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THE INTERNATIONAL
JOURNAL OF
BROADCAST TECHNOLOGY

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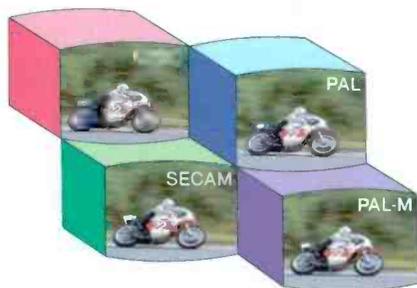
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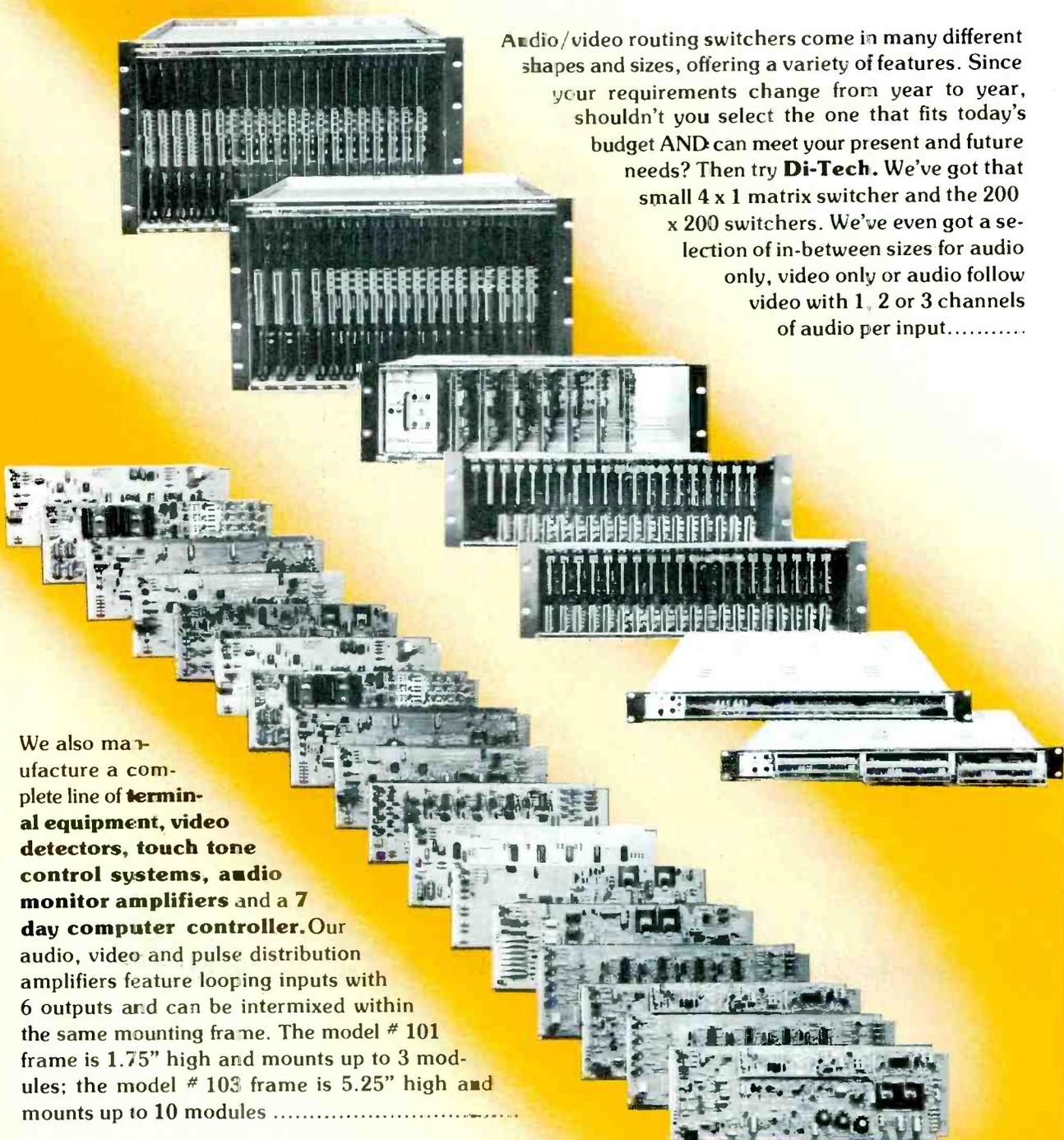
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THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

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NRBA '82: The Big Winner for Radio

A preview of the upcoming NRBA convention, scheduled for Reno, Nevada, with a complete listing of sessions and exhibitors.



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Cover—This month's cover features several examples of the KPIX DirectVision teletext service now being tested in the San Francisco Bay Area. The pictures were taken by a Dunn Instruments camera specially designed for computer graphics, and able to deliver hard-copy prints. The photographer was Richard D. Keller, Dunn's national sales manager for computer products.



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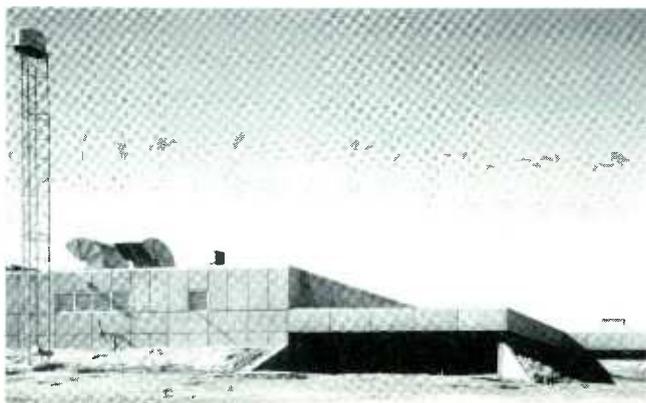
Jack C. Lovelady
Faced with running field intensity measurements over difficult terrain, this station saved time and money by devising a fool-proof helicopter measuring method.



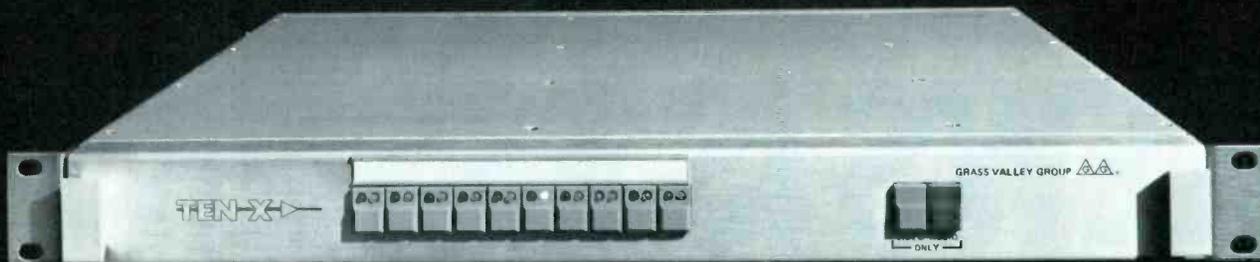
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How Fast-Tracking Cuts Building Time In Half

Frank Rees and Walter Gregg
Need a facility in a hurry? Leading architectural consultants explain how fast-tracking will give you the facility you want while saving labor costs and not sacrificing quality.



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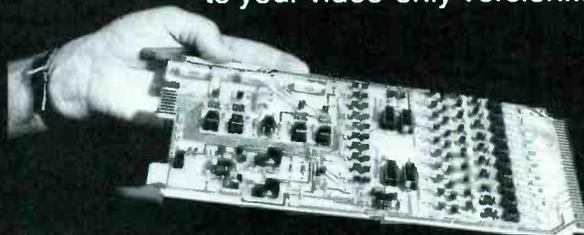


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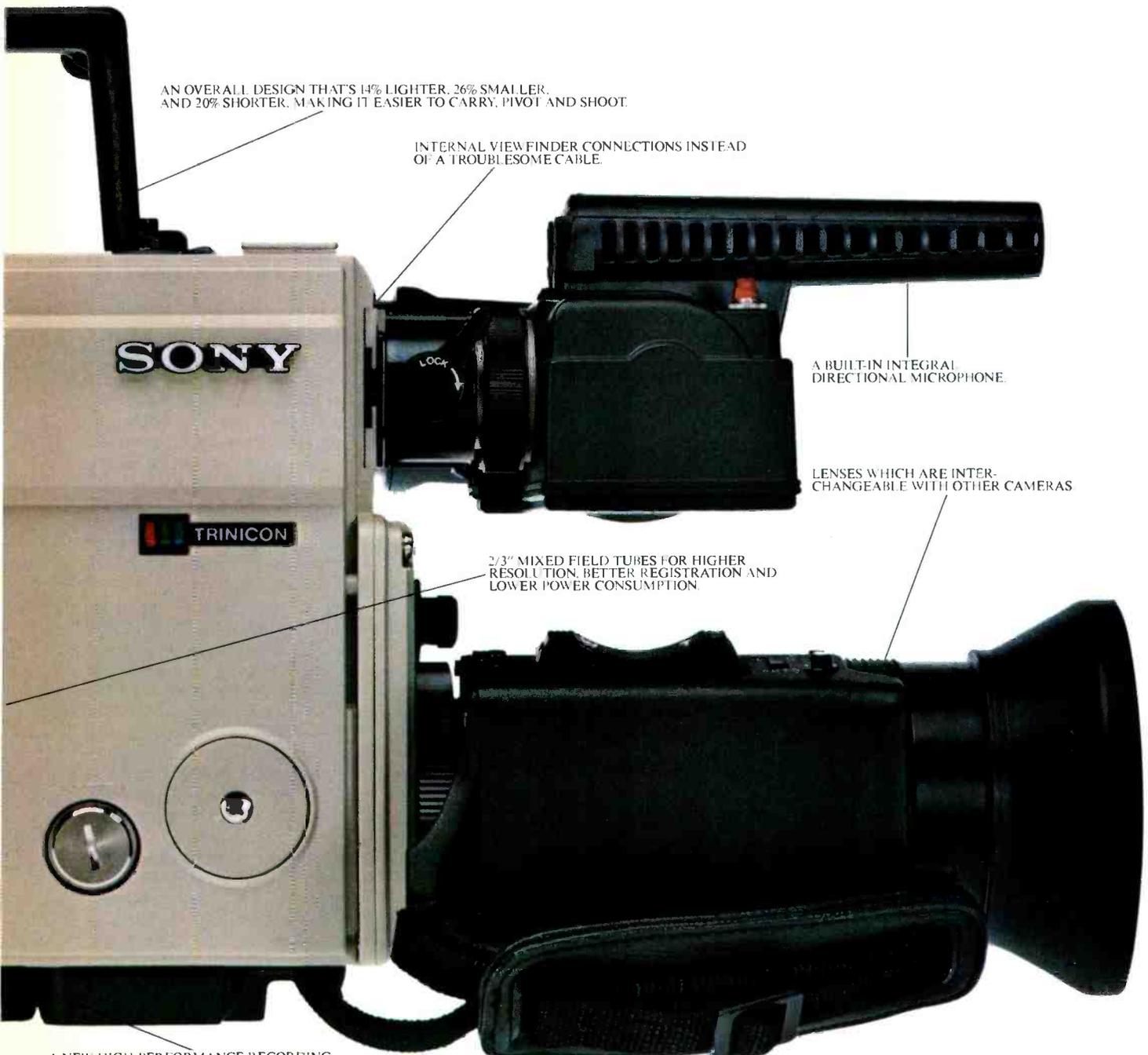
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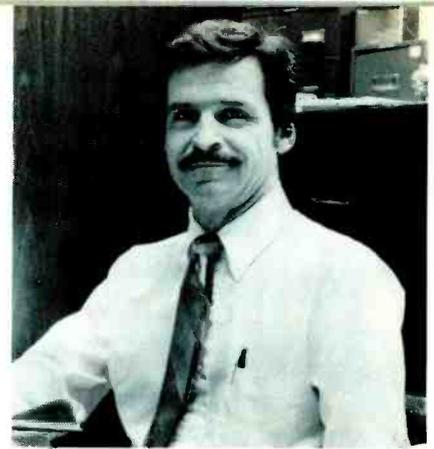
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ON-THE-AIR

RON MERRELL

DBS creates concern over localism



On a 7-0 vote, the FCC opened the door on DBS. It may be another four or five years before any system becomes operational in this new service, but already there is trouble in River City.

The problem runs across localism and spectrum management.

Satellite programming would be uplinked from key cities, and downlinked around the nation. This precludes local programming because such inputs to the system would require a network more vast than any ever conceived. But given an outcry from the marketplace, there would be a response.

The NAB's Vince Wasilewski has already stated that "the Commission's authorization of DBS—a nationally-based program service with no mechanism for responding to the specific needs of individual communities—totally reverses the 'localism' concept of the Communications Act of 1934. Until today, Congress alone had the power to alter the Constitution."

Despite the alarm that localism would disappear, it is possible that the local broadcaster would find his operational future assured. No one doubts that local interests need to be served. Or will be served by someone. And who better than the local broadcaster?

A national weather channel was added to my local cable system recently. I discovered this one day when I switched to what had been a local graphics display with NOAA weather voice-over. Instead, I found a new service that exemplifies the problem. There I sat watching weather summaries across the country. My local weather was shown graphically only once every five minutes.

Living in "tornado valley," weather reports in real time are very important to me, especially when tornadoes and violent weather are in-season. So I bought a NOAA weather portable receiver and never punched up the cable weather channel again.

Lost in the shuffle

There is concern about what will happen when DBS gouges out a hunk of the 12 GHz spectrum space it will re-

quire. The losers will be terrestrial microwave users. Among those in the squeeze are educational, health-care, and public-safety organizations. That's the price of progress. And it might have been worth the price, knowing that it might also stifle high-definition TV, if DBS would bring something new and vital to the marketplace. Trouble is, it looks like more of the same fare we already have.

Who wants the drum?

In River City, everything miraculously turned out well. Everyone instantly became a musician.

But the trouble in River City won't be solved miraculously this time. DBS will take its place on Main Street. And it will take its chances.

For cable TV, it represents a real threat, but by the time DBS shuffles its signals, cable TV will have a penetration so deep that its existence will be assured. Remember that both services come with a growing price tag for the home audience.

Meanwhile, the role of the local over-the-air broadcaster will continue to change, but its place in the sun is assured by a growing emphasis on the very localism that some fear DBS will erase. In fact, many broadcasters already sense that the new services will need—in fact, be desperate for—program inputs. Using ad hoc networks, they can enter the race. Selling programs and services to cable, they can move to the front. Taking advantage of teletext will make it easier to maneuver.

In fact, if you diversify in River City, you can play the drums. Not today, but maybe tomorrow.

Up on the rooftop

The Supreme Court has ruled that cable system operators must pay landlords for access to apartments. It went through 6-3 after a line of lower court rulings had upheld a New York state law that required landlords to allow cable installations.

Apparently the law was intended to assist the development of cable TV as an important community service. While it's nice to see government supporting a new service, and while the service can

be a benefit to the community, it is reassuring that the Supreme Court still recognizes the rights of property owners.

The case had been pursued by a New York City landlord after she discovered cables running across her roof. If the state law had been upheld, Teleprompter Corporation of Manhattan would have had to pay a fee of just \$1.

The landlord, obviously, was within her rights to file suit. But reasonable payment, in this and future similar situations cable is sure to encounter, should carefully weigh landlord rights vs. cable as a selling point. It should enhance the property, even if it is on the rooftop.

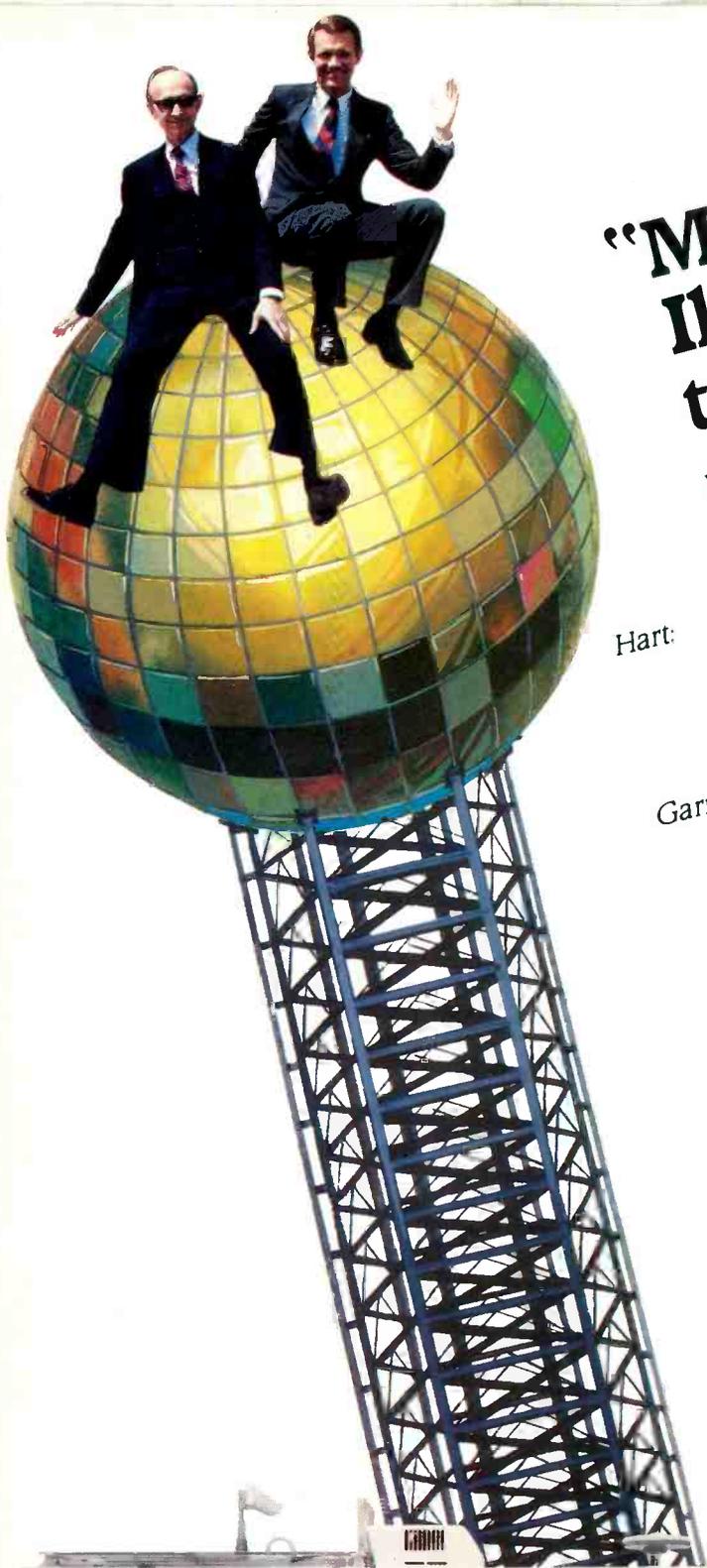
Nice going, Eddie

Eddie Fritts, president of Fritts Broadcasting, is nearing the end of a full year as NAB board chairman. It has been a good year for the NAB and Fritts. Consider the changes: postcard renewal; seven-year licenses for radio; five for TV; defeat of the 9 kHz proposal; fighting off the performers' royalty; stopping the attempt to break up AM/FM combinations; exit of FCC financial reporting; and the cable copyright compromise.

In a recent statement to the NAB membership, Fritts said: "Everybody knows that he who rests his oars eventually goes aground. There is still a job to be done. Despite the gains, and the promise that comes from a friendlier outlook at the FCC and in Congress, we can't let down our guard. There are a lot of people around challenging these advances in courts and elsewhere. The pressure continues and the work must also continue.

"The new technologies pose new challenges and strong competition to our industry. NAB is working hard in this area to protect your interests as much as possible, but also to help you turn these challenges into opportunities as all of us face changing business strategies.

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Hart: "Not only that, Bill, but Midwest is one of the largest suppliers of video equipment in the country. So they were able to supply us with everything we needed, direct. On time and on budget!"

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WORLD UPDATE

IBC draws world attention

BY JOE ROIZEN

The International Broadcasting Convention, scheduled September 18-21 in Brighton, U.K., is expected to once again bring together the leading television experts from around the world, and the major equipment suppliers. On the exhibition side, some 113 exhibitors, many of whom are not U.K. manufacturers or distributors, will fill up more than 11,000 square meters of space, up from the 1980 IBC figures.

In keeping with the pattern set at the last convention, the beach-side esplanade along the front of the Metropole Hotel, which again serves as convention headquarters, will have 18 mobile broadcast vans and a satellite ground station on display. Delegates to the convention can tour these vans to see the various configurations available for ENG, EFP, and major outside program production.

Inside the Metropole, and in various hotel sites, the equipment on display will reflect the latest broadcast-oriented hardware, virtually all of which will be operating in the PAL, 625-line/50-field, color television standard.

Satellite broadcasting equipment will be specially featured because there is a great deal of experimental activity going on in this field in the U.K. and on the Continent. One such exhibit will include a transportable satellite ground station that can be set up very quickly. New equipment for enhancing satellite broadcasts in the PAL standard will also be shown by both the BBC and the IBA.

While the extensive equipment exhibition will permit the largely European delegates to see the newest television hardware operating in their own color TV standard, most of them will have come to IBC because of the high caliber of its technical conference. They are not likely to be disappointed this year. The papers committee has carefully selected some 90 papers that reflect the latest in TV technology from the U.K., United States, Japan, Canada, India, and many other countries.

In addition to the regular papers, there will be a series of invited lectures by such recognized authorities as Julius Barnathan of ABC, Howard Steele of Sony, C. P. Sandbank of the BBC, Les Free from Australia, and R. V. Arniboldi of Thorn/EMI.

The paper sessions are aimed at the TV topics of great interest at this time:

High-Definition TV, Digital Coding Standards, Fiber Optic Links, Future Technology and New Sciences, just to name a few.

Past IBC's have been the site of some major technical introductions which have eventually been shown at other international TV conventions. Teletext, in its Ceefax and Oracle form, was first demonstrated in the early '70s. The



Mobile units will again be located along the esplanade in front of the Metropole Hotel. (Photo by Joe Roizen)

IBA's experimental digital VTR surfaced here in 1976, preceded by an even earlier version if you count the longitudinal machine made by BBC Research. Digital standards converters, in ever-improving versions, keep appearing; the latest being the four-field interpolation unit shown in 1980.

This year's surprises will include two very esoteric video processing systems to improve PAL signals transmitted over direct broadcast satellites. The BBC system, known as Extended PAL, achieves its purpose by splitting the luminance signal into two components. Low-frequency Y signals are band-filtered and well attenuated below the color subcarrier of 4.43 MHz, and high-frequency Y signals are transposed to an 8.0 to 10.5 MHz band.

The gap now left in the baseband video spectrum, which starts at 6.0 MHz and goes to 8.0 MHz, can be used to transmit multiplexed digital sound

that can carry high-quality stereo audio to accompany the video.

The IBA has taken a very different approach to improving DBS PAL transmissions. Their system, called Multiplexed Analog Component (MAC), depends upon the separation of luminance and chrominance components, which are compressed in time and transmitted sequentially on each horizontal line. Thus, in a normal 64.0 μ sec PAL 1H period, there is 20 μ sec bursts of sync words. This leaves room for six channels of digital audio, with either stereo or multi-language capabilities.

Both systems have been demonstrated in the U.K., and both have shown improvements over standard PAL transmissions; however, each has its own set of merits and demerits, which will be in view at the IBC demonstrations planned by both organizations.

The IBC technical conference has a well-deserved reputation for being well-organized, and providing an excellent forum for the exchange of ideas by the speakers and delegates. They also publish a very comprehensive manual containing the proceedings of the conference, which is provided to every delegate.

Brighton itself provides a rather pleasant venue for this biennial event, which has now outgrown the facilities they had available in London. Since it is a popular seaside resort, there tends to be a more relaxed atmosphere among the delegates. The social events, usually scheduled after hours, are very popular as well.

Joe Roizen, international video editor, is president of Telegen, Palo Alto, California.

Radio service introduced

Shane Media Services, a Houston-based consulting firm, has released its first instructional video program designed for radio management professionals.

RADIO VIDEO is a series of one-hour programs designed as "how-to" seminars on various radio industry issues. Each RADIO VIDEO program is available in Beta and VHS home video formats.

On-camera host for RADIO VIDEO is Ed Shane, broadcast consultant and

Continued on page 14

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At Otari, the focus of our work is on innovation and problem solving. These values are carefully reinforced by our dedication to quality: they are inherent in every tape recorder we engineer.

The new MARKIII/4, 1/2" four channel production recorder and its companion eight channel version are the embodiment of this philosophy.

Both compact recorders are designed with microprocessor circuitry for smooth, responsive transport control and precise electronic counting with an L.E.D. display. True, three head design, selectable +4 or -10dBm input and output levels, 15/7.5 ips with continuously variable speed control, 10-1/2" reel capacity, cue control, and dump edit deliver flexibility that makes your production work move faster. Both models feature selectable headphone monitoring for all channels, a multiple frequency test oscillator and positive-locking NAB reel hub adapters. To achieve every last dB of performance, you won't find a competitive machine that lets you get your hands on a full complement of adjustments as easily.

Add to all this, mastering quality sound and the specs that guarantee it. And, the ability to interface to SMPTE time code synchronizers.

Built with the reliability and craftsmanship that have become the hallmark of our reputation with our 5050 Series two channel machines, we've once again advanced the broadcast industry's most advanced and affordable professional recorders.

From our hands to yours, the new MARKIII/4 and its companion, the MARKIII/8 are engineered like no other tape machines in the world; with qualities you can hear and feel.



OTARI Technology You Can Touch.

Otari Corporation, 2 Davis Drive, Belmont, CA 94002
Tel: (415) 592-8311 Telex: 910-376-4890

Circle (9) on Action Card



program director of Houston's KTRH. Shane is known to radio management through his monthly "Program Guide" columns in BROADCAST COMMUNICATIONS, of which he is radio programming editor. During RADIO VIDEO tapes, he interviews industry thinkers on each subject, interprets concepts, and provides step-by-step instruction complete with visuals.

The first RADIO VIDEO cassette explores the applications of focus groups to radio. Shane interviews Dr. James Fletcher of the University of Georgia, who co-authored a book on focus re-

search for the NAB's Radio Programming Conference in Chicago. Studio tape with Fletcher is mixed with video of a focus group in action and visual presentations of instructional material.

Studio work and post-production for RADIO VIDEO is done at MVP Productions in Houston, owned by radio personality Kenny Miles (KRBE's "Miles in the Morning"). Field production was done in Austin, Texas, where a focus group was taped while responding to questions about Shane client KHFI. Tape with Dr. Fletcher was done in the studios of the Henry W. Grady School

of Journalism and Mass Communications at the University of Georgia in Athens.

The production schedule provides for a new RADIO VIDEO cassette every two months with an attempt to demystify what Shane calls "radio's buzzwords."

Cassettes are \$122.50 in Beta or VHS formats. A \$25 additional charge is made for 3/4-inch U-Matic tapes. Shane said the pricing structure was designed with both managers and program directors in mind.

For more information, contact Shane Media Services, 7703 Windswept, Houston, TX 77063; (713) 461-9958. Or, circle (260) on the Action Card in this issue.

LPTV show set for Washington

More than 3,000 persons are expected to attend the second annual LPTV East Conference and Exhibition being held at the Shoreham Hotel in Washington, D.C., October 1-3. The conference, sponsored by the National Institute for Low Power Television, will feature seminars, workshops, and an exhibit area for LPTV suppliers.

Topics include financing, legal considerations, FCC rulemaking, satellite hardware, advertising, non-profit ownership, programming, minority ownership, LPTV in rural America, educational aspects, engineering aspects, earth stations, and local news and public affairs.

The exhibition, with over 150 booths, will offer the latest products, services, and information available in the LPTV field. Among the displays will be the newest lines of transmitters, antennas, towers, studio equipment, tape, cable, earth station equipment, translators, test equipment, engineering and design services, software, and satellite communications equipment. Attendees can also participate in free exhibitor seminars given by representatives of exhibiting companies.

For more information contact Joann Coviello, Conference Management Corporation, 17 Washington Street, P.O. Box 4990, Norwalk, CT 06856; (203) 852-0500.

Satellite conferences set

The Public Service Satellite Consortium (PSSC) will hold its seventh annual conference October 19-20; and Services by

Continued on page 16



Colorful Personality.

Now you can get the color correction and video level adjustments crucial to professional VTR editing and field production. The CCS-4200 from FOR-A CORP. has been designed to give you all the control and flexibility you need in a professional color correction unit—at a surprisingly affordable price.

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- Corrects sync and burst wave forms.
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Our popular Studio 12 picture monitor includes, as standard equipment, the features found on monitors costing twice as much: A-B Split Screen, Selective H-AFC, High Voltage Regulation, ACC-Defeat, Preset Controls, Pulse Cross, Underscan, External Sync plus more.



(all available in PAL standard.)

In only 7 years, Videotek has become an industry leader. We design and build more sizes and configurations of color monitors than anyone—worldwide! And our 1981 "Distinguished Video Industries Service Award" stands as a testimonial to our commitment to your needs.

Now that's Progress...by Design.



**VIDEOTEK
INC.**

Circle (11) on Action Card

Satellite (SatServ), a subsidiary of PSSC, will hold its annual conference October 20-22. Both conferences are being held at the Washington Hilton in Washington, D.C.

The PSSC conference, "Satellite Communications for Public Service Users," will feature discussions of the Campus Conference Network™, the consortium's dedicated satellite network located on university and community college campuses, and the use of satellite networks in education, health,

religion, and libraries.

The SatServ conference, "Space Communications in the '80s," will include panel discussions on dozens of subjects, such as dedicated networks; full-motion video teleconferencing; slow-scan, freeze-frame, and computer conferencing; telephone bridging systems; insurance; home earth stations; and international teleconferencing.

Both conferences also will feature exhibits of satellite industry products and services.

For more information on the PSSC and SatServ conferences, contact Polly Rash, director of marketing, at PSSC and SatServ headquarters, 1660 L Street, NW, Washington, DC 20036; (202) 331-1154 or (202) 331-1960.

St. Louis is site of SBE convention

The Society of Broadcast Engineers (SBE) will hold their Central States Convention in St. Louis at Stouffers Riverfront Hotel, September 9-11.

A full schedule of workshops, seminars, and panel discussions will cover many areas of audio, video, and broadcast. Several manufacturers will also conduct product training sessions.

Convention co-chairman Andy Butler feels attendance will be excellent based on the strong response by exhibitors and the central location of the show.

"We have intentionally kept the cost of attending the convention to a minimum as a means to attract additional attendance," Butler said.

Exhibitors include ADC, Adda, Ampex, Antech Labs, Anton Bauer, Audico, Audio Technica, Beston Electronics Inc. (BEI), Broadcast Electronics, Broadcast Systems, CDC, Chyron, Cine Products, Communitronics, Crown, Delcom, Victor Duncan, Dyer Electronics, Electro-Voice, Fortel, Grass Valley, David Green, Jim Grunder, Harris Corporation, Hitachi, Harrison Systems, ITC, JBL, JVC, Kliegl, Lenco, McMartin, Mic Mix, Orban, Otari, QEI, RCA, Rohn, Roscor, Scotch, Shure Brothers, Stanton, Sony Broadcast, Soundolier, Sound Technology, Telcom Tower, Tektronix, Television Engineering, Televisual, Telex, UREI, VCA, VMI, and White.

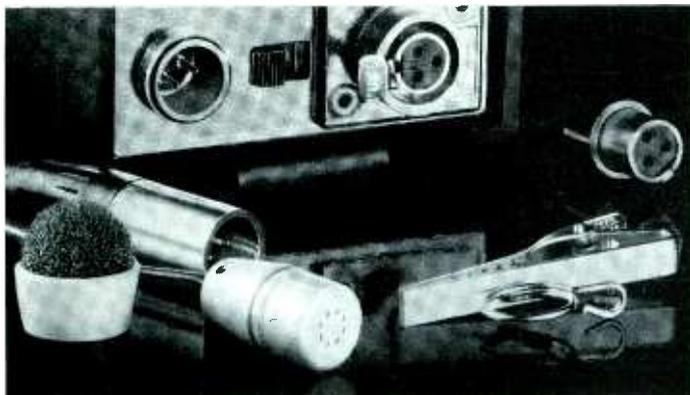
For pre-registration information, contact Andy Butler, 2360 Hampton Avenue, St. Louis, MO 63139; (314) 644-1380.

Broadcast scholarship established

A scholarship in the memory of James Lawrence Fly, chairman of the FCC from 1939 to 1944, has been established by the law firm of Fly, Sheubruk, Gaguine, Boros, Schulkind, and Braun. The scholarship will be awarded to students planning a career in broadcasting, and proposing studies for that

Continued on page 18

Think of us as your mike expert.



The CO94. All miniatures are not created equal.

Until now, the engineer faced with selecting a miniature microphone was hard pressed to find any dramatic differences in performance. That is, up until the Electro-Voice CO94.

For starters, the CO94 offers unprecedented dynamic range. It has 10 dB greater sensitivity and 20 dB greater input SPL handling capability than the best known competitor. This high performance makes the CO94 ideal for stereo spaced-omni recording, close miking of high output musical instruments, as well as standard lavalier applications.

The CO94 also offers exceptional powering flexibility. It can be powered by a standard 9-volt radio-type battery. Or it can be phantom powered from a mixing board, recorder, or in-line supply. The 9-volt battery can even be used as a redundant

power source to "back-up" the phantom power. Plus, the CO94's advanced electronic design permits powering from virtually any DC power supply, capable of delivering between 8 and 50 volts. The internal regulation and filtering will make the CO94's impedance converter swear it's being powered by an over-priced import supply.

These and many other performance features set the CO94 a giant step above the other miniatures you previously had to choose from. The CO94 is a versatile new kind of tool, and just one more reason why you should think of Electro-Voice as your microphone expert



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Ampex Announces the Practical End of Video Jitters.



Video Jitters can drive you up a wall.

It happens when you've repeated an edit over and over.

You want it perfect. Now, everything's cued up just right. You hit the edit button, and what do you get? A glitch. A shaky picture. A sour stomach. Video Jitters.

The culprit is stiction—friction build-up so bad that the tape actually jerks across the heads and scanner. Humid conditions can make it worse.

But not if you use Ampex 196 One-Inch Broadcast Video Tape.

Every batch of Ampex 196 has to pass the toughest test in the industry—stiction-free operation at the extreme environments of 90% RH and 90° F, to guarantee that you have consistent stiction-free operation under all conditions.

Ampex 196. Less friction, because who needs it?

Ampex 196 One-Inch Video Tape.

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**SPECIAL OFFER!
FREE ONE-INCH VIDEO TAPE.**

Send me details on how to get a free hour of one-inch video tape for every 9 hours of Ampex 196 One-Inch Broadcast Video Tape I buy.

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Act now! Offer expires October 1, 1982.

Send to:
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purpose during the third or fourth year of college or a year in graduate school.

The Broadcast Education Association will administer the scholarship, with the presentation taking place at the BEA's annual meeting.

The selection of the winners will be based on consideration of academic performance, prospective contribution to the broadcasting industry, and need.

For more information, contact the Broadcast Education Association, 1771 N Street, N.W., Washington, DC 20036.

Business Hotline

SHOOK ELECTRONIC ENTERPRISES

—Shook Electronic Enterprises now has under construction a 32-foot mobile television production unit being designed for UA Columbia Cablevision of Texas Inc. This custom-designed unit has a production area measuring 24 feet, and features a separate videotape room as well as a separate and enclosed audio room. The graphics area is a separate console that includes character generator, monitoring, and slow-motion control. There is enough room to accommodate 10 or more operations

personnel; and there is ample storage beneath the vehicle. Shook plans to deliver the unit in early fall.

SOUNDCRAFT—E.A.R. Professional Sound of Tempe, Arizona, has installed the first Soundcraft Series 1600 recording console in the continental U.S. at Synchestra Studios in Phoenix. The console will be complemented by a new Otari MTR-90 16/24 multitrack machine and Lexicon 224 digital reverb system.

LIGHTWAVE TECHNOLOGIES—Lightwave Technologies of Van Nuys, California, now has available polarization preserving, low-loss, single-mode, optical fibers for sensor and other applications where polarization cross-coupling is to be minimized. For more information write to 6737 Valjean Avenue, Van Nuys, CA 91406.

SATCOM/ORROX—An order valued at more than \$300,000 has been placed for SATCOM's low-noise down converter (LNC) for 4 GHz transmission reception. SATCOM, a subsidiary of Orrox Corporation, is a pioneer in the research and development of the 12 GHz satellite-to-home receiver system.

BONNEVILLE SATELLITE—Bonneville Satellite Corporation is now offering live and tape satellite origination

services from facilities in New York City which will serve as a studio and tele-conference center. Transmission to all Greater New York satellite uplinks, both domestic and international, is available. Satellite utilization will be maximized using timesharing to reduce transmission costs to users where possible.

ARTEL—The ABC Engineering Lab has approved the Artel EN-1000/SL-2000 fiber optic systems for use by ABC. ABC has used the system for network ENG events, a live interview, and convention coverage. The EN-1000 is a portable battery-operated unit that transmits broadcast-quality video and audio over up to two miles of fiber-optic cable.

INTERFACE TELEVISION SYSTEMS

—The Grass Valley Group has appointed Interface Television Systems of Anaheim, California, as their distributor in the Southern California area. ITS will have available Grass Valley switchers and processing equipment.

INDUSTRIAL SCIENCES INC. (ISI)—ISI offers a complete line of high-quality audio and video distribution amplifiers. ISI's terminal/processing

Continued on page 20

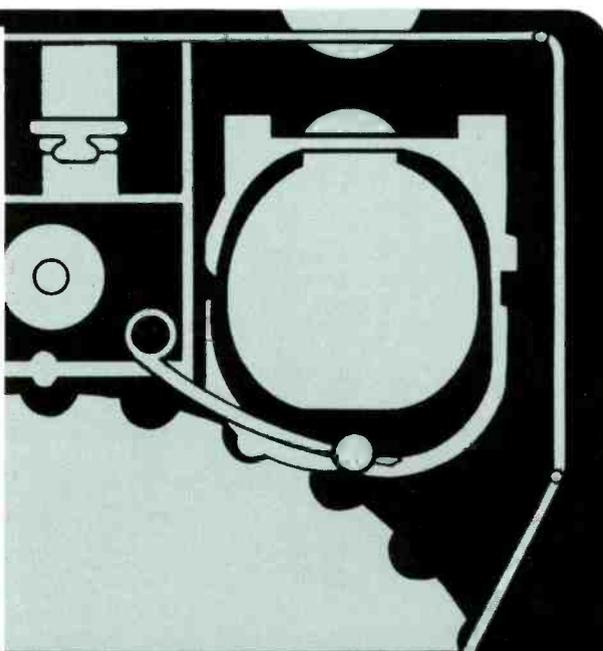
FIDELIPAC CARTRIDGES USE TAPE FOR ONLY SOUND REASONS.

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Magnetic tape is sacred at Fidelipac. That's why we only use it to record and reproduce audio. Not to do jobs it was never intended to do. Like act as part of the cartridge brake. Induce drag. Or increase tape tension.

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RTNDA NEWSLINE

Board meets in Montreal

The legendary hospitality of the Canadians and the beauty of that most European of all North American cities, Montreal, both lived up to their reputations when the RTNDA international board of directors met in conjunction with RTNDA of Canada.

The board met the day before the RTNDA of Canada convention got under way in the Le Centre Sheraton hotel. At noon on the second day of the board meeting, the directors and officers joined the Canadians at lunch. President Wayne Godsey scheduled the board meeting to coincide with the Canadian conference to demonstrate the close ties between the news directors of the two countries, and he once again pledged the full support of the international group.

During the meeting, the board took up a long and varied agenda, discussing everything from a new and longer format for the international convention, future convention sites, a film/videotape on careers in electronic journalism, the shortage of 3/4-inch videotape, the threat of "voluntary" bar-bench-press guidelines being made mandatory, and a host of other issues involving freedom of information and access.

The board meeting also saw the resignation of Godsey as president of the association. He has been promoted from news director at WTMJ-TV, Milwaukee, to vice president and general manager. Although he was eligible under the RTNDA constitution to continue as president, Godsey told the board he felt very strongly that the president of the association should be a working news director; therefore, he was stepping down and turning his office over to the president-elect, Dean Mell, KHQ-TV, Spokane, as provided for in the constitution.

equipment can meet the demands of studio, network, and remote facilities. For more information, contact ISI, 3521 S.W. 42nd Avenue, P.O. Box 1495, Gainesville, FL 32602.

JVC COMPANY OF AMERICA—JVC Company of America is the new name of the restructured sales and service division of US JVC Corporation. The move centralizes marketing and support services for greater flexibility in meeting current and future growth goals, and to better reflect JVC's expanding American operations. JVC Company of America markets a full line of audio and video equipment throughout the U.S.

IKEGAMI—A new southeast branch office located in Tampa, Fla., has been opened by Ikegami Electronics (USA) Inc. The company formerly served the area from an office located in Americus, Georgia. The office will be headed by James Starks, recently appointed southeastern regional sales manager.

RANK CINTEL—Egypt's Organization of the Broadcasting and Television Federation has purchased telecine and related equipment from Rank Cintel (U.K.). The equipment will be installed at OBTF's headquarters in Cairo. **BC**

SOCIETY OF BROADCAST ENGINEERS



**SEPTEMBER
9, 10, 11
IN ST. LOUIS,
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PRE-REGISTRATION FORM

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Mail to: **SBE Central States Convention**
2860 Hampton Avenue; St. Louis, MO 63139
Attn: Andy Butler, Chairman

THE MOVING PICTURE COMPANY ON CMX

John Beedle was one of the first staff members of the Moving Picture Company in London and is currently an editor, engineer and is on the Board of Directors. Fifteen years ago he started in the business with PayTelevision, an experimental pay TV company in London. He got his first taste of editing doing "The Breakfast Show" for Television International and later set up and ran a video suite for Ewart Television, London, before joining MPC.



"Two years ago when we at MPC decided to expand our video editing facilities, our goal was to have the most efficient suite in London, marrying the new one-inch 'C' format technology with a flexible, reliable editing system. After much investigation, including a visit to the U.S., we chose the CMX 340X.

"This system has brought a new dimension to our editing capabilities and has been a winner with both our clients and editors. The system has most options fitted and is interfaced fully to the video switcher and by GPI to many peripherals such as additional SFX banks of the switcher, 1/4-inch tape, telecines, and our multi-channel Quantel. Our sophisticated special effects work demands the kind of flexibility available with the 340X including the ability to delegate record and playback

machines without repatching control cables.

"After a year of operation, due to growing business demands, we decided to install another edit suite. Again, we carefully examined the available editing system to see what was new. We bought another CMX. This second system enabled us to exploit another facet of 340X flexibility. We were now able to delegate machines from one system to the

other as the specific job dictated. System one has three format 'C' VTR's and one quad interfaced. System two has three format 'C' and one format 'B' interfaced. With this mix and the ability to delegate, we haven't yet been caught out by the proliferation of formats, we just 'switch and mix' machines as required.

"Shortly we shall be looking to update our quad edit suites with 'the new technology.' Although we will again look carefully at the market place, it's reassuring to know that so far we have made the right choices with CMX."

See us at Stand F-45, IBC



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ORROX**
The World Standard for Editing

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“OUR NEW SONY ALL KNOWN

“Finally there’s a ¾-inch recorder that doesn’t just inch along,” says Fred Rheinstein, president of The Post Group.

A major post-production facility in Hollywood, The Post Group counts among its clients all three networks, PBS, and major cable TV and syndicated production companies. It will edit the new syndicated children’s show “We’re Moving” entirely on the BVU-800.

“The 800 is amazingly fast. To be able to go backward and forward at 40 times play speed means you can search for your edit points—and find them—more than twice as fast as ever before,” continues Rheinstein. “And this machine goes from its highest speed to a still frame. Instantly. Without slewing or breaking up.

“It also has a direct-drive system, which promises greater reliability and accuracy.

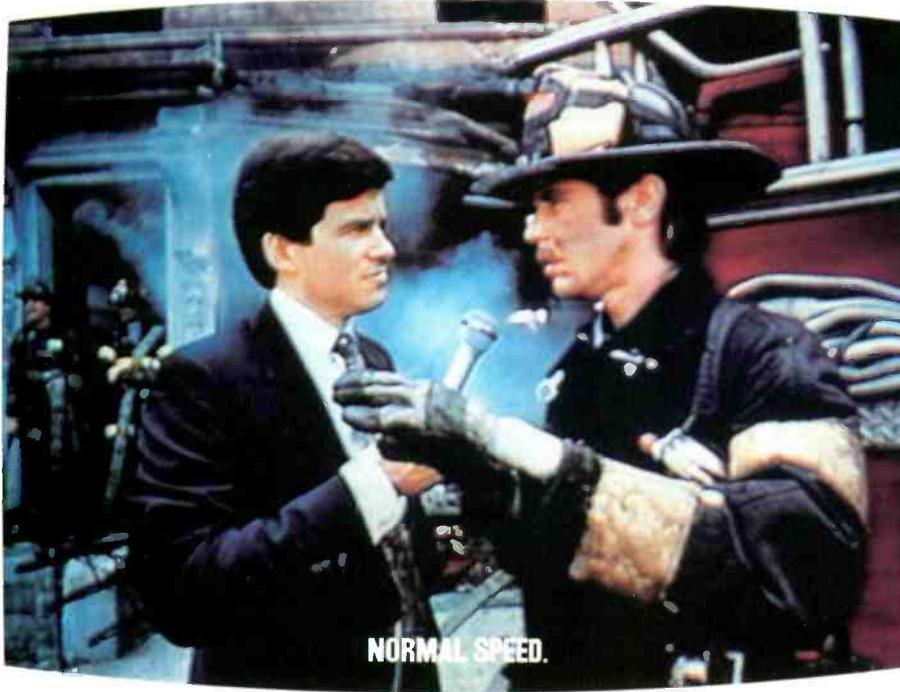
“We have extremely critical clients,” says Rheinstein. “They’re used to the best performance, in terms of picture quality and in terms of flexibility. This new Sony can deliver it.

“It’s the perfect combination of U-matic economy and broadcast quality. It’s a true mastering process; with the BVU-800, there’s no need to transfer to one-inch and lose a generation in order to edit your tape.”



U-MATIC BREAKS SPEED RECORDS."

Fred Rheinstein, THE POST GROUP



Other breakthroughs incorporated in the BVU-800 include its ability to make machine-to-machine cuts without a separate controller; its adjustable, removable edit control panel; and its narrow, front-loading design, which makes rack mounting possible.

"We've always bought a lot of Sony, because we can depend on the company for reliability and innovation," says Rheinstein. "Now, with the BVU-800, Sony makes its competitors look like they're operating in reverse."

Sony makes a full line of 1-inch and 3/4-inch broadcast equipment, including cameras, recorders, editors and digital time-base correctors.

For more information, write Sony Broadcast, 9 West 57th St., New York, N.Y. 10019. Or call us in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 537-4300; or in Atlanta at (404) 451-7671.

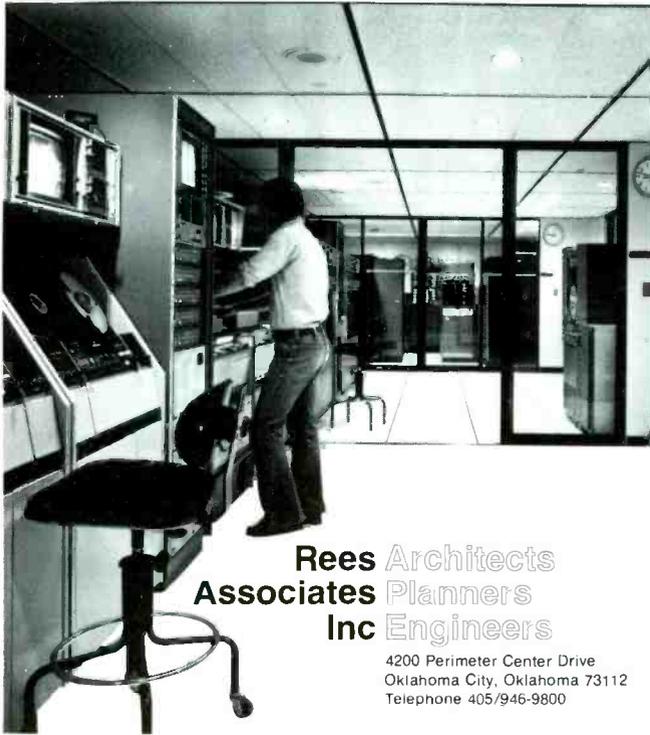
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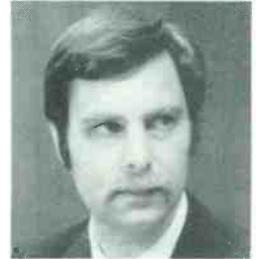
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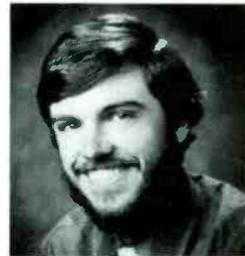
NEWSMAKERS

John Kompas and Greg Vandervort have joined BROADCAST COMMUNICATIONS as contributing editors, it has been announced by Ron Merrell, editorial director.

Kompas, the new cable technology editor, is president of Video-Ink, a firm of video engineering consultants located in Milwaukee. He has been writing for ACCESS, BC's quarterly cable supplement, since it first appeared in January of this year. Kompas will write articles which explain the basics of system design, articles on new technologies entering the cable market, and interviews with cable operators who have profitably introduced innovative services to their subscribers.



Greg Vandervort, named cable production editor, is the director of local origination for Suburban Cablevision in East Orange, New Jersey. He has also written for ACCESS since its inception. Vandervort, who began his career with Suburban five years ago as a part-time cameraman, received his bachelor's degree in communications from Seton Hall University in 1977. He has served on cable panels at the NCTA/CTAM Software Symposium in New Orleans and at Video Expo in New York. Vandervort will be writing regular features on all aspects of local cable productions, including LO and access programming.



Gerald Rubin, producer of KTLA's nightly news, and anchorpersons Hal Fishman and Debby Davison, were awarded Emmys for the Los Angeles station's *News At Ten*. Stan Chambers, veteran newsman, and Rubin won awards as producer and executive producer, respectively, for KTLA's live coverage of the hijacking at L.A.'s International Airport in March 1981. The awards were presented at the 34th Annual Emmy Awards banquet held recently at the Century Plaza Hotel.

Richard Lehner has been named general manager of WUFT-TV/FM in Gainesville, Florida. Lehner has served as acting general manager since April 1981. Prior to that he was director of programming for WUFT-TV.

John Howell moved from California to Detroit, where he assumed the position of news director at WJBK-TV. Howell had been news director for KFSN-TV in Fresno.

Pat Brady has been named vice president and general manager of WVIT, the NBC Television Network affiliate for all of Connecticut, including Hartford/New Britain, Waterbury, and New Haven. Brady came to WVIT from WCLQ-TV, Cleveland, where he was also vice president/general manager.

Kathy Sakowicz Morris, communications manager for Prudential Insurance, Chicago, has been elected to serve as president-elect of the International Television Association (ITVA). Also at ITVA, Marlene McGraw was named office manager of the international office. She replaces the former director of operations, Bobette Kandle.

Continued on page 26



The Comad CJF-1 Prewired Audio Jackfield.

If you've counted the jacks in the photo, you've discovered the total price of the CJF-1.

Not bad for a 24-position prewired jackfield.

Shielded, twisted-pair wire connects the 24 ADC tip-ring-sleeve jacks to a swivel-mounted terminal block with room for 120 connectors.

The standard single unit rack mounting strip is hinged on the left side for easy access to the wiring.

Four different lengths of cable harness are available, so that up to four separate terminal blocks can be neatly mounted into a pair of optional mounting bars.

If 24 jacks isn't enough for you, the 48-jack CJF-2 jackfield with a normalized wiring configuration is also available. Its price is \$495. (We'll let you figure out the cost per jack.)



Comad, Inc.
P.O. Box 10667
Pensacola, FL 32504
904/434-9782

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The Quantel DLS 6030.



Every other way to store stills is obsolete.

Introducing the state-of-the-art in electronic still-storage—the Quantel DLS 6030 digital library system.

Obviously it stores still pictures. Up to 800 on each small Winchester disk drive. And with the quality that is a hallmark of Quantel. But the DLS 6030 goes far beyond still-storage.

It is the only electronic still-store with production effects capabilities. So now you can compress still pictures to any size. Crop them to remove unwanted material. Position them anywhere you want. Put borders around them. And dissolve from one shot to the next.

You can even build up totally new pictures—composites or montages—from existing material.

And you can always retain your “originals” in their pristine state.

The DLS 6030 lets you browse through its disk library to select the pictures you need, and gives you unprecedented facilities for on-air editing, previewing, and presentation.

Off-loading? You can dump all the pictures—in digital form—onto

standard videotape. Then reload at the remote site via any VTR. The transfer is digital, so there's no generation loss.

Because Quantel's technology is leading-edge, the DLS 6030 is small—about one-quarter the size of still-stores using older technology—and draws far less power. So it's ideal for mobile operations as well as the studio.

There's nothing else like it. See for yourself. Call your local MCI/Quantel representative. Or get in touch with us directly at 415/856-6226. Micro Consultants, Inc., P.O. Box 50810, Palo Alto, California 94303.



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NEWSMAKERS

John Silvestri was recently named vice president, national sales director, for Hearst/ABC Video Services. Also at Hearst/ABC, John Cronopulos was named vice president, eastern sales.

Gary Borton of Eastman Kodak Company was named program chairman for the 124th Technical Conference of the Society of Motion Picture and Television Engineers (SMPTE). Assisting Borton as co-chairman for television is Dr. Richard Green, the CBS Television Center; and as co-chairman for motion pictures, Donald Breidt, Novo Communications.

John Angier is the new vice president, business affairs, for Viacom Productions. Angier was most recently vice president of television business affairs for Marble Arch Productions.

Paul Belitz, Pete Goulazian, and Don Robinson were recently elected to the board of directors of Katz Communications. Belitz joined Katz in 1976 as president of Media Data, Katz' in-house computer division. Goulazian began his career in 1967 with Katz as associate director of sales development. Robinson has been president of Katz Independent TV Sales since its inception in 1980 when Field Spot Sales merged its organization with Katz Communications.

Business Moves

Jack Niebell has joined Dynair Electronics as vice president of engineering. He takes over this position from Hank Maynard, who has been promoted to vice president of operations for the company. Niebell was previously with the 3M Company, where he held managerial positions in engineering and quality assurance since 1964.

Herb Van Driel has been appointed midwest regional manager for Lenco Inc., Electronics Division. Van Driel, who has more than 24 years' experience in video and broadcast, will be responsible for sales for all Lenco video products to distributors and OEM, as well as directly to broadcasters, in 11 states comprising the midwest region.

W. Arnold Taylor was recently named division vice president, marketing, for RCA Commercial Communications Systems Division. Taylor will head an organization marketing RCA's complete line of radio and television studio and transmitting systems to broadcasters and teleproducers worldwide.

Steve Krampf has been appointed general manager of the new research and development division of Otari Corporation. In his new position, Krampf will be responsible for expanding the international line of Otari products in the production end of the broadcast, telecommunications, and recording studio businesses. Joining Krampf as engineering manager is Tom Sharples.

R. Bland McCartha is the new vice president of marketing and sales for Computer Operations. McCartha will be responsible for marketing the firm's line of computer numerical control equipment to the machine tool industry, the Knox Video Products line of character generators, and the new ANIMAT real-time video animation system to the television industry. Prior to joining Computer Operations, McCartha was eastern regional sales manager for the communications division of Tektronix.

Francis X. Carroll has been appointed vice president, administration, at Sony Broadcast Products Company. Carroll's responsibilities will include the management of all financial and administration activities for the company.

Steve Hesselson has been appointed marketing manager, display products, at EEV Inc. He will be responsible for the marketing and sale of EEV's range of character and liquid crystal display tubes.

Daniel Roberts has been named vice president of the Professional Video Division, JVC Company of America. Roberts, who has been division manager since 1981, will continue to direct product development and marketing strategies in addition to expanded administrative responsibilities.

Glenn Wolk joined Hitachi Denshi America as eastern regional sales manager for the Visual Products Division. He most recently was a manufacturing representative with M. Belin Marketing.

Donald Bogue is the new director of business management for the Magnetic Tape Division of Ampex. Bogue will have overall responsibility for audio, video, and instrumentation tape marketing and product line strategy, and for strengthening the business management function of the company's magnetic tape business worldwide.

Dennis Cookinham, Lowell Landrie, Michelle Spencer, and Barbara Tozer have been promoted at Micro Consultants Technology (MCT), one of the affiliates of MCI/Quantel.

Cookinham, formerly manufacturing engineer, becomes engineering manager; Landrie, formerly test supervisor, becomes production manager; Spencer was promoted to materials control manager; and Tozer is the new manager of finance and administration. MCT manufactures high-technology broadcast equipment exclusively for MCI/Quantel.

Kinsley Jones was named manager, U.S. sales, for Moseley Associates. Jones and his staff are responsible for all non-OEM sales within the United States. Jones comes to Moseley from McMartin Industries.

Douglas Cook and Carl Ceragno were recently named vice presidents at Tele-Measurements Inc. Cook, named vice president of sales, is responsible for marketing the firm's complete line of visual communications systems and products. He joined Tele-Measurements as a salesman in 1978 and has taken an active part in the company's recent expansion into custom-designed mobile production vans for cable and network television. Ceragno, who was appointed vice president of engineering, is in charge of the company's system engineering functions and high-technology operations. He has been with Tele-Measurements since 1969.

Charles Halle is the new vice president of marketing at Television Technology Corporation of Arvada, Colorado. Halle comes to the company with an extensive background in sales, engineering, and marketing. Most recently, he was Rocky Mountain regional sales manager of M/A-COM Video Systems. **BC**

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SBE MONTHLY LOG

ALABAMA

BIRMINGHAM (Chapter 68)—A discussion was held on new methods to control phase and time correction in stereo carts.

CALIFORNIA

NORTH VALLEY (Chapter 83)—Fadi Walieddine, director of engineering at Cetec Antennas, presented a program on the development and design of CP antennas.

ORANGE COUNTY (Chapter 77)—Dave Diels of RCA demonstrated the new Hawkeye camera and recorder.

FLORIDA

JACKSONVILLE (Chapter 7)—The "Panasonic Road Show" was held. Among the items demonstrated were ½-inch broadcast editing VCR systems, large-screen projection equipment, new cameras, VCRs, and disc systems.

PENNSYLVANIA

NORTHEASTERN PENNSYLVANIA (Chapter 2)—Leonard Kahn, president

of Kahn Communications, presented an update on AM stereo broadcasting. Kahn is the designer of one of the main competing AM stereo systems.

WISCONSIN

MILWAUKEE (Chapter 28)—Dave Archer, manager of engineering for new project development for Viacom, provided a tour and explanation of the headend of Viacom for South Milwaukee. Officers are John Groff, chairman; Terry Baum, vice chairman; Guy Morrison, secretary; and Gary Jones, treasurer.

NEW CHAPTER

SBE welcomes its newest chapter, Chapter 87 in Holdrege, Nebraska. The officers are Rodger D. Fetters, chairman; James P. Liffbrig, secretary/treasurer. A vice chairman will be elected at their next meeting. Tom Kearney, chapter member, discussed the effects of electromagnetic pulse generated by an atomic blast above the earth, and how present "hardening" of

broadcast stations may be ineffective.

CERTIFICATION NEWS

The SBE Certification exams will be given from November 12 through November 20. The deadline for applying is October 1. This exam session is for all levels of certification, including the new entry-level Broadcast Technologist.

SBE is also accepting applications for Broadcast Technologist certification from engineers who have a valid FCC First-Class Operator license and meet the service requirement. These engineers do not have to take an exam and may apply at any time.

For a copy of the application and Program of Certification booklet, write to the Certification Secretary, Society of Broadcast Engineers, P.O. Box 50844, Indianapolis, IN 46250.

A reminder to the engineers certified by SBE in 1977 under the "grandfather" provision: The deadline date for applying for recertification has been extended to December 31, 1982. **BC**

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.

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The telecine without tubes. Digital CCD technology means better pictures.

Advanced technology in the new Bosch FDL 60 "U.S. Series" with PanScan and black stretch gives you tremendous advantages over conventional film scanners.

And the most important of these is superb picture quality with high resolution, excellent signal-to-noise ratio, and brilliant color rendition with negative or positive film.

CCDs make the difference

The use of solid-state CCDs—charge-coupled devices—completely

eliminates electro-optical problems inherent to pickup or scanning tubes.

You don't have to worry about burn-in, afterglow, or field lag because there's no photoconductive or phosphor layer to cause these effects.

You can forget about shrinkage, flicker, vertical deflection, horizontal misregistration, and positioning errors of all kinds.

And never again will you be subjected to the expensive ordeal of tube changes.

New operational modes

Thanks to the FDL 60's capstan drive and digital signal processing, you can operate slow motion, fast motion, forward, reverse, and freeze frame—all in full broadcast quality. You can start and stop instantly, and with frame accuracy. You can search for scenes or frames either with variable programmable search or frame jogging, both with full format color pictures.

Low operating costs

The solid-state devices used in the FDL 60, including the CCD sensors, need no maintenance. They have all the reliability and long operating life typical of semiconductors. So besides giving you a better picture, the FDL 60 saves you money on maintenance.

Operational flexibility

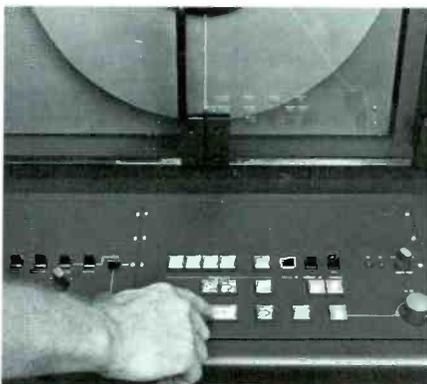
The FDL 60 gives you operational flexibility you'd expect only in a modern videotape recorder. You control it like a VTR, too. The servo deck with continuous capstan drive and microcomputer control ensures gentle film handling. And it's totally insensitive to perforation damage.

A keyboard that lets you enter time code cue points and a changeover switch give you disturbance-free transitions between two machines in parallel operation.

You can even integrate the FDL 60 into your VTR editing and film-to-tape transfer systems.

A quick-switch optical block lets you run either 35mm or 16mm film in combination with all the usual types of sound track.

Find out for yourself how high technology can mean better pictures. Call your local Fernseh office. Or get in touch with Fernseh Inc., P.O. Box 31816, Salt Lake City, Utah 84131, (801) 972-8000.



Convenient film deck controls include speed, mode, direction, format, framing, and focus. Adjacent decks control audio, video, and color correction.

BOSCH

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NEWS DIRECTIONS

PHILLIP KEIRSTEAD

Teletext is in your future

The problem with broadcasting has been that until very recently, the interest by broadcasters in teletext was virtually nil."

Those are the words of David M. Simons, president of Digital Video Corporation of New York. Simons is an expert on teletext and videotex; and he thinks broadcasters need to pay closer attention to the new information services.

Apparently a good many broadcasters agree with Simons, judging by the attendance at the teletext-videotex session during the recent NAB convention.

All of this is relevant to those of us in television and radio news. Who is going to provide the information for the teletext service? You guessed it!

Teletext is a written data service which can be transmitted on the vertical blanking interval of a television signal. The "pages" (100-200) of written information transmitted are "captured" and put on the home TV screen by use of a decoder and keypad.

Said Simons: "By 1989, and I think that's probably late, every network O&O and affiliates will be providing some form of teletext programming."

He also predicts most of the teletext transmissions will be pass-throughs of network service until sufficient decoder penetration is reached, and then stations will begin to insert local data in significant quantity.

All three major TV networks have announced plans to provide teletext service to affiliates within the next few months.

Simons believes teletext is likely to spread like wildfire because station management can't run the risk of viewers turning to another channel which has teletext capability.

The initial investment for a pass-through of network service is small, mainly the purchase of monitoring equipment to watch the network. Simons said that a station can install local-origination equipment for less than the cost of a good color camera.

Simons figures teletext will develop the same way color television was marketed: the service will be provided by local stations, and this will trigger the purchase of decoders by the public.

Commenting on teletext as an extension of the newsroom's activities, he said: "I view it as a logical extension, but I don't view it as something that

takes place all that automatically or easily." His basic point is that added staff members will have to be hired to provide copy to the new service.

Simons does think having a newsroom computer system will help the news department deal with teletext.

He gives an example of how a computer system might simultaneously prepare material for air and teletext.

WEATHER for Chicago Area		
MONDAY	Clear	20
TUESDAY	Cloudy	22
WEDNESDAY	Snow-3"	15
THURSDAY	Snow-1"	15
FRIDAY	Clearing	10

"Most sportscasts," Simons explained, "have a section where they give the scores and what happens. You have a talking head who is verbalizing the scores, or a voice-over where you've got a character generator flashing the scores on the screen. It would be possible to create your news composition system in such a way that the sports scores would go in and would not only create copy that would be read by the talking head, but would also drive the character generator that would flash on the news broadcast and would also generate the teletext page."

Then we asked Simons if he envisioned a reporter being asked to prepare two versions of a story: one for air and one for teletext. He responded: "WLFD found this out: It's too jarring a transition from one form to the other. At this current stage in time you do need people who are specially trained...that does not mean that they cannot share the same information-gathering sources. So suppose a reporter goes out and gets a story, then that story is input with some sort of header...which facilitates creation of teletext pages."

He added: "It [simultaneous preparation] requires a new type of journalist to do both, and that's not going to happen overnight."

We were curious to find out how Simons felt about the importance of knowing how to create graphics. There are people in the industry who say the best teletext writer/editors will be people with an advertising-graphics back-

ground.

Simons deemphasizes the importance of graphics on teletext, however, saying graphics take up too much of the limited page capacity. He also says people will not dial up a page which only features a graphic. He expects to see greater use of high-quality graphics on cable systems which have a far greater page capacity.

Simons believes broadcasters should not worry about viewers with teletext decoders turning the dial away during newscast commercials. "The things videotex (or teletext) does best are fundamentally boring and extremely useful," said Simons. "There's nothing intrinsically entertaining about baseball scores or one's bank balance, but we will find time to get them and watch movies and ball games."

Simons says he hasn't put as much thought into applications of teletext which might be germane to radio, but he did come up with two ideas. If the courts and the FCC permit it, a radio station could use the vertical blanking interval of a TV signal running on cable. Another possibility is to provide teletext service on one of the system's local-origination channels.

Simons believes for radio or television "the key is, do you have the access to local news?"

And furthermore...

- Those computer news and weather folks at McInnis-Skiner in Oklahoma City are happy. They just sold a Weathergraphics system to ABC for use on *ABC This Morning*, the early-morning network news.

- We're told that Basys' NEWS FURY system is up and running at KRON-TV in San Francisco. The initial system has 25 terminals.

- The "Technology Day" program for the RTNDA Conference is beginning to firm up, and should make it worth hitting up the boss for a trip to Las Vegas.

- The word from the RTNDA office in Washington is that you'll need a giant shoehorn (the size of the Flamingo Hilton) to get exhibit space for the conference, if you haven't already signed up.

It should be an exciting conference!

Phillip Keirstead, news technology editor, is associate professor of journalism at Florida A&M University, Tallahassee.



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CV-2220	3CX1500A7	86-108	1.5 kW
CV-2225	4CX3500A	86-108	5 kW
CV-2240	3CX10,000U7	54-88	10 kW†
CV-2250	3CX10,000U7	170-227	10 kW†
CV-2400	8874	420-450	300/1250 W*
CV-2800	3CX400U7	850-970	225 W
CV-2810	3CX400U7	910-970	190 W

*pulsed power

†peak sync, or 2.5 kW combined in translator service



varian

PROGRAM GUIDE

ED SHANE

Research is a preventive measure

Ah, the good old days. I wasn't quite ready for the feeling of nostalgia that overcame me as I searched for a piece of information for this month's Program Guide.

I was reading columns I had written during the summer and fall of 1978 for the now-defunct *Music Programmers' Guide*, one of the trade publications that succumbed to the cutbacks in the record industry.

Specifically, I was looking for comments from veteran album-rock programmer Tim Powell, then at WAVA in Arlington. "They're concerned with keeping something on the table," Tim said about his audience, "...and gasoline in the car and probably Pampers. Pampers are expensive."

Read in 1982, Tim's remarks seem somehow prophetic. He was saying something that record companies should have acted on: their audience had concerns other than records.

In an issue of *MPG* later that same year, my column quoted Dick Maxwell of Century Record Pressing in Los Angeles: "The record industry has discovered that they don't have to drop a record after it sells a million."

At that time, there was a phenomenal amount of new product being released. I predicted that the "vinyl deluge" would not end immediately because of the numbers of successful records, the numbers of *unsuccessful* records whose artists had made outrageous pressing demands, and the numbers of people who wanted to cash in on the 1978 gold and platinum boom.

Numbers have caught up with the record industry. Inflation of pressing runs created deep recession and depression. In the space of four years, unit sales are off 20%. In 1978, the unit sales figures for all pre-recorded music was 726 million, according to the Record Industry Association of America. Even 1981's figure of 594 million was off 8.5% from the previous year, with singles down 7% and albums down 11.5%.

The ray of hope for pre-recorded music in 1981 was an increase of cassette sales from 99 million to 124 million units, a 26% jump, but not enough to offset other declines such as a 42% slump in eight-tracks.

As a result, music radio has found itself with fewer free albums, fewer

music-oriented prizes, and fewer free tickets to local concerts. There is a contrasting, frenzied increase in promotional pressure by record company representatives. Airplay on other stations is often the only indication of a record's viability.

Traditional means of researching the marketplace for music taste have changed since record stores are no



longer the best gauge. A number-one record in 1982 would have been an also-ran mid-charter in those high-unit "good old days" of 1978!

Recently, I heard from a programmer who told me that the three record stores in his area have been put "on hold" by major distributors because of slow accounts receivable. Any music research he does with those stores is totally invalid because consumers will not have access to the full range of product available.

It's no wonder that callout, focus, and other forms of "home-grown" research have become so popular in radio. Programmers whose ideas of research included a few calls each week to a list of local record retailers have been forced to put an ear to the marketplace-at-large. It's about time.

In large markets, it's not so difficult because staff size and competitive pressures often force the programmer "onto the streets" even if he uses a controlled research project to bring "the streets" to him. But in smaller markets, where research is needed most, programmers very often are encumbered with long airshifts, production responsibilities, and minimum staff. I find, in many smaller markets, the sales staff of the radio station is in better touch with the tastes of the marketplace than the program director is because they're *on the streets* every day. Salesmen talk one-on-one to real people while making direct calls.

The larger the market, the more the sales staff is sheltered by media buyers,

who look at statistics but never at *people*. Visiting an ad agency gets you more dollars but less of a feel for the audience. Visiting with a retailer and talking to his customers is an asset.

My point is that most stations already have a research staff on board. What's important is making the contacts with *real people*. A speech before the Rotary Club can become a research undertaking, if each Rotarian gets a questionnaire. A visit to a church can become a listener panel choosing new records for airplay, if it's presented properly and quantified correctly. A salesman with a packet of Xeroxed questionnaires can help you expand the sample. And don't forget to ask the receptionist to extract data from listeners who call for information, congratulations, or even complaints.

Phone banks, operators, and computers are not necessary. Even though some researchers warn against it, a callout system *can* be operated by your disc jockeys. With specific instructions and a short tape played from the production room, a crew of disc jockeys can gain additional information to be used by the music programmer.

Radio's first research project was probably a programmer in a bar asking, "How'd we do today?" The sample was not scientific, and I'm sure no report was written (unless there was a police report based on too much sampling).

When vinyl became part of the lifestyle in the late '50s, research took on a new, more concentrated form: record store calls.

Arbitron began in the '60s. Callouts in the '70s. Focus' application to radio in the '80s.

Vinyl is no longer a part of the lifestyle. Pampers, gasoline, Pac-Man, and E.T. have taken precedence.

MTV: Music Television breaks more records than radio; and there's research that shows that when the tunes are available on video at mass prices, MTV's format will eclipse audio.

The good old days of even four years ago are gone. Get ready for the good old days of today and tomorrow by seeking out your station's constituents and finding out what they need from you.

BC

Ed Shane, programming editor, is program director of KTRH, Houston.

Listen through it. Not to it.



INTRODUCING OPTIMOD-AM MODEL 9100A

Orban's new second generation OPTIMOD-AM introduces a remarkable new sound to the AM band: a dramatically open, effortless, defined, *FM-like* sound combined with extremely competitive loudness; RMS levels as much as 3dB higher than those produced by our previous processor. Yet you listen to the music, not the processor!

The new 9100A combines the best ideas from our previous 9000A with some of those introduced in the popular OPTIMOD-FM 8100A. Performance is further extended with new developments in distortion-cancelled multiband clipping and receiver equalization. The bottom-line is a processor that develops its *FM-like* sound on *real world* auto, table, and portable radios. And a processor that solves broadcasters' real-world problems, including sloppy operator gain-riding, inconsistent source material, and transmitters that tilt, overshoot and ring.

The new 9100A is available in single-chassis stereo or stereo-convertible mono versions. Sum-and-difference stereo processing means highest mono loudness from any of the AM stereo systems. Integrated construction and high-precision parts assure accurate dynamic tracking of the sum-and-difference channels, guaranteeing separation of at least 20dB (50-10,000Hz)—with better than 30dB typical. Compare before you buy!

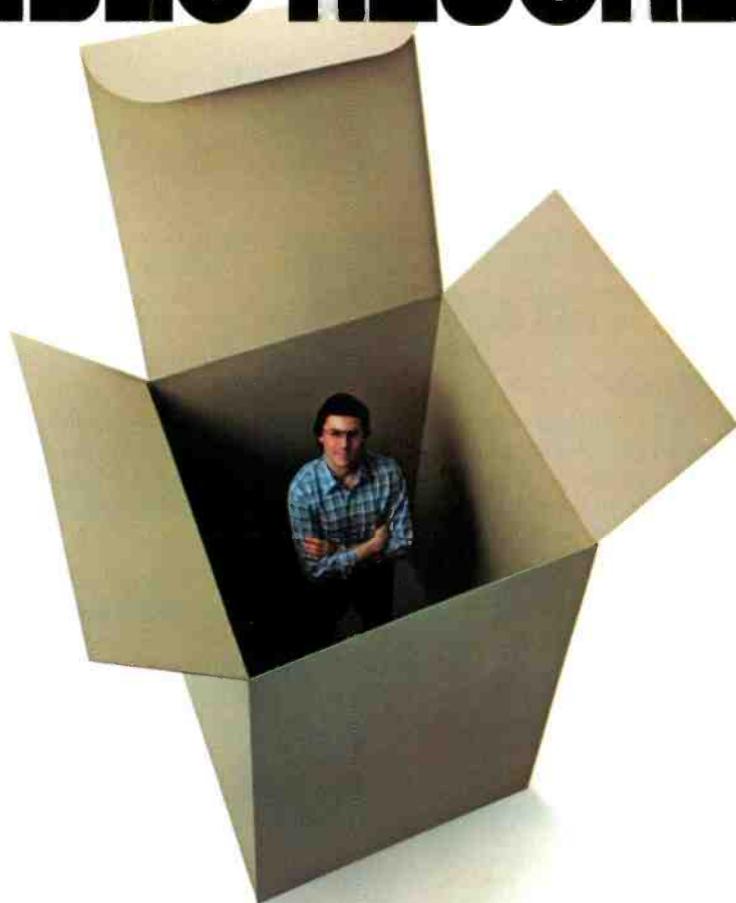
There's much more to the 9100A's exciting technical story than we can possibly tell here. See your Orban broadcast products dealer, or contact us directly for further details:

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SONY INTRODUCES A 1" VIDEO RECORDER TAILORED TO THE PEOPLE WHO USE IT: THE BVH-2000.

Because Sony probably has more experience selling and servicing 1" VTR's than anyone else, we're in an unequalled position to understand the wishes of 1" video users.

And now, Sony announces wish fulfillment for the broadcast industry: the new BVH-2000 1" video recorder.

WHY "BVH-2000" WILL MEAN DIFFERENT THINGS TO DIFFERENT PEOPLE.

In broadcast recording, there is no such thing as one typical situation.

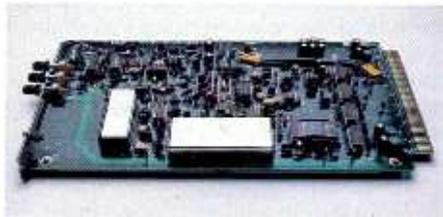
That's why there's no one single BVH-2000.

The BVH-2000 actually allows you to "design" the VTR you need for your own particular applications and budget.

You can choose among three different control panels—ranging from a basic model to one with virtually every possible feature and function.

And the tape transport system, signal system, and control section can either be combined into a single unit, or separated easily and installed in a 19" rack or console.

The BVH-2000 also gives you far greater latitude in setting up your entire recording system. Various remote-control connectors enable you to interface your system in a variety of ways for studio, mobile, and editing configurations. Direct interface with U-matic® and Betacam™ is possible, too. The BVH-2000



A range of plug-in accessories is available.

also has an optional plug-in time base corrector.

What's more, the BVH-2000's lighter weight and smaller size (almost 50% less than its predecessor) make it as ideal on the road as it is in the studio.

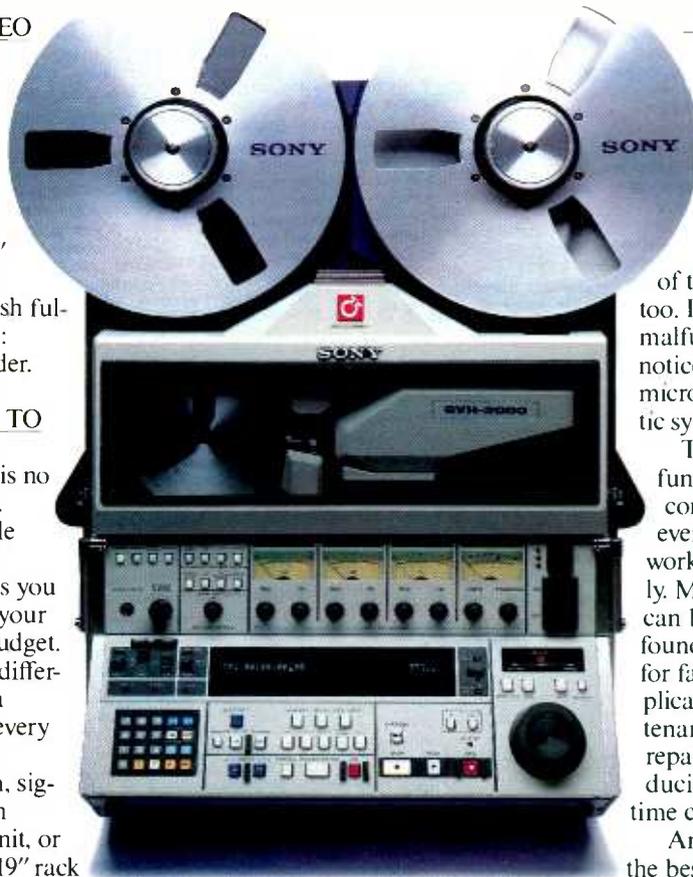
And because of the ever-increasing number of applications requiring longer program times, the BVH-2000 provides up to 2 hours of tape time.

A VTR THAT LEADS THE SIMPLE LIFE.

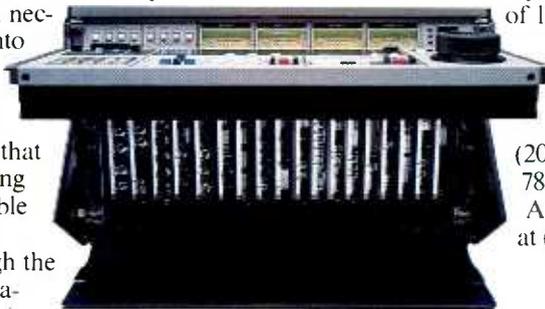
In the BVH-2000, unlike most other VTR's, microprocessors are used to their full advantage. All data necessary for servo control are channeled into a central processing unit, making the operator's control over all systems and functions simpler and more precise.

Life is made simpler yet by the fact that every necessary function control, metering facility, and electronic module is accessible from the front.

Even the way the tape moves through the recorder has been simplified. One innovation—an extremely precise servo mechanism



The BVH-2000 (shown with Type-III control panel).



Front access to all electronic circuits and modules.

—permits the entrance and exit guide posts to move about 10mm away from the drum during threading. The result is the easiest threading system ever in a 1" video recorder.

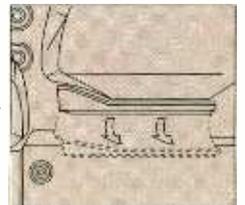
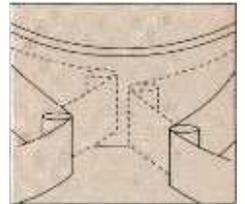
THE MOST ARTICULATE VTR EVER BUILT.

The BVH-2000 removes much of the mystery from maintenance, too. It literally tells you about malfunctions—usually well before you'd notice them yourself—through a microprocessor-governed self-diagnostic system.

The system includes various alarm functions and numerous checks to

confirm that everything is working properly. Most defects can be easily found—allowing for far less complicated maintenance and repairs, and reducing downtime considerably.

And because the best way to simplify maintenance



To simplify threading, guide posts automatically move away from drum, and audio head cover opens.

is by lessening the need for it, the Sony BVH-2000 has been designed to be virtually maintenance-free down to the last detail. For example, only brushless DC motors are used, and all incandescent lamps have been replaced with high-brightness LED's.

Other welcome advances include a greatly expanded dynamic tracking range (from reverse at normal speed to forward at 3 times normal); programmed play (allowing you to vary playback speed across a range of ±20% of normal speed); and video and audio confidence.

Remarkably, these are only some of the Sony BVH-2000's innovations. All of them add up to form the answer to virtually every need ever expressed by the users of 1" video.



Display board for self-diagnostics and other data-processing functions.

To find out how it can answer yours, write Sony Broadcast, 9 West 57th St., New York, NY 10019. Or call us in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 537-4300; in Atlanta at (404) 451-7671; or in Dallas at (214) 659-3600.

SONY
Broadcast

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Portable communication is here

Computer technology certainly isn't static. Just when you think that you've seen it all, something comes along and rekindles that old flame of discovery that made the business so interesting in the first place.

It seems that the development of communications of any sort goes through three stages. The "idea" stage is where someone gets the idea and then tries to implement it. The second is the "technician" stage, where if the public at large wants to use the new method of communications, they travel to specialists who interpret their desires, use the system, and decode the results. The third stage is the one we will address this month, which is the "direct access" stage, where the voodoo and incantations of the previous two stages are forgotten, and everyone is using the system directly, without the need for translators and high priests of technology.

Communicating with computers has taken roughly this track. When these marvelous machines were developed in the '40s, we saw the high priests of computers in their white lab coats, ever ready to protect and translate the emissions of these machines so that we, the public, could understand and act on their decisions. Granted, for a device as complex as a computer, it was probably necessary and good that there were actually people that understood how and why these devices were to be used. But how many of us have ever received a bill from a company we have never done business with because the computer says we owe them... then try to straighten it out.

About seven years ago, there was a small revolution which will forever alter our conception of what a computer is and what it does. This was the introduction of the home or personal computer. Now it is possible to communicate with a computer in the safety and comfort of your own home or office, with more power for less cost than was obtainable even 15 years ago. No longer do we need those white-coat technicians to interpret what the machine is doing. And we can program the computer ourselves. Hence, we are

entering the third stage of communication with these machines.

Up to now, size has been an impediment to true portability. The video display and associated equipment takes up space and uses electricity. What is needed is a portable terminal to access these machines over a telephone line, one that doesn't need a moving van to

relocate it every time you change locations.

This is where the IXO Corporation's "Telecomputing System" comes into play. This device features a full 61-button keyboard, internal telephone dialer (tone or pulse), modem, and display. It is capable of accessing most large databases or the smallest personal computer by dialing it over the Bell network. It's inexpensive (about \$500.00), and is the size of a paperback book!

Sounds good, you say. But what can I use it for in this business?

Each time you send a salesman out on the road to service advertisers, you are spending money: according to recent studies, about \$125 per day if the salesman does nothing but travel to service the needs of the client. On this particular day, Joe Salesmaven is making his rounds. He stops at the first store, an old-time advertiser on your station, and the manager mentions that he would like to change the rotation slightly to more closely target his desired demographic audience. This means that he wants to target the morning drive audience, with less emphasis on the late-night crowd.

Now, in the old method, the salesman would write down the changes; put them in his briefcase; and, when he got back to the office, write up the order and give it to the traffic people, who would institute the changes, if there were no conflicts. Accurate, perhaps, but this takes up valuable time and money that could be better used in tracking down new opportunities.

So, how would the "telecomputer" help change this around? First, when the salesman got the order, he would hook the machine into a modular phone jack (which close to 80 percent of the telephone locations have) and dial up the station computer. He would log on the system, make his changes in response to the prompts on the screen, and then log off the machine. From there, he would leave the advertiser, thanking him for his business; and at the station, the computer would handle his order like any other order placed in the system from the station's offices.

Continued on page 38

```
Please enter employee No. -- 36ABD
Thank you, Joe.

Do you wish to:

(1) Enter new account?
(2) Change existing sked?
(3) Leave messages?

Your choice -- 2

Account No. -- 31046

Name: Jones Pharmacy

Sked: 3x AAA, M-F
      2x AA,  S-S
      2x A,   M-f

Change -- AA

To: 3x M-F

Name: Jones Pharmacy

Sked: 3x AAA, M-F
      3x AA,  M-F
      2x A,   M-f

Change -- X

(Y/N) Log off? -- Y

Thank you, Joe. Changes
will be entered in system
for next generation log
printout.

System terminated at 12:31:45
```

Figure 1

If you're in the market for a newsroom computer . . .

. . . this could be the
smartest \$10 investment
you've ever made.

Sooner or later, your newsroom will be revolutionized by the innovative marvels of computer technology. But before you spend thousands of dollars—or tens of thousands—on a newsroom computer system, invest \$10 in the industry's first authoritative guide to newsroom computers. THE COMPLETE GUIDE TO NEWSROOM COMPUTERS contains factual, applications-oriented information on every aspect of newsroom computers . . . from understanding computer basics and making the initial purchase, to utilizing the computer to full potential in daily radio and TV news operations. And featuring a detailed description of systems currently on the market. Chapters include:

- ★ **Understanding how a computer works**
- ★ **Developing a buyer's checklist**
- ★ **Financial aspects of a**

computer purchase

- ★ **Selling management on the benefits of a computer**
- ★ **Training people to use computers**
- ★ **Radio and TV applications**
- ★ **Future applications of computer technology**
- ★ **Descriptions of systems now available**
- ★ **And more**

The Complete Guide to Newsroom Computers

Phillip O. Keirstead, editor



Edited by Phillip Keirstead and published by BROADCAST COMMUNICATIONS magazine, THE COMPLETE GUIDE TO NEWSROOM COMPUTERS is the only single source of information about newsroom computers . . . available anywhere.

LIMITED PRESS RUN. SEND YOUR ORDER TODAY!

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BROADCAST COMMUNICATIONS
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Please send _____ copies of **The Complete Guide to Newsroom Computers** at \$9.50 plus .50 handling per copy. My check or money order is enclosed.

NAME _____

COMPANY/STATION _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

Make checks payable to BROADCAST COMMUNICATIONS. Kansas residents, please add sales tax.

Considering a Satellite Format?

Do It Right With
Broadcast Electronics

SAT-16

Satellite commands will "directly start" station ID over the satellite audio exactly the way the satellite programmers intended their formats to be handled.

With Sat-16 system, programming is quick and simple. Only your commercials need to be programmed thus greatly reducing programming time and complexity.

Printer notation of when each source started including those "directly started" by satellite command gives you a permanent record of what is going-on.

2000 event memory for a full 24 hours of programming plus space saving single rack configuration with full expansion capability.

Thorough equipment checkout and training at your station by a Broadcast Electronics representative.



New software and hardware features makes SAT-16 the right system for handling your satellite format. The best part though is that SAT-16 handles these formats the way they were intended to be aired. So, if you are considering a satellite delivered format and are thinking of automating it, then why not do it right. Call or write Broadcast Electronics for the low-down on how SAT-16 does it right.

a **FILMWAY** company



**BROADCAST
ELECTRONICS INC.**

4100 N. 24th ST., P.O. BOX 3606, QUINCY, IL 62305-3606, (217)224-9600, TELEX: 25-0142

Circle (31) on Action Card

Computer Printout

Figure 1 is just an example of a software package under development, but you can see that there is a use right now for this type of technology. However, sales is not the only area of the station that would benefit. How about the following situation, which the engineers will recognize only because of the memories of early morning phone calls that are fresh in their minds:



IXO Inc.'s telecomputing system is the first low-cost hand-held system with the capability to remotely access and communicate with the host computer via plain English commands.

It has been a peaceful evening up to now, but the silence of the night is broken by the phone ringing. The intrepid chief answers with a tone of voice that is one step removed from the grave, "Whaddya want?" Well, the overnight jock explains, the transmitter is off. The chief has to hop in his car, drive 30 miles to the transmitter site, localize the problem, and get the station back on as soon as he is able. Hopefully, this is done without hurting himself or the equipment.

Using a device such as the IXO terminal, the chief could call the engineering computer and diagnose the problem from his bedside, getting the auxiliary on—if the situation calls for it—or correcting the problem with the main, thus saving time and money.

These examples are just two of the uses that this device could be used for in the station. Effectively, what we are doing is taking the chores of running a station out of the realm of time-wasting, and making their execution more efficient. A system such as described here is possible with the technology at hand, and I am sure that in time it will be a useful addition to the operation of any station. All we have to do now is think up new ways of using the technology to increase the efficiency of our computerization programs.

For more information on this system, contact either myself or IXO Inc., 6041 Bristol Parkway, Culver City, CA 90230.

BC

Bryan Boyle is the computer editor.

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Proven everyday throughout the world.
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your new camera - Available **NOW**.

Please send me my free World Broadcast Systems Map, Brochure and full technical details of Leddicons for my application.

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Position

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Circle (32) on Action Card

SOUND IDEAS

ERIC NEIL ANGEVINE

Don't forget the consultant

I think the time has come to talk once again about the use of consultants. In the past few months I've heard from several readers who related how they have used information from this column in designs for their new studio facilities. While I am honored that my column is held in high regard, I have been distressed that these projects have all proceeded without a local acoustical consultant's or studio consultant's involvement.

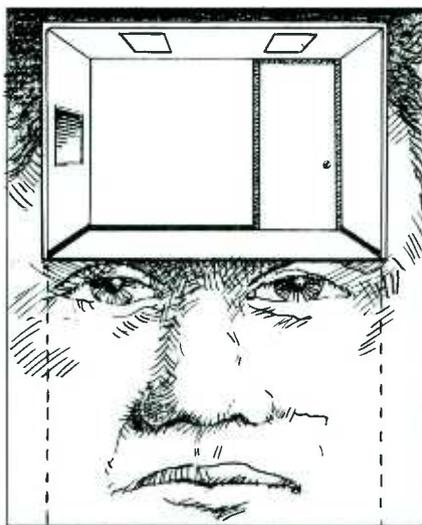
The information contained in a magazine column is hardly a complete treatment of any subject because it is often oriented toward a general, rather than a specific, problem. A consultant, with full understanding of your facility and its unique characteristics, can advise you with specific details appropriate to your studio, making the column information a starting place.

I doubt that you'd want a building designed without the guidance of a structural engineer. Oh, I'm sure that the average architect could design a building without a structural consultant, and that the structure wouldn't collapse. But the investment in professional guidance from a structural engineering expert is insurance for the owner that the building will be stable and safe, and also that the structural system will be economical. The cost of the structural engineer's fee can be justified against the saving in materials and labor during construction and after occupancy.

You can realize the same economic advantages with an acoustical consultant. Even for a building with special acoustical needs like a broadcast studio, an acoustical consultant's fee will not be very large in comparison to the overall budget. And it is very likely that his advice can save you more than the cost of his fee. This is particularly true if your architect is not experienced in broadcast or recording studio construction. For years, studio sound control has been assured by costly over-designing. Many architects still rely on this design approach for insurance against the possibility of dissatisfaction.

Some will argue that the architect should engage all of the consultants he requires to provide the owner with the optimum design. My experience in-

dicates, however, that a studio or station owner may be best served by engaging an acoustical consultant himself. If the acoustical consultant works for you, his first obligation is to you. You can assure yourself that you will be kept informed of any compromises made between the architect and the consultant. Since good sound control and good internal acoustics often require com-



promises, particularly if your budget is tight, you should be in on making the decisions. After all, you're the one who will have to live with the completed building.

A final justification for using a consultant is the cost of corrective measures in the event that acoustical problems develop. In nearly all cases, the cost of solving noise problems after construction is under way will be significantly higher than the consultant's fee would have been if he had worked with the architect before construction began.

The National Council of Acoustical Consultants publishes a directory of its members which also includes practical guidelines on selecting an acoustical consultant. The NCAC directory is available from NCAC, 66 Morris Avenue, Springfield, NJ 07081, at a cost of \$5.00, prepaid.

Another issue which seems to be showing up around the industry is that configured open-cell foam is superior to all other acoustical absorption. This just isn't the case.

Flat sheets of open-cell foam or fiberglass can provide sound absorption coefficients equal to those of configured foam, which has small wedge-shaped patterns on the exposed surface. Since the configured foam is sold by the thickness of foam measured at the thickest point, it turns out that flat foam provides greater absorption at low frequencies in an inch-for-inch comparison. Only at high frequencies, where the dimension of the wedges is equal to or greater than a quarter wavelength of the sound, will the configured foam provide greater sound absorption. For three-inch wedges, this would be at frequencies above 1125 Hz.

Three-inch fiberglass and flat foam provide high sound absorption coefficients at frequencies above 1000 Hz, with somewhat lower ones at lower frequencies. What is usually needed in studios is a balance of high and low frequency absorption. The advantage of the configured foam is not beneficial for this purpose.

Another drawback which is common to all open-cell polyurethane foam is that it gives off toxic fumes if burned. Now most of the foams on the market have an HF-1 flame resistance rating, when tested according to a UL-94 test. This is the highest flame resistance rating. But this test was developed for small quantities of material which might be ignited from a small source. A small room with large quantities of polyurethane foam might still be dangerous if ignited by a large hot source.

I have spent a good deal of time in the last year and a half discussing elements of construction relating primarily to new construction. I am aware that most of you are committed to an existing studio facility for the foreseeable future, so I will be addressing some of your existing studio problems in future columns.

If you have a particular acoustical problem that you cannot resolve, write to me, care of *BC* and I will try to address your question in an upcoming column.

Send your comments to Sound Ideas, Broadcast Communications, 4121 West 83rd Street, Suite 132, Prairie Village, KS 66208.

BC

The "Studio Optimod"



The Orban 424A Gated Compressor/ Limiter/De-Esser

There are lots of production limiters out there. Old favorites. Pretenders to the throne. The competition is fierce. So, when Orban set out to design a new production limiter, we knew it had better be superior.

The result of our research is the "Studio Optimod"—a Gated Compressor/Limiter/De-Esser with versatile controls, simple set-up, and a natural, transparent sound that must be heard to be appreciated.

Try one and A/B it against your current favorite. You'll notice the **sound**—remarkably smooth and natural over a wide range of control settings—even at high compression ratios where apparent loudness and punch are significantly enhanced. It's no accident: The unit is a direct descendent of our super-popular, second-generation OPTIMOD-FM broadcast limiter. So it exploits our years of experience in making an AGC device sound natural on diverse program material without critical re-adjustments. Yet full versatility exists for special effects in production.

A bonus is a smooth, natural de-esser. It's independent of the compressor/limiter section so you can simultaneously compress and de-ess vocal material without compromise. You can even de-ess sibilant vocals which have been mixed with other program.

The icing on the cake is unique gating and "idle gain" functions which prevent unnatural noise-producing gain variations during pauses and abrupt gain changes when the unit is switched in.

Our new Model 424A (dual channel) and 422A (single channel) are destined to become the new industry standards in dynamic range control. Prove it to yourself. Contact your Orban dealer today.

orban

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(415) 957-1067
Telex: 17-1480

Radio nets select RCA system

ABC, CBS and NBC will use the RCA Audio Digital Distribution System (ADDS) for future networking.

Announcing the contracts, RCA Americom president Andrew F. Inglis said, "This new service represents a landmark in the history of broadcasting. It is the first large-scale commercial application of digital radio program distribution in the United States, and is the result of work begun by RCA Americom in 1974. ADDS also represents a natural progression in the evolution of broadcasting as pioneered by RCA Corporation."

The three radio networks have signed contracts to use satellite-transmitted ADDS for program distribution to their affiliates; the contract went for \$46.5 million over eight years.

By using ADDS, a single network can distribute any number of high-quality programs simultaneously on a nationwide or regional basis. Receiving stations may select alternate channels of programming, or they can receive two or more programs simultaneously. Network expansion is achieved by adding more channel units to existing stations, while new stations can become part of the network by installing small, 3-meter receive-only antennas.

ADDS service is configured in units of 15 kHz or 7.5 kHz audio channels for program distribution, and 32 kilobit-per-second data channels for network coordination and hard-copy transmission. Generally, the 15 kHz channels are used for stereo music programming, while the 7.5 kHz channels are used for news service.

Full ADDS service for ABC and NBC will begin in the first quarter of 1983, and for CBS in the third quarter of 1983. Service will initially be carried over Satcom 1, moving to Satcom 1-R later in the contract period. RCA Americom estimates that about 4,500 earth stations will be receiving ADDS programming by mid-decade.

But there's another side

Moving right along, there are others who take a dim view of digital audio—as it affects broadcasters. There will always be some resistance to advancing technologies. Sometimes it depends on whose ox is being gored. But in times when technology runs rampant, it is worth considering the alternatives. If

nothing else, it keeps us from making decisions in the heat of the moment. After all, these are steep technical and financial investments.

Digital good, analog good

The following is a statement made to BROADCAST COMMUNICATIONS by Mutual Broadcasting's Gene Swanzy, who is vice president for broadcast services:

"The opening salvos of network hype have been fired, and the battle between proponents and opponents of nascent digital radio transmission systems has been joined. Yet before radio executives make their technical and capital decisions based on buzzwords, jargon, and technical minutiae, we should carefully assess the merits of existing analog systems in light of developing technologies and the realistic needs of broadcasters for the foreseeable future.

"In building a radio transmission system, the ideal objective is to create a transparent mechanism in which no measurable difference will be detectable between the original sound and the received sound. While theoretically possible, no such system exists today.

"Therefore, given the limitations of existing and evolving technology, we must set our sights on a practical alternative: a system of transmission with no perceptible difference. While we cannot absolutely eliminate the degradation of a signal, however slight, we can, using existing mature technology, transmit and receive radio signals without any perceptible degradation.

"If we can use analog broadcasting technology to achieve a system that is essentially transparent, why should we chase a developing technology which might ultimately yield better measured results on test signals, but which is imperceptible on program audio? At this point in development of satellite technology for radio networks, we must ask ourselves, how much is enough?

"Today, analog systems, like the one used by the Mutual Broadcasting System or National Public Radio, can deliver a better-than-necessary signal for network radio. Having designed systems to minimize terrestrial, adjacent satellite or transponder and intermodulation interference, the operative analog technology can achieve a 65-70 dB differential between peak program

levels and any noise floor even under 'worst case' conditions with wide frequency response and negligible distortion. Since audio improvements become imperceptible to human ears at this point, the realistic broadcaster must ask himself if an elusive technical goal, which lacks any operational significance, is worth the cost or worth the wait, especially since his own broadcast transmitter cannot perform up to the achieved quality level.

"While, in theory, digital transmissions will produce measurably better ratios, at present this can only be demonstrated under carefully defined circumstances. Moreover, as a developing technology, currently planned digital systems must rely on analog technology aboard satellites and in reproducing sound for broadcast. Therefore, for all intents and purposes, the performance of digital systems of today and the near future will continue to be a function of their analog components.

"Although good salesmen will hang their arguments on the popular image of things digital, there is nothing magical about digital technology. In fact, proposed digital systems will reduce broadcasters' mobility and flexibility, since they require no less than one-quarter of a transponder for transmissions, and users are locked into a specific channel configuration. In contrast, channel plans in analog systems can be customized for different uses or users. Lacking technical agility, digital broadcasting systems are less spectrum-efficient and will require large front-end investments at each and every user station.

"But the most telling limitation of the digital systems now in the pipeline is the fact that they are not fully developed. We have no day-to-day working experience with them nor do we have any indication of how they will perform or what maintenance will be required in the field.

"It seems that the greatest selling points of the Scientific-Atlanta and American Satellite schemes are the plans for encoding of the signal. However, the ability to provide physical security for the signal or control access to the signal seems to me to be anti-competitive in spirit."

BC

Familiarity breeds respect.

You'll appreciate the Studer B67 MKII from the day it arrives at the station. After several years of hard use, your appreciation will turn to deep respect.

From the beginning, you'll appreciate Studer performance. You'll notice the solidity of the transport, the smoothness of the tape-handling, and the positive feel of the control mechanisms. And you'll hear the sonic clarity you expect from a Studer.

Soon you'll grow accustomed to the features: three speed (15/7.5/3.75 or 30/15/7.5 ips) operation, quartz PLL capstan drive, servo controlled spooling motors, real time counter with plus or minus readout, fader start, dump edit, and auto repeat. Improvements on the B67 MKII include locking tension sensor arms and better head access for easier edits. Full remote and vari-speed available as options.

Finally, as the months turn to years, you'll gain great respect for the B67 MKII's thoughtful design and meticulous Swiss craftsmanship.

Studer professional recorders. Respected worldwide for exceptional reliability and unmatched quality.



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NRBA '82

THE BIG WINNER FOR RADIO

Radio has faced some major challenges during its existence, particularly from television in the '50s, and now from cable in the '80s. But radio has always survived, due primarily to its adaptability in a changing marketplace.

To maintain its competitive position in the coming decade, however, radio must unleash all of its strengths, and develop strategies to take advantage of the new technologies. As the July issue of BROADCAST COMMUNICATIONS pointed out, radio has taken the lead in working with the cable industry. And more of this will have to take place in the years ahead for radio to retain its share of the market . . . and maintain its winning formula.

The National Radio Broadcasters Association has again shown its leadership role by designing a convention that takes direct aim at the future problems as well as future potential of American radio. The convention, with the theme "Radio: Win Big in the '80s," is scheduled for September 12-15 at the MGM Grand in Reno, Nevada.

The keynote speaker at this year's convention is Herb Cohen, author of the best-selling book, *You Can Negotiate Anything*. Radio personality Paul Harvey will also be on hand to receive a special award at the Monday luncheon.

NRBA '82 offers sessions designed

specifically for owners and managers, program directors, sales and promotion managers, and engineers. The following is a brief description of the various workshops and sessions:

Programming

Programming Format Rooms—A group of successful program directors, general managers, and consultants will discuss how to fit the right format to your market. Formats to be discussed include Nostalgia, Adult Contemporary, Country, AOR, Top 40/CHR, Beautiful Music, Urban Black, and News/Talk.

Are Consultants Needed to Win?—A look at when to seek outside assistance, and who to choose.

Case Study—An analysis of an imaginary station designed to improve your management skills.

Positioning Your AM in the '80s—AM broadcasters explain their strategies for turning around their stations.

Focus Groups, Attitudinal Research and Other Voo-Doo—Guidance on using these techniques to obtain important information about your audience.

The Effect of New Tech—A review of the new technologies, including satellites and cable, and how they can be used to your station's advantage.

Music Computers—A demonstration of the programming tool of tomorrow.

Audience Research: David & Go-

liath—A look at the ratings services, and what's new on the horizon.

Engineering for PDs—A discussion of the technical side of the business, translated into programese.

Recruiting and Managing Air Talent—Tips from a panel of professionals on how to get and keep a winning team.

Management

Washington Report—Members of the FCC Broadcast Bureau answer your questions about the critical issues affecting radio.

Special Consultant Day—Radio professionals will provide an entire day (Tuesday, September 14) of hour-long presentations in addition to scheduled workshops, for no additional fee. Jim Hooker, Ron Fischmann, Pam Lontos, and Norm Goldsmith will cover management and sales topics.

Management Case Study—This workshop will analyze all aspects of management for an imaginary station.

Management Incentives to Win—Broadcasters from all market sizes will present plans to motivate your air and production staffs, and traffic and billing departments.

Buying and Selling Stations in the '80s—A financial update on various strategies for acquiring or expanding radio facilities.

Budgeting for Prosperity—A line-by-line discussion of "the budget."

Business Computers—Broadcasters currently using business computers explain the benefits and pitfalls of using this new technology.

Management Roundtables—An open forum designed to allow you to exchange ideas and problems with other station management.

The Cable Connection—A look at how radio can use cable to its advantage.

Satellite Fever—Radio broadcasters currently using satellites share their experiences. Also, satellite representatives will answer your technical questions.

AM Stereo—Proponents of the various AM systems will be on hand to answer your questions.

Daytime Broadcasters Forum—A

Continued on page 46

Out of 4000 stations, 1700 chose our antennas.

Phelps Dodge FM antennas were purchased for more applications from 10 watt educational to high power 25 kw class C stations.

We believe no one else even comes close to that record, and no wonder.

Performance is the overriding reason. Our antennas are less susceptible to corona. You get proper phase relationship between the vertical and horizontal components. They are available with any combination of null fill and

beam tilt. And, remember, only Phelps Dodge antenna elements are fabricated of hard drawn, high conductivity copper.

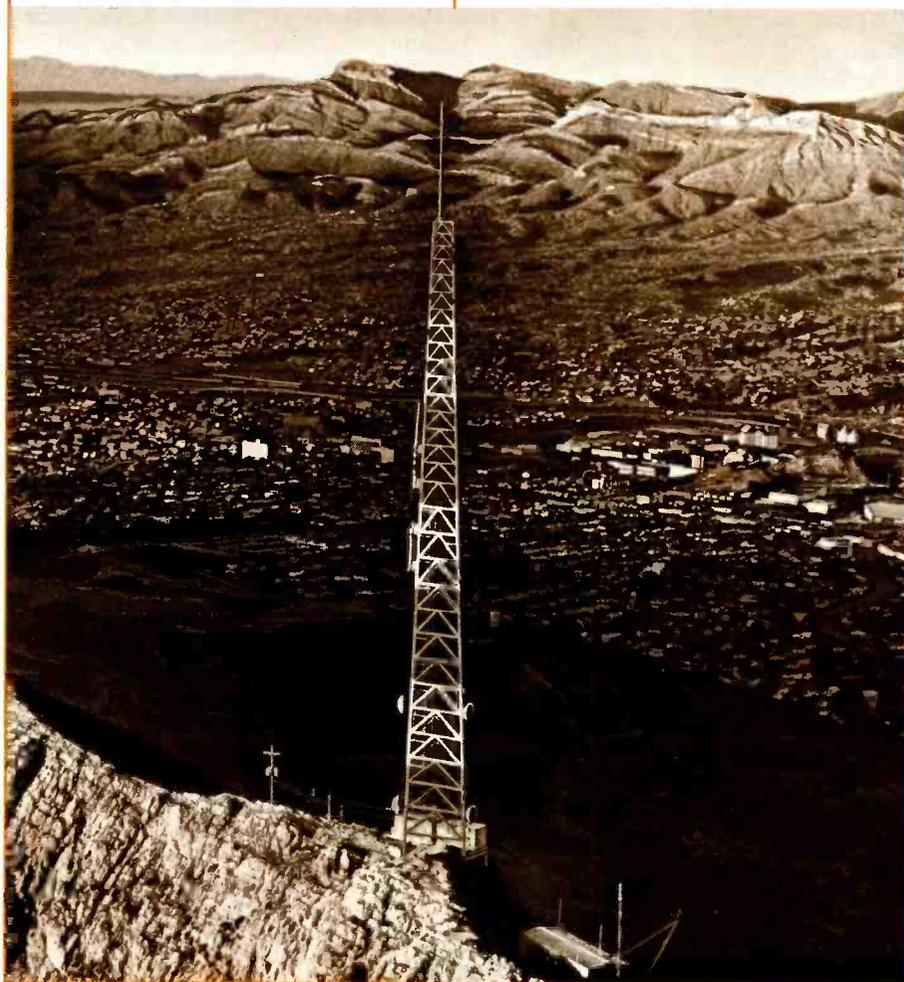
Whatever your needs may be, we can probably meet them with a range of 25 different types from which to choose; low power, high power or super high power. Use an



element as a single bay antenna for limited coverage or use multi-element arrays. We also have circularly and horizontally polarized stainless steel educational antennas. Directional couplers and low pass filters complete the line.

Whichever model you choose, your Phelps Dodge antenna arrives complete, ready for installation, with a tunable input transformer to match the antenna to the location. Deicer kits and radomes are optional.

Write, telephone or TWX for Catalog 779 with all the details: Phelps Dodge Communications Company, Route 79, Marlboro, NJ 07746, (201) 462-1880, TWX: 710-722-3861.



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Communications Company
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Circle (30) on Action Card

special association meeting to discuss the problems affecting daytimers, and various proposals for achieving full-time authorization.

Sales

The Winner's Circle: Top 10 Sales and Audience Promotions—Proven performers reveal all there is to know about winning promotions, from "how to" to "how much."

Local & Retail Sales—A frank discus-

sion of the practical and proven methods for making the sale.

Maximizing National Sales—Broadcasters and reps provide tips for obtaining national clients.

Packaging & Selling Sports—A look at how to program and package your sports to win the game with your competition.

Big Bucks in Small Markets—Three winning broadcasters size-up the success of stations in small markets.

Big Bucks with Small Numbers—A look at how one major-market station bills \$10 million with a 2 share, and how another one in the 14th market ranks 4th in revenues.

Engineering

SBE Certification Workshop—Jim Wulliman, certification chairman for the Society of Broadcast Engineers, moderates this panel, which will review the current status of broadcast technical personnel, and define the qualifications and steps to certification.

Satellite Technology—A panel of experts will cover all aspects of satellite technology, including station experiences and future expectations.

Studio Construction—Everything you need to know about building or renovating your facilities.

AM Stereo—A discussion of the latest developments in designing and implementing AM stereo.

Accurate Measurement of FM Modulation—This session will provide news that will both inform and surprise FM radio engineers.

SCAs—A panel of experts provides the solutions to new-use problems.

AM Receiver Quality—A demonstration of improved reception by various AM receivers.

FM Antennas and Propagation—An up-to-minute update on the latest developments in this area.

Cable—A look at how to deal with the cable industry.

Digital Audio—An update on digital audio technology and applications.

Directional Arrays—A discussion of the use and future of directional array antennas.

Modulation Monitor—This workshop details what to do to make it work.

Special Events

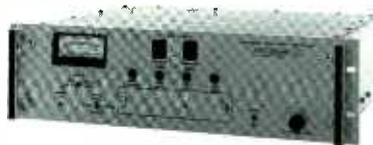
The convention will open with a gala reception on Sunday night; then, on Tuesday evening, there will be an evening party. NRBA is also planning a special spouse program, as well as a video show featuring television spots promoting radio; these commercials will be shown not-stop during exhibit hall hours. Networks, program suppliers, brokers, and consultants will be available for after-hours discussions in hospitality suites.

In addition to the sessions and gala events, broadcast equipment manufacturers and programming companies will be exhibiting their products and services. The exhibit hall will be open from noon to 6 p.m. on Sunday; 10:30 a.m. to 6 p.m. on Monday; and 10:30 a.m. to 7 p.m. on Tuesday. The following is the list of exhibitors as of press

Continued on page 48

DELTA's Newest

The FMC-1
Frequency
Modulation
Controller



- Controls the Modulation Level of an FM or Aural Television Transmitter
- Up to ± 8 dB Adjustment
- Choice of Single Channel or Dual Channel Unit
- Counters Indicate Positive and Negative Overmodulation
- Four Adjustable Modulation Control Levels and Three Audio Adjustment Rates
- Frequency Response ± 0.5 dB 20-80,000 Hz
- Optional ATS Overmodulation Alarm

DELTA's Industry Standard

The AMC-1
Amplitude
Modulation
Controller



- Controls Modulation Level of an AM Transmitter
- Compensates for Line Voltage Variations
- Up to ± 8 dB Adjustment
- Counters Indicate Positive and Negative Overmodulation
- Seven Adjustable Modulation Control Levels and Three Audio Adjustment Rates
- Frequency Response Typically ± 0.1 dB Up to 30 kHz
- Optional ATS Overmodulation Alarm

SEE US AT NRBA BOOTH #104

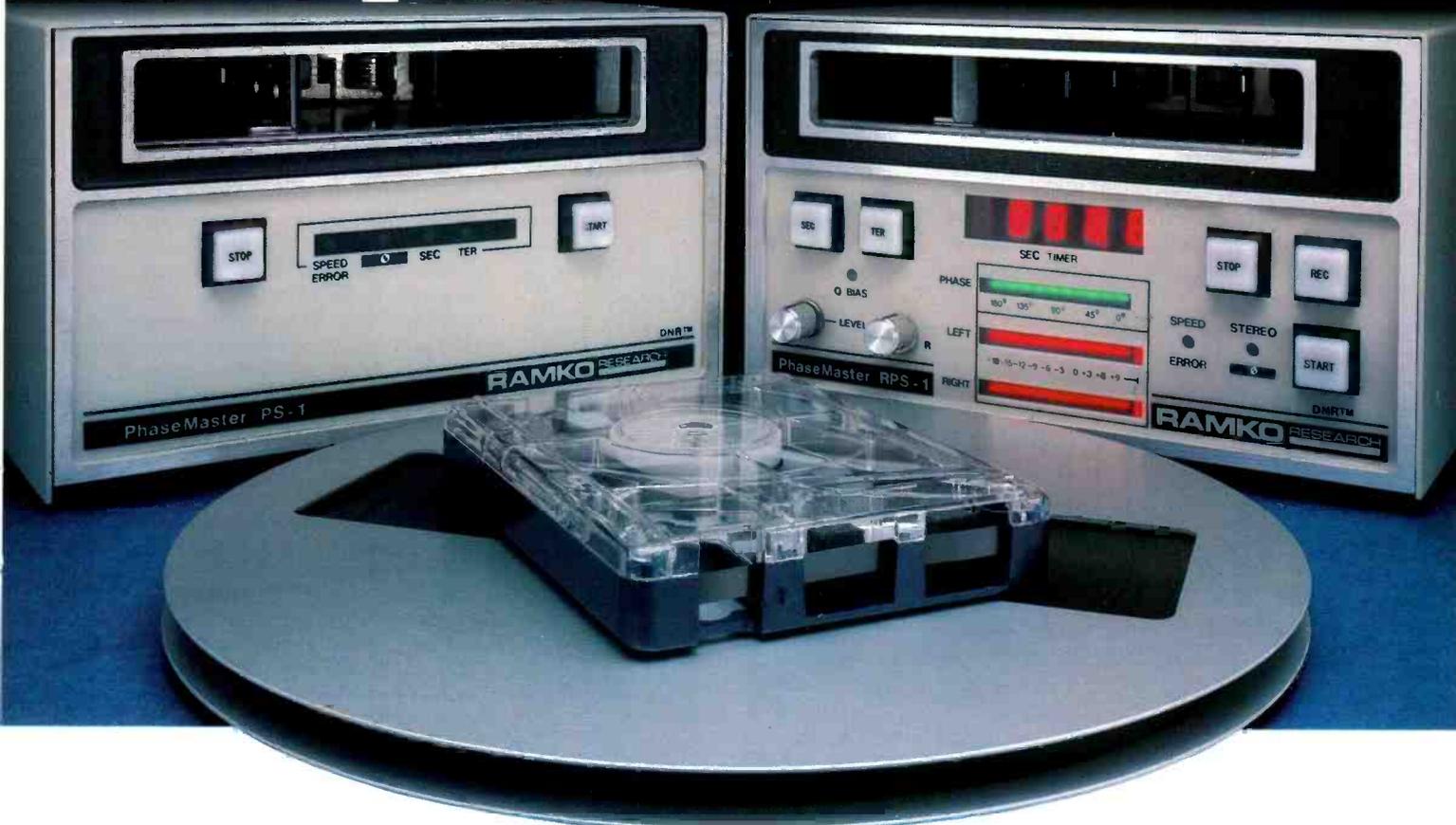
DELTA ELECTRONICS

5730 GENERAL WASHINGTON DRIVE
P.O. BOX 11268 • ALEXANDRIA, VIRGINIA 22312
TELEPHONE: 703-354-3350 TWX: 710-832-0273

Celebrating 20 years as the leader in RF Instrumentation.



The Performance of an Open-Reel Recorder.



At Half the Price of Its Nearest Competitor.

Let's face it, the secret to better cart machine performance isn't in the cartridge, it's in the machine.

The new generation of improved cartridges and tapes alone can't solve the serious phase stability and noise problems. The plastic cart and its guiding system are highly imprecise, at best. The new "hot" tapes bring a slight decrease in audible noise, which is not terribly significant considering the noise base. The maintenance of precise machine-to-machine head phase alignment has been practically impossible in even the best installations.

The solution to the problem?

PhaseMaster. The industry's most advanced broadcast reproduction system. In the stereo units, our exclusive electronic solution utilizes variable delays in each of the output channels. A sample of the left program channel is encoded on the cue track (without interfering with the cue information), and upon decoding in the playback cycle is compared to its upper track (left program) mate. Thus, an apples-to-apples comparison which is used to correct for the time (phasing) differences due to head misalignment, tape skewing and jitter. It works flawlessly with any cartridge. It eliminates the compromise of unreliable and inconsistent electromechanical schemes; the tradeoffs imposed by noise-inducing and non-compatible matrixing approaches; the complex and inexact cross-correlation methods.

PhaseMaster gives you compatibility with all your present, previously recorded carts too. An easy transition can be made at your own pace without having to immediately rerecord your

station's entire library. Interestingly, even these carts will sound better due to our new noise-reduction circuitry.

Add to this the performance specifications that rival open-reel recorders and the best mechanical design you've ever seen in a cart machine.

Here's the best news yet: PhaseMaster can be performed in your studios for as little as \$1,091* At \$2,600, our Stereo R/P is about half the price of the ITC/3M Series 99B. And the margin's even wider with Tomcat.** If you've given thought to adding the Phasechaser, you're now up to, or over the price of a new PhaseMaster with all of its inherent advantages.

Feature for feature, spec' to spec', dollar for dollar—the Phasemaster comes out on top.

The only way to fully appreciate a PhaseMaster is to get your hands (and ears) on one. To prove to yourself that PhaseMaster really has the performance of an open-reel recorder, that once and for all phase stability, noise and fidelity problems are a thing of the past, that there's a cart machine truly ready for FM & AM Mono or Stereo—write or call us now. We'll loan you a PhaseMaster at no obligation. Free, for two weeks.

Like we said, try it with anybody's cart.

You'll discover performance of an open-reel recorder, at half the price of its nearest competitor.

*Model PM-1 mono playback.

All prices are introductory and subject to change without notice.

**Based upon manufacturer's suggested professional prices 7/82.

ITC/3M, trademark 3M Corp. Tomcat, trademark of Pacific Recorders & Engineering. Phasechaser, trademark of Howe Audio, Inc.

Engineered For Your Bottom Line.

RAMKO

Ramko Research, 11355-A Folsom Blvd.
Rancho Cordova, California 95670 (916) 635-3600

Circle (35) on Action Card

PhaseMaster's Numbers

Wow & Flutter:	0.095% max. DIN weighted (0.04 to 0.07% typical)
Signal-To-Noise Ratio: (Playback)	-68dB, @ 160 nWb/m (A weighted) -72dB, @ 250 nWb/m (A weighted)
Frequency Response:	Amplifier: +0.25 dB (NAB Curve) System: 50 Hz to 16kHz ± 1.5 dB
Phase Correction: (Stereo)	±738° correction range @ 16kHz
Separation (Stereo):	50 dB
Output Level:	+25 dBm
Distortion:	0.3% max. (amplifier)
Price:	\$1,091 Model PM-1 Mono Playback \$2,600 Model RPS-1 Stereo—Record/Play \$2,000 Model RPM-1 Mono Record/Play \$1,399 Model PS-1 Stereo Playback

time. (For more information, circle the number on the Action Card that corresponds to the number following each company listing.)

Exhibitors

AKG ACOUSTICS—AKG will feature microphones, reverberation units, headphones, and phono cartridges. Among their products are the Golden Diaphragm stereo condenser microphone, polydirectional studio condenser microphone, modular condenser microphone system, dynamic microphones,

paging and communications microphones, and torsional transmission line reverberation systems. (Circle 201)

AMERICAN IMAGE PRODUCTIONS. (Circle 202)

APPLIED MARKETING SERVICES.

ARMY RESERVE.

AUDIO & DESIGN RECORDING—New from Audio & Design is Transdynamic tri-band processing for AM, FM, and TV. The Transdynamic Processing Package offers a signal processing system that achieves a flat dynamic response over a wide range of program

material without modulation problems. The Transdynamic system provides a superb standard of reference to work from and come back to, if necessary; this allows the engineering staff to utilize its flexibility to create that "touch of class" that will help give the station or program materials its distinctive appeal. (Circle 203)

BGW SYSTEMS—Power amps will be offered by BGW Systems, including the 250 and 750 Series which employ fully modular construction, fool-proof speaker protection, and one-piece construction. (Circle 204)

BROADCAST AUDIO—Introduced at NAB and sure to be a main attraction at NRBA is Broadcast Audio's System 14 digitally controlled audio console. Digital slide faders and digitally controlled CMOS high-resolution logarithmic audio attenuators reduce signal paths, and do not exhibit the disadvantages associated with VCAs. The company will also feature a line of accessory amplifiers. (Circle 205)

BROADCAST ELECTRONICS—This company's line includes exciters and cartridge machines; and new this year is SAT-16. This system answers the need for any radio station that is confronted with satellite programming. The SAT-16 allows the satellite announcer to start the local station ID or weather with fade-in, fade-out capability. Up to 15 sources can be "direct start." A print-out of events aids the operator in analyzing the sources played. (Circle 206)

CBS RADIO STATIONS NEWS SERVICE. (Circle 207)

CSI ELECTRONICS—This Florida-based company is well-known for its broadcast transmitters, which will be on display at NRBA. (Circle 208)

C.S.P. INC.—C.S.P., located in Dolyestown, Pa., specializes in AM antenna phasing and branching systems; RF components and accessories; and diplexers, sampling systems, transmission lines, and tuning units. (Circle 209)

CABLEWAVE SYSTEMS—This company manufactures transmission lines. Among their newest is the FLC 7/8-inch foam coaxial cable designed for lower attenuation than previous foam coax cables. These cables have low loss characteristics that are almost as low as those for air dielectric. And FLC cables don't require pressurization. (Circle 210)

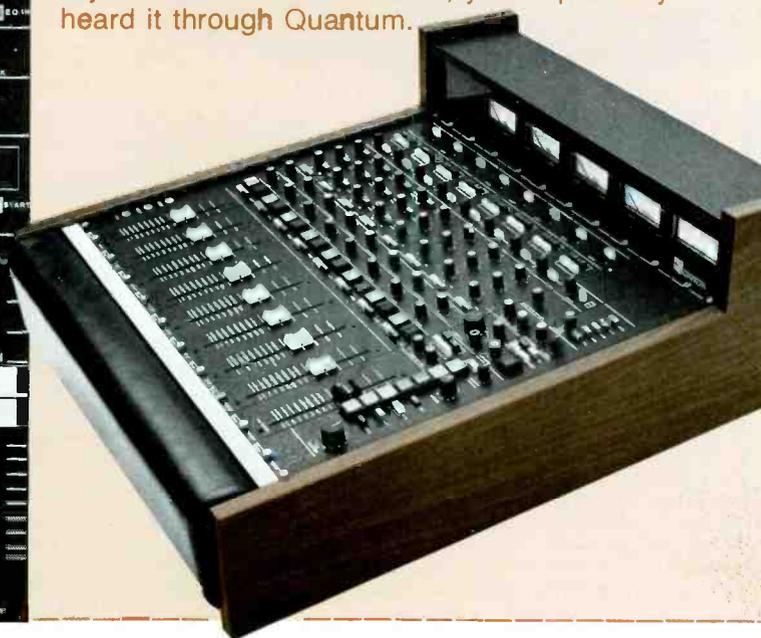
CAPITOL MAGNETIC PRODUCTS—Those in attendance at NRBA will no doubt be familiar with Capitol's Audiopak AA-3 broadcast cartridge, the industry standard that meets or exceeds NAB standards. Capitol's A-17

Continued on page 50

Developing An Industry Standard

Quantum Audio Labs' newly designed concept of cost effectiveness within a modular broadcast production/on-air console now offers sophisticated simplicity, along with excelled engineering design.

If you've heard it on radio/TV, you've probably heard it through Quantum.



Please send me further details and full technical specifications.

Name _____ Position: _____

Studio/Company _____

Address _____

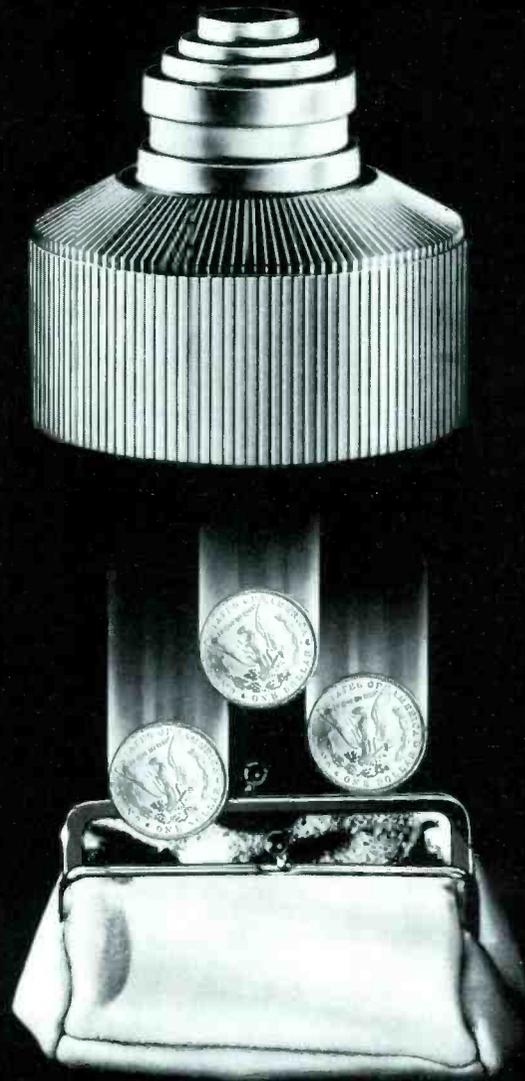
Phone: (____) _____



1905 RIVERSIDE DRIVE
GLENDALE, CALIFORNIA 91201
PHONE: (213) 841-0970

SAVE A BUCK!

ECONOMY MEANS THOMSON-CSF
UHF-TV TETRODES AND CIRCUIT ASSEMBLIES



To save a buck, and even a bundle, check out THOMSON-CSF advanced-design Pyrobloc[®]-grid tetrodes. Featuring the highest electrical efficiency, extra-high gain and superior linearity, they're a sure way to beat soaring energy costs.

Some of the most in-demand models are the 5-kW* TH 393, the 10-kW* TH 382, and the TH 582, which delivers up to 20 kW*. And all of them are available with matched THOMSON-CSF coaxial-cavity circuit assemblies, for an added assurance of top-quality performance. Don't wait! The sooner you install THOMSON-CSF tetrodes, the sooner your savings will start.

* In video-carrier amplification alone.

 **THOMSON-CSF**
COMPONENTS

THOMSON-CSF COMPONENTS CORPORATION ELECTRON TUBE DIVISION
301, ROUTE SEVENTEEN NORTH - RUTHERFORD, NEW JERSEY 07070 - TEL: (1.201) 438.23.00
TWX: 710 989.72.86

BRAZIL
THOMSON-CSF
COMPONENTES DO BRASIL Ltda
SAO-PAULC (11) 542.47.22

FRANCE
THOMSON-CSF
DIVISION TUBES ELECTRONIQUES
BOULOGNE-BILLAN-COURT
TEL.: (1) 602.81.75

GERMANY
THOMSON-CSF
BAUELEMENTE GmbH
MÜNCHEN (89) 75.10.84

UNITED KINGDOM
THOMSON-CSF
COMPONENTS AND
MATERIALS Ltd
BASINGSTOKE (256) 29.155

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COMPONENTI
ROMA (6) 638.14.58

SPAIN
THOMSON-CSF
COMPONENTES
Y TUBOS S.A.
MADRID (1) 419.88.42

SWEDEN
THOMSON-CSF
KOMPONENTER
& ELEKTRONROR AB
STOCKHOLM (8) 22.58.15

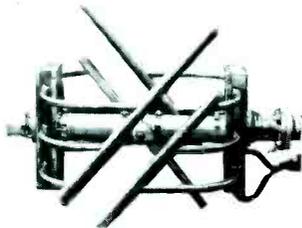
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TOKYO (3) 264.63.46

CG 4819

SHIVELY LABORATORIES CIRCULARLY POLARIZED OMNIDIRECTIONAL AND DIRECTIONAL FM ANTENNAS



MODEL 6010 PB PANEL
BROADBAND 88-108 MHZ



MODEL 6814 25KW PER BAY



MODEL 6810 10KW PER BAY



MODEL 6813 3KW PER BAY

PATTERN STUDIES AND
OPTIMIZATIONS AVAILABLE

WRITE OR CALL FOR INFORMATION ON
ANTENNAS
TRANSMISSION LINE
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COAXIAL SWITCHES
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A DIVISION OF HOWELL LABORATORIES
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BRIDGTON, MAINE 04009
(207) 647-3327
TWX-710-223-8910 SHIVELY BRGT

Circle (39) on Action Card

high-output, low-noise lubricated tape, used exclusively in the AA-3 cartridge, is designed to meet studio mastering specifications and offers extended frequency response and dynamic range. (Circle 211)

CELESTIAL MECHANIX—This company specializes in radio promotion services. (Circle 212)

CETEC ANTENNAS—Broadcast antennas and accessories. (Circle 253)

CHASE MEDIA—Being displayed by Chase Media will be a broadcast computer system which features a traffic system with dual AM/FM capability and music format control. (Circle 254)

COMARK COMMUNICATIONS—Comark recently added new automatic switching systems to its product line. With the new system, the operator—through utilization of a control panel normally mounted in the exciter cabinet—can easily switch the system into any alignment he desires without manually connecting and disconnecting cumbersome patch lines. There are two basic types of switching systems: coaxial and waveguide. (Circle 213)

COMPUTER CONCEPTS—One of the hits at NAB was Computer Concepts' multifaceted Broadcast System, which can handle a vast array of station operations, from basic business functions, to news and advertising copy, mailing lists, and correspondence. The Music Management System (MMS), an additional program for the Broadcast System, is a sophisticated radio programming tool that helps control your station's format. MMS is simultaneously a music inventory manager, playlist scheduler, airplay historian, and research tool. (Circle 214)

CONCEPT PRODUCTIONS—This company offers voice-tracked automation programming aimed at personalizing your format. (Circle 215)

CONTINENTAL RECORDINGS—Jingle packages for radio will be displayed here. (Circle 216)

CONTINENTAL ELECTRONICS—Well-known for their line of transmitters, Continental recently announced an agreement with Magnavox for production of an AM stereo exciter. Those in attendance should be sure to stop by this booth to check on the progress being made. (Circle 217)

CUSTOM BUSINESS SYSTEMS—The CBSI system is a complete business computer system for radio stations. The system can handle program logs, billing, accounts receivable and payable, general ledger, payroll, and music inventory. (Circle 218)

DELTA ELECTRONICS—New from Delta is the FMC-1 frequency modulator controller that employs a digital attenuator to maintain modulation at a

preset level without compressor clipping. The unit accepts an input sample from an FM or TV modulator monitor, and will maintain proper level over a plus or minus 8 dB range. (Circle 219)

DORROUGH ELECTRONICS—Those in attendance should make this a must stop, in order to see the new DAP-610 Discriminate Audio Processor, which operates on the same discriminate tri-band principle as the classic 310. The DAP-610 utilizes a frequency discriminate digital control signal, operating in real time, to control the action of analog attenuators, which are located within the discriminate path of the input audio signal. (Circle 220)

EAGLE COMMUNICATIONS.

ELCOM-BAUER—At NAB '82, Elcom-Bauer introduced several new products that are sure to draw attention again at the NRBA show. These include the SS-40 synthesized phase-lock-loop FM exciter with a broad-band 40-watt output amplifier; SS-250 wideband solid-state FM transmitter consisting of an SS-40 exciter and 250-watt amplifier assembly, two switching power supplies, and a newly designed wideband ferrite splitter and combiner; the SS-1000, a 1,000-watt solid-state FM transmitter; and the model 610B grounded-grid, single-tube, 1,000-watt FM transmitter. (Circle 221)

EMERGENCY ALERT RECEIVER. (Circle 222)

FINNTEK—On display here will be audio consoles and audio test generators. (Circle 223)

RON FISCHMANN RADIO SALES SERVICES.

HARRIS CORPORATION—AM stereo will be in evidence at the Harris booth, and anyone—everyone—interested in the Harris AM stereo system should definitely stop back and talk with company representatives. Of course, Harris also offers a full line of transmitters and consoles, as well as broadcast-quality cameras, a business computer system, and related accessories. (Circle 225)

HEARST ADVERTISING.

IGM COMMUNICATIONS—Attendees will again have an opportunity to see IGM's well-established Instacart and Go-Cart 24-, 42-, and 78-cartridge players. IGM also has a new "Basic A" programming controller, which allows the station program director more flexibility than ever before. (Circle 227)

JOHNSON ELECTRONICS. (Circle 228)

LPB INC.—LPB's Citation Series audio consoles promise to be a main attraction at NRBA. This series comes in two models: the C-8S (8 mixers) and C-10S (10 mixers), both with dual stereo outputs. Features include

Continued on page 52

Brilliant performer.

**NEW
WIRELESS**

Model 82 Wireless Condenser Hand-Held

The Model 82 condenser wireless microphone has been added to Cetec Vega's professional hand-held line. The Model 82 incorporates the popular Shure SM85 condenser element and attractive black windscreen to provide:

- Minimal handling noise, reduced mechanical vibration, and virtually no "boominess" (by means of controlled low-frequency rolloff).
- Clean reproduction of close-up vocals with moderate proximity effect.
- "Crispness" and presence with high-definition midrange.
- Clear, scintillating highs with crisp upper register.
- Cardioid pickup pattern for effective rejection of off-axis sounds.

All Cetec Vega hand-held wireless microphones (including the Model 80 with the Electro-Voice EV-671 dynamic element and the Model 81

with the Shure SM58 dynamic element) have an attractively contoured black case with internal antenna.

Used with Cetec Vega professional wireless receivers, the FM systems operate on any crystal-controlled frequency between 150 to 216 MHz, at a range up to 1000 feet or more. Transmit-to-receive frequency response is almost perfectly flat from 100 Hz to 12 kHz with gentle rolloffs to 40 Hz and 15 kHz. Total harmonic distortion is typically 1/2 percent. System dynamic range is 90 dB when "Dynex" (transmit compression and receive expansion) is incorporated, with a resulting low noise floor.

Cetec Vega hand-held wireless microphones are newly redesigned for 20 to 30 percent additional battery life, using a commonly available 9-volt alkaline battery (Duracell recommended). Microphone sensitivity is easily adjustable with an audio

gain control on the bottom, with an adjacent LED indicator to verify optimum setup. Power and audio on/off switches are also conveniently located on the bottom.

Write or call for further information and location of your nearest dealer: Cetec Vega, P.O. Box 5348, El Monte, CA 91731. (213) 442-0782
TWX: 910-587-3539

In Canada: A.C. Simmonds & Sons Ltd.

 **Cetec Vega**
Division of Cetec Corporation



transformer balanced inputs and outputs; three inputs per mixer, internal pads allowing mike/line selection on the same mixer; two 4-input auxiliary input selectors; pre-fader pushbutton cue, in addition to normal CCW fader cue position; LED status indicators; and full metering capability. Also available is a wide line of accessories. (Circle 229)

LIBRA PROGRAMMING—This company will feature a computer broadcast system for traffic, sales, general ledger, and payroll. (Circle 230)

3M MAGNETIC A/V PRODUCTS—3M introduced the ScotchCart radio broadcast cartridge at NAB, and those attending NRBA will no doubt want to find out more about this new cartridge. ScotchCart is compatible with all standard decks, and it's available in all standard lengths. (Circle 231)

M/A-COM/DCC—On display will be earth station equipment and services. (Circle 256)

MAGNAVOX—Magnavox will offer radio broadcasters an opportunity to learn more about their AM stereo system. (Circle 232)

MARKETRON. (Circle 233)

MICRODYNE—Microdyne specializes in satellite earth stations. The company offers a full complement of earth terminal equipment. (Circle 234)

MOTOROLA—Motorola has been involved in AM stereo for a long time, and their system is called Motorola Compatible Quadrature. The company is prepared to supply exciters, monitors, decoder ICs, receivers, and technical support for AM stereo. To find out more, be sure to stop by their booth. (Circle 235)

NIDUS SYSTEMS—Nidus offers a broadcast business system featuring such capabilities as scheduling, daily avails, billing, management analysis, and more. (Circle 257)

OTARI—New from Otari is the MTR-10 Series of mastering/production recorders. These recorders offer extensive production features and state-of-

the-art technology that results in unprecedented control and performance specifications. They are available in full, two-track, four-track formats, with either 3/4, 7/4, 15 or 7 1/2, 15, 30 IPS. Desk type, overbridge, and rack mount for custom installation are included. (Circle 236)

HELPS DODGE COMMUNICATIONS—Phelps Dodge will be displaying rigid coaxial transmission line, FM broadcast antennas, directional couplers, and low pass filters. (Circle 237)

PHILADELPHIA RESINS—Tower guy systems are supplied by Philadelphia Resins. Representatives will be on hand to discuss Phillystran®, the exclusive, field-proven, electrically transparent tower guy system. (Circle 238)

PUBLISHERS FOR CONVENTIONS.

QUANTUM AUDIO—Quantum offers on-air and production consoles. The consoles are modular, and contain features normally found in more expensive consoles. The company can supply anything from 104mm input faders to stereo/mono combining networks. (Circle 251)

RCA ELECTRO OPTICS & DEVICES—A new 18mm Saticon II tube, a new 25mm Saticon III tube, and a new 18mm Diode Gun Saticon III tube will be among the featured products shown at this booth. These camera tubes incorporate the new Saticon II and Saticon III photoconductors which are highly resistant to both specular highlights and stationary image burn. (Circle 239)

RADAR MARKETING.

RADIO COMPUTING SERVICES—A complete range of computer systems for radio stations is available from RCS. (Circle 240)

RAMKO RESEARCH—Ramko will be featuring its Phasemaster™ cartridge machine, as well as its other products. This machine records a sample of the left channel signal on the cue track, then compares the two during playback, adjusting electronic delays in the audio channel to remove any time dif-

ference caused by head azimuth error. (Circle 241)

REGISTER DATA SYSTEMS—This company, located in Perry, Georgia, will be exhibiting a business computer system that can handle logging, billing, reporting, and more. (Circle 259)

SCIENTIFIC-ATLANTA—S-A has a new 3-meter earth station designed for reception of media information broadcast via satellite using digital data techniques. It's been designed to receive high-speed TDM digital data at about 9 mb/s, demodulate, and then multiplex the data into the desired audio and data channels. (Circle 243)

STATION BUSINESS SYSTEMS—SBS offers the BAT 1700 business, accounting, and traffic computer system for radio. (Circle 244)

STATION RESEARCH SYSTEMS.

SATELLITE SYSTEMS CORPORATION.

TFT INC.—Shown at the NAB was the model 7900 Series remote control. This is a microprocessor-based supervisory, control, and data acquisition system that provides intelligence at both the control and remote sites. It has the capability of interfacing with a variety of sensors and transducers for data acquisition. It also provides reliable relay closures for controlling functions, even in hostile environments. (Circle 246)

TOBY ARNOLD & ASSOCIATES—This company offers various music formats. (Circle 247)

U.S. AIR FORCE.

U.S. TAPE & LABEL—Bumper strips and window labels for radio. (Circle 248)

UNIDYNE DIRECT MAIL.

UNITED PRESS INTERNATIONAL—News service for radio. (Circle 249)

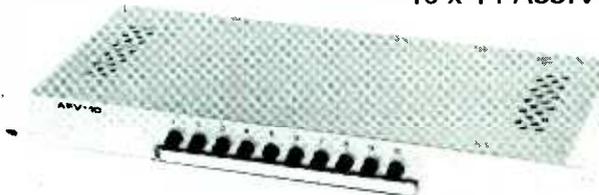
WOLD COMMUNICATIONS—Wold is now offering Worldcom transportable uplinks. The company has also expanded its newsfeed and syndication services via satellite. To find out more about this diversified company, stop by their booth. (Circle 250) **BC**

- Audio Follow Video
- 2-Channel Audio
- Rack Mount 19" x 1-3/4"
- BNC Connectors - Video
- TRW Multiple Connector - Audio
- Centralab Switches - Interlocking
- Bifurcated Silver Contacts
- Legend Strip
- Unswitched Video Terminated - 75 OHMS
- Unswitched Audio Easily Terminated
- No Signal Loss
- No Signal Degradation
- Cross Talk Better Than -60db
- No Power Required
- Simple Construction - Long Life

THE IDEAL WAY TO SWITCH MONITOR FEEDS

IN A PROBLEM-FREE, ECONOMICAL MANNER.

10 x 1 PASSIVE SWITCHER



LOW COST
\$295.00

Model AFV - 10

H.M. DYER Electronics, Inc.

31185 Ten Mile Road Farmington Hills, Michigan 48024 Telephone (313) 478-2157

Studio performance.
On-air reliability.

JH-110B High Profile Cabinet

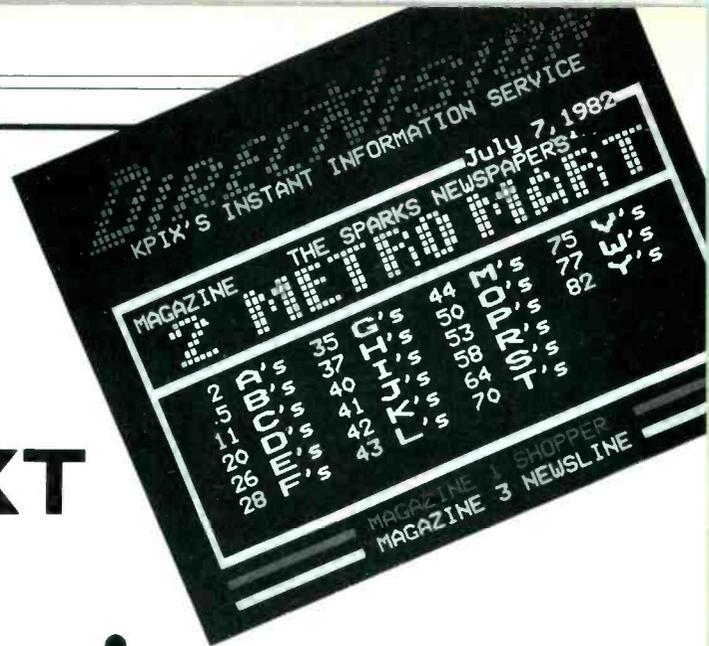
It's a quality combination possible only after decades of designing, refining and debugging. And it's yours today only in the JH-110B and the JH-110BX from MCI...sound so clean that no competitive manufacturer has dared challenge our performance graphs. The rugged reliability and built-in serviceability of MCI's JH-110B Series make downtime almost a thing of the past. And an array of standard features helps you cut production time and makes your job easier. Two cabinet choices suit any operator's preference, including MCI's exclusive variable profile design -- user adjustable to take the ache out of long editing sessions. Before you buy, compare the JH-110B -- or when cue and three speed capabilities aren't critical -- the economically priced JH-110BX. You'll discover why MCI is the recognized leader in the pro recording industry. And why today's quality conscious broadcasters demand it.

JH-110BX Variable Profile Cabinet



A Division of Sony Corporation of America

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HOW TELETEXT CAN DELIVER more service and profits

By MERRILL WEISS
and RONALD LORENTZEN

ATARI 800 Personal Computer with 48K RAM; 2 ATARI 815 Dual-Disc Drives; Epson MX-100 Graphics Printer; ATARI 830 Acoustic Modem; ATARI 850 Interface Module, and ATARI CX 70 Light Pen. Make an offer.

Imagine being able to pick out your dream machine right at home on your television screen! Impossible, you say? In San Francisco, people are now receiving hundreds of actual classified

listings and other information by simply pushing buttons on a hand-held keypad. They're part of Group W's teletext field trial being conducted at KPIX-TV in San Francisco.

Teletext is a system which transmits text and graphics to home receivers along with conventional television signals. The information is transmitted in the vertical blanking interval and does not interfere with the regular picture.

It's easiest to think of teletext as an "electronic magazine," as information is displayed on the screen in page form.

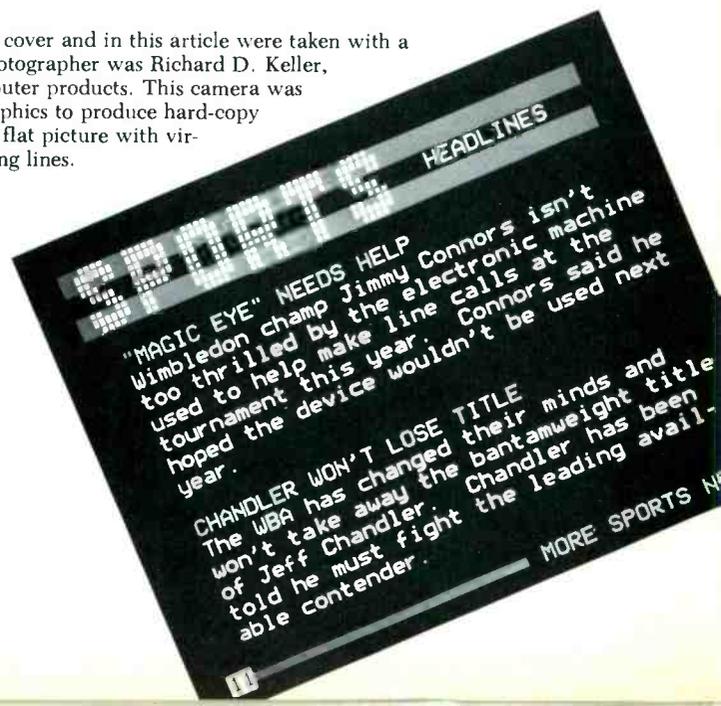
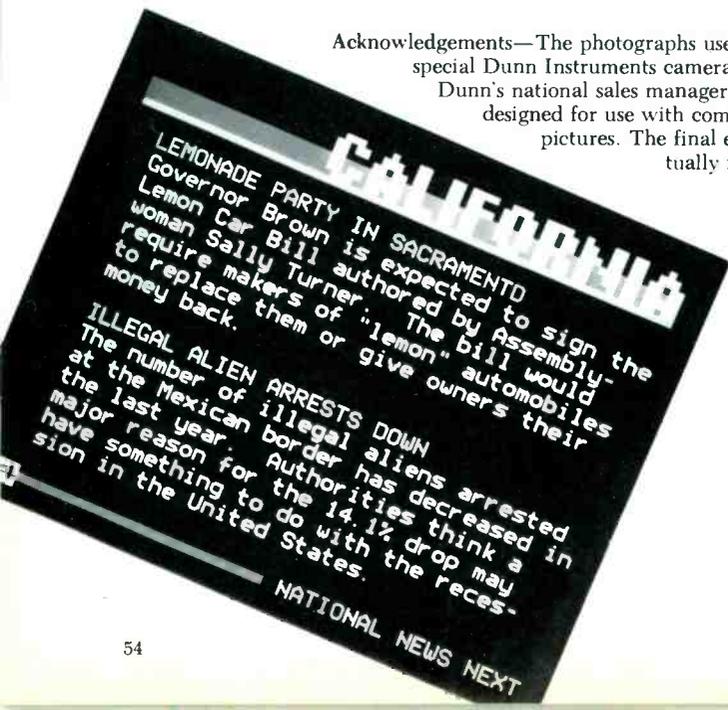
Each of the pages is assigned a number, and viewers can request desired pages by pressing the corresponding numbers on a keypad. A special decoder then displays the desired pages.

While there are a number of teletext trials being conducted around the country, the one at KPIX is unique. The service is called DirectVision, and it is the first large-scale test of "electronic classifieds" in North America. Other teletext applications which have never been tried before are also being tested.

In this article, we'll tell you how

Continued on page 56

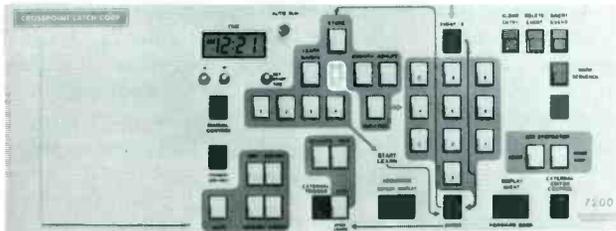
Acknowledgements—The photographs used for the cover and in this article were taken with a special Dunn Instruments camera. The photographer was Richard D. Keller, Dunn's national sales manager for computer products. This camera was designed for use with computer graphics to produce hard-copy pictures. The final effect is a flat picture with virtually no scanning lines.



YOUR EDITOR CAN CONTROL OUR PRODUCTION SWITCHERS AND GIVE YOU THE BEST OF BOTH WORLDS

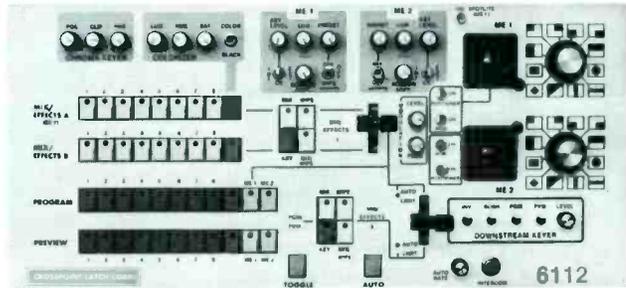
POST-PRODUCTION

Highly sophisticated effects beyond the capability of your editor, yet timed to occur at the correct instant, triggered by the editor. The switcher can also be controlled directly from the editor keyboard, all transitions being entered on the edit list. But for those special occasions where the start and finish points of an effect or key is critical, full use can be made of our controllers, which allow accurate positioning using the color monitor as an interactive display. We even provide a choice of control; some parameters may be set up on the editor keyboard (such as duration times, input selection, etc.) while others (such as programmable start and finish points for partial wipes and keys) may be accurately set up on our controllers. The degree of sophistication is yours to choose. For most edits you have the convenience and the ability to operate from the editor keyboard alone.



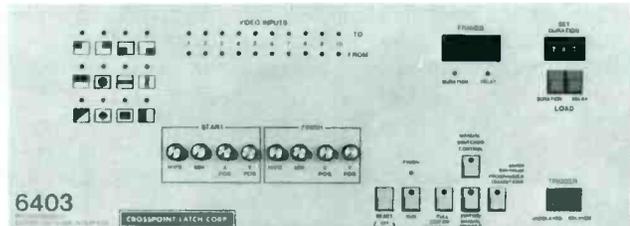
We have a wide range of products, both for video and audio, to suit your requirements and needs. You may add programmable effects to the simplest editor, or elect to install a highly complex system with full computer control and many levels of storage. The 7200 AUTO DRIVE™ Controller is capable of storing the entire control panel status of the switchers, and producing smooth or abrupt transitions from one status to the next in a large number of programmable sequences. Transitions created by the 7200, (which are impossible to reproduce manually), can be triggered or controlled by editors.

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6112	\$ 7,950
6800	\$ 3,500



PRODUCTION

Full production switchers, human engineered for ease of operation and versatility. The switchers have multiple effects with re-entries, keys, RGB or encoded chroma keys. All switchers have dual back porch clamps and rock stable circuitry. The automatic blanking processor strips sync and burst from the incoming video signals, replacing it with constant amplitude signals. The blanking processor completely eliminates the flash or bounce when wiping or mixing between two signals that are not accurately timed or have tolerance variations between their sync and burst signals.



Consider the 6112 Production Switcher, with the 6403 Editor-Switcher Interface. This combination provides programmable effects capability to even the simplest of editors. Yet, add an editor module to the 6403 and you can then control the system directly from an editor keyboard. Audio follow, or break-away audio can be added initially, or later as the need arises, with the 6803 and the 6800.

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CROSSPOINT LATCH CORP.

DirectVision got started, what we're doing and why, and what we hope to find out.

Background

In May of 1981, William Baker, president of the Television Group, announced that Group W would enter the teletext era with an on-air trial in San Francisco. Charles Magee, the company's long-time engineering representative on the Electronic Industries Association Broadcast Teletext Systems (EIA/BTS) Committee, who was already familiar with the technology involved, was instrumental in selecting the French Antiope system and in choosing the hardware that would be installed at KPIX.

While a CBS announcement to implement a teletext service in Los Angeles had some influence on the Westinghouse decision, the major moving force was Group W's continuing corporate commitment to providing extended television services to its viewers on a local basis. The company perceived teletext as one way a broadcaster might provide additional local services free to its viewers.

San Francisco was chosen as the site of the test for a number of practical reasons, not the least of which was the proximity to Los Angeles, where four other teletext operations were either in

progress or were planned. This logistical fact gave some assurance of technical backup from the equipment supplier, as well as some easy interchange of technical and operational experience with the other teletext experimenters.

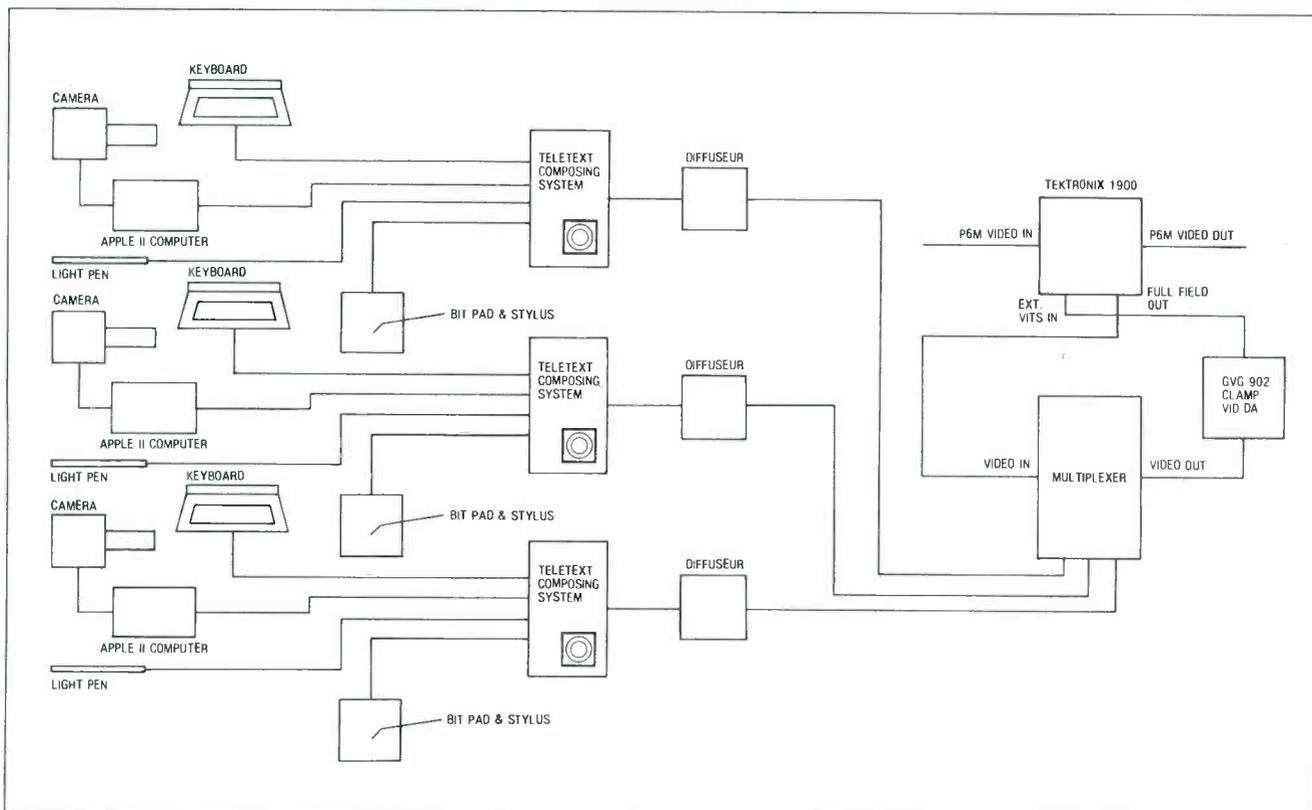
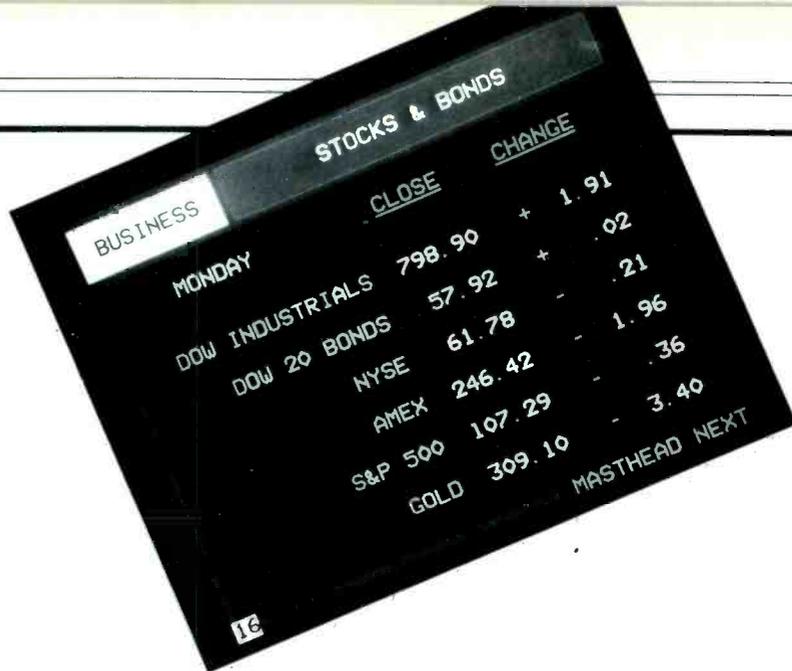
Another incentive to use San Francisco as Group W's teletext trial site was its proximity to the high-tech centers, like Silicon Valley just 30 miles south. Many of the companies in the area are involved in activities related to teletext/videotex component or equipment manufacture, and have a high interest in exploring the potential of new

developments in communications technology.

Last, but certainly not least, is KPIX's reputation for technical innovation. The SMPTE Working Group on Digital Video Standards chose KPIX to stage their component coding tests last year. The station also has a young, dynamic engineering management group that would assure the company of good technical support.

Unlike others conducting trials in which only one "magazine" is offered, Group W and KPIX approached the question of teletext content from a

Continued on page 58



A diagram of the KPIX teletext system.

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slightly different viewpoint. DirectVision provides the viewer with three separate magazines that appeal to different viewers' needs and interests.

Test homes have been supplied with special decoder-equipped television sets which allow access to the following services:

• *Magazine 1: The Shopper.* The Shopper is a quick and easy guide to the day's special buys and bargains. It lists dozens of products and services offered

by a wide variety of Bay Area stores and retail outlets.

• *Magazine 2: Metro Mart.* Metro Mart is the most innovative of the three magazines as it is the first teletext test of actual "electronic classifieds." Produced in partnership with the Sparks Newspapers, a major Bay Area publishing group, classified listings from seven newspapers are entered and updated daily, giving viewers instant access to hundreds of items of merchandise via

their TV sets.

• *Magazine 3: Newslines.* Newslines is fast-breaking news, sports, business, and weather coverage that is continuously updated throughout the day. Whether it is a quick look for a sports score, or a weather forecast, or the morning news with coffee, viewers get instant news when they want it.

A special feature of DirectVision is the "DV" EXTRA. Viewers with the special decoders watching Channel 5's regular programming see a small "DV" superimposed over some programs and commercials. These "supers" tell them that additional information relating to the program or commercial content is available if they switch to DirectVision. The "DV" EXTRA pages automatically appear when the viewers switch to DirectVision, and remain on the screen until they return to regular programming or choose other pages of information.

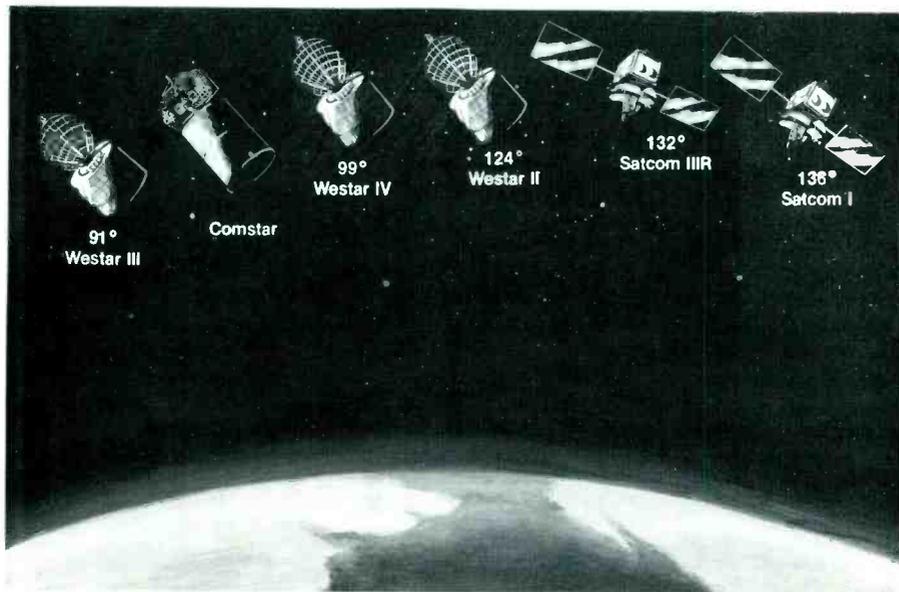
Taping the synergy between regular programming and teletext is a unique application that has never been tried before. KPIX will test it both with advertisers and in regular program content. A viewer who switches to DirectVision after seeing a "DV" EXTRA super over a supermarket commercial will get the day's best bargains and prices at that store. A "DV" EXTRA super in the cooking segment of a popular TV chef will tell the viewer that a page containing the recipe for the dish being prepared is available by simply switching to DirectVision. The program audio can remain uninterrupted while the viewer jots down the recipe.

All of these efforts are in keeping with the Group W philosophy of localized program services to the viewer.

The editing center

The area where the DirectVision pages are created and entered into the teletext system contains three composing stations, press wire machines, and a work table. The environment is arranged in such a way as to minimize eye fatigue and strain for the writers who have to work at the CRT terminals for long periods. The area has controlled lighting, allowing a great degree of flexibility in establishing both the ambient and direct lighting levels. Equipment is laid out under a simple lighting track grid that provides easy adjustment while satisfying budget constraints.

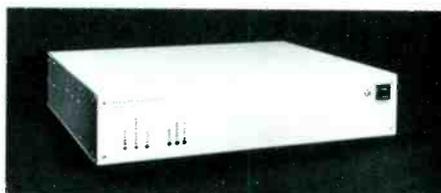
Each composing station has an X-Com disc-based processor system equipped with an entry keyboard, digitizing camera, light pen, and bit pad or tablet arrangement. Any one of these can be used for the inputting of



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material. The operator has a large-screen color television receiver to monitor his or her creative efforts.

The crew that operates this teletext editorial center consists of a pair of writers on each of two shifts which cover the period from 6 a.m. to midnight. They are supported by an editor who works from 9 a.m. to 5 p.m. daily, and two part-time people who cover the weekends. Because of the emphasis on testing "electronic classifieds," the Sparks Newspaper Group provides the staff needed to input and update these ads for about 4-5 hours a day. The writers keep the news pages up-to-date on the latest events and also rewrite The Shopper magazine as needed to keep it current.

The teletext facility at KPIX is adequate to handle the full service of all three magazines, and any foreseeable expansion that might come about. At any one time, a full staff of seven people could be accommodated as well as outside graphic consultants, one of whom is already working on some of the more pictorially oriented advertising pages.

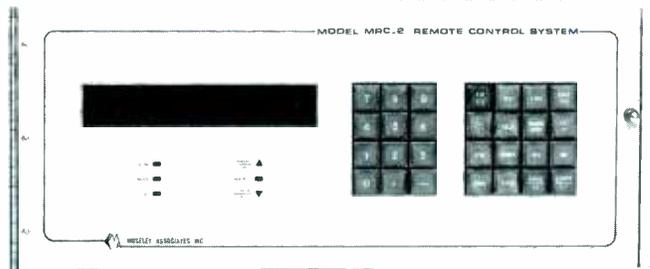
The technical side

DirectVision transmits its North American Broadcast Teletext Standard (NABTS) teletext signal on four lines of the vertical blanking interval (lines 15-18), just before the VIR and VIT signals. This is the maximum currently allowed by the FCC under the experimental licenses all of the tests use, although there are plans for future expansion of teletext usage into lower-numbered lines.

The composing station has a floppy-disc-based microcomputer system that receives its input from a keyboard, a camera (which uses an Apple II computer to digitize the image), a light pen, or a bit pad with stylus. The latter two provide a means of making hand-generated entries. All of these are used to compose pages containing both text and graphics, which are stored on a floppy disc. Ultimately the disc is down-loaded into a Diffuseur, a microprocessor memory unit that can hold up to 100 pages for each magazine.

The three on-line Diffuseurs for the three magazines are connected to a single Thomson-CSF multiplexer which accepts the data from each Diffuseur, at a weighting established by switch settings, to control access time. The weighting system gives a priority to the pages in each magazine so that they will appear with no greater than a certain delay after being selected by the viewer. For instance, news pages may be set to come up faster (current average is less

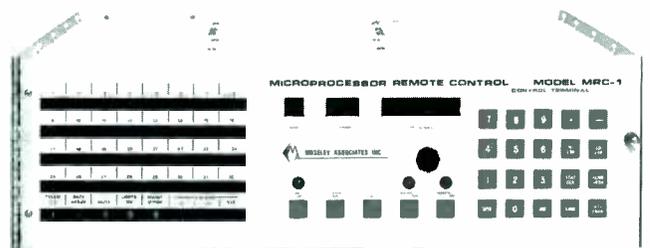
Continued on page 60



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Teletext can deliver



The KPIX editing suite.

than 4 seconds) than other material, on the principle that a viewer may have less patience to wait for certain subjects than others.

The video output of the multiplexer is fed to a Tektronix 1900 VITS inserter which inserts the teletext signal into the station's video output signal. An additional clamp was added between the multiplexer and the Tek 1900 in order to shift the DC level from the European standard to the U.S. standard for compatibility between the two units. This interconnection scheme was chosen to minimize the number of devices in the critical path for the station's video output signal. No changes were needed in the remainder of the transmission path to the transmitter, since KPIX already had a very modern plant with flat characteristics throughout the system. The teletext signals were plugged in, and they worked well.

Much of the equipment in the KPIX teletext operation is being used for the first time. The X-Com keyboards, the Diffuseurs, and even the receiver decoders, are of new types that required some heavy pioneering to get satisfactory results. Early problems included lack of English-language documentation on the equipment, and limited availability of technical support from the various suppliers. It is hoped that will not be the case for future teletext installations using the NABTS standard, at least partly because of the experience gained at KPIX.

The RCA XL100 receivers used in the KPIX test (which were also a new type) are equipped with CCS/Signatech decoders that have four-page memories. This means that at any given time, the decoder holds an index to the selected magazine, and the page preceding and two pages following the displayed page. Consequently, as a viewer moves se-

quentially through a magazine, pages can be displayed with no delay.

The field trial

Twenty-five decoder-equipped television sets will be placed in demographically selected TV homes in the East Bay area, where the Sparks Newspaper Group has its publications. In order to gain maximum research information, they periodically will be moved to a new set of homes.

A research firm has been employed to measure the responses of teletext users, such as what pages are called up, at what times, and how often. In addition, the research will assess qualitative reactions to the services provided. This information will be obtained in personal interviews after the sets have been in place for a time as well as in focus-group discussions. These tests are expected to run into early 1983.

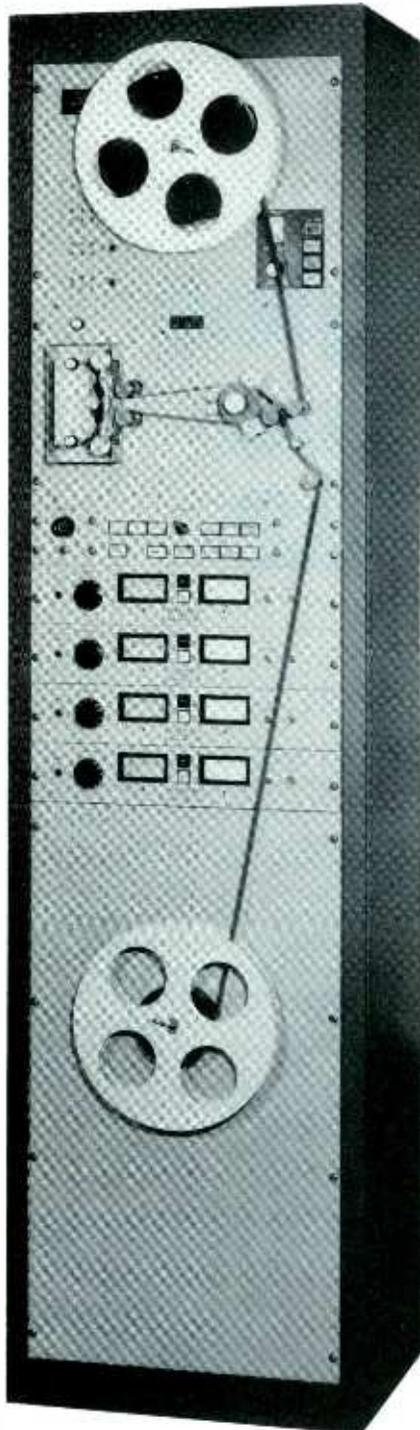
Summary

Pioneering a new kind of service like teletext confronts the TV station's engineering department with potential problems of which management should be made aware. First, much of the equipment is so new that it is undergoing changes even while it is being used. Training on this equipment is still sketchy because of its newness. The separation of software and hardware problems becomes a primary goal, and isolating either one takes substantial study and operating experience.

Notwithstanding these problems, KPIX is now transmitting DirectVision over the air with good regularity, and is already beginning to compile data from test users.

BC

S. Merrill Weiss is engineering manager and Ronald Lorentzen is the manager of teletext operations at KPIX-TV in San Francisco.



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New technologies make headlines at Videotex '82

BY JOE ROIZEN

Held in the New York Hilton between June 28 and June 30, Videotex '82 proved to be the major focal point for the growing battle between the various proponents of different teletext and videotex systems.

While this new industry does not yet command the exhibition space of an NAB or NCTA, it did have a credible set of exhibitors who filled up the mezzanine floor of the Hilton. And with such prestigious American names as IBM, AT&T, Knight-Ridder, Time Inc., CBS, NBC, RCA, and others, getting into the act, it made for an exciting and interesting convention.

It is, however, fair to say that the concept of videotex, and its technology, are mostly imports from England,

France, Canada, or Japan. The British videotex group were promoting the Prestel/Ceefax/Oracle systems that are now widely used in the U.K. and other countries. Intelmatique of France was equally enthusiastic about Antiope, Didon, and Teletel, a few of the various applications of their videotex systems currently in use in France.

The Canadians are heavily committed to Telidon, the system developed by the government's Department of Communications in Ottawa, and considered by them to be the most advanced videotex system in the area of high-resolution graphics.

The major Japanese electronics manufacturers had a joint display of the NHK-developed Captain system, which

is now being aimed at the North American marketplace for the first time.

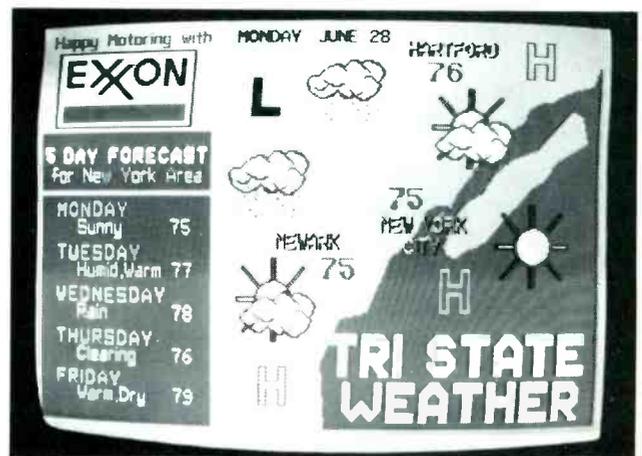
If the equipment exhibition section could be categorized as somewhat limited in scope, the technical conference certainly was not. The conference lectures filled a weighty volume of 684 pages, reflecting the complex issues that need to be considered before this fledgling industry really takes off.

The average potential user of either over-the-air teletext, or wired videotex, must surely have been confused by the claims and counterclaims of the various groups of proponents for the differing systems. With the FCC out of the way as a standards-setting body, there has

Continued on page 64



Example of high-resolution graphic using RCA receiver and Texas Instruments decoder. (Photos by Joe Roizen)



Another graphic using RCA receiver and TI decoder.



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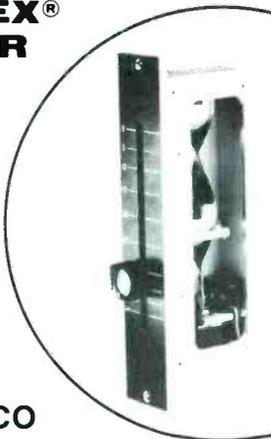
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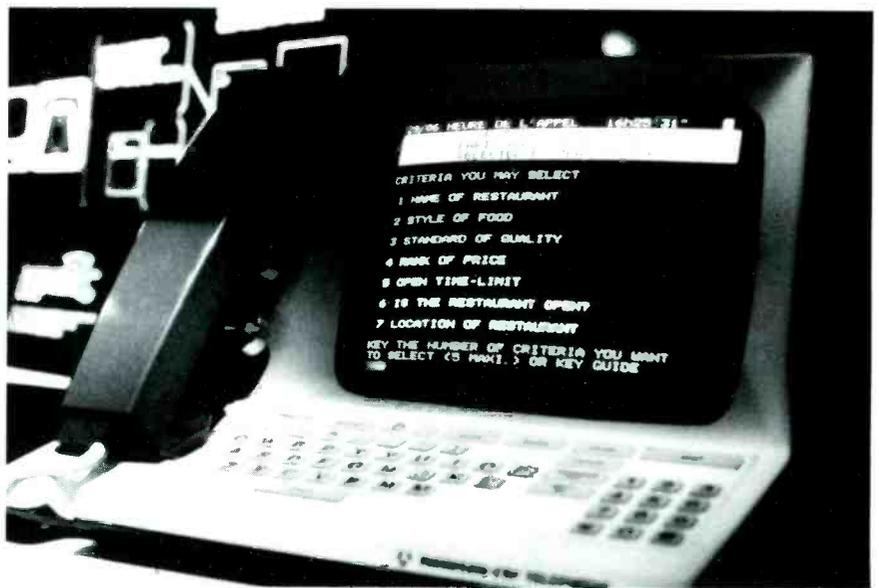
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Videotex '82



The IBM booth showed their French connection by interfacing with a Thomson-CSF "smart" phone terminal that could be used for catalog orders, as a restaurant guide, or many other services.

been a proliferation of non-compatible technologies that claim to be all things to all users. Each is hoping to quickly establish a defacto standard, hoping that the rest of the market will follow in its path.

On the teletext side, there were a few events at Videotex '82 that looked like they might be the tip of the iceberg that could crystallize into a single broadcast standard. On the videotex side, there does not seem to be any likelihood that the giant corporations, such as AT&T and IBM, that have already declared themselves in different camps, are likely to shift their avowed positions toward a unified videotex format.

The 54 exhibitors divided into four basic camps: British, French, Canadian and Japanese. Each national group had a fairly large exhibit that was a composite of home companies who had products or services to offer in the teletext or videotex field. In addition, there were individual exhibits by major U.S. corporations, or some separate foreign entities that had specific items to promote.

The French group included Thomson-CSF, Matra, Telematique, and their U.S. subsidiaries or representatives: Alphatel, Antiope Telematics Corporation, and Videodial. Their exhibit included demonstrations of broadcast teletext, courtesy of CBS and NBC, both of whom took the opportunity of Videotex '82 to put NABTS signals on the air over their local outlets. A teletext receiver at the Alphatel booth could be switched to the CBS Extravision or the NBC Tempo teletext services. Telematique showed "smart" credit cards with imbedded microprocessors that

permit users to obtain banking or other informational services over their TV sets. Matra and Thomson-CSF had interactive phone terminals as well as other videotex devices.

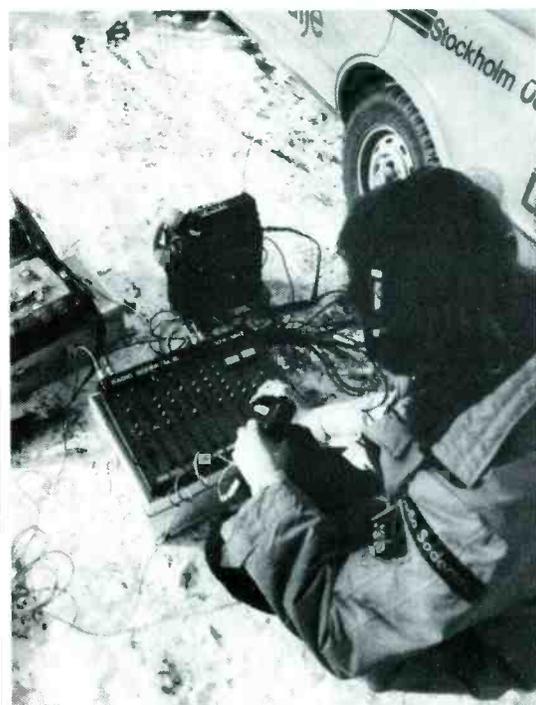
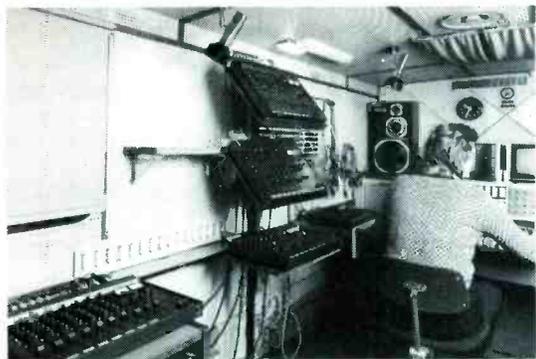
The Canadian Telidon exhibit also had a variety of displays that included a Norpack decoder claimed to be the only one capable of full PLP display and available for around \$1,300, including the modem. Telidon's U.S. entity, Infomart, leaned on the expanded graphics capability of the system, and many of the displays in the Canadian exhibit showed excellent color graphics of high resolution. To emphasize Canada's role in high technology, the Telidon brochure featured on its cover a computerized graphic of Canadarm used on the space shuttle.

The British display prominently proclaimed maximum market penetration of the videotex market at the present time. Since Prestel/Ceefax/Oracle have been in operation for the longest period, they now have, according to a British videotex spokesman, the largest number of teletext receivers in use, and commensurately the largest databases and terminals in private and public use.

In the U.S., their Keyfax operation in Chicago (over WFLD) and at the Knoxville World's Fair (over WBIR) are examples of teletext services now available. Various U.K. companies showed the latest versions of British videotex, which included such enhancement features as full picture capability, high-resolution graphics, and software downloading.

The Japanese exhibit centered on the Captain system developed by NHK Research, and adopted by other

Continued on page 66



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BC 8/82

Japanese broadcasters. Pointedly at least one Japanese firm (Sony) had a separate exhibit showing it could build teletext and videotex components for the other three systems. However, the Captain exhibits did include separate stands by NEC, Hitachi, Toshiba, and others, showing a unified posture on the national system. Captain is somewhat of a latecomer into videotex, perhaps because the domestic need for a TV text system must cope with the very complex written form of Kenji. In any case, they

were at Videotex '82 in full force and showing attractive images using their own technology.

The American companies that are actively pursuing videotex, like the Viewdata Corporation of America, RCA, IBM, Time Inc., and AT&T (to name just a few), each had exhibits relating to the segment of the market they were involved with.

Viewdata is a subsidiary of the Knight Ridder newspaper chain of 32 metropolitan dailies. They were the

first to team up with AT&T and start a field-test in Coral Gables, Florida; and based on that experience, are now planning very extended videotex services, called "Viewtron," around the country.

IBM's exhibit was an international one, showing existing IBM involvement in Britain, France, Germany, etc., with currently operational systems. Geared to the IBM small computer, the IBM claim was that they had the hardware and software to best serve any office that wanted to get into videotex. Their exhibits also incorporated a variety of outside hardware made by various companies to show their compatibility with OEM suppliers.

RCA already makes videotex terminals and plans to mass produce teletext-equipped color TV receivers when the market develops. In this regard, RCA put out a press release at Videotex '82 endorsing the NABTS as a U.S. teletext standard.

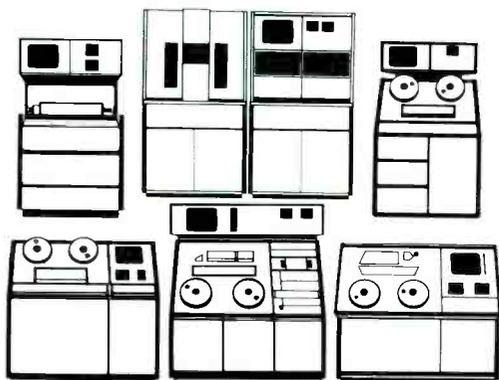
Time Inc. announced the largest teletext test ever carried on in the U.S. Joining the NABTS bandwagon, Time Inc. will offer a full video channel teletext service in San Diego and Orlando, Florida.

The most significant exhibit at Videotex '82 was not at the Hilton, but a few blocks away, in a suite at the Helmsley Palace. There Texas Instruments and ATC had teamed up to show a new TI decoder that not only worked on NABTS, but also produced high-resolution graphics. To top it off, the potential volume price of this decoder board was projected at around \$30. As a final *piece de resistance* to the frequent demos that were put on, the decoder even produced teletext animation in the form of a horse race. Somehow the French horse always won.

This new TI chip set, which is available to any color TV receiver manufacturer or any videotex terminal supplier, may indeed be the critical element in getting NABTS widely accepted in North America.

In general, the exhibits reflected the very diverse technology available to serve the videotex market, and the desire of a lot of current (and well known) video equipment suppliers of getting into this potentially huge field.

The papers presented at Videotex '82 also reflected the dichotomy between supporters of the two major technologies appearing on the exhibit floor, synchronous vs. asynchronous. The proponents of the fixed format (synchronous) teletext representing the BBC, the IBA, Field Enterprises, IBM, and others, argued in their presentations that it was simpler, cheaper, and



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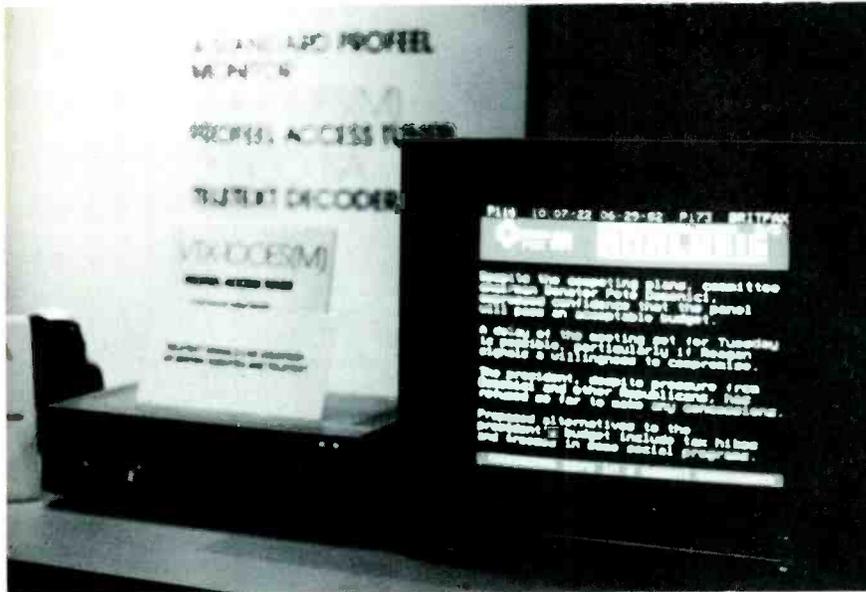
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Sony's Profeel monitor, equipped with a teletext decoder, shows the Keyfax service put on by Field Enterprises over WFLD in Chicago.

widely operational, therefore, available now at affordable prices. The other side, equally adamant about the advantages of variable-format (asynchronous) teletext grouped together spokesmen for ATC, Alphatel, RCA, CBS, PBS, Time Inc., Telidon, and AT&T. Nevertheless, everyone would like a single national standard so as to get on with the task of making teletext a widespread public service.



Example of high-resolution graphic through TI decoder.

It was evident that the FCC's decision to abdicate its proper role in deciding technical issues facing broadcasters, was not favorably received in the industry at large. One videotex newsletter publisher even went so far as to distribute buttons that stated "1990, I Can't Wait," a satirical reference to the time it might take for teletext to get going if the current electronic anarchy continues.

Concurrent with the conference, both CBS and NBC announced plans to provide a national teletext service using the NABTS format. NBC's committee on teletext, which represents a large group of affiliates, has also endorsed

NABTS, as have RCA, Westinghouse, Time Inc., and a few independent PBS stations.

Videotex '82 may turn out to be the catalyst that got teletext rolling in the U.S., not because of what happened in New York, but because it focused interest on the problem of divergent standards, and because it provided a platform for several of the TV networks to coordinate their efforts in the teletext field. On the videotex side, it is still a technology looking for a market. The future potential, while optimistically predicted to be very large, is hard to pin down with regard to a comprehensive time scale.

Videotex has spawned a raft of studies and market projections, mostly based on very small samples taken from recent tests. A new trade group has also been formed. Called the Videotex Industry Association, it purports to disseminate information among the more than 100 industry members it already has. Their main purpose, according to the literature they handed out at Videotex '82, is to educate the public about the benefits and applications of videotex and teletext technologies, and to serve as a conduit for the exchange of information, opinions and analysis within the videotex/teletext community.

With developments in this technology moving ahead as quickly as they are, an industry association and some coordinated actions with regard to some basic standards may be the best thing that could have happened to this industry. **BC**

Joe Roizen, international video editor, is president of Telegen, Palo Alto, California.

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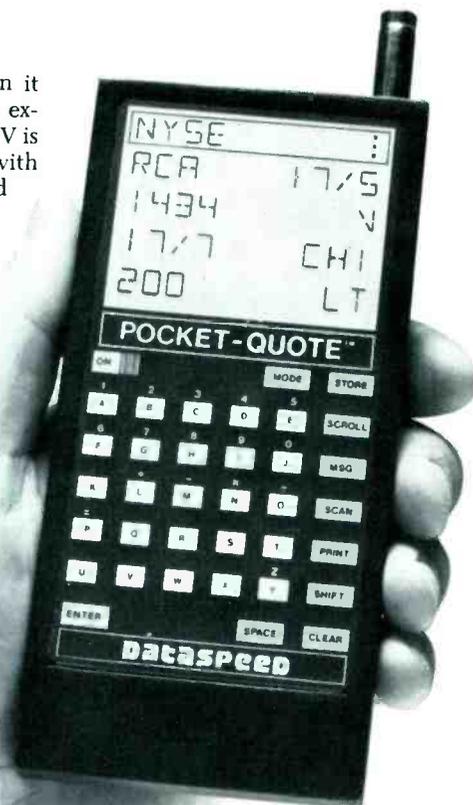
Circle (54) on Action Card

VIDEOTEX ON YOUR SCA COULD MEAN MORE PROFITS

By **GLEN PENSINGER**

Videotex for FM radio? When it comes to serving the public's expanding appetite for information, TV is not the only broadcast medium with spare real estate that can be devoted to special text services. A Califor-

"Pocket Quote" is a hand-held, digital FM-SCA receiver now under development by Dataspeed in San Francisco. The company plans to have these state-of-the-art units in the hands of test customers for their stock information service by the end of the year.



nia company, Dataspeed of Burlingame, has recently reported results of their first 90 days of testing under a six-month special temporary authorization issued to Sundial Broadcasting's KDFC-FM in San Francisco.

They've shown highly reliable 4800-baud transmissions on the KDFC SCA subcarrier to hand-held receivers at distances of over 30 miles. The Dataspeed system has been a "ground-up" development employing a number of proprietary elements and some of the latest in compact microcomputer chips. It has an interesting history; and its operation has analogies in both teletext and cable TV system practices.

The 67 kHz FM SCA subcarrier has long been a potential producer of income for FM broadcasters. For some it has been a major source of revenue. By far the most common use has been for background music and storecasting services. Since the adoption of rules permitting "visual mode," non-aural services on these channels, there have been licenses granted for transmission of slow-scan TV, multichannel teletype, electronic blackboard, and other visual display services.

Digital transmission on the SCA carrier has seen only limited use. Commodities market information has been transmitted for decoding by home computers at rates of approximately 1200 baud. National Public Radio and others have tested the transmission of linear data with mixed results. Dave Lockton,

Dataspeed's chairman, believes theirs is the first successful operation at rates above 2400 baud.

A major obstacle they have had to overcome is the natural dislike, on the part of some radio engineers, of any subcarrier—let alone one carrying digital information. Mere contemplation of the possible interference products is enough to send some into cardiac arrest. When first approached, KDFC was understandably reluctant, but the project was intriguing and they eventually agreed to off-hour tests. The classical music format of KDFC made them desirable as a test station because both the station and their listeners have high standards for transmission quality.

Results of the first 90 days testing, filed with the FCC in May, state that "the 'digital SCA system' is compatible with stereophonic broadcasting and the converse is also true. . . listening tests indicate that the digital system, with its spread spectrum technique, causes far less interference to ordinary stereo receivers than do conventional 67 kHz background music systems." Spectrum analyzer photographs, taken with standard 10% carrier injection, document a pilot-to-noise ratio in excess of 53 dB at 53 kHz. That corresponds to 74 dB below main signal. No modulation of the main carrier by the subcarrier could be measured. With no SCA modulation, wide-band noise on the left channel measured -50 dB and right channel measurement was -53 dB. When the SCA was modulated with a typical digital signal, the wide-band noise reading for the left channel indicated no change and that for the right channel rose only +2 dB.

The Dataspeed developments which contribute to these performance figures include a digital subcarrier filter with approximately 25 dB rejection 6 kHz above and below the SCA carrier, and a proprietary method of effecting a smooth transition between mark and space frequencies which drastically reduces spurious products.

Initial use of the system will be for a service called "Pocket Quote." The Dataspeed hand-held SCA receivers will be leased to a target population of investors with portfolios worth \$50,000 or more who makes in excess of 11 trades a year. It will give them rapid access to up-to-date information on all 7,000 stocks listed on the New York, American, and NASDAQ exchanges. It is hoped that production receivers will be in the hands of consumers for field tests by the end of 1982. The service is to be offered in New York, Los Angeles, Chicago, and San Francisco.

Like many good ideas, this one didn't

exactly follow a smooth road to its present incarnation. It saw the glimmer of life in a 1972 master's thesis by Anthony Fascenda, now Dataspeed's president. He originally conceived it as a service to sports fans. Wouldn't it be nice if sports fans, the original data junkies, could get up-to-the-second information at the push of a few buttons? Road racing was a sport that could benefit from such a system. Once there've been a few pit stops and the leaders have begun to lap the backmarkers, a race spectator can get confused as to what's actually happening out there on the track. Fascenda conceived of a computer timing system which would use a low-power transmitter to feed data to hand-held receiver/display units that spectators would rent for the day. It would be a sort of electronic official program.

On closer investigation, the plan suffered from a lack of readily adaptable technology. Little documented information and virtually no commercial equipment existed for radio transmission of high-speed digital data to portable receivers. If Fascenda and his partners wanted to realize this idea, they were going to have to develop all the components, including the computer timing system that would gather the data in the first place.

Work on the race timing computer began in 1975, and by 1977 a system was available. In the interim, Dataspeed learned a lot about unconventional methods of radio transmission and reception. The Racetracker 500 uses cigarette-pack-size, low-power transmitters on the cars, and buried antennas in the track to keep tabs on up to 100 cars with 1/1000th of a second accuracy. It can resolve cars 4 inches apart at 250 MPH, and is now the official timing system for the Indianapolis 500 and all CART races. A number of teams have purchased their own units, and the system forms the basis of the Heuer/Longines timing system for Formula One races.

Once they had a source of data for the race fans, the problem became one of getting that data from computer to spectator. Venture capital was needed and it was found; however, the investors saw the technology as an ideal way to disseminate stock information, and development detoured to the system now under test at KDFC.

The pocket receiver is perhaps the system's most interesting component. Most noticeable is its proprietary liquid crystal panel which can display four rows of 10 alphanumeric characters each. In the stock application, this panel will indicate exchange, last sale, up/down tick, high, low, opening

Continued on page 70

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trade, and daily volume. There is a calculator-like keypad for instruction input. An LED indicates reception of error-free data, and serves as an aid in orienting the antenna. Inside are the batteries, microprocessor components, and what Dataspeed believes to be the world's smallest digitally tuned SCA receiver. All aspects of the device are under software control by a Hitachi 6301 microprocessor.

Software control is at least as important as hardware in this system. Every-

thing from station tuning, to data decoding and display, to battery-saving power reductions, to cut-off of a receiver whose owner hasn't paid this month's lease, is under software control. As the customer moves from city to city, software tunes the Pocket Quote to the correct station.

Lockton notes that Dataspeed is the first company to receive the 6301 flat pack, and has obtained Hitachi's first development system to program it. Hitachi developed the 6301 under

license from Motorola as an enhanced version of the familiar 6801. It has double the memory and double the program storage on board, and includes the timing components and UART in a single, low-power C-MOS chip.

The transmission scheme relies on a continuously repeating loop of updated digital data. Much like a teletext-equipped TV receiver, the Pocket Quote grabs the information it wants as it cycles by, and ignores the rest. Data for the 7,000 stocks in the initial service require a loop which is 70 seconds long. A consumer would have an average 35-second wait for a new request, and would have to wait the full 70 seconds if the data had just cycled past. Users can program their receivers to store data on up to 40 stocks in which they are particularly interested. Seventy seconds after initial power-up, these 40 memory slots are filled with the latest data on those stocks. The user can have access to any of that information instantly, and it is refreshed with the latest changes every 70 seconds.

Pocket Quote has double its stocks and commodities memory available for other services. Just as with cable TV, these additional services are addressable in tiers. A consumer could subscribe to one, a few, or all of the eight tiers possible with the current software. Services being considered include professional sports scores on a quarter-by-quarter basis, airline schedules with seat availability to and from the metropolitan area being served, current weather in 50 or more major metropolitan areas, and information concerning local concert and ticket availability.

Planned accessories include a desktop charger/stand (the 5-volt unit operates for 12 hours on an overnight charge) and a video output adaptor which will continuously display the 40 selected stocks on a video monitor. Also planned is a telephone modem which will let a consumer, who has travelled outside the range of the FM station, get a quick update on all 40 stocks just by placing a 70-second phone call.

With these developments, Dataspeed has demonstrated how imaginative engineering, microprocessors, and software control can open up whole new service areas for broadcasters.

I just can't wait for Dataspeed to get back to their original idea so I can stand trackside, 50 laps into a Formula One race, and still tell what's going on just by pressing a few buttons. **AC**

Glen Pensinger, video production editor, is television editor for San Jose State University and an independent television systems consultant in the San Francisco Bay area.

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HOW TO USE a helicopter for precise field data

BY JACK C. LOVELADY

Taking field intensity measurements by airplane or helicopter is not new. It's been done many times to avoid everything from hazardous terrain to hazardous inhabitants...like alligators.

The trouble with airborne field intensity measurements is that correction factors must be used.

Frankly, it's left the FCC cold when the subject comes up. There are just too many variables.

Directly obtained measurements requiring no conversion represents a significant departure from earlier attempts, and it opens the door for a variety of applications.

What got me moving in this direction was the need for my associates and myself to tune and proof a new directional antenna and transmitter facility which we constructed in the Florida Everglades, 22 miles west of Miami. It was apparent that there had to be some better method than endlessly sloshing through the Everglades.

I thought it might be a good time to put my helicopter flight training and my avionics experience from the airlines

Continued on page 72

Jack C. Lovelady is with WIS Radio, Cosmos Broadcasting Corporation, Columbia, South Carolina.



Special test equipment bracket and field intensity meter are shown attached to the helicopter.

together with my knowledge of broadcast engineering. If it was going to be worthwhile, it would need to be based on sound criteria.

What I needed, and what the basis of this article includes, were the following:

- No correction factor to be applied to the airborne data to correlate to ground measurements. The helicopter measurements must be identical to ground measurements.
- Accuracy of obtained data and

previous location.

• Economics should approximate those of conventional proof even though conventional techniques were not possible.

Correction Factor

Helicopters are produced with the engines above, behind, or below the flight crew. This mass can definitely affect your measuring equipment. The rotor systems are just as varied in the number of blades and rotating speed.

Rotor blades can induce a modulating effect on RF signals if extreme care is not taken when the equipment and antennas are mounted.

Understanding these differences and their effects, and taking into consideration the human engineering aspects of operating and reading approved field meters, I evaluated each make and model of helicopter commercially available.

The Hughes model 269/300 was ultimately selected. None of the helicopters proved suitable for use with the field meter inside the aircraft. I found that even the slightest change in position of the meter resulted in substantial variations in the readings. To eliminate any effect of the helicopter on the field meter, it was necessary to locate it outside the aircraft.

In order to securely mount the meter outside the aircraft, a bracket was designed to provide the required safety and stability of the instrument while in flight. This also removed the field meter from any influences of the helicopter while affording ease of operation and calibration without meter parallax.

The bracket, constructed of non-magnetic stainless steel and aircraft aluminum, has a swivel adjustment that permits orientation of the field meter toward the station by plus or minus 15 degrees. This range of adjustment is well within that needed to overcome any possible "crabbing" of the helicopter during flight.

Numerous calibration tests, at ground level and altitudes to 300 feet, demonstrated that the aircraft was electrically transparent to the meter and that the obtained readings were within 1% of the ground measurements.

Therefore, no correction factor was needed for the helicopter measurements, and the data was tabulated as directly read during flight.

The Proof

In preparation for running the proof, each of the radials was precisely drawn on topo maps to a distance of 20 to 25 miles from the site. This data was then transferred to aeronautical terminal and sectional maps.

The coordinates of each of the end points on the radials were referenced to aviation aeronautical navigation aids, principally VHF variable omni range and HF non-directional beacons. The combination of aids selected, for purposes of flying to the end point on the radial, were those at right angles to the end point. We did this to assure maximum accuracy.

Having calculated the bearings to the navigational aids from the end point on the radial (cross checked to the terrain

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features from the topo maps), a flight was established using a directional gyro compass system from the transmitter site to the end of the radial. A painted barrel and flag were used to identify the location.

Check points along each radial were established in advance of the measured survey, and were marked with an orange cross readily visible from the air.

Numerous flights were made along each radial to become familiar with the terrain and to provide observation points for verification purposes on subsequent re-runs. This way, orientation of the aircraft could be maintained within plus or minus 0.5 degrees of the radial.

The helicopter also was a valuable aid in the initial tuning of the pattern due to its speed and ability to quickly obtain data in a 360-degree circle around the site.

Once the array was in tune, readings were taken on each radial at uniform time intervals. A digital LED time standard was used for this purpose. We flew the helicopter at a constant airspeed and recorded this speed at each checkpoint along the radial.

When ground level field strength measurements were taken near built-up

areas with overhead power lines, buildings, etc., there was substantially more scattering of the ground-measured data than on the helicopter measurements. The latter showed an exceptionally uniform reduction in field strength with distance.

The helicopter also demonstrated its ability to show standing wave which, on the ground, can look like scatter.

Although all field strength measurements were made with the aircraft traveling toward the station, tests showed no measurable difference in field strength data for outbound flights.

While conducting the actual antenna proof, we established a calibration test location so daily readings could be taken to verify continued accuracy of the meter mounted on the helicopter. This data was verified by representatives of the Bureau of Standards and the Department of the Army. These agencies were interested in our data and technique because our new transmitter site is near an active Army missile base.

Summary and Credits

The helicopter can be an extremely useful tool for gathering field intensity data, when proper controls are employed, in areas which prove difficult or

inaccessible for obtaining measurements in the conventional manner.

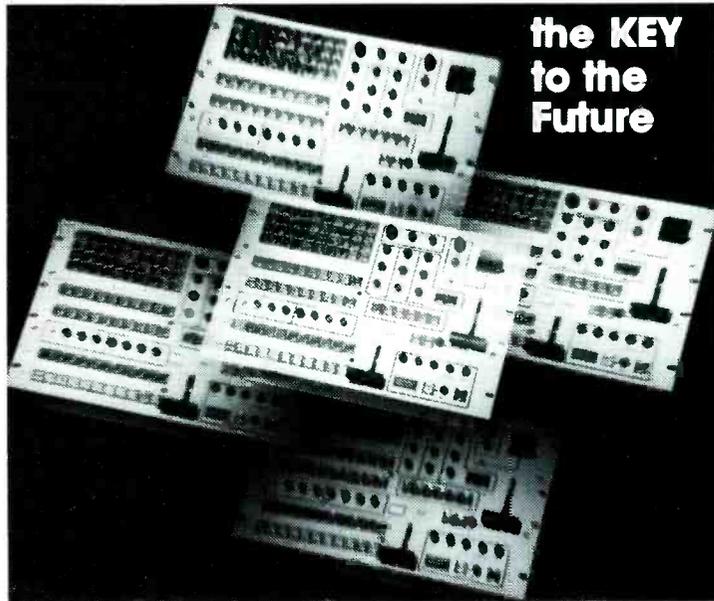
A helicopter can "run" a 25-mile radial in 20 minutes or less (as opposed to several hours or more on the ground) and exhibit greater accuracy for the true field.

Its speed and agility are beneficial in the initial tuning stage for directional systems; and it also allows you to gather data which can show standing wave, a condition difficult to prove on the ground due to scattering effects.

Credit must be extended to the highly qualified individuals who assisted in the development of the Helicopter Field Intensity Measuring System. Bob Hendricks and the late William Brigante, both senior army pilots well known throughout the civilian and military aviation industry, are thanked for their assistance in correlating locations to navigational aids, their creative problem solving, and for their fine piloting of the measurement helicopter.

Special credit goes to Julius Cohen, P.C., of Cohen and Dippell, and Earl Miller of Group One Broadcasting, and to Samuel Kalmanson, master machinist and FAA airframe mechanic for construction of the helicopter test equipment bracket. **BC**

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How fast-tracking cuts building time in half

By FRANK W. REES, JR., A.I.A.
and WALTER L. GREGG, A.I.A.

Rapidly rising interest rates, soaring materials and construction costs, and the need to be on the air fast to generate immediate cash flow, are leading an increasing number of broadcast facility owners and managers to opt for a fast-track project schedule in completing new buildings, renovations, or additions to existing stations. Other factors contributing to the frequency with which fast-track schedules are being adopted for broadcast facility architectural projects are equally important to the success or failure of stations.

KIMO-TV, the ABC affiliate in Anchorage, Alaska, lost its existing facility when the lease expired. Faced with the need for an unexpected and immediate move, and the lack of suitable space for lease, KIMO's managers had little choice but to build a new station on a fast-track schedule. With severe fall and winter weather precluding year-round construction activities, KIMO's need for fast-tracking was made even more clear.

At Oklahoma City's KAUT-TV, the prime motivation to fast-track was closely tied to the competitive nature of the local marketplace. KAUT wanted to be on the air with its STV programming in time for the fall season and before the local cable systems proliferating in the city could saturate the market.

Fast-tracking, which involves accelerating an architectural project

schedule by condensing and overlapping its planning, design, and construction phases, carries with it some important implications in project management. From the standpoint of both broadcast executives and the architectural team responsible for the project, a fast-track schedule requires a level of communication and cooperation that goes above and beyond that of most conventional projects.

The ultimate success of a fast-track project is also closely tied to the broadcast executive's selection of an architect and general contractor with experience in both fast-tracking and the design and construction of broadcast facilities. Further, the broadcast executive must collect data and make decisions quickly concerning the staffing, equipment requirements, and organizational structure of the station.

Inexperience on the part of the architect or general contractor can actually result in a so-called "fast-track" project taking longer to complete than the same project would require if approached on a properly executed conventional schedule! Since fast-tracking requires working from the ground up, the project schedule does not allow time to make and correct major errors.

In the event of major errors in the construction sequence or techniques, the results are often disastrous. For example, the general contractor selected must be totally familiar with the technical aspects of a broadcast facility—its

engineering areas, studio construction techniques, and acoustical considerations. Critical details, such as the importance of allowing for the installation of all mechanical and electrical systems before on-grade slabs are poured, are especially important in a fast-track project.

The fast-track process begins with the development of a project control schedule (PCS) which graphically illustrates the coordination of all efforts required to complete the design and construction of a project. The PCS is an element of any architectural project, but is especially important in fast-tracking because it provides the basis for condensing all the tasks involved in the project on a single sheet of paper.

The most important item on a PCS is the completion date for the new facility, addition, or renovation. Every key date on the PCS is scheduled by working backward from the "on-air" date specified by the broadcast executives involved with the project.

Another important factor represented on the schedule is the time required by the owner or his equipment consultants for the installation of broadcast equipment in the facility. Due to the long manufacturing and delivery times required for equipment such as transmitters and towers, and the complex wiring involved during installation, it is critical on a fast-track project that the owner or equipment consultant make equipment decisions promptly, and confirm all order and delivery schedules. Selection and layout of equipment is also vital to the architect's design of the facility. Equipment layout plans, both present and future, are essential in efforts to properly size the spaces in which it will be housed.

If the owner fails to order equipment or furniture on schedule, he may end up with a building that's ready to receive equipment and have no equipment; or have equipment arrive, only to find that there's nowhere to house the items being delivered. Therefore, the time required for equipment or furniture manufacturing and delivery dictates when certain areas of the building (such as the technical, engineering, and office areas) must be completed. This may mean that these spaces must be finished as much as 30 to 60 days before the remainder of the facility is completed.

A successful approach to fast-tracking necessitates assembling a project team consisting of the client, the architect and his consultants, and the general contractor and his subcontractors. A close working relationship must be developed and maintained among all members of the team so that clear communications take place. Therefore, the architect usually documents all exchanges of critical information through detailed meeting reports. This communication effort is continued by setting up a series of review meetings throughout the duration of the project on a weekly or biweekly basis.

Fast-tracking condenses and overlaps the work performed by the architect

and general contractor, and can ultimately produce a better product as a result of the close communication developed among the professionals involved. With a conventional project schedule, the architect prepares construction documents and specifications, reviews them with the client, and solicits bids from contractors. The owner's input is usually limited to providing the completion date for the facility. When working under a fast-track structure, the contractor is brought on board in the early stages of the project, leading to a close working relationship which rarely develops under the typical bid process.

In developing the PCS, the architect and general contractor must select construction materials and systems based on their availability, familiarity, delivery times, and the time required for installation. Various members of the team provide input in this process. The owner may express preferences based on aesthetics; the architect evaluates the suitability of the materials to the design; and the contractor is primarily concerned with delivery and installation times.

Delivery of structural steel is often a critical element in a fast-track project schedule. Typical delivery time for steel is six to eight weeks, requiring the architect to complete steel designs sufficiently early to have the material on hand as needed during the construction

process. Factors such as trade strikes can also affect the project schedule. Through his awareness of the expiration dates for various trade contracts, the general contractor can help forecast strikes and avoid delays in the construction process by suggesting alternative materials.

Brick had originally been considered for the construction of KAUT-TV, but was later ruled out partly because of a mason's strike which had delayed the completion of Oklahoma City's KOCO-TV the previous year. The same union contract was due to expire just as construction of KAUT-TV was getting under way. Precast and cast-in-place concrete were finally selected, partly because of their immediate availability, also because the contractor had gang-type modular forms on hand that eliminated the need to build new forms for each section of the building.

Another consideration which helped expedite the construction of KAUT-TV was the architect's recommendation that the owner make use of a demountable interior partition system in the station's office areas. This system cut down considerably on the usual installation time required with conventional dry-wall construction methods. With the demountable system, carpeting, other flooring materials, and ceiling are first installed throughout the entire facility. With ceilings and floors complete, the prefabricated partitions are installed. This

Continued on page 76

KAUT-TV exterior shows the use of precast and cast-in-place concrete. (Photo copyrighted by Hursley & Lark, Photographers of Architecture)



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Circle (61) on Action Card

Fast-tracking

approach also enabled the owner to make minor revisions in interior configurations before the facility was complete—without delaying the project.

Once the materials and systems for the project have been selected, the architects must then determine the time required to develop the facility program and plans, and the time needed to obtain owner and agency approvals for the various phases of the project. As it is entered in the PCS, this information helps to determine the coordination and degree of overlap between the development of architectural and engineering drawings and the various elements of the construction process.

Designed and built on a conventional project schedule, a 20,000-square-foot broadcast facility requires about three to five months for the development of project plans. A period of 30 days is generally allowed for the bidding process. Completion of construction often takes nine to 12 months. With a fast-track schedule, the process can usually be accomplished in at least half the usual time. The size of the facility and the materials and systems selected for the project are the determining factors in the time required for its completion. KAUT-TV, for example, was designed and built in nine months.

The fast-track method for designing and building a broadcast facility can be an extremely rewarding process. Properly executed by experienced architects, consultants, and contractors, fast-tracking can result in tremendous savings of both time and costs. However, if any member of the project team—from owner to subcontractor—neglects to devote the extra time and effort required under the circumstances, the process can fail miserably.

The fast-track process can solve a world of problems for the broadcast executive faced with the need for new facilities within a very short time. However, the process allows little room for mistakes or misunderstandings. Any deviation from the standard practices required in fast-tracking can result in the broadcast executive finding himself housed in a poor facility—one which may vary well have cost more time and money than a successful project managed on a conventional schedule. Understanding the fast-track process, its benefits and pitfalls, is the key to realizing the goal of completing a well-designed facility on time and on budget.

Frank Rees is president of Rees Associates Inc., Architects, Planners, Engineers, an Oklahoma City-based firm specializing in design and planning for broadcast production facilities. Walter Gregg is an associate and project manager with the firm.

PRODUCT PREMIER

Microprocessor-based editing system (Circle 101)

IVC—The company has just introduced the ABR-1, the latest addition to their editing family. It's a microprocessor-based system designed to control up to three videocassette recorders in an AB roll editing configuration.

The ABR-1 has a built-in character generator which produces a video display signal containing all editing related to data to facilitate the operator's ability to perform fast and accurate edits. Normal editing is performed using the VCR's control track signal as a reference for accuracy. While this system of counting is adequate, an optional Micro-Loc VCR accessory is available as well as optional SMPTE readers, for guaranteed frame accuracy.

The standard features include individual remote control (as well as independent shuttle and cruise control), variable pre-roll and post-roll, and frame-by-frame animation. Other highlights, also standard, are drop frame/non-drop frame selection; 10-event memory; extend edit; split

edits; numerical keypad entry; insert edit; and assemble edit.

The ABR-1 is compatible with JVC, Panasonic, and Sony.

Auxiliary ports are available for printer interface and future expansion through system integration. Edit decision list formats may be specified for CMX, Datatron, or SMPTE proposed listings.

Wireless microphone (Circle 151)

CETEC VEGA—New from Cetec Vega is the model 82 condenser wireless mike, which incorporates the Shure SM85 condenser element. Features include minimal handling noise; reduced mechanical vibration; clean reproduction of close-up vocals with moderate proximity effect; clear highs with crisp upper register; and cardioid pickup pattern for effective rejection of off-axis sounds. For more information, see the Cetec Vega ad on page 51.

Composite processor (Circle 107)

MODULATION SCIENCES—A well-known consulting engineer with an extensive practice before the FCC

technically evaluated the Composite Processor. A Washington law firm, active before the FCC, reviewed the technical report and the FCC rules. The law firm concluded that the Composite Processor, when installed and used according to MSI instructions, complies with all applicable rules and policy positions.

Conceived by audio consultant Eric Small, MSI's director of engineering, the Composite Processor has little effect on the dynamic range or "openness" of music. It operates only on the stereo baseband, so it produces none of the

Continued on page 78

PROFESSIONAL SERVICES

Due to numerous requests, BROADCAST COMMUNICATIONS will publish a Professional Services page beginning in the September issue. Economical ad rates for business card advertising. Call Evelyn collect at (913) 642-6611.



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According to Small, you can rejuvenate your existing audio chain, providing performance equal to or better than new equipment. If you're a classical or beautiful-music station, you can virtually eliminate compression and limiting.

The Composite Processor sells for just under \$800.

Digital animation (Circle 102)

GROVE VIDEO—The company has introduced a software option for its Imager I digital image storage device to allow certain real-time animation of key images.

The Imager I digitizes key images from original art or other video sources, then condenses the data for storage on floppy discs. Up to 40 images can be stored on each disc, with a typical access time of less than a second. The im-

age key output can be colorized and mixed with existing video.

The new software allows sequences of images to be programmed ahead of time, then aired in real time at frame rates. Adapting the redundancy techniques used in film animation, continuous motion of moving images may be programmed. Effects include horizontal and vertical motion, zoom, and scaling.

Other options include a preview channel card, a second floppy disc drive, and a multi-color downstream keyer/colorizer.

Frame synchronizer (Circle 105)

APERT-HERZOG—Apert-Herzog displayed their new Model A frame synchronizer at the NAB this year. Marketing director Bill Nichols stated at the show that this low-cost entry is an 8-bit 4 FSC NTSC design with full frame storage using industry-proven 16K RAMs.

Automatic full-color freeze results upon loss of signal or detection of a sudden H phase change. Manual freeze in the field or frame mode can be commanded from the front panel or from an optional remote control. High reliability is assured by a generous air flow supplied by three fans.

Using only 3½ inches of rack space, the chassis was designed to provide ease of access to the circuit boards. There are no extender boards required, and you don't have to be a contortionist to troubleshoot and repair the Model A.

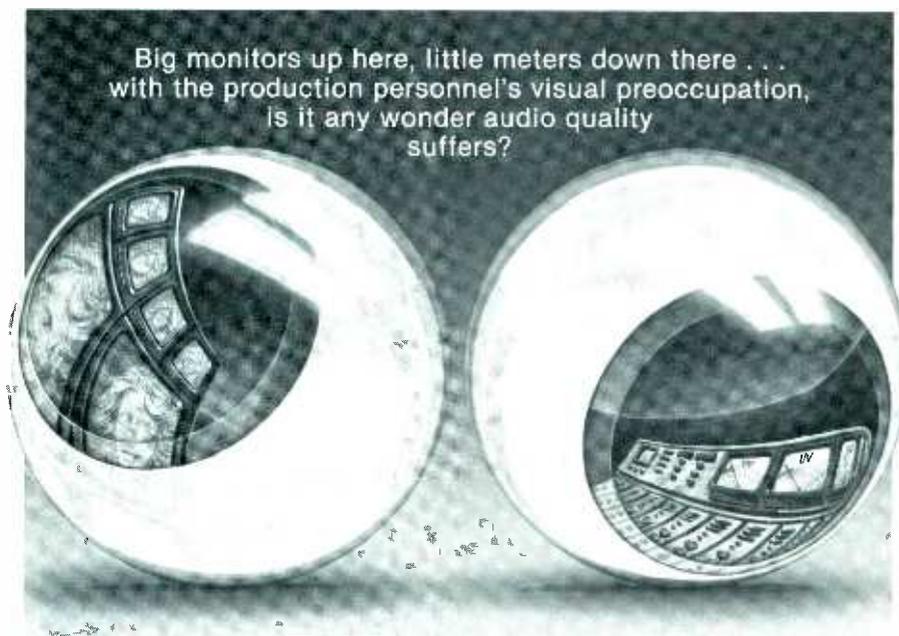
The unit has a continuously adjustable horizontal phase greater than four horizontal lines. Horizontal blanking is digitally adjustable with the blanking slopes digitally generated. Setup is also digitally adjustable in LSB increments over a range of -10 to +20 IRE. The output is RS170A.

CCD camera (Circle 106)

EEV INC.—Among the highlights of the NAB convention was the introduction of the EEV P4300 camera. It's a rugged, all-purpose, hand-held TV camera that's based on a complete CCD camera drive circuitry design, and its heart is the EEV P8600 CCD imaging sensor.

The P8600 is a frame transfer image sensor having a 576 x 385 element format. The silicon array is controlled by circuits that provide clock and sync drive pulses in a variety of ways, depending on application. It has been designed to give optimum performance when operated at a 625 line/50 Hz scan rate.

The chief advantages of EEV's CCDs are optimization for 625-line operation; very low noise performance for epitaxial devices; and very low aliasing.



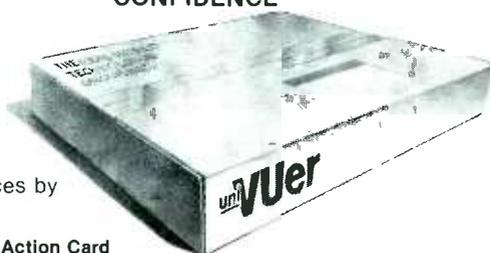
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Wireless mike system (Circle 112)
NADY SYSTEMS—At NAB this year, the company introduced a multi-purpose wireless communications system for broadcast productions and motion-picture applications.

The system consists of three components. The RT-201 is a miniature push-to-talk, two-way transceiver that attaches to the body for hands-free operation between two or more parties. It has a 1-watt output and a range of about 1 mile, depending on terrain and the operating environment. It can be switched up to six channels.

The T-201 mini-transmitter offers the same housing and circuitry as the RT-201. It is available on single- or dual-channel operation only. The R-1000 is a mini-FM receiver that is compatible with these transmitters. Together, they are a complete wireless communications system for cueing, and production applications.

Auto effects interface (Circle 113)
DELCOM—The AE-3 auto effects interface combines the editing capabilities of the Convergence Corporation ECS-103 with the special effects of the ISI 902 production switcher, resulting in greatly expanded post-production techniques. All equipment retains its original capabilities, as well as automatic transitions, while requiring no modification.

With the 902's 10 inputs and 4 buses and 2 mix/effects, you will have more than double the flexibility of other systems. Using existing ECS-103 dialog, you can automatically perform these transitions at the desired edit point: mix, key, chroma key, external key, self key, mix/key, wipe/key, and wipe or fade to preset wipe on M/E 1.

In the manual mode, the 902 and the ECS-103 return to normal operation, allowing simultaneous live production and cuts with no cable changes.

Sequencer (Circle 115)
CONTROL VIDEO—The Sequencer™ with Automatic Satellite Spot Insertion (ASSI) was introduced by Control Video at the NCTA show. The Sequencer is an automated playback system providing complete random-access program automation for cable TV systems, broadcast stations, and CCTV. The ASSI option enables the user to receive an audio cue from the satellite and automatically insert local commercial spots or programming. The system is SMPTE time-code-based for frame accuracy, and is capable of controlling up to 31 VTRs for the advance programming of more than 170 separate events.

Continued on page 80

WHY BUY TWO LENSES WHEN THIS ONE WILL DO?



Schneider 14X ENG/EFP lens zooms from super wide angle to long telephoto.

Changing lenses to handle changing conditions could cost you a once-in-a-lifetime shot. And that's why you should know about the Schneider 14X ENG/EFP lens. It gives you two-lens versatility in an economical one-lens package.

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In addition, Schneider offers the 14X lens in a $\frac{1}{2}$ -inch format for the new one-piece VCR cameras such as RCA Hawkeye, Panasonic and Sony. Schneider broadcast lenses are available throughout the United States and Canada from: **TELE-CINE CORP.**, 400 Crossways Park Drive, Woodbury, NY 11797; (516) 496-8500.

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Columbia University Graduate School of Journalism broadcast lab—TV/radio. Evaluate and update equipment; instruct faculty and students; in-house repair. Minimum of 4 years related experience, associate degree in electrical engineering, fully licensed. Send resume to Philip Lemanski, Graduate School of Journalism, Room 708, Columbia University, 116th and Broadway, New York, NY 10027. We take affirmative action toward equal opportunity.

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PRODUCT PREMIER

The Sequencer generates a permanent directory at the front of each tape that stores the reel number and the start and finish time of up to 70 segments or spots on that tape. Once the Sequencer is programmed with the interactive CRT, it reads the information from the directories, cues, plays, and locates the next segment accordingly. The system can operate in either a timed, chained, or satellite cue mode. Actual machine control is performed by Control Video's microprocessor-based Intelligent Controllers.

Cameraman headset (Circle 205)
CLEAR-COM—The company has available their new CH-41 single muff and CH-42 double muff which have been designed to satisfy the universal need to improve the quality of "carbon mike" type headphones usually supplied with TV camera intercoms, etc.

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