When you find the company you want, you'll notice a map locator number following it. E3, for example. It's as easy as using a highway map. Look for the letter E along the top, then the number 3 down the side. Presto! There's your exhibitor.

The NAB has opened a new area this year, so don't get confused. As last year, exhibitors are located in the North Exhibit Hall and the East Exhibit Hall. But because of the growing demand for booth space, the NAB has now opened the South Exhibit Hall to exhibitors.

The No-Nonsense Map actually includes three comprehensive maps: one for each exhibit area. Booths 100 through the 700s are located in the North Exhibit Hall; booths from 800 through the 2000s are in the East Exhibit Hall. In addition, several companies are located in the South Hall; these are signified with an "S" following their booth number.

When reading the map locator number, just remember that map key numbers A through I are in the East Hall, and J through N are in the North and South Halls. For example, a booth with a locator code of D4 would be in the East Exhibit Hall, while one located at M2 would be in the North Hall.

To determine which companies you would like to see, use the NAB Equipment Directory and list of NAB exhibitors included in this NAB Convention Guide.

COURTESY OF

BROADCAST COMMUNICATIONS® THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

ADC Products, Booth 181S (M1)
ADM Technology, Booth 1212A (F3)
AEG Telefunken (Bayly Engineering), Booth 130 (N3)
A.F. Associates, Booth 1035 (H2)
Accurate Sound, Booth 214 (M3)
Achro-Video, Booth 1503 (C7)
Acrodyne Industries, Booth 1103 (F,G6)
Adda Corporation, Booth 1515 (C 5, 6)
Advance Industries, Booth 401S (L1)
Adwar Video, Booth 345S (L1)
Agfa-Gevaert, Booth 1223 (E1)
Airborne Video Systems, Booth 203S (M1)
Allen Avionics, Booth 1633 (C3)
Allied Tower, Booth 504 (L5)
Allsop, Booth 1814 (B4)
Alpha Audio, Booth 306S (M1)
Amber Electro Design, Booth 327 (L2)
Amco Engineering, Booth 409 (L4)
American Data, Booth 803 (I6)
American Image Productions, Booth 314 (M4)
AT&T, Booth 1981 (A6)
Amperex Electronic, Booth 1032 (H6)
Ampex, Booth 702 (J2, 3, 4)
Ampro/Scully, Booth 102 (N6)
Amtel Systems, Booth 1327 (E1)
Amtron, Booth 1830 (B2)
Andrew, Booth 917 (H6)
Angenieux, Booth 904 (I4)
Animation Video, Booth 407S (L1)
Antiope Videotex Systems, Booth 1421 (D1)
Anton/Bauer, Booth 1617 (C5)
Anvil Cases, Booth 1626 (C5)
Arrakis Systems, Booth 209 (M3)
Arriflex, Booth 1835 (B2)
Arvin/Echo, Booth 1001 (G, H7)
Asaca/Shibasoku, Booth 1219 (E1)
Athans Communications, Booth 307S (M1)
Audico, Booth 1900 (B7)
Audi-Cord, Booth 319 (L3)
Audio & Design Recording, Booth 424 (L2)
Auditronics, Booth 404 (L4)
Autogram, Booth 415 (L4)
Automated Music, Booth 410 (L4)
Aurora Imaging Systems, Booth 622S (K1)
Avab America, Booth 1600 (C7)
Avantek, Booth 170 (N3)
BGW Systems, Booth 403S (L1)
The BTX Corporation, Booth 1501 (C7)
Bankers Trust, Booth 1961 (A5)
Beaveronics, Booth 1041 (H1)
Belar Electronics Labs, Booth 134 (N7)
Belden Communications, Booth 172S (N1)
Bell Helicopter Textron, Booth 1905 (A7)
Berkey Colortran, Booth 1116 (G4)
Best Audio, Booth 602S (K1)
Beston Electronics Inc. (BEI), Booth 801 (I7)
Beyer Dynamic (USA), Booth 1906 (B7)
Bird Electronic, Booth 915 (H6)
Blonder-Tongue Lab, Booth 1730 (B, C1)
Bogner Broadcast Equipment, Booth 517 (K3)
Bonneville Broadcast Cons., Booth 321 (L3)
Boston Insulated Wire & Cable, Booth 1011 (G6)
Broadcast Audio, Booth 218S (M1)
Broadcast Cartridge Service, Booth 325 (L3)
Broadcast Center, Booth 211 (M2)
Broadcast Controls, Booth 312 (M4)
Broadcast Electronics, Booth 304 (M6)
Broadcast Music Inc. (BMI), Booth 148 (N6)
Broadcast Marketing Assoc., Booth 437S (L1)
Broadcast Program. Int'l, Booth 316 (M3,4)
Broadcast Systems, Booth 1701 (B7)
Broadcast Technology, Booth 1023B (G4)
Broadcast Video Systems, Booth 1631 (B3)
CCA Electronics (also Singer Broadcast Products), Booth 103 (M7)
CEI, Booth 1109 (F,G6)
CMC Technology, Booth 1622 (C6)
CMX Systems/Orrox, Booth 1209 (E5)
CSI Electronics, Booth 106 (N6)
Cablewave Systems, Booth 1323 (D1)
California Microwave, Booth 156 (N5)
Cambridge Products, Booth 1614 (C7)
The Camera Mart, Booth 1406 (D2)
Canadian General Electric, Booth 431S (L1)
Candex Pacific, Booth 1700 (B7)
Canon USA, Booth 902 (I6)
Capitol Magnetic Products, Booth 506 (L4)
CaVox Stereo Prod./Tape-Athon, Booth 164 (N4)
Ceco Communications, Booth 1014 (H1)
Central Dynamics, Booth 1015 (G6)
Centro, Booth 2147 (A2)
Century 21 Programming, Booth 313 (L4)
Cetec Broadcast Group, Booth 305 (L6)
Cetec Vega, Booth 1621 (C5)
Cezar International, Booth 1718 (B4)
Chase Media, Booth 119 (M4)
Christie Electric, Booth 1002 (H7)
Chyron Corporation, Booth 1407 (D5)
Cine 60, Booth 1037 (H1)
Cinema Products, Booth 1417 (D2)
Circuit Research, Booth 126A (N4)
Clear-Com Intercom Systems, Booth 174/176S (N1)
Cohu, Electronics Division, Booth 900 (I7)
Colorado Video, Booth 1029 (G3)
Columbine Systems, Booth 332S (M1)
Comark Communications, Booth 515 (K3)
Comex, Booth 217 (M2)
Compact Video, Booth 1525 (C1)
Comprehensive Video Systems, Booth 1910 (B6)
Compucon, Booth 1902 (B7)
Computer Concepts, Booth 168 (N4)
Computer Graphics Lab, Booth 1982 (A5)
Computer Management Systems, Booth 421 (L3)
Computer Video Systems, Booth 188S (N1)
Comrex, Booth 105 (M6)
Concept Productions, Booth 326 (M2)
Conrac, Booth 809 (I4)
Continental Electronics, Booth 100 (N7)
Continental Plastic Card, Booth 179S (M1)
Control Video, Booth 1733 (B1)
Comsearch, Booth 1604 (C7)
Convergence Corporation, Booth 1101 (F,G7)
Cool Light, Booth 1831 (B2)
Corporate Comm. Consultants, Booth 2009 (B2)
Corporate Data Systems, Booth 207S (M1)
Coreco Research, Booth 158 (N5)
Crosspoint Latch, Booth 2111 (A3)
Crown International, Booth 190S (N1)
Custom Business Systems, Booth 308S (M1)
D-B Electronics, Booth 140 (N7)
DBX Inc., Booth 416 (L3)
Data Communications, Booth 2145 (A2)
Datametrics, Booth 1612 (C7)
Datatek, Booth 1227 (E2)
Datatron, Booth 1205 (E6)
Datatronix, Booth 103S (N1)
Delcom, Booth 1843 (B1)
Delta Electronics, Booth 400 (L5)
DeWolfe Music Library, Booth 1618 (C7)
Alan Dick (Canada) Inc., Booth 1007 (G6)
Dictaphone, Booth 110 (N5)
Dielectric Communications, Booth 1507 (C7)
Digital Video Systems, Booth 704 (J1)
Di-tech, Booth 1408 (D1)
Dolby Labs, Booth 1031 (G3)
Drake-Chenault, Booth 116 (N5)
Victor Duncan, Booth 1110A (G5)
Dynacom International, Booth 1134 (G1)
Dynair Electronics, Booth 813 (I4)
EEG Enterprises, Booth 1837 (B2)
EEV, Booth 925 (H2,3)
EG&G, Booth 1710 (B6)
E-N-G Corporation, Booth 1637 (B2)
ESE, Booth 208 (M3)
Eastman Kodak, Booth 1118 (G3)
Echolab, Booth 625S (K1)
Edcor, Booth 205S (M1)
Edutron, Booth 1815 (B5)
Eigen Video, Booth 1113 (G3)
Elcom Specialty Products, Booth 419 (L3)
Electro Controls, Booth 1100 (G7)
Electro Impulse, Booth 1130 (G1)
Electrohome, Booth 1003 (H6)
Electronic Engineering Assoc., Booth 1807 (B7)
Electro & Optical Systems, Booth 1511 (C6)
Electro Voice, Booth 1816 (B4)
Emcee Broadcast Products, Booth 1017 (G,H5)
Emil Ascher Music, Booth 222S (M1)
English Electronics, Booth 1018 (H1)
Enterprise Electronics, Booth 1820 (B3)
Enterprise Radio, Booth 120 (N5)
Environmental Container Systems, Booth 408S (M1)
Eventide Clockworks, Booth 177S (M1)
Fairchild Camera & Instrument, Booth 1315 (E1,2)
Faroudja Laboratories, Booth 1712 (B4)
Farrtronics, Booth 1723 (B4)
Fernseh, Booth 1208 (F5)
Fiberbilt, Booth 1817 (B5)
Fidelipac, Booth 204 (M4)
Film/Video Equipment Service, Booth 1818 (B3,4)
Filmways/Heider Recording, Booth 322 (M2)
Fitz-Gerald & Associates, Booth 626S (K1)
Flash Technology, Booth 931 (H1)
For-A Corp. of America, Booth 1826 (B2)
Fort Worth Tower, Booth 819 (I1)
Frezzolini Electronics, Booth 1608 (C7)
Fuji Photo Film USA, Booth 1307 (D5)
Fujinon Optical, Booth 1117 (F2,3)
Gardiner Communications, Booth 1840 (B1)
Garner Industries, Booth 1120 (G2)
General Electric, Booth 1104 (G7)
The Gerstenslager Company, Booth 528S (K1)
Cliff Gill Enterprises, Booth 160 (N4,5)
Glentronix, Booth 1824 (B3)
Alan Gordon Enterprises, Booth 1917 (A7)
Gorman Redlich, Booth 173S (M1)
The Grass Valley Group, Booth 1210 (F4)
The Great American Market, Booth 1628 (C2)
David Green Broadcast Consultants, Booth 125 (M3)

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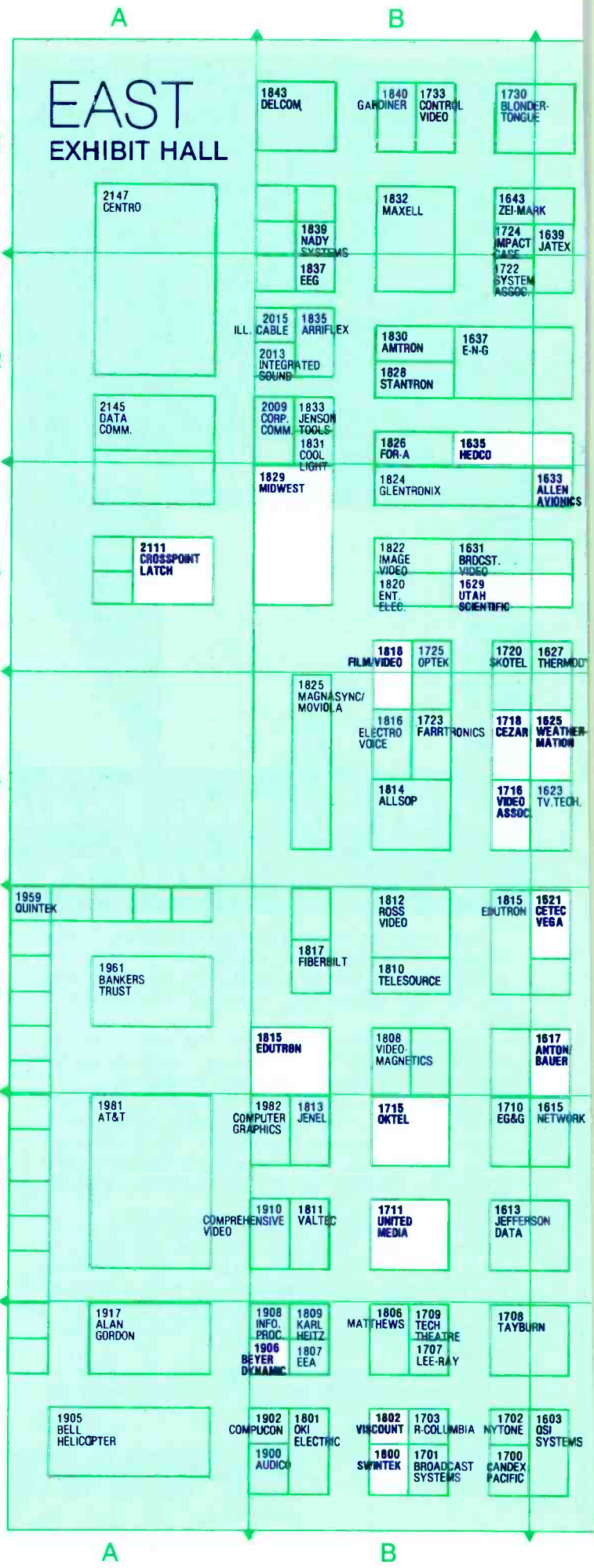

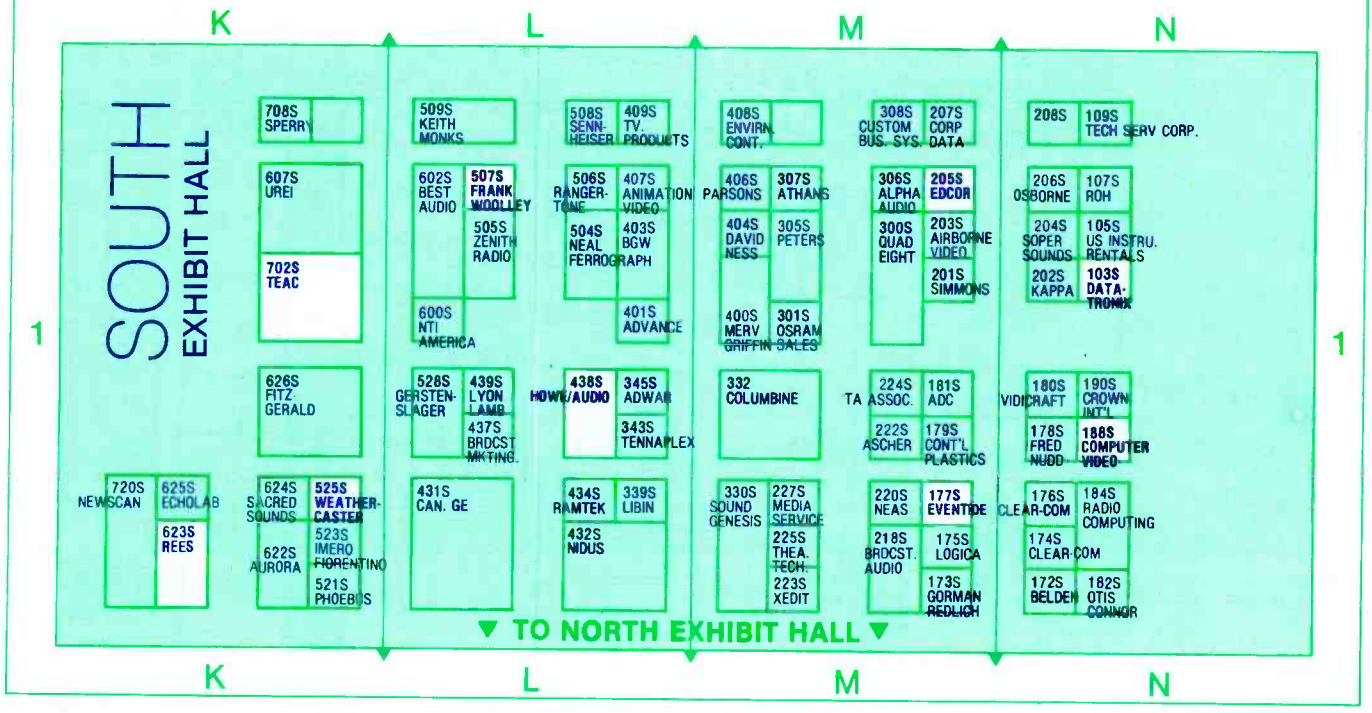

Gregg Laboratories, Booth 403 (L5)
Merv Griffin Radio, Booth 400S (L1)
Groton Computer, Booth 118 (N5)
HEDCO, Booth 1635 (B2)
HM Electronics, Booth 1509 (C7)
Hallikainen & Friends, Booth 514 (L3)
Harris Corporation, Booth 301 (K,L7)
Harrison Systems, Booth 507 (K5)
Karl Heitz, Booth 1809 (B7)
Hitachi Denshi America, Booth 1404 (D,E3)
Howe/Audio/BCP, Booth 438S (L1)
Howell Labs, Booth 128A (N3)
IGM Communications, Booth 101 (M7)
Ikegami Electronics, Booths 817, 1030 (I2, H1)
Illinois Cable, Booth 2015 (B2)
Image Video, Booth 1822 (B3)
Impact Case, Booth 1724 (B1)
Imero Fiorentino Associates, Booth 523S (K1)
Industrial Sciences, Booth 1115 (F3)
Information Processing Systems, Booth 1908 (B7)
Inmark, Booth 329 (L2)
Innovative Television Equipment, Booth 1405 (D5,6)
Inovonics, Booth 214 (M3)
Integrated Sound Systems, Booth 2013 (B2)
Interand, Booth 929 (H1)
International Tapetronics, Booth 501 (K6)
Jatex, Booth 1639 (C1,2)
Jefferson Data Systems, Booth 1613 (B,C6)
Jam Creative Products, Booth 121 (M3)
Jenel Consultants, Booth 1813 (B6)
Jenson Tools, Booth 1833 (B2)
Kalamusic, Booth 128B (N3)
Kaman Sciences/BCS, Booth 1419 (D1,2)
Kappa Systems, Booth 202S (L1)
Keith Monks (Audio), Booth 509S (L1)
Kings Electronics, Booth 1026 (H1)
Kliegl Brothers, Booth 923 (H3)
Knox Video Products, Booth 1033 (G2,3)
LPB, Booth 402 (L5)
LTM Corp. of America, Booth 1016 (H1)
L-W International, Booth 939 (H1)
Laird Telemedia, Booth 901 (H7)
Landy Associates, Booth 1102 (G7)
James B. Lansing Sound, Booth 203 (M3,4)
LeBlanc & Royle, Booth 1319 (D1)
Lee-Ray Industries, Both 1707 (B7)
Leitch Video, Booth 1212 (F3)
Lemo USA, Booth 1000 (H7)
Lenco, Booth 1206 (F6)
Lexicon, Booth 206 (M4)
Libin & Associates, Booth 339S (L1)
Lightning Elimination Assoc., Booth 317 (L4)
Listec Television Equipment, Booth 1027 (H3)
Live Sound, Booth 127 (M3)
Logica, Booth 175S (M1)
Logitek, Booth 136 (N7)
Lowel-Light, Booth 1004 (H7)
Lyon Lamb, Booth 439S (L1)
McCurdy Radio Industries, Booths 113, 308 (M4, M5)
McMartin Industries, Booth 300 (M7)
MCI, Booth 133 (N3)
MCI/Quantel, Booth 1207 (E5,6)
3M Company, Booth 815 (I3)
Magnasync/Moviola, Booth 1825 (B4)
Magnum Towers, Booth 324 (M2)
Marcom, Booth 214 (M3)
Marconi Electronics, Booth 927 (H2)
Marti Electronics, Booth 307 (L5)
Matrix Systems, Booth 152 (N5)
Matthews Studio Equipment, Booth 1806 (B7)
Maxell Corp. of America, Booth 1832 (B1)
Media Service Concepts, Booth 227S (M1)
Merlin Engineering Works, Booth 1128 (G1)
Micmix Audio Products, Booth 406 (L4)
Micro Communications, Booth 1108 (G6)
Micro Control, Booth 310 (M4)
Microdyne, Booth 1317 (E1)
Microprobe Electronics, Booth 408 (L4)
Microtime, Booth 1409 (D4)
Micro-Trak, Booth 508 (L4)
Microwave Associates, Booth 1401 (D7)
Midwest Corporation, Booth 1829 (B3)
Mole-Richardson, Booth 1008 (H6)
Moseley Associates, Booth 505 (K5)
Motorola, Booth 318 (M3)
Musicworks, Booth 323 (L3)
NEAS, Booth 220S (M1)
NEC America, Booth 1301 (D7)
NTI America, Booth 600S (L1)
Nady Systems, Booth 1839 (B1)
Nagra Magnetic Recorders, Booth 510 (L4)
Neal Ferrograph, Booth 504S (L1)
S. David Ness Studios, Booth 404S (L1)
Network, Booth 1615 (C6)
Newscan/McInnis-Skinner, Booth 720S (K1)
Nidus Broadcast Systems, Booth 432S (L1)
Nortronics, Booth 401 (L5)
Fred Nudd Corporation, Booth 178S (N1)
Nurad, Booth 1400 (D6)
Nytone Electronics, Booth 1702 (B7)
Oak Communications, Booth 1517 (C5)
O'Connor Creative Service, Booth 115 (M4)
O'Connor Engineering, Booth 1122 (G2)
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Oktel, Booth 1715 (B6)
Olesen, Booth 1411 (D3,4)
Optek, Booth 1725 (B3,4)
Orban Associates, Booth 411 (L4)
Orrox, Booth 1209 (E5)
Allen Osborne, Booth 206S (M1)
Osram Sales, Booth 301S (M1)
Otari, Booth 503 (K5)
Otis Conner Productions, Booth 182S (N1)
Pace, Booth 1028 (H1)
Pacific Recorders, Booth 511 (K4)
Panasonic, Professional Audio, Booth 600 (K5)
Panasonic, Video Systems, Booth 1521 (C,D3)
Parsons, Booth 406S (M1)
Patrick Computer Systems, Booth 171 (N2,3)
Pep, Booth 1006 (H7)
Perrott Engineering, Booth 1023 (G4)
Peters Productions, Booth 305S (M1)
Phelps Dodge Communications, Booth 112 (N5)
Philips Broadcast Equipment, Booth 807 (I5)
The Phoebus Corporation, Booth 521S (K1)
Porta-Pattern, Booth 1325 (D1)
Potomac Instruments, Booth 109 (M5)
Power-Optics, Booth 1017A (G,H5)
Procart, Booth 315 (L4)
Protech Audio, Booth 123 (M3)
QEI, Booth 417 (L3,4)
QSI Systems, Booth 1603 (C7)
Q-TV/Telesync, Booth 907 (H7)
Quad Eight Electronics, Booth 300/302/304S (M1)
Quick-Set, Booth 1012 (H2,3)
Quintek, Booth 1959 (A5)
RCA Corporation, Booth 700 (J5,6,7)
RCA American Comm., Booth 700 (J5,6,7)
RCA Solid State, Booth 700 (J5,6,7)
RPM, Booth 333 (L2)
RF Technology, Booth 1624 (C5)
RTNDA, Booth 150 (N5)
RTS Systems, Booth 1525 (C1)
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Ramtek, Booth 434S (L1)
Rangertone, Booth 506S (L1)
Recortec, Booth 1200 (F7)
Rees Associates, Booth 623S (K1)
Research Technology, Booth 1112 (G4)
Rohde & Schwarz, Booth 1110 (G5)
Roh, Booth 107S (N1)
C. N. Rood, Booth 214 (M3)
Rosco Labs, Booth 1039 (G1)
Ross Video, Booth 1812 (B5)
Rupert Neve, Booth 1203 (E7)
Russco Electronics, Booth 207 (M3)
SWR, Booth 1626A (C5)
Sacred Sounds, Booth 624S (K1)
Saki Magnetics, Booth 331 (L2)
Scientific Atlanta, Booth 1119 (F,G2)
Sennheiser Electronics, Booth 508S (L1)
Sescom, Booth 905 (H7)
Sharp Electronics, Booth 1121 (F1)
Shintron, Booth 1107 (G6)
Shively Labs, Booth 128A (M3)
Shure Brothers, Booth 107 (M5)
Sigma Electronics, Booth 1602 (C7)
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Sintronic (also Singer Broadcast Products), Booth 126 (N4)
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Soper Sounds, Booth 204S (N1)
Sound Genesis, Booth 330S (M1)
Sound Technology, Booth 1132 (G1)
Sperry, Booth 708S (K1)
Sphere Electronics, Booth 609S (K1)
Stainless, Booth 1009 (G6)
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Stanton Magnetic, Booth 118A (N5)
Station Business Systems, Booth 509 (K4)
Storeel, Booth 911 (H6)
Strand Century, Booth 1204 (F6)
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Swintek Enterprises, Booth 1800 (B7)
Sylvania Lighting/GTE, Booth 909 (H6)
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TFT (Time & Frequency Technology), Booth 124 (N4)
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Teac Corp. of America, Booth 702S (K1)
Teatronics, Booth 1505 (C7)
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Tech Theatre, Booth 1709 (B7)
Tektronix, Booth 1111 (G4)
Tele-Cine, Booth 1114 (G4)
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Telesource Communication, Booth 1810 (B5)
Telestrator, Booth 929 (H1)
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Television Products, Booth 409S (L1)
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U.S. Tape & Label, Booth 407 (L5)
Ursa Major, Booth 414A (L3)
Utah Scientific, Booth 1629 (B3)
Utility Tower, Booth 500 (L5)
V&B Tower, Booth 320 (M3)
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Video Data Systems, Booth 1523 (C2)
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Zei-mark, Booth 1643 (B1)
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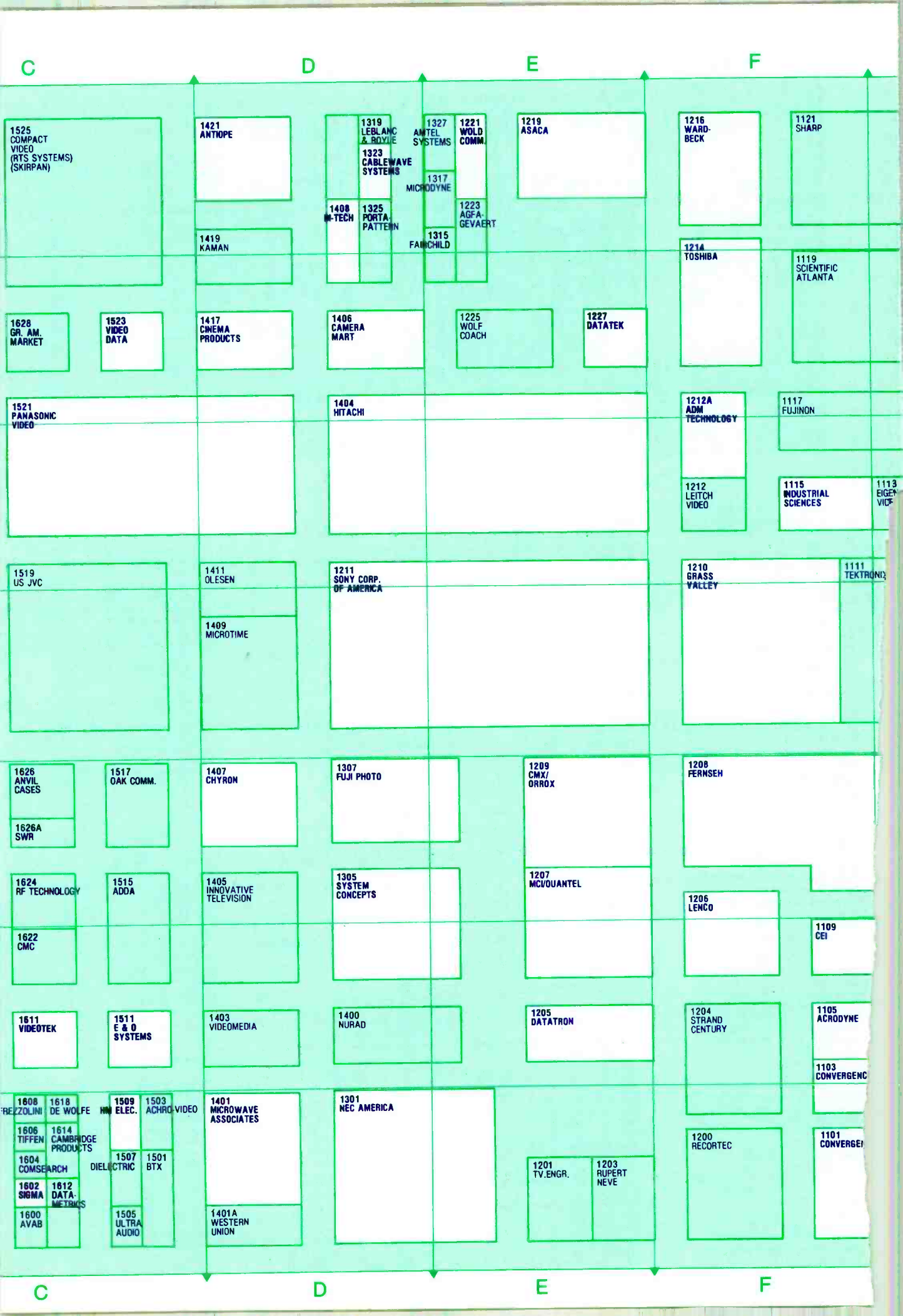
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1525 COMPACT VIDEO (RTS SYSTEMS) (SKIRPAN)
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1319 LEBLANC & BOYLE
1323 CABLEWAVE SYSTEMS
1408 M-TECH
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1223 AGFA-GEVAERT
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1618 DE WOLFE
1606 TIFFEN
1614 CAMBRIDGE PRODUCTS
1604 COMSEARCH
1602 SIGMA
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1600 AVAB
DIELECTRIC
1509 ELEC.
1503 ACHRO-VIDEO
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1501 BTX
1505 ULTRA AUDIO
1401 MICROWAVE ASSOCIATES
1401A WESTERN UNION
1301 NEC AMERICA
1201 TV.ENGR.
1203 RUPERT NEVE
1200 RECORTEC
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1041 BEAVERONICS
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1120 GARNER
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1107 SHINTRON
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1003 ELECTRO-HOME
1032 AMPEREX
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915 BIRD
909 SYLVANIA
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1106 UNI-SET
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1104 GE
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1006 PEP
1000 LEMO
1004 LOWELL LIGHT
907 O-TV
903 UPI
905 SESCOM
901 LAIRD TELEMEDIA
900 COHU
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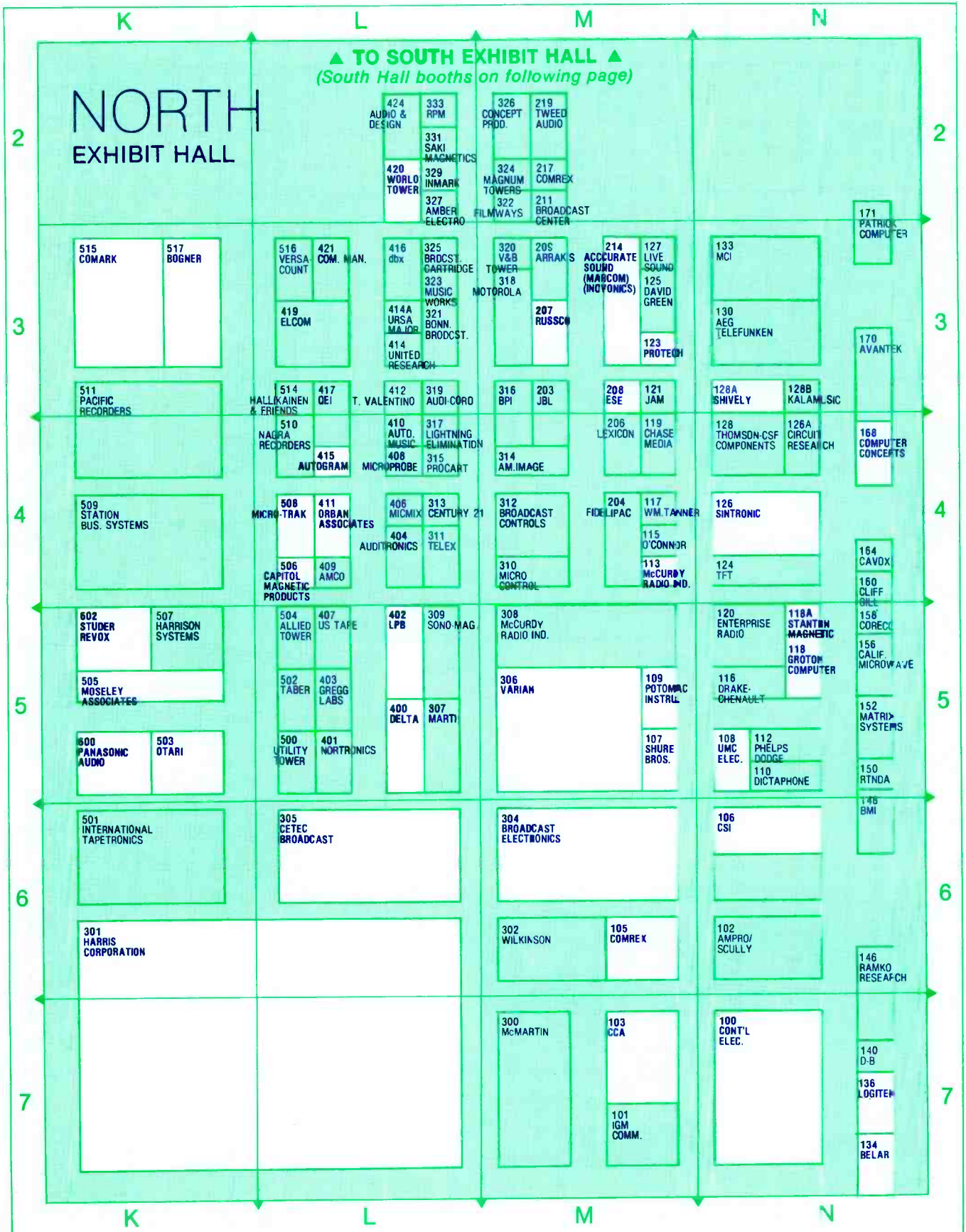
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417 QEI
510 NAGRA RECORDERS
415 AUTOGRAM
412 T. VALENTINO
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410 AUTO. MUSIC
317 LIGHTNING ELIMINATION
408 MICROPROBE
315 PROCART
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204 FIDELIPAC
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126 SINTRONIC
124 TFT
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160 CLIFF GILL
602 STUDER REVOX
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504 ALLIED TOWER
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401 NORTRONICS
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306 VARIAN
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118A STANTON MAGNETIC
118 GROTON COMPUTER
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108 UMC ELEC.
112 PHELPS DODGE
110 DICTAPHONE
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301 HARRIS CORPORATION
302 WILKINSON
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NAB VEGAS

NAB SESSIONS: A move in the right DIRECTIONS

BY MICHAEL SCHEIBACH

The glamour and glitter of NAB Vegas is about to unfold. But in the midst of all the excitement will be a convention featuring the world's largest broadcast equipment exhibit—with more than 400 companies—and sessions, papers, and workshops designed to answer the questions plaguing many broadcasters:

Where is broadcasting headed? Will prime-time TV shares suffer at the hands of improved pay TV and cable services? Will the new communications industries, such as cable, force commercial stations to move in new directions? What must radio do to compete in the marketplace of the future? Will satellite distribution provide the answer to worried broadcasters concerned with the quality and timeliness of local news programming? How will the new technologies impact radio and television? How can broadcasters improve programming, promotion, and sales? How will this affect the bottom line? And what is going to be the position of the federal government on deregulation, DBS, 9 kHz, AM stereo, and low-power TV?

The communications industry is moving in many directions, and it is vitally important that broadcasters choose the right road. With this in mind, the NAB has appropriately called this year's convention "Directions in Radio, Television, and Engineering."

From the opening session to the final walk through the equipment exhibit, the emphasis will be on moving in the right direction to better ratings, better programming, better signals, and better profits.

Along the way will be entertainment by Bob Hope and Rich Little, and special awards presentations to Arch Madsen, president of Bonneville International (the 1981 Distinguished Service Award) and Wallace Johnson, executive director of the Association for Broadcast Engineering Standards (the 1981 Engineering Achievement Award).

The Third Annual Ham Radio Operators Reception will again be hosted by the NAB. Plus self-help seminars on handling stress and success; broadcasting mini-courses; the second annual tennis tournament; and a shopping spree.

Radio sessions include:

• *Sales Forum.* RAB, NAB, and industry sales and marketing experts will be on hand to conduct an all-day session on sales tools and techniques. Included will be clinics on raising your rates, pitching agencies, raising revenues by selling to chain stores, and getting more co-op dollars. In the afternoon the session will be divided into small- and large-market groups, with the emphasis on selling techniques for your market.

• *New Technologies Forum.* Paul Bortz will lead a panel of experts in a discussion of what the new technologies will mean to you in the way of improved programming and higher profits.

• *Spanish Language Station Forum.* This session is specifically designed for Spanish language formats, with the focus on proven techniques in programming, ratings, marketing, and promotion.

• *The Small-Market Legal Clinic.* A Monday night session for small-market managers hosted by the NAB legal department. This four-hour session will cover the legal problems of small-market radio broadcasters.

• *Night Court In Session.* On Tuesday night, the legal "counseling" continues with NAB's legal staff answering questions on FCC requirements, EEO regulations, copyright laws, license renewal, and more.

• *The Five-Hatter, One-Headed, Small-Market Manager.* A session just for the small-market manager who also serves as GM, PD, and CE.

• *What's Your Station Worth?* A 75-minute mini-course on how to figure what your station is worth. . . in dollars and cents.

• *Getting Numbers (and $$!) With*

Continued on page 80

News. A how-to workshop on making radio news better, more timely, more comprehensive, and more important.

• *Finding the Bucks for Buying, Building, or Remodeling.* This session will talk money. Broadcast finance specialists will discuss where to obtain the money for station improvements.

• *Changing Formats. . .And Living to Tell About It.* Those that have changed formats successfully will share their experiences and advice on how you can do the same.

• *Getting More Profit and Production from Your People.* Jim Hooker and Chris Lytle of Media Sales Training Systems will conduct this session on people, production, and profits.

• *Radio Earth Stations.* This session will help you plan for today and tomorrow with advice on buying or leasing a satellite receiving station, doing it now or waiting, selecting the right size dish, etc.

• *Promotions That Make $$$.* Creating effective radio promotions is the name of the game here.

• *Five Reasons Why Managers and Sales People Fail.* James F. Clarke, executive vice president of Management Research Associates, will conduct this session on succeeding in a highly competitive business.

• *Is Your PD A Pro?* Guidelines for the GM in the selection and grooming of an effective program director.

• *Selling AM in the '80s.* A panel of sales experts representing all markets will show you how to sell AM.

• *Classic Rock??* This session will answer that classic question, Are you what you think you are?

Television sessions include:

• *Sales: Sell It Like It Is.* TvB experts will show you how to motivate and train your sales force. Features of this general session will include a report on the state of the industry, a discussion of new sources for training top station management, and a special presentation of TvB's comprehensive study on the compensation and composition of today's sales department.

• *Peaceful Co-existence: The News/Programming Relationship.* NATPE is conducting this session which will emphasize cooperation between programming and news departments. The bottom line of the session is reduced production costs and better news programming, including personal glimpses, features, and magazine formats.

• *Local News Isn't Local Anymore.* A panel of RTNDA members will discuss how new technologies—from helicopters to satellite receiving stations—are changing the shape of local news.

• *Good Looks: Promotions That Work.* The Broadcasters Promotion Association presents new techniques for promoting your station.

• *Smart Management for Small Markets.* This session is designed for small-market station managers. The emphasis will be on being a better manager through understanding what does and does not work in your market, how to improve your profits without sacrificing quality, how to hire and motivate your staff, and more.

• *A Building for Your Future.* Frank Rees Associates is presenting this two-part series on designing and planning the best broadcast facility. . . for present and future needs. The discussion will include employment projections, energy requirements, architectural considerations, market trends, and more.

• *Is the Sky Really Falling?* Discussion of the impact of pay TV and improved public television on network prime-time TV shares. Representatives from the networks, ad agencies, and the rating services will be on hand to help you solve the problem in your market.

• *Satellite Distribution: A New Way of Life?* How satellites can benefit you, from handling on-the-spot news reports, syndicated programming, advertising, and more.

• *Issue Advertising: Keeping It Legal.* A panel of experts will discuss law and advertising, including compliance with FCC rules and regulations.

• *MDS: A Billion Dollar Baby?* Mark Foster, president of Microband National Systems, will moderate this session that focuses on the rapid rise of MDS.

• *STV: Boom or Bust?* A look at subscription television service and whether this might be the right system for your station.

• *Teletext or Videotext: Whither Thou Goest?* Experts will be on hand to look at which system is more reliable, which is the best investment, and how the FCC views each system.

Television engineering sessions include:

• *Facilities Design and Construction. . . Within the Tangle of Regulations.* Before you plan that new facility, you'd better attend this session. Design experts will lead you through the do's and don'ts of building that new station, such as ramps for the handicapped, zoning and tower lights, position of fire extinguishers, and more.

• *Experience with Auto-Setup TV Cameras.* A discussion of color cameras with automatic features, including automatic setup. Find out if they really can replace a video operator, how to maintain them, and what the future will bring.

• *UHF Transmitter Efficiency.* This session will tell you what is being done to improve UHF transmitter efficiency. Included is a look at klystrons, anode pulsers, stability, remote control, servo loops, control of sync levels, and semi-automatic transmitter control.

• *The SMPTE Workshop.* The latest in the state-of-the-art will be covered by the Society of Motion Picture and Television Engineers.

• *Teletext Standards.* This session will feature a report on the work of the Electronic Industries Association subcommittee on the recommendation of one teletext standard. Representatives of each of the systems will describe their system, followed by a question and answer period.

Radio engineering sessions include:

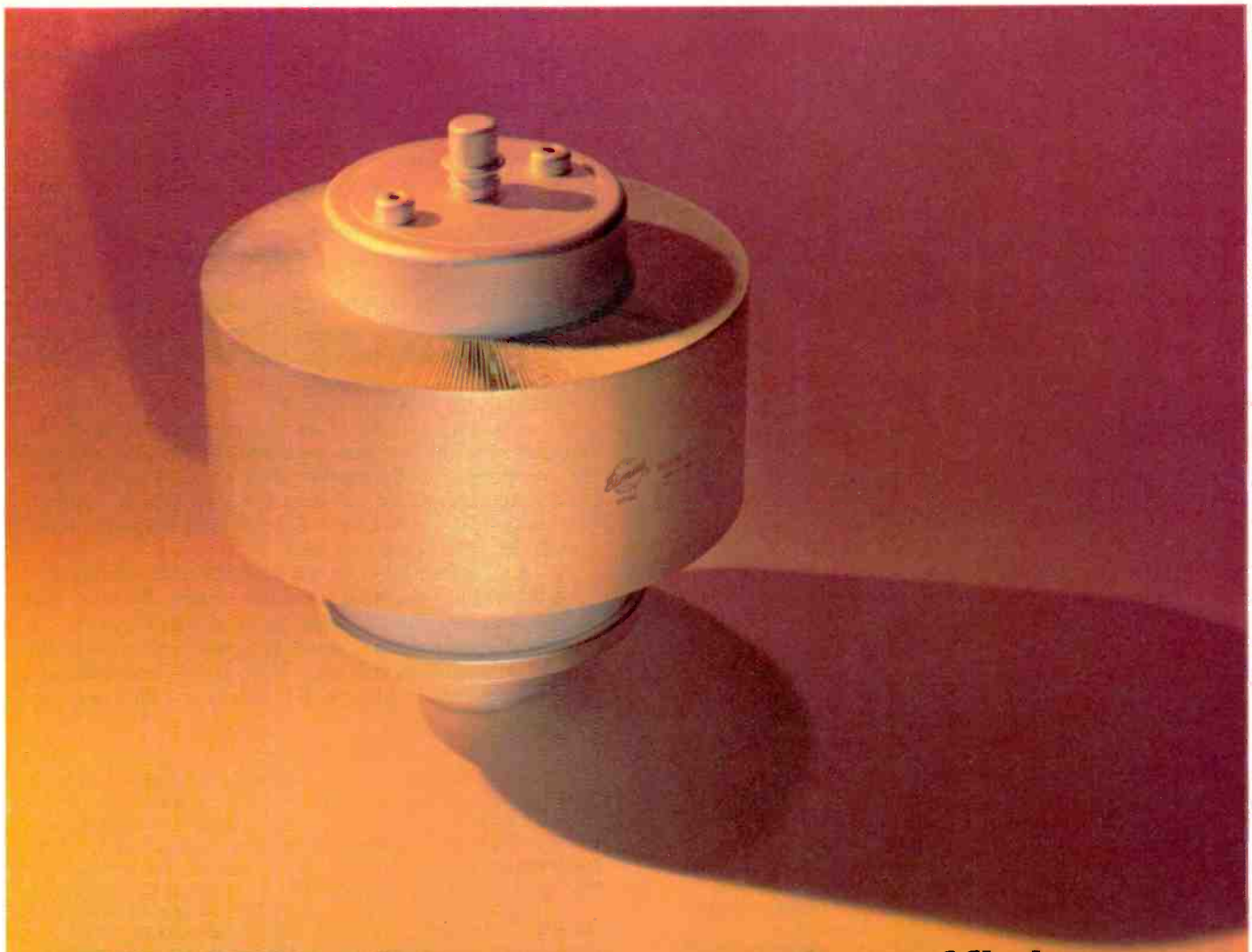
• *Telephone Talk Shows.* A panel of experts will review telephone company equipment and terminology, protection of the "switched network," devices for converting to four-wire, hybrids, bridges, new automatic devices available, conferencing, RFI, and more.

• *Satellites for Radio.* A discussion of the installation, maintenance, and testing of radio earth stations. Plus, a look at the use of satellites for high-quality audio transmission, sharing earth stations, reducing costs, and noise reduction techniques.

• *Radio ENG.* This workshop will show you how to use remote pick-up radio equipment to get a quality sound on the air. Focus is on low fi, hi fi portable units, walkie talkies, multiple receivers, duplex and cueing, working out the intermod, antennas, modifying standard equipment, and licensing.

• *Audio Processing.* A review of the latest equipment, techniques, and practices in the use of audio processing equipment. The emphasis will be on quality vs. loudness; how to get along with the program director and his favorate black box; the FCC and composite clipping; modification of equipment; and AM stereo audio processing.

There will also be joint sessions on *Batteries for Portable Equipment* and *The FCC Panel. The FCC Panel* will be your opportunity to find out what lies in store from the Commission on 9 kHz spacing, AM stereo, low-power TV, new FM stations, deregulation, and more. BC

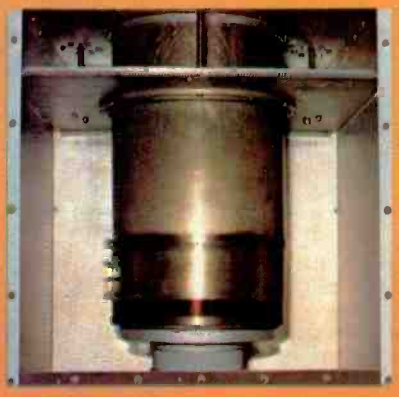


50 kW VHF power, greater efficiency. 4CX40,000G tetrode and cavities from Eimac.

Eimac's new CV-2200 series of practical, low-cost cavities are available now. Combined with Eimac's 4CX40,000G VHF tetrode, this efficient, compact package is recommended for FM broadcast service, VHF-television, particle acceleration and VHF radar.

Generating a measured power output of 60 kW, the 4CX40,-000G tetrode offers power gains of 20 dB up to 218 MHz. High stability is achieved with the pyrolytic graphite grid structure. And a highly efficient, economical and quiet anode cooling system is inherent in its design.

Eimac supplies cavity and tube to match your requirements. We back it up with know-how and application engineering information.



50 kW FM broadcast cavity CV-2200 with 4CX40,000G tetrode.

More information is available from Varian Eimac Division. Or the nearest Varian Electron Device Group sales office. Call or write today.

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NAB '81 EQUIPMENT DIRECTORY

This NAB exhibit hall equipment directory includes more than 400 companies that will spread millions of dollars of broadcast equipment across the more than five acres of exhibit hall space.

To make your search-and-find work a lot easier, we're preceding the directory with an index. Once you find the category you need, you'll see that its page location in this issue is listed in front of the category. This directory was compiled from responses by the exhibitors. However, you can expect some companies to unveil new products and lines at the convention. It's all part of the showbiz atmosphere of the NAB convention.

This comprehensive directory lists more than 100 categories of equipment as well as listings of programming/production services.

If you're planning to attend the convention, and if you're seeing and evaluating specific types of equipment, this directory should help you plan your way through the aisle traffic.

Here's how it works.

Within each category is an alphabetical listing of the companies exhibiting those products. We've also included the company's booth number and a no-nonsense booth locator number. Once you have the map locator number, turn to the *BC* No-Nonsense Exhibit Hall Map and you'll quickly find the booth you need.

For more information on the products to be exhibited at NAB '81, turn to the NAB Exhibitor section. By using that section, scanning the ads in this issue, and looking over our Product Premier section, you'll be geared up to make the most of your exhibits visit time. Who knows, you may even end up with time to browse. But only if you plan carefully *now*.

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108 Film Chain Equipment
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128 Thermal Equalizers
128 Time Base Correctors
128 Time Code Equipment
128 Towers
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128 Translators & Low Power TV
128 Transmission Lines
128 Transmitters, AM & FM
130 Transmitters, TV
130 Tubes, Camera & Transmitting
130 Turntables & Accessories
130 Vans & Ladder Vehicles
130 Vectorscopes
130 Video Components, Tubes and Hardware
130 Video Delay Lines & Filters
130 Video Heads & Refurbishing Services
130 Video Monitoring, Measuring & Timing Equipment
130 Video Monitors
132 Video Prompters
132 Video Signal Enhancement & Correction Equipment
132 VTRs
132 VTRs, Rebuilt
132 Waveform Monitors
132 Weather Instruments, Radar & Accessories
132 Wireless Microphones & Intercoms
132 Wow & Flutter Meters

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UNDER THE WEATHER TOWER
SOUTH HALL...525

Here. Now!
The world's first and only Weather Forecasting Computer.

WEATHERCASTER CT-1000

Real-time local weather forecasting...animated weather presentations...weather graphics... whatever the weather occurance, Weathercaster CT-1000 is ready.

The CT-1000 creates lives "weather character" animations of its weather forecasts and other weather simulations; also time-sequencec weather map presentations showing present, past and future weather locations and conditions.

The CT-1000 will also create news graphics.

Weathercaster's NTSC video output permits full-screen personalized chromakey presentations.

For a live demonstration come to NAB...Booth 525...South Exhibit Hall. Hospitality Suite at Landmark Hotel.

WEATHERCASTER

The Pioneer in environmental and weather forecasting computers

Circle (46) on Action Card

391 Chipeta Way, S.L.C., UT. 84108 (801) 581-5478

Coming Soon:

The Saturn Series

VITAL

VITAL INDUSTRIES, INC.

3700 Northeast 53rd Avenue, Gainesville, Florida U.S.A. 32601

904·378·1581 • TWX 810·825·2370 • TLX 80·8572 VITAL·A·GAIN

Circle (47) on Action Card

DID YOU KNOW...

Vital Industries manufactures the SQUEEZOOM ... the only multiple channel video manipulation unit in use throughout the world which will accept non-syncronous signals without external syncronizers?

The SQUEEZOOM is the easiest VMU to operate in live production?

SQUEEZOOM has been in operation for 3 years with over 100 units delivered world-wide?

We can deliver a multi-channel SQUEEZOOM immediately?

Vital Industries also manufactures television production and master control switchers, automation systems and a full line of terminal equipment?

If you are interested in purchasing Vital equipment, write for PRICES and be surprised. Please include your title and name of company.

VITAL NEWS

Visit our Florida facility in Gainesville and put your hands on our equipment operating in our new Showroom, Production Studio and Control Room. Equipped with RCA TK46 color cameras and TH200 and TR600 VTR's you can see and try out the VIX-114 Production Switcher, the PSAS, a 115 Master Control Switcher with Automation, a 4 channel Squee-Zoom, and the exciting new 250 P/N Production Switcher.

HI TECHNOLOGY PRODUCT INNOVATORS

VITAL INDUSTRIES, INC.

MAIN OFFICE:
3700 NE 53rd Ave. Gainesville, FL 32601

PHONE: 904/378-1581
TWX: 810-825-2370 TLX: 80-8572-Vital-A-Gain

Circle (206) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Amplifiers, Pre-amps, DA's		
ADM Technonology, Inc.	1212A	F3
AVAB America	1600	C7
Aber Mfg. & Eng. Co.	502	L5
American Data Corp.	803	IG
Achro-Video Ltd.	1503	C7
Arrakis Systems	209	M3
Audio & Design	424	L2
Audio Technologies	125	M3
Auditronics, Inc.	404	L4
B&W Systems	403S	L1
Broadcast Audio	218S	M1
Broadcast Electronics, Inc.	304	M6
Broadcast Technology	1023B	G4
The Camera Mart	1406	D2
Candex Pacific	1700	B7
Cavox/Tape-Athon Corp.	164	N4
Central Dynamics	1015	G6
Cetec Broadcast Group	305	L6
Cohu Inc. Electronics Div.	900	I7
Comprehensive Video Supply	1910	B6
Continental Electronics	100	N7
Crown International	190-S	N1
D-B Electronics	140	N7
Datatek Corp	1227	E2
Datatronics	1035	N1
Delcom Corporation	1843	B1
Dynair Electronics	813	I4

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Edcor	205S	M1
Farrtronics, Ltd	1723	B4
The Grass Valley Group	1210	F4
David Green Broadcast Consultants	125	M3
Fernseh	1208	F5
Gregg Laboratories	403	L5
Howe Audio/BCP	438S	L1
HEDCO	1635	B2
LPB Inc.	402	L5
Industrial Sciences	1115	F3
Leitch Video Limited	1212	F3
Lenco, Inc. Electronic Div.	1206	F6
Micro-Trak Corp.	508	L4
McCurdy Radio Industries	113	M4
	308	M5
McMartin Industries	300	M7
NEC America	1301	D7
Nurad	1400	D6
Pacific Recorders & Engineering	511	K4
Panasonic Professional Audio	600	K5
Protech Audio Corporation	123	M3
Quintek	1959	A5
Ramko Research	146	N6,7
ROH Corporation	107S	N1
RTS Systems	1525	C1
Rupert Neve Incorporated	1203	E7
Ruscco Electronics Mfg.	207	M3

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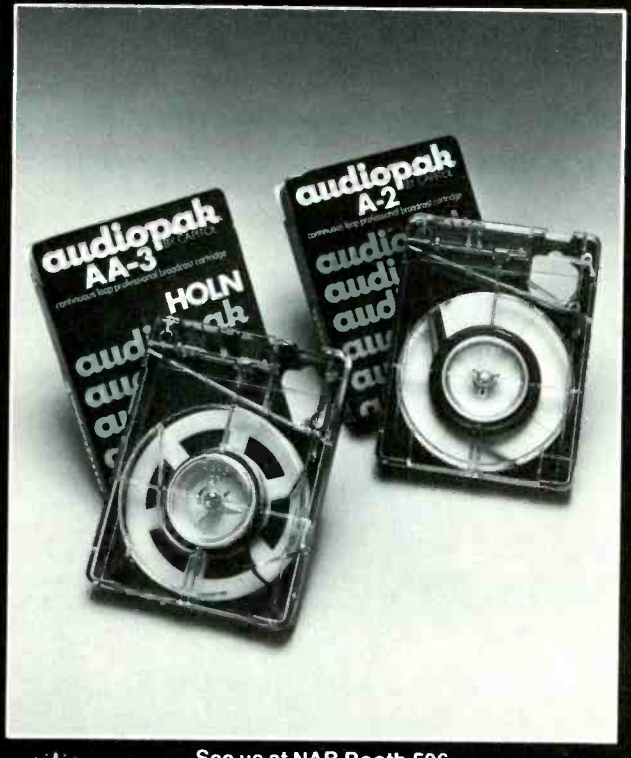
THE CHOICE IS YOURS!



THE AUDIOPAK A-2 OR THE STEREO PHASED AA-3 BROADCAST CARTRIDGE

Capitol Audiopak Broadcast Cartridges—for stations who care how they sound.

Both Audiopak carts offer extremely low wow and flutter; a positive brake system which stops the tape, not the hub, assuring accurate cueing. Unsurpassed reliability is assured because we manufacture the tape and all other components in the cartridge. Moreover, all carts are 100% tested before shipping.

The AA-3 offers excellent stereo phase stability. It's loaded with Capitol's own Q17 HOLN tape which extends frequency response and headroom to provide studio sound quality.

CAPITOL MAGNETIC PRODUCTS
A Division of Capitol Records, Inc.
6902 Sunset Blvd.
Hollywood, California 90028

Capitol ®

See us at NAB Booth 506

©1980 CAPITOL RECORDS, INC

Circle (48) on Action Card

the New Workhorse

Quietly, you have made the OTARI tape machine a standard for reliability and performance in literally hundreds of stations and thousands of production studios—worldwide! The legendary 5050 series were the first compact professional recorders accepted by the industry and remain, dollars for dB's, the best tape recorders made. Whether moving ¼" or ½" tape, these SMPTE adaptable machines are complete with every necessary production feature.

Our ARS Series Reproducers have been accepted by the most prestigious automation manufacturers in the business. These people must have a reliable product before they put their name on it. Our MX-7800 1" transport production machine remains the most functional eight track on the market.

The OTARI pre-eminence in engineering is more than fifteen years old and encompasses tape formats from full track to twenty-four track and tape speeds from 3¾ to 240 ips. To the broadcaster, OTARI has earned its envied reputation for reliability with technological leadership and 100% pre-shipment check-out.

Behind our product is a further commitment: factory support with a large domestic parts inventory, thorough documentation and communicative personnel. A qualified and dedicated dealer network is the final link in OTARI's comprehensive approach to the broadcaster.

You have made OTARI—*The New Workhorse*. We have made them the most comprehensive line of tape machines in the world.

Call or write today for your nearest dealership. They will be happy to put you on top with an OTARI.

OTARI®

Otari Corporation
1559 Industrial Road
San Carlos, CA 94070
(415) 592-8311

In Canada:
BSR (Canada, Ltd.)
P.O. 7003 Sta. B
Rexdale, Ontario M9V 4B3

Models 5050B & Mark II-4 shown in optional cabinets available from the Rus Lang Corporation, Bridgeport, Conn. (203) 384-1266

Circle (49) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Sescom, Inc.	905	H7
Shintron co.	1107	G6
Sigma Electronics	1602	C7
Sound Genesis	330S	M1
Stanton Magnetics	118A	N5
Studer Revox America	602	K5
Telemet, Div. of Geotel	1010	H3
Television Equipment Associates	1019	H4
Telex Communications	311	L4
Thomson-CSF Broadcast	919	H5
Tweed Audio	219	M2
U.R.E.I.	607S	K1
U.S. Instrument Rentals	105S	N1
Ultra Audio Pixtec	1819,1505	C7
United Research Lab	414	L3
Varlan Associates/Microwave Tube	306	M5
Versa-Count	576	L3
Vidicraft	180S	N1
Ward-Beck Systems	1216	F1
AM Stereo Generators		
C.N. Rood	214	M3
Continental Electronics	100	N7
Harrls Corp Broadcast Products Div.	301	K,L7
Howe Audlo/BCP	438S	L1
McMartin Industries	300	M7

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Animation Equipment		
Animated Video Systems	407S	L1
Arvin/Echo	1001	G,H7
Aurora Imaging Systems	622S	K1
Peters Productions	305S	M1
Antenna Monitors		
AEG-Telefunken/Bayly Engineering	130	N3
Continental Electronics	100	N7
Delta Electronics	400	L5
Howe Electronics/BCP	438S	L1
Potomac Instruments	109	M5
Antennas, Transmission Lines, Towers and Lights		
Allied Tower Co., Inc.	504	L5
Andrew Corporation	917	H6
Athans Communications	307S	M1
Bogner Broadcast Equipment Corp.	517	K3
Cablewave Systems	1323	D1
Canadian General Electric	431S	L1
Comark Communications Inc.	515	K3
Continental Electronics	100	N7
Delta Electronics	400	L5
Dielectric Communications	1507	C7
Fort Worth Tower Company	819	I1
Harris Corp Broadcast Products Div.	301	K, L7

Continued on page 90

Howe Audio History Is Made . . .

Howe 7000 Stereo Console

Simply Reliable.
Those words introduced the Howe 7000 in 1979. Since then the Howe 7000 consoles have rapidly grown in popularity. Engineers are impressed with Total Harmonic Distortion of .09% or lower, noise floor of -74 dBm, equivalent input noise of -124 dBm or lower, channel separation of better than 60 dB, frequency response of 20 Hz to 20 k Hz ± 1 dB, and maximum output of +24 dBm.

"Since the installation of our first Howe Series 7000 console last summer, we have enjoyed consistently high quality and no down-time. The operators are delighted with the clean, straight-forward layout of the controls and the useful special features of the Howe Series 7000. The second Howe Series 7000 console is being installed in the KIMN newsroom, a high-volume, 24-hour mobile news operation. Again, the Howe Series 7000 console offers the reliability, special features, and error-free operation that we demand." Chuck Waltman, Engineering Director, KIMN-KYGO, Jefferson-Pilot Broadcasting, Denver, Colorado.

Introducing the Howe 8000.
The 8000 has all the same performance specifications and high reliability of the 7000, but with many new features, including slide attenuators, push-button logic systems for on/off/cue and remote start/stop, simultaneous audition/program bussing, fluorescent VU meters and a built-in real-time clock. As in the 7000 there is a full width option panel and D.C. audio control.

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Circle (51) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Howe Audio/BCP	438S	L1
LeBlanc & Royle Commun. Towers	1319	D1
Magnum	324	M2
Micro Communications	1108	G6
Moseley Associates	505	K5
Fred A. Nudd	178S	N1
Nurad	1400	D6
Allen Osborne Associates	206S	N1
R.F. Technology	1624	L5
S.W.R., Inc.	1626A	C5
Shively Laboratories	128A	M3
Stainless	1009	G6
Unarco-Rohn	1021	H3,4
World Tower Company, Inc.	420	L2
Antennas, FM		
Bogner Broadcast Equipment Corp.	517	K3
Comark Communications, Inc.	515	K3
Continental Electronics	100	N7
Alan Dick, Inc.	1007	G8
Harris Corp Broadcast Products Div.	301	K,L7
Howe Audio/BCP	438S	L1
Micro Communications	1108	G6
McMartin Industries	300	M7
RCA Broadcast Systems	700	J567
Shively Laboratories	128A	M3

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Antennas, UHF, VHF		
Acrodyne Industries	1103	F,G6
Andrew Corporation	917	H6
Blonder-Tongue Labs	1730	B,C1
Bogner Broadcast Equipment Corp.	517	K3
Canadian General Electric	431S	L1
Cetec	305	L6
Alan Dick, Inc.	1007	G8
EMCEE	1017	G,H5
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Micro Communications	1108	G6
RCA Broadcast Systems	700	J567
S.W.R., Inc.	1626A	C5
Television Technology Corp.	1623	C4
Townsend Associates	1007	G6
ATS Equipment		
Delta Electronics	400	L5
Hallikainen & Friends	514	L3
Harris, Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Potomac Instruments	109	M5
QEI	417	L3,4
Time & Frequency Technology	124	N4

Continued on page 92

We're Better Than Ever!

The new TPT-2500 titler offers features not expected in this price range: eight character sizes, upper and lower case, border line, underlining, graphics, flash, crawls, positionable title window, 32 page resident memory and optional 700+ page tape memory.

Operating features include: auto line and page centering, word/line open and close, tab and elastic memory. See the TPT-2500 and the rest of our titler line at the NAB booth 1523.

Priced at $4995.00

vds

Video Data Systems

Headquarters, Hauppaughe, N.Y. **(516) 231-4400**
National CATV Sales / Western Regional Office
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Innovative Communications

Circle (52) on Action Card

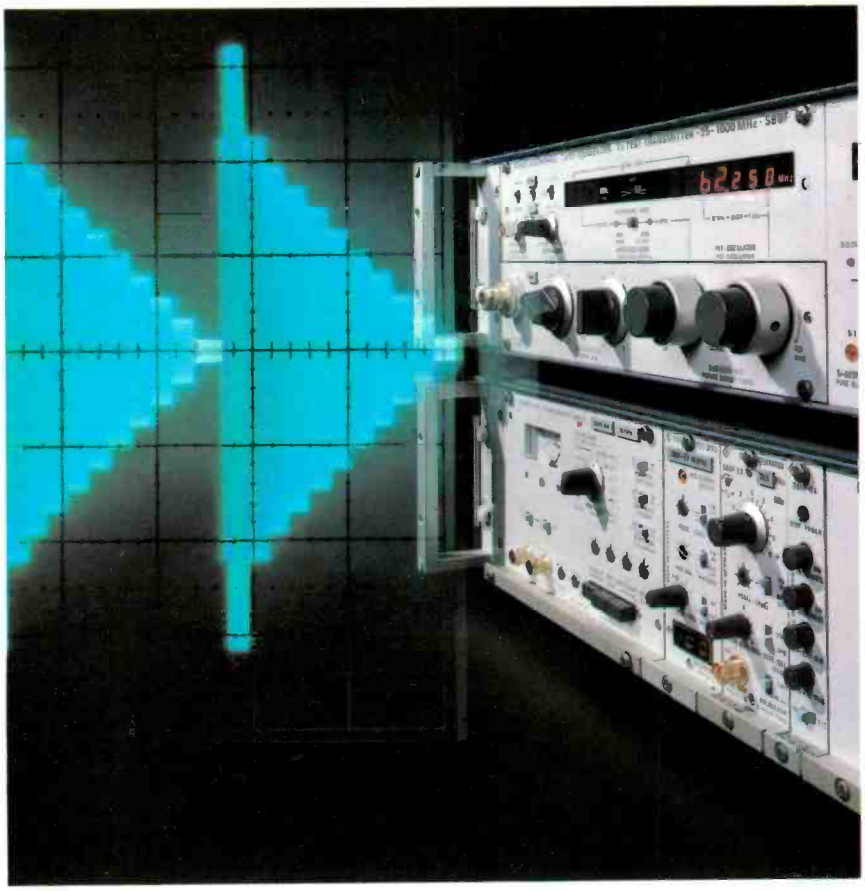
TV test gear:
R&S signal success

TV test transmitter SBUF
25 to 1000 MHz (right)

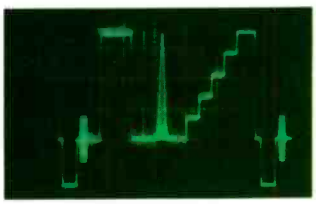
Video test signal generator SPF 2,
with test line insertion

Noise generator SUF 2
20 Hz to 50 MHz

AF transmission measuring set
SUN 2, 10 Hz to 100 kHz

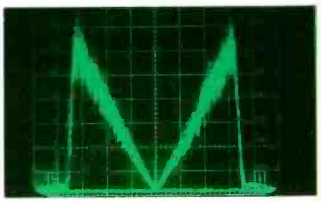


New audio, video, noise and RF signal generators for communications system testing



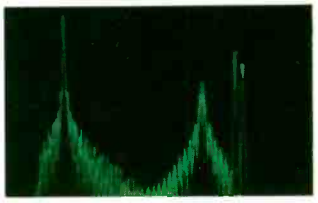
SPF 2

CCIR test line signal



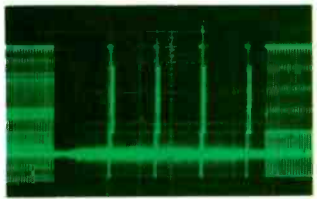
SUF 2

Triangular noise, 0 to 6 MHz



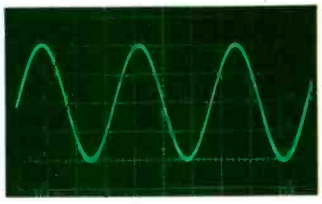
SBUF

TV dual-sound signal spectrum :



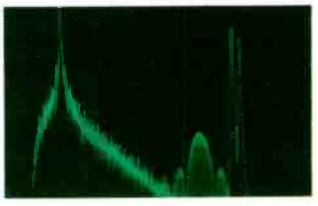
SPF 2

Special VTR test signal



SUN 2

High-precision AF sinewave test signal



SBUF

Vision carrier, colour subcarrier,
sound carriers 1 + 2

For more information see us at our booth No. 1110, at the NAB Show, Las Vegas (April 12 to 15)

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BOOTH 1014
NAB SHOW—LAS VEGAS

Circle (54) on Action Card

NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Audio Analyzers		
Amber Electro Design Ltd.	327	L2
Crown International	190-S	N1
Howe Audio/BCP	438S	L1
Sound Genesis	330S	M1
Sound Technology	1132	G1
Tektronix	1111	G4
U.R.E.I.	607S	K1
U.S. Instrument Rentals	105S	N1
Audio Components, Tubes and Hardware		
Avab America	1600	C7
Aber Mfg. & Eng. Co.	502	L5
Audio Technologies	125	M3
The Camera Mart	1406	D2
Ceco Communications	1014	H1
Lemo U.S.A., Inc.	1000	H7
Listec Television Equipment	1027	H3
Micro-Trak Corp.	508	L4
Panasonic Professional Audio	600	K5
Sescom, Inc.	905	H7
Audio Monitoring, Measuring & Timing Equipment		
Amber Electro Design Ltd.	327	L2
Audico	1900	B7
Belar Electronics Labs	134	N7
Broadcast Electronics, Inc.	304	M6
Comrex	105	M6
Crown International	190-S	N1
Delta Electronics	400	L5
Electro & Optical Systems Limited	1511	L6
ESE	208	M3
David Green Broadcast Consultants	125	M3
Fidelipac	204	M4
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Merlin Engineering Works	1128	G1
McMartin Industries	300	M7
Panasonic Professional Audio	600	K5
Potomac Instruments	109	M5
Sony Corporation of America	1211	D,E4
Sound Genesis	330S	M1
Studer Revox America	602	K5
Telemet Div. of Goetel	1010	H3
Time & Frequency Technology	124	N4
Versa Count	516	L3
Ward-Beck Systems	1216	F1
Automatic Subtitling System		
System Concepts	1305	D5,6
Automatic VTR Program Controllers		
Microtime	1409	D4
Automation Systems, Audio		
American Data Corp.	803	G1
Autogram	415	L4
Broadcast Electronics, Inc.	304	M6
Century 21 Programming	313	L4
Cetec Broadcast Group	305	L6
Electro & Optical Systems	1511	L6
Hallikainen & Friends	514	L3
Harris, Broadcast Products	301	K,L7
Harrison Systems	507	K5

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Howe Audio/BCP	438S	L1
IGM Communications	101	M7
International Tapetronics	501	K6
Jenel Consultants	1813	B6
Microprobe Electronics	408	L4
NEAS	220S	M1
Protech Audio Corporation	123	M3
Rupert Neve Incorporated	1203	E7
Sound Technology	1132	G1
Station Business Systems	509	K4
Telex Communications	311	L4
U.S. Instrument Rentals	105S	N1
Ward-Beck Systems	1216	F1
Automation Systems, Video		
American Data Corporation	803	G1
Ampex	702	J2-4
Asaca/Shibasoku Corp.	1219	E1
Crosspoint Latch Corp.	2111	A3
Central Dynamics	1015	G6
Delcom Corporation	1843	B1
Electro & Optical Systems Limited	1511	L6
Fernseh	1208	F5
Glentronix (U.S.)	1824	B3
The Grass Valley Group	1210	F4
Industrial Sciences	1115	F3
Jenel Consultants	1813	B6
NEAS	220S	M1
RCA Broadcast Systems	700	J5-7
Recortec	1200	F7
U.S. Instrument Rentals	105S	N1
Vital Industries	921	H4
Battery Packs, Belts & Chargers		
Anton/Bauer	1617	C5
Christie Electric	1002	H7
Cine 60 Inc.	1037	H1
Cinema Products	1417	D2
Clear-Com	174-176S	N1
Comprehensive Video Supply Corp.	1910	B6
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Film/Video Equipment Service Co.	1818	B3,4
Frezzolini Electronics	1608	C7
LTM Corporation of America	1016	H1
Nurad	1400	D6
Perrott Engineering Labs	1023	G4
RTS Systems	1525	C1
Sharp Electronics Corporation	1121	F1
Bulk Tape Erasers		
Garner Industries	1123	G1
Cabinets & Consoles, Modular		
Amco Engineering	409	L4
Cameras, ENG & Accessories		
Achro-Video, Ltd.	1503	C7
Ampex Corporation	702	J2,3,4
Asaca/Shibasoku Corporation	1219	E1
CEI	1109	F,G 6
The Camera Mart	1406	D2
Cine 60 Inc.	1037	H1

Continued on page 94

Perfect Timing

MASTER

CLOCK SYSTEMS

CHOOSE THE RIGHT ONE FOR YOU!

If seeing the same time on all your clocks is important, select **ES 192** — Line Frequency timebase, for only $312.

If a guaranteed accuracy of three seconds per month is what you want, choose **ES 160** — $1005.

How about one second per month? **ES 160/1** — $1179.

Or National Bureau of Standards accuracy! **ES 190** is synchronized to Radio Station WWV to provide a Master with unquestioned accuracy. $1179 with receiver and antenna.

For a Time/Temperature Master, ask for **ES 196** — $737.

ESE Master Clock Systems are simple to install. All Masters have a Serial Time Code output, able to drive twenty slave displays without buffering. Slaves range in size from .3" LED to 2" gas discharge displays, priced from $152 to $432.

IF YOU ALREADY HAVE A SYSTEM AND WANT TO EXPAND IT, get the **ES 167** Serial Time Code Generator ($141), then add any number of our low cost slaves.

Many, many options and accessories are available. Ask us about them. Our brochure tells the whole story, but not for long. We keep adding new products.

ESE

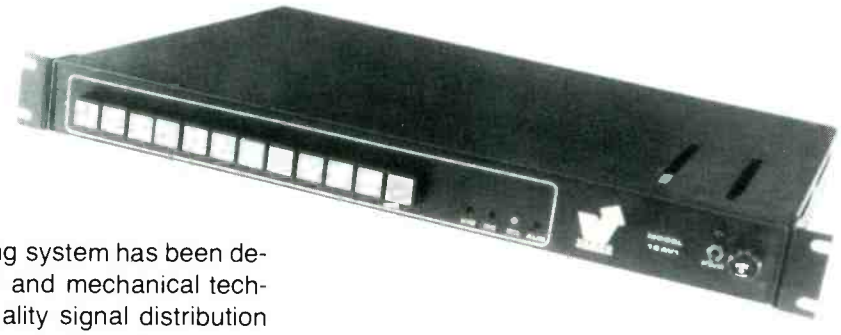
Write, Wire or Call: (213) 322-2136
142 Sierra Street, El Segundo, CA 90245

Circle (55) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Cinema Products	1417	D2
Comprehensive Video Supply Corp.	1910	B6
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Fairchild Camera & Instrument	1315	E 1,2
Fernseh	1208	F5
Hitachi Denshi America Ltd.	1404	D,E3
Ikegami Electronics (U.S.A.)	817	I2
ITE-Innovative Television Equipment	1405	D5,6
NEC America	1301	D7
Panasonic/Video Systems	1521	C,D3
RCA Broadcast Systems	700	J567
Philips Broadcast Equipment	807	I5
Sharp Electronics Corporation	1121	F1
Sony Corporation of America	1211	D,E4
Telex Communications	311	L4
Thomson-CSF Broadcast	919	H5
Toshiba America	1214	F2
U.S. JVC Corporation	1519	C4
Cameras, Studio & Accessories		
Achro-Video Ltd.	1503	C7
Adwar Video	345S	L1
Ampex Corporation	702	J2,3,4
Belden Communications	1725	N1
CEI	1109	F,G 6
The Camera Mart	1406	D2
Cinema Products	1417	D2
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Fernseh	1208	F5
Harris/Broadcast Products	301	K,L7
Hitachi Denshi America Ltd.	1404	D,E3
Ikegami Electronics (U.S.A.)	817	I2
ITE-Innovative Television Equipment	1405	D5,6
Marconi Electronics	927	H2
Panasonic/Video Systems	1521	C,D3
Philips Broadcast Equipment	807	I5
RCA Broadcast Systems	700	J567
Sharp Electronics Corporation	1121	F1
Sony Corporation of America	1211	D,E4
Telex Communications	311	L4
Thomson-CSF Broadcast	919	H5
Toshiba America	1214	F2
U.S. JVC Corporation	1519	C4
Cameras & Projectors, Film		
Arriflex Corporation	1835	B2
Victor Duncan	1110A	G5
Eastman Kodak	1118	G3
Frezzolini Electronics	1608	C7
Karl Heitz	1809	B7
L-W International	939	H1
RCA Broadcast Systems	700	J567
Rangerless Research	506S	L1

Continued on page 96

"Handy as a pocket on a shirt!"



The Model 12AV1 routing system has been designed with new electrical and mechanical techniques to provide high quality signal distribution in video only, audio only, or AFV configurations. The system accommodates 12 inputs, with 1 output bus providing 2 video and 1 audio output. Units can be stacked as systems expand up to 15 outputs without external DA's. All switching is vertical interval. Switching reverts automatically to random upon loss of vertical drive for minimum down time.

VAMCO ENGINEERING, INC.

11104 E. 56th St.
Tulsa, Oklahoma

(918) 252-5448

VAMCO ENGINEERING

Circle (56) on Action Card

Comark must be doing something right... you be the judge!

★ **1978** Comark introduces most efficient transmitter design

★ **1979** Comark installs most efficient transmitter plant in the world* at Tarpon Springs, Florida

★ **1980** Comark scores high in PBS report E8012 nine (9) point criteria for Optimum Efficiency Transmitter system... seven (7) out of nine (9) desirable features *isn't bad*

★ **1980** Comark stuns industry with introduction of Maximum Transmitter Plant Efficiency concepts

★ **1980** Comark advances Automatic Transmitter System concept with full local-remote computer control and advanced R.F. switching systems

★ **1980** Comark captures considerable protion of UHF-TV marketplace through innovative engineering and customer service

*Standard design not using mod anode pulser or other energy saving features

NEW PRODUCT RELEASES 1981

★ Comark will introduce the most modern, exciter, compatible, mod anode pulser available in the industry

★ Comark will introduce a complete VHF transmitter system product line

★ Comark will continue its on-going effort to improve the lot of the UHF broadcaster to compete profitably in the marketplace

SEE US AT NAB BOOTH 515

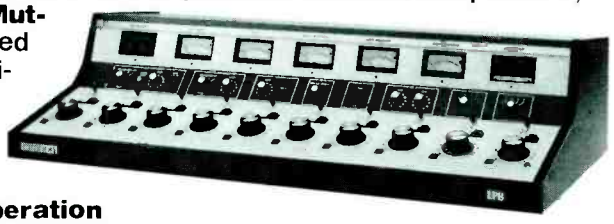
COMARK COMMUNICATIONS, Inc.
Southwick Industrial Park Southwick, MA 01077
Phone (413) 569-5939 Int'l Telex 95-1012
Circle (57) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
The Zei-mark Corp	1643	B1
Captioning Equipment		
Industrial Sciences	1115	F3
Cart Machines & Accessory		
Ampro/Scully	102	N6
Audi-Cord Corporation	319	L3
Broadcast Electronics, Inc.	304	M6
The Camera Mart	1406	D2
Century 21 Programming	313	L4
Cetec	305	L6
Comprehensive Video Supply Corp.	1910	B6
D-B Electronics	140	N7
Fidelipac	204	M4
Harris/Broadcast Product	301	K,L7
Howe Audio/BCP	438S	L1
International Tapetronics Corp	501	K6
RCA Broadcast Systems	700	J567
Ramko Research	146	N6,7
Sono-mag	309	L5
Sound Genesis	330S	M1
Stantron Div. of Wyco Metal Prod.	1828	B2
Telex Communications	311	L4
UMC Electronics	108	N5
Winsted Corporation	823	I1

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Cartridges and Tone Arms		
Broadcast Electronics, Inc.	304	M6
Fidelipac	204	M4
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Micro-Trak Corp.	508	L4
Panasonic Professional Audio	600	K5
Ruscco Electronics Mfg.	207	M3
Shure Bros.	107	M5
Stanton Magnetics	118A	N5
Carts, Audio		
Broadcast Cartridge Service, Inc.	325	L3
Broadcast Electronics, Inc.	304	M6
Capitol Magnetic Products	506	L4
D-B Electronics	140	N7
Fidelipac	204	M4
Howe Audio/BCP	438S	L1
Procart	315	L4
Sound Genesis	330S	M1
Stantron Div. of Wyco Metal Prod.	1828	B2
Cases, Custom		
Environmental Container	408S	M1
Fiberbilt	1817	B5
Great American Market	1628	C2

Continued on page 98

3 Models—6, 8 and 10 mixer dual stereo • **Transformer Balanced Inputs and Outputs** • **3 Inputs Per Mixer**—internal pads allow mic/line selection on the same mixer • **Two 4-Input Auxiliary Input Selectors**—may be assigned to any mixer • **Pre-fader Pushbutton Cue**—in addition to normal CCW fader cue position • **LED Status Indicators**—color coded to aid in instant identification of function selectors • **Momentary or Continuous Remote Control Contacts**—internally selectable, also controls optional digital timer reset/start • **Full Metering Capability**—two meters standard, up to four meters and/or digital clocks and timers optionally available, all meters provided with LED peak indicators • **Gain Selectable Microphone Preamps**—provided with center tap access for phantom condenser microphone power, processor input/output port with buffer amplifier for outboard compressors, limiters, etc. • **Programmable Muting Logic**—internal pin-programmed matrix allows any selection of monitor and cue muting for the first five mixer positions • **Pushbutton Aural Phase Test** • **Announcer's Microphone Intercom-Air Selector** • **Full Dual Channel Operation**—independent program and audition assignment pushbuttons • **Five Monitor Driver Outputs**—four muted, one non-muted • **All Mixers Switch-Selectable to Mono or Stereo** • **Ground-Plane Techniques Used Throughout for Increased RF Immunity** • **Selectable Internal or External Master Level Controls** • **Accessories and Options**—mono mixdown, high impedance (cassette) line input plug-ins, reference oscillator/line input plug-in, additional microphone input plug-ins, digital clock, digital timer, linear faders



LPB® citation series

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Manufacturers and Distributors of Broadcast Equipment since 1960

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SEE BROADCASTING'S MOST COMPREHENSIVE LINE OF AUDIO CONSOLES AT LPB's NAB BOOTH NO. 402

"The TDF-2 Gives Us the Jump on Our Competition."

...Pete Wood, Project Engineer • The Vidtronics Company, Inc., Hollywood

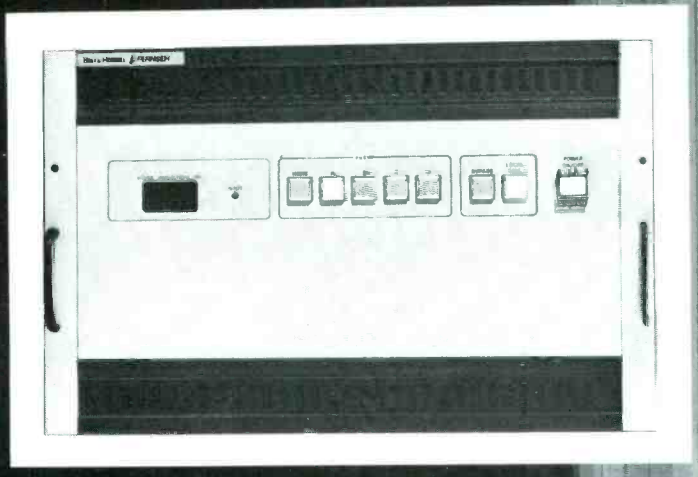
Vidtronics' clients are picky. And Pete's a perfectionist. He wants them to have the best product possible.

This is what he told us about the Fernseh TDF-2 Digital Noise Filter:

"Many of our clients are film-oriented, so they look for grain and noise. With the TDF-2, we can reduce the intensity of scratches and random noise, especially when transferring film to videotape for integration into a live show or when editing pre-recorded videotape.

"The TDF-2 gives us the jump on our competition. In fact, we thought enough of it at the time of our original purchase that we immediately ordered a second unit. And our option package with the enhancement and chrominence-to-luminence correction features gives us an extra edge.

"Our clients definitely get a better end product through the use of the TDF-2."



That's what the man said.

If you want to improve the SNR of cameras, videotape recorders and microwave/satellite links by *as much as 18 dB,* take Pete Wood's advice.

Call or write us today for complete technical information. For literature only, call 1-800-821-7700, ext. 701; in Missouri, call 1-800-892-7655, ext. 701.

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the Video Corporation of

Bell & Howell and Robert Bosch

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(801) 972-8000, Telex: TM388352 SLC

Circle (58) on Action Card

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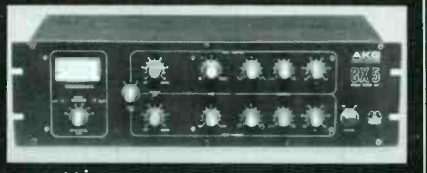
COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Parsons Manufacturing	406S	M1
Character Generators		
Adwar Video	345S	L1
B.E.I. (Beston Electronics Inc.)	801	I7
The BTX Corporation	1501	C7
The Camera Mart	1406	D2
Chyron Corporation	1407	D5
Computer Video Systems	1885	N1
Datametrics	1612-1612A	C7
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Enterprises Inc.	1837	B2
Fernseh	1208	F5
For-A Corp of America	1826	B2
Gardiner Communications Corp	1840	B1
Interand-Telestrator Division	929	H1
Jefferson Data Systems	1613	B,C6
Knox Video Products	1033	G2,3
Laird Telemedia, Inc.	901	H7
Landy Associates	1102	G7
3M Company	815	I3
QSI Systems	1603	C7
Shintron Co.	1107	G6
System Concepts	1305	D5,6
Thomson-CSF Broadcast	919	H5
Video Data Systems	1523	C2
Chroma Keyer		
Adwar Video	345S	L1
American Data Corporation	803	I6
Central Dynamics	1015	G6
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
The Grass Valley Group	1210	F4
Industrial Sciences	1115	F3
NEC America	1301	D7
Shintron Co.	1107	G6
Thomson-CSF Broadcast	919	H5
Clocks & Timers, Digital		
Beaveronics	1041	H1
ESE	208	M3
Glentronix	1824	B3
Color Picture Monitors		
Asaca	1219	E1
Conrac	809	I4
Electrohome	1003	H6
Ikegami	817	I2
Lenco	1206	F6
Tektronix	1111	G4
Telemation	1208	F5

Continued on page 100

AKG

When we set out to "naturally" enhance the quality of sound, we came up with an idea that's reverberating around the world. The patented AKG Torsional Transmission Line System shown here is the heart of our new BX5. It's the same principle as used in our world-famous BX-10E2 and BX-20E.



This AKG innovation gives you flutter-free performance and truly balanced reverberation at any of the selectable decay settings.

The TTL system is just one of the many advanced features you'll find in the same reverberation units used in most major recording and broadcast studios around the world.

Ask your AKG dealer for a personal demonstration and hear the benefits of each AKG reverberation unit..."naturally."

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A NORTH AMERICAN PHILIPS COMPANY
77 Selleck Street, Stamford, CT 06902
(203) 348-2121

AKG acoustics

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Circle (59) on Action Card

Meet The Chairman Of The Boards

...a chairman that really makes decisions, executes and acts as a leader should. Introducing the Harris MICRO MAC™ audio console, the new brain in your control room. One that won't let you down.

Credentials? You bet!

- Prevents playing the same commercial back-to-back
- Alerts operator when to change cart
- Won't accept start command to non-ready source
- Linear attenuators impervious to smoke, coffee, dust and dirt
- Virtually noise and maintenance free
- Microprocessor controlled
- 1 to 16 modular input channels
- Up to 3 stereo outputs, plus 1 mono output

The Harris MICRO MAC audio console will hold its first board meeting in the Harris exhibit at the NAB Convention in Las Vegas, April 12-15. Come witness a real chairman in action. Or, for those who can't attend, write today for a full report on the remarkable Harris MICRO MAC audio console: Harris Corporation, Broadcast Products Division, P. O. Box 4290, Quincy, Illinois 62301. Phone 217-222-8200.

Visit the Harris NAB Exhibit in the North Hall - Las Vegas Convention Center.

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END STV PIRACY
low cost Dynacom system

Whether you're going into STV for the first time or you have an existing system that's letting you be robbed blind, check out the new, secure Dynacom system.

We have provided "ticket module" decoders to small market clients and fully addressable systems to larger markets.

Call Robert Payne today at (404) 428-3100, and start STV paying off for you.

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590 Commerce Park Drive
Mariette, Ga. 30066

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NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Videotek	1611	C6
Computer Systems, Business		
Automated Business Concepts	305	L6
Chase Media Inc.	119	M4
Columbine Systems	332S	M1
Computer Concepts Corporation	168	N4
Computer Management Systems	421	L3
Custom Business Systems	308S	M1
Data Communications	2145	A2
Groton Computer/Radio Network	118	N5
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
IGM Communications	101	M7
Jefferson Data Systems	1613	B,C6
Kaman Sciences/BCS	1419	D1,2
Media Service Concepts	225S	M1
NEAS	220S	M1
Nidus Broadcast Systems	432S	L1
Radio Computing Services	184S	N1
Ramtek Corporation	434S	L1
Computer Systems, Newsroom		
ADDA Corporation	1515	C 5,6
Adwar Video	345S	L1
Chase Media	119	M4
Jefferson Data Systems	1613	B,C6
Jenel Consultants	1813	B6
Kaman Sciences/BCS	1419	D1,2
Newscan/McInnis-Skinner & Assoc.	720S	K1
Radio Computing Services	184S	N1
Ramtek Corporation	434S	L1
System Concepts	1305	D5,6
Computer Systems, Weather		
Arvin Echo	1001	G,H7
(BEI) Beston Electronics	801	I7
Interand-Telestrator Division	929	H1
Newscan/McInnis-Skinner & Assoc.	720S	K1
Radio Computing Services	184S	N1
Weathercaster	525S	K1
Weathermation	1625	C4
Consoles, Audio		
ADM Technology, Inc.	1212A	F3
Accurate Sound Corporation	214	M3
AMCO Engineering Co.	409	L4
AVAB America	1600	C7
Ampro/Scully	102	N6
Arrakis Systems	209	M3
Auditronics, Inc.	404	L4
Autogram Corporation	415	L4
Broadcast Audio	218S	M1
Broadcast Electronics Inc.	304	M6
Broadcast Technology	1023B	G4
Cetec Broadcast Group	305	L6
Comprehensive Video Supply	1910	B6
Continental Electronics	100	N7
Datatronics	1035	N1
Farrtronics Ltd.	1723	B4
Hallikainen & Friends	514	L3
Harris, Broadcast Products	301	K,L7
Harrison Systems	507	K5
Howe Audio/BCP	438S	L1

Continued on page 102

Designed to put vibration and resonance in their place.

In a professional quality turntable, you want musical vibrations, not mechanical ones. That's why our Professional Audio Division presents the Technics R&B Series SL-1015 turntable and EPA-500 interchangeable tonearms. They put vibration and resonance where they belong—out of the audible level.

The SL-1015 turntable system has a visco-elastic base that absorbs external and mechanical vibrations instead of transmitting them. The extra-heavy platter is damped 3 ways to help cancel platter resonance and acoustic feedback. A high-torque motor provides instant starts. And quartz-synthesized pitch lock with digital display precisely controls speed.

The EPA-500 tonearm system is a series of 5 independent, instantly interchangeable titanium nitride tonearms that let you match the correct tonearm mass to the correct cartridge compliance. The result is music in focus, with inaudible resonance.

The SL-1015 turntable and EPA-500 tonearms are available at select locations. For one near you, call 800-447-4700 (in Illinois, 800-322-4400). We challenge you to hear anything but the music.

Technics
R&B series

Circle (63) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Industrial Sciences	1115	F3
Integrated Sound Systems	2013	B2
LPB Inc.	402	L5
MCI, Inc.	133	N3
Micro-Trak Corp.	508	L4
McCurdy Radio Industries	113	M4
	308	M5
McMartin Industries	300	M7
Pacific Recorders & Engineering	511	K4
Protech Audio Corporation	123	M3
RCA Broadcast Systems	700	J567
Ramko Research	146	N6,7
Rupert Neve	1203	E7
Ruscco Electronics Mfg.	207	M3
Shure Bros.	107	M5
Sound Genesis	330S	M1
Stantron Div. of Wyco Metal Prod.	1828	B2
Studer Revox America	602	K5
Tweed Audio	219	M2
UMC Electronics	108	N5
UREI	607S	K1
Ultra Audio Pixtec	1505	C7
Ward-Beck Systems	1216	F1
Weathercaster	525S	K1
Digital Effects Equipment		
ADDA Corporation	1515	C 5,6
Central Dynamics	1015	G6
Fernseh	1208	F5
The Grass Valley Group	1210	F4
Lexicon	206	M4
Logica	175S	M1
MCI/Quantel (Micro Consultants)	1207	E5,6
NEC America	1301	D7
Quintek	1959	A5
3M Video Products	815	I3
Sony Corporation of America	1211	D,E4
Vital Industries	921	H4
Digital Synchronizers		
Adda Corporation	1515	C5,6
Arvin Echo	1001	G,H7
Asaca/Shibasoku	1219	E1
Digital Video Systems	704	J1
Harris Video Systems	301	K,L7
MCI/Quantel	1207	E5,6
Microtime	1409	D4
NEC America	1301	D7
RCA Broadcast Systems	700	J5,6,7
Thomson-CSF	128	N4
Vital Industries	921	H4
Diplexers & Combiners		
Alan Dick Inc.	1007	G6
Shively Labs	128A	M3

Continued on page 104

See Us At Booth #1037 NAB.

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VHF AND UHF TELEVISION TRANSMITTERS

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NAB '81 · LAS VEGAS
APRIL 12-15

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875 Merrick Avenue, Westbury, N.Y. 11590
Established in 1937

Circle (93) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Directional Antenna Accessories		
Delta Electronics	400	L5
Distortion Analyzers		
Sound Technology	1132	G1
Duplex Communication Systems		
Swintek Enterprises	1800	B7
Earth Station Equipment & Services		
Andrew Corporation	917	H6
Avantek	170	N3
California Microwave, Inc.	156	N5
Compact Video Sales Inc.	1525	C1
Compact Video Services, Inc.	1525	C1
Compucon, Inc.	1902	B7
Comsearch	1604	C7
Fort Worth Tower Company	819	I1
Gardiner Communications Corp	1840	B1
Harris, Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Jenel Consultants	1813	B6
LeBlanc & Royle	1319	D1
Moseley Associates	505	K5
McMartin Industries	300	M7
Microwave Associates	1401	D7
NEC America	1301	D7
Scientific-Atlanta	1119	F,G2
Tayburn Electronics	1708	B,C7
Terracom	1043	G1
U.S. Instruments Rentals	105S	N1
Weathermation	1625	C4
Western Union Broadcast Services	1401A	D7
Edit Code Generators & Receivers		
The BTX Corporation	1501	C7
Control Video	1733	B1
Datametrics	1612-1612A	C7
Datatron, Inc.	1205	E6
Delcom Corporation	1843	B1
Electro & Optical Systems Limited	1511	L6
ESE	208	M3
JATEX, Inc.	1639	C1,2
Shintron Co.	1107	G6
Skotel Corporation	1720	B3,4
Sony Corporation of America	1211	D,E4
Sound Genesis	330S	M1
Studer Revox America	602	K5
United Media	1711	B6
Telcom Research	1824	B3
Editors, Video		
Ampex Corporation	702	J2,3,4
CMX/Orrox Corporation	1209	E5
The Camera Mart	1406	D2

Continued on page 106

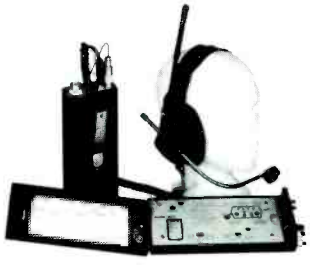
Factory Rentals Available

Complete Systems From $995

Mark 200 Full Duplex Communicators Systems

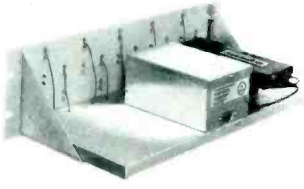
A new generation of Full-Duplex **SWINTEK** communicators is now being offered which warrants the name **MARK 200S** family. Specifically designed to provide Continuous Closed-Circuit Wireless headset intercommunication for industrial or reinforcement sound market. This can be a telephone-type network between a football coach and his spotter or behind-the-scenes voice link between a show director and his sound, lighting and stage crews. With the proper headsets a race track pit crew can communicate with the driver in ambient noise exceeding 120dbA WITHOUT WIRES. In industrial plants, such a system keeps continous contact between production control and a worker in a hazardous or high noise environment.

Unlike a conventional walkie-talkie, no transmit buttons have to be depressed to establish communications between two remote stations. This mode of operation limits false triggering of the transceiver system, thus blocking interferring signals. Any break in communications is immediately apparent at all stations due to loss of voice sidetone information.



MK 200S Communicator

- True hands Off Operation, full duplex
- One-half mile usable range, typical
- Push To Talk for system expansion
- Data information input



MARK 200/RPL Rack Mounted Communicator

- Over Five channels of Full Duplex communications

MARK 200/CPS Communicator

- Powered from external camera power supply
- Push to talk for system expansion
- One-mile usable range, typical

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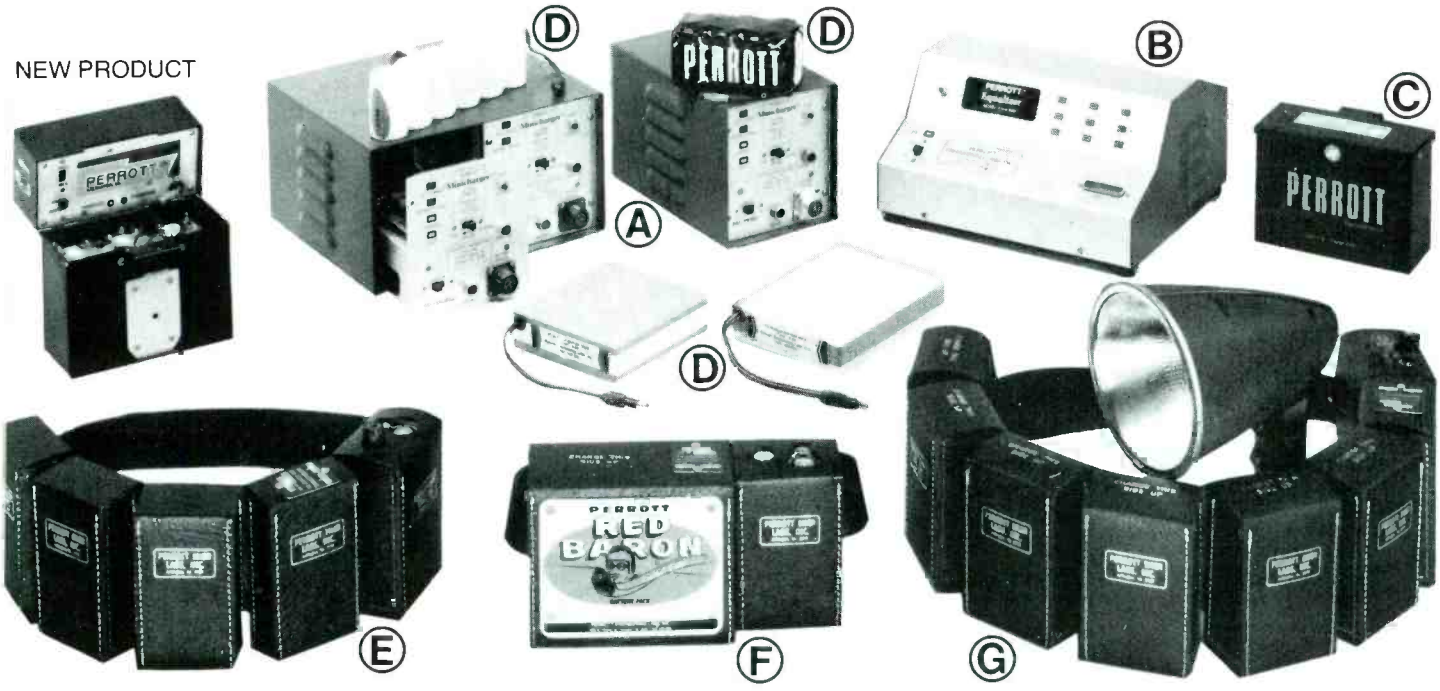

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COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Cezar International	1718	B4
Cinema Products	1417	D2
Control Video	1733	B1
Convergance Corporation	1101	F,G 7
Datatron Inc.	1205	E6
Delcom Corporation	1843	B1
Fernseh	1208	F5
Jatex	1639	C1,2
Logica	175S	M1
3M Company	815	I3
NEC America	1301	D7
Panasonic/Video Systems	1521	C,D3
RCA Broadcast Systems	700	J567
Sony Corp. of America	1211	D,E4
U.S. JVC Corporation	1519	C4
United Media	1711	B6
Videomedia	1403	D6
Electronic Slides		
Eigen Video	1113	G3
Interand Corp.-Telestrator Division	929	H1
Oktel Corporation	1715	B6
Encoders and Decoders		
Blonder-Tongue Labs	1730	B,C1
Broadcast Video Systems Ltd.	1631	B3
Dynacom Electronics	1134	G1
EEG Enterprises Inc.	1837	B2

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Edcor	205S	M1
Fernsen	1208	F5
For-A Corp. of America	1826	B2
Industrial Sciences	1115	F3
JATEX, Inc.	1639	C1,2
Lenco, Inc. Electronic Div.	1206	F6
McMartin Industries	300	M7
Oak Communications	1517	C5
QSI Systems	1603	C7
Ramtek Corporation	434S	L1
Rohde & Schwarz Sales	1110	G5
Telemet, Div. of Goetel	1010	H3
Exciters, AM, FM, TV		
Broadcast Electronics, Inc.	304	M6
C.N. Rood		
CSI Electronics	106	N6
Canadian General Electric	431S	L1
Comark Communications, Inc.	515	K3
Continental Electronics	100	N7
Elcom Specialty Products	419	L3
Harris, Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
LPB Inc.	402	L5
Moseley Associates	505	K5
McMartin Industries	300	M7
NEC America	1301	D7

Continued on page 108

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For example, the D-2000 **avoids** putting multiple inputs and outputs on a common PC board, **avoids** party lining control systems in preference to private lining and **avoids** reliance on a central microprocessor system. Instead, each input and each output bus are on individual plug-in modules and each output bus has its own independent microprocessor control system. A fault therefore can only affect one input or one output and not the entire system.

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NAB
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APPLE II™ GRAPHICS can now join your production team. Video Associates Labs is proud to announce the VB-1. The VB-1's primary purpose is to make the Apple II capable of producing **BROADCAST QUALITY NTSC VIDEO.** The VB-1 also incorporates many production features that will complement the Apple II's basic graphics ability. Some of the features are: *keyer, horizontal offsets, color framer, preview mode, chroma on/off, 360° hue control.* The VB-1 requires no physical modification to the Apple II, uses standard Apple II software and uses no memory space in the Apple. We will be showing the VB-1 in Booth 1716 at the Las Vegas NAB. We look forward to seeing you there.

Video Associates Labs
2304 Hancock Drive #1-F
Austin, Texas 78756
(512) 459-5684

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NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Telemet, Div. of Goetel	1010	H3
Versa-Count	576	L3
Fiber Optic Link		
Grass Valley Group	1210	F4
Telemet	1010	H3
Fiber Optic Receiver & Transmitter Systems		
Telemet	1010	H3
Valtec	1811	B6
Field Strength Meters		
Potomac Instruments	109	M5
Film & Film Processing Equipment		
Eastman Kodak	1118	G3
Film Chain Equipment		
B.E.I. (Beston Electronics Inc.)	801	I7
Cohu Inc. Electronics Div.	900	I7
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Fernsen	1208	F5
Harris/Broadcast Products	301	K,L7
Hitachi Denshi America Ltd.	1404	D,E3
Ikegami Electronics (U.S.A.)	817	I2
Industrial Sciences	1115	F3
L-W International	939	H1
Laird Telemedia, Inc.	901	H7
Magnasync/Moviola Corp.	1825	B4
Nytone Electronics Corp.	1702	B7
Philips Broadcast Equipment	807	I5
Porta-Pattern Telecommun. Ind.	1325	D1
RCA Broadcast Systems	700	J567
Rangerless Research	506S	L1
Research Technology	1112	G4
The Zei-Mark Corp	1643	B1
Frame Store Synchronizers		
ADDA Corporation	1515	C5,6
Adwar Video	345S	L1
Arvin/Echo	1001	G,H7
The Camera Mart	1406	D2
Delcom Corporation	1843 B1	
Digital Video Systems	704	J1
Harris, Broadcast Products	301	K,L7
MCI/Quantel	1207	E5,6
Microtime	1409	D4
NEC America	1301	D7
Quintek	1959	A5
Thomson-CSF Broadcast	919	H5
Generators, FM Stereo		
Broadcast Electronics, Inc.	304	M6
Continental Electronics	100	N7
Elcom Specialty Products	419	L3
Harris, Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Moseley Associates	505	K5
McMartin Industries	300	M7
Orban Associates	411	L4
C. N. Rood		
Sony Corporation of America	1211	D,E4
Sound Technology	1132	G1
U.S. Instrument Rentals	105S	N1

Continued on page 110

We stand alone

There are no fewer than 7 television transmitters up there at the top of the world's tallest free-standing structure... including some of the most prestigious names in the world.

Townsend recently joined them.

The C N Tower in Toronto stands 1,815 feet. It houses 7 T.V. stations and 9 radio stations, along with the world's highest public observation area (1,465 feet) and the world's largest revolving restaurant (1,150 feet), which seats 420 people.

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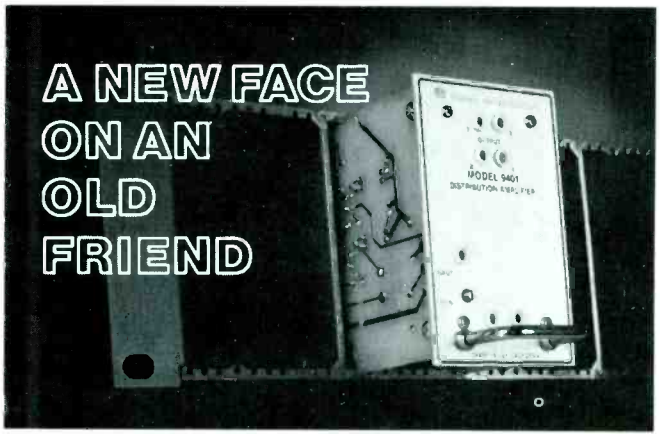

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NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Versa-Count	576	L3
Generators, Pattern Signal		
Asaca/Shibasoku Corporation	1219	E1
Centro Corporation	2147	A2
Harris/Broadcast Products	301	K,L7
Industrial Sciences	1115	F3
Philips Broadcast Equipment	807	I5
Porta-Pattern Telecommun. Ind.	1325	D1
U.S. Instrument Rentals	105S	N1
Headphones, Speakers/Intercoms		
Avab America	1600	C7
Accurate Sound Corporation	214	M3
BGW Systems	403S	L1
Broadcast Electronics	304	M6
The Camera Mart	1406	D2
Clear-Com	174-176S	N1
Compact Video Sales Inc.	1525	C1
Comprehensive Video Supply	1910	B6
Continental Electronics	100	N7
D-B Electronics	140	N7
Victor Duncan	1110A	G5
HM Electronics	1509	C7
Harris, Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Micro-Trak Corp.	508	L4
Panasonic Professional Audio	600	K5
Protech Audio Corporation	123	M3
R-Columbia Products Co.	1703	B7
ROH Corporation	107S	N1
RTS Systems	1525	C1
Ramko Research	146	N6,7
Rupert Neve Incorporated	1203	E7
Sony Corporation of America	1211	D,E4
Sound Genesis	330S	M1
Stanton Magnetics	118A	N5
Television Equipment Associates	1019	H4
Telex Communications	311	L4
Ward-Beck Systems	1216	F1
Heads, Audio		
Audi-Cord	319	L3
Nortronics	401	L5
Saki Magnetics	331	L2
UMC Electronics	108	H5
Helicopters & Tracking Systems		
Bell Helicopter	1905	A7
Victor Duncan	1110A	G5
Hughes Helicopters	1635	B2
Microwave Associates	1401	D7
R.F. Technolgy	1624	L5
Tayburn Electronics	1708	B,C7
Image Stabilizer		
Arriflex	1835	B2
Lenses and Lens Services		
Achro-Video, Ltd.	1503	C7
Angenieux Corp. of America	904	I4
Arriflex	1835	B2
The Camera Mart	1406	D2
Canon U.S.A.	902	I6
Cinema Products	1417	D2

Continued on page 112

NEC DME® System features:

- Single or dual channel operation with DME dual system for simultaneous single-studio multi-channel or two-studio single channel use.
- Complete frame synchronization on all inputs including TBC, freeze and Velcomp capabilities.
- Intelligent digital control system with 18 complete memory locations of start and finish position/size and special effects.
- Automatic pan and tilt control with limit for not going out of frame.
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- Operation with DME or existing DVE® Digital Video Effects System for full digital control of all system functions.
- Memory capacity for 18 complete pattern manipulations including start position and size, finish position and size, posterization and solarization effects, freeze frame or freeze field and real time frame entry of effect duration . . . all effects instantly and exactly repeatable.
- Automatic pan and tilt functions with selectable limit to prevent pattern transition beyond blanking.
- Memory reveal function to permit image-track effects by revealing the entire memory and removing normal mask.
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- Auto-freeze for pre-timed incremental freezing.
- All digital construction including digital shaft encoder instead of conventional faders.

NEC

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Broadcast Equipment Division
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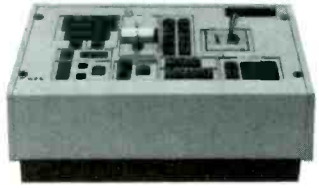
Elk Grove Village, IL 60007



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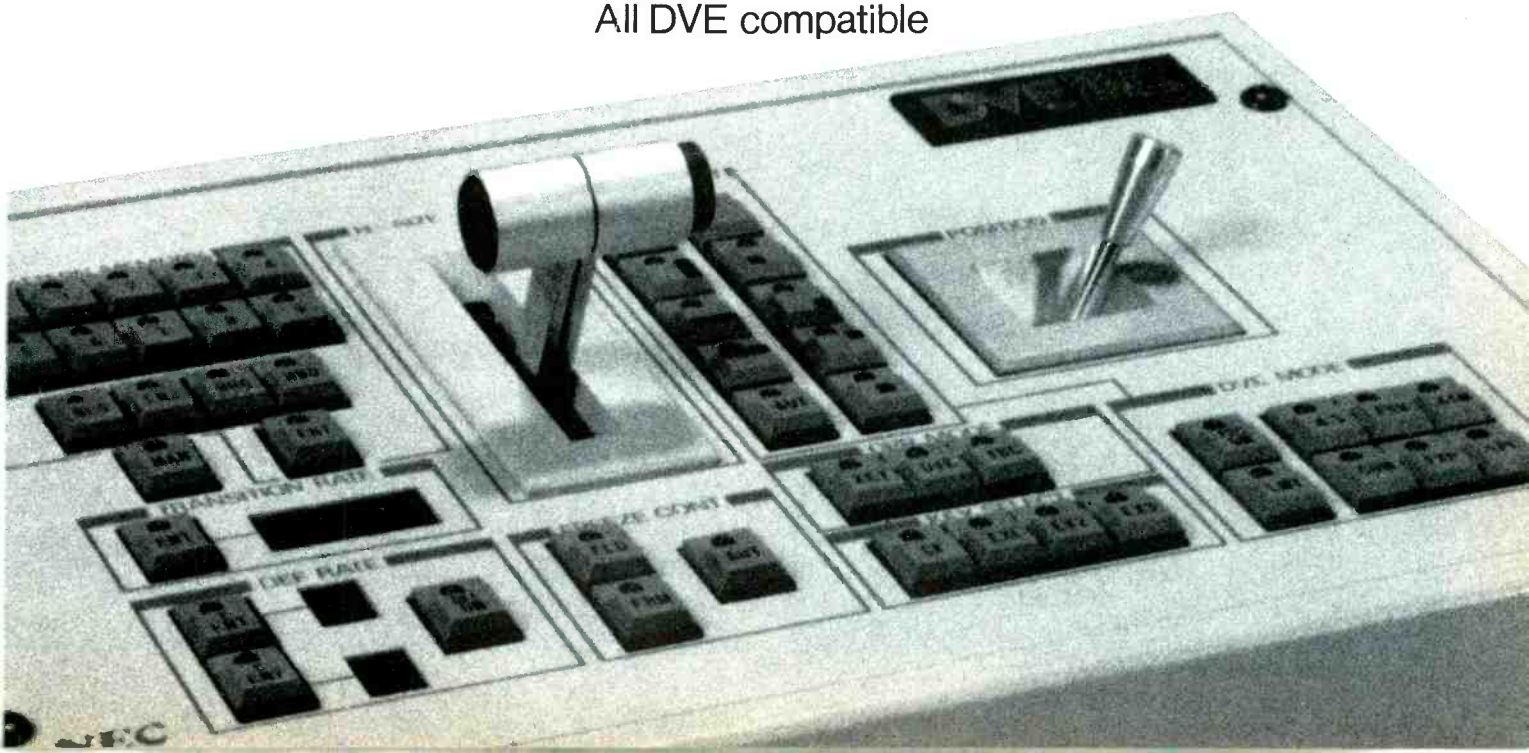

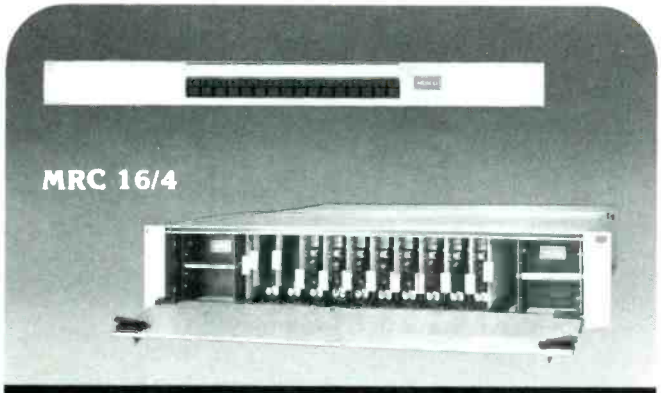

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NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Comprehensive Video Supply	1910	B6
Victor Duncan	1110A	G5
Fujinon Optical	1117	F2,3
Harris, Broadcast Products	301	K,L7
Karl Heitz	1809	B7
Sharp Electronics	1121	F1
The Zei-Mark Corp.	1643	B1
Lighting Control Systems		
Berkey Colortran Inc.	1116	G4
Candex Pacific	1700	B7
Compact Video Sales Inc.	1525	C1
Harris/Broadcast Products	301	K,L7
Kliegl Bros	923	H3
Matthews Studio Equipment	1806	B7
Olesen	1411	D3,4
Skirpan Lighting Systems	1525	C1
Tech Theatre	1709	B7
Ultra Audio Pixtec	1819-1505	C7
World Tower Company	420	L2
Lightning & Powerline Protection Systems		
Lightning Elimination Associates	317	L4
Lights and Lighting Accessories		
Avab America	1600	C7
Achro-Video Ltd.	1503	C7
Anton Bayer	1617	C5
Arriflex Corporation	1835	B2
Belden Communications	172S	N1
Berkey Colortran Inc.	1116	G4
The Camera Mart	1406	D2
Cinema Products	1417	D2
Comprehensive Video Supply	1910	B6
Cool Light Company	1831	B2
Victor Duncan	1110A	G5
Frezzolini Electronics	1608	C7
The Great American Market	1628	C2
Harris, Broadcast Products	301	K,L7
Kliegel Bros	923	H3
Lowel-Light	1004	H7
OSRAM Sales Corporation	301S	M1
Olesen	1411	D3,4
Phoebus Corporation	521S	K1
Skirpan Lighting Systems	1525	C1
Strand Century	1204	F6
Sylvania Lighting/GTE	909	H6
Teatronics Sales/UAP	1505	C7
Tech Theatre	1709	B7
Ultra Audio Pixtec	1505	C7
World Tower Company	420	L2
Limiters and Compressors		
Audio & Design Recording	424	L2
Audio Technologies	125	M3
ADDA Corporation	1515	C5,6
Accurate Sound Corporation	214	M3
Broadcast Electronics	304	M6
dbx Corporation	416	L3
Circuit Research Labs	126A	N4
Continental Electronics	100	N7
Datatronix	103S	N1
Delta Electronics	400	L5
Elcom Specialty Products	419	L3

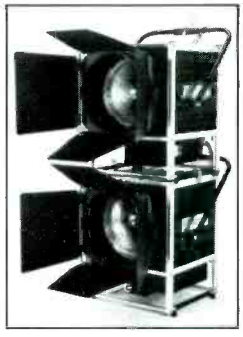
Continued on page 114

"Their innovative design makes RDS/HMI Fresnels ideal for all film and video location shooting: especially live mass events and sports specials..." Bill McManus

"Working as we often do under less-than-controlled circumstances — where power is sparse, cables have to be stretched across large areas, and there are large crowds to contend with — we've come to appreciate the enormous versatility and rugged reliability of the RDS/HMI Fresnels," says Bill McManus, president of McManus Enterprises, the prominent production lighting design company (based in Bala Cynwyd, PA) and member of the official 1980 Winter Olympics lighting team.

"I applaud their original and innovative design!" says McManus. "Their unique cube-shaped design and rugged modular construction provide RDS/HMI Fresnels with distinct advantages over other HMI lights currently on the market.

Stackable



"An obvious advantage is that several luminaires can be vertically stacked for ease of transportation and convenient storage. It allows you to cut down on the size of the truck you're taking along... Stack them three or four high at the edge of a tail gate and strap them to the truck. When you pull up to a location, just undo one strap and start handing the lights off. This makes setups real quick and easy.

Convertible

"Another important feature is that RDS/HMI luminaires can be easily converted to incandescent Fresnels by simply replacing the HMI insert assemblies with optional insert assemblies which accept standard tungsten-halogen lamps. That means a lot to a company like McManus which is involved in both sales and rental of equipment, because shelf space is so valuable.

Wider Focusing Ratio

"The lights have such long range, such reach, we were able to use them at Lake Placid from the roof tops of two hotel buildings as if they were regular follow-spots!

"And the specially designed RDS/HMI Fresnel lens provides a smoother field of light as well as a wider focusing ratio from spot-to-flood.

Safe, Rugged and Reliable

"The entire RDS/HMI insert assembly — including lamp socket, ignitor circuitry and switches — can be removed easily without the use of tools for safe, convenient relamping.

"At Lake Placid, a couple of lights were knocked down accidentally. In both instances the lamps were not broken, and the fixtures fired right up within minutes of the accidents. I credit this to the specially designed, shock-mounted heat sink lamp sockets. We had no major breakage, no downtime, no leaks, and no loss of life to the lamps!"

Bill McManus (right) with Joe Tawil of The Great American Market, one of Cinema Products' major dealers for RDS/HMI 575W, 1200W, 2500W and 4000W Fresnel spotlights.

For further information, please contact:

cinema products CORPORATION

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RV 1301 13"

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- Precision-in-line picture tube
- Full "E to E" capability
- CMOS Electronic switching
- May be equipped with pulse-cross, underscan, internal/external sync selection and other options

WORLD VIDEO, INC.

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1" VTR CONSOLE

MODEL 3100

Winsted's new model 3100 console is designed for space efficiency and operator convenience. VTR turntable rotates for complete machine servicing, viewing comfort. Monitor bridge adjusts in 1" increments. Several models available.

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THE WINSTED CORP.
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Minneapolis, MN 55420
612/888-1957

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Winsted

Circle (79) on Action Card

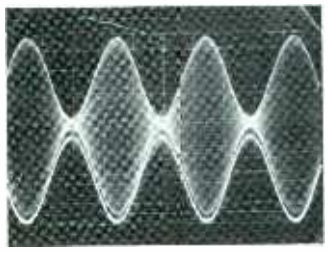
NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Gregg Laboratories	403	L5
Harris, Broadcast Products	301	K,L7
Harrison Systems	507	K5
Howe Audio/BCP	438S	L1
LPB	402	L5
Marti Electronics	307	L5
McMartin Industries	300	M7
Orban Associates	411	L4
Protech Audio Corporation	123	M3
QEI Corporation	417	L3,4
Ramko Research	146	N6,7
Rupert Neve	1203	E7
Sound Genesis	330S	M1
Strand Century	1204	F6
Loads and Wattmeters		
AEG-Telefunken/Bayly Engineering	130	N3
Bird Electronics	915	H6
Comark Communications	515	K3
Dielectric Communications	1507	C7
Electro Impulse	1130	G1
Howe Audio/BCP	438S	L1
Low Frequency Extenders		
Comrex	105	M6
Master Clocks		
Beaveronics	1041	H1
ESE	208	M3
Leitch Video	1212	F3
Microwave, STL and Remote Pickup Equipment		
AEG-Telefunken/Bayly Engineering	130	N3
Avantek	170	N3
Andrew Corporation	917	H6
Cable Systems	1323	D1
Continental Electronics	100	N7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Innovative TV Equipment	1405	D5,6
Marti Electronics	307	L5
McMartin Industries	300	M7
Micro Control Associates	310	M4
Moseley Associates	505	K5
Motorola Comm. & Elec.	318	M3
NEC America/Broadcast Equipment	1301	D7
Nurad	1400	D6
R.F. Technology	1624	C5
Tayburn Electronics	1708	B,C7
Terracom	1043	G1
Time & Frequency Technology	124	N4
U.S. Instrument Rentals	105S	N1
Versa-Count	576	L3
Microphones		
Accurate Sound Corporation	214	M3
Beyer Dynamic	1906	B7
Broadcast Electronics	304	M6
The Camera Mart	1406	D2
Cetec Broadcast Group	305	L6
D-B Electronics	140	N7
Comprehensive Video Supply	1910	B6
Continental Electronics	100	N7
Crown International	190S	N1

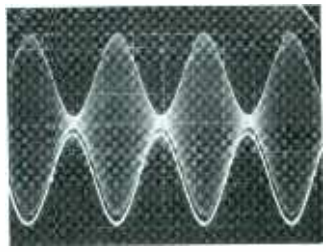
Continued on page 116

AM TRANSPARENCY

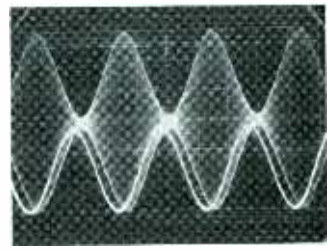
Typical phase and square wave performance: Continental's 317C-2



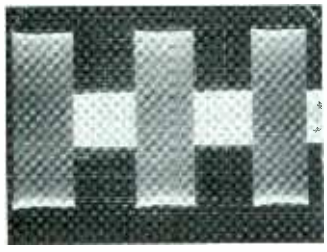
20 Hertz



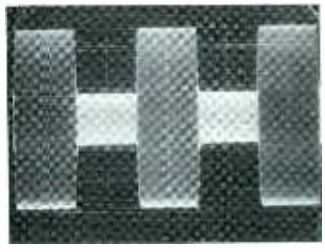
1000 Hertz



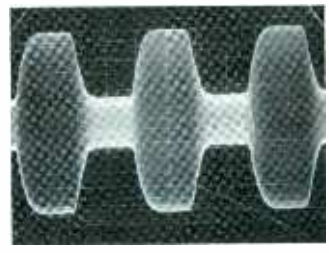
7500 Hertz



50 Hertz



1000 Hertz



7500 Hertz

Continental's 317C-2 50 kW AM transmitter gives broadcasters a new standard of performance. Here's why.

The 317C-2 offers broadcasters transparency and high efficiency.

Continental's 317C-2 is a 50 kW broadcast transmitter built for today's programming demands. It delivers superb audio quality and faithfully reproduces the most complex audio processing. It is ready for AM stereo.

Continental's newest transmitter comes from a field-proven design and offers broadcasters excellent performance with unmatched efficiency, reliability, simplicity and maintainability.

Continental transmitters meet today's sophisticated programming requirements. And they'll be ready for the coming evolutions in AM broadcast programming.

For information and a brochure on the 317C-2, phone (214) 381-7161 or write to: Broadcast Marketing Dept. Continental Electronics Mfg. Co.; Box 270879 Dallas, Texas 75227; Telex: 73-398

Continental Electronics®

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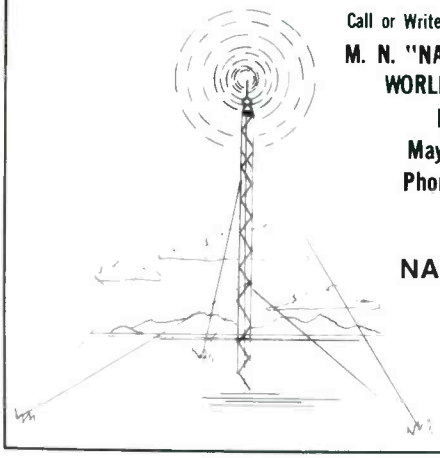

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M. N. "NATE" SHOLAR, Owner
WORLD TOWER CO. INC.
P.O. BOX 405
Mayfield, Ky. 42066
Phone 502-247-3649

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Can you color sync 4 cameras & a switcher from a single 1-3/4" chassis?

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- **4 Blackbursts - 3 with adjustable subcarrier and H. phase**
- **3 Subcarriers - 360° phase adjustment**
- **3 Blanking - with adjustable delay**
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(717) 569-2681
531 DOVER ROAD, COVINA, CA 91722
(213) 967-4526

VISIT US AT NAB BOOTH 1602.

Circle (83) on Action Card

NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Victor Duncan	1110A	G5
David Green Broadcast Corp.	125	M3
Edcor	205S	M1
HM Electronics	1509	C7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
International Tapetronics Corp.	501	K6
Marti Electronics	307	L5
MCI	133	N3
Nady Systems	1839	B1
Panasonic Professional Audio	600	K5
Panasonic/Video Systems	1521	CD3
R-Columbia Products	1703	B7
RTS Systems	1525	C1
Rhode & Schwartz Sales	1110	G5
Shure Bros.	107	M5
Sony Corp. of America	1211	D,E4
Sound Genesis	330S	M1
Swintek Enterprises	1800	B7
Television Equipment Associates	1019	H4
Telex Communications	311	L4
Modulators and Demodulators		
California Microwave	156	N5
The Camera Mart	1406	D2
Comark Communications	515	K3
Continental Electronics	100	N7
Gardiner Communications	1840	B1
Howe Audio/BCP	438S	L1
McMartin Industries	300	M7
Moseley Associates	505	K5
Philips Broadcast Equipment	807	I5
QSI Systems	1603	C7
R.F. Technology	1624	C5
Rhode & Schwarz Sales	1110	G5
Scientific-Atlanta	1119	F,G2
Tektronix	1111	G4
Telemet	1010	H3
Videotek	1611	L6
Multiplexer Systems, Digital		
The Grass Valley Group	1210	F4
Music Library		
Dewolfe Music Library	1618	C7
Thomas J. Valentino	412	L3
Noise Reduction Systems		
ADM Technology	1212	F3
Audio Technologies	125	M3
Accurate Sound Corporation	214	M3
Audio & Design	424	L2
dbx Corporation	416	L3
Dolby Laboratories	1031	G3
Fernseh	1208	F5
Howe Audio/BCP	438S	L1
Microtime	1409	D4
Philips Broadcast Equipment	807	I5
Sound Genesis	330S	M1
Thomson-CSF Broadcast	919	H5
Pedestals, Tripods & Heads		
Arriflex Corporation	1835	B2
The Camera Mart	1406	D2

Continued on page 118

TIRED OF PATCHING FEEDS TO THE GM'S OFFICE?

(OR TO OTHER OFFICES, CLIENT VIEWING ROOMS, EDIT SUITES, ETC.?)

Give them one of these Utah Scientific Routing Switcher Controllers and let them do their own patching.

Utah Scientific's new CPD/PL control is a **Party Line** panel with a single coax control connection — no bulky cables to install. It is powered by a transistor radio battery provicing many years life expectancy. It features a pull-out directory to aid the operator in source selection.

Since multiple CPD/PL's can all be connected to a single party line, many stations are installing coax drops throughout their plants giving them complete flexibility for present and future routing switcher control using these versatile panels.

SINGLE COAX CONNECTION — BATTERY POWERED — UNOBTRUSIVE

TRY THAT ON YOUR GRASCOMFERNSAMDYNATEK SWITCHER!

UTAH SCIENTIFIC

THE ROUTING SWITCHER PEOPLE.

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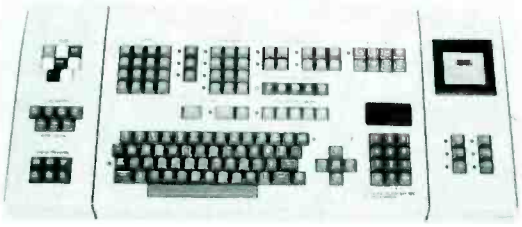
INTRODUCING THE MODEL 7200 COMMUNICATOR



- HIGH RESOLUTION FONT (35 n sec.)
- BASIC SINGLE STROKE CONTROL
- GRAPHICS AND 3 CHARACTER SIZES
- 8 COLORS—CHARACTERS & BACKGROUND
- MIXED CHARACTER SIZES—BY LINE
- AUTO CENTERING BY PAGE OR LINE
- DISC AND/OR TAPE STORAGE
- MULTIPLE KEYBOARD CAPABILITY
- BUILT-IN VIDEO KEYER
- FULL BORDER OR DROP SHADOW

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VISIT BOOTH 901 AT NAB

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It makes good management sense...

When you support SBE's certification program by hiring certified engineers and encouraging your current staff to earn certification, you're endorsing the highest standards of technical professionalism in the engineering community.

Which means you also end up with a better managed, more profitable station. And a better signal.

SBE certification represents the highest degree of technical achievement. Applicants must meet a minimum experience requirement at-station or in related fields in the broadcast industry, submit to review and approval by the certification committee, then pass a written exam on state-of-the-art engineering. And after all that, they must submit to periodic review and recertification.

Pretty tough standards, to be sure. And a pretty smart way to make sure yours is the best engineered station in your market.

Support the SBE certification program. *It makes good management sense.*

For complete information on SBE certification, circle the Action Card number or contact:

Certification Secretary, SBE
P.O. Box 50844; Indianapolis, IN 46250
(317) 842-0836

Circle (86) on Action Card

NAB equipment directory

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Comprehensive Video Supply	1910	B6
Delcom Corporation	1843	D5,6
Victor Duncan	1110A	G5
Harris/Broadcast Products	301	K,L7
Karl Heitz	1809	B7
Innovative Television Equipment	1405	D5,6
Listec Television Equipment	1027	H3
O'Connor Engineering Labs	1122	G2
Quick Set	1012	H2,3
Television Products	409S	L1
Processing & Equalizing Equipment		
Audio & Design Recording	424	L2
Audio Technologies	125	M3
Accurate Sound Corporation	214	M3
Broadcast Technology	1023B	G4
Circuit Research Labs	126A	N4
Continental Electronics	100	N7
Dataronix	1035	N1
dbx Corporation	416	L3
Delta Electronics	400	L5
Elcom Specialty Products	419	L3
Fernseh	1208	F5
The Grass Valley Group	1210	F4
Gregg Laboratories	403	L5
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Industrial Sciences	1115	F3
Integrated Sound Systems	2013	B2
Leitch Video Limited	1212	F3
Lenco/Electronics Division	1206	F6
McCurdy Radio Industries	113,308	M4,M5
McMartin Industries	300	M7
Moseley Associates	505	K5
Orban Associates	411	L4
Protech Audio Corporation	123	M4
QEI	417	L3,4
Quintek	1959	A5
Rupert Neve	1203	E7
Sescom	905	H7
Sigma Electronics	1602	C7
Sony Corp. of America	1211	D,E4
Sound Genesis	330S	M1
Telemet	1010	H3
Thomson-CSF Broadcast	128	N4
UREI	607S	K1
Vital Industries	921	H4
Wilkinson	302	M6
Program Services		
BPI	316	M3,4
The Broadcast Center	211	M2
Bonneville Broadcast Consultants	321	L3
Cavox/Tape-Athon Corp.	164	N4
Century 21 Programming	313	L4
Concept Productions	326	M2
Emil Ascher Music	225S	M1
Groton Computer/Radio Network	118	N5
KalaMusic	128B	N3
Live Sound	127	M3
Media Service Concepts	225S	M1
The Music Works	323	L3
Oak Communications	1517	C5
O'Connor Creative Services	115	M4

Continued on page 120

Cleaner, Brighter, Louder

OPTIMOD-AM permits progressive AM broadcasters with quality plants to broadcast a standout signal with improved coverage.

The signal is processed for common automobile, table and portable radios to achieve outstanding speech intelligibility, musical definition and freedom from distortion.

And the versatile new OPTIMOD-FM Model 8100A is even cleaner, brighter and louder than the industry-standard Model 8000A it replaces.

The new 8100A was computer designed and refined by hundreds of hours of listening to set the new quality standard for FM in the 80's.

AM or FM—OPTIMOD creates sound that dominates the dial. For all the details, call Toll Free (800) 227-4498, In California (415) 957-1067, or write for the name of the Orban Broadcast Dealer nearest you.

orban

Orban Associates Inc., 645 Bryant Street, San Francisco, CA 94107 Telex: 17-1480 Cable: ORBANAUDIO

NAB BOOTH 411

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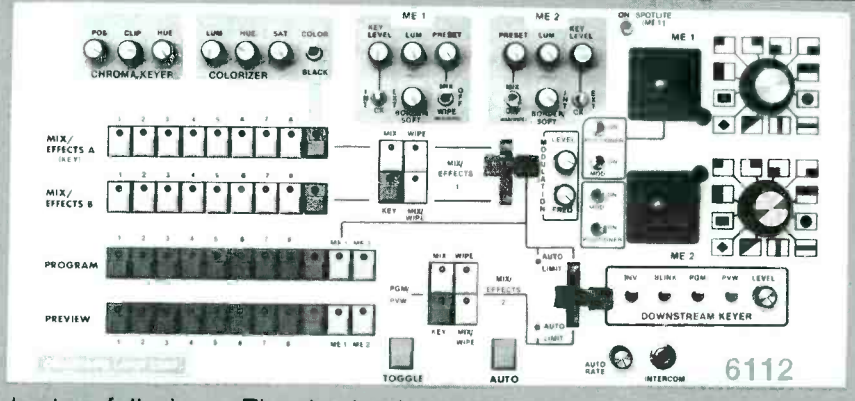
COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Sacred Sounds	624S	K1
Production Titler		
Computer Video Systems	188S	N1
RF Switches		
SWR	1626	C5
RF Test Equipment		
Delta Electronics	400	L5
Potomac Instruments	109	M5
Radio Remote Control & Supervisory Control Systems		
Moseley Associates	505	K5
Record Care Products		
Stanton Magnetics	118A	N5
Recorders, Audio Reel-to-Reel		
AEG-Telefunken/Bayly Engineering	130	N3
Accurate Sound Corporation	214	M3
Ampex Corporation	702	J234
Ampro/Scully	102	N6
Century 21 Programming	313	L4
Cetec Broadcast Group	305	L6
Continental Electronics	100	N7
Dictaphone Corporation	110	N5
Victor Duncan	1110A	G5
Howe Audio/BCP	438S	L1
International Tapetronics	501	K6
Micro-Trak Corporation	508	L4
Nagra Magnetic Recorders	510	L4
Neal Ferrograph	504S	L1
Otari	503	K5
Panasonic Professional Audio	600	K5
Ramko Research	146	N6,7
Rangertone Research	506S	L1
Rupert Neve	1203	E7
Sony Corp. of America	1211	D,E4
Sound Genesis	330S	M1
Studer Revox America	602	K5
Teac Corporation	702S	K1
Telex Communications	311	L4
United Research Labs	414	L3
Recorders, Logging		
Ampro/Scully	102	N6
Neal Ferrograph	504S	L1
Remote Control System, AM, FM, TV		
Delta Electronics	400	L5
Potomac	109	M5
Time & Frequency Technology	124	N4
Remote Controls, Video		
AVAB America	1600	C7

Continued on page 122

THE 6112 IS SO ADVANCED
IT SURPASSES ALL SWITCHERS IN ITS CLASS AND BEYOND

Two fully independent special effects generators each with double re-entry; downstream keyer.

Price N.T.S.C. $7,345.
P.A.L. 8,345.
Encoded Chroma Keyer $1,050.
Not Available in P.A.L.



The production flexibility afforded by two fully independent mix-effects systems, each with its own keyer, has to be seen to be appreciated. The 6112 makes maximum use of its buses and controls. For instance, the preview bus is not tied up just to get an ME system into the program line. Ask your dealer for a demonstration.

The circuitry is rock stable — and we mean exactly that. Dual back porch clamps, patterns that snap into position, inherent timing accuracy with no lag or bounce, standardized interchangeable plug-in boards with gold fingered card edge connectors, all contribute to a sense of quality.

For further information on the 6112 or our other switcher products call or write for information.

CROSSPOINT LATCH CORP.

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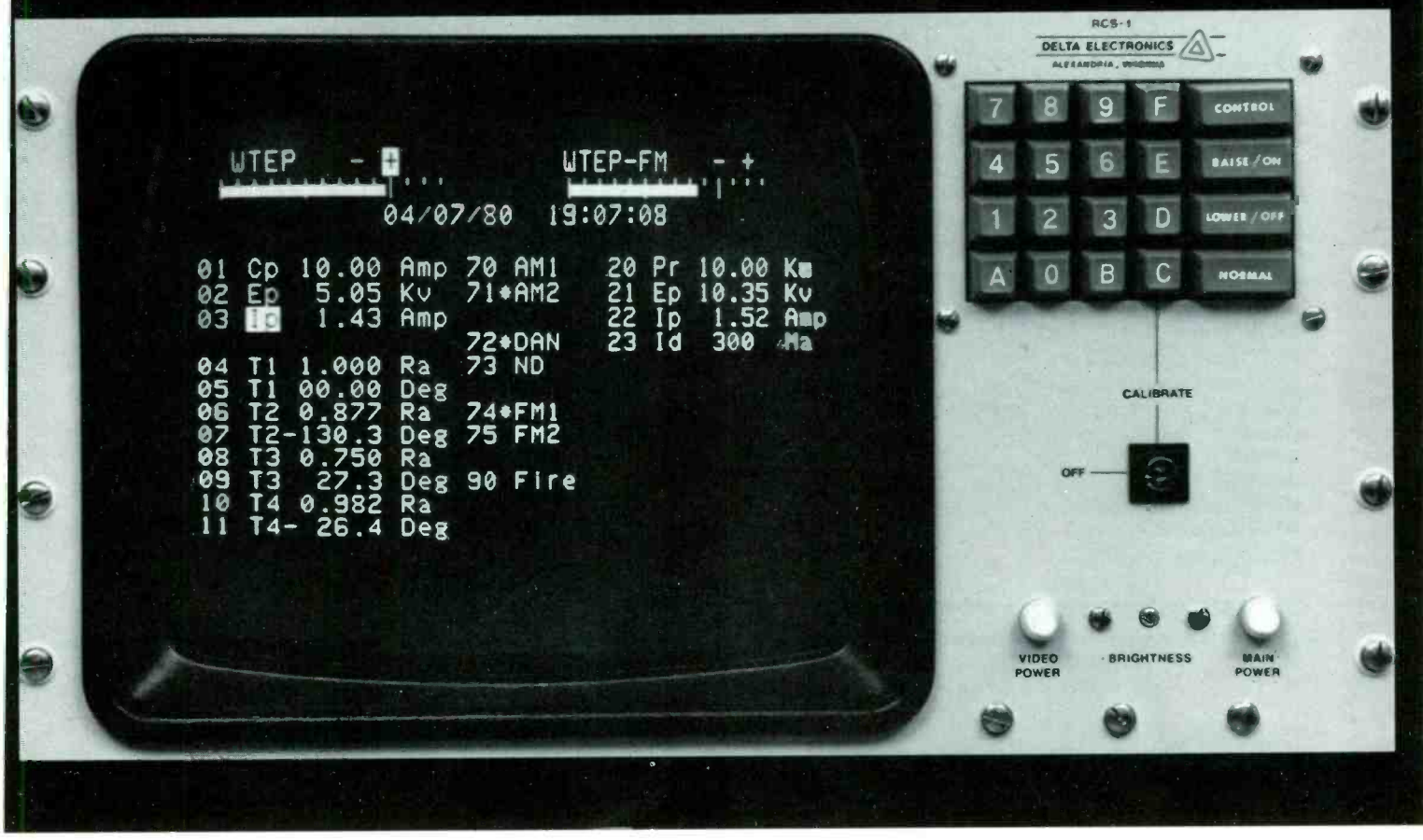
Circle (88) on Action Card

LISTEN TO THE DIFFERENCE.



THE DELTA RCS-1 REMOTE CONTROL SYSTEM

A simple, yet sophisticated approach to AM, FM and TV Remote Control

SIMPLE.

All parameters are displayed for the operator.

- Hands-off operation until an actual control function is required.
- Automatic logging option ends the nightmare of forgotten or incorrect log entries.

SOPHISTICATED.

Features not found on other remote control systems:

- Modulation bargraph with peak flashers.
- Direct antenna monitor interface.
- Telephone coupler with speech synthesizer providing telephone interrogation.

The RCS-1 is designed to grow with your plant. Additional control, input, and alarm boards can be added to the systems, thereby meeting any new station requirements. In addition, the RCS-1 contains the fundamental building blocks for ATS, permitting conversion to a combination Remote Control/ATS System at a later date.

Write or call for a descriptive data sheet and pricing.

Circle (89) on Action Card

DELTA ELECTRONICS

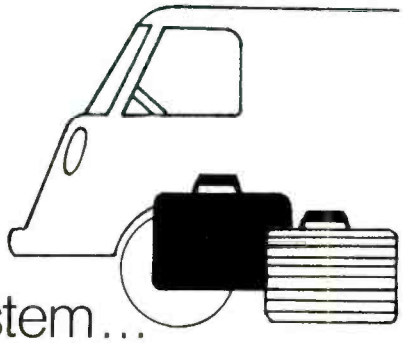
5730 General Washington Drive, Alexandria, VA 22312 703-354-3350 TWX 710-832-0273

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
American Data Corporation	803	I6
The BTX Corporation	1501	C7
Candex Pacific	1700	B7
Comark Communications	515	K3
Dynair Electronics	813	I3
Delcom Corporation	1843	B1
Delta Electronics	400	L5
Fernseh	1208	F5
Harris/Broadcast Products	301	K,L7
Jatex	1639	C1,2
Moseley Associates	505	K5
Recortec	1200	F7
Sharp Electronics	1121	F1
Tayburn Electronics	1708	B,C7
Time & Frequency Technology	124	N4
Remotes Audio Equipment		
ADC Products/Magnetic Controls	181S	M1
AVAB America	1600	C7
Audio Technologies	125	M3
American Data Corporation	803	I6
The BTX Corporation	1501	C7
Broadcast Electronics	304	M6
Comrex Corporation	105	M6
Continental Electronics	100	N7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
McCurdy Radio	113	M4
McCurdy Radio	308	M5
McMartin Industries	300	M7
Moseley Associates	505	K5
Ramko Research	146	N6,7
Ruscco Electronics	207	M3
Sescom	905	H7
Sound Genesis	330S	M1
Telex Communications	311	L4
Time & Frequency Technology	124	N4
Tweed Audio	219	M2
Ultra Audio Pixtec	1819	C7
Satellite Distribution Services		
Compact Video Services	1525	C1
Compucon	1902	B7
Jenel Consultants Corp.	1813	B6
RCA American Communications	700	J5-7
Western Union Broadcast Services	1401A	D7
Wold Communications	1221	E1
SCA Equipment		
Broadcast Electronics	304	M6
Cavox/Tape-Athon Corporation	164	N4
Continental Electronics	100	N7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Marti Electronics	307	L5

Continued on page 124

Ready to go...

CHYRON® RGU-1



The portable graphics and titling system... packaged to travel, to go where you go, as well as for in-house operation. Ingenious. Incorporating many features of the matchless **CHYRON IV.** From CHYRON—the electronic graphics people.

CHYRON TELESYSTEMS DIVISION OF CHYRON CORPORATION

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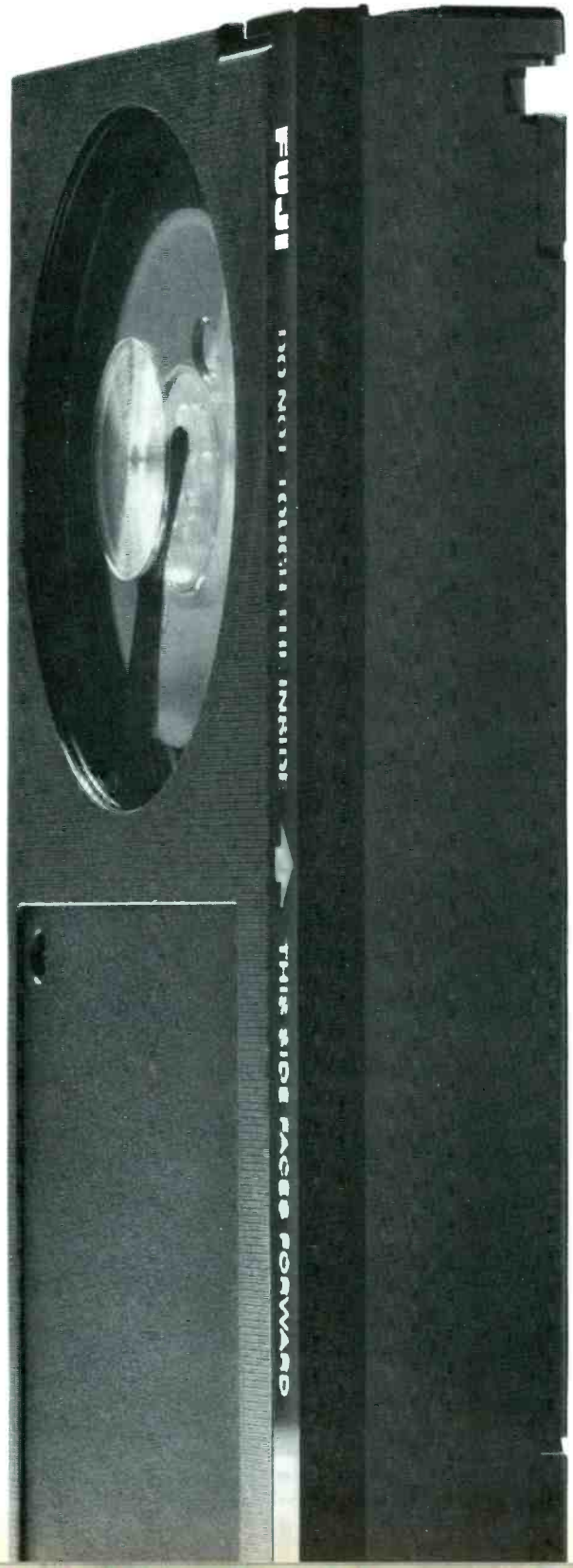
SEE US AT NAB BOOTH 1407

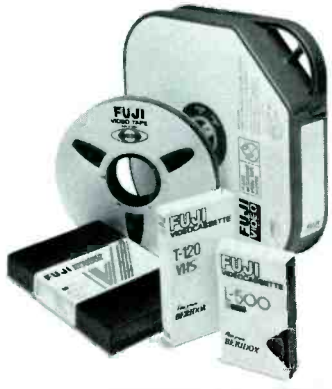
Ampex International is exclusive distributor for Chyron Graphic Systems outside the U.S.A. For information contact your nearest Ampex Sales Office.

Circle (90) on Action Card

The measure of performance.



In 2," 1" and ¾."
½" Beta and VHS Video
and Head Cleaning
Cassettes.



FUJI

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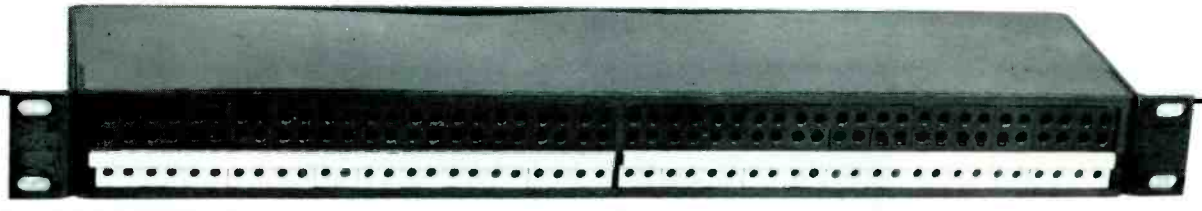
Magnetic Tape Division, 350 Fifth Avenue, NY, NY 10118

See us at NAB Booth 1307

Circle (91) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
McMartin Industries	300	M7
Micro Control Associates	310	M4
Moseley Associates	505	K5
Versa-Count	576	L3
Slow-Motion Replay Equipment		
Ampex	702	J2-4
Arvin/Echo	1001	G,H7
Eigen Video	113	G3
Hitachi Denshi America	1404	D,E3
Marconi Electronics	927	H2
Sony Corp. of America	1211	D,E4
U.S. JVC Corporation	1519	C4
Sound Effects Library		
DeWolfe Music Library	1618	C7
Thomas J. Valentino	412	L3
Special Effects Equipment & Generators, Audio		
Audio Technologies	125	M3
Audio & Design Recording	424	L2
The Camera Mart	1406	D2
Eventide Clockworks	177S	M1
Integrated Sound Systems	2013	B2
Lexicon	206	M4
Orban Associates	411	L4
Rupert Neve	1203	E7
Sound Genesis	330S	M1
Tech Theatre	1709	B7
Video Associates Labs	1716	B4
Special Effects Equipment & Generators, Video		
Adwar Video	345S	L1
Asaca/Shibasoku Corp.	1219	E1
Beaveronics	1041	H1
Crosspoint Latch	2111	A3
Data Communications	1126	G2
Delcom Corporation	1843	B1
The Grass Valley Group	1210	F4
Industrial Sciences	1115	F3
Interand-Telestrator Division	929	H1
3M Company	815	I3
MCI/Quantel	1207	E5,6
Microtime	1409	D4
NEC America/Broadcast Equipment	1301	D7
Panasonic/Video Systems	1521	CD3
Shintron	1107	G6
Sony Corporation of America	1211	D,E4
Viscount Industries	1802	B7
Standards Conversion		
A. F. Associates	1035	H2
Stereo Synthesizer Equalizer, De-essers		
Orban Associates	411	L4
Still Slide Store		
Adda Corporation	1515	C5,6
Arvin/Echo	1001	G,H7
MCI/Quantel	1207	E5,6
Storage Racks & Cabinets		
Amco Engineering	409	L4
Micro-Trak	508	L4
Storeel	911	H6
Switchers, Routing		
American Data Corporation	803	I6
Broadcast Technology	1023B	G4
Comark Communications	515	K3
Datatek Corporation	1227	E2
Datatron	1205	E6
Delcom Corporation	1843	B1
Di-tech	1408	D1
Dynair Electronics	813	I4
Fernseh	1208	F5
For-A Corp. of America	1826	B2
The Grass Valley Group	1210	F4
Harris/Broadcast Products	301	K,L7
HEDCO	1635	B2

Continued on page 126



DATATRONIX NEW APF-48-1

provides reliable multi-channel patching in limited space

For use in signal routing . . . maintenance testing . . . and audio mixing. This new audio patcher contains 48 normalled circuits in a compact panel. Has gold cross-bar contacts and printed wiring throughout. Printed circuit is designed to minimize circuit coupling. Has time-proven telephone type cable connectors.

- Compact—1¾" × 19" panel, 4½" deep
- Rugged & reliable
- Low crosstalk
- Simplified installation
- Simultaneous bridging jacks optional

For further information, call
David Brooks, (703) 620-5300

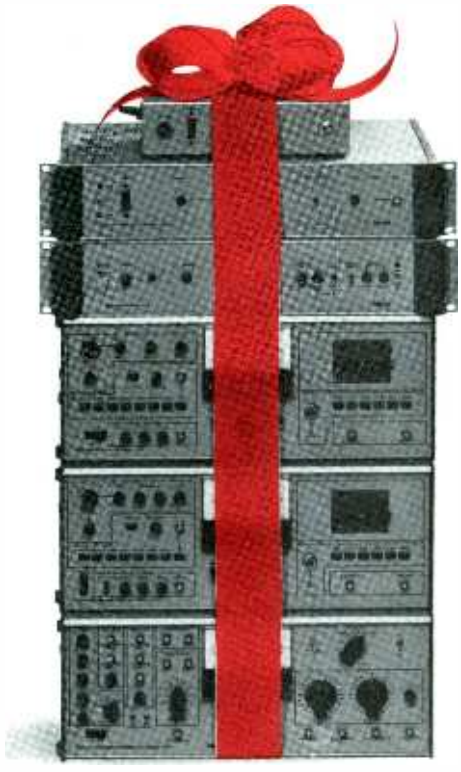
See our complete API line at NAB convention • Booth 103S

DATATRONIX INC
A subsidiary of ATLANTIC RESEARCH CORPORATION
2100 Reston Avenue, Reston VA 22091

Circle (92) on Action Card

From Telemet, at the NAB

The Best Transmitter Test Package in the World!



Demod Tester (4503)

Synchronous Detector (4504)

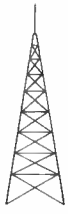
Broadcast Demodulator (4501)
Broadcast Demodulator (3710)

Sideband Analyzer (3706)

Spectrum Sideband Analyzer (3709)

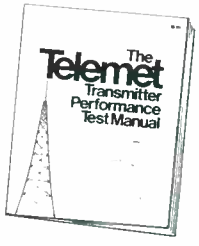
Envelope Delay
Measurement Set (3705)

Whether you're peaking visual transmitter quality or fulfilling FCC requirements, the Telemet Transmitter Test Package provides the equipment you need at a price you can afford, whether for demodulating your signal off-air; analyzing the sideband response or the total frequency spectrum of your channel; or measuring the envelope delay of your transmitter. And, with Telemet equipment, you know you're getting state of the art, crystal controlled accuracy and reliability, featuring fast set-up without searching, precisely tuned to your station's frequency.



◀ **LOOK FOR THE TRANSMITTER TOWER AT THE NAB. THAT'S US, BOOTH NO. 1010.**

WE HAVE A FREE "TEST MANUAL" FOR YOU. ▶



Telemet

A Geotel Company

185 Dixon Avenue, Amityville, L.I., New York 11701 (516) 842-2300 TWX 510-227-9850

Midwest Area Office—(312) 554-1121

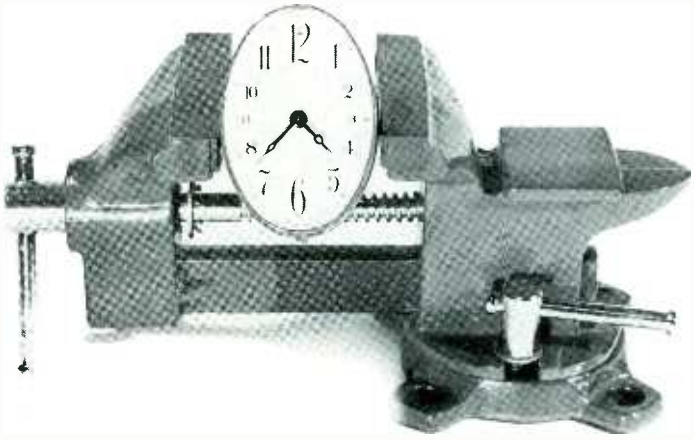
Eastern Area Office—(914) 279-3231

Circle (84) on Action Card

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Industrial Sciences	1115	F3
Lenco/Electronics Division	1206	F6
McCurdy Radio	113	M4
	308	M5
3M Company	815	I3
NEC America/Broadcast Equipment	1301	D7
Pacific Recorders & Engineering	511	K4
Ramko Research	146	N6,7
ROH Corporation	107S	N1
Telemet	1010	H3
Tweed Audio	219	M2
Ultra Audio Pixtec	1505	C7
Utah Scientific	1629	B3
Vital Industries	921	H4
Ward-Beck Systems	1216	F1
Switchers, Video		
American Data Corporation	803	I6
Asaca/Shibasoku Corporation	1219	E1
Ampex Corporation	702	J234
Beaveronics	1041	H1
The Camera Mart	1406	D2
Central Dynamics	1015	G6
Crosspoint Latch Corporation	2111	A3
Datatek Corporation	127	E2
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Dynair Electronics	813	I4
Fernseh	1208	F5
Gardiner Communications	1840	B1
The Grass Valley Group	1210	F4
Harris/Broadcast Products	301	K,L7
Industrial Sciences	1115	F3
3M Company	815	I3
NEC America/Broadcast Equipment	1301	D7
Panasonic/Video Systems	1521	CD3
Philips Broadcast Equipment	807	I5
Ross Video	1812	B5
Telemet/Division of Geotel	1010	H3
Viscount Industries	1802	B7
Vital Industries	921	H4
Winsted Corporation	823	I1
Syndicated Music Sales and Production Aids		
The Broadcast Center	211	M2
Bonneville Broadcast Consultants	321	L3
Cavox/Tape-Athon Corporation	164	N4
Century 21 Programming	313	L4
Concept Productions	326	M2
DeWolfe Music Library	1618	C7
Drake-Chenault	116	N5
Emil Ascher Music	222S	M1
Live Sound	127	M3
The Music Works	323	L
O'Connor Creative Services	115	M4
Peters Productions	305S	M1
Sacred Sounds	624S	K1
Thomas J. Valentino	412	L3
Synchronizers, Audio/Video		
ADDA Corporation	1515	C5,6
Ampex Corporation	702	J2-4
BTX Corporation	1501	C7
Datatron	1205	E6
Digital Video Systems	704	J1
Harris, Broadcast Products	301	K,L7
MCI/Quantel	133	N3
Microtime	1409	D4
NEC America	1301	D7
Philips Broadcast Equipment	807	I5
Skotel	1720	B3,4
Thomson-CSF Broadcast	919	H5
Tape, Audio & Accessories		
Ampex Corporation	702	J234
Audico	1900	B7
Broadcast Cartridge Service	325	L3
Broadcast Electronics	304	M6
Capitol Magnetic Products	506	L4
Century 21 Programming	313	L4
Continental Electronics	100	N7
D-B Electronics	104	N7
Fidelipac	204	M4
Fuji Photo Film U.S.A.	1307	D5
Harris/Broadcast Products	301	K,L7
Maxell Corporation of America	1832	B1
Nagra Magnetic Recorders	510	L4
Nortronics/Recorder Care	401	L5
Sony Corporation of America	1211	D,E4
Sound Genesis	330S	M1
Tentel	1005	H6
United Research Labs	414	L3
U.S. Instrument Rentals	105S	N1
Xedit Corporation	223S	M1
Tape Degausser		
Fidelipac	204	M4
Garner Industries	1123	G1
Optek	1725	B3,4
UMC Electronics	108	N5
Tape Duplicators and Loaders		
Audico	1900	B7
Otari Corporation	503	K5
Tape Evaluators		
Recortec	1200	F7
Tape Recorder Test System		
Sound Technology	1132	G1
Tape Tension Gauge		
Tentel	1005	H6
Tape, Video & Accessories		
Allsop	1814	B4
Ampex Corporation	702	J234
Audico	1900	B7
Comprehensive Video Supply	1910	B6
Delcom Corporation	1843	B1
Fuji Photo Film U.S.A.	1307	D5
3M Company	815	I3
Maxell Corp. of America	1832	B1
Nortronics/Recorder Care	401	L5
Research Technology	1112	G4
Sony Corp. of America	1211	D,E4
Television Equipment Assoc.	1019	H4
Tentel	1005	H6
U.S. Instrument Rentals	105S	N1
Xedit Corporation	223S	M1

Continued on page 128

Eventide Clockworks ends the tyranny of the clock.

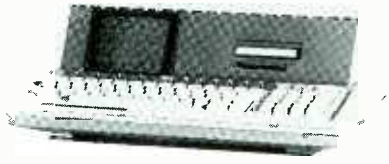


Introducing the Eventide Timesqueeze system.

It lets you control time. Specifically, the running time of videotape and audiotape playbacks. With no editing, no "Donald Duck" audio effects and no material eliminated. In fact the process is virtually undetectable in use.

Think what this can mean! Did a local commercial come in at 32½ seconds? With the Eventide Timesqueeze system, that spot will fit in a 30 second slot. A 100 second news spot can fit a 90 second news slot. You can even program a 95 minute movie package in a 90 minute slot. And the system works the other way too. It can stretch time. For example, a 36 second musical background can be stretched to cover a 40 second scene.

For television use, the Eventide Timesqueeze system controls your one-inch variable-speed-capable VTR. Radio stations can use the system to control most any pro-audio recorder. And Eventide delivers full 15KHz audio response.



How much does it cost to control time? Amazingly, as little as $3500 for the most basic system. The fully computerized system is only $8500. So not only can you control time, you can control costs.

The Eventide Timesqueeze system. It gives you freedom of time.

See us at N.A.B. booth 177—S

Eventide
the next step

Eventide Clockworks Inc.
265 West 54th Street
New York, N.Y. 10019
(212) 581-9290

Circle (94) on Action Card

Ask Eventide:

Q. How does the Eventide Timesqueeze system work?

A. In order to change the timing of an audio or video recording, first the tape playback speed must be varied so that the original play time is changed by the amount desired. Second, the detrimental effects of the speed change must be negated or corrected. In audio this means restoring the pitch so that the announcer doesn't sound drunk (on slowed tapes) or like Donald Duck (on sped-up tapes, of course.) In video it requires signal manipulation so that sync is not lost as the VTR speed changes. Compatible one-inch VTR's, equipped with their companion TBC's can provide stable pictures at slow and fast speeds.

The Eventide Timesqueeze system accomplishes time compression and expansion by first computing and generating tape machine control signals to vary tape speed by the proper amount, and then by correcting the audio pitch, using the H949 Harmonizer.® The system can be configured in several ways. To control an audio recorder, often the H949 Harmonizer alone can be used. In other cases, such as when very precise final timing is required, the crystal-controlled PTC945 Precision Tape Controller should be added, to generate both the control signals for the tape machines and to control the pitch ratio of the Harmonizer. If the PTC945 is used, the final component of the system becomes a computer. We recommend the Hewlett-Packard HP-85 for its overall quality and reliability, but any small computer with an IEEE-488 interface, including the inexpensive Commodore PET can be used. The computer takes overall control of the system, by sending messages to the PTC945 and thence to the H949. All functions, including tape timing can be controlled by the computer. The computer-controlled Eventide system is unrivalled in operating simplicity. Just answer the questions the computer asks on its CRT readout:

COMPUTER: HOW LONG IS YOUR TAPE?
OPERATOR: 67 SECONDS.
COMPUTER: HOW LONG DO YOU WANT IT TO BE?
OPERATOR: 59.5 SECONDS.

What could be simpler? In fact you don't even have to answer the first question. Just cue up the tape and the computer will time it for you and then automatically set the correct pitch and timing.

A few words about the heart of the Eventide Timesqueeze system , the H949 Harmonizer. This unit performs the most difficult part of the task, pitch change. Pitch changing requires digitally sampling audio at a high speed and then "reading out" that data at a variable rate. The varying input vs. output rate makes it necessary to "splice in" or delete small segments of signal. To prevent "glitches" caused by this process Eventide uses a proprietary splicing algorithm which permits broadcast quality to be maintained. Broadcasters and producers will find many other uses for the H949 Harmonizer, when it is not in time compression/expansion and pitch change use. For example, the H949 can perform flanging, time reversal, digital repeat and many other audio "special effects." TV and radio program and commercial producers will find these additional uses invaluable.

Got a question about time compression or digital audio effects? Send it to "Ask Eventide" 265 West 54th Street New York, N.Y. 10019. If we use your question in print we'll send you an Eventide T-shirt, so include your size.

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Telecine Equipment		
Magasync/Moviola	1825	B4
Telephone Answering/Interface Equipment		
D-B Electronics	140	N7
Teletext Equipment		
Antiope	1421	D1
Oak Communications	1517	C5
Test Generators, Audio		
Amber Electro Design	327	L2
Harris/Broadcast Products	301	K,L7
Neal Ferrograph	504S	L1
Potomac Instruments	109	M5
Sound Genesis	330S	M1
Sound Technology	1132	G1
Tektronix	1111	G4
Ultra Audio Pixtec	1819	C7
U.S. Instrument Rentals	105S	N1
Test Generators, Video		
Asaca/Shibasoku Corporation	1219	E1
Centro Corporation	2147	A2
Comprehensive Video Supply	1910	B6
Delcom Corporation	1843	B1
For-A Corp. of America	1826	B2
Industrial Sciences	1115	F3
Harris/Broadcast Products	301	K,L7
Leitch Video Limited	1212	F3
Lenco/Electronics Division	1206	F6
Rhode & Schwarz Sales	1110	G5
Philips Broadcast Equipment	807	I5
Siqma Electronics	1602	C7
Tektronix	1111	G4
Telemet	1010	H3
Ultra Audio Pixtec	1505	C7
U.S. Instrument Rentals	105S	N1
Vidicraft	180S	N1
Test Sets,Vertical Interval		
A.F. Associates	1035	H2
U.S. Instrument Rentals	105S	N1
Thermal Equalizers		
Telemet	1010	H3
Time Base Correctors		
ADDA Corporation	1515	C5,6
Ampex Corporation	702	J234
The Camera Mart	1406	D2
Delcom Corporation	1843	B1
Digital Video Systems	704	J1
Edutron	1815	B5
Harris/Broadcast Products	301	K,L7
MCI/Quantel	1207	E5,6
Marconi Electronics	927	H2
Merlin Engineering Works	1128	G1
Microtime	1409	D4
NEC America/Broadcast Equipment	1301	D7
Philips Broadcast Equipment	807	I5
RCA Broadcast Systems	700	J567
Sony Corp. of America	1211	D,E4
Thomson-CSF Broadcast	919	H5
U.S. Instrument Rentals	105S	N1

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Time Code Equipment		
The BTX Corporation	1501	C7
Control Video	1733	B1
Datametrics Corporation	1612	C7
Delcom Corporation	1843	B1
Dictphone Corporaton	110	N5
EEG Enterprises	1837	B2
Electro & Optical Systems	1511	L6
ESE	208	M3
For-A-Corp. of America	1826	B2
Glentronix (U.S.A.)	1824	B3
Jatex	1639	C1,2
Nagra Magnetic Recorders	510	L4
QSI Systems	1603	C7
Shintron	1107	G6
Skotel Corporation	1720	B3,4
Sony Corporation of America	1211	D,E4
Sound Genesis	330S	M1
Telecom Research	1824	B3
Telemet/Division of Geotel	1010	H3
Towers		
Allied Towers	504	L5
Cetec Broadcast Group	305	L6
E-N-G Corporation	1637	B2
Forth Worth Tower	819	I4
Harris, Broadcast Products	301	K,L7
LeBlanc & Royle Comm. Towers	1319	D1
Magnum Towers	324	M2
Fred A. Nudd Corporation	178S	N1
Stainless	1009	G6
World Tower	420	L2
Translator, FM		
Television Technology	1623	C4
Translators & Low Power TV		
Acrodyne	1105	F,G6
Television Technology	1623	C4
Transmission Lines		
Andrew Corporation	917	H6
Cablewave Systems	1323	D1
Comark Communictions	515	K3
Continental Electronics	100	N7
Dielectric Corporation	1507	C7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Micro Communications	1108	G6
Phelps Dodge Communications	112	N5
S.W.R.	1626A	C5
Shively Laboratories	128A	M3
Transmitters, AM & FM		
AEG-Telefunken/Bayly Engineering	130	N3
Broadcast Electronics	304	M6
CSI Electronics	106	N6
Canadian General Electric	431S	L1
Continental Electronics	100	N7
Elcom Specialty Products	419	L3
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
LPB	402	L5

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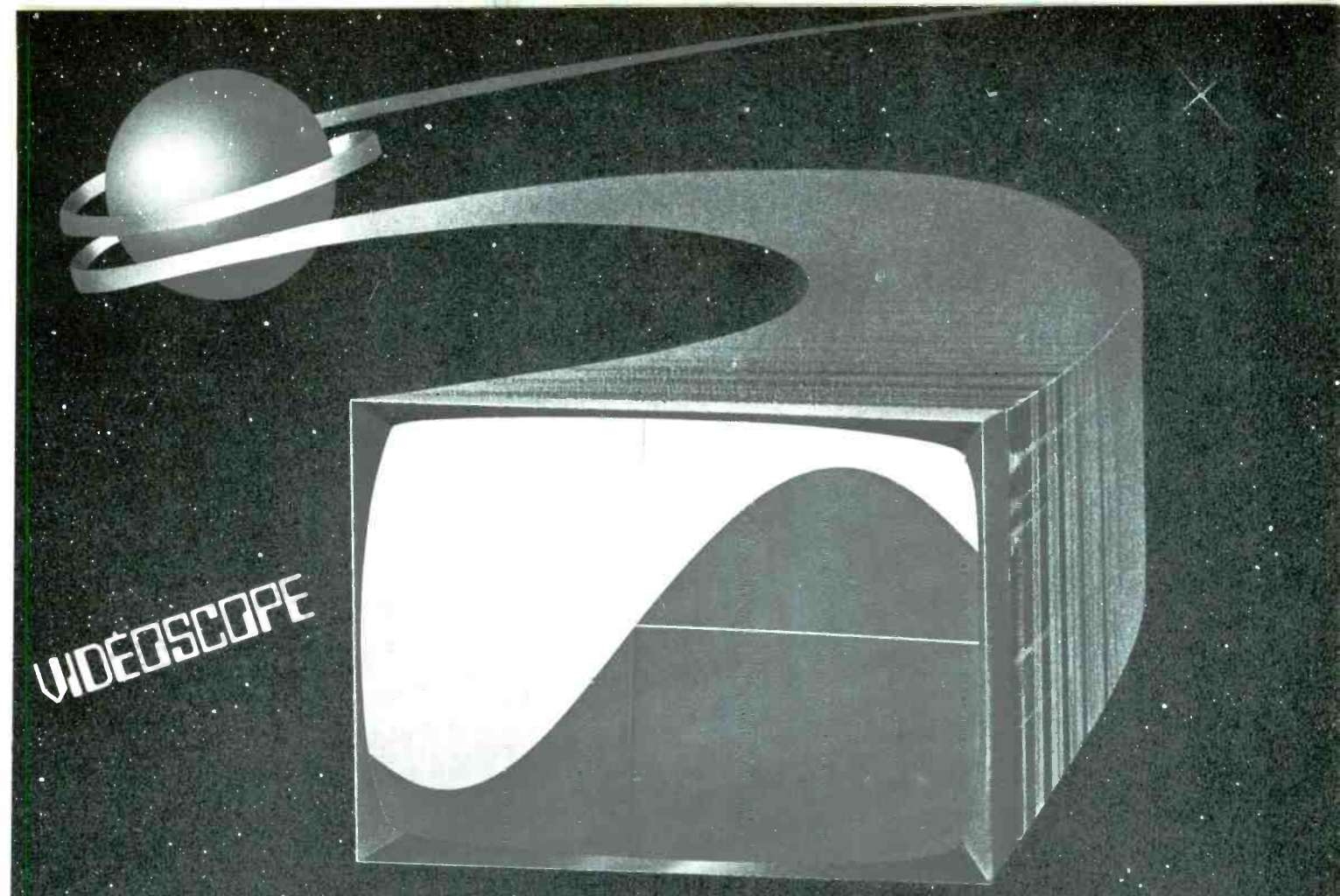


Verify your RS-170A with a dynamic, easy to read video display that's light years ahead.

The new RS-170A Video Line Output specifications are designed to insure a consistent relationship between video burst and sync phase, particularly during tape record and playback.

The specifications are relatively easy to achieve; however certifying and timing the signals is a different story.

We at Lenco have taken a careful, thoughtful approach to the challenge. We have developed the Videoscope.

The Videoscope will display a full cycle of sub-carrier and will tell you when correct SC/H phase is (or isn't) on the mark.

In addition to certifying, you can phase compare sync and burst of two video signals. Now you have a truly usable system analysis device.

Another plus. The Videoscope can give equally accurate results in source-to-source timing in a Non "A" System.

And because it is viewed on a standard video monitor—any monitor—you can look at the Videoscope display and quickly relate it to what is actually happening in your system. No more looking at faint lines on scopes in dark corners. To certify your RS-170A, all you need is Videoscope. Anywhere in your plant. Light years ahead.

Want to know more about the Videoscope? Write on your letterhead for a complimentary copy of "An Accurate Method for Certifying, Timing, and Analysis of RS-170A."

THE PROFESSIONAL'S CHOICE

Circle (95) on Action Card

LENCO

Lenco Inc., Electronics Division
300 N. Maryland St., Jackson, MO 63755
(314) 243-3147

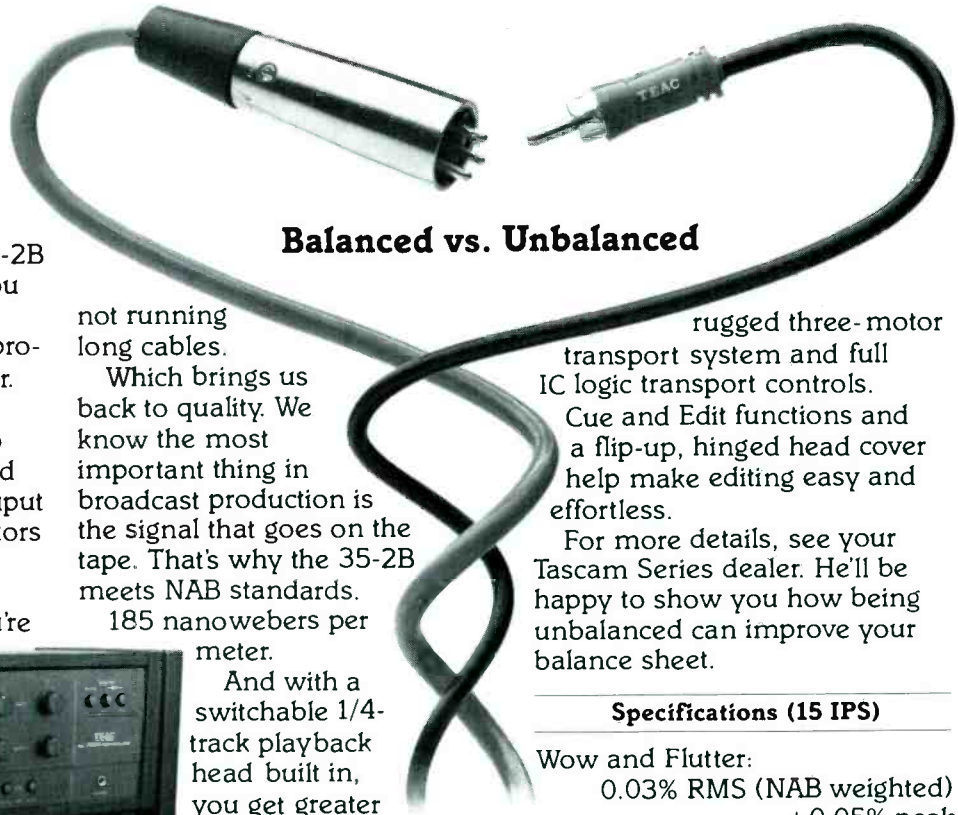
COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Marconi Electronics	927	H2
McMartin Industries	300	M7
NEC America/Broadcast Equipment	1301	D7
RCA Broadcast Systems	700	J567
Rhode & Schwarz Sales	1110	G5
Sintronic Corporation	126	N4
Varian Associates/Eimac Division	306	M5
Versa-Count	576	L3
Wilkinson Electronics	302	M6
Transmitters, TV		
Acrodyne Industries	1103	F,G6
Canadian General Electric	431S	L1
Comark Communications	515	K3
EMCEE	1017	GH1
Harris/Broadcast Products	301	K,L7
Hitachi Denshi America	1404	D,E3
Howe Audio/BCP	438S	L1
Marconi Electronics	927	H2
NEC America/Broadcast Equipment	1301	D7
Philips Braodcast Equipment	807	I5
RCA Broadcast Systems	700	J567
Rohde & Schwarz Sales	1110	G5
Television Technology	1623	C4
Townsend Associates	1007	G6
Varian Associates/Eimac Division	306	M5
Tubes, Camera & Transmitting		
Amperex Electronics	1032	H6
CeCo Communications	1014	H1
EEV	925	H2,3
Harris/Broadcast Products	301	K,L7
Varian Associates/Eimac Division	306	M5
Varian Associates/Microwave Tube	306	M5
Turntables & Accessories		
Broadcast Electronics	304	M6
CeCo Communications	1014	H1
Continental Electronics	100	N7
Harris/Broadcast Products	301	K,L7
Howe Audio/BCP	438S	L1
Logitek Electronic Systems	136	N7
LPB	402	L5
McCurdy Radio Industries	113	M4
	308	M5
McMartin Industries	300	M7
Micro-Trak Corporation	508	L4

For the
No-Nonsense
approach to locating companies listed in the NAB Equipment Directory note the map locator number, then turn to the Exhibit Hall map on page 73.

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Panasonic Professional Audio	600	K5
Ramko Research	146	N6,7
Russco Electronics	207	M3
Sony Corp. of America	1211	D,E4
Sound Genesis	330S	M1
Studer ReVox America	602	K5
Vans & Ladder Vehicles		
A.F. Associates	1035	H2
Centro Corporation	2147	A2
Compact Video Sales	1525	C1
Harris/Broadcast Products	301	K,L7
Jenel Consultants Corp.	1813	B6
Midwest Corporation	1829	B3
Wolf Coach	1225	E2
Vectorscopes		
Lenco	1206	F6
Tektronix	1111	G4
Videotek	1611	C6
Video Components, Tubes & Hardware		
Comprehensive Video Supply	1910	B6
Delcom Corporation	1843	B1
Lemo U.S.A.	1000	H7
Video Delay Lines & Filters		
Allen Avionics	1633	C3
Broadcast Video Systems	1631	B3
Television Equipment	1019	H4
Video Heads & Refurbishing Services		
CMC Technology Corporation	1622	C6
CeCo Communications	1014	H1
Sony Corp. of America	1211	D,E4
Videomagnetics	1808	B5
Video Monitoring, Measuring & Timing Equipment		
A.F. Associates	1035	H2
Asaca/Shibasoku Corp.	1219	E1
Amtron Corporation	1830	B2
Belar Electronics Labs	134	N7
Broadcast Video Systems	1631	B3
Comprehensive Video Supply	1910	B6
Delcom Corporation	1843	B1
Electro & Optical Systems	1511	L6
ESE	208	M3
Lenco/Electronics Division	1206	F6
Marconi Electronics	927	H2
Philips Broadcast Equipment	807	I5
Porta-Pattern Telecommunications	1325	D1
Rohde & Schwarz Sales	1110	G5
Tektronix	1111	G4
Time & Frequency Technology	124	N4
Ultra Audio Pixtec	1505	C7
U.S. Instrument Rentals	105S	N1
Videotek	1611	L6
Vidicraft	180S	N1
Video Monitors		
Asaca/Shibasoku Corp.	1219	E1
Amtron Corporation	1830	B2
The Camera Mart	1406	D2
Cohu	900	I7

Continued on page 132

IF WE SAID YOU COULD MAINTAIN HIGH PRODUCTION STANDARDS FOR LESS THAN $2000, YOU'D SAY WE'RE UNBALANCED.



Balanced vs. Unbalanced

By using a −10 unbalanced system, instead of +4 balanced, we eliminated hundreds of dollars of line amplifiers, transformers and balanced audio cables.

And that's how the Tascam 35-2B recorder/reproducer can save you money.

Without compromising your professional quality one nanoweber.

Unless you're running cable hundreds of feet long, there's no real difference between balanced and unbalanced. Since input/ouput levels and impedance aren't factors in recording quality.

So it pays to use the Tascam 35-2B in production, where you're not running long cables.

Which brings us back to quality. We know the most important thing in broadcast production is the signal that goes on the tape. That's why the 35-2B meets NAB standards.

185 nanowebers per meter.

And with a switchable 1/4-track playback head built in, you get greater flexibility at no extra cost.

What's more, the 35-2B features a rugged three-motor transport system and full IC logic transport controls.

Cue and Edit functions and a flip-up, hinged head cover help make editing easy and effortless.

For more details, see your Tascam Series dealer. He'll be happy to show you how being unbalanced can improve your balance sheet.

CS-600 Console optional.

Specifications (15 IPS)

Wow and Flutter:
0.03% RMS (NAB weighted)
±0.05% peak
(DIN/IEC/ANSI weighted)

Frequency Response:
40 Hz-22 kHz, ± 3dB at O VU

Signal to Noise Ratio:
Reference 1 kHz at 10 dB above O VU (650 nW/m) 65 dB A weighted (NAB) 92 dB A weighted with integral dbx*

*"dbx" is a trademark of dbx Incorporated.

TASCAM
Teac Production Products Group

The 32-2B and the compact 22-2 recorder/reproducers can save you even more money.

©1981 TEAC Corporation of America, 7733 Telegraph Road, Montebello, CA 90640.

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Conrac Division/Conrac Corp.	809	I4
Delcom Corporation	1843	B1
Electro & Optical Systems	1511	L6
Electrohome	1003	H6
Fernseh	1208	F5
Ikegami Electronics (U.S.A.)	817	I2
Lenco/Electronics Division	1206	F6
Panasonic/Video Systems	1521	CD3
Ramtek Corporation	434S	L1
Rohde & Schwarz Sales	1110	G5
Sharp Electronics	1121	F1
Shintron	1107	G6
Sony Corp. of America	1211	D,E4
Tektronix	1111	G4
U.S. Instrument Rentals	105S	N1
Videotek	1611	L6
U.S. JVC Corporation	1519	C4
Video Prompters		
Cinema Products	1417	D2
Victor Duncan	1110A	G5
Listec Television Equipment	1027	H3
Television Equipment Associates	1019	H4
Video Signal Enhancement & Correction Equipment		
Broadcast Video Systems	1631	B3
CMC Technology Corporation	1622	C6
Cohu	900	I7
Delcom Corporation	1843	B1
Digital Video Systems	704	J1
Faroudja Laboratories	1712	B2
For-A Corp. of America	1826	B2
The Grass Valley Group	1210	F4
Leitch Video Limited	1212	F3
Microtime	1409	D4
Sigma Electronics	1602	C7
Sony Corporation of America	1211	D,E4
Thomson-CSF Broadcast	919	H5
Vidicraft	180S	N1
VTRs		
A.F. Associates	1035	H2
Ampex Corporation	702	J2-4
The Camera Mart	1406	D2

COMPANY	BOOTH NUMBER	MAP LOCATOR NUMBER
Delcom Corporation	1843	B1
Victor Duncan	1110A	G5
Fernseh	1208	F5
Hitachi Denshi America	1404	D,E3
3M Company	815	I3
Marconi Electronics	927	H2
Merlin Engineering Works	1128	G1
NEC America/Broadcast Equipment	1301	D7
Panasonic/Video Systems	1521	CD3
Philips Broadcast Equipment	807	I5
RCA Broadcast Systems	700	J5-7
Recortec	1200	F7
Sharp Electronics	1121	F1
Sony Corp. of America	1211	D,E4
U.S. Instrument Rentals	105S	N1
U.S. JVC Corporation	1519	C4
VTRs, Rebuilt		
A. F. Associates	1035	H2
Merlin Engineering	1128	G1
Waveform Monitors		
Lenco	1206	F6
Tektronix	1111	G4
Weather Instruments, Radar & Accessories		
Arvin Echo	1001	G,H7
Beston Electronics	801	I7
Gorman Redlich	173S	M1
Information Processing Systems	1908	B7
Nagra Magnetic Recorders	510	L4
Weathercaster	525S	K1
Weathermation	1625	C4
Wireless Microphones & Intercoms		
Cetec Vega	1621	C5
Comrex	105	M6
Edcor	205S	M1
HM Electronics	1509	C7
Telex Communications	311	L4
Wow & Flutter Meters		
Fidelipac	204	M4

BC

YOUR MIDWESTERN SOURCE

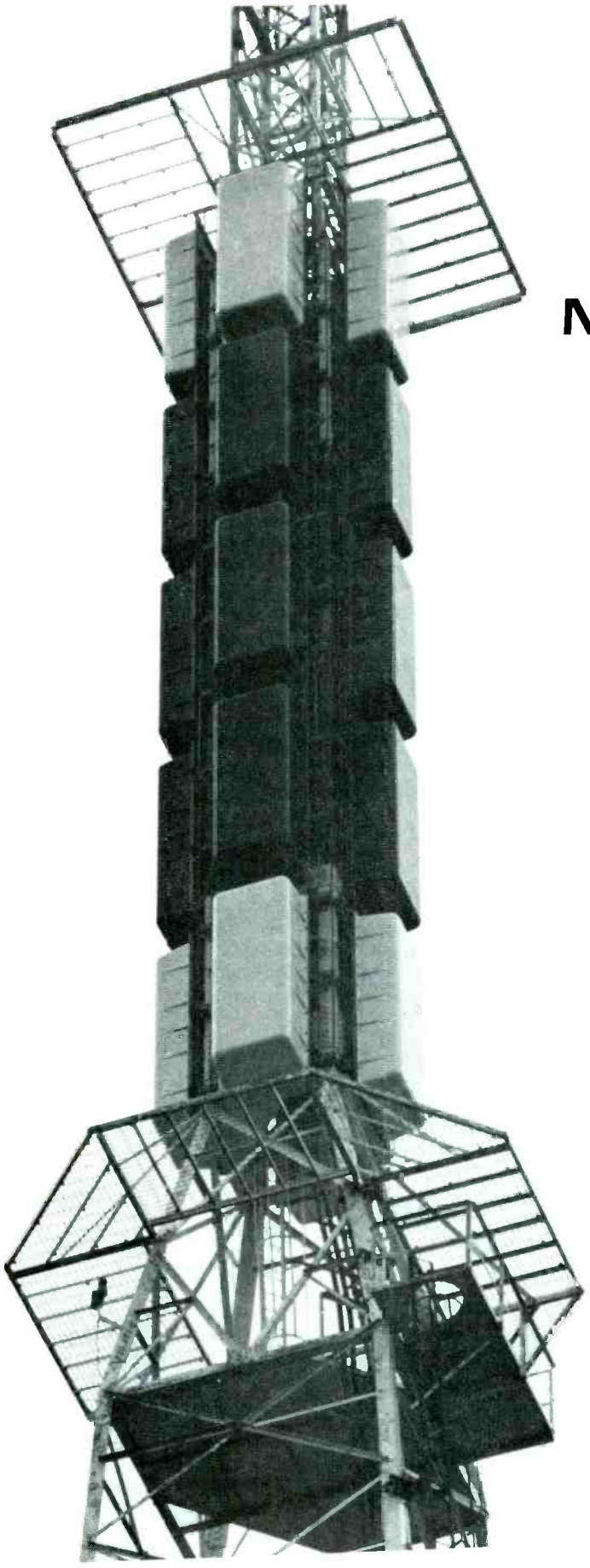
We offer the best in A/V Test, Processing, Distribution, Switching.

ASACA — Color Monitors, Test. CENTRAL DYNAMICS Ltd. LEITCH VIDEO. COOKE VIDEO PATCHING. TIME & FREQUENCY TECHNOLOGY. ROH AUDIO. SKOTEL Time Code. THOMSON — CSF. LENCO. ORBAN. SQI Source ID. DATATEK. HUGHES ELECTRONIC DEVICES. DI-TECH. AMPRO-SCULLY. PMU-100 Pulse and Blanking Measurement Unit.

313-478-2157

H. M. DYER Electronics Inc.
31185 Ten Mile Road
Farmington Hills, MI 48024

Circle (97) on Action Card



Now, more effective coverage with available ERP!

Broadcasters operating high power transmitters can now optimize their coverage with the new generation of ADC antennas.

ADC's unique panel design permits total control of the radiation pattern shape. This flexibility enables the broadcaster to make maximum effective use of available transmitted power to put his signal exactly where he wants it.

The result is precise and complete coverage, with proven reliability, and the economic benefits this combination of factors brings.

It's one more way that ADC engineering provides better products with greater value. Ask one of our specialists to do a survey on your installation, without obligation, and he'll produce convincing data about the advantages of an ADC System, be it FM, VHF or UHF, (linear or CP).

ADC ANTENNAS

Serving the World

Alan Dick (Canada) Inc.
Ray Tattershall, President
505 Consumers Road, Suite 302
Willowdale, Ontario M2J 4V8
(416) 492-8301
Telex 06-986905

See us at NAB BOOTH 1007

Circle (98) on Action Card

NAB '81 EXHIBITORS

The 59th annual NAB convention is returning to Las Vegas, a city that could become the permanent site of NAB conventions. And since this year's equipment exhibit will set another record—over 400 companies spread out over an area equal to five football fields—the odds are mounting that you won't get to see everything in the 32 hours the exhibit doors will be open.

While it will be a point much discussed this year, the four-day convention will unfold in a city where two major hotels have been burned in the last few weeks.

To improve at least your odds on seeing all you really need to see in the exhibit areas, a little help is in order. BROADCAST COMMUNICATIONS has prepared this special Convention Guide with weary convention attendees in mind.

This section is an alphabetical listing of the companies exhibiting at NAB '81 as we go to press. Included is a rundown of the product lines in each booth where advance information was available. The bold type in each writeup will alert you to new product introductions.

The "state of the industry" has never been more challenging. And this year's exhibit area will be loaded with products that are sure to keep everyone moving forward. Digital will reign, of course, but interest is peaking in satellites. Cameras seem to be introduced every five minutes. But audio, too, will get a boost from a variety of new lines, including compressor/limiters, exciters that beef-up old transmitters, test equipment that makes the proof of performance less of a chore, and consoles with enough variations off the theme to please anyone in the market.

(In another section of our Convention Guide, we've prepared a special NAB exhibit hall equipment directory.)

If an exhibitor listed in this section has an ad in this issue, it is noted by a line at the end of the write-up which says, "See ad on page ____." Many of the products advertised in this issue will be on exhibit for the first time at NAB.

The *BC* No-Nonsense Map to the exhibit area, our exhibitor list, and the equipment directory should help you plan your way through the crowds so that at least you will know what equipment is new and where to find it.

ADC PRODUCTS—Remotes audio equipment. **Introducing: Audio connectors; QCB terminal blocks; broadcast jackfields.** BOOTH 181S.

ADM TECHNOLOGY—Amplifiers, pre-amps, DA's; audio consoles; noise reduction systems. BOOTH 1212A.
SEE AD ON PAGE 27

A.F. ASSOCIATES—Vertical interval test sets; video measuring and timing equipment; VTRs; complete video broadcast systems; standards conversion; reconditioned 2-inch quads. **Introducing: 45-foot OB vehicle; complete systems capabilities.** BOOTH 1035.
SEE AD ON PAGE 135

ATI (AUDIO TECHNOLOGIES INC.)—Amplifiers, pre-amps, DA's; audio components; limiters and compressors; noise reduction systems; processing and equalizing equipment; remotes audio equipment; audio special effects equipment and generators. **Introducing: The "Emph' a Sizer" microphone audio processor which combines the functions of background noise gating, multiband present parametric equalizers, and a multimode compressor/limiter into a small studio package.** BOOTH 125.

ACCURATE SOUND—Audio consoles; limiters and compressors; microphones; noise reduction systems; processing and equalizing equipment; audio reel-to-reel recorders; headphones, speakers/intercoms. **Introducing: DC servo-controlled magnetic tape transport for reel-to-reel recording and high-speed duplicating applications.** BOOTH 214.

ACHRO-VIDEO LTD.—Amplifiers, pre-amps, DA's; studio accessories; ENG accessories; lenses and lens services; lights and lighting accessories. BOOTH 1503.

ACRODYNE—UHF and VHF antennas; TV transmitters; TV translators; low-power transmitters. **Introducing: 10 kW VHF transmitter featuring totally solid-state drivers and single tetrode output for ultra-high energy efficiency; low level diplexing and straightforward broadband solid-state design; fully automatic operation; remote control capabilities; unique forced air liquid cooling; specifications to 12.5 kW.** BOOTH 1103.
SEE AD ON PAGE 49

ADDA CORPORATION—Newsroom computer systems; digital effects equipment; frame store synchronizers; limiters and compressors; time base correctors. BOOTH 1515.

ADVANCE IND.—BOOTH 401S.

ADWAR VIDEO—Studio cameras and accessories; character generators; chroma keyer; newsroom computer systems; frame store synchronizers; video special effects equipment and generators. **Introducing: Computer graphics interface; special effects keyer; chroma keyer.** BOOTH 345S.

AEG-TELEFUNKEN (BAYLY ENGINEERING DIVISION)—Antennas; loads and wattmeters; microwave, STL and remote pickup equipment; recorders, audio reel-to-reel; transmitters, FM; 2-way radios. **Introducing: Remote**
Continued on page 136

See us at Booth 1035 NAB

WHEN YOU THINK OF THE LEGENDARY AMPEX VR-1200's AND VR-2000's THINK OF AFA...

We're keeping the legend alive!

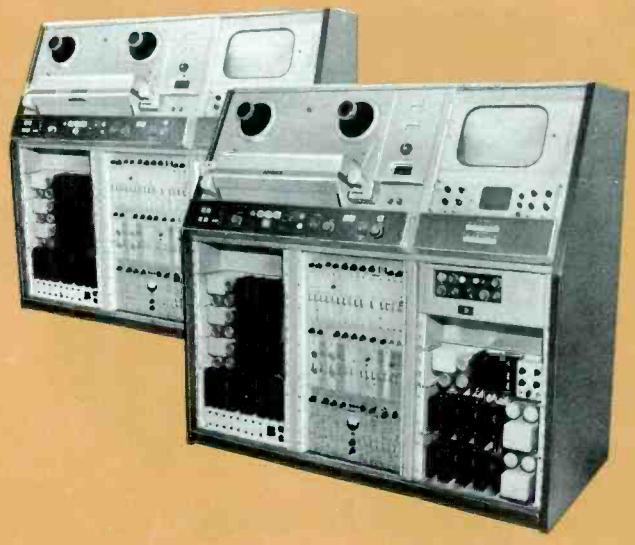
AMPEX VR-2000's and VR-1200's are the stuff legends are made of. . . they're the best. So if you can't afford a *New* VTR. . . consider owning a "pre-owned" legendary AMPEX VTR instead.

Our customers, including TV Stations, Manufacturers, Institutions, TV and Film Production Facilities have purchased $8 million in AMPEX VR-2000's; VR-1200's AVR-1's, HS-200's and paid only half that price. They know they're still getting the best in VTR's.

AFA VTR's are fully rebuilt and good as new. . . even better! These "legends" are in a class of their own. . and at prices that are becoming legendary in their own rights.

And when the New AMPEX VTR's become legend. . . AFA will be there to keep them "alive" too.

Who knows. . . some day someone will have to keep our legend alive.



AFA...the largest rebuilder of the best VTR's in the world.

AFA

A.F. ASSOCIATES, INC.
100 Stonehurst Court, Northvale, NJ 07647
2465 E. Bayshore, Suite 301, Palo Alto, CA 94303

201-767-1000
415-856-1060

Circle (99) on Action Card

FOR BROADCAST AUDIO MEASUREMENTS, if you compare features . . .

	Hewlett Packard 339A	Sound Technology 1710A	Potomac Instruments AT-51
AUDIO GENERATOR	**Combined With Analyzer**	**Combined With Analyzer**	**Separate Unit**
Intermodulation test signal	No	Option	Yes
Wow & Flutter test signal	No	No	Yes
Simultaneous L&R Outputs	No	No	Yes
600 ohms and 150 ohms Source	No	Yes	Yes
Stereo Matrix Switch (L,R, L+R, L-R)	No	No	Yes
Switch to remove signal and terminate line for S+N/N	No	Yes	Yes
10 dB, 1.0 dB, 0.1 dB Step Attenuators	No	Yes	Yes
AUDIO ANALYZER	**Combined with Generator**	**Combined with Generator**	**Separate Unit**
Harmonic Distortion Mode	Yes	Yes	Yes
Automatic Nulling	Yes	Yes	Yes
Automatic Set Level	Yes*	Option*	Yes
Intermodulation Distortion Mode	No	Option	Yes
AC Voltmeter Mode	Yes	Yes	Yes
Stereo Phase Meter Mode	No	No	Yes
L/R Amplitude Ratio Mode	No	No	Yes
Wow & Flutter Meter Mode	No	No	Yes

*Limited to 10 dB capture range.

AT-51
AUDIO TEST
SYSTEM

. . . there is only one logical choice!

POTOMAC INSTRUMENTS
932 PHILADELPHIA AVE.
SILVER SPRING, MD 20910
(301) 589-2662

Circle (100) on Action Card

NAB exhibitors

studio camera control system; microwave STL radio links; UHF two-way radio, portable, mobile & base; broadcast transmitting antennas. BOOTH 130.

AGFA-GEVAERT—Audio and video tape and accessories. Introducing: PEM 428 1 mil tencilized 2-inch mastering tape (12½-inch reels); PEM 468 studio mastering tape; PEV 297 1-inch videotape; PEV 247 ¾-inch bulk U-matic tape. BOOTH 1223.

AIRBORNE VIDEO SYSTEMS—BOOTH 203S.

ALLEN AVIONICS—Video delay lines. Introducing: Delay lines. BOOTH 1633.
SEE AD ON PAGE 181

ALLIED TOWER—Towers. BOOTH 504.

ALLSOP—Videotape and accessories. Introducing: Beta video recorder cleaner; prototype of U-matic video recorder cleaner. BOOTH 1814.

ALPHA AUDIO—BOOTH 306S.

AMBER ELECTRO DESIGN—Audio analyzers; audio monitoring, measuring and timing equipment; audio test generators. Introducing: IMD measurement capability for the 3500; balanced input/output kit for the 3500. BOOTH 327.

AMCO ENGINEERING—Audio consoles; styled modular cabinets and consoles. Introducing: Styled rack system designed to meet the specifications for the FCC electrical interference requirements; glass door for visual ease in checking out your systems when in operation. BOOTH 409.

AMERICAN DATA—Amplifiers, preamps, DA's; audio and video automation systems; chroma keyer; video remote controls; remotes audio equipment; routing switchers; video switchers. Introducing: Production switchers; machine control systems; automated control television system for production switchers. BOOTH 803.
SEE AD ON PAGE 11

AMERICAN IMAGE PRODUCTIONS—BOOTH 314.

AMERICAN TELEPHONE & TELEGRAPH—BOOTH 1981.

Continued on page 138

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The French have a word for it.

ANTIOPE

See Antiope in action at the NAB—Booth #1421

Antiope Videotex Systems, Inc., 1725 K St. Washington, D.C. 20006

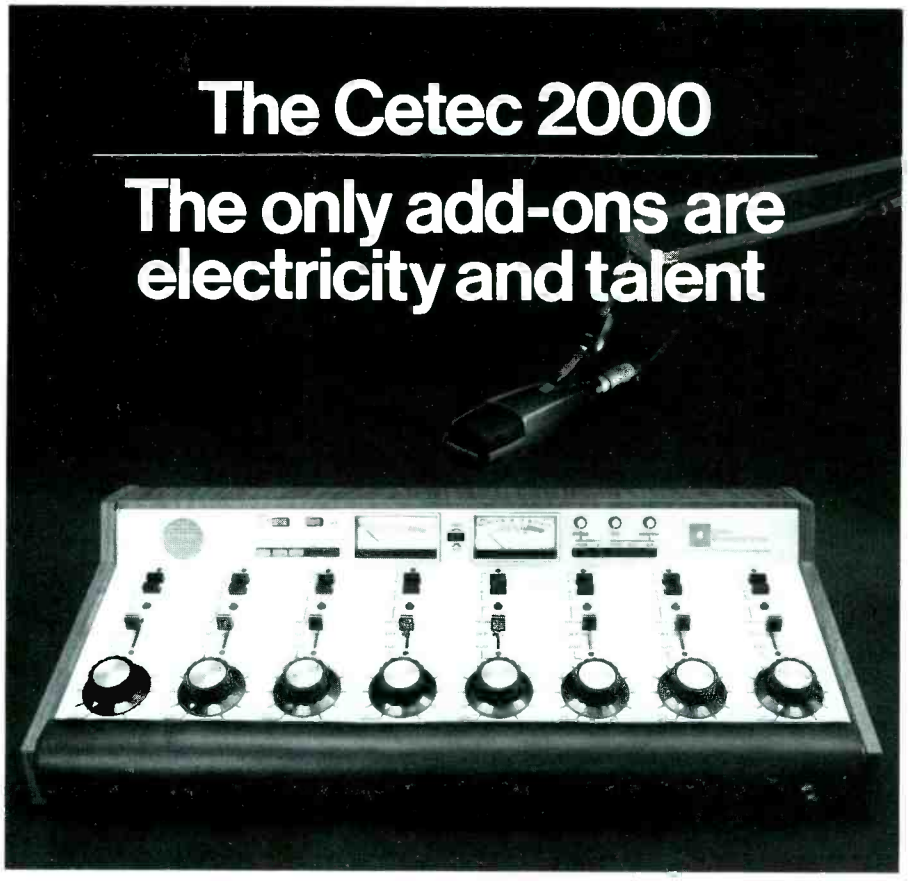
Circle (155) on Action Card

AMPEREX ELECTRONIC CORPORATION—Camera and transmitting tubes. **Introducing: Plumbicon® television camera tubes, Diode Gun™ Plumbicon television camera tubes; Plumbicon low-capacitance Diode Gun television camera tubes and vidicons; CRTs, rectifier stacks, and transmitting tubes including UHF klystrons.** BOOTH 1032.

AMPEX CORPORATION—Studio cameras and accessories; ENG cameras and accessories; video editors; audio reel-to-reel recorders; video switchers; audio tape and accessories; videotape and accessories; time base correctors; VTRs; Ampex Video Art (AVA) system. BOOTH 702.

SEE AD ON PAGES 18-19, 53

AMPRO/SCULLY—Cart machines and accessory equipment; audio consoles; audio reel-to-reel recorders; 4-channel logger. **Introducing: 4-channel logger; servo single cart deck; 280B w/RTZ locator.** BOOTH 102.



Cetec introduced these compact consoles about six months ago, and supply is still just barely ahead of demand.

This 2000 family of 5- and 8-mixer mono and stereo consoles has three great characteristics: small size and weight (they're portable); excellent performance specs (with high reliability); and very modest cost (how about more for less, for a change?).

These consoles are ready to go—plug in the inputs and the speakers, and hit the "on" switch. Monitor amplifier and muting relays are built in.

The 8-mixers (16 inputs) are great production room consoles that easily double as on-air boards. The 5-mixers (10 inputs) are at home in the newsroom, small studio, or on remote site.

Cetec 2000's start at $1595 for the 5-mixer mono console, and top out at $3195 for the 8-mixer stereo model.

Write or phone for our color catalog!

Cetec

We'll show you! NAB 305

Cetec Broadcast Group of Cetec Corporation
1110 Mark Avenue, Carpinteria, CA 93013 (805) 684-7686 Telex: 658-461

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AMTEL SYSTEMS—Vertical interval sync alignment generator. **Introducing: VISA-20A, an automatic vertical advance unit that controls the VTR by providing an automatic command through the existing advanced vertical jack.** BOOTH 1327.

AMTRON—Video monitoring, measuring and timing equipment; video monitors. **Introducing: AM-26 and AM-9 color monitors; waveform display.** BOOTH 1830.

ANDREW CORP.—UHF antennas; microwave, STL and remote pickup equipment; transmission lines. BOOTH 917.

ANGENIEUX CORP. OF AMERICA—Lenses and lens services. **Introducing: 15x9 ENG/EFP lens.** BOOTH 904.

ANIMATION VIDEO (Division of Convergence Corporation)—Video animation equipment. **Introducing: AniVid system, which produces broadcast quality frame-at-a-time animation directly onto videotape.** BOOTH 407S.

ANTIOPE VIDEOTEX SYSTEMS—Teletext systems and equipment. **Introducing: Program captioning; graphic extensions to the Antiope system; method of controlling access to teletext information via a microprocessor-controlled credit card.** BOOTH 1421.

SEE AD ON PAGE 137

ANTON BAUER—Battery packs, belts, and chargers; lights and lighting accessories. **Introducing: Portable lighting heads for mounting atop cameras to be used in conjunction with company's portable lighting belts; diagnostic and service equipment for use with our silver and NiCad systems.** BOOTH 1617.

SEE AD ON PAGE 170

ANVIL CASES—Video and broadcast transit cases and EIA equipment racks. BOOTH 1626.

ARRAKIS SYSTEMS—Amplifiers, preamps, DA's; audio consoles. BOOTH 209.

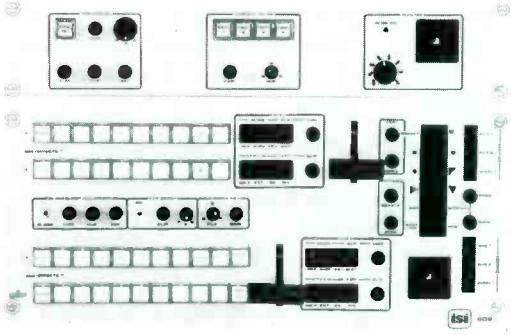
ARRIFLEX—Film cameras; lights and lighting accessories; tripods and heads; image stabilizer. **Introducing: Sachtler studio 7 + 7 fluid head tripod and accessories.** BOOTH 1835.

ARVIN/ECHO—Frame store synchronizers; slow-motion replay equip-

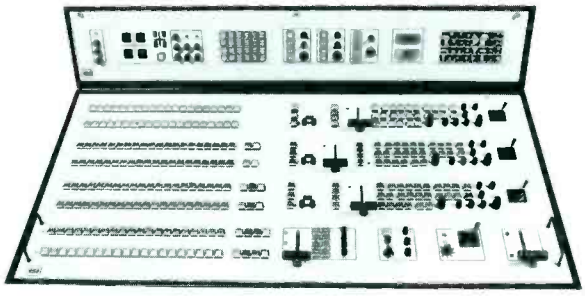
Continued on page 140

isi means...

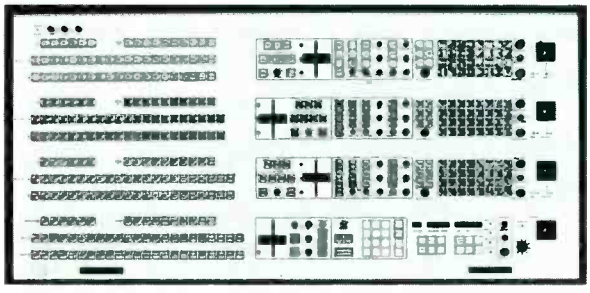
See us at NAB Booth 1115 in Las Vegas.



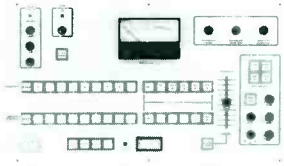
ISI Model 902-S — Video Production Switcher



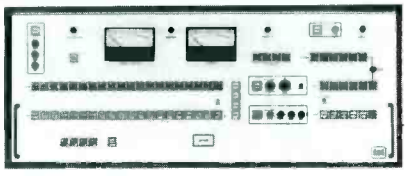
ISI Model 1208 — Video Production Switcher



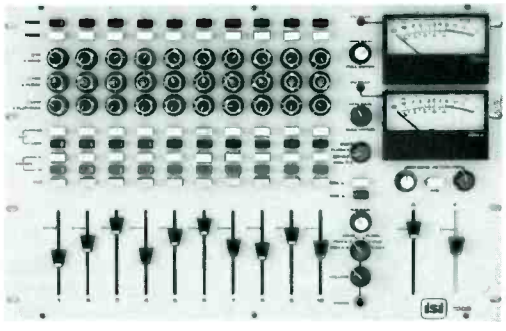
ISI Model 200-3 — Video Production Switcher with **PolyKey**®



ISI Model 931 — Master Control Switcher



ISI Model 821 — Master Control Switcher



ISI Model 1002 — Audio Console

ISI 500 Series — Plug-in Terminal/DA System

Innovative Switching Ideas

Available in NTSC and PAL formats

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Florida Only: (904) 373-6783

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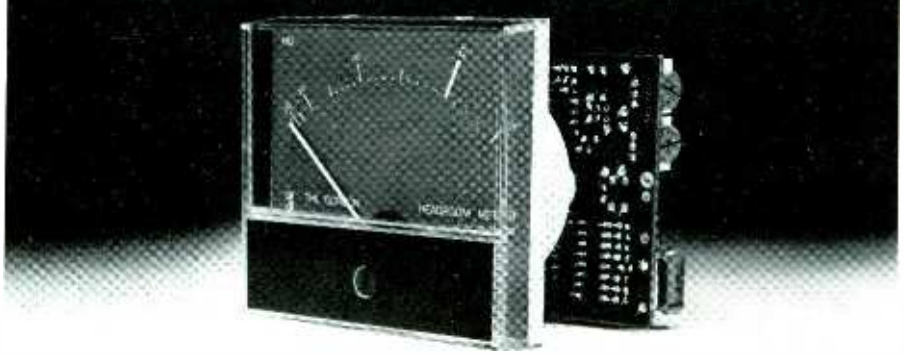
The Gordon Headroom Meter:



a better idea in program monitoring.

We've combined the best aspects of the traditional VU meter and the precision of the European Programme meter. The result is a meter that meets the UK/EBU standard for response to program peaks while maintaining a more conventional and artistically desirable "syllabic" response to music and speech.

Get the complete package for $122.00, or our VU-conversion option for $69.00. Quantity discounts are available. For further information, contact:

Inovonics, Inc.
503-B Vandell Way
Campbell, CA 95008
Telephone
(408) 374-8300

Send for copy of AES preprint.

See us in NAB Booth 214.

Circle (158) on Action Card

The Perfect Companions

VSM-5, the latest in a series of professional test equipment from Videotek. A television Vectorscope which provides bright, sharp, easy-to-observe vector displays on a 5-inch CRT. Available as a separate unit, or rackmounted ... *The Perfect Companion* to our popular TSM-5 Waveform Monitor.

Quality Endures

Videotek, Inc.

125 North York Street, Pottstown, Pennsylvania 19464 / Telephone (215) 327-2292
9625 North 21st Drive, Phoenix, Arizona 85021 / Telephone (602) 997-7523

Circle (159) on Action Card

ment; animation still-store equipment. BOOTH 1001.
SEE AD ON PAGE 145

ASACA/SHIBASOKU CORP. OF AMERICA—Video automation systems; ENG cameras and accessories; pattern signal generators; video special effects equipment and generators; video switchers; video test generators; video monitoring, measuring, and timing equipment; video monitors. **Introducing: Video signal analyzer; portable switcher (new version); MPX TV sound generator; video sweep generator (up to 30 MHz); color monitor (high stability, new circuit).** BOOTH 1219.
SEE AD ON PAGE 9

EMIL ASCHER MUSIC—Program services; syndicated music sales and production aids. **Introducing: Musical jingle package designed specifically for use with local radio and television spots.** BOOTH 222S.

ATHANS COMMUNICATIONS—Antennas, transmission lines, towers, and lights. BOOTH 307S.

AUDI-CORD—Cart machines and accessory equipment; improvements all company's established lines. BOOTH 319.

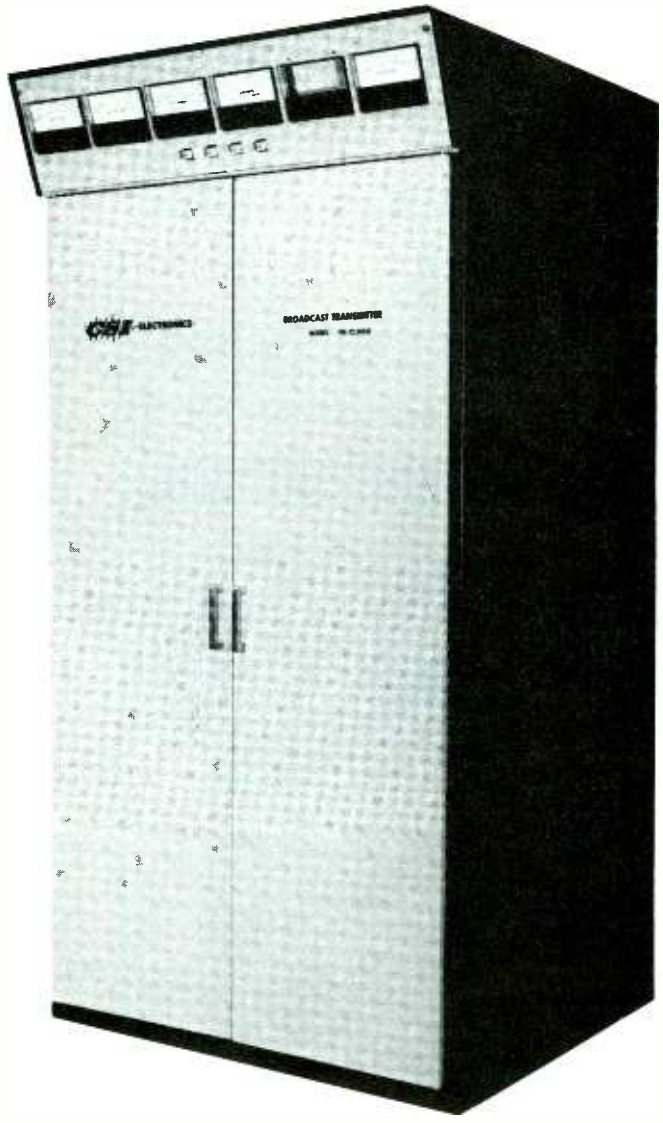
AUDICO—Audio monitoring, measuring, and timing equipment; audio and video tape and accessories; video and audio tape cassette loaders. **Introducing: Videotape loading system capable of loading U-matic, VHS, and Betamax tape directly into cassettes and of removing old tape from cassettes without taking the cassette apart. This system can also be used to load audio cassettes and 8-track and broadcast carts.** BOOTH 1900.

AUDIO & DESIGN RECORDING—Preamps, DA's; limiters and compressors; noise reduction systems; processing and equalizing equipment; audio special effects equipment and generators. **Introducing: Transdynamic Processing Package, a sophisticated tri-band processing system for use with AM, FM, and TV transmission. Features 6 dB and 12 dB per octave phase compensated splitting, the latest generation of high speed operational amplifiers, latest VCA technology, electronically balanced inputs and outputs.** BOOTH 424.

AUDITRONICS—Amplifiers, pre-amps, DA's; audio consoles. **Introducing: Series of on-air consoles, distribution**

Continued on page 142

JOIN THE CSI NETWORK



Now you too can become a member of one of the fastest growing networks in radio broadcasting. CSI's more than 500 satisfied transmitter owners.

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amplifiers, and control room furniture. BOOTH 404.

AURORA IMAGING SYSTEMS—Videographics and animation systems. **Introducing: Digital videographics and animation system.** BOOTH 622S.

AUTOGRAM—Audio consoles; cart random selector. BOOTH 415.
SEE AD ON PAGE 166

AUTOMATED MUSIC—BOOTH 410.

AVAB AMERICA—Amplifiers, preamps, DA's; audio components, tubes and hardware; audio consoles; headphones, speakers/intercoms; lights and lighting accessories; lighting control systems; lighting remote controls; remotes audio equipment. BOOTH 1600.

AVANTEK—Earth station equipment and services; microwave, STL, and remote pickup equipment. BOOTH 170.

DIGITAL
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NEW MRC-2

BOOTH 505 NAB '81

- USER-DEFINED EXECUTIVE ACTION
- CLEAR ENGLISH DISPLAY
- MULTI-CONTROL POINT OPERATION
- NON-VOLATILE MEMORY STANDARD
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The new **MRC-2** offers the flexibility that only a high technology, microprocessor-based system can supply. User-defined programming allows executive action of control functions. The system provides CRT displays for simplified operator interface of control, telemetry tolerance, status, and automatic muting. Full fail-safe capabilities and indirect power calibration are standard. Multiple direct commands, multiple CRTs, and multiple automatic loggers are available optionally.

With proven reliability the **MRC-1** provides up to 64 command lines and 32 channels of status and telemetry from up to nine separate remote sites. Comparable only to much more expensive systems, its versatile capabilities assure long-term stability and accuracy with straightforward microprocessor-controlled operation.

The **TCS-2A** is designed to supply maximum value at minimum cost. With reliability, speed, and accuracy, it handles the needs of broadcasters, industrialists, ENG system users, and earth station operators. It offers eight command, status, and telemetry functions, affords one-person calibration, and has multi-site capabilities to simplify expansion.

FOR FURTHER INFORMATION PLEASE CONTACT OUR MARKETING DEPARTMENT.

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BEI (BESTON ELECTRONICS INC.)—Character generators; film chain equipment; weather instruments, radar, and accessories. **Introducing: Marquee 2000, a video character generator featuring random display of message pages, page by page display time, automatic centering, full editing functions, elastic length crawl-line, and low-cost weather package.** BOOTH 801.

BGW SYSTEMS—Amplifiers; speakers. BOOTH 403S.

BPI (BROADCAST PROGRAMMING INTERNATIONAL)—Radio program services. **Introducing: Concert Overtures and Encores, back-announced by Bob Concie.** BOOTH 316.

THE BTX CORPORATION—Character generators; edit code generators and receivers; video remote controls; remotes audio equipment; time code equipment; audio and video synchronizers. **Introducing: Interface for audio and video recorders featuring chase interlocking of machines in wind modes, compatibility with all existing video/audio editing systems; User Keypad, which allows extensive control over the entire interlocking process. BOOTH 1501.**

BANKERS TRUST CO.—BOOTH 1961.

BAYLY ENGINEERING—BOOTH 130. (See AEG-Telefunken listing.)

BEAVERONICS—Video special effects equipment and generators; video switchers; master clock system. **Introducing: New versions of production switcher line consisting of models J&D 712, BI-154, and BI-156; Favag master clock equipment.** BOOTH 1041.

BELAR ELECTRONICS LAB—Audio and video monitoring, measuring, and timing equipment. BOOTH 134.
SEE AD ON PAGE 173

BELDEN COMMUNICATIONS—Studio cameras and accessories; lights and lighting accessories. **Introducing: Lee filters; complete line of new resin camera filters; 2000-watt HMI hand-held unit.** BOOTH 172S.

BELL HELICOPTER TEXTRON—Helicopters; ENG cameras and accessories; microwave equipment. BOOTH 1905.
Continued on page 144

The end of the endless loop.

Eumig's new FL-1000 makes cassettes the broadcast medium.

The Eumig FL-1000, an extraordinary new cassette tape deck, has started a revolution in the world of broadcasting. We believe—and radio engineers agree—that it will soon make the cassette the standard tape format in the broadcast industry.

The FL-1000 is the world's first computer-interfaceable cassette recorder. Up to sixteen FL-1000 decks can be controlled by any 8-bit computer. Some of the decks can be used for commercials; others for news and weather; still others for music and station ID's. And the location of *every* item on *every* cassette can be stored at the beginning of each tape and then in the computer, so *any* sequence can then be played back—automatically, with no human intervention, all day and all night long.

Watching a bank of FL-1000's working together is an awesome experience. One deck is rewinding while another is playing, and still another is moving in fast-forward to locate the next selection. Meanwhile, other decks are copying from a network feed and recording an air check.

The technology of the FL-1000 is so advanced that half a dozen units can do the work of more than 100 individual cartridge players—plus several reel-to-reel recorders. And they do it better, at far less cost, with sound quality comparable to that of the finest open-reel equipment. And the Eumig FL-1000's have none of the mechanical problems that plague endless-loop broadcast cartridges.

To see the end of the endless loop, call Eumig about the new FL-1000. Once you see and hear this amazing new recorder in action you'll agree that this is the long-awaited deck that will make cassettes the standard medium in the broadcast industry.

eumig®

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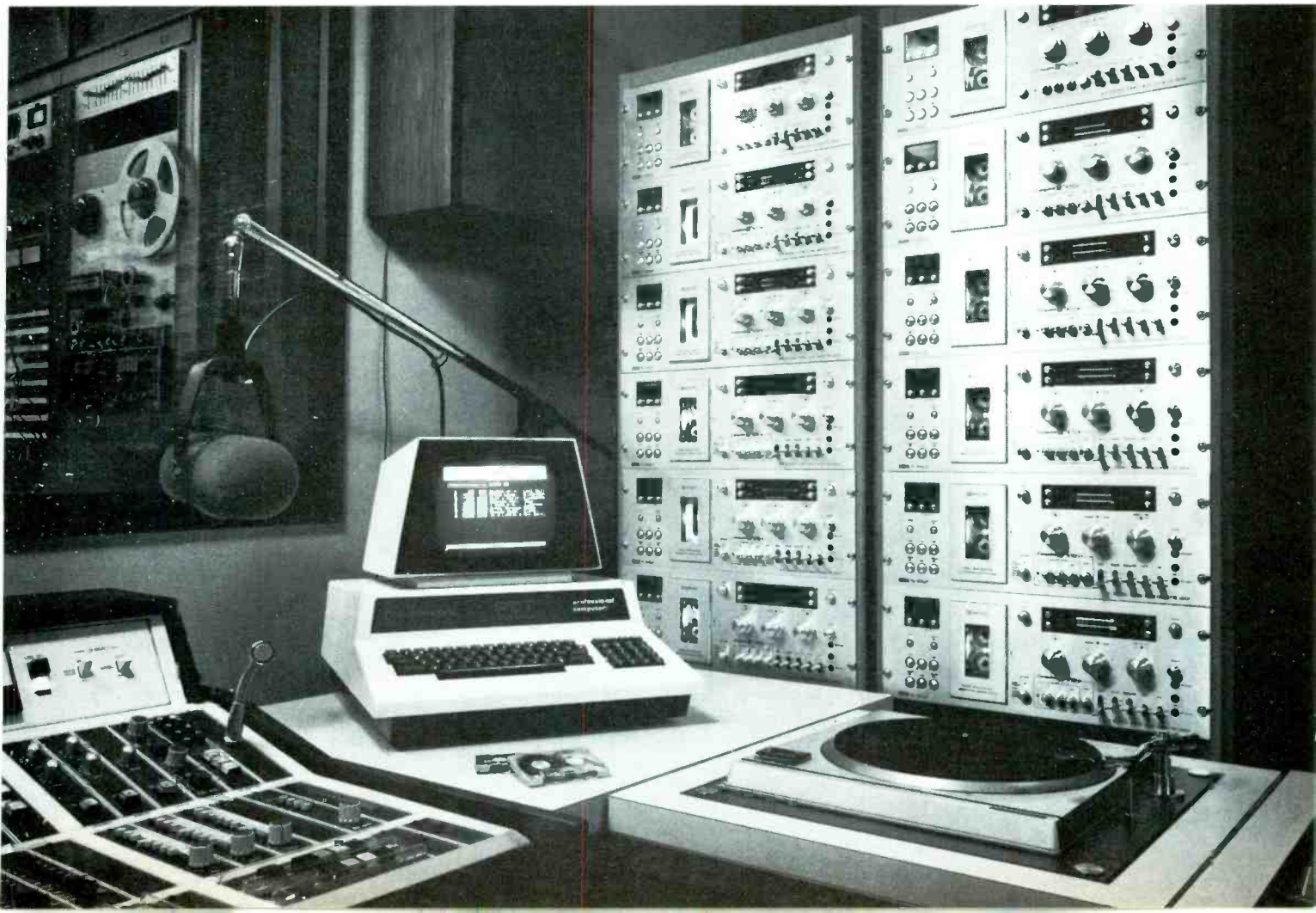

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NAB exhibitors

BERKEY COLORTRAN—Lights and lighting accessories; lighting control systems. BOOTH 1116.

BEST AUDIO—BOOTH 602S.

BEYER DYNAMIC—Microphones; headphones. **Introducing: Clip-on electret condenser microphone with 5.6-volt battery incorporated in the phone jack; studio condenser microphone line.** BOOTH 1906.
SEE AD ON PAGE 149

BIRD ELECTRONIC CORP.—Loads and wattmeters; calorimeters; high-power FM filters. **Introducing: digital directional RF wattmeters/power analyzers for on-site or remote measurement via IEEE-488 general purpose instrumentation bus systems, automatic logging, fault-alert, etc.; self-cooled calorimetric line terminations (10 kW to 80 kW).** BOOTH 915.

BLONDER-TONGUE LABS—Antennas, UHF, VHF; encoders and decoders; signal boost. **Introducing: Blonder-Tongue multivision decoder, band eliminator filter.** BOOTH 1730.

BOGNER BROADCAST EQUIPMENT—FM, UHF, and VHF antennas. **Introducing: Low-power VHF TV transmitting antennas.** BOOTH 517.
SEE AD ON PAGE 16

BONNEVILLE BROADCAST CONSULTANTS—Program services; syndicated music sales. BOOTH 321.

BOSTON INSULATED WIRE & CABLE—Electrical wire and cable connectors. **Introducing: State-of-the-art Duraguide fiber-optic camera cables for video transmission; line of precision-quality triaxial cable for broadcast cameras.** BOOTH 1011.

BROADCAST AUDIO—Amplifiers, preamps, DA's; audio consoles. **Introducing: Completely modular stereo audio console with up to 20 mixers and optional 7-frequency graphic equalizer and pan pots; 35-watt-per-channel monitor amplifier with up to four channels in 1¾ inches of rack space.** BOOTH 218S..

BROADCAST CARTRIDGE SERVICE—Audio carts; audio tape and accessories; cart reloading service. BOOTH 325.

BROADCAST CENTER—Program services; sales school and seminars; consulting. BOOTH 211.

Continued on page 146

THE IMAGE MAKER®

Imagine. an incredibly versatile disc recorder which can animate, store stills, and record and playback in real time (30 frames per second) to single frame. Or, at the touch of a button, 24 frames per second for film transfer. Add to this full random access, with preview, of up to 500 images on line and the ability to pre-set 64 locations, standard serial digital interface, and a built-in frame by frame editing/animation previewer. ☐ That's Arvin/Echo's total production tool: The Image Maker. Whether your requirement is to store still frames, produce exciting animation sequences or preprogrammed motion loops from 16 frames (or less) to 500 frames, this high band color recorder is capable of delivering direct or processed video. Rugged, reliable and portable, The Image Maker is the only real time random access recorder—featuring interchangeable Discassettes®—which doesn't break the bank. ☐ Remember, Arvin/Echo has more video disc recorders operating in the broadcast field than any other manufacturer. Based on this unique experience, we have built The Image Maker to meet the rapidly changing challenges of the professional television industry. Its potential is limited only by your imagination. ☐ Visit us at NAB, Booth #1001

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APPLIED TECHNOLOGY GROUP ATG ARVIN

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BROADCAST CONTROLS—BOOTH 312.

BROADCAST ELECTRONICS—Amplifiers, pre-amps, DA's; audio monitoring, measuring, and timing equipment; audio automation systems; audio consoles; cart machines and accessory equipment; audio carts; cartridges and tone arms; FM exciters; FM stereo generators; headphones, speakers/intercoms; limiters and compressors; microphones; remotes audio equipment; SCA equipment; audio tape and accessories; AM and FM transmitters; turntables and accessories. **Introducing: 1.5- and 3.5-kW FM transmitters; FM stereo generator; SCA generator, phono preamplifier; multi-input 10-channel stereo console.** BOOTH 304.

SEE AD ON PAGE 148

BROADCAST MARKETING ASSOCIATES—BOOTH 437S.

BROADCAST MUSIC INC. (BMI)—BOOTH 148.

CHALLENGE: To build TV towers soaring nearly 2,000 ft. above the earth.
We've done it. . .many times.

CHALLENGE: To build a rugged, reliable, multi-tower array for AM transmission.
We've done it. . .many times.

CHALLENGE: To build microwave towers to virtually zero deflection requirements; towers that withstand fierce winds and severe icing. . .successfully.
We've done it. . .many times.

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BROADCAST SYSTEMS—BOOTH 1701.

BROADCAST TECHNOLOGY—Amplifiers, pre-amps, DA's; consoles, audio; processing & equalizing equipment; switches, routing. **Introducing: Modular line amplifiers; microphone preamplifier; cue amplifier; equalizer; distribution amplifier; switching card; modular routing switches; meter isolation amplifier.** BOOTH 1023B

BROADCAST VIDEO SYSTEMS—Encoders; video monitoring, measuring and timing equipment; video signal enhancement and correction equipment; video delay lines and filters. **Introducing: Michael Cox color balance corrector; electronic visuals combined waveform/vector monitor.** BOOTH 1631.

CCA ELECTRONICS (Singer Broadcast Products)—AM, FM, TV transmitters. BOOTH 103.

SEE AD ON PAGE 125

CEI—Studio cameras and accessories; ENG cameras and accessories. **Introducing: The Americam, a camera that's the most practical alternative for high-performance, low-cost studio applications. Complete with tubes, lens and VF, the cost is less than 30K; options include a full line of lenses as well as triax.** BOOTH 1109.

SEE AD ON PAGE 54

CMC TECHNOLOGY—Video heads and refurbishing services; video signal enhancement and correction equipment. BOOTH 1622.

CMX/ORROX—Video editors. **Introducing: A/V dissolve and 8-inch floppy disc option for The Edge.** BOOTH 1209.

SEE AD ON PAGE 68

CSI ELECTRONICS—Exciters, AM, FM, TV; transmitters, AM & FM. BOOTH 106.

SEE AD ON PAGE 141

CABLEWAVE SYSTEMS—Antennas, transmission lines, towers, and lights; microwave, STL, and remote pickup equipment; transmission lines. **Introducing: High-power low-loss transmission line; low-cost auto**

Continued on page 148

VICTOR DUNCAN VIDEO

√ check and √√ double check

For more than 20 years, the Victor Duncan 'check and double check' symbol has assured producers that the equipment they needed was as clean and mechanically perfect as skilled technicians could make it. Every camera package, each light, even the smallest piece of production gear has been carefully *checked*, not once — but twice; before it ever leaves our office.

The Standard for Electronic Production Equipment

This attention to detail begins with a comprehensive physical inspection. Each mechanical function of our video cameras is carefully checked. Housing screws are tightened, lens functions are verified. The camera is mechanically and electrically registered. The white and black balance is adjusted. Colorimetry is *double checked*. The signal to noise level is carefully monitored.

Each Video recorder is also subjected to the same physical inspections, including the signal to noise levels. The interchange of tapes from deck to deck is carefully checked.

And then a second *check* is made of the complete system as a unit; camera, recorder, switchers and accessories. These same careful steps are used on each piece of equipment ordered. Switchers, monitors, CCU's, all are put through the same detailed electronic tests before they ever leave our department.

These *double check* procedures insure flawless performance in the field, and guard against costly production tie-ups. "Check and double check" at Victor Duncan Video.

Rentals, Sales & Service

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32380 Howard, Madison Hgts., MI 48071 (313) 589-1900

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dehydrator; new design RF connectors. BOOTH 1323.
SEE AD ON PAGE 33

CALIFORNIA MICROWAVE—Earth station equipment and services; modulators and demodulators. BOOTH 156.

CAMBRIDGE PRODUCTS—UHF and RF coaxial connectors. **Introducing: Type "N" connectors.** BOOTH 1614.

CAMERA MART—Amplifier, pre-amps, DA's; audio components, tubes, and hardware; battery packs, belts, and chargers; studio and ENG cameras and accessories; cart machines and accessory equipment; character generators; chroma keyer; video editors; encoders and decoders; frame store synchronizers; headphones, speakers/intercoms; lenses and lens services; lights and lighting accessories; microphones; modulators and demodulators; video special effects equipment and generators; video switchers; time base correctors; video monitors; VTRs. BOOTH 1406.
SEE AD ON PAGES 34-35

CANADIAN GENERAL ELECTRIC—Antennas, transmission lines, towers, and lights; UHF, VHF antennas; AM, FM, TV exciters; AM, FM TV transmitters. **Introducing: 30 kW UHF hi-channel television transmitter; 2 kW UHF TV transmitter.** BOOTH 431S.

CANDEX PACIFIC—Amplifiers, pre-amps, DA's; lighting control systems; video remote controls; engineering consulting services. **Introducing: Television distribution amplifier; equalizing distribution amplifier; pulse distribution amplifier; SAMS (Source And Message System), a combined encoder/decoder incorporating a video character generator; VISE (Vertical Interval Source Encoder), an encoder module compatible with the SAMS and VIMACS; VIPS (Vertical Interval Picture Source), enabling pictures being viewed in studio production control rooms to be correctly identified.** BOOTH 1700.

CANON U.S.A.—Lenses and lens services; 25X, 18X lenses; 12X and 13X with built-in extension for ENG cameras. **Introducing: Lens auto focus; servo pan & tilt unit.** BOOTH 902.
SEE AD ON PAGE 65

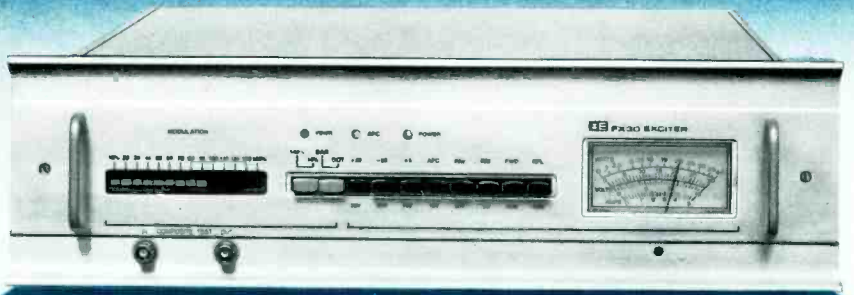
CAPITOL MAGNETIC PRODUCTS—Audio carts; audio tape and accessories. BOOTH 506.
SEE AD ON PAGE 86

CAVOX/TAPE-ATHON—Amplifiers, pre-amps, DA's; program services; SCA equipment; syndicated music sales and production aids. **Introducing: Cassette playback system model 750 consisting of two cassettes playback transports with 16-hour capacity and automatic program intermix.** BOOTH 164.

CECO COMMUNICATIONS—Camera and transmitting tubes; turntables and accessories; video heads and refurbishing services. BOOTH 1014.
SEE AD ON PAGE 92

CENTRAL DYNAMICS—Amplifiers, pre-amps, DA's; video automation systems; chroma keyer; video switchers. **Introducing: One-bus quad unit which can be fitted to any switcher, providing a wide range of patterns and soft color borders. The second stage of the APC**
Continued on page 150

The New FM Performance Leader Broadcast Electronics' FX-30 Exciter.



With almost 50 already in use Broadcast Electronics' new FM Exciter —the FX-30— provides superior on air performance.

For the Purist, Purest Sound.
The FX-30 has the lowest distortion, with THD and IMD less than 0.08%. And, it's the first exciter to specify Transient Intermodulation Distortion (TIM) at less than 0.1%.

Loud, yet Quiet.
The FX-30 is loud and sparkling clean with your programming, yet it's the quietest exciter of all, with a typical S/N ratio of 78 dB.

Broadband and Synthesized.
Advanced dual speed phase locked loop puts more than 2000 channels at your fingertips.

Set It and Forget It.
Automatic control circuits eliminate adjustments after initial setup. Exciter output is automatically stabilized and fully protected. Set it and forget it.

The Perfect Retrofit.
RF power output is adjustable up to 30 watts. The FX-30 will improve the performance of any transmitter and will fit directly in place of your present exciter.

Styling Elegance.
Elegant in styling as well as in performance, the new look in FM is the elegant look of the FX-30.

For more information on the FX-30 Exciter and BE's exciting new FM transmitters, call or write Joe Engle at: 217-224-9600

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Beyer. We make the best broadcast mics, too.

MCE 5

In recording studios, concert halls and theatres worldwide, Beyer is the premier name in microphones. Loved by performers and respected by engineers.

Now that same Beyer quality is available in a full line of innovative broadcast microphones, to meet every need and solve every problem.

The Beyer MCE 5 is the world's smallest electret condenser and provides true broadcast-quality audio from a 7 x 23 mm. cylinder weighing just 6.5 grams. It has wide frequency response, but is immune to most body noises. And you can hide it almost anywhere and connect it to a cable or a wireless transmitter.

If you can't get the mic near the sound source, try our Beyer MC 717 shotgun. It has a directional gain of at least 20 dB and a 40-20K frequency response.

The MC 717 is part of a modular condenser mic system consisting of six different transducer capsules plus amplifiers and phantom power supplies that can be perfectly tailored for a wide range of broadcast situations. They're all ruggedly built to handle ENG as well as studio work and can accept temperatures up to 160° and 99% humidity.

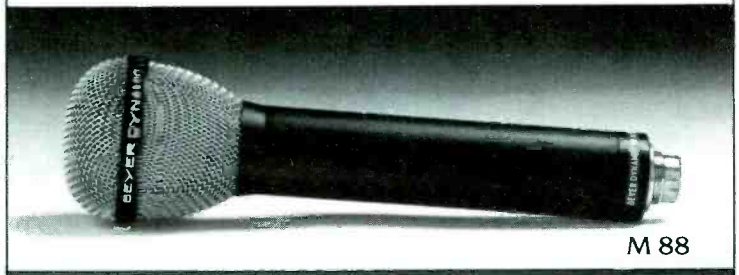
Other mics include: the M 55 – an omni-directional dynamic mic that is especially suited for reporters and field interviews; the M 69 – a uni-directional hypercardioid dynamic mic that is perfect for announcers on TV and a studio mic in radio stations; the M 88 – a uni-directional cardioid dynamic mic with warm and full bass response that is ideal for booth or radio announce. This is easily one of the best mics in the business – with a special suspension that eliminates transmitted noise if hand held. Our M 201 is another microphone with excellent vocal characteristics that is favored by singers and reporters alike.

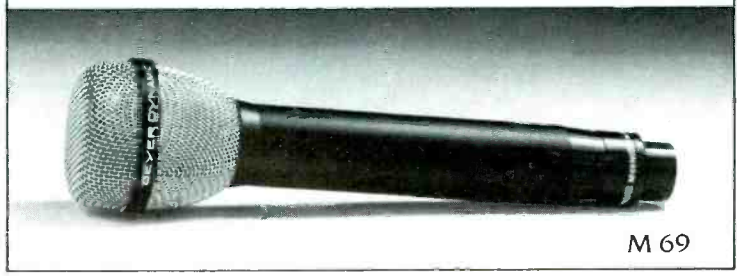
There are many more mics in the Beyer line, plus stands, booms, headsets and accessories. Visit your local Beyer distributor for more information and specs.

MC 717

M 55

M 201


M 88


M 69

Beyer Dynamic

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Broadcast Production Consoles

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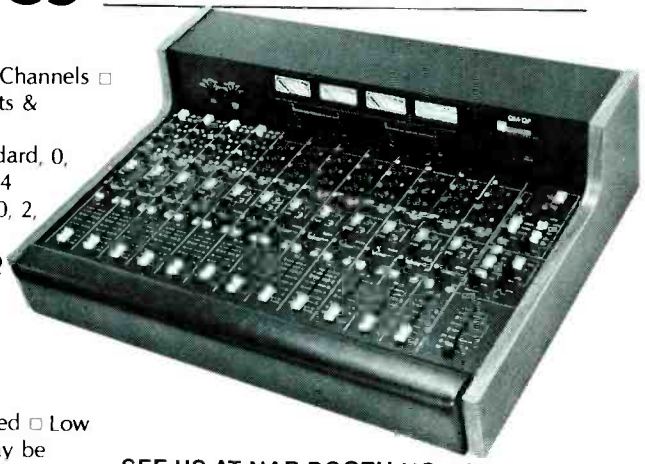

FEATURES:
Stereo Outputs ☐ 8 or 12 Channels ☐ Up to 24 Inputs ☐ All Inputs & Outputs Balanced ☐ QM-8P, 4 Stereo Channels standard, 0, 2 or 6 optional ☐ QM-12P, 4 Stereo Channels standard, 0, 2, 6, 8 or 10 optional.
Input Channels: 3 Knob EQ with In/Out Switch ☐ Echo, headphone and Cue Send ☐ Channel On and Remote Start ☐ High Quality Conductive Plastic Faders.
Output Channels: 4 Balanced ☐ Low Noise, Low Distortion ☐ May be Stereo or Mono.
Monitoring: 4 Independent Monitors ☐ Flexible Control Room Selection ☐ Talkback to Studio Muting

QUANTUM offers the following options for the QM-8P and QM-12 P:
Phantom Power Supply ☐ 104 Point Patchbay ☐ 8 or 12 Channel Input Expander.

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Quantum Audio Labs is an independent manufacturer and is not affiliated with any retail store.

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NAB exhibitors

900 automation system, the APC 920, increases the memory system to 300 events (was 40); complete range of new video and audio amplifiers; the latest addition to the CD480 family, the model 10. BOOTH 1015.
SEE AD ON PAGE 37

CENTRO CORPORATION—Pattern signal generators; video test generators; vans and ladder vehicles. **Introducing: Grip and crew bans; custom and standard EFP remote television production vans and trucks; noise baffled AC generator trailers; all-digital DTS-1 portable television test signal generator.** BOOTH 2147.

CENTURY 21 PROGRAMMING—Audio automation systems; cart machines and accessory equipment; audio carts; program services; audio reel-to-reel recorders; syndicated music sales and production aids; audio tape and accessories. **Introducing: Cross-Country format, blending the best of adult contemporary, easy listening, and compatible country crossovers; new features added to Rock, Top 40, Country, and Beautiful Music formats.** BOOTH 313.

CETEC BROADCAST GROUP—Audio automation systems; audio consoles; microphones; audio reel-to-reel recorders. **Introducing: Audio console; traffic and accounting system to interface with Cetec automation system.** BOOTH 305.
SEE AD ON PAGE 138

CETEC VEGA—Wireless microphone systems; wireless intercom systems. **Introducing: Wireless intercom system for person-to-person communication without the need of wires between users.** BOOTH 1621.

CEZAR INTERNATIONAL—Video editors. BOOTH 1718.
SEE AD ON PAGE 20

CHASE MEDIA—Business computer systems for billing, financials, traffic, and music format control. BOOTH 119.

CHRISTIE ELECTRIC—Battery packs, belts, and chargers. BOOTH 1002.

CHYRON CORPORATION— Character generators. **Introducing: ¾-inch videocassette cleaner and evaluator.** BOOTH 1407.
SEE AD ON PAGE 122

CINE 60 INC.—Battery packs, belts, and chargers; ENG accessories. **In-**
Continued on page 152

videotape editing system

VANGUARD

by datatron, inc.

SMPTE Editing for 3/4" U-Matic 1" Type C 2" Quads

DATATRON INTRODUCES VANGUARD, A TOTALLY NEW GENERATION OF VIDEOTAPE EDITOR DESIGNED TO GET THE MOST OUT OF THE NEW GENERATION OF VERSATILE TYPE—C VTRs.

Vanguard is the most exciting development in SMPTE videotape editing since the introduction of the Type-C format.

The excitement begins the moment you sit down at the dedicated-function, color coded keyboard with its superbly organized interactive CRT display. From this position, you've got full control over five VTRs and a switcher. VTR motion control is effortless and precise; dual Varascan™ controls allow you to utilize the shuttle capabilities of Type-C VTRs to their fullest — — on two VTRs at once.

You can enter edit and split times on-the-fly or manually. You can perform cues, previews, edits, all automatically. You can even perform A/B/C/D sync'd roll edits involving up to four sources.

But that's just the start; Vanguard lets you set your own preroll and postroll times. It provides variable operator reaction time compensation. The edit list memory can store up to 999 edit events — — enough for even your longest editing sessions. And powerful, easy-to-understand edit list management lets you modify the edit list any way you choose.

Auto assembly from up to four sources is standard, as are paper tape edit list input/output, teletype edit list printout, and scrolled CRT edit list output. And if you wish, floppy disk is available.

It's all here, and at a price that's about half of what you'd pay for just one Type-C VTR with TBC.

And, just in case you're not ready to convert to Type-C, it will probably come as no surprise that Vanguard also interfaces to more than 35 other makes and models of decks, including quads, 3/4 inch cassettes, 1" Type-A/B, multi-track audio recorders, and the Rank Cintel scanner.

(215) 223-8200
Ask for Ed Zwicker

Complete system capabilities

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COMMUNICATIONS SYSTEMS DIVISION
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Circle (173) on Action Card

troducing: high-frequency NiCad battery charging systems, including four-channel battery fast chargers, car fast chargers, AC fast chargers, overnight slow chargers; Sofbelt powerbelts; on-camera batteries; VTR batteries; Compac batteries; cables; Combination 100W/12V-250W/24V battery lights; 350-watt 30V battery lights; kits; Snaploks; shoulder pods; HMI lights. BOOTH 1037.

SEE AD ON PAGE 102

CINEMA PRODUCTS—Battery packs, belts and chargers; studio and ENG cameras and accessories; video editors; lenses and lens services; lights and lighting accessories; video prompters. Introducing: CP Co-Ax digital remote control system for Thomson-CSF MC 601 and 701 ENG/EFP cameras, and for Sony BVP300 and 330 ENG/EFP cameras; Newsmaker video edit controller, designed to interface with a variety of VTR models; EFP Matte Box, a new swing-away type matte box for EFP video cameras. BOOTH 1417.

SEE AD ON PAGE 113

CIRCUIT RESEARCH LABS—Limiters and compressors; processing and equalizing equipment. BOOTH 126A.

CLEAR-COM INTERCOM SYSTEMS—Battery packs, belts, and chargers; headphones, speakers, intercoms. Introducing: System 2 electronics package, an updated complete system; 4-channel programmable TPL systems for studios; new options on intercom systems; headsets. BOOTH 174S and 176S.

COHU, ELECTRONICS DIVISION—Amplifiers, pre-amps, DA's; film chain equipment; video monitors; video signal enhancement and correction equipment. Introducing: Telecine with negative film capability. BOOTH 900.

COLORADO VIDEO—Slow-scan TV. Introducing: Color slow-scan. BOOTH 1029.

COLUMBINE SYSTEMS—Business computer systems. Introducing: Traffic-related functions, general accounting procedures, and the music system on an IBM computer; film amortization package, demographics, cart inventory, global data analysis system, and automation interface. BOOTH 332S.

COMARK COMMUNICATIONS—Antennas, transmission lines, towers and lights; FM antennas; AM, FM, TV exciters; loads and wattmeters; modulators and demodulators; video remote controls; routing switchers; transmission lines; TV transmitters. Introducing: 6 1/8-inch coax automatic switching system. BOOTH 515.

SEE AD ON PAGE 95

COMEX—BOOTH 217.

COMPACT VIDEO SALES—Earth station equipment and services; intercoms; lighting control systems; vans; videotape production mobile units. BOOTH 1525.

COMPACT VIDEO SERVICES—Earth station services; satellite services. Introducing: Compact Video satellite services. BOOTH 1525.

COMPREHENSIVE VIDEO SUPPLY—Battery packs, belts, and chargers;

Continued on page 154

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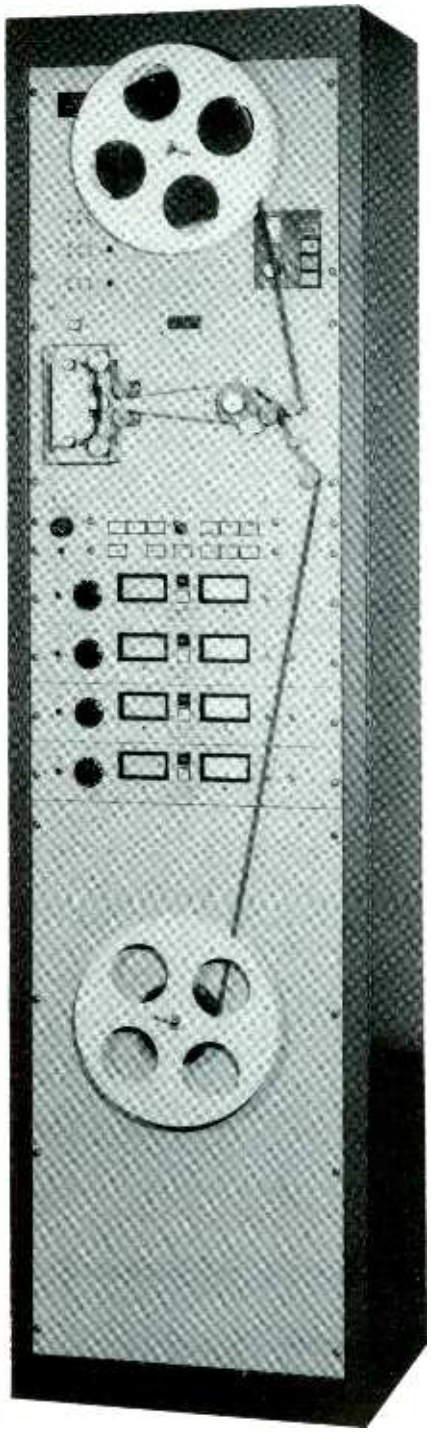

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ENG cameras and accessories; cart machines and accessory equipment; headphones, speakers/intercoms; lenses and lens services; lights and lighting accessories; microphones; pedestals, tripods and heads; videotape and accessories; video test generators; video components, tubes and hardware, video monitoring, measuring, and timing equipment. **Introducing: PAG power packs; On-Board NiCad replacement batteries; 250 & 350 watt PAG lights; camera-to-VCR adapters; VTC-100 video test center that enables fast and easy evaluation of video equipment.** BOOTH 1910.

COMPUCON—Earth station services; satellite distribution services; communications engineering services. **Introducing: Low-power television engineering services.** BOOTH 1902.

COMPUTER CONCEPTS—Business computer systems. **Introducing: Play List Program, which will give a program director complete control over the music being played on his station. PD can specify which songs are to be played, how often they are to be played, and the time separation between each playing. Play List Program will run on any existing broadcast system.** BOOTH 168.

SEE AD ON PAGE 43

COMPUTER GRAPHICS LABS—BOOTH 1982.

COMPUTER MANAGEMENT SYSTEMS—Business computer systems. BOOTH 421.

COMPUTER VIDEO SYSTEMS—Character generators. **Introducing: Low-cost broadcast-quality titler; COMPUVID third-generation microprocessor-based data display systems.** BOOTH 188S.

SEE AD ON PAGE 152

COMREX—Remotes audio equipment; telephone talk-show equalizer; low-frequency extenders; TV aural monitors; ENG van cue system; ENG wireless microphone. BOOTH 105.

SEE AD ON PAGE 144

COMSEARCH—Earth station equipment and services. BOOTH 1604.

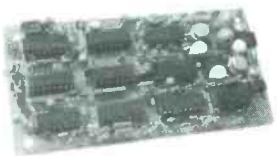
CONCEPT PRODUCTIONS—Program services; syndicated music sales and production aids. BOOTH 326.

OTIS CONNER PRODUCTIONS—BOOTH 182S.

CONRAC DIVISION, CONRAC CORPORATION—Video monitors. **Introducing: Line of computer graphic color monitors; complete line of professional color monitors, including 19-inch compact, modular, stabilized master monitor with comb filter separator for broadcasting and teleproduction applications; moderately priced 19V professional broadcasting-type monitor; compact high-resolution 13V color monitor with comb filter separator for VTR over-console mounting; monochrome monitors, including a 15V professional teleproduction monitor designed for VTR over-console mounting; a high-resolution series general-purpose monitor.** BOOTH 809.

CONTINENTAL ELECTRONICS—Amplifiers, pre-amps, DA's; AM stereo generators; antenna monitors; antennas, transmission lines, towers and lights; FM antennas; audio consoles;

Continued on page 156



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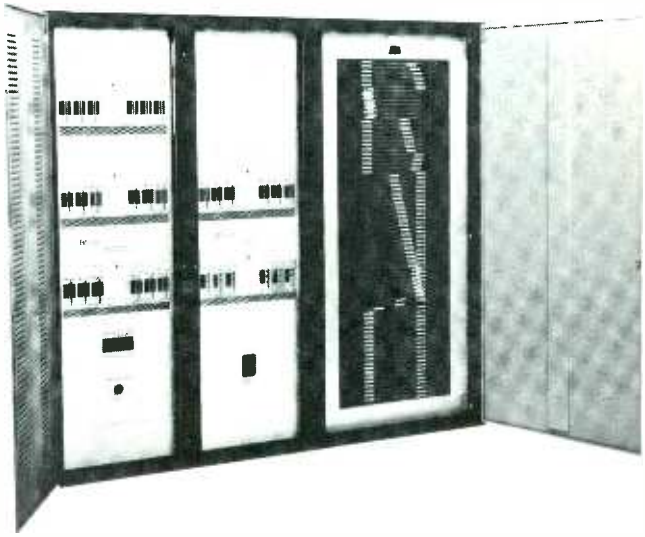

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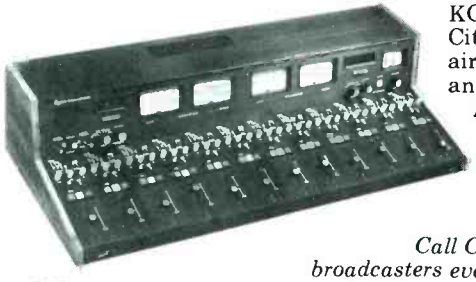

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SEE AD ON PAGE 115

CONTINENTAL PLASTIC CARD— BOOTH 179S.

CONTROL VIDEO—Edit code generators and receivers; video editors; time code equipment; VTR controllers. **Introducing: SMPTE writers and readers; VTR controllers; synchronizer; sequencer for automatic playback; Light Finger, a video editor.** BOOTH 1733.
SEE AD ON PAGE 32

CONVERGENCE CORPORATION — Video editors. **Introducing: Several interface products for ½-inch and 1-inch VTRs; model ECS-104 list management system, incorporating full list management capabilities including direct control (over 600 edits internally).** BOOTH 1101.
SEE AD ON PAGE 17

COOL LIGHT COMPANY—Lights and lighting accessories. BOOTH 1831.

CORECO RESEARCH—BOOTH 158.

CORPORATE COMMUNICATIONS CONSULTANTS—Color correctors, film-to-tape and tape-to-film. **Introducing: Color correctors.** BOOTH 2009.

CROSSPOINT LATCH—Video automation systems; video special effects equipment and generators; video switchers. **Introducing: Editor-controlled video and audio switchers.** BOOTH 2111.
SEE AD ON PAGE 120

CROWN INTERNATIONAL— Amplifiers, pre-amps, DA's; audio analyzers; audio monitoring, measur-

Continued on page 158

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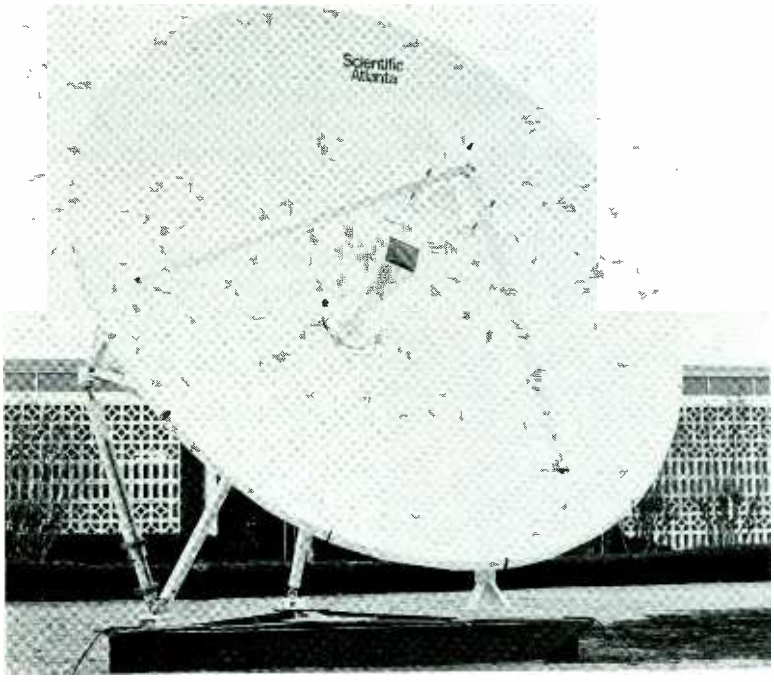

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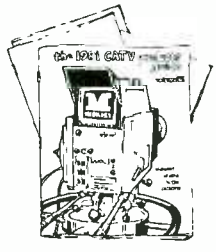

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ing, and timing equipment; microphones. **Introducing: Audio power amplifiers; new models of Pressure Zone Microphone.** BOOTH 190S.

CUSTOM BUSINESS SYSTEMS—Business computer systems. **Introducing: Interface with IGM music system; hard disc version system; dual-density floppy disc.** BOOTH 308S.

D-B ELECTRONICS—Pre-amps; cart machines and accessory equipment; audio carts; headphones; speakers; microphones; audio tape and accessories; telephone answering interface equipment. **Introducing: 1-, 2- and 3-deck audio tape cartridge recorder/reproducer featuring Hall effect motor with fast forward, easy conversion of mono units to stereo, and simultaneous record/play; turntable preamplifier (mono/stereo) with switchable phase correction and low-noise ICs; telephone answering interface for use with D-B tape cartridge machines.** BOOTH 140.

dbx INCORPORATED—Limiters and compressors; noise reduction systems; processing and equalizing equipment. **Introducing: Two new noise reduction modules for the 900 series modular signal processing system designed to permit the use of up to 16 channels of dbx Type II encoding or decoding in a single 5¼-inch by 19-inch rack-mount frame; 1¾-inch by 19-inch rack-mount dual-channel simultaneous encode/decode Type II noise reduction system.** BOOTH 416.

DATA COMMUNICATIONS—Video special effects equipment and generators. BOOTH 2145.

DATAMETRICS—Edit code generators and receivers; character generators; time code equipment. **Introducing: SMPTE reader; SMPTE generator; state-of-the-art code reader; new line of products based on vertical interval time code.** BOOTH 1612/1612A.

DATATEK—Amplifiers, pre-amps, DA's; routing switchers; video switchers. BOOTH 1227.
SEE AD ON PAGE 107

DATATRON—Edit code generators and receivers; video editors; routing switchers. **Introducing: SmartScan™ variable speed motion memory option for Vanguard videotape editing system; new line of software-controlled SMPTE time code generators and receivers.** BOOTH 1205.
SEE AD ON PAGE 39

DATATRONIX—Amplifiers, pre-amps, DA's; limiters and compressors; processing and equalizing equipment; audio consoles. **Introducing: 10-band graphic equalizer; audio jack fields.** BOOTH 103S.
SEE AD ON PAGE 124

DELCOM—Video automation systems; battery packs, belts, and chargers; studio and ENG cameras and accessories; character generators; chroma keyer; edit code generators and receivers; video editors; film chain equipment; frame store synchronizers; pedestals, tripods and heads; video remote controls; video special effects equipment and generators; routing switchers; video switchers; videotape and accessories; video test generators;

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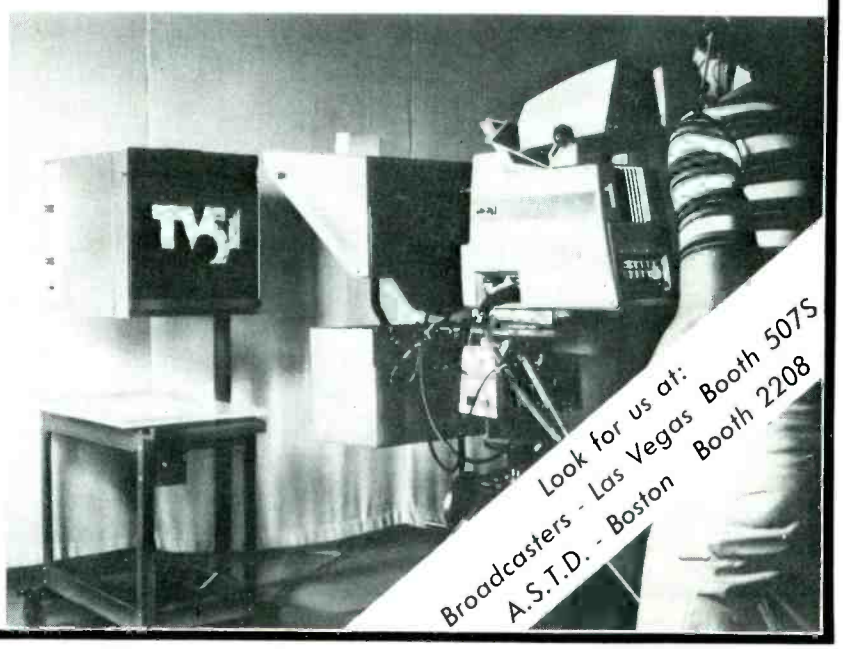

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time base correctors; time code equipment; video components, tubes and hardware; video monitoring, measuring, and timing equipment; video monitors; video signal enhancement and correction equipment, VTRs. **Introducing: Interface between the ISI 902 video production switcher and Convergence ECS-103 editor; ¾-inch recorder/player/editor with pulse cross, tape shuttle, audio input select, audio tone generator, audio monitor, power supply presence, head hour meter.** BOOTH 1843.

DELTA ELECTRONICS—Antenna monitors; antennas, transmission lines, towers, and lights; ATS equipment; audio monitoring, measuring, and timing equipment; limiters and compressors; processing and equalizing equipment, video remote controls; directional antenna accessories; AM, FM, TV remote control systems. **Introducing: AM-FM-TV microprocessor remote control/ATS system.** BOOTH 400.
SEE AD ON PAGE 121

DE WOLFE MUSIC LIBRARY—Music library; sound effects library. **Introducing: 20 production music albums.** BOOTH 1618.

DI-TECH—Routing switchers; audio, video, pulse distribution amplifiers; video presence detectors; audio monitor amplifiers; 7-day computer controller. **Introducing: Alpha-numeric control panels.** BOOTH 1408.
SEE AD ON PAGE 1

ALAN DICK (CANADA) INC.—Modular antenna systems (UHF, VHF, FM, linear and CP); combiner. BOOTH 1007.
SEE AD ON PAGE 133

DICTAPHONE—Audio reel-to-reel recorders; time code equipment. **Introducing: Series 5600, a new multiple pass recorder designed specifically for radio station logging requirements; Series 5000, new microprocessor-controlled high-channel capacity voice logging system for those users that require more than four channels of capacity.** BOOTH 110.

DIELECTRIC—Antennas, transmission lines, tower, and lights; loads and wattmeters; transmission lines; RF switches; patch panels; waveguide. BOOTH 1507.

DIGITAL VIDEO SYSTEMS—Time base correctors; video signal enhancement and correction equipment; digital TBC/frame-store synchronizer systems. BOOTH 704.

DOLBY LABORATORIES—Noise reduction systems. **Introducing: Audio noise reduction modules for use with 1-inch C-type VTRs.** BOOTH 1031.

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VICTOR DUNCAN—Battery packs, belts, and chargers; studio and ENG cameras and accessories; film cameras and projectors; character generators; chroma keyer; film chain equipment; headphones, speakers/intercoms; helicopters and tracking systems; lenses and lens services; lights and lighting accessories; microphones; pedestals, tripods and heads; audio reel-to-reel recorders; video prompters; VTRs; video consoles. **Introducing: Camera stabilization system for helicopters and vehicles; Panacam, a new camera technology that marries film and video techniques.** BOOTH 1110A.
SEE AD ON PAGE 147

DYNACOM ELECTRONICS—Encoders and decoders. **Introducing: Addressable encode/decode system for STV; multi-channel decoder; addressable MDS system.** BOOTH 1134.
SEE AD ON PAGE 100

DYNAIR ELECTRONICS—Amplifiers, DA's; video remote controls; routing switchers; video switchers. **Introducing: Machine control; machine control switching.** BOOTH 813.
SEE AD ON PAGE 72

EEG ENTERPRISES—Character generators; encoders and decoders; time code equipment. **Introducing: Turnkey line 21 captioning system including encoder and floppy disc data source.** BOOTH 1837.

EEV—Tubes, camera & transmitting. **Introducing: Diode gun Leddicons; diode gun low output capacitance narrow scan Leddicons; high efficiency amplifier klystron for UHF transmitter applications.** BOOTH 925.
SEE AD ON PAGE 89

E G & G—BOOTH 1710.

Continued on page 160

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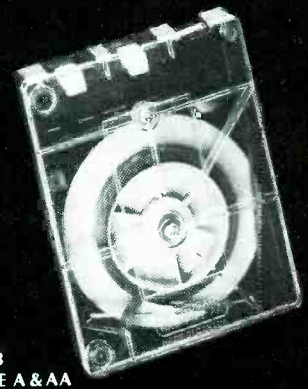

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EASTMAN KODAK—Film projectors; the complete line of Eastman motion picture products for program origination, post-production, and distribution of television programming. BOOTH 1118.

ECHOLAB—BOOTH 625S.

EDCOR—Amplifiers, pre-amps, DA's; encoders and decoders; wireless microphones. **Introducing: Multiplex snakes (encodes 8 channels of audio onto one microphone cable, transmits it up to 1500 feet, decodes to 8 discreet audio outputs); 4-channel automatic microphone mixer with built-in compressor/limiter circuitry.** BOOTH 205S.
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EDUTRON—Time base correctors. **Introducing: Line of video time base correctors that incorporate a new standard of performance.** BOOTH 1815, 1714.
SEE AD ON PAGE 41

EIGEN VIDEO—Electronic slides; slow-motion replay equipment. BOOTH 1113.

ELCOM SPECIALTY PRODUCTS—AM, FM, TV exciters; FM stereo generators; limiters and compressors; AM & FM transmitters. **Introducing: AM-FM transmitters (full product line recently acquired by Elcom from Cetec Broadcast Group).** BOOTH 419.

ELECTRO CONTROLS—BOOTH 1100.

ELECTROHOME—Video monitors. **Introducing: New line of monochrome monitors (9" to 23") rack mounts (9" to 17"); D2000 series color studio monitor; new color monitor.** BOOTH 1003.

ELECTRO IMPULSE—Loads and wattmeters. BOOTH 1130.

ELECTRO & OPTICAL SYSTEMS—Audio monitoring, measuring, and timing equipment; audio and video automation systems; edit code generators and receivers; time code equipment; video monitoring, measuring, and timing equipment; video monitors. **Introducing: 13-inch HIREL and 20-inch CM51 HIREL monitors featuring new high-resolution PIL (precision in line) dot mask CRTs, ideal for both studio and mobile.** BOOTH 1511.
SEE AD ON IBC and 52

ELECTRO VOICE—Monitor loudspeakers; microphones. BOOTH 1816.

ELECTRONIC ENGINEERING ASSOCIATION—Information stand for British industry. BOOTH 1807.

EMCEE—TV transmitters; UHF and VHF television translators. BOOTH 1017.

ENGLISH ELECTRONICS—BOOTH 1018.

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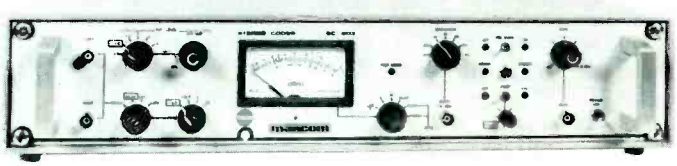

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The SC-200 Series equipment is represented exclusively in North America by:

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ENTERPRISE-RADIO—BOOTH 120.

EVENTIDE CLOCKWORKS—Audio analyzers; digital effects equipment; processing & equalizing equipment; audio special effects equipment; delay lines. **Introducing: TIMESQUEEZE System, which shortens or lengthens recorded programs and commercials with no editing, no deleted material, and no abnormal audio pitch effects. System interfaces with the users' 1-inch video recorder or audio tape machine.** BOOTH 177S.

SEE AD ON PAGE 127

ENVIRONMENTAL CONTAINER SYSTEMS—Fiberglass transit cases; transportable electronics enclosures. **Introducing: Newly designed transportable electronics enclosure for 19-inch rack-mountable equipment.** BOOTH 408S.

FAIRCHILD CAMERA AND INSTRUMENT—Cameras. **Introducing: CCD one-chip color camera.** BOOTH 1315.

FAROUDJA LABORATORIES—Video signal enhancement and correction equipment. **Introducing: The Image System, including Record One and Playback One.** BOOTH 1712.

FARRTRONICS—Amplifiers, pre-amps, DA's; audio consoles. **Introducing: Audio consoles for TV broadcast use; audio consoles with CMX computer editing interface.** BOOTH 1723.

FERNSEH INC.—Video automation systems; studio and ENG cameras and accessories; character generators; digital effects equipment; video editors; encoders and decoders; film chain equipment; frame store synchronizer; noise reduction; processing and equalizing equipment; video remote controls; routing switchers; video switchers; video monitors; video signal enchancement and correction equipment, VTRs; machine control system. **Introducing: FTP-4000 16/35 telecine projector; pan scan option for FDL-60 telecine; telecine color correction system (frame-by-frame); full line of video monitors; solid-state film scanner.** BOOTH 1208.

SEE AD ON PAGE 97

FIBERBILT—ATA transit cases for broadcast and video equipment. BOOTH 1817.

FIDELIPAC—Audio monitoring, measuring, and timing equipment; cart machines and accessory equipment; audio carts; phono cartridges; audio tape and accessories; wow and flutter meter; studio warning lights. **Introducing: Audio-Technica ATP line of professional phonograph cartridges, of which Fidelipac is the sole master distributor of in the industry.** BOOTH 204.

FILM/VIDEO EQUIPMENT SERVICE COMPANY—Battery packs, belts, and chargers. BOOTH 1818.

FILMWAYS/HEIDER RECORDING—BOOTH 322.

FITZ-GERALD & ASSOCIATES—BOOTH 626S.

FLASH TECHNOLOGY—Lights; high-intensity beacons. BOOTH 931.

FOR-A CORP. OF AMERICA—Character generators; encoders and

Continued on page 162

Introducing
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An Ultra-Light Miniature Headset

Engineered with a Studio Quality Electret Microphone and space-age plastics to be light-weight and more reliable than anything else on the market.

- 3/4 ounce total weight
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- Compatible with all intercoms
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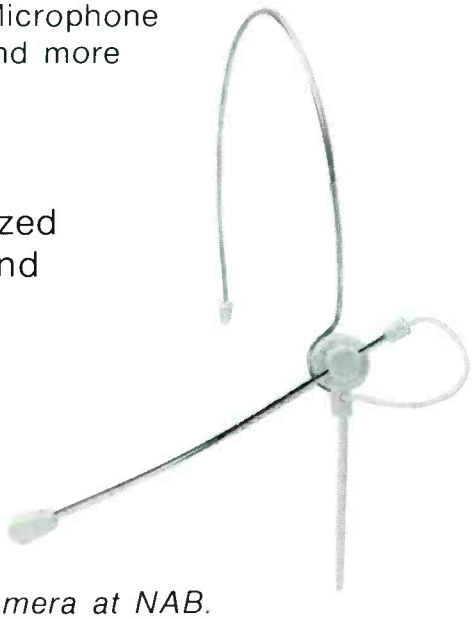

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decoders; routing switchers; video test generators; time code equipment; video signal enhancement and correction equipment. **Introducing: video distribution amplifier; sync generator; color bar generator; back color generator; automatic level controller; color corrector; character generator; ¼-inch VTR and remote control box; VITC generator-reader.** BOOTH 1826.

FORT WORTH TOWER COMPANY—Towers and lights; earth station equipment and services. BOOTH 819.

FREZZOLINI ELECTRONICS—Battery packs and chargers; film cameras; lights and lighting accessories. **Introducing: "On-Board" Frezzi battery packs that mount directly, without need for camera modification or alteration, on the backs of most portable video cameras; production-line "Frezzi-Flex® " lightweight portable model FR-16 series of 16mm motion picture cameras; production-line models of "Frezzi-Lite" portable camera lights with improvements that include a more efficiently-cooled socket; production-line models of "Frezzi" "Stick" battery packs. (Products names trademark Frezzolini Electronics Inc.)** BOOTH 1608.

FUJI PHOTO FILM USA—Video and audio tape and accessories. BOOTH 1307.
SEE AD ON PAGE 123

FUJINON OPTICAL—Lenses and lens services. **Introducing: A30X11 ESM lens for ⅔-inch ENG cameras; full line of electronic cinematography lenses.** BOOTH 1117.

GARDINER COMMUNICATIONS—Character generators; earth station equipment and services; modulators and demodulators; video switchers. **Introducing: Satellite receivers; low noise amplifiers; 12-foot earth station antenna.** BOOTH 1840.

GARNER INDUSTRIES—Bulk audio tape erasers; bulk videotape erasers; audio duplicating equipment. BOOTH 1120.

GENERAL ELECTRIC—Lights and lighting accessories. BOOTH 1104.

THE GERSTENSLAGER CO.—BOOTH 528S.

CLIFF GILL ENTERPRISES—BOOTH 160.

GLENTRONIX—Video automation systems; time code equipment; clock systems. **Introducing: Tape synchronizer; low-cost time code equipment; transmitter and monitoring fault report system; encoded machine control system; digital thermometer; time and temperature display unit; video clock SMPTE time.** BOOTH 1824.

ALAN GORDON ENTERPRISES—BOOTH 1917.

THE GRASS VALLEY GROUP—Amplifiers, pre-amps, DA's; video animation systems; chroma keyer; digital effects equipment; video processing and equalizing equipment; video special effects equipment and generators; routing switchers; video switchers; video signal enhancement and correction equipment; digital audio multiplexer system; fiber optic link. BOOTH 1210.
SEE ADS ON PAGES 5 and 51

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Yours.

Energy conservation is much in the news these days. Like the weather, many talk about it but few do anything about it. We haven't figured how to change the weather, but we do have several systems specifically engineered for broadcasters that both conserve energy and add efficiency. The very latest (shown installed) is called STOR-MAX.™

Save energy (yours) by converting your overcrowded film and VTR libraries to the new "Instant Access" high-density systems engineered and distributed only by Storeel. Modular Rapid Transit Storage™ maximizes units stored per square foot of floor space, minimizes retrieval time, optimizes energy efficiency.

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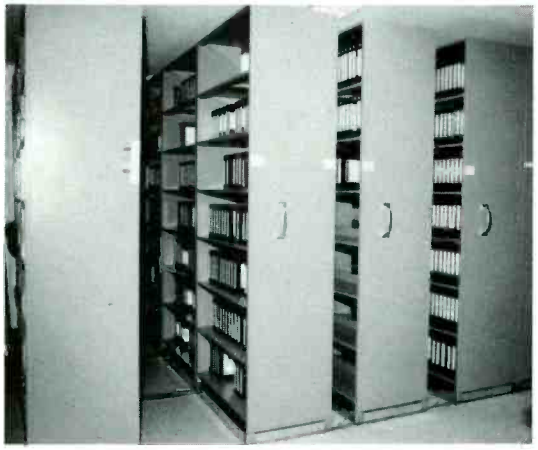

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GREAT AMERICAN MARKET—Lights and lighting accessories; Excalibur custom cases; special effects in projection. Introducing: HMI battery-operated lights by RDS; 2000-watt Scene Machine; light curtain and Lightesizer 212 control system; 20 new designs in the Great American Pattern Collection. BOOTH 1628.

DAVID GREEN BROADCAST CONSULTANTS CORP.—Amplifiers, pre-amps, DA's; audio monitoring, measuring, and timing equipment; microphones. Introducing: Excalibur six-channel stereo console. BOOTH 125.

GREGG LABORATORIES—Amplifiers, pre-amps, DA's; limiters and compressors; processing and equalizing equipment; TV audio processors; on-air phone equipment. Introducing: Multiband AM audio processing amplifier; five-band compressor and five-band distortion cancelling peak limiter; self-contained hands-free on-air telephone system; multiband TV audio processing system with loudness controller; turntable; pre-amplifier. BOOTH 403.

MERV GRIFFIN RADIO— BOOTH 400S.

GROTON COMPUTER—Business computer systems; program services. Introducing: Color video display for business/traffic automation; production services and buy back of unsold commercial radio time as featured by Groton Computer's subsidiary, Groton Radio Network. BOOTH 118.

SEE AD ON PAGE 164

HM ELECTRONICS—Intercoms; microphones. Introducing: Full duplex wireless intercom system, which allows for up to five stations to function in a full duplex mode, or as many as desired in a "push-to-talk" mode. Base station can be interfaced with any RTS or Clear-Com hard-wired intercom. BOOTH 1509.

SEE AD ON PAGE 144

HALLIKAINEN & FRIENDS—ATS equipment; audio automation systems; audio consoles. Introducing: Production unit of transmitter control and logging system which is user programmable in BASIC and works with existing remote control systems. BOOTH 514.

HARRIS CORPORATION, BROADCAST PRODUCTS DIVISION—Amplifiers, pre-amps, DA's; AM stereo generators; transmission lines, towers and lights; FM antennas; UHF, VHF antennas; ATS equipment; audio monitoring, measuring, and timing equipment; audio automation systems; studio cameras and accessories; cart machines and accessory equipment; cartridges and tone arms; business computer systems; audio consoles; earth station equipment and services; AM, FM, TV exciters; film chain equipment; frame store synchronizers; FM stereo generators; pattern signal generators; headphones, speakers/intercoms; lenses and lens services; lights and lighting accessories; lighting control systems; limiters and compressors; microwave, STL and remote pickup equipment; microphones; processing and equalizing equipment; pedestals, tripods and heads; video remote controls; remotes audio equipment; SCA equipment; routing and video switchers; audio tape and accessories; audio and video test generators; time base correctors; transmission lines, AM & FM transmitters; camera and transmitting tubes; turntables and accessories; vans and ladder vehicles. Introducing: TC-85 live color TV camera, featuring computer setup system that accomplishes pre-production setup of any number of TC-85 cameras in 45 seconds or less; 16-channel digital-control audio console, offering programmable keyboard entry, digitally controlled linear attenuators, and software-oriented control; TV-L line of low-band VHF TV transmitters; Autotron Star System, a business automation system; three new medium-wave transmitters, the MW-5B, 5 kW; MW-10A, 10 kW; and the MW-50B, 50 kW. BOOTH 301.

SEE AD ON PAGE 99

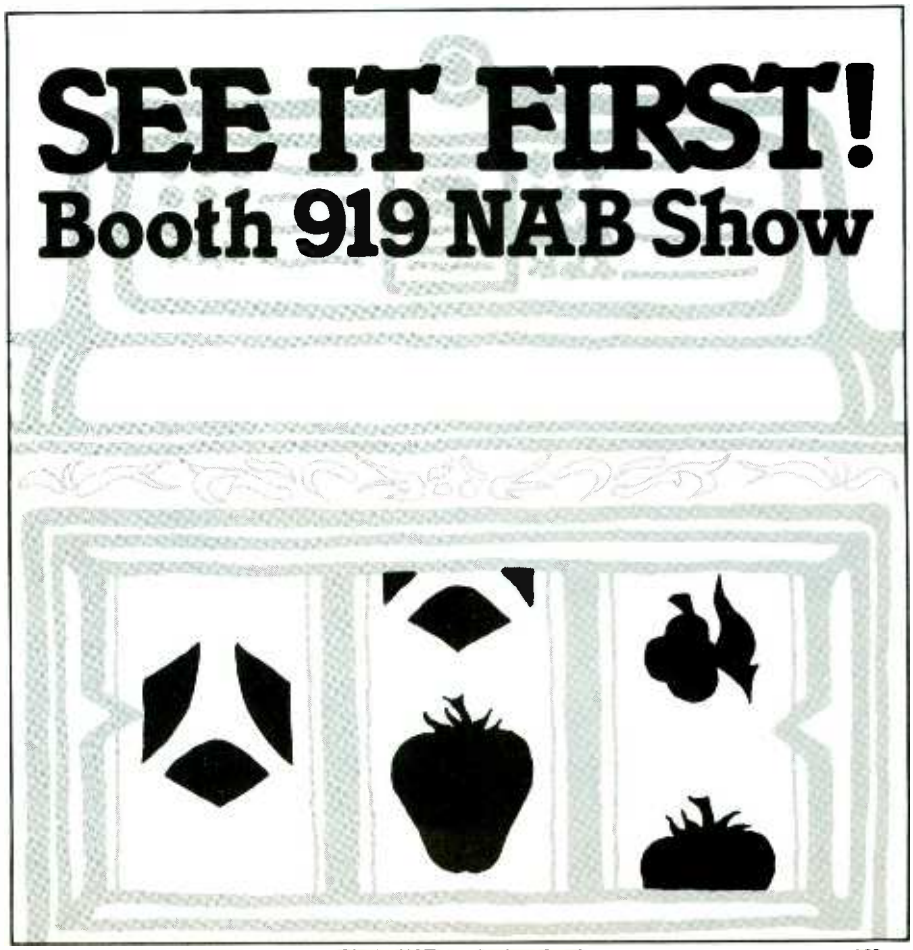
HARRISON SYSTEMS—Audio automation systems; audio consoles; limiters and compressors. Introducing: High-performance, low-cost post-production/sweetening console. BOOTH 507.

HEDCO—DA's; routing switchers; terminations. Introducing: Single-bus audio and video routing switchers featuring configurations of 8 x 1 and 16 x 1 in a 1RU frame; combined audio and video distribution frame; pulse distribution amplifier; equalizing distribution amplifier.BOOTH 1635.

SEE AD ON PAGE 112

KARL HEITZ INC.—Film cameras; lenses; tripods and heads; mike booms;

Continued on page 164



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dollies; light stands. **Introducing: Light stands; video tripods, heads with counterbalance; levelling balls with sliding or gearlift column for high adjustment; fluid heads; projection stands and platforms. BOOTH 1809.**

HITACHI DENSHI AMERICA—Studio and ENG cameras and accessories; film chain equipment; slow-motion replay equipment; time base correctors; video monitors; VTRs. BOOTH 1404.
SEE AD ON PAGE 21

HOWE AUDIO/BCP—Amplifiers, pre-amps, DA's; AM stereo generators; antenna monitors; antennas, transmission lines, towers and lights; FM antennas; UHF, VHF antennas; ATS equipment; audio analyzers; audio monitoring, measuring, and timing equipment; audio automation systems; cart machines and accessory equipment; audio carts; cartridges and tone arms; business computer systems; audio consoles; earth station equipment and services; AM, FM, TV exciters; FM stereo generators; headphones, speakers/intercoms; limiters and compressors; loads and wattmeters; microwave, STL, and remote pickup equipment; microphones; modulators and demodulators; noise reduction systems; processing and equalizing equipment; audio reel-to-reel recorders; remotes audio equipment; SCA equipment; transmission lines; AM & FM transmitters; TV transmitters; turntables and accessories; power generators. BOOTH 438S.
SEE AD ON PAGE 88

HOWELL LABS—BOOTH 128A. (See Shively Labs listing.)

HUGHES HELICOPTERS—Helicopters and tracking systems. **Introducing: Hughes 300C/ENG, a complete turnkey airborne electronic news gathering system at only one-third the cost of other airborne ENG systems.** Booth not assigned at press time.

IGM COMMUNICATIONS—Audio automation systems; business computer systems; multiple-cartridge playback units. **Introducing: Interface between broadcast automation system and traffic billing system.** BOOTH 101.

IKEGAMI ELECTRONICS (USA)—Studio and ENG cameras and accessories; film chain equipment; video monitors. **Introducing: ENG/EFP ⅔-inch prism camera with capability for attachable VCR; high-quality, medium-priced studio field camera; sophisticated digital control studio/field camera, with full automatic setup and triax capability; high-resolution color monitor line utilizing in-line gun CRTs.** BOOTH 817.
SEE ADS ON PAGES 25, 63

ILLINOIS CABLE—Electrical and electronic wire and cable. BOOTH 2015.

IMAGE VIDEO—Audio and video automation systems; video remote controls; remotes audio equipment; routing and video switchers. **Introducing: Automation system; machine assignment system; new routing switcher; border generator; voltage monitor.** BOOTH 1822.

IMERO FIORENTINO—BOOTH 523S.

IMPACT CASES—BOOTH 1724.

INDUSTRIAL SCIENCES—Amplifiers, pre-amps, DA's; video automation systems; audio consoles, encoders/decoders; film chain equipment; pattern signal generators; processing and equalizing equipment; video special effects equipment and generators; routing and video switchers; video test generators; captioning equipment. **Introducing: Video production switchers with 20 inputs and 1-3 PolyKey Effects; gen/lock sync generators; 560 SMPTE alignment color bar generator.** BOOTH 1115.
SEE AD ON PAGE 139

INFORMATION PROCESSING SYSTEMS—Weather instruments, satellite and accessories. **Introducing: Color Graphics System, an add-on unit to the IPS Weather Satellite Recorder. It enhances the weather satellite images with three functions from memory for instant playback: color political boundaries; color and land and water; interactive addition of freehand notations and lettering right on the satellite images.** BOOTH 1908.

INMARK—BOOTH 329.

INNOVATIVE TELEVISION EQUIPMENT—Studio and ENG cameras and accessories; microwave, STL, and remote pickup equipment; pedestals, tripods and heads. **Introducing: Fluid heads; tripods; portable counterbalance pedestal for EFP applications.** BOOTH 1405.

INOVONICS—Audio automation systems; limiters and compressors; noise reduction systems; processing and

equalizing equipment; audio reel-to-reel recorders. BOOTH 214.

SEE AD ON PAGE 140

INTEGRATED SOUND SYSTEMS—Audio consoles; special effects equipment; processing and equalizing equipment; time compressor. **Introducing: Broadcast-quality time compressor suitable for music and voice; stereo-compatible version for FM broadcasting.** BOOTH 2013.

INTERAND—Weather computer systems; electronic slides; video special effects equipment and generators; electronic animation slides. **Introducing: Telestrators for video art and animation including Auto-Probe electronic trajectory systems for moving and coloring all video sources via stylus.** BOOTH 929.

INTERNATIONAL TAPETRONICS—Cart machines and accessory equipment; audio reel-to-reel recorders; library storage device. **Introducing: Reel-to-reel recorders and recorder/reproducers (the 770 Series).** BOOTH 501.

JAM CREATIVE PRODUCTS—BOOTH 121.

JATEX—Edit code generators and receivers; video editors; encoders and decoders; video remote controls; time code equipment. **Introducing: A-B roll editing controller; rack-mounted color bar generator, full and split field display; rack-mounted black burst generator.** BOOTH 1639.

JEFFERSON DATA SYSTEMS—Character generators; business and newsroom computer systems; software for sales, traffic, general accounting, and newsroom systems. **Introducing: In-station sales/traffic and general accounting system that runs on an IBM 34 computer; electronic news processing (ENP), an in-station computer for television and radio news department.** BOOTH 1613.

JENEL CONSULTANTS—Audio and video automation systems; newsroom computer systems; earth station equipment and services; satellite distribution services; vans and ladder vehicles; consulting engineers. **Introducing: Architectural services.** BOOTH 1813.

JENSEN TOOLS—Tool kits. BOOTH 1833.

KALAMUSIC—Program services. BOOTH 128B.

KAMAN SCIENCES/BCS—Business and newsroom computer systems. BOOTH 1419.

KAPPA SYSTEMS—BOOTH 202S.

KINGS ELECTRONICS—Coaxial and triaxial connectors; video patch panels. BOOTH 1026.

KLIEGL BROS.—Lights and lighting accessories; lighting control systems. **Introducing: Studio, location and remote lighting and control equipment; portable lighting kits; Kliegpac 9 portable dimming systems; Klieglights 1550 series; TV fresnels; Performer; Performer II; and Command Performance memory lighting control systems.** BOOTH 923.

KNOX VIDEO PRODUCTS—Character generators. BOOTH 1033.

LPB—Amplifiers, pre-amps, DA's; audio consoles; AM, FM, TV exciters; limiters and compressors; AM & FM transmitters; turntables and accessories. **Introducing: Citation Series 8 x 10 mixer dual stereo audio consoles, with mono mixdown, clock, timer, reference oscillator options available.** BOOTH 402.

SEE AD ON PAGE 96

LTM CORP. OF AMERICA—Battery packs, belts and chargers. BOOTH 1016.

L-W INTERNATIONAL—Film projectors and cameras; film chain equipment. BOOTH 939.

LAIRD TELEMEDIA—Character generators; film chain equipment. **Introducing: high-resolution character generator; video pointer.** BOOTH 901.

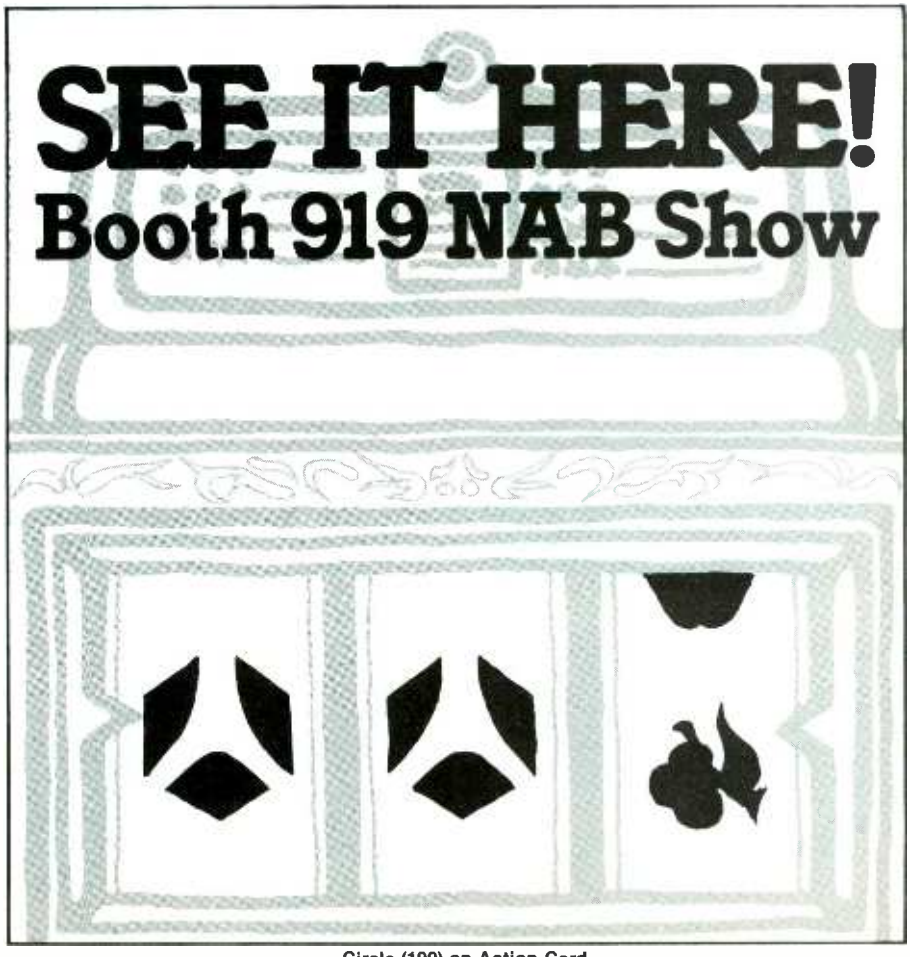
SEE AD ON PAGE 118

LANDY ASSOCIATES—Character generators. BOOTH 1102.

JAMES B. LANSING SOUND—Studio monitors; microphone mixer. BOOTH 203.

LeBLANC & ROYLE COMMUNICATIONS TOWERS—Antennas, transmis-

Continued on page 166



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Specialists in radio station studio control consoles

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- AC-8: eight channel
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TEST SIGNAL GENERATOR — SOURCE IDENTIFIER

TS-1

Our TS-1 is the smallest source of NTSC split field color bars and audiotone. It works on AC or battery. Price starts at $900.00 and many options are available.

TS-3

Our TS-3 produces NTSC color bars, black burst, a fixed line of typing and audio flatness test. Through the keyboard the instrument can be made to type on the screen; sweep the audio at 100 different rates; produce a tape leader countdown, and a lot more. Special logos can be preprogrammed. All graphics can be keyed over an external input. An audio/video bypass switch allows fast changeover from test to program. This unit is also available in standard rack mount configuration 13¾" x 19".

MULTIDYNE ELECTRONICS
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LOCUST VALLEY, NY 11560
(516) 671-7278

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sion lines, towers, and lights; earth station equipment and services. BOOTH 1319.

LEE-RAY INDUSTRIES—BOOTH 1707.

LEITCH VIDEO—Amplifiers, pre-amps, DA's; processing and equalizing equipment; video test generators; video signal enhancement and correction equipment; master clock and clocks. **Introducing: Digital video test signal generator; NTSC video processing amplifier; SPG140P PAL sync generator; APU170 PAL automatic phasing unit; FR660 and FR661 six-output DA frames and DA's.** BOOTH 1212.

LEMO USA—Audio components and hardware; video components and hardware. **Introducing: Triaxial TV camera connectors; stereo and mono audio patch panels.** BOOTH 1000.

LENCO, ELECTRONICS DIVISION—Amplifiers, pre-amps, DA's; encoders and decoders; processing and equalizing equipment; routing switchers; video test generators; video monitoring, measuring, and timing equipment; video monitors. **Introducing: Videoscope (to certify and time a television system); encoder (encodes RGB to NTSC); color monitor, 14-inch VTR bridge and lab monitor.** BOOTH 1206.

SEE AD ON PAGE 129

LEXICON—Digital effects equipment; audio special effects equipment and generators; audio time compressor. **Introducing: Audio time compressor, allowing playback of recorded audio and video tape and film faster or slower without altering the original pitch and retaining broadcast-quality sound.** BOOTH 206.

LIBIN & ASSOCIATES— Sanyo electrical products; Tri-flex indoor equipment. BOOTH 339S.

LIGHTNING ELIMINATION ASSOCIATES—Lightning protection systems; power line surge eliminators. **Introducing: Surge eliminators for coaxial systems and transmission lines; guy charge dissipation chokes.** BOOTH 317.

LISTEC TELEVISION EQUIPMENT—Audio components, tubes, and hardware; pedestals, tripods, and heads; video promoters. **Introducing: Studio pedestal for EFP-type cameras; counterbalanced remote dolly for field cameras; ENG pan and tilt heads.** BOOTH 1027.

LIVE SOUND—Program services; syndicated music sales and production aids. **Introducing: Country Beautiful.** BOOTH 127.

LOGICA—Digital effects equipment; video editors; teletext systems. **Introducing: Context, a range of teletext systems providing enhanced editing, subtitling, page storage, archiving, and other features; Paintbox, a TV graphics system using tablet and stylus.** BOOTH 175S.

LOGITEK ELECTRONIC SYSTEMS—Amplifiers, pre-amps, DA's; timing equipment; audio consoles; accessories. **Introducing: Audio distribution amplifiers; Bright-VU LED audio displays.** BOOTH 136.

SEE AD ON PAGE 156

LOWEL-LIGHT—Lights and lighting accessories. **Introducing: Space Clamp mounting device; Grand Stand; Screw-In Stud; Roll Up Carrier.** BOOTH 1004.

LYON LAMB—BOOTH 439S.

McCURDY RADIO INDUSTRIES — Amplifiers, pre-amps, DA's; audio consoles; processing and equalizing equipment; remotes audio equipment; routing switchers; turntables and accessories. **Introducing: SS8900 Series television audio production console; SS9800 Series radio air and production consoles.** BOOTHS 308 and 113.

SEE AD ON INSIDE FRONT COVER

McMARTIN INDUSTRIES—Amplifiers, pre-amps, DA's; AM stereo generators; FM antennas; audio monitoring, measuring, and timing equipment; audio consoles; earth station equipment and services; encoders and decoders; AM, FM, TV exciters; FM stereo generators; limiters and compressors; microwave, STL and remote pickup equipment; modulators and demodulators; processing and equalizing equipment; remotes audio equipment; SCA equipment; turntables and accessories; AM and FM transmitters. **Introducing: 50 kW AM transmitter.** BOOTH 300.

3M COMPANY, MAGNETIC TAPE—Audio tape and accessories. BOOTH 815.

SEE ADS ON PAGES 15, 71

3M COMPANY, VIDEO PRODUCTS

Digital effects equipment; character generators; video special effects equipment and generators; routing switchers; VTRs; digital audio mastering system. BOOTH 815.

MCI—Audio consoles; audio reel-to-reel recorders; video/audio synchronizers. **Introducing: Audio mixers for broadcast and production use.** BOOTH 133.

MCI/QUANTEL—Digital effects equipment; video special effects equipment and generators; time base correctors; synchronizer/TBC; still/slide store (digital). **Introducing: Digital framestore synchronizer/TBC, a full function synchronizer/TBC packaged in 1¾-inch and featuring production freeze capability, heterodyne TBC, automatic non-phase detection; digital library system; digital still/slide store, storing 340 pictures on each Winchester-type disk drive.** BOOTH 1207.

SEE AD ON PAGE 17

MAGNASYNC/MOVIOLA—Film chain equipment. **Introducing: Film-to-tape transfer systems.** BOOTH 1825.

MAGNUM TOWERS—Fabrication of radio and TV towers and related hardware. BOOTH 324.

MARCOM—FM stereo generators manufactured by C. N. Rood. BOOTH 214.

SEE ADS ON PAGES 160, 161

MARCONI ELECTRONICS—Studio cameras and accessories; slow-motion replay equipment; time base correctors; AM, TV transmitters; video monitoring, measuring, and timing equipment; VTRs. BOOTH 927.

MARTI ELECTRONICS—Limiters and compressors; microwave, STL and remote pickup equipment; microphones; SCA equipment. **Introducing: 30-channel all-digital remote control system; transmitter-studio links; portable remote pickup equipment.** BOOTH 307.

MATRIX INFORMATION SYSTEMS—Newsroom and business computer systems. **Introducing: Data General installed traffic/billing/accouting computer systems; self-installed traffic/billing software for most CP/M microcomputers; music rotation software and systems; call-out music research software and systems.** BOOTH 152.

MATTHEWS STUDIO EQUIPMENT—Location and stage equipment for lighting and camera control; lighting control systems. **Introducing: The Tulip Crane; The Video Mini-Jib; The Mini-Vator.** BOOTH 1806.

MAXELL CORPORATION OF AMERICA—Audio and video tape and accessories. BOOTH 1832.

MEDIA SERVICE CONCEPTS—Computer systems; program services. **Introducing: RECALL, a microcomputer software package for use in radio station ratings analyses.** BOOTH 227S.

MERLIN ENGINEERING WORKS—Audio monitoring; time base correctors; VTRs. **Introducing: Ultra-wideband VTR; conversion to Sony and Ampex 1-inch Type C VTR.** BOOTH 1128.

MICMIX AUDIO PRODUCTS—Reverberation and signal processing devices. **Introducing: Master-Room reverberation system; signal processing devices for radio and television.** BOOTH 406.

MICRO COMMUNICATIONS—Antennas and transmission lines; FM, UHF antennas. **Introducing: Low-power diplexers and combiners for VHF, UHF, and MDS power levels (10 watts, 100 watts, 1 kW); low-power antenna for VHF; high-power UHF waveguide switches (3-, 4- and 5-port).** BOOTH 1108.

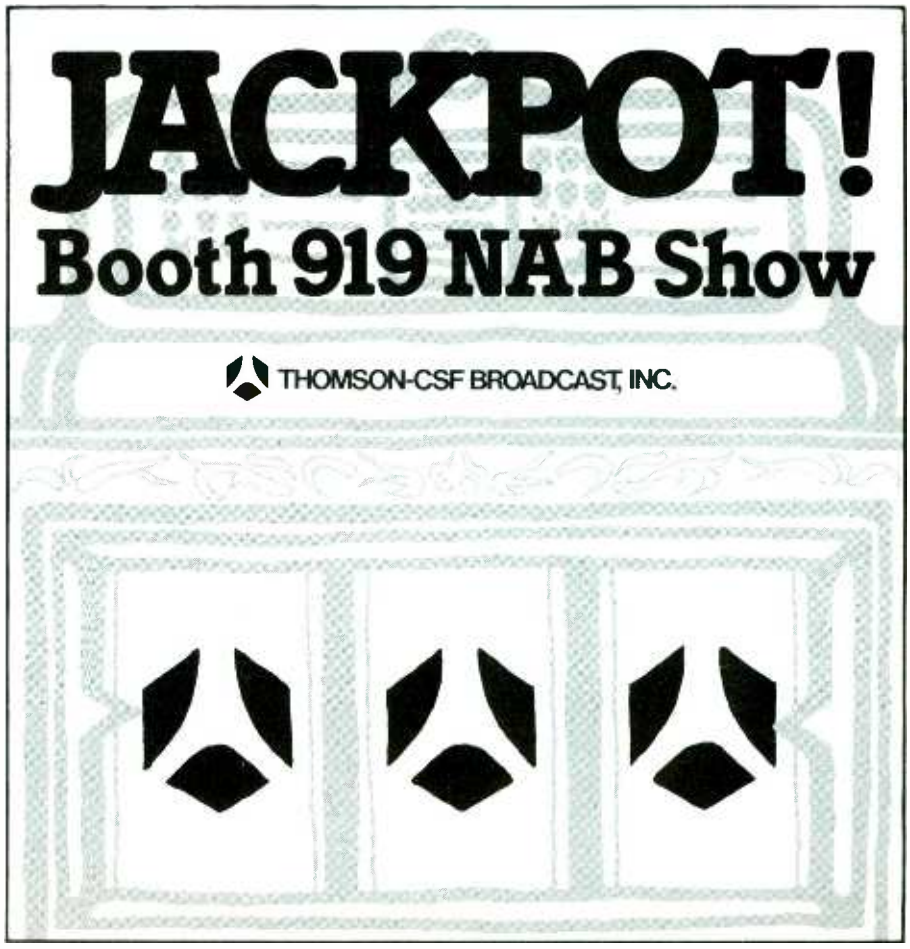
MICRO CONTROL ASSOCIATES—Microwave and STL; transmitter remote control. **Introducing: Transmitter remoe control system.** BOOTH 310.

MICRODYNE—Antennas; earth station equipment. BOOTH 1317.

MICROPROBE ELECTRONICS—Audio automation systems. **Introducing: Control-3, a random select mini-programmer for carousels, instacarts, or go carts. Use by itself or with your present automation system.** BOOTH 408.

MICROTIME—Noise reduction systems; frame store synchronizers; video special effects equipment and generators; time

Continued on page 168



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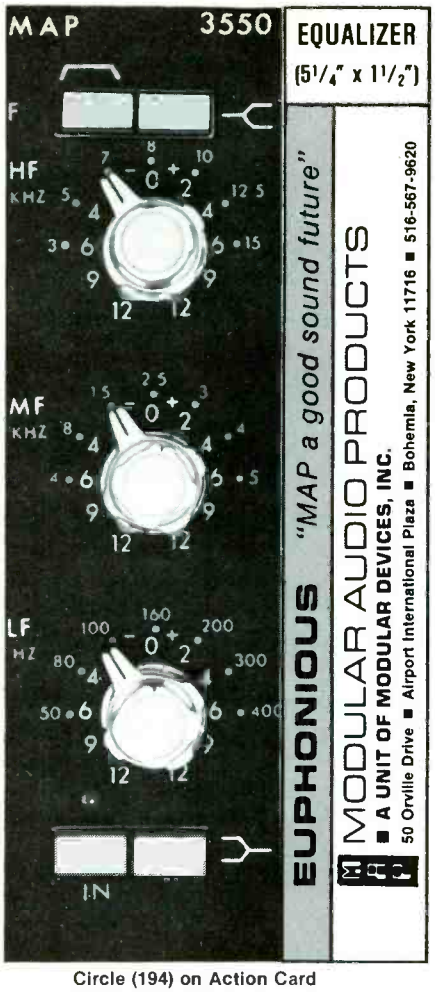

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Your answer: NORTH HILLS ultra-wideband isolation transformers.

We have a comprehensive line of standard models, designed for —

- 75 ohm coax and 124 ohm balanced video lines with flat frequency and linear phase characteristics over video range.
- High-frequency 50 and 75 ohm coax pulse transmission systems in 1:1 and 50 to 75 ohm adapter versions.
- 10 kV isolation in public utility data transmission with 6 kHz to 2.5 MHz bandwidth in 75 ohm coax, 124 ohm balanced line and hybrid versions.

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base correctors; video signal enhancement and correction equipment; automatic VTR program controllers. BOOTH 1409.

MICRO-TRAK—Amplifiers, pre-amps, DA's; audio components, tubes and hardware; cartridges and tone arms; audio consoles; headphones, speakers/intercoms; audio reel-to-reel recorders; turntables and accessories. **Introducing: M Series furniture line; 6411 stereo phono preamplifier.** BOOTH 508.

SEE AD ON PAGE 156

MICROWAVE ASSOCIATES COMMUNICATIONS—Earth station equipment and services; helicopters and tracking systems. **Introducing: New generation helicopter ENG systems, including mini microwave transmitters, retractable mounts for helicopters, and advanced optical systems; new portable and miniportables for the 2.0 GHz, 2.5 GHz 7.0 GHz, 13 GHz, and 15 GHz broadcast microwave bands; new satellite systems, including HPA, uplink exciter, earth station antennas, and frequency agile and single frequency satellite receivers; computerized monitoring and remote control systems for ENG, satellite, and broadcast facilities; operator-controlled and automatic tracking ENG antenna systems.** BOOTH 1401.

SEE AD ON PAGE 45

MIDWEST CORPORATION—Vans and ladder vehicles; mobile EFP vans; mobile ENG vans. BOOTH 1829.

SEE AD ON PAGE 157

MOLE-RICHARDSON—BOOTH 1008.

KEITH MONKS (AUDIO)—Record cleaning machine; powered monitor with speakers; impedance meters; phase testers. BOOTH 509S.

MOSELEY ASSOCIATES—Antennas, transmission lines, tower and lights; earth station equipment and services; AM, FM, TV exciters; FM stereo generators; microwave, STL and remote pickup equipment; modulators and demodulators; processing and equalizing equipment; video remote controls; remotes audio equipment; SCA equipment; radio remote control and supervisory control systems. **Introducing: Microprocessor-based supervisory control system featuring executive action capability, multiple site capability, user-defined software, alphanumeric clear text display.** BOOTH 505.

SEE AD ON PAGE 142

MOTOROLA—Microwave, STL, and remote pickup equipment; land mobile communications sytems; RF test equipment. **Introducing: Syntor frequency-synthesized mobile radio.** BOOTH 318.

MUSICWORKS—Program services; syndicated music sales and production aids. BOOTH 323.

NEAS—Audio and video automation systems; business computer systems. **Introducing: Total television broadcast automation.** BOOTH 220S.

NEC AMERICA—DA's; ENG cameras and accessories; digital effects equipment; chroma keyer; earth station equipment; video editors; FM, TV exciters; frame store synchronizers; microwave, STL and remote pickup euipment; video special effects equipment and generators; video and routing switchers; time base correctors; FM transmitters; VTRs. BOOTH 1301.

SEE AD ON PAGE 111

NTI AMERICA—BOOTH 600S.

NADY SYSTEMS—Microphones. **Introducing: VHF 610 mini-receiver systems for film and video production.** BOOTH 1839.

NAGRA MAGNETIC RECORDERS—Audio reel-to-reel recorders; audio tape and accessories; time code equipment; weather instruments, radar and accessories. **Introducing: Recorders with SMPTE time code.** BOOTH 510.

NEAL FERROGRAPH (USA)—Audio reel-to-reel recorders; audio test generators; recorder test sets; cassette recorders. BOOTH 504S.

S. DAVID NESS STUDIOSBOOTH 404S.

NETWORK PRODUCTION MUSIC LIBRARY—Production music library. BOOTH 1615.

NEWSCAN/McINNIS-SKINNER & ASSOCIATES—Newsroom and weather computer systems. **Introducing: Weathergraphics®, a high-performance graphics system designed for broadcast television featuring high-resolution, large color selection, automatic display of current weather data, operator input using keyboard and graphic tablet, access via telephone**

to Weatherscan International data base, availability as stand-alone system or Newscan module. BOOTH 720S.

NIDUS BROADCAST SYSTEMS—Broadcast business computer systems. BOOTH 432S.

NORTRONICS—Audio and video accessories; replacement magnetic tape heads. **Introducing: Performance Series, including head cleaners, demagnetizers, bulk erasers, splicing blocks and tabs, alignment tapes, and head lapping kit.** BOOTH 401.

FRED A. NUDD CORPORATION—Antennas and towers. BOOTH 178S.

NURAD—Amplifiers and pre-amps; antennas, transmission lines, and towers; ENG battery packs; microwave, STL and remote control equipment. BOOTH 1400.

NYTONE ELECTRONICS—Film chain equipment. BOOTH 1702.

OAK COMMUNICATIONS—Encoders and decoders; program services; teletext equipment. **Introducing: Sigma improved security decoders for full-power and low-power STV operations; Orion satellite security system.** BOOTH 1517.

O'CONNOR CREATIVE SERVICES—Program services; syndicated music sales and production aids. BOOTH 115.

O'CONNOR ENGINEERING—Pedestals, tripods, and heads. BOOTH 1122.

OKI ELECTRIC OVERSEAS— BOOTH 1801.

OKTEL—Electronic slides; video disc recorders. BOOTH 1715.

SEE AD ON PAGE 110

OLESEN—Lights and lighting accessories; lighting control systems; rigging, track, studio layout; cyc and studio drapery. BOOTH 1411.

OPTEK—Tape degausser. **Introducing: SCA paging receiver.** BOOTH 1725.

ORBAN ASSOCIATES—Limiters and compressors; FM stereo generators; processing and equalizing equipment; audio special effects equipment and generators; stereo synthesizer; equalizer; de-essers. BOOTH 411.

SEE AD ON PAGE 119

ORROX—BOOTH 1209. (See CMX Systems/Orrox listing.)

SEE AD ON PAGE 68

ALLEN OSBORNE ASSOCIATES—Towers. **Introducing: Pneumatic telescopic masts.** BOOTH 206S.

OSRAM SALES—Lights. BOOTH 301S.

OTARI CORPORATION—Audio reel-to-reel recorders; duplicators; videocassette loaders. **Introducing: 5050 BQ series 2 professional ¼-inch 4-channel recorder; MTR-10 series professional 2- and 4-channel production/mastering recorder.** BOOTH 503.

SEE AD ON PAGE 87

PACE INC.—Repair systems for electronic printed circuit boards. **Introducing: Portable PCB repair system for field service applications weighing only 4½ pounds and operating on AC or 12 VDC power.** BOOTH 1028.

PACIFIC RECORDERS & ENGINEERING—Audio consoles; cart machines; routing switchers; studio cabinetry. BOOTH 511.

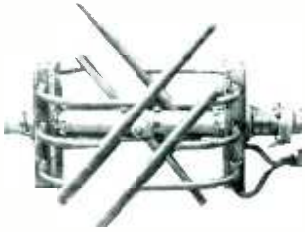
PANASONIC, PROFESSIONAL AUDIO DIVISION—Amplifiers, pre-amps, DA's; audio components; audio monitoring equipment; cartridges and tone arms; audio consoles; headphones and speakers; audio reel-to-reel recorders; turntables and accessories. **Demonstrating: Two demonstration modules will feature Technics and Ramso products. One demonstration includes the Technics SL-1015 and SL-1025 turntables and the EPA-500 tonearm, playing through a Ramsa WR-130 8x2 portable mixer and Ramsa microphones, with a 200-watt sound reinforcement amplifier (model WP-9210) and two Technics R&B series honeycomb speakers featuring the SB-10 leaf tweeter. Also: a new analog professional tape recorder (Technics model RS-10A02) and a digital cassette tape recorder (model SVP-100) playing through a 10x4 recording mixer (model WR-8210), the 9210 amplifier and two SB-7 speakers. Panasonic will also show the WR-8816 16x4 recording mixer and the WR-8716 sound reinforcement mixer.** BOOTH 600.

SEE AD ON PAGE 101

PANASONIC, VIDEO SYSTEMS—Studio

Continued on page 170

SHIVELY LABORATORIES CIRCULARLY POLARIZED FM ANTENNAS



MODEL 6814 25KW PER BAY

MODEL 6810 10KW PER BAY

MODEL 6813 3KW PER BAY

MODEL 6811 1 KW PER BAY

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(207) 647-3327

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and ENG cameras and accessories; video editors; microphones; video special effects equipment and generators; video switchers; video monitors; VTRs. **Introducing: Color video cameras; video editing equipment.** BOOTH 1521.

PARSONS MFG. COMPANY—Carrying and shipping cases; sales demo; field services. BOOTH 406S.

PATRICK COMPUTER SYSTEMS—BOOTH 171.

PEP INC.—BOOTH 1006.

PERROTT ENGINEERING—Battery packs, belts and chargers. BOOTH 1023.

SEE ADS ON PAGES 100, 105

PETERS PRODUCTIONS—Syndicated music sales and production aids; total image concepts, including video animation for radio, TV and cable system promotions. **Introducing: All Star Country, 24-hour format in stereo; custom promotion plans for radio, TV, and cable systems; custom and syndicated jingles for radio, TV, and cable systems.** BOOTH 305S.

PHELPS DODGE—FM antennas; transmission lines. **Introducing: Mobile communications antennas.** BOOTH 112.

PHILIPS BROADCAST EQUIPMENT—Studio and ENG cameras and accessories; film chain equipment; modulators and demodulators; video switchers; video test generators; time base correctors; TV transmitters; video monitoring, measuring, and timing equipment; VTRs. **Introducing: LDK-14S (latest version of LDK-14 for EFP, studio, ENG); 20-foot mobile van, "Production Studio on Wheels" with complete three-camera production system; LDM-1233 10 kW band 11 FM transmitters (first radio transmitter from Philips).** BOOTH 807.

SEE AD ON PAGE 29

THE PHOEBUS CORPORATION—Lights and lighting accessories. **Introducing: Ultra-arc long- and short-throw follow spots.** BOOTH 521S.

PORTA-PATTERN—Film chain equipment; pattern signal generators; video monitoring, measuring, and timing equipment. **Introducing: Full-field color bar chart; application-matched subjective color test reference system; multiple chart storage case.** BOOTH 1325.

POTOMAC INSTRUMENTS—Antenna monitors; ATS equipment; audio monitoring, measuring, and timing equipment; audio test generators; field strength meters; RF test equipment. **Introducing: Low-distortion, frequency synthsized AM monitor receiver; directional antenna parameter processor and logger.** BOOTH 109.

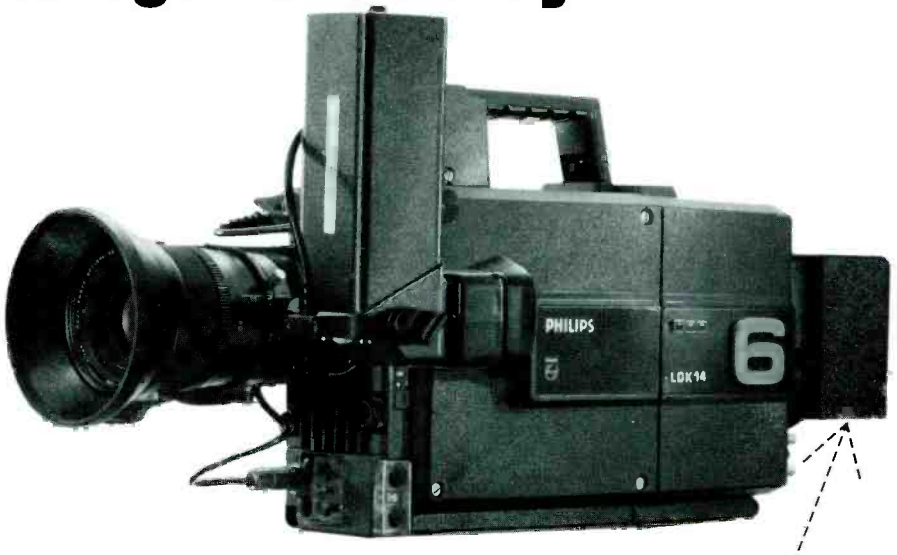
SEE AD ON PAGE 136

POWER OPTICS—BOOTH 1017A.

PROCART—Audio carts. BOOTH 315.

PROTECH AUDIO—Amplifiers, preamps, DA's; audio automation systems; audio consoles; headphones, speakers/intercoms; limiters and compressors; processing and equalizing equipment. **Introducing: Automation tone sensor (25 Hz); 1¾-inch self-contained rack-packaged devices; audio**

Behind every great camera is a great battery



Philips new LDK-14S Camera

The years-ahead, 2/3-inch field and studio camera is now greater than ever. Greater sensitivity, greater flexibility, greater value. Plus, the LDK-14S offers several design advantages for battery operation: • Provides remote control capability when operating from battery (snap-on or battery belt) for studio control in EFP. • Exclusive flat bottom design allows positioning of shoulder brace for proper balance with or without snap-on battery. • snap-on mount for battery pack is compatible with Philips triax adaptor mount for quick conversion.

A great camera, like the Philips LDK-14S, deserves a great battery. The battery Philips selected as standard equipment on their camera is an Anton/Bauer Snap-On™, the same battery selected by every major camera manufacturer.

The engineers who designed the Philips LDK-14S demanded the best power source available. When you buy your next battery can you afford anything but the best?

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Circle (152) on Philips on Action Card

DA's; headset intercom systems; PC card; amplifiers and accessories. BOOTH 123.

SEE AD ON PAGE 36

Q

QEI—BOOTH 417.

QSI SYSTEMS—Character generators; encoders and decoders; modulators and demodulators; time code equipment. **Introducing: Color bar generators with video source identification; 6x1 utility video distribution amplifier with gain and equalization controls; new video source identification boards; 10-second countdown timer; numerical video slate; master clock systems with time and temperature displays.** BOOTH 1603.

Q-TV—Prompters. **Introducing: Virtual Image VideoPrompTer featuring 5-inch monitor with magnifier thru-the-lens viewing; Mini Q Prompter for on-location prompting.** BOOTH 907.

QUAD EIGHT ELECTRONICS—BOOTHS 300S, 302S, 304S.

QUICK-SET—Pedestals, tripods, and heads. BOOTH 1012.

QUINTEK—Amplifiers, pre-amps, DA's; digital effects equipment; frame store synchronizers; processing and equalizing equipment. **Introducing: Synchronizer; revergeration module for advanced music systems; disc mastering preview digital delay.** BOOTH 1959.

R

R-COLUMBIA PRODUCTS—Headphones and intercoms; microphones. **Introducing: FM wireless intercom headphones with base stations that allow interface with existing "hard wired" intercom systems.** BOOTH 1703.

RCA AMERICAN COMMUNICATIONS—Satellite distribution services. BOOTH 700.

RCA BROADCAST SYSTEMS—FM antennas; VHF, UHF antennas; studio and ENG cameras and accessories; film cameras and projectors; cart machines and accessory equipment; audio consoles; video editors; film chain equipment; time base correctors; AM, FM, TV transmitters; VTRs. **Introducing: Power level moduls of the TTG Series of VHF transmitters.** BOOTH 700.

RCA SOLID STATE—BOOTH 700.

RF TECHNOLOGY—Antennas, transmission lines, towers, and lights; helicopter and tracking systems; microwave, STL and remote pickup equipment; modulators and demodulators; wireless microphones. **Introducing: Ultra miniature, high-power microwave transmitter for ground or airborne applications; handheld 950 MHz wireless microphone.** BOOTH 1624.

RPM (RADIO PROGRAMMING/MANAGEMENT)—Radio format syndicator. BOOTH 333.

RTNDA—BOOTH 150.

RTS SYSTEMS—Amplifiers, pre-amps, DA's; battery packs, belts, and chargers; intercoms; microphones. **Introducing: Microprocessor-assisted communications system; self-contained squawk system; dedicated line master station switchboard; TW intercom power supply; 24-channel dry line intercome system; 26-output source assignment panel; connector distribution panels; cosmetics for the entire line.** BOOTH 1525.

RADIO COMPUTER SERVICES—Music programming, newsroom, and call-out research computer systems. **Introducing: The News Machine, a complete news system; traffic system for radio; accounting system.** BOOTH 184S.

RAMKO RESEARCH—Amplifiers, pre-amps, DA's; cart machines and accessory equipment; audio consoles; speakers; limiters; audio reel-to-reel recorders; remotes audio equipment; routing switchers; turntables and accessories. **Introducing: Phasemaster cart machine.** BOOTH 146.

RAMTEK—Business and newsroom computer systems; encoders and decoders; video monitors. **Introducing: Complete line of raster scan color graphics and imaging display systems; 6214 color graphic computer with many broadcast applications, such as special effects, titles, election news coverage, and mapping.** BOOTH 434S.

Continued on page 172

The moving coil replacement from Stanton Magnetics... the revolutionary 980LZS!

Now, a low impedance pickup that offers all the advantages of a moving magnet cartridge without the disadvantages of a moving coil pickup. It offers a dramatic new crispness in sound, a new crispness resulting from its rise time of less than 10 micro seconds. Low dynamic tip mass (0.2 mg.) with extremely high compliance assures maximum smooth trackability. The 980LZS connects to either a moving coil input or a separate preamp.

For moving coil advocates the 980LZS offers a new standard of consistency heretofore unattainable. For moving magnet audiophiles it provides one more level of sound experience *without* sacrificing the great reliability and sound characteristics of the best moving magnet assemblies.

For further information write to Stanton Magnetics Inc., Terminal Drive, Plainview, N.Y. 11803

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See Us in Booth 118A

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RANGERTONE—Film projectors; film chain equipment; audio reel-to-reel recorders. **Introducing: 16mm telecine projector; 35mm telecine projector; film sound recorder with digital interlock.** BOOTH 506S.

RECORTEC—Video automation systems; video remote controls; VTRs; tape evaluators; cleaners; videotape timers. **Introducing: Long Play Attachment (LPA), reel-to-reel tape transport to provide 9-hour record and playback times for ¾-inch videocassette recorders (provides 3-hour record and playback times for the Recortec HBU-2860 high-band U-format recorder).** BOOTH 1200.

GORMAN REDLICH MFG. CO.—Antenna monitors; encoders and decoders; weather instruments, radar and accessories. **Introducing: Digital antenna monitor with digital output for remote control; weather receiver.** BOOTH 173.

REES ASSOCIATES—Architectural/engineering services; master planning (architectural) existing and new facilities; additions/renovations to existing facilities. BOOTHS 623S.

SEE AD ON PAGE 112

RESEARCH TECHNOLOGY—Film chain equipment; videotape and accessories; video tape rewinders and cleaning equipment. **Introducing: Videotape evaluators, cleaners, and high-speed rewinders for ½-inch and ¾-inch tape formats.** BOOTH 1112.

ROH CORPORATION—Amplifiers, pre-amps, DA's; intercoms; routing switchers. **Introducing: Intercommunications equipment line featuring intercom, interphone and IFB.** BOOTH 107S.

ROHDE & SCHWARZ—Encoders and decoders; microphones; modulators and demodulators; video test generators; AM, FM, TV transmitters; video monitoring, measuring, and timing equipment; video monitors. **Introducing: Modulator with saw filter; complex two-line comb filter.** BOOTH 1110.

SEE AD ON PAGE 91

C. N. ROOD—FM stereo generators. BOOTH 214.

ROSCO LABS—BOOTH 1039.

ROSS VIDEO—Video switchers. BOOTH 1812.

RUPERT NEVE—Amplifiers, pre-amps, DA's; audio automation systems; audio consoles; headphones, speakers, intercoms; limiters and compressors; processing and equalizing equipment; audio reel-to-reel recorders; audio special effects equipment and generators. **Introducing: Fully operational post-production audio automated sweetening system, NECAM II.** BOOTH 1203.

RUSSCO ELECTRONICS—Amplifiers, pre-amps, DA's; cartridges and tone arms; audio consoles; remotes audio equipment; turntables and accessories. **Introducing: Dial-up telephone line sport remote equipment; telephone line equalizing equipment (audio).** BOOTH 207.

SEE AD ON PAGE 146

SWR—Antennas; transmission lines; UHF, VHF antennas; RF switches. BOOTH 1626A.

SACRED SOUNDS—Program services; syndicated music. BOOTH 624S.

SAKI MAGNETICS—Magnetic tape heads. **Introducing: Sakalloy long-life audio posts for Ampex and RCA 2-inch video machines; single crystal recording heads for high-speed duplicators; long-life ferritte heads for most major professional studio recorders; metal heads for Stephens and Mincom machines.** BOOTH 331.

SCIENTIFIC ATLANTA—Earth station equipment and services; modulators and demodulators. **Introducing: Low-cost broadcast receiver.** BOOTH 1119.

SENNHEISER ELECTRONICS—Microphones. BOOTH 508S.

SESCOM—Amplifiers, pre-amps, DA's; audio components, tubes and hardware; processing and equalizing equipment; remotes audio equipment. BOOTH 905.

SHARP ELECTRONICS—Battery packs and chargers; studio and ENG cameras and accessories; lenses; video remote controls; video monitors and receivers; VTRs. **Introducing: ENG/EFP color camera system; portable ½-inch VHS VTR.** BOOTH 1121.

SHINTRON—Amplifiers, pre-amps, DA's; character generators; chroma keyer; edit code generators and receivers; video special effects equipment and generators; video switchers; time code equipment; video monitors. **Introducing: 9-inch color monitor; switchers; portable time code reader.** BOOTH 1107.

SHIVELY LABS—FM antennas; transmission lines; diplexers; multiplexers; combiners; filters; pressurization equipment. **Introducing: Complete line of pressurization equipment to enhance antenna systems, with automatic regenerative and manually reactivated units available.** BOOTH 128A.

SEE AD ON PAGE 169

SHURE BROTHERS—Cartridges and tone arms; audio consoles; microphones. BOOTH 107.

SEE AD ON PAGE 44

SIGMA ELECTRONICS—DA's; processing equipment; video test generators; video signal enhancement and correction equipment; sync generators. **Introducing: Modular DA systems; black burst generator.** BOOTH 1602.

SEE AD ON PAGE 116

SIMMONS MARKET RESEARCH—Research. BOOTH 201S.

Our Beaucart MONITOR II speaks for itself

$800

The Beaucart Monitor II has its own built-in amplifier and speaker plus a headphone jack for private listening and a convenient front panel volume control, making it ideal for your NEWSROOM, CONTINUITY DESK, SALES OFFICE, PROGRAM DIRECTOR or anywhere you need to play cartridges without the inconvenience of an external amplifier and speaker. Flip a switch and the Monitor II is a conventional reproducer—ready to go on the air or feed a phone line. All these features—plus Beaucart's rugged reliability—at an affordable price.

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SINGER BROADCAST PRODUCTS—See Sintronic and CCA listings. BOOTHS 103 and 126.

SEE AD ON PAGE 103

SINTRONIC (Singer Broadcast Products)—AM and FM transmitter. **Introducing: 1200-watt MA transmitter, 535-1640 kHz, all solid-state, low-level stages; modulator and RF amplifier uses single tube type 4-500A high-level modulation, 125 percent peak capability.** BOOTH 126.

SEE AD ON PAGE 103

SKIRPAN LIGHTING SYSTEMS—Lighting accessories; lighting control systems. **Introducing: Autocue/80, visible memory lighting control; Cuelog, computerized memory lighting control; MCP, modular control panels for dimming systems.** BOOTH 1525.

SKOTEL—Edit code generators and receivers; time code equipment; time code synchronizer; digital metronome. **Introducing: Modular time code synchronizer; digital metronome designed to synchronize the original music production with previously recorded film or videotape recordings.** BOOTH 1720.

SONO-MAG—Audio automation systems; cart machines, carts, and accessory equipment; loggers; audio tape and accessories. BOOTH 309.

SONY CORP. OF AMERICA—Audio monitoring, measuring, and timing equipment; studio and ENG cameras and accessories; digital effects equipment; edit code generators and receivers; video ¾-inch and 1-inch recorders; FM stereo generators; microphones; headphones, speakers/intercoms; processing and equalizing equipment; audio reel-to-reel recorders; slow-motion replay equipment; video special effects equipment; audio and video tape and accessories; time base correctors; time code equipment; turntables and accessories; video heads and refurbishing services; video monitors; video signal enhancement and correction equipment; ¾-inch and 1-inch VTRs. **Introducing: Latest technologies for broadcast and teleproduction.** BOOTH 1211.

SEE AD ON PAGES 6-7

SOPER SOUNDS—BOOTH 204S.

SOUND GENESIS—Amplifiers, preamps, DA's; audio analyzers; audio monitoring, measuring and timing equipment; cart machines and accessories; audio carts; audio consoles; edit code generators and receivers; headphones, speakers/intercoms; limiters and compressors; microphones; noise reduction systems; processing and equalizing equipment; audio reel-to-reel recorders; remotes audio equipment; audio special effects equipment and generators; audio tape and accessories; audio test generators; time code equipment; turntables and accessories. BOOTH 330S.

SOUND TECHNOLOGY—Audio analyzers; audio automation systems; FM stereo generators; audio test generators; tape recorder test system (with spectrum analyzer option); distortion analyzers. **Introducing: Option for the tape recorder test system; system for testing phono cartridge characteristics; FM alignment generator; test record for testing phono cartridges using the 1500A and the 1110A.** BOOTH 1132.

SPHERE ELECTRONICS—BOOTH 609S.

STAINLESS—Towers. BOOTH 1009.

SEE AD ON PAGE 146

STANTON MAGNETICS—Amplifiers, pre-amps, DA's; cartridges and tone arms; record care. **Introducing: Preamplifier for use with the Stanton 980LZS low-impedance cartridge. This booster amplifier is a low noise, battery-operated stereo amplifier designed to amplify signals produced to normal input levels required by conventional preamps. Also, RC4, "the quiet revolution in record care."** BOOTH 118A.

SEE AD ON PAGE 171

STANTRON (DIV. OF WYCO METAL PRODUCTS)—Cart machines and accessory equipment; audio carts; audio consoles. **Introducing: electronic cabinets and computer peripheral furniture; cooling base.** BOOTH 1828.

STATION BUSINESS SYSTEMS—Business automation systems; computer systems. **Introducing: Music Playlist and Inventory System (MPI) with full format and demographic controls built in (provides high-speed music selection and playlist printing for radio); Program Package Inventory (PPI) system for financial tracking and**

Continued on page 174

When accuracy Counts...Count on Belar for AM/FM/TV MONITORS

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program planning for TV film/tape packages. BOOTH 509.

STOREEL—Storage racks and cabinets. **Introducing: Double-entry set-up truck.** BOOTH 911.
SEE AD ON PAGE 162

STRAND CENTURY—Lights and lighting accessories; lighting control systems. **Introducing: CID Fresnel; Pulsar fiberglass floodlight; Polaris bambino 5" 1 kW fresnel; portable lighting kits; lighting equipment; lighting control consoles and portable dimmers; HMI softlite.** BOOTH 1204.

STUDER REVOX AMERICA—Amplifiers, pre-amps, DA's; audio monitoring, measuring, and timing equipment; audio consoles; edit code generators and receivers; audio reel-to-reel recorders; SMPTE synchronizers and editor for audio-video. **Introducing: ReVox PR 99 open-reel professional broadcast recorder reproducer, 2-track or mono versions available; ReVox PR 100 open-reel professional broadcast reproducer for automation sytems, 2-track or mono available; Studer B67 MKII open-reel professional reel recorder/reproducer (improved version of the well-established B67 MKI professional broadcast recorders); Studer 369 audio mixing console for complex production work while maintaining very compact dimensions (up to 32 inputs, 8 groups, 8 submasters, 2 stereo master outputs); Studer 900 series of broadcast consoles; ReVox B710 professional cassette recorder/reproducer featuring microprocessor-controlled deck and electronics.** BOOTH 602.
SEE AD ON PAGE 47

SWINTEK—Wirless microphones; full duplex communicators. **Introducing: Mark/50A-dbs/PZM transmitter; Mark 200/CPS series of full-duplex communicators.** BOOTH 1800.
SEE AD ON PAGE 104

SYLVANIA LIGHTING/GTE—Lights. BOOTH 909.

SYSTEM ASSOCIATES—Brokers for used broadcast equipment, with free listing of equipment you want to buy or sell in company flyer. BOOTH 1722.

SYSTEM CONCEPTS—Character generators; newsroom computer systems; automatic subtitling system. BOOTH 1305.
SEE AD ON PAGES 22-23

T.A. ASSOCIATES—BOOTH 224S.

TABER MFG. & ENGR.—Amplifiers; audio heads and refurbishing services. BOOTH 502.

WM. B. TANNER CO.—BOOTH 117.

TAYBURN ELECTRONICS—Earth station equipment and services; helicopter and tracking systems; microwave, STL, and remote pickup equipment; video remote controls. BOOTH 1708.

TEAC CORP. OF AMERICA—Audio reel-to-reel recorders. **Introducing: TASCAM Series 20 mixing system; 22-4 4-channel recorder; ½-track 2-channel recorder; multi-channel recorders and mixers; ½-track master recorders.** BOOTH 702S.
SEE AD ON PAGE 131

TEATRONICS—Lights and lighting accessories. BOOTH 1505.

TECH THEATRE—Lights and lighting accessories; lighting control systems; audio special effects equipment and generators; set construction materials. **Introducing: Location makeup kit for road and studio use.** BOOTH 1709.

TECHNICOLOR AUDIO VISUAL—BOOTH 1126.

TEKTRONIX—Audio analyzers; demodulators; audio and video test generators; vertical interval test sets; video monitoring, measuring, and timing equipment; video monitors; waveform monitors; vector scopes; color picture monitors. **Introducing: Large-screen, delta gun, dot shadow mask color monitor; digital storage oscilloscope; digital storage spectrum analyzer; waveform monitor; SMPTE color bars generator.** BOOTH 1111.

TELCOM RESEARCH—Edit code generators and receivers; time code equipment; remote transmitter monitoring equipment. **Transmitter monitoring and fault reporting system; very wide-range time code reader/character inserter; low-cost time code generator; low-cost time code reader; low-cost jam-sync time code generator; jam-sync master time code generator.** BOOTH 1824.

TELE-CINE—Camera accessories; lenses and lens services; lens rental. BOOTH 1114.

TELEMET—Amplifiers, pre-amps, DA's; audio monitoring, measuring, and timing equipment; encoders and decoders; AM, FM, TV exciters; signal generators; modulators and demodulators; processing and equalizing equipment; routing and video switchers; video test generators; video signal enhancement and correction equipment; fiber optic receiver and transmitter systems; thermal equalizers; isolation amps. BOOTH 1010.
SEE AD ON PAGE 125

TELESCRIPT—Video prompters. BOOTH 1025.

TELESOURCE COMMUNICATION—BOOTH 1810.

TELESCRIPT—Prompting systems. **Introducing: MDS-DP prompting system.** BOOTH 1025.

TELESTRATOR DIVISION—BOOTH 929.

TELEVISION ENGINEERING—BOOTH 1201.

TELEVISION EQUIPMENT ASSOCIATES—Amplifiers, pre-amps, DA's; headphones, intercoms; microphones; videotape and accessories; video components, tubes and hardware; video delays; video filters; tape evaluators. **Introducing: Video filter; intercom system.** BOOTH 1019.

TELEVISION PRODUCTS—Pedestals. **Introducing: Model P-80 full-size, state-of-the-art pneumatic camera pedestal.** BOOTH 409S.

TELEVISION TECHNOLOGY—UHF, VHF antennas; TV transmitters; TV, FM translators. **Introducing: 20-watt solid-state UHF translator.** BOOTH 1623.

TELEX COMMUNICATIONS—Pre-amps; audio automation systems; camera accessories; cart machines and accessory equipment; headphones, speakers/intercoms; microphones; audio reel-to-reel recorders; remotes audio equipment. **Introducing: Wireless microphones; lightweight cameraman's headset.** BOOTH 311.

TENNAPLEX SYSTEMS—BOOTH 343S.

TENTEL—Audio and video tape and accessories; tape tension gauge; run-time meters for pneumatic and Beta; spindle height gauge. **Introducing:**

Continued on page 179

Spindle height meters. BOOTH 1005.

TERRACOM—Earth station equipment and services; microwave, STL, and remote pickup equipment. BOOTH 1043.

THERMODYNE—Shipping cases. **Introducing: 19-inch rack-mounted cases for shipping and operating.** BOOTH 1627.

THOMSON-CSF BROADCAST—Amplifiers, pre-amps, DA's; studio and ENG cameras and accessories; character generators; chroma keyer; frame store synchronizers; noise reduction systems; time base correctors; video signal enhancement and correction equipment. **Introducing: Vidifont Graphics V.** BOOTH 919.
SEE ADS ON PAGES 163, 165, 167

THOMSON-CSF COMPONENTS—BOOTH 128.

TIFFEN MANUFACTURING—Special effect filters. BOOTH 1606.

TIME & FREQUENCY TECHNOLOGY—Microwave, STL, and remote pickup equipment; RF modulation and frequency monitors; EBS tone generators and decoders. **Introducing: E-Alert emergency receiver; Sucoscan microprocessor base data acquisition logging; alarm and remote control.** BOOTH 124.

TOSHIBA AMERICA, BROADCAST ELECTRONIC SYSTEMS DIVISION—Studio cameras and accessories; ENG cameras and accessories. **Introducing: ultralight, compact, self-contained portable ENG/EFP color camera that employs innovative digital and analog technology. Digital memory adapter; auto setup unit; digital and base stations; monitor/selector setup box; and Triax transmission system make this camera system extremely flexible.** BOOTH 1214.
SEE AD ON PAGE 3

TOWNSEND ASSOCIATES—UHF and VHF antennas. **Introducing: all-solid-state klystron mod anode pulser; low-power VHF and UHF transmitter.** BOOTH 1007.
SEE AD ON PAGE 109

TROMPETER ELECTRONICS— Audio components and hardware; video components and hardware. BOOTH 1124.

TWEED AUDIO USA—Amplifiers, preamps, DA's; audio consoles; routing switchers; remotes audio equipment. **Introducing: BC 102, 10-input channel stereo output portable audio mixer.** BOOTH 219.

UMC ELECTRONICS—Cart machines and accessory equipment; audio consoles; tape erasers. BOOTH 108.
SEE AD ON PAGE 172

ULTRA AUDIO PIXTEC—Amplifiers, pre-amps, DA's; audio consoles; lights and lighting accessories; lighting control systems; remotes audio equipment; routing switchers; audio and video test generators; video monitoring, measuring, and timing equipment. **Introducing: Vectorscope/WFM/Serviscope combination monitor; audio-follow-video routing switcher with tally and stereo, balanced audio; 7200-watt stage-lighting control systems with computer memory.** BOOTHS 1819 and 1505.

UNARCO-ROHN—Towers and lights. BOOTH 1021.

UNI-SET—BOOTH 1106.

UNITED MEDIA—Edit code generators and receivers; video editors. **Introducing: Commander II, an electronic video editor providing the latest computer technology with control of up to eight VTRs, either ¾-inch, 1-inch, or 2-inch; automatic switcher control of up to 3 M/E and audio with precise individual control of up to 999 frames; list management with clean list, including comments, block deletes, inserts, etc. Standard features include sync step, cut/list, auto/sync for built-in time code generator, selectable control track, automatic assembly, independent address track control, jog, and variable search control tailored to the individual video/audio tape recorders.** BOOTH 1711.
SEE AD ON PAGE 24

UNITED PRESS INTERNATIONAL—BOOTH 903.

UNITED RESEARCH LAB—Amplifiers; audio tape and accessories; audio reel-to-reel recorders; replacement parts. **Introducing: Auto-Sense, electronic motion sensing.** BOOTH 414.

UREI—Amplifiers; audio analyzers; audio consoles; processing and equalizing equipment. **Introducing: Power amplifiers (6500, 6400, 6250, 6150).** BOOTH 607S.

URSA MAJOR—BOOTH 414A.

U.S. INSTRUMENT RENTALS—Amplifiers, pre-amps, DA's; audio analyzers; audio and video automation systems; earth station equipment and services; FM stereo generators; pattern signal generators; microwave, STL, and remote pickup equipment; audio and video tape and accessories; audio test generators; vertical interval test sets; time base correctors; video monitoring, measuring, and timing equipment; video monitors; VTRs. **Introducing: Microwave Associates' equipment.** BOOTH 105S.

U.S. JVC CORPORATION—Studio and ENG cameras and accessories; video editors; slow-motion replay equipment; VTRs; video monitors. BOOTH 1519.

U.S. TAPE & LABEL—Pressure-sensitive labels, bumper strips, and inside window labels for the broadcast industry. BOOTH 407.

UTAH SCIENTIFIC—Routing switchers; video switchers. **Introducing: Metallic contact switching matrix, and a hard-copy printout device that records all switching events while flagging discrepancies and operator errors; new versions of a line of alphanumeric displays designed for recessed mounting in production switcher panels manufactured by others (with these displays, names of currently assigned sources are displayed adjacent to the production switcher buttons associated with assignable inputs).** BOOTH 1629.
SEE AD ON PAGE 117

UTILITY TOWER—Actual tower sections; lighting equipment; galvanized hardware. BOOTH 500.

V & B TOWER—Towers. BOOTH 320.

THOMAS J. VALENTINO INC.—Music library; sound effects library. **Introducing: '60s and '30s music library.** BOOTH 412.

VALTEC COMMUNICATION FIBEROPTICS—Fiber optic video system; fiber optic cable. BOOTH 1811.

VARIAN ASSOCIATES, EIMAC DIVISION—AM, FM, TV transmitters; camera and transmitting tubes. **Introducing: FM broadcasting cavity amplifiers (1.5 - 25 kW); solid-state ex-**
Continued on page 180

citers for FM broadcasting (150 watt); VHF TV cavity amplifiers; UHF cavity amplifiers. BOOTH 306.

SEE AD ON PAGE 81

VARIAN ASSOCIATES, MICROWAVE TUBE DIVISION—Amplifiers; tubes. **Introducing: High-efficiency UHF klystrons and RF audio couplers.** BOOTH 306.

VERSA-COUNT—Amplifiers, pre-amps, DA's; FM exciters; FM stereo generators; STL equipment; SCA equipment; AM & FM transmitters; FM modulation monitors. **Introducing: FM exciter, 88-108 MHz.** BOOTH 516.

VIDEO ASSOCIATES LABS— Video special effects equipment and generators. **Introducing: VB-1.** BOOTH 1716.

SEE AD ON PAGE 108

VIDEO DATA SYSTEMS—Character generators. **Introducing: TPT-2500 Television Production Titler; MCG-2500 Message Character Generator; VITL Vertical Interval Transmission Link.** BOOTH 1523.

SEE AD ON PAGE 90

VIDEOMAGNETICS—Video heads and refurbishing services. **Introducing: Ferritte quad refurbishing with unique "compatible" design for best match to past and current equipment electronics—750-hour warranty ($1,495).** BOOTH 1808.

VIDEOMEDIA—Video editors. **Introducing: Multi-source editing system.** BOOTH 1808.

VIDEOTEK—Modulators and demodulators; video monitoring, measuring, and timing equipment; video monitors. **Introducing: Full NTSC vectorscope; 26-inch color picture monitor; dual-channel audio-program monitor.** BOOTH 1611.

SEE ADS ON PAGES 61, 140

VIDICRAFT—DA's; video test generators; video monitoring, measuring, and timing equipment; video signal enhancement and correction equipment. **Introducing: Modular video test signal and sync generator; digital video level meter; low-cost proc amp for ¾-inch and ½-inch VTRs.** BOOTH 180S.

VISCOUNT INDUSTRIES—Video special effects equipment and generators; video switchers. BOOTH 1802.

SEE AD ON PAGE 150

VITAL INDUSTRIES—Video automation systems; digital effects equipment; processing and equalizing equipment; routing and video switchers. **Introducing: New series of microprocessor-controlled production switchers, with models ranging from one to four mix/effects systems; SqueeZoom Video Manipulation Unit, a new control system for the SqueeZoom which permits complete operator programming of all video effects via a CTR terminal.** BOOTH 921.

SEE AD ON PAGES 84-85

WARD-BECK SYSTEMS—Amplifiers, pre-amps, DA's; audio monitoring, measuring, and timing equipment; audio automation systems; audio consoles; intercoms; routing switchers. **Introducing: Microprocessor-based intercom systems.** BOOTH 1216.

SEE AD ON BACK COVER

WEATHER SERVICES INTERNATIONAL—Newsroom and weather computer systems; computerized colorgraphics; real-time information. **Introducing: Real-time on-air computerized colorgraphics system.** HOSPITALITY SUITE: The Dunes.

WEATHERCASTER—Weather forecasting computers. **Introducing: CT-1000 weather forecasting computer with unique computer animated colorgraphic weather presentations and news-graphics for TV weather/news broadcasting; R-300 weather forecasting computer for radio weather forecasting.** BOOTH 525S.

SEE AD ON PAGE 83

WEATHERMATION—Earth station equipment and services; weather instruments, radar and accessories; satellite receivers. **Introducing: The next generation in satellite receivers—for the first time, fully digital satellite data are available to the broadcast industry with user-selectable background colors, locations, and sectors in addition to user-selectable maps. New features for color radar are pan and zoom, two-color underlays, pseudo-sweep, and 8-frame storage capacity.** BOOTH 1625.

SEE AD ON PAGE 55

WESTERN UNION—Earth station services; satellite distribution services. BOOTH 1401A.

WILKINSON ELECTRONICS—Audio consoles; exciters; FM stereo generators; AM and FM transmitters. BOOTH 302.

WINSTED CORPORATION—Cart machines and accessory equipment; editing consoles; tape storage systems. **Introducing: 1-inch VTR console with full bridge; "Super-Pak" tape storage for ¾-inch videocassettes (maximum capacity); low-profile editing/production console; vertical equipment racks.** BOOTH 823.

SEE AD ON PAGE 114

WOLD COMMUNICATIONS—Satellite distribution services. **Introducing: Transportable earth station; trailer-mounted Andrew 4.5-meter antenna which accompanies van (located outside convention center).** BOOTH 1221.

SEE AD ON PAGE 31

WOLF COACH—Vans and ladder vehicles. BOOTH 1225.

FRANK WOOLLEY & COMPANY—Video animation. **Introducing: Motionmaster video animation stand.** BOOTH 507S.

SEE AD ON PAGE 158

WORLD TOWER COMPANY—Antennas, transmission lines, towers, and lights; lights and lighting accessories; lighting control systems. BOOTH 420.

SEE AD ON PAGE 116

XEDIT CORPORATION—Audio and video tape and accessories; drift and flutter meter test equipment. **Introducing: Drift and flutter meter; long-angle splicing block for ¼-inch audio tape; trough-type splicing block for 2-inch audio tape.** BOOTH 223S.

THE ZEI-MARK CORPORATION—Film cameras and projectors; film chain equipment; lenses and lens services; telecine automatic light controls. **Introducing: 3-input/2-output large image optical multiplexer.** BOOTH 1643.

ZENITH RADIO—BOOTH 505S. BC

PRODUCT PREMIER

NAB to spotlight new products

For more information on products highlighted in this section, use BC's convenient Action Card.

The products in this month's Product Premier throw the spotlight on a selection of products that will be in the exhibit halls of the Convention Center in Las Vegas. This should give you a head start on reminders of company booths you'll want to visit.

If you're not going to the convention, just stay tuned. This issue and the May issue will take you down the aisles and into the sessions. Combine that with the ads, and you'll save the plane fare and avoid a bad case of tired feet. Just pull out the Action Card to mark the products that interest you, and BROADCAST COMMUNICATIONS will make the trip for you.

Before we get into the array of new products, in this issue in the Technical Symposium column (see page 42) we're taking a second swing at speech synthesis. The module tested and covered in the column is from Telesensory Systems. You can get more information about this module and others by using Circle Number **140** on the Action Card in this issue. In a later issue, we'll include a complete list of speech synthesis module manufacturers.

Rack-model weather receiver (Circle 208)

GORMAN-REDLICH — One of the key products at the Gorman-Redlich booth at the convention will be their model CRW rack-mounted, fully remotable weather receiver.

An internal relay in the CRW provides contact closure across another set of rear terminals when an alert takes place. The contact closure can be used to start a tape recorder or set off a buzzer or light at a location remote from the receiver.

The double conversion crystal-controlled receiver is equipped with all three weather service frequencies. The company told BROADCAST COMMUNICATIONS that the price is $325.

The company also will have a new digital antenna monitor in the booth.

Remote control system (Circle 207)

DELTA ELECTRONICS — With any luck the RCS-1 Delta remote control system will be demonstrated at the NAB convention. It's a chance to hear for yourself how one company has integrated speech synthesis into a piece of broadcast hardware.

The RCS system will display all parameters of your system on a CRT. Automatic logging (optional) ends your hassle with incorrect logs. Part of the display is a modulation bar graph with peak flasher indicators. And the RCS-1 has a direct antenna monitor interface.

The system can easily be enlarged by adding boards for additional control, input, and alarms. The system has the fundamental building blocks for ATS, allowing remote control/ATS at a later date.

But synthesis steals the show. The RCS-1 includes a telephone coupler with a speech synthesizer, so the operator can interrogate the system by phone and listen to speech readouts. (Next year, engineers can attend the convention and call the station for a voice readout of all system parameters.)

Pro turntable cartridge (Circle 121)

SHURE BROTHERS — The company has introduced a strictly professional broadcast cartridge, and they're dubbing it the SC39. And according to Shure, the SC39 was designed to take the kind of abuse that's typical at AM and FM stations and yet survive.

The Masar™ stylus tip minimizes noise buildup and cue-burn on masters as well as often-played recordings . . . even 45's pressed on substandard vinyl.

The SC39 comes with a side-guard

Continued on page 182

Video Delay Lines

ALLEN AVIONICS Video & Pulse Delay Lines replace 75 ohm coaxial cable, provide a more suitable method of achieving precise short delays. The units reduce size, weight, installation costs, and save time and effort in making delay changes.

- Finest Specs
- Lowest Pricing
- Delivery from Stock

Part No.	Delay Range (Nano-Sec.)	Delay Steps (Nano-Sec.)	Method of Variation	Maximum Insertion Loss @ 100 KHz (db)	Amplitude Flatness At Any Delay Setting 100KHz to 5.5MHz (db)	Max. Rise Time (Nano-Sec.)	Package Size (Inches)
VAR005	3-7	Continuous	Trimmer	.20	.2 Max.	N.A.	3⅝ x 1½ x 1¼
VAR011	0-11	Continuous	Trimmer & Toggle	.20	.25	N.A.	4⅜ x 2⅜ x 1 1/16
VP0010	0-10.5	.5	Toggle	.15	.2	3	4⅜ x 2⅜ x 1 1/16
VP0127	0-127	1.0	Toggle	.15	.3	14	4⅜ x 2⅜ x 1 1/16
VP0255	0-255	1.0	Toggle	.15	.3	16	4⅜ x 2⅜ x 1 1/16
VP0317	0-317.5	2.5	Toggle	.15	.3	20	4⅜ x 2⅜ x 1 1/16
VP0635	0-635	5.0	Toggle	* .50	.4	25	4 11/16 x 3 1/16 x 2 1/16
VP1100	0-1100	10.0	Rotary	1.25	.4	30	4 11/16 x 3 1/16 x 2 1/16
VP1270	0-1270	10.0	Toggle	*3.00	.4	30	4 11/16 x 3 1/16 x 2 1/16
VP2075	0-2075	25.0	Toggle	*3.00	.5	40	7⅜ x 4 11/16 x 3 1/16
VS0315	0-315	5.0	Strap	.25	.4	28	4 x 2 x 1¼
VS0635	0-635	5.0	Strap	.60	.5	33	5 x 2 x 1¼
VS1275	0-1275	5.0	Strap	1.25	.5	33	5 x 3 x 1¼
VS2075	0-2075	25.0	Strap	2.50	.5	40	6½ x 3½ x 2

*±.2db variation at any delay setting.

Impedance: 75 ohms.
Pulse Distortion: Less than 4% with an input pulse rise time of 20 nanoseconds.
Working Voltage: 100 volts maximum.
Return Loss: 20db minimum. 15db minimum for VP2075 & VS2075.
Delay Tolerance: 5% or 1 nanosecond, whichever is greater.

VIDEO FILTERS: NTSC Lowpass, Band Reject & Bandpass are our specialties.

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ALLEN AVIONICS, INC. 224 EAST SECOND ST., MINEOLA, NY 11501 Phone: 516-248-8080

See Us At NAB Booth 1633 Circle (188) on Action Card

stylus deflector that protects the stylus against bumps and whacks from the side. When pressure is put on the deflector, the stylus tip withdraws into a safety shank, eliminating the possibility of damaging the stylus and/or leaving a scratch across the record's grooves.

When the cartridge or the tone arm it's in are not in use, you can flip down a stylus guard. It protects the stylus and cartridge from any accidents that might damage it.

Field video camera (Circle 141)

IKEGAMI — Sure to be fired up in the Ikegami booth will be the HK-357A. For quality field and EFP operations, the HK-357A is a quick setup camera. Once on site, you hook up three cables and a power source. Then, a push of its microprocessor activate button automatically cycles it through a check and recheck of all setup and registration adjustments. It takes about 45 seconds per camera, and six cameras can be handled.

No external registration and chip charts are necessary because a test pattern projector (diascope) is built into the lens. And camera distance from the compact base station can be about a mile with triax, or 2,000 feet with TV-81 multicore cable.

The camera makes good use of the newly developed Diode Gun Plumbicon®, producing high resolution, low lag, low noise, and wide dynamic range. The design also has Dynamic Beam Stretch to reduce comet tailing. Iris and white balance are automatic. The camera also has selectable contrast compression levels and a built-in chroma keyer. Its 7-inch viewfinder is tiltable and rotatable.

SUPER NAB SPECIAL OFFER
REPLACEMENT FOR XQ1020R-G-B
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$1050.00 each
SUPER SPECIAL PRICES ON TRANSMITTING TUBES
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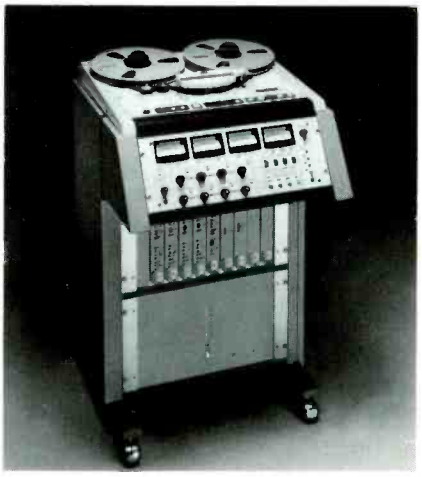


2 & 4-track recorders (Circle 142)

OTARI — Two professional broadcast/studio tape recorder/reproducers are at center stage now for Otari. The MTR-10-2 is a ¼-inch two-channel machine, while the MTR-10-4 is a ½-inch four-channel machine. Aside from the head differences and the electronics requirements from two to four channels, these machines share the same specs and features, so let's refer to them as the MTR-10 series production/mastering recorders.

The features begin with dual DC PLL servo tape transport operation governed by an integral microprocessor-based system. The transport logic and an exclusive, dual real-time counter are controlled by a separate proprietary microprocessor. The hinged-top transport deckplate makes access a snap.

The outputs are direct-coupled with active balancing on inputs and outputs, but transformers are optional. Total control includes adjustable phase compensation, bias, and record and playback levels (aided by an internal multifrequency sine/squarewave generator). Their return-to-zero feature is standard. There is an optional tape locator with a 10-position memory and shuttle.

Also important, these recorders have a rear-panel interface available to transport and time base functions for SMPTE interlock.

Boosting its overall flexibility, the model MTR-10-4 can be changed from a ½-inch to a ¼-inch two-channel machine with a simple plug-in headblock change.

Video character generator (Circle 130)

BESTON ELECTRONICS — The Aston 2 is the hottest new item out of Beston Electronics. Any operator with a flair for originality will appreciate this character generator.

Standard features of the Aston 2 include a quickly mastered keyboard control. It has multi-font display capability and an internal 150-page disc memory. It has three speeds of roll and crawl with auto-stop, an internal foreground and background color generator, and symmetrical or drop shadow edging.

You can get italics at a keystroke, word flash and underline, and a double logo. If there's a problem, the Aston 2 comes with an engineer's service diagnostics card.

Complete fonts of any size between 18 and 84 TV lines high and with almost any complexity can be created in less than eight hours. Individual logos can be done in less than a half hour.

ENG-EFP-studio camera (Circle 131)

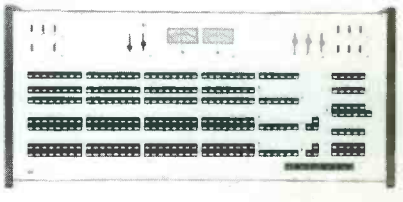
PHILIPS — The Philips LDK-14 cameras have already established an excellent reputation in the broadcast industry, but there is a new version that will be new at the NAB convention. It's called the LDK 14S, and it has several new features.

According to Philips, the 14S includes the following improvements: improved signal-to-noise ratio; improved colorimetry/sensitivity; protection of switches to avoid accidental operation; a high-resolution viewfinder with an adjustable eye piece; a new contour processor; direct-drive filter wheel mechanism; and an automatic iris closing in standby.

New options on the 14S include an on-camera battery, diode gun tube, a triax adaptor, and 18 dB high-gain option.

Computer-controlled switcher (Circle 132)

CENTRAL DYNAMICS LTD. — The MC-990 model 7 master control switcher from CDL may be operated as a manual/semi-automatic Preset-Take switcher, or as a fully automatic system under the control of CDL's APC-900 automation systems.



The MC-990 is a 7-bus microcomputer-controlled audio/video switcher. It's available with either 24 or 32 inputs. It also has 6 separate audio inputs and a full complement of audio and video transitions plus 4 special separate audio transitions. These special audio transitions can be modified for changing

PROMs, start and end-of-message audio cart machine commands, a full range of graphic keying facilities, and a dedicated character generator input.

Options include chroma keying, bordered keys, wipe transitions, PPMs, and loudspeaker power amplifiers.

CDL's APC-900 automation system can be easily added to an installed MC-990, which allows the station to expand its control of on-air operations at any time.

1-inch video recorder (Circle 133)

HITACHI DENSHI AMERICA — The Hitachi model HR-200 1-inch VTR is worth a visit to the company's booth at the convention. The HR-200 has some unique Type C format features that make it interesting.

The HR-200's tape guide retracts for ease of threading, and it repositions with one micron accuracy for up to two million threadings. The recorder also uses a "pro" tape path, meaning that the protective reverse oxide (PRO) configuration of the tape path allows only the video and audio heads to touch the oxide surface. All other transport mechanisms guide the tape by its reverse side.

Head replacement is a snap because the pre-aligned head design requires no adaptors or jigs, and it takes just three minutes to make the change.

In the shuttle and standby modes, the tape rides on a cushion of air. This cuts tape and head wear and gives shuttle times of only 80 seconds end to end.

Noise reducer/TBC/ synchronizer (Circle 134)

THOMSON-CSF BROADCAST — The Thomson-CSF 9100 is a true digital video processor. It gives the capabilities of noise reduction, time base correction, as well as being a frame synchronizer.

Noise reduction delivers up to 15 dB of signal-to-noise improvement in four programmable settings. (This should prove helpful with satellite pictures.) It makes film-to-tape transfers less noisy and grainy.

For ENG applications, the 9100 helps make signals sharper, without the excessive low-frequency chroma noise identified with ¾-inch VTRs.

The frame synchronizer gives an added freeze-frame capability. Also, a built-in time base corrector will handle ¾-inch VTRs. What's more, a 4 x 1 switcher frees valuable crosspoints while a processing amplifier provides complete output signal control.

ENG camera Leddicon® (Circle 135)

EEV INC. — EEV will have a booth at the NAB convention, and it affords a good place to stop for a lot of information on camera tubes. The newest addition to the EEV Leddicon family of tubes is their P-8160. It's directly interchangeable with all existing lead oxide tubes.

According to EEV, the P8160 is the best-rated tube for lowest lag and no blooming. These ⅔-inch Leddicons meet the same high performance standards as the 1-inch and 30mm Leddicons. The P-8160 is well suited to field use in ENG and EFP camera operations.

Hand-held light device (Circle 136)

ANTON/BAUER — The company will introduce their rugged hand-held LG-30 light. Appropriately named the "Black

Beauty," the unit was designed for professional broadcast portable applications. The light works well with the Anton/Bauer LB-30 30-volt lighting belt and can also be powered by the Anton/Bauer 12-volt batteries by using a 100-watt F.A.V.-type bulb.

The LG-30 can be operated with one hand, and that includes focus and power controls. Other features include a unique spring-loaded, snap-action, swing-away dichroic filter that locks in place. This avoids mounting problems since it can be adjusted to any of four positions.

A special lamp socket insures maximum bulb life and prevents bulb damage. When the bulb does go, spares can be taken from storage space in the handle.

ENG-EFP diode-gun camera (Circle 137)

PANASONIC VIDEO SYSTEMS — Sure to draw attention at the Panasonic booth, the diode-gun Plumbicon AK-760 camera by Panasonic features three of the ⅔-inch pickup tubes. Since the diode-gun Plumbicon tubes have a thinner photoconductive layer than conventional Plumbicons, the resolution is excellent (600 lines center).

The AK-760's feedback beam control reduces comet tailing by stabilizing highlights that exceed normal white levels. Also, the camera S/N ratio is 45 dB at standard illumination of 200 footcandles at f/4.0. With the 18 dB high gain switch on, all you need is 5 footcandles at f/1.8.

The AK-760's impressive circuitry includes horizontal aperture correction, 2-line vertical enhancement, automatic white balance, and a built-in color conversion filter. If the camera is needed in the studio, an optional 5-inch viewfinder is available.

Synthesizer/detector (Circle 118)

POTOMAC INSTRUMENTS — The SD-31 synthesizer was designed for antenna impedance measurements in the presence of strong interference. It's another product in their line that will be in the booth at the NAB convention.

Typical of Potomac's practical approach to test instruments, the SD-31's high-level oscillator is compatible with General Radio's 916 and 1606 series as well as Delta's OIB-1 impedance bridges.

When making measurements in the face of strong interference, the unit's special coherent detector circuit rejects the interferring signals. It's crystal controlled from 100 kHz to 1999.5 kHz in steps of 500 Hz. The unit is powered by rechargeable batteries.

Stereo consoles (Circle 120)

QUANTUM AUDIO LABS — Quantum will show the console line at the convention, including the QM-8P and QM-12P. The model number tells you how many channels are available.

These consoles feature up to 24 inputs, with all inputs and outputs balanced. The input channels have three knob EQ with in/out switch, echo, headphone and cue send, channel on and remote start, and high-quality conductive plastic faders.

There are four balanced output channels, with low noise and distortion figures. The series also has four independent monitors, flexible control room selection, and talkback to studio muting.

Continued on page 184

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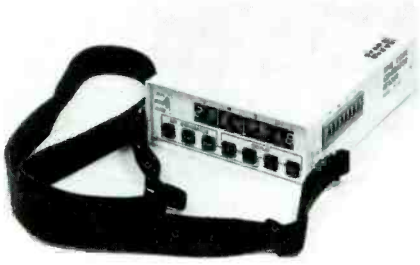
Circle (204) on Action Card

EFP time code reader/gen (Circle 139)

SKOTEL — The new Skotel time code reader/generator model PTC-100 is a rugged, compact unit that's been designed especially for TV and film EFP requirements.

The PTC-100 identifies color field sequence in time code, meets film standards for 24, 25, and 30 fps, and is compatible for NTSC, PAL, and PAL-M TV standards. The unit generates and reads user bits.



Among its other operating features, the PTC-100 has an internal jam sync reader that permits slaving several units together. New user bits can be preset and entered without disturbing the time counter, and the time counter can be operated remotely. Thumbwheels are used to preset the time counter or loads for user bits.

The unit's power-saving circuitry allows five days of normal operation with four AA cells (NiCad batteries and charger are optional) or the unit can be plugged into an external 6-12 VDC source while out on assignment.

SMPTE code reader (Circle 110)

DATAMETRICS INC. — The company is introducing a low-cost model SP-710 SMPTE code reader. Designed to fill the needs of modern production facilities, the 710 decodes and displays SMPTE time code from 1/20th to 60 times play speed with accuracy.

The integral character generator inserts numerical time data in any position over the raster in four selectable sizes. Character display in the vertical blanking interval is a standard feature.

Additional features include a "hold" function to freeze the display count and a switch to delete the character display. Also standard is a loop-through video input, two video outputs and regenerated code output.

The SP-710 is low-profile rack configured, and comes with a price tag at just under $1,900.

News/production camera (Circle 123)

TOSHIBA AMERICA — Headed for the spotlight at Toshiba's NAB booth is their new PK-60 camera. When *BC* editors saw it for the first time at a recent SMPTE convention, division VP and general manager Ron Fried said the camera was designed for news/production applications with enough features to draw crowds on its own.

The PK-60 features Digital Data Loc, an advanced plug-in digital memory adapter that operates in conjunction with the microprocessor-controlled automatic setup unit. Information stored in the non-volatile memory of the Digital Data Loc maintains centering, black levels, and white levels.

As Fried explained, the camera can be setup at the studio and then used on remotes with no additional setup required.

The PK-60 weighs 9.4 pounds. It's 11 inches long, 9 inches high, and 3.7 inches wide. Its 20.6 watts power consumption allows over 2 hours of camera operation with a NiCad battery.

The camera also features a digital base station, monitor selector setup box, microphone holder with built-in amplifier, and a wireless/triax transmission system.

Digital FM stereo generator (Circle 124)

C.N. ROOD — Marcom will be offering a complete "front end" stereo transmitter package for the update of older FM transmitters as well as new transmitters with the C.N. Rood SC-200 series stereo generator.

Typical specifications include 70 dB channel separation, a S/N ratio at 95 dB, harmonic distortion at 0.01, and temperature stability from 5 to 50 degrees centigrade.

In designing the SC-200 series, a method was sought which would keep the pilot-tone and the 38 kHz phase equal under all circumstances, eliminating the necessity of complex adjustments. The result is a patent pending sinusoidal switching system that yields excellent performance.

Tracking the design concept, especially the patent, it's easier to understand if you picture a single shaft, double pot.

One potentiometer generates the multiplex signal while the other generates the sinusoidal pilot tone, and the runner of the potentiometer is moved sinusoidal between a positive and a negative DC voltage at the extremes of the potentiometer. The phase of both signals can be influenced only if the potentiometers are not tracking. Since this is a construction feature of the potentiometer, the phase difference is fixed. A maximum phase deviation of 0.04 degrees (0.01 microsecond) is guaranteed.

In its final design, this circuit accomplishes the potentiometer function digitally! This eliminates the problem of instability, offset, etc., in an adjustment-free, exchangeable module. (Our thanks to C.N. Rood president Matthieu Moors and Marty Jackson of Marcom for explaining the patent.)

This unit can be seen in operation with an audio processor in the Inovonics booth at the NAB convention. The SC-200 series will be represented exclusively in the U.S. by Marcom (P.O. Box 66507, Scotts Valley, CA 95066, Telephone 408-438-4273).

Portable time code gen (Circle 128)

AMTEL — The company is introducing their 3500 model time code generator/reader. It's available as a desktop or belt mountable unit. It's a high-performance unit that produces code conforming to the EBU/SMPTE specifications.

The model 3500's 5-volt output will accommodate balanced or unbalanced audio inputs used on many VTRs. Other outputs are available by special order.

Data entry follows a calculator format which permits one-handed operations in the field. The 3500 also includes NiCad batteries, or it can operate from AC. When the unit is on AC, the built-in battery charger can charge the battery while it is being operated.

The 3500 is available in either NTSC or PAL. In the absence of any video signal, the unit is driven from its own internal crystal.

Low-impedance pickup (Circle 111)
STANTON MAGNETICS — The Stanton 980 LZS is a low-impedance pickup designed as a replacement for moving coil cartridges. Output of the 980 LZS can be connected either into the moving coil input of modern receivers-preamps or can be used with the Stanton preamplifier, whose output is fed into the conventional phono input. Features include a stereohedron stylus, rare earth magnet stylus assembly, replaceable stylus with Stanton long-hair brush, low impedance coils, low dynamic tip mass, and high compliance for superb tracking.

Video editing system (Circle 119)
UNITED MEDIA — Commander II is the market's newest videotape editing system. It has a totally new and functional look (it'll be on display at the United Media booth at the NAB convention), and it's available at a significantly lower price than you'd suspect.

It'll handle a complete four VTR system with any combination of playback and record for multiple format masters (expandable to three more VTRs and a switcher).

Video levels are variable in 10 percent increments with mix rates from 1 to 999 frames.

The Commander II also features automatic cut listing with a single keystroke and automatic list management for shortening, lengthening, or rearranging scenes.

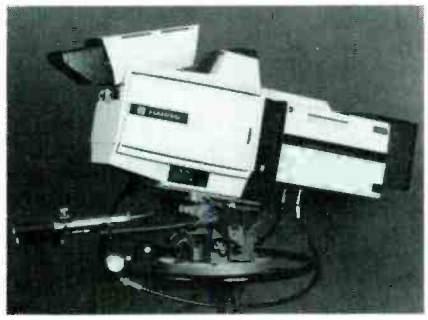
This is a reminder that the products featured in this issue will be on display at the NAB convention. If you're going to attend, be sure to mark the booth locations of the companies with products that meet your needs. And if you're not going, combine this and the next two issue's Product Premier sections and you can do your shopping at home by using the appropriate "circle" numbers on our Action Cards.

Weather forecasting computer (Circle 117)
WEATHERCASTER — Here's a product sure to draw crowds at the NAB convention even though they have a small booth away from the mainstream traffic. It's a weather forecasting computer that includes a sensing system. That's right, it computes your weather. Based on a built-in chip that includes the history of your regional weather patterns, and inputs from the outdoor sensing system (along with an operators scan of current outdoor conditions, the CT-1000 will predict your weather for you for a 12-, 24-, 36-, or 48-hour period.

Weathercaster's NTSC video output permits full-screen personalized chroma-key presentations, and it can be used to create graphics for the news department. The radio version uses an LED readout.

Automatic setup camera (Circle 129)
HARRIS CORP. — The Harris TC-85 will be introduced at the NAB convention. It's an automatic setup camera, allowing setup in pre-production in less than 45 seconds.

An independent computer is used with each TC-85, eliminating camera interdependence. With the touch of the setup button, you automatically adjust fine registration, black balance, white balance, gamma, and flare.



A unique feature of the TC-85 is that it allows the operator to dial in an artistic characteristic and override the system.

Although the computer setup is standard in the TC-85, it can be ordered without this feature. Later, the computer setup can be added in the field. The camera also is available with triax or multicore options.

Reel-to-reel recorder (Circle 127)
INTERNATIONAL TAPETRONICS — The company will bring its new, designed-for-the-broadcaster 770 series recorder/reproducer to NAB. While it has several broadcast applications, it's ideally suited for automation systems. It combines the ruggedness and simplicity of its predecessor, the 750 series, with greatly improved reliability. Of course the 770 is designed to meet or exceed the NAB standards for reel-to-reel machines.

And the 770 series includes numerous configurations, including one or two tracks, mono or stereo, and tape speeds from 3¾ to 15 IPS.

These recorders are equipped with a unique, high-quality, professional head assembly that uses two torque motors for supply and take-up, a DC servo capstan motor for tape drive, and a low maintenance, positive action differential disc brake design.

Distribution switcher/monitor (Circle 138)
DYNAIR — Of course Dynair's System 21 will be on display, and with the SCA-250B status monitor system, you know first-hand how you can call for any one of the System 21's 1,000 outputs. You can connect it to any of 1,000 inputs, different video and audio if desired.

To show its flexibility, the system can be loaded with 80 preset selections. You can edit at will, and then make all switches on the same vertical interval. Status by the output also is available. Just punch up the number you want and you'll see that output plus the next 49. You can roll through outputs 50 at a time. If you want status by the input, you just key in a source and the display lists all the outputs on line in numerics or mnemonics.

Video editing systems (Circle 126)
DATATRON — The Tempo and Vanguard editing systems will be on display in the exhibit area at the NAB convention.

Tempo provides A/B roll editing capability with up to three decks and a switcher. Vanguard as A/B roll and A/B/C/D synched roll editing capabilities with up to five decks and a switcher. It also has selectable pre-roll, post roll, and operator reaction times.

Both systems can handle SMPTE or control track editing, and they can be interfaced with over 40 makes and models of decks.

VaraScan™ is a Datatron feature that allows variable speed tape search in forward/reverse tape shuttle from high speed to freeze frame. Tempo can handle one of these controls, Vanguard can handle dual controls.

Tempo can store up to 300 edit decisions, Vanguard will handle 999. Tempo performs auto-assemblies from up to two source decks. Vanguard can draw upon up to four source decks. BC

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on the products advertised in this NAB Special Issue, circle the appropriate number on the Action Card that corresponds with the boldface number assigned to the advertisers listed in the index above.

Elector introduces new high resolution cost-effective color monitors from BARCO

Barco has earned an enviable reputation around the world for producing high quality color monitors and related equipment for all video applications. And every year the selection grows larger.

Models shown here range from the lightweight portable CM33HRA weighing only 31 lb. (14 kg.), through the CM51HRA and digital remote controlled receiver-monitor CRM2650. All are fully modular and are available in multi-standard combinations. In addition, a range of options can adapt Barco monitors to specific functions including mobile installations, teletext decoding, or information display. The AVD33 tuner, shown at the top of the grouping, can be used with any monitor for off-air reception.

Other accessories and models combine to round out a very versatile line that meets the needs of ENG crews, broadcasters, A/V producers, cable operators, or computer programmers. Screen sizes range from 13" to 26".

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These Barco products are distributed and serviced exclusively throughout North America by the Elector Group.

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