DECEMBER 1982/$3.00

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THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

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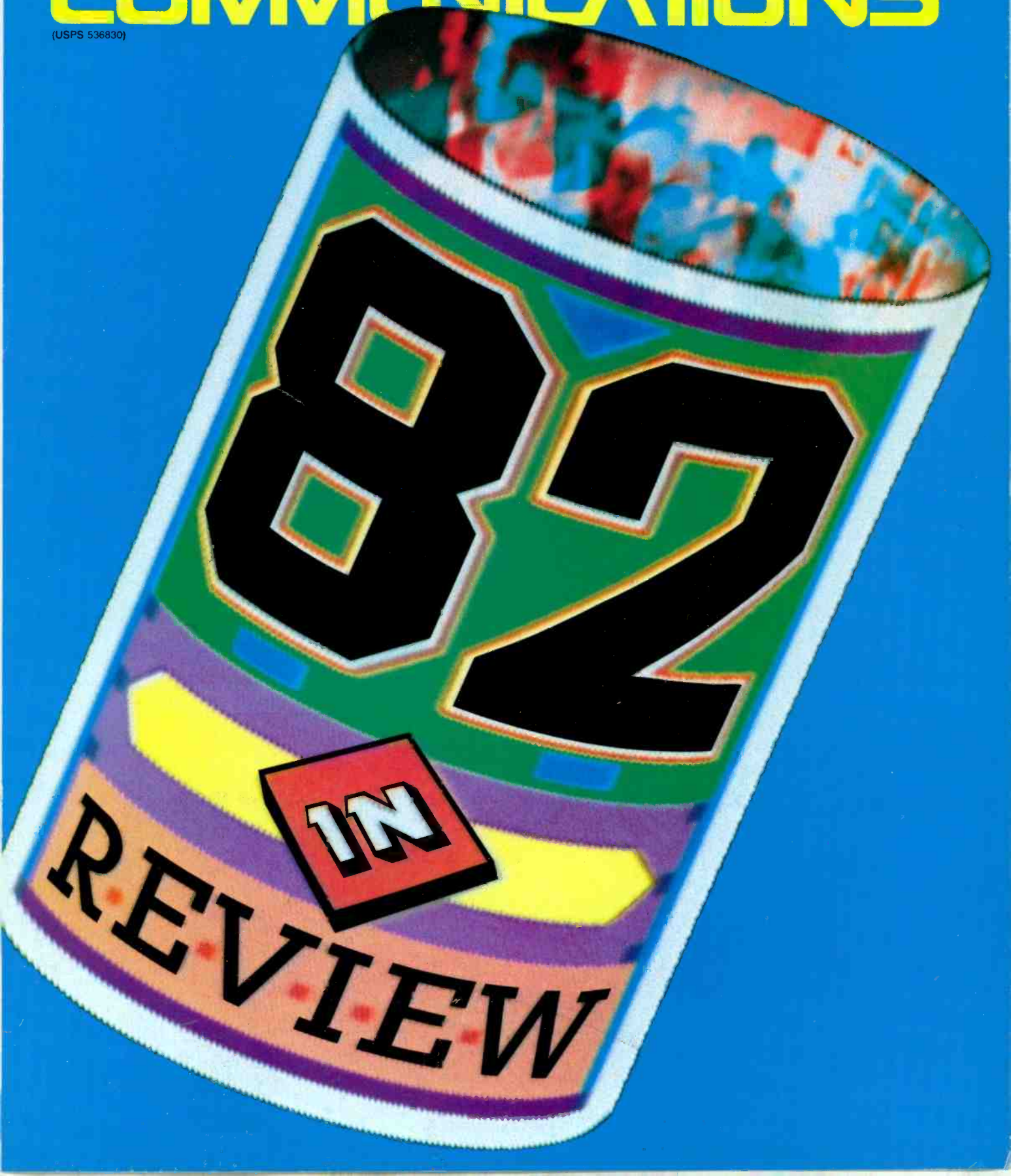

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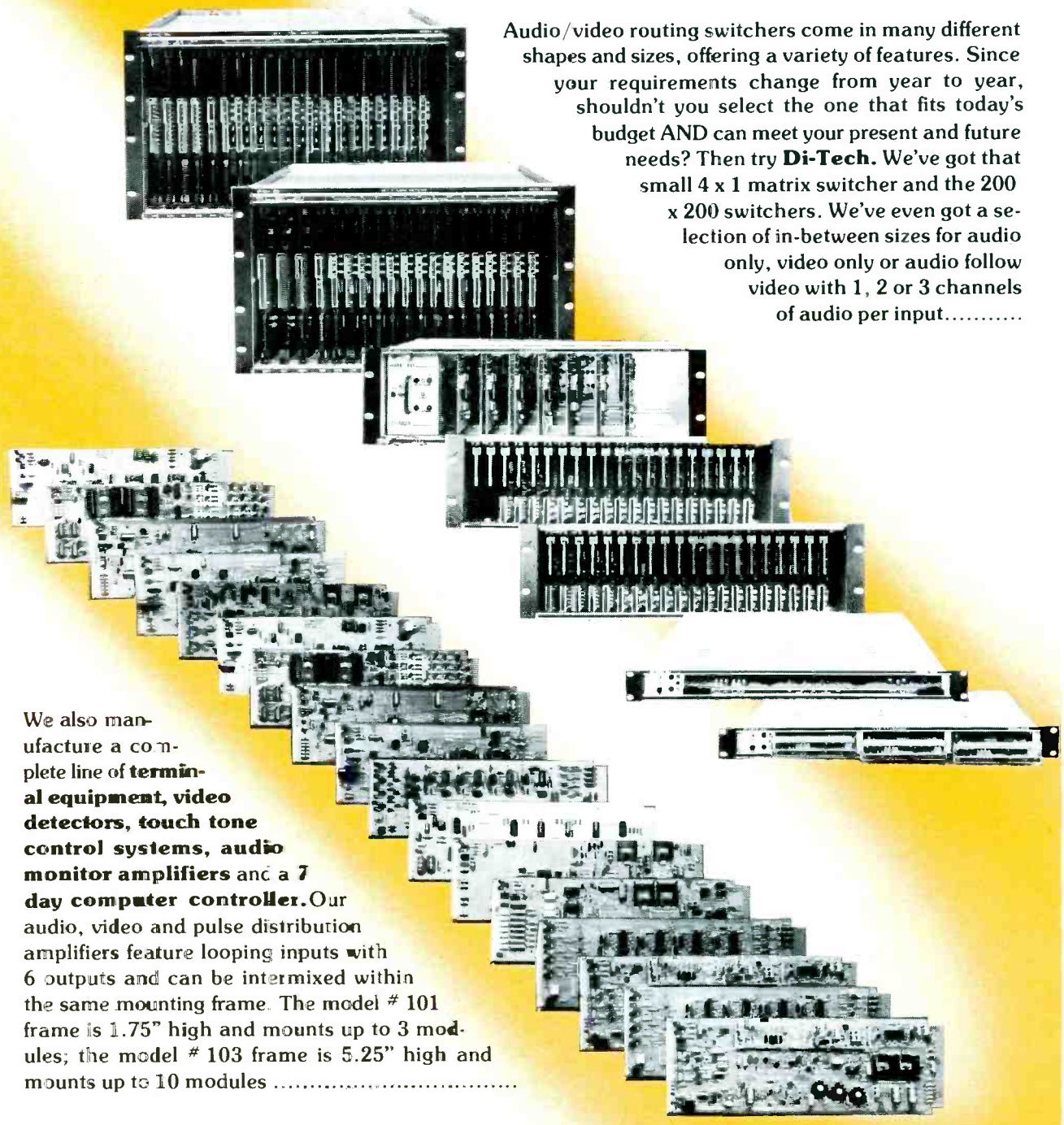

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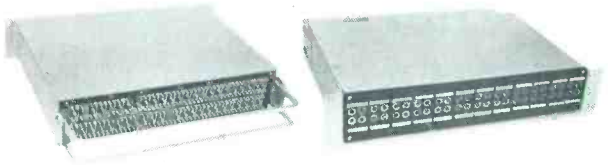

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DECEMBER 1982 VOLUME 5/NUMBER 12

BROADCAST COMMUNICATIONS
THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

'82 IN REVIEW

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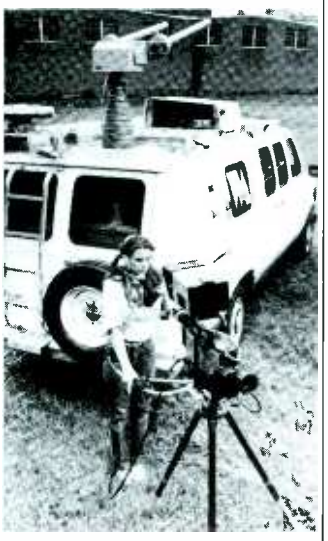
Year of Enhancements
Ron Merrell
A look back at some of the major product developments of 1982, with comments from manufacturers on recent enhancements in character generators and animation equipment, wireless microphones, AM and FM transmitters, and mobile vans.



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Cable In Perspective
Michael Scheibach
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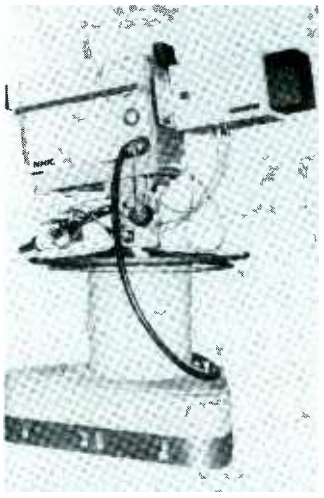
HDTV Is Climbing Over the Horizon
In this update on high-definition television, Ikegami reports on the latest activity in HDTV standards, and offers a technical description of a new HDTV camera developed for NHK, Japan's national broadcasting network.



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Elections . . . When Winning Means Surviving
Bill Avery
1982 found many stations using the latest technology for expanded election coverage. One such station, WNEM-TV, describes how it broadcast live from six counties using just two microwave trucks and a lot of engineering wizardry.

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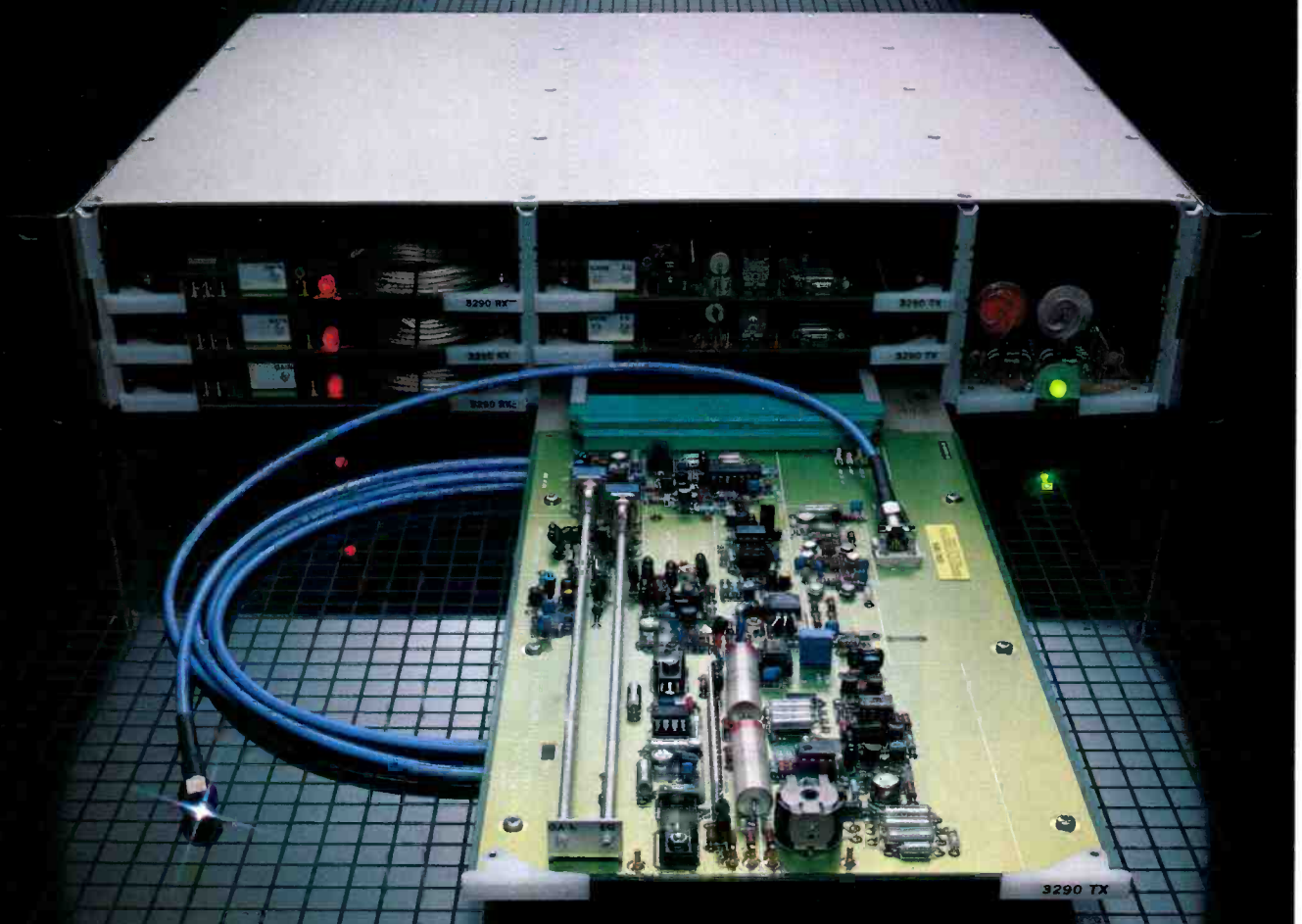
Cover—The December cover was created by artist Martin Holbrook on the MCI/Quantel Paint Box and Mirage systems.

AN EVOLUTIONARY MILESTONE IN TV SIGNAL DISTRIBUTION.



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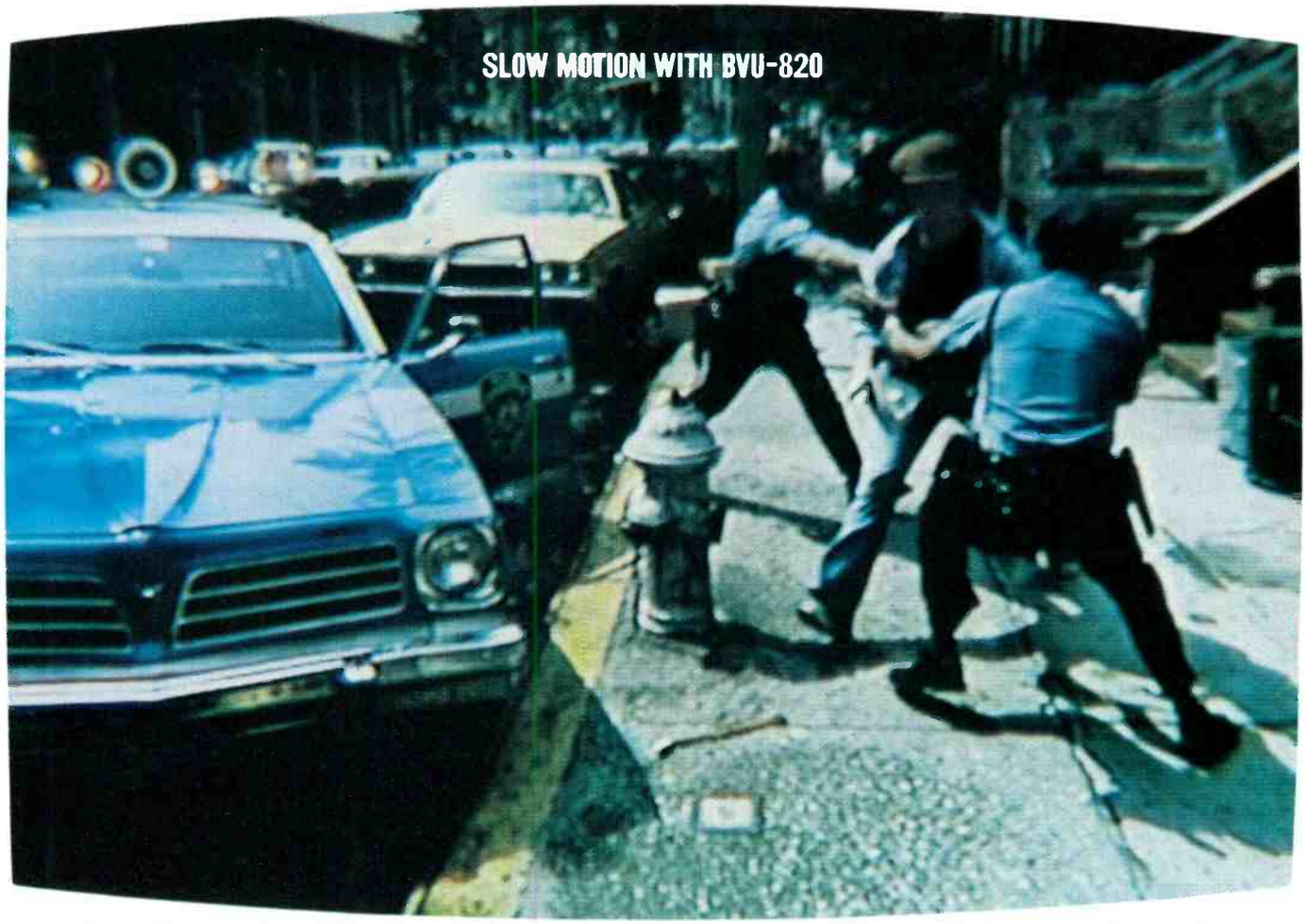

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At the heart of the new, fully integrated, plug-compatible Sony editing system is the BVU-820 videocassette recorder.

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The Sony U-matic editing system features another marvel of Sony technology, the BVT-800 Digital Timebase Corrector.

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For all the facts on the state of the art, from the people who invented it, call Sony Broadcast 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.

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ON-THE-AIR

RON MERRELL

HDTV may be closer than you think

High-definition TV. Call it high-fidelity television, if you like. But whatever you call it, don't park it too far over the horizon.

HDTV isn't exactly around the corner. And meanwhile, some interesting ideas on signal enhancement have come from the BBC and the IBA. (See the IBC report in the November issue of *BC*.) But putting it too far out of sight today may give us a whole set of new troubles tomorrow.

Earlier this year, CBS's Joe Flaherty addressed the Royal Television Society with reminders of what happens when we put things off.

"In concluding my lecture three years ago," said Flaherty, "I posed some questions to you about the future of technology to stimulate this dialogue. One of the questions was, 'In electronic news gathering, is a still smaller and more sensitive camera required, or a smaller recorder?' Is it time to switch to half-inch tape, for example? Perhaps the system should be so simple that it can be operated by the reporter himself.

"We never answered that question, nor did we produce a specification describing our next ENG generation as a total system calculated to solve many of today's ENG problems. Thus, lacking guidance, the industry applied the new half-inch videotape technology to produce at least three different and incompatible ENG systems. Systems which are, moreover, limited in application to field recording and simple editing in an analog component format. As presently designed, none of these component signals can pass through microwave or satellite links without composite encoding, and the loss of quality attendant thereto. Indeed, a story could encounter several analog codes before broadcast—a chilling thought indeed!

"Thus the smaller size and self-contained aspects of these new systems have their offsets. I'll let you imagine who will pay for the on-going chaos of such incompatibility. . . .

"During that same lecture I also asked, 'With wall-size television displays close at hand, will we need a high-fidelity/high-definition television standard to generate and display the pictures effectively? Second, will such a development enhance or even demand the use of stereophonic sound? Third, if broadcasters do not devise a system for transmitting true high-definition programs, will this technology be exploited only by the cable TV, VCR, and video disc industries, who do not have the spectrum limitations of broadcasting? Finally, will direct-to-home satellite broadcasting be the method to deliver the new high-definition program service?'

"These questions are not yet answered, but they must be addressed —particularly by the broadcaster. Otherwise, a high-fidelity television system may be developed for the home which is not broadcastable at all."

In other words, if we wait too long to set the standards and compute the effects, this technology could slide into non over-the-air services. Designed solely for those services, HDTV need not be compatible or, as Flaherty puts it, broadcastable.

Voting in the marketplace

I was recently told by a spokesman for one of the AM stereo systems that receiver manufacturers are looking to the marketplace for an answer to the question of whose AM stereo system is most acceptable. In this case, the marketplace is the broadcast industry. Stations already are casting their votes with purchase orders. And according to this system spokesman, receiver manufacturers won't need thousands of sales to make their decisions. While this is a variation off the decision theme described in earlier On-the-Air columns, the result is the same: broadcasters will vote with orders but receiver manufacturers may make the final decision, because sales may be too close.

To show how it works, look at the Delco tests. They've proceeded even though Kahn elected not to participate.

The risk for most stations is not too high. AM stereo is coming. And the major expense is not the system selected. The bulk will be spent on gearing up to handle the stereo input and delivering it to the output. The race is too close to call. It could come down to the company that can deliver and install fastest. That's the way it is in the marketplace.

Kahn says "no"

Rumors across the industry reflect the effect of Kahn's decision not to participate in the Delco tests. Back in October, Kahn sent Delco a letter explaining his position.

It's Kahn's contention that "the AM broadcasting industry is better qualified and better motivated than Delco or any other receiver manufacturer to determine which AM stereo system will best serve their listeners." Who, asks Kahn, has more to lose if an AM stereo system is selected that is not accepted by the public?

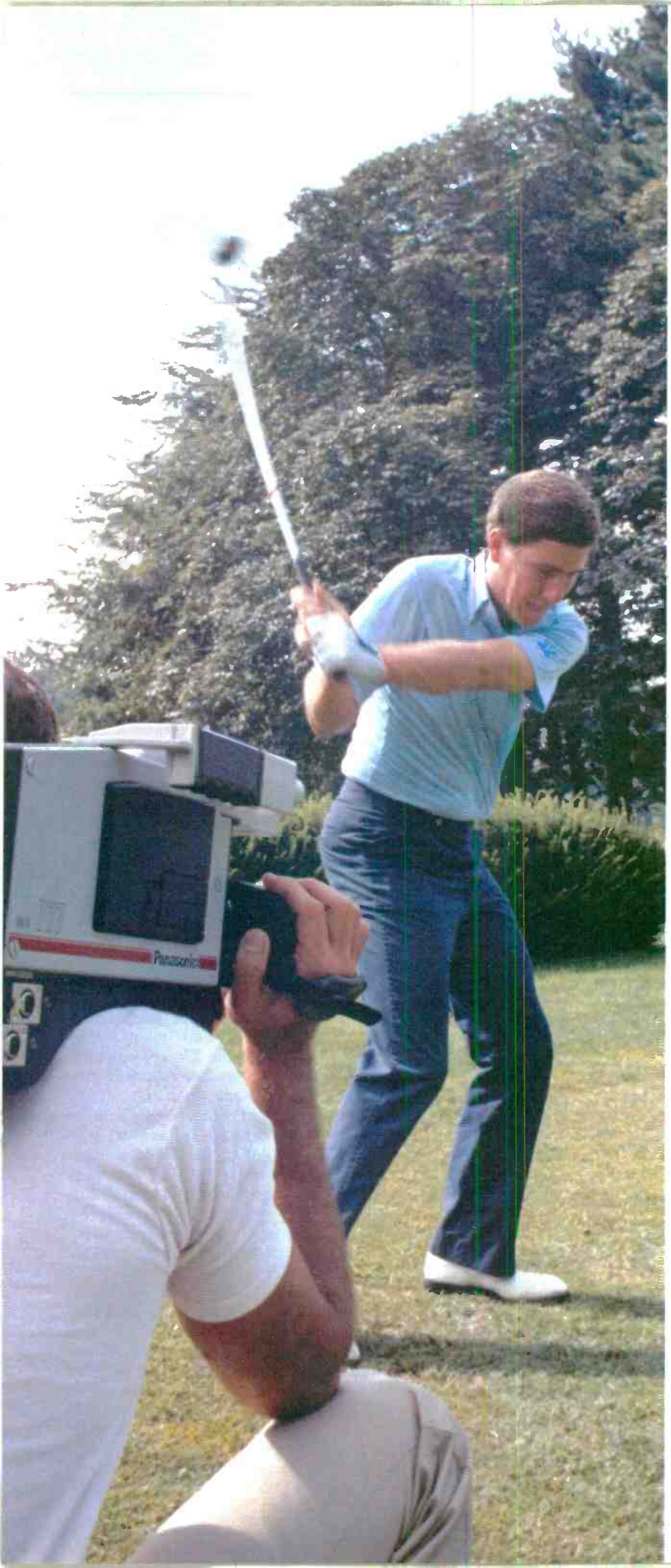
In his letter, Kahn also indicated the additional factors of anti-trust, what he called "past display of bias," and Delco's participation in the National AM Stereophonic Radio Committee, as reasons for not agreeing to participate in the tests.

Saying "no thanks" to Delco fueled the rumors, but it's no secret that Kahn has championed the marketplace decision.

The LPTV countdown

After milling around the launching pad for the last two years, low-power television applicants are finally getting the go-ahead for the launching of a whole new industry. Congress has elected to fund the FCC so it can expedite the processing of applications. An LPTV division will soon be in place, a computer will be added to untangle the processing of more than 7,000 applications, and 17 new staff members will be added to keep the new division on target.

What is not commonly known among those interested in this developing industry is that translator operators need not join the application lines. All they need to do to start low-power television operations is to notify the FCC. There are presently over 4,000 translators on the air, and indications are that many will opt for shifting to a community television format. Combined with the current low-power CP holders and those already on the air, the figures represent a viable new industry. BC



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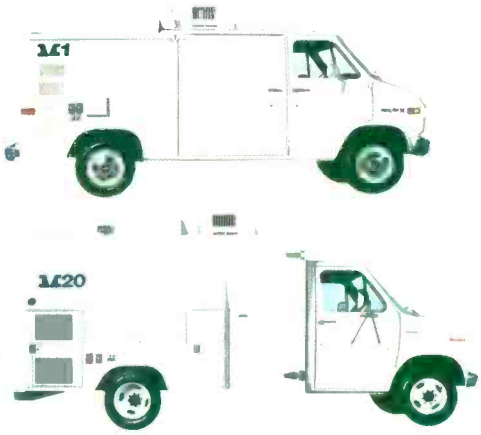

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Cable to expand in Europe

The Western European cable TV market is now entering a critical period, with each European country independently resolving important issues regarding construction ownership and operation of cable TV systems and pay-TV delivery systems. If current government plans are enacted, the CATV market alone will experience a massive growth in subscribers from 8.44 million in 1982 to 15.35 million in 1987, out of a total of 41.78 million subscribers served by cable in 1987.

These conclusions are drawn from a new report by Link Resources Corporation, a subsidiary of International Data Corporation. The report, entitled *Cable and Satellite TV Developments in Western Europe (1982-1987)*, examines the developments to date of 13 European countries.

According to the report, approximately 40 percent of the television households in the 13 countries surveyed (as of May 1982) have some form of cable television service (see Table). The majority (20 percent) are connected to master antenna television systems (MATV), systems which, by design or according to regulatory constraints, have limited geographic coverage and customarily serve 300 subscribers or less. CATV systems, larger and in some cases more capacious coaxial cable-based local delivery systems, service 8.44 million (11 percent) of TV homes. Only one country (Belgium) has a CATV network penetration that exceeds 50 percent of TV households.

The key factors that will determine the rate of growth of cable penetration and the development of cable services are regulatory, competitive, economic, and technical considerations. They include:

- *Government regulatory schemes*—Each European country is currently reviewing the commercial and regulatory environment for both cable and satellite TV. Ultimately, government agencies are determining the time schedules for the construction and implementation of new electronic distribution media.
- *Competition with other television delivery systems*—MATV systems have already achieved significant penetration throughout Europe. When coupled with satellite television delivery systems (SMATV), Link forecasts that these systems will remain formidable competition for CATV systems. Fiber-optic cable has also been proposed as an alternative to coaxial cable by government regulatory bodies and telecommunications firms alike in France, West Germany, the Netherlands, Norway, Sweden, and the UK. But it is likely to remain a relatively expensive medium for the next four to five years.
- *Satellite television development*—Satellite TV is now widely regarded as complementary to cable as a medium for importing distant signals. However, several issues regarding the legality of signal importation across national boundaries and concern over copyright infringement will plague its development.

Despite these potential drawbacks, Link's research—based on in-depth interviews with over 200 industry participants—shows that the European cable industry is optimistic about its future.

Provided that national government plans to deregulate and invest in the development of cable TV are enacted, and good quality and economical programming is made available, Link forecasts that the overall cable market will grow by around 37 percent, representing a total of nearly 42 million subscribers by 1987. But CATV systems are expected to develop much faster than MATV systems: at just over 80 percent compared to 20 percent over five years for MATV systems (15.35 million CATV subscribers and 26.43 million MATV subscribers by 1987). Despite CATV market domination, Link research consultants believe that MATV systems will play a significant role in the future of cable and satellite TV development, co-existing with CATV networks for some time beyond 1987—despite government pressure to introduce national integrated CATV networks, based on fiber-optic cable.

Continued on page 14

TABLE: CABLE TV SUBSCRIBERS IN WESTERN EUROPE (1982)

Country	Population	TV Households	CATV-Subscribers		MATV-Subscribers	
	Millions	Millions	Millions	%(1)	Millions	%(1)
Austria	7.5	2.3	0.1	4.0	-	-
Belgium	10.0	2.7	2.3	85.0	0.1	4.0
Denmark	5.0	2.0	0.1	5.0	0.7	35.0
Finland	5.0	1.4	0.1	7.0	0.05	3.5
France	53.0	15.0	0.06	0.4	8.2	55.0
Ireland	3.0	0.7	0.2(2)	28.5	-	-
Luxembourg	0.4	0.13	(3)	-	0.065	50.0
Netherlands	14.0	4.8	2.1	44.0	0.75	16.0
Norway	4.0	1.1	0.12	11.0	0.23	21.0
Sweden	8.2	3.5	-	-	1.75	50.0
Switzerland	6.3	2.0	0.7	35.0	0.4	20.0
UK	57.0	18.0	2.5	14.0	0.1	0.5
West Germany	61.5	22.0	0.16	0.7	9.7	44.0
TOTAL	234.9	75.63	8.44	11.1	22.045	29.1

Source: LINK RESOURCES — compiled from interviews with over 200 industry participants

Key: (1) Percentage of TV households
(2) A few CATV systems
(3) MATV systems included in CATV system figures

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Try This on Your TBC.

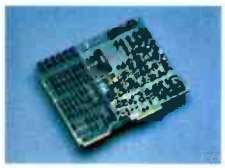
When we set out to design a dual-channel time base corrector, we knew we had an exciting opportunity. The AC 20 would be more than a superb, economical TBC; it would be the basis for a system that could incorporate production functions normally found only in separate stand-alone units. For instance, a 2:1 Production Remote was a natural.

The AC 20 gives you two channels of digital time base correction in just seven inches of rack height, saving space, maintenance, capital cost, cooling, and power. The Production Remote gives you digital switching effects at very little extra cost.

In fact two channels of time base correction with 2:1 digital effects are priced at only $18,950.

Two of the effects are shown above: Corner Wipe, and Push Off. You also get Vertical Wipe, Vertical Interval Cut, Fade/Dissolve, Push On, and Pull Off, plus Reverse and Mid-Stop controls and a choice of four transition speeds. Not bad for a TBC.

This means that with three VTR's and an AC 20 (with the Production Remote option) in an editing suite, your ENG post-production crew is ready for A/B-roll editing with digital effects, some of which have only been seen on upscale switchers until now. No need to tie up your production switcher. And you can remote the AC 20 to your editor, if you like.



A complete video channel is on a single board.

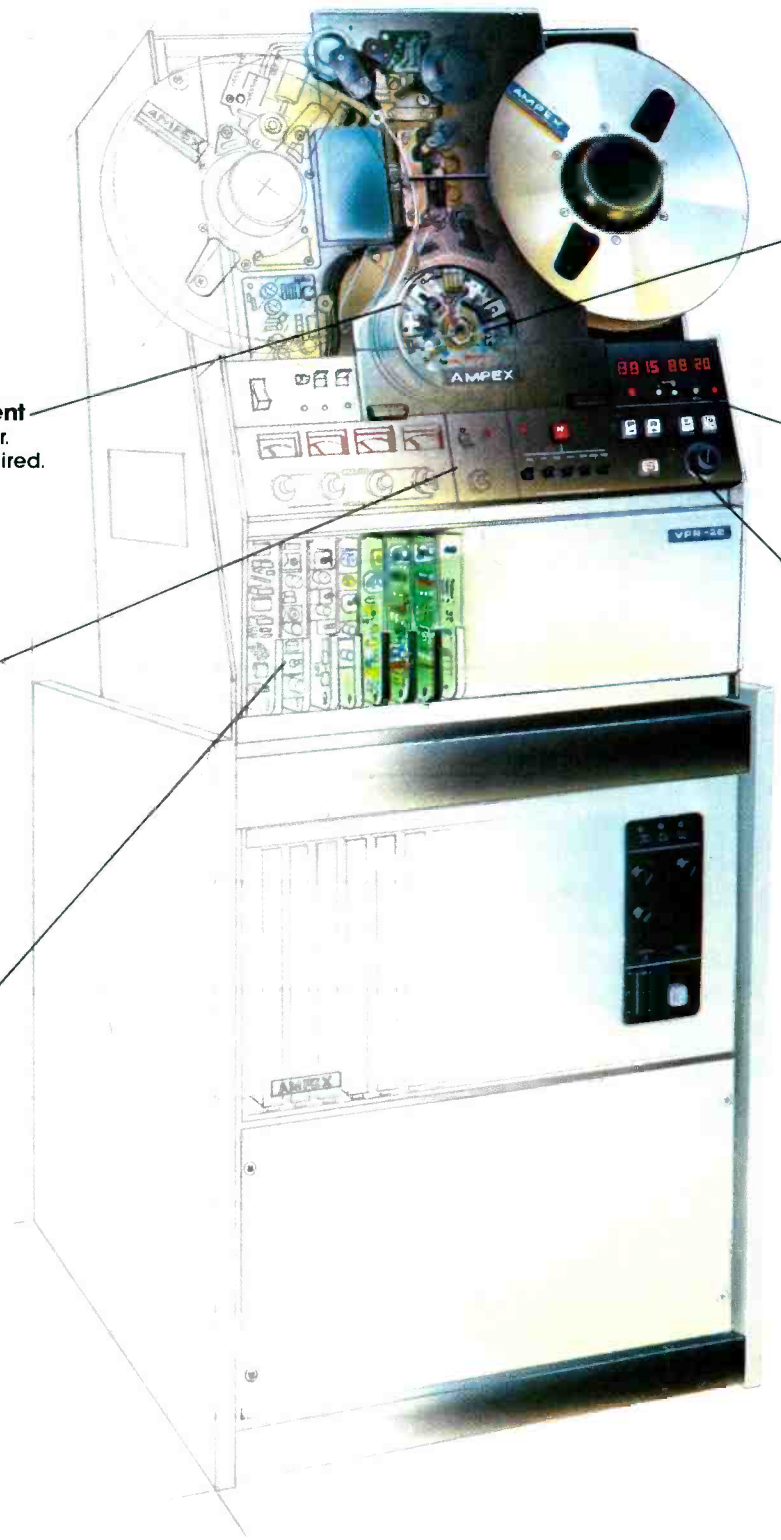
The AC 20 works with ¾-inch and ½-inch V-locked, unsegmented VTR's that accept derived 3.58 MHz feedback. It uses a 16-line store, eight-bit technology, and fourth-harmonic sampling to produce a broadcast-standard output. Its digital circuitry assures that the output signal is the same quality as the video input signal. It is virtually transparent. And it is modular; you can start with a single correction channel and do cuts-only editing; you can add a second channel and move up to A/B rolls. You can add the Production Remote for digital transition effects. And that's just the beginning. The AC 20 TBC is the first of a new family of products that will have a significant influence on the future of broadcast production equipment.

The bottom line: Two TBC's plus 2:1 digital effects. At less than a fifth the cost of separate stand-alone production units.

Affordable Excellence

ADDA CORPORATION
1671 Dell Avenue
Campbell, California 95008
(408) 379-1500

PROVEN PE



Individual Head Replacement
Quickly with only a screwdriver.
No mechanical adjustments required.

Convenient Front Panel
Clusters the controls where they belong for fast, easy operation.

Serviceability
From the front gives you access to scanner, all major mechanical assemblies, PC boards, electrical and mechanical adjustments.

RFORMANCE

AST® Automatic Scan Tracking
Delivers disturbance-free transitions between play, slow motion and still frame modes.

Frame-Accurate Editing
Results from the VPR-2B's precise tape timer and search systems, AST® and simple edit controls.

Operational Convenience
With continuously variable slow motion instantly available.

Why the Ampex VPR-2B is the world's most popular video tape recorder.

With over 4000 machines in use, the Ampex VPR-2 Series is without question the most widely acclaimed line of VTRs in broadcasting history. Outstanding performance and simple operating features, backed by a global network of parts, service and training, are just a few of the reasons why.

Ampex leadership began with technical innovation. You'll find the highest standards of design, production and quality control in every VPR-2B. And today, after more than 25 years of dedicated service to the television industry, Ampex continues to lead the way in providing high quality, reliable tools to the video marketplace.

As Ampex leadership started with outstanding products, it continues with the strongest worldwide service support. With Field Engineers on call and an extensive computerized parts network, you get immediate answers to all your video questions. And each year, more than 2000 students throughout the world go through comprehensive product training at Ampex centers. There are more people skilled on Ampex VTRs than on any other video recorder in the world.

But the VPR-2B is more than just the dominant force in the video business. It's a part of the Ampex tradition. A tradition born of technical innovation, product reliability and proven product performance. And it's a name you can count on. Call your Ampex representative, or write Ampex Corporation, Audio-Video Systems Division, 401 Broadway, Redwood City, CA 94063 (415) 367-2011. Sales, spares and service worldwide.

AMPEX

TOOLS FOR TOMORROW

Ampex Corporation • One of The Signal Companies

Circle (9) on Action Card

While both public and private industries will benefit from the growth of cable and satellite TV markets, Link's research findings leave no one in doubt that the market opportunities will inevitably be determined by the public sector (that is, the state broadcasting and telecommunications monopolies).

Developments that will come under close scrutiny from government agencies and regulatory bodies are the much talked about telecommunications-based and interactive services. While it is generally accepted among the industry that the future of cable lies in its potential to become a wideband communications service capable of offering a multitude of one- and two-way services, Link's research findings show that for economic and regulatory reasons, only very few communications-based services and two-way cable applications are likely to be available to subscribers on a commercial basis before 1987.

Alexander announces life after death.

Think your battery belt is dead? Then talk to the replacement battery experts — Alexander. We never say die! Instead, we'll bring that battery belt back to life, at reasonable cost.

Just call 515-423-8955 and describe the cell configuration of your particular belt. We'll make up your replacement modules — charging you only a fixed price per cell used — and ship them to you freight paid. And we use rechargeable nickel-cadmium batteries that are unconditionally guaranteed for six months.

Try us!

ALEXANDER

ALEXANDER MANUFACTURING CO.
1511 So. Garfield Pl. Box 1645
Mason City, IA 50401/515-423-8955

In Canada contact G.E. Irving Industries, 2209A Dunwin Dr., Mississauga, Ontario L5L 1x1

Circle (10) on Action Card

Video Expo scheduled for San Francisco, February 15-17

The 5th annual Video Expo San Francisco is being held February 15-17 at the Civic Auditorium of the Civic Center.

Again this year, BROADCAST COMMUNICATIONS is co-sponsoring the broadcast program. The program will include sessions on various aspects of broadcast technology, including a new session on low-power community television.

Other sessions and workshops at Video Expo will cover professional video, teleconferencing, cable television, interactive video, satellite technology, and more.

In addition, there will be more than 100 exhibits displaying the newest in broadcast equipment, assorted software and programming, and production services.

Subscribers to *Video User*, the magazine for professional video managers, will receive free admission to all Video Expo exhibits. To become a new subscriber, see the Video Expo ad on page 53 in this issue.

Knowledge Industry Publications, sponsors of Video Expo, is also offering a preregistration discount for those completing the coupon on page 53.

For more information about Video Expo, contact Knowledge Industry Publications, 701 Westchester Avenue, White Plains, NY 10604.

CAB looks at cable's impact on advertising

Norman W. Campbell, chairman and CEO of Tracy-Locke/BBDO, noted his concerns about the ultimate impact of cable on advertising in a keynote address to the CAB Cable Advertising Conference held recently in Dallas.

In his speech, Campbell said, "I am concerned with the potential pitfall, when looking at cable as a communications medium, of not seeing it as a new communications medium, which it is, but rather as just another form of television, which it is not. Where television was a choice for the masses, cable provides a mass of choices; for the viewers and for advertisers. Companies that are prohibited from network advertising because of cost, now have the oppor-

Continued on page 16

NO COMPARISON

Comparing video from a conventional TBC to video from a Y-688[32] Total Error Corrector is like comparing apples to oranges. A time base corrector, as the name implies, corrects timing errors. The Y-688[32] Total Error Corrector corrects timing errors and virtually all VTR induced errors.

The major cause of video quality loss in 3/4 VTR's is inherent in the color under process. This process separates the input color video signal into its luma and chroma components, converts the chroma frequency for recording and playback and recombines the luma and chroma for color video output. The worst part is that this quality loss is cumulative, in that it is compounded with each pass through a VTR or conventional TBC.

Total Error Correction

The Y-688[32] TEC is designed specifically to overcome multiple generation quality loss from color under VTR's. The Y-688[32] TEC utilizes "dub" (Y-688) input and output as well as encoded video. The "dub" mode allows processing of component (Y-688) video bypassing the separation, frequency conversion and recombination cycle. "Dub" signals processed through the Y-688[32] TEC are better than encoded video signals because they contain more information and are less degraded.

The Y-688[32] TEC also utilizes advanced signal processing techniques, some manufactured under exclusive license from Faroudja Laboratories. These techniques reduce chroma noise by up to 20dB, correct luma/chroma timing automatically, reduce luma noise by up to 10dB, improve chroma rise times, reduce second order ringing and eliminate luma/chroma crosstalk. Some processing is used during each pass through the Y-688, while the balance of the processing is used for the last copy or for broadcast to correct any minor degradations which have occurred.

A Difference You Can See

The improved quality of Y-688[32] TEC video can be seen in first generation playback. It becomes more obvious in successive generations. It is particularly noticeable in third and fourth generations because conventional TBC video has gotten worse with each pass, while fourth generation Y-688[32] TEC video approximates original quality.

The Y-688[32] TEC is simply the most powerful tool available for extending multi-generation quality from color under VTR's.

For more information on the Y-688[32] TEC or an on-site demonstration, circle the reader's card. For immediate response write or call Fortel today.

Fortel Incorporated
6649 Peachtree Industrial Boulevard
Norcross, Georgia 30092-9990
Telephone (404) 447-4422
Telex 804822

Circle (11) on Action Card

FORTEL

Y-688[32]
Total Error Corrector

tunity to participate, and use, the new medium to reach their target audience effectively. Conversely, companies that could afford network television but really were not interested in reaching the masses, now can selectively channel their message to specific neighborhoods—provided their agencies do their homework, and develop the knowledge and expertise to capitalize on this whole new medium of communications."

David Beckerman, vice president, advertising, for Radio Shack, said his company has been watching the growth of cable TV with great interest.

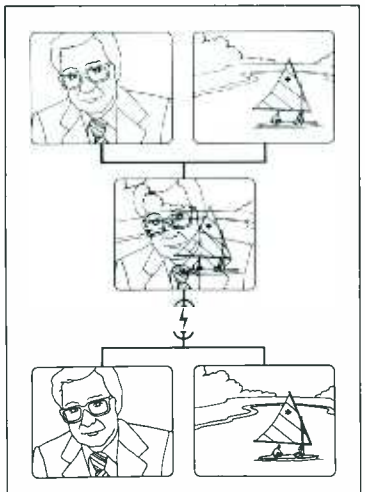
"As the rapid expansion of cable continues," Beckerman said, "its utilization in terms of our marketing objectives becomes more viable. Due to the characteristics of an average cable viewer—an upscale, professional/managerial, college-educated individual with a household income of $35,000-plus—the use of cable for the purpose of increased awareness of the Radio Shack TRS-80 microcomputer, for example, is a natural."

He added: "A typical cable viewer, besides meeting these demographic needs, also has certain desirable psychographic characteristics. We perceived a cable subscriber as someone interested...in new technologies. Whether it be VCRs, satellite dishes, video games, or microcomputers, the cable viewer is constantly seeking more information about the world surrounding him."

DOUBLE VISION

Picture this: a digital electronic system that allows simultaneous transmission and reception of two TV signals over a single video channel. It's the Vidiplex™ System from Thomson-CSF.

Now picture what Vidiplex can do for you: Save satellite time. Eliminate the need to send out extra personnel and equipment. Improve efficiency. Double capacity of satellite or microwave transmission. Without doubling the cost.



Signals from two ENG cameras enter the Vidiplex System Encoder; are transmitted over a single link, then received and separated by the Decoder.

For details, contact Thomson-CSF Broadcast, Inc. 37 Brownhouse Road, Stamford, CT 06902 (203) 327-7700.

THOMSON-CSF BROADCAST, INC.

Circle (12) on Action Card

RTNDA files comments on election rules

The Radio-Television News Directors Association has asked the Federal Communications Commission to modify its interpretation of Section 315 of the Federal Communications Act to allow broadcasters to sponsor political debates and to air documentaries about election campaigns. The Gannett Company and the Society of Professional Journalists, Sigma Delta Chi (SPJ, SDX) joined RTNDA in the comments prepared in response to an FCC Notice of Inquiry.

The FCC is considering petitions filed in April which call for reinterpretation of the equal opportunities requirements of Section 315 (a) of the Communications Act. The petitions were filed by the National Association of Broadcasters; RTNDA; the Public Broadcasting Service; the National Broadcasting Company; and Henry Geller, former general counsel of the FCC.

Under existing interpretation of the equal opportunities requirements of Section 315, debates between political candidates may be broadcast only when sponsored by an outside organization such as the League of Women Voters. The debate must be broadcast in their entirety live or within 24 hours.

Current FCC interpretation of Section 315 also discourages in-depth documentary coverage of election campaigns, according to RTNDA, Gannett, and SPJ, SDX, who are urging the FCC to adopt a broader interpretation of Section 315 which will "permit appearances of candidates in documentaries that deal with the substantive issues in a campaign," and to recognize that candidates' qualifications and campaign strategies are legitimate issues for journalistic scrutiny.

In their comments, RTNDA, Gannett, and SPJ, SDX said, "Permitting broadcasters to arrange debates will foster one of the most useful means of

Continued on page 20

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.

AMPEX

Ampex Corporation • One of The Signal Companies

I want to end the Video Jitters with Ampex 196 One-Inch Broadcast Video Tape.

Please send me more information on your 196 Video Tape.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE (____) _____

Send to:
Ampex Corporation, Magnetic Tape Division
401 Broadway MS 22-02, Redwood City, CA 94063

BC

Circle (13) on Action Card

THE ONLY 1-INCH THAT WON'T UNPREPARED

Sometimes success can be a mixed blessing.

Because as your business grows, it usually outgrows your equipment. Which could leave you with the extremely costly prospect of having to replace your entire system.

Fortunately, there's an alternative: the Sony BVH-2000—the only 1-inch video system that can be tailored to fit your present applications and budget, then retailored as your needs change.

For example, any of three different recorder control panels can be incorporated, ranging from a basic model to one with virtually every feature and function currently available to 1-inch video users.

Various remote-control connectors allow you to alter the system's configuration as the need arises, and various circuits and modules—including an op-

Sony and U-matic are registered trademarks and Betacam is a trademark of the Sony Corp. © 1982 Sony Corp. of America, 9 W. 57th St., New York, NY 10019.

VIDEO SYSTEM LEAVE YOU FOR SUCCESS.

tional time base corrector—plug directly into the BVH-2000 recorder.

What's more, you can interface directly with other Sony formats, such as U-matic® and Betacam,™ and the BVH-2000 can be easily integrated into any existing Sony 1-inch system.

All of which enables the BVH-2000 to simplify one of the most complicated processes in the broadcast industry: the transition to success.

To find out how the BVH-2000 can help you deal with both your present and future needs, call Sony in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 841-8711; in Atlanta at (404) 451-7671; or in Dallas at (214) 659-3600.

SONY
Broadcast

informing the public during an election campaign without substantial risk of the danger to which Section 315 was directed—the use of a broadcast facility to favor a particular candidate.

"Similarly, expanding the scope of exempt documentary coverage of election campaigns will permit much greater depth of coverage by broadcast journalism—the primary source of news for most Americans—without serious risk of political partisanship."

Business Hotline

RCA—RCA Astro-Electronics has been awarded a contract in excess of $100 million to design and build two direct broadcast satellites for Satellite Television Corporation, a wholly-owned subsidiary of Comsat.

STC's initial DBS service will use two satellites to serve an area approximating the Eastern time zone of the U.S. STC will offer three channels of pay television beamed directly from the satellites, which will be several times more powerful than conventional commercial satellites, to individual homes equipped with 2- to 2½-foot receiving antennas.

ORROX CORPORATION—Orrox Corporation's Satcom subsidiary has received orders for eighty 12 GHz direct-broadcast-satellite (DBS) systems from companies in Canada, Switzerland, the U.K., and Holland, including a major order placed by a leading Canadian distributor. In addition, the company has received orders for 670 4 GHz satellite receiving systems.

ROHDE & SCHWARZ SALES CO.—Rohde & Schwarz Sales Company is pleased to announce a restructuring of its organization and product line in the United States. Joe Schindler, president of Polarad in Long Island who was recently appointed president of Rohde & Schwarz Sales Co., has reviewed all product lines held by RSA. The direction Rohde & Schwarz Sales Co. will take in the future is to expand the Rohde & Schwarz product line as well as other compatible lines of Haefely, Schwarzbeck, and Quartzkeramik equipment, while unifying the RSA strength with its Polarad affiliate.

Barco Video Systems products will be sold by Rohde & Schwarz Sales Co. until December 31, 1982. Effective January 1983, the Barco Video Systems products will be handled by Elector USA. Schindler expects 1983 to be a banner year.

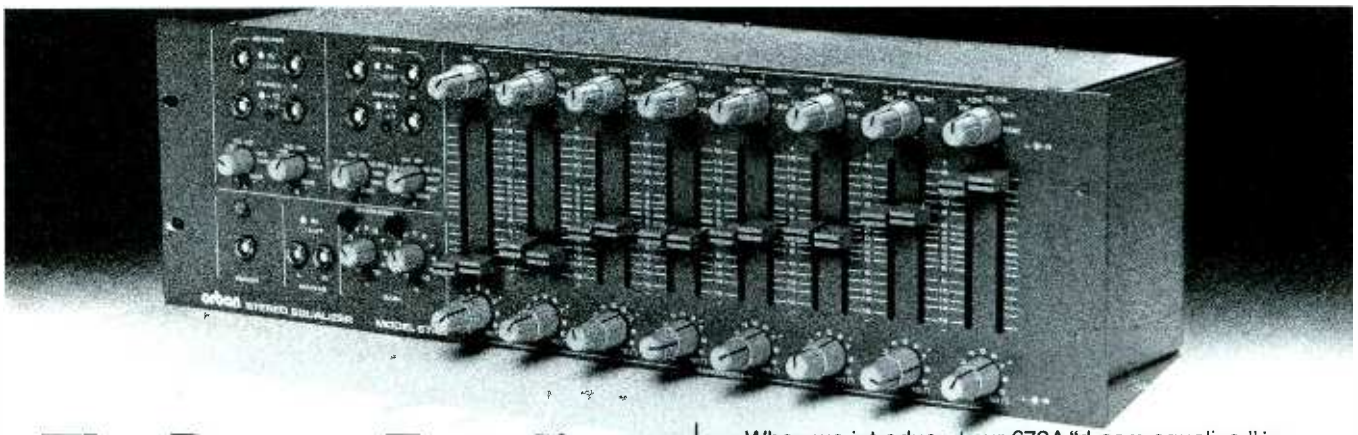
ELECTOR—Elector, marketer of the audio/video and data display line of Barco TV monitors in the U.S. and Canada, will assume marketing responsibilities for all Barco monitors, including broadcast equipment, January 3, 1983.

Michael L. Paull, Elector president, said the agreement with the Barco organization gives Elector exclusive marketing rights for all Barco Industries' products in the U.S.

Barco broadcast products were previously marketed by Rohde & Schwarz Sales Company (USA Inc.). Elector will establish a sales and marketing office on the East Coast where sales for the CTVM line of broadcast equipment will be headquartered.

SONY BROADCAST PRODUCTS—A multi-million dollar purchase agreement has been signed by Corinthian Broadcasting Corporation for the acquisition of Betacam® combo camera systems. The announcement was made by Neil Vander Dussen, president of

Continued on page 24



The Dream Equalizer:
Now mono or stereo.

When we introduced our 672A "dream equalizer" in 1979, we had an instant hit. Audio professionals loved its versatility and clean sound. Eight parametric EQ bands (with reciprocal curves) were combined with wide-range tunable 12 dB/octave highpass and lowpass filters. The result: an amazingly powerful and useful machine. A cost-saving one too, because the outputs of both filters are available to perform a full electronic crossover function.

The 672A now has a stereo twin—the new 674A, with all the power of two 672A's in a space-saving 5¼" rackmount package. Naturally, both equalizers are built to full Orban professional standards. That means industrial-quality construction and components, RFI suppression, a heavy-duty roadworthy chassis, and comprehensive backup support.

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

Circle (14) on Action Card

No surprises.

© 1981 Fuji Photo Film U.S.A., Inc., Magnetic Tape Division, 350 Fifth Avenue, NY, NY 10118

Available in 2", 1", ¾" and ½" Beta and VHS.

FUJI

Circle (15) on Action Card

If you're ready to move up to a specialized mixer, you're ready for Ramsa.

The Sound Reinforcement Specialist: Ramsa WR-8716

When your sound says you're professional but your mixer doesn't. When you're wasting your subtlety and style on "make-do" boards. When you're creating compromises instead of clear-cut distinctions. Then you're ready for Ramsa—the mixers that are specialized so you won't have to compromise.

The WR-8716 is a fully modular sound reinforcement console with 16 input modules, 4 group modules, and 2 masters. It features 16 input pre-fader solo buttons, 4 group modules with pre-fader insertion patch points, and lockable post-fader solo buttons. There are 6 illuminated VU meters with peak LEDs for easy outdoor reacing and a separate stereo variable frequency EQ for monitor sends. Pan pot controls allow panning to the left or right masters while level controls permit 16 x 6 board operation. The left and right direct channel assign function lets you bypass the group modules for individual sources. Portable operation is a snap with easy access connectors.

And the WR-8716 features plastic conductive faders for greater reliability and smooth, low-noise operation; external power supply for light weight, and switchable 48V DC phantom power for condenser mics.

RAMSA

The Recording Specialist: Ramsa WR-8816

The WR-8816 recording console includes the same modular construction, input modules, power supplies, and faders as the WR-8716 plus many important recording advantages. Like direct outputs for 4, 8, or 16 track recording and peak-reading LED meters that let you monitor any 4 out of 24 signals with clear, quick response.

You'll command a variable frequency EQ section with 3 frequency settings for the high and low frequencies plus continuously variable midrange. Stereo echo send replaces the separate mono controls you'll find on competitive boards. And you get two independent stereo monitor controls—one for musician's headphones, one for control room monitors—a special feature for any mixer in this class. And there are other important features like low noise electronically balanced mic inputs with high-speed IC's, 16 switchable post-fader solo controls and XLR-type mic connectors.

Ramsa offers a full line of specialty mixers including the more compact WR-8210 recording mixer and WR-130 sound reinforcement mixer. So don't hold down your professional sound, call (201) 348-7470, because you're ready for Ramsa.

Panasonic®
PROFESSIONAL AUDIO DIVISION

Circle (16) on Action Card

Sony Broadcast Products Company, and James M. King, president and principal executive officer of Corinthian Broadcasting.

The purchase agreement is the largest Betacam system sale to date. It totals 75 combo camera systems and more than 50 Betacam editing systems and accessories. According to King, the conversion to Betacam from existing ¾-inch capability is expected to take one and a half years. All equipment will be in place by July 1984.

Corinthian's stations are KHOU-TV, Houston; KOTV, Tulsa; KXTV, Sacramento; WISH-TV, Indianapolis; and WVEC-TV, Hampton/Norfolk. Corinthian also owns the TVS Television Network and Peters Griffin Woodward Inc., the national spot sales representative.

GLOBAL VIDEO—Both Global Video facilities in Orlando, Florida, and Hollywood, California, have broadened their international video capabilities. Standards conversion, Rank Cintel film-to-tape transfer, and videotape duplication services are currently available in all standards (NTSC, PAL, PAL-M, SECAM) and formats (2-inch, 1-inch, ¾-inch, ½-inch VHS and Beta).

For more information on Global Video's services, contact Catherine Malatesta, director of corporate communications, 744 West Church Street, Orlando, FL 32805; phone (303) 423-8299.

RTNDA NEWSLINE

RTNDA seeks those interested in computer workshops

Broadcasters can take justifiable pride in the way they've taken advantage of technological developments. Those in FM radio established that medium against considerable odds by taking advantage of its technical edge. Those in AM radio are fighting back by improving the AM sound. Television has seized upon every new scientific breakthrough from color film to minicams to satellites.

And then there are computers.

Other industries have been using computers for years to crunch both words and numbers. The cost has fallen so low a microcomputer with all sorts of capabilities can now be bought for less than the price of a battery pack. But broadcast journalists are still, for the most part, handling wire copy, script preparation, assignments, and rundowns the way they always have, ignoring the fact that computers could help make those tasks so much simpler and perform them more accurately and more efficiently.

Why?

RTNDA leaders believe it may be because most of the people who run radio and television newsrooms and those who work in them simply don't know enough about computers and how they can improve the news product. In a 60- to 70-hour week, it's hard to find time to go back to school and learn a new skill.

For that reason, RTNDA is asking radio and TV journalists if they would be interested in an RTNDA sponsored basic computer workshop or training session designed to teach how computers work and what they can do.

Preliminary planning calls for workshops designed for both radio and television journalists featuring small classes with no more than two or three students per terminal. Students would be introduced to, and be able to demonstrate for themselves, all the basic features and programs of microcomputers, including word processing.

No commitment has been made to schedule a workshop or workshops. RTNDA first wants to know if there's any interest in such a program. If you are interested, contact RTNDA at the Washington office (202/737-8657, Ernie Schultz).

If there's enough demand, and if an effective hands-on workshop can be put together, perhaps broadcast journalists can put aside waves of wire copy, scripts full of typewriter over-strikes, assignment blackboards, and bottles of whiteout, and finally take advantage of all the marvelous things computers have been doing for others for so long.

IMAGE RESOURCES—Image Resources, located in Winter Park, Florida, is a full-service professional video communications company serving the industrial market. Services include equipment sales, service, and rentals, as well as complete production facilities. For more information, contact Steven Kartholl or Ken Keeler, Image Resources, 801 South Orlando Avenue, Winter Park, FL 32790; (305) 645-4200.

COMARK COMMUNICATIONS—Comark Communications, a worldwide supplier of high-power TV transmitting systems and components, recently installed a pair of 55 kW klystron transmitter systems at a single site serving two stations simultaneously. One of the transmitters serves Channel 43, Melbourne, Florida, while the other unit serves Channel 52, Cocoa Beach. A single waveguide run, used to transmit both signals, was installed on the 1,000-foot tower. Since the stations became operational in August 1982, no power or quality degradation has been detected.

Dick Fiore, Sr., originator of the system, explains that the system provides for the simultaneous transmission of two TV channel signals traveling through one square waveguide transmission system, reducing the costs and tower requirements significantly. Separate transmitting antennas or broadcast arrays can be located at the top of the tower to further reduce costs.

DYNAMIC TECHNOLOGY LTD.—At IBC '82, A.F. Associates, the European distributor for Dubner Computer Systems, announced the appointment of Dynamic Technology Limited as exclusive representative in the United Kingdom of the Dubner range of color background generators. Dynamic Technology will have the total responsibility for marketing and supporting the Dubner equipment; and full facilities for training operators at DTL's U.K. plant are being established to enable customers to buy sophisticated U.S. equipment with the confidence that they will be fully supported.

ESPN—During the past few months, ESPN mobile production units have been leased by ABC, PBS, and several independent producers for a variety of sports productions. ABC Sports deployed an ESPN truck for its telecast of the Little League World Series Championship game; and PBS leased an ESPN truck for its live coverage of the Lipton World of Doubles tennis tournament. ESPN, a subsidiary of the Getty Oil Company, owns five mobile production units, including two 40-foot tractor-trailers. The trucks are frequently leased to national networks, independent producers, and local broadcasters, in addition to serving ESPN.

"I want the world. Consistent .05% corner registration and full auto-setup of up to 96 cameras on computer command."

HITACHI HEARD YOU.

AUTO SETUP

Don't want much, do you?

Dynamic registration not just at dead center but at all four corners. Plus 2-minute auto-setup of all those cameras.

You're asking for some smart camera system, networks of the world and top-drawer video production companies.

Well, Hitachi heard you, and has created an outright *genius*—the Hitachi SK-110 Camera System.

The computer registration capabilities of this camera system produce pictures of a clarity and resolution previously unheard of.

And you get auto-setup at the push of just one button, and zero reference, too, where the computer sets the green channel and compares blue and red to it with absolute precision.

The SK-110 is not only self-correcting, but self-diagnostic as well. It gives both video screen display and hard copy printout; can be hooked into the CRT for control room monitoring.

There's a high-performance contour corrector; 5 automatic setup modes including quick check; 5 data files; so many other unique features an ad can't begin to tell you about them.

The ultimate Hitachi SK-110. Contact the broadcast video division at any of the offices listed below. Hitachi Denshi America Ltd., 175 Crossways Park West, Woodbury, NY 11797 (516) 921-7200. Offices also in Chicago (312)344-4020; Los Angeles (213) 538-4880; Atlanta (404) 451-9453; Cincinnati (513) 489-6500; Dallas (214) 233-7623; Denver (303) 344-3156; Seattle, (206) 575-1690; and Washington, D.C. (301) 459-8262.

Circle (17) on Action Card

NEWSMAKERS

Susan Harmon is the new station manager for KERA-FM, the public radio station for North Texas. Harmon has been the general manager for public radio station WAMU-FM in Washington, D.C., for the past 11 years. Prior to that she was public-affairs producer for the station.

Jim Howell has been named managing director, Embassy Home Entertainment (U.K.). Howell, a British Videogram Association council member, comes to EHE from CBS-Fox Video where he was responsible for sales and marketing.

Ron Rogers, general manager and vice president of KVET and KASE-FM, Austin, has been named president of the Texas Association of Broadcasters. Besides managing the Austin stations, Rogers is president of KLAW Broadcasting, which owns KLAW Radio in Lawton, Oklahoma. In other TAB news, **Nathan Safir** was the recipient of the TAB's Pioneer Broadcaster of the Year award, presented each year to a Texas broadcaster who has been in the industry at least 25 years, and who has added stature to the profession through his work in the industry and in his community.

Kelly Seaton, national sales manager for WGN Radio, has been elected president for the 1982-83 term of the Broadcast Advertising Club of Chicago. In addition to Seaton, new officers elected are **Owen McKeaney**, vice president and sales manager, CBS, executive vice president; **Joyce Saxon**, vice president and regional supervisor, J. Walter Thompson, vice president/treasurer; **Jerry Donovan**, vice president and midwest regional manager, Eastman Radio, vice president and membership/season tickets chairman; **Herb Isaacs**, executive vice president, Kerry Scott and Madison, vice president and academic chairman; and **Lois Gredell**, general sales manager, WUSN Radio, vice president and arrangements chairperson.

Ted Simons joined the news department of WJBK-TV in Southfield, Michigan, as assignment editor. Simons comes to WJBK-TV from an assignment editor position at WDIV in Detroit, and has worked in the same capacity at WBBM-TV in Chicago.

Edmund A. Williams has joined the NAB as staff engineer. Previousy with Public Broadcasting Service, Washington, for more than eight years, Williams has participated in the development of the satellite interconnection system, digital audio transmission, captioning for the deaf, and AREAPOP (a computerized terrain-based station coverage and demographics system).

Barbara McDonnell was appointed territory manager for Viacom Cablevision of Long Island. Her areas of responsibility in this newly created post include the hiring, training, and monitoring of the territory field sales force.

Jack Arslanian has taken the newly created position of office manager in the Chicago office of Katz Independent Television Sales. Formerly vice president, sales manager, of the Lancers Team in Chicago, Arslanian will now coordinate

Continued on page 28

THE CHOICE IS YOURS!

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

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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.

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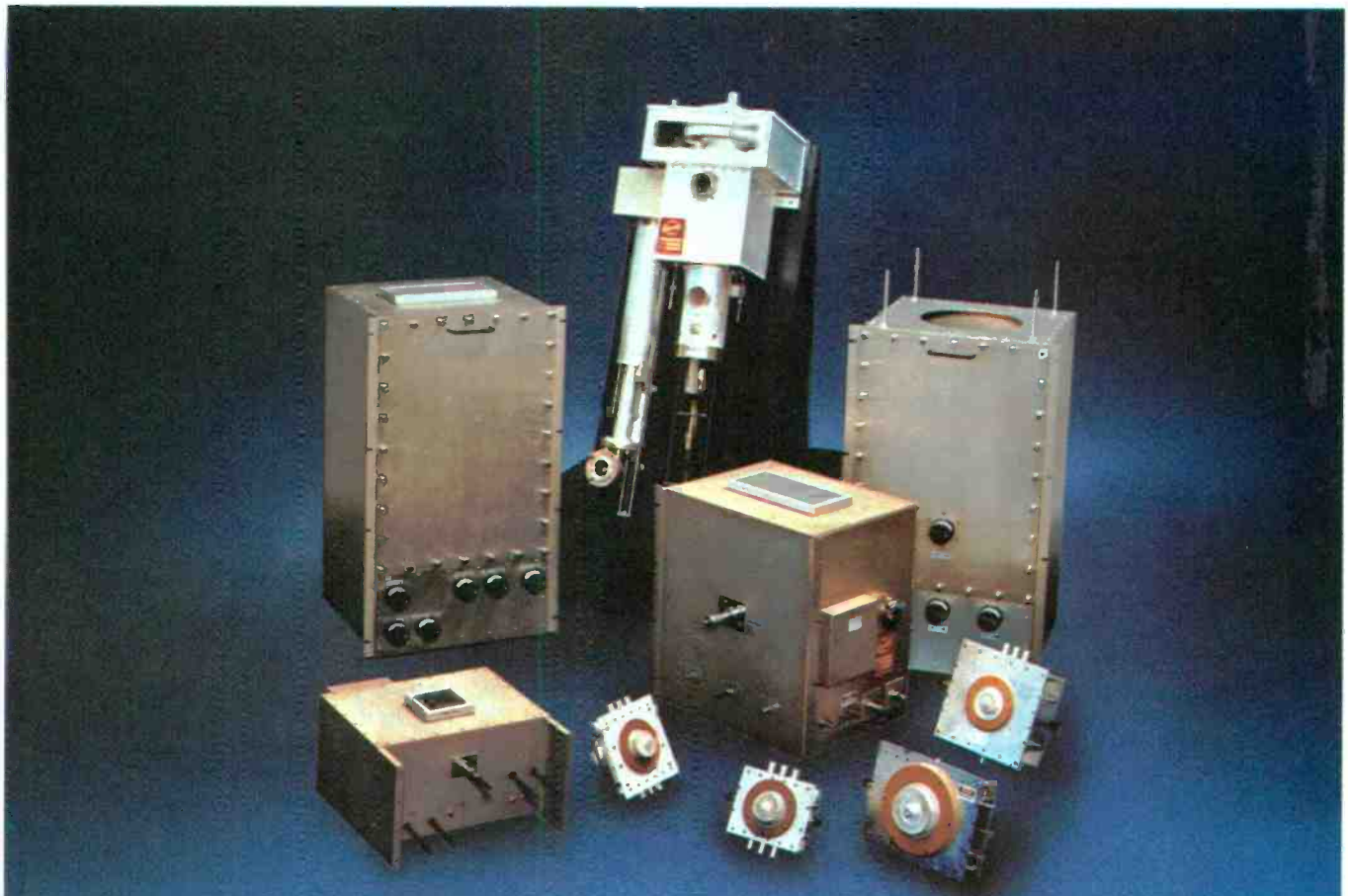

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EIMAC Cavity	Matching EIMAC Tube	Tuning Range (MHz)	Power Output
CV-2200	4CX20,000A	86–108	30 kW
CV-2220	3CX1500A7	86–108	1.5 kW
CV-2225	4CX3500A	86–108	5 kW
CV-2240	3CX10,000U7	54–88	10 kW†
CV-2250	3CX10,000U7	170–227	10 kW†
CV-2400	8874	420–450	300/1250 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

Electron Device Group
Varian EIMAC
301 Industrial Way
San Carlos, California 94070
415-592-1221

Varian A.G.
Steinhauserstrasse
CH-6300 Zug, Switzerland
Tel: (042) 23 25 75
Telex: 78 841

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the sales activity for both the Lancers and Sabers Teams in Chicago. Also at Katz, **Jeff Avon** was promoted to manager of Katz Independent's Lancers Team; and **Aleyne Larner** will now head-up the Sabers team in Chicago.

John A. Hurley, news director of WXIA-TV in Atlanta, was appointed Gannett News Service Television news director. In his new post, Hurley will coordinate the expansion of GNS television services from the headquarters bureau in Washington. Before joining WXIA-TV, Hurley was a reporter, then editorial director, and later news director of WHIO-TV, Dayton.

Business Moves

Stuart Kravitz has been named marketing director for Comark Communications. He comes to the company from the ABC network. Previously Kravitz was with Compact Video.

Cheryl Rogusta, with the marketing communications firm of Welsh, Bencsics and Bolles (Mishawaka, Indiana), is the new public relations representative for Crown International. In her new post, Rogusta will provide the media with story and photography leads from Crown, as well as performing other duties in the public-relations capacity.

Darrell Bell has been appointed vice president, southeastern region, for Anixter Communications. In his new position, Bell will be responsible for managing Anixter Communications sales efforts in the cable TV and telephone markets in the southeast region of the United States. In addition, Bell will be responsible for Atlanta and Tampa service facilities.

Robert Manahan has been promoted to the position of regional manager, and **Jay Crane** has been appointed to the newly-created position of manager of network accounts in the western region, for Sony Broadcast Products Company. Manahan has held positions in engineering, sales, and management in the broadcast industry. Crane has been with Sony Corporation of America for the past 13 years, and is a recipient of the Sony Samurai Award for his sales achievements as Sony Broadcast's western regional manager.

Richard Sirinsky is the new director of sales development for Ampex Corporation. Formerly marketing manager of the Ampex Audio-Video Systems Division, Sirinsky will now direct the activities of the training and teleproduction center, and corporate advertising department.

Ann Sayers is the newly-appointed publicity and exhibitions manager of EEV Inc. In this capacity she will be responsible for handling all advertising, publicity, and public-relations matters as well as the organization and coordination of all exhibitions attended by EEV in the U.S.

Cary Fitch, vice president and national sales manager of Broadcast Systems in Austin, Texas, has formed Television Systems & Services, also based in Austin. TSS will specialize in total equipment systems for television and FM stations.

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Now Available

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- CLAMPING
- EQUALIZING
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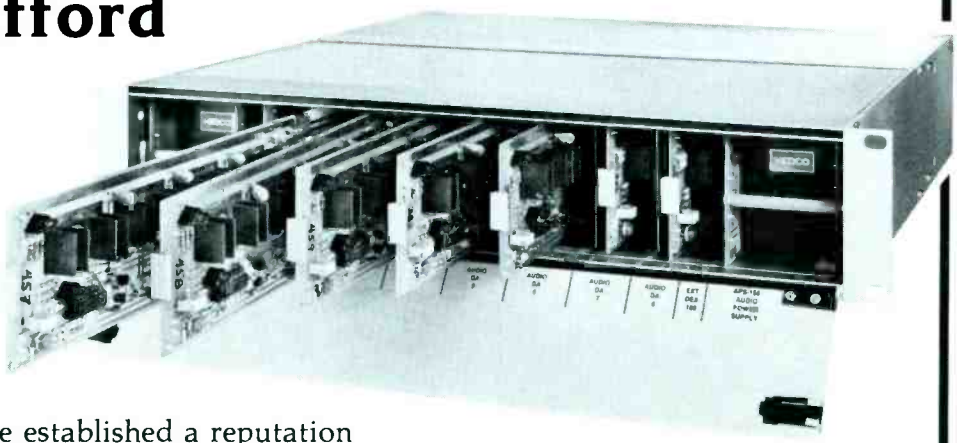

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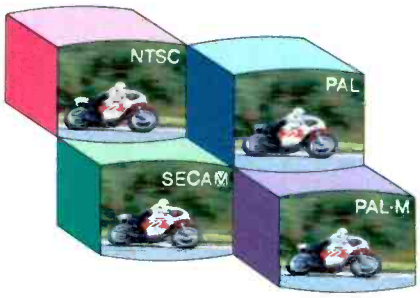
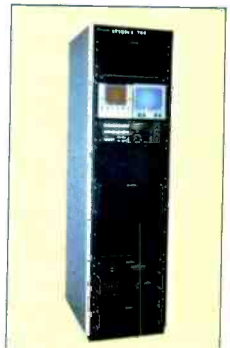
Where You Need It, When You Need It.

Oki Portable Digital TV Standards Converter LT1200



The need for TV standards conversion doesn't stop at the studio door. That's why Oki developed the portable LT 1200 Digital TV Standards Converter. The cost performance of this system sets the industry standard. And its reliability in the field as well as in rugged use in broadcast stations has earned the LT 1200 a reputation for dependable performance. Operation is totally automatic and totally simple. For converting NTSC, PAL, SECAM, or PAL-M, leave it to the LT 1200. Wherever you are.

Oki also procuces the high-end LT 1015Σ Digital TV Standards Converter.



LT 1015Σ

In the U.S.A. and Canada, contact:

OKI Electric Overseas Corp.
One University Plaza,
Hackensack, New Jersey
07601 U.S.A.
Tel: 201-646-0011—0015
TWX: 7109905004 OKI ELEC HAK

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Technology Resources S.A.
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92300 Levallois-Perret France
Tel: 757 31 33
Telex: 610657F TERES

In other areas, contact:

Head Office:
Overseas Marketing & Sales
10-3, Shibaura 4-chome,
Minato-ku, Tokyo 108, Japan
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Circle (21) on Action Card

TECHNOLOGY HOTLINE

This column is a new monthly feature that will update what's happening in the emerging technologies. Where possible, contact names and telephone numbers will follow the items reported.

Shaping the future

There are predictions that a major factor in future site selection for new factories and offices will be access to a teleport. A formal commitment to construct a teleport to serve Ohio businesses was made recently, with the signing of articles of incorporation for the Columbus Teleport Corporation.

The purpose of the new corporation is to construct and operate a telecommunications center with interactive uplink and downlink satellite reception capability for video, audio, and data signals. Because of its diversity, such an arrangement could have an effect on broadcasters.

The teleport will give Ohio companies an efficient and cost-effective mechanism that will deliver and receive data communications, as well as video and audio communications. Compuserve is one of the shareholders. Senior vice president George Minot asserts that, "Information is the product of the next decade. The Columbus Teleport will be the door for Ohio businesses into consumer homes and businesses worldwide." (614-885-0084)

You're needed, beep beep

What meeting today would be complete without a beeper interruption? Especially one alerting an engineer that there's trouble back at the plant. Now there's a twist. You may still need to leave the meeting, but you'll have a better idea of whether you need to walk or run to the nearest phone.

Motorola has just introduced Optrix. It's about the size of a typical page receiver, but that's where the similarity ends. Along with alerting by tone, voice, or silent vibration, Optrix can receive variable data messages and numbers on a backlit LCD readout display. And it can store up to four messages in a special memory bank.

Ron Phillips, chairman of the board of Mobil Radio Communications, sees a bright future for Optrix. Even with the variety of services offered by his company, Phillips doesn't think contemporary systems satisfy all the needs to stay in touch. Says Phillips: "We're just beginning to move into better, more sophisticated forms of high-technology computerized paging systems." (913-281-5600)

Not so soft software

The market for computer graphics software and services will increase between 30 and 40 percent annually through the decade, according to a new market report by Frost & Sullivan Inc. The 243-page study indicates that the industry is "at the beginning of its high growth."

Specifically, the computer graphics software market, which was at $70 million in 1981, is projected to increase to $230 million this year and reach the billion-dollar level by 1987. It could close out the decade as a $2.5 billion market, according to the Frost & Sullivan forecast.

As for computer graphic services, which represents about 40 percent of the total market, its sales will undergo about a 30 percent annual growth rate. This will take it from $210 million projected this year to more than $500 million in 1987.

On a long-term basis, computer graphics will be affected by video disc technology, microcode-embedded graphics probably in the format of primitives; the advent of robotics-oriented, high-level graphics software; and stereoscopic (depth perception) graphics. (212-233-1080)

More for your money

General Electric unveiled their Comband™ system at the Western Cable Show in Anaheim, Calif. The system uses a process that allows cable operators to increase up to twice the number of TV channels they can transmit over existing cable systems.

"The Comband system provides an alternative to expensive, conventional upgrading techniques," comments Jacques Robinson, vice president and general manager of the GE Television Division. "This new approach also reduces expansion time and minimizes customer disruption, since it can eliminiate the need to install additional cables."

Robinson explained that, "A cable operator with 12 local broadcast channels and 23 cable channels can double the number of cable channels to 46 with Comband headend equipment and in-home converters." (212-752-6500)

TV stereo being tested

BBC research engineers have been investigating the possibility of adding an extra sound channel to existing UHF color television transmissions. Tests over the air begin in October.

One possibility lies in a modified version of the system used in West Germany, where a second sound carrier is used to deliver the extra information. BBC can't duplicate this approach because of the difference in transmission standards. West Germany uses System G PAL, with 5.5 MHz vision-to-sound carrier spacing and a 5 MHz video bandwidth. BBC uses System I PAL with 6 MHz spacing and a 5.5 MHz bandwidth.

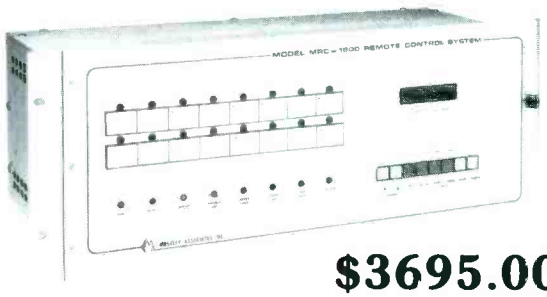
A complete assessment of the system will require an evaluation of stereo under practical reception conditions. The tests will be specifically designed to check compatability with existing services.

According to the BBC, these tests are no more than an investigation into the basic feasibility of a system of two-channel sound for television. For more information contact: John Hawkins, Manager, Engineering Publicity, 708 Henry Wood House, BBC, London W1A 1AA.

SUPPLIER SHOWCASE®

New from Moseley

MRC-1600



$3695.00

The MRC-1600 Microprocesor Remote Control offers microprocessor flexibility and sophistication in an economical and dependable package for general AM-FM remote control applications. It comes equipped with 16 status inputs, 16 telemetry inputs, 16 raise command outputs and 16 lower command outputs. Each command output is relay-isolated. Adapting the MRC-1600 to current system interconnections is easy. Plug-in modules can be ordered to accommodate almost any interconnection system, from standard 2-wire or 4-wire telephone lines to FM subcarriers, subaudible telemetry, or a custom combination of any of these.

The MRC-1600 front panel is simple to operate and easy to understand. All status channels are displayed simultaneously on a set of 16 LEDs. Alphanumeric LEDs give readouts of selected channel number and telemetry data while 8 color-keyed LEDs indicate system operation mode, alarms, etc.

Northeast Broadcast Lab., Inc.
P.O. Box 1176 • 15 Charles Street
South Glen Falls, N.Y. 12801

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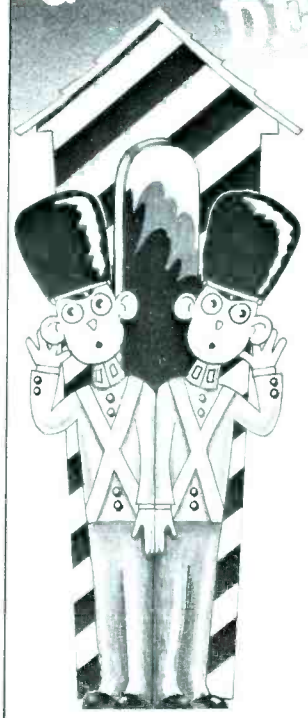
GUARD AGAINST DEAD AIR.



Put a *Comad Dual Audio Sentry* on duty.

Lost audio is something you'd like to know about right away — before all the phones start ringing.

The Comad Audio Sentry can simultaneously monitor two separate channels and alert you immediately if audio disappears from either one.

Monitor stereo left and right, AM and FM programming, AM and TV audio or simply audio in and audio out.

You can also use the Sentry to create an automation system to control up to three program sources. Balanced inputs and audio filters are standard.

Put a Comad Sentry on duty to watch over your audio. And rest easy.

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This is the Comad VS-2 video switcher.

The $225 Choice.

The Comad VS-2 is the passive video switcher designed to let you choose economy with confidence.

Choose your input; push the botton. The red flag in the schadow type selector button will tell you which of the 10 inputs to the VS-2 is being fed to the single output.

It's simple. It's effective — and it's economical.

Another economical choice: You can also get the VS-2 with audio-follow for $295.

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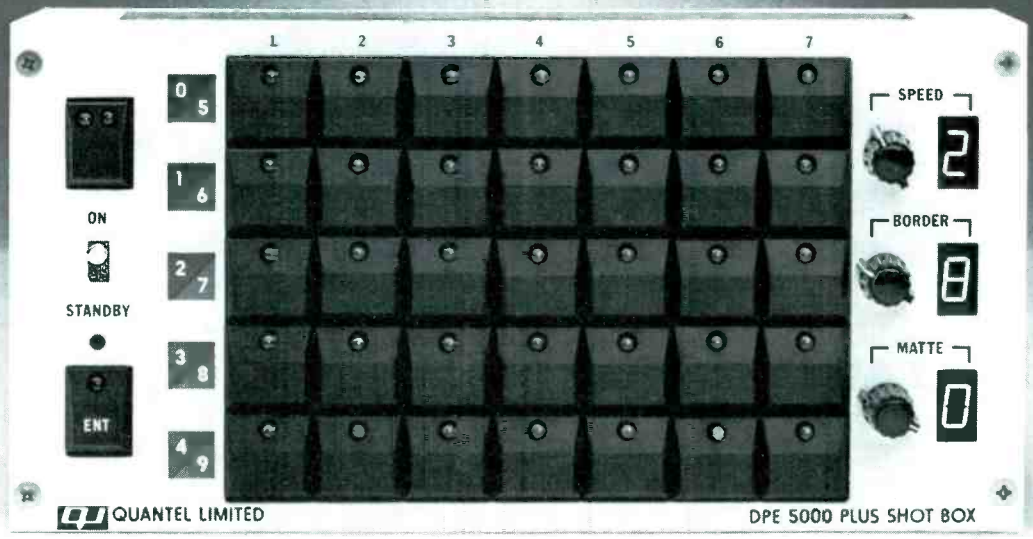
The Quantel Shot Box.



Perspective, rotation, and 68 other moves. At the touch of a button.

With a Shot Box control panel on your DPE 5000/PLUS, you can call up the most complex digital effects simply by touching a button.

The Shot Box lets you put a single move—or a sequence of many moves—behind each button. You can have 70 push-button sequences on-line. It's awesome.

And MCI/Quantel gives you total creative freedom. You can use our standard catalog moves. You can modify the standard moves. Or you can create your own custom moves.

With picture rotation and "Dimension" on your DPE 5000/PLUS, you can have the most dazzling array of effects available. Not only can you change the size and position of a picture, but simultaneously rotate it on any axis and alter its perspective.

All this power—Shot Box, rotation, "Dimension," multiple channels, and more—can be added to *existing* single-channel DPE 5000s, even the first ones manufactured. And the DPE 5000 can be interfaced to any production switcher.

All this with unique Quantel picture quality.

No wonder we say "don't make a move without Quantel."

Call your local MCI/Quantel office for details. Or get in touch with us directly at 415/856-6226. Micro Consultants, Inc., P.O. Box 50810, Palo Alto, California 94303.

MCI/QUANTEL

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MCI/Quantel, "Shot Box," and "Dimension" are trademarks of Micro Consultants, Inc.

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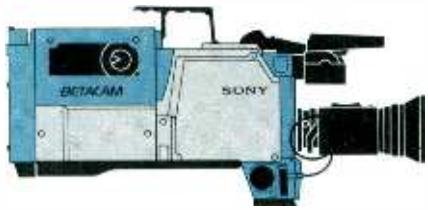
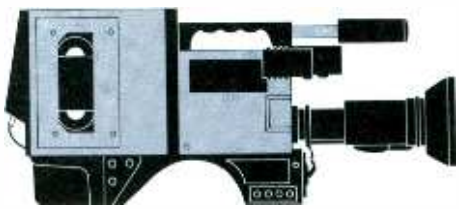
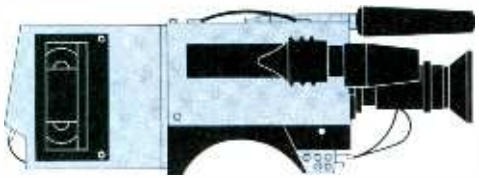
82
IN
REVIEW

VERY VITAL FOR PRUDENT

Cameras Drawn In Scale	Weight In Pounds*	Length In Inches†
One Tube	17.8	14.9
Three Tube 	21.9	17.1
Three Tube 	24.7	17.5
Three Tube 	27.6	21.5

*Includes camera, lens, viewfinder, recorder, battery. †Lens excluded. **Camera, lens, battery, battery charger, recorder, playback unit.

Logic dictates that before you invest in a camera and ½" recorder system you should shop around. Carefully comparing such criteria as size, weight, image-making capability and price.

So we arranged a little shopping guide based on specifications from our competitors' 1982 brochures and our own. The results are quite revealing.

For news-gathering, the Sony Betacam™ one-tube with 400 resolution lines has striking advantages over the alternatives. While for field production the Sony Betacam three-tube with 650 resolution lines and 58dB signal-to-noise is superior to them all.

Of course, both Betacams have still more advantages that have not been included in the chart.

Physical advantages like the removal of troublesome cables from the viewfinder, lens, mic to camera and camera to recorder.

Technical advantages like a recording format with both

Sony and U-matic are registered trademarks and Betacam is a trademark of the Sony Corp. Dolby is a registered trademark of Dolby Labs.

STATISTICS CAMERAMEN.

Power Consumption In Watts*	Signal To Noise Camera dB	Signal To Noise Recorder dB	Price**
22	54	Lum Chrom 48/50	$38,500
31	58	Lum Chrom 48/50	$51,500
27	58	Lum Chrom 47/48	$62,000+
40	55	Lum Chrom 47/48	$70,000+

timebase corrector, carrying case. Based on estimated suggested manufacturer's retail price. All figures based on Saticon Tubes.

a chrominance bandwidth and signal-to-noise performance greater than the competitions'; wideband chrominance components with no crosstalk or other artifacts; built-in Dolby® C noise reduction for high-quality audio; and most important, the playback unit has built-in TBC (an option on the competitions' units) providing full broadcast-quality output.

Betacam also offers major financial advantages beyond those shown. Namely, sparing you from having to invest in a whole new editing suite. It interfaces perfectly with the Sony U-matic® and one-inch suites you use now.

Betacam was planned as the logical progression of the total Sony Broadcast system. To find out just how logical, contact your Sony representative in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 841-8711; in Atlanta at (404) 451-7671; or in Dallas at (214) 659-3600.

SONY. Broadcast

©1982 Sony Corp. of America, 9 W. 57th St., New York, NY 10019.

This past year saw the introduction of more sophisticated equipment with expanded capabilities and more ease of maintenance. There were also significant improvements in existing product lines, making them more cost effective while adding new features. In the area of broadcast equipment, at least, 1982 was most definitely a

YEAR OF ENHANCEMENTS

BY RON MERRELL

Looking back on 1982 brings to mind such a list of new developments that sorting it out requires a panoramic view. It requires a review of just about every category of equipment used today, because everything is in motion. And just about the time you think things are about to settle down, more changes are on the way.

The cover of this issue is an example of what's happening to what we curiously call the state-of-the-art. *BC*'s art director, Mary Christoph, sketched a version of the cover. This was sent to MCI/Quantel, where artist Martin Holbrook "drew" his version on the Paint Box. Mind you, this was flat art. From there the art was manipulated on the Mirage machine, where the flat art was rolled into a cylinder.

Adding to the sophistication of the art manipulation, the cylinder was tilted forward enough to see inside. A picture of people attending a broadcast convention was added to the inside of the cylinder, and then processed for the art effect you see as the final version.

But what do you call a machine like Mirage? Strictly digital effects? Not hardly.

The October issue featured another version of computer art. Joni Carter, whose art was featured during the baseball playoffs, demonstrated the variety of applications as well as her talents. And while many have suspected that artists would balk at using computers, Joni said it just isn't so. She told *BC*, "Everyone I've run into would love to have one and use one. To me, they're the most open group as far as this concept goes. . . of the people who are actually in television. It's fast. There's nothing in the world that's better for an artist than something that will do it fast and do it well."

But how about justifying the cost? Can stations look for a positive effect on the bottom line? Said Carter: "Yes, they can. That's exactly how I feel. Local stations have a hard time competing with the Hollywood look. They don't have that fluid programming look, because they don't have that kind of budget. A computer allows you to catch up, so to speak. You can do things as effectively, as snappy, and as fast as what you'd get out of Hollywood, but on a much smaller budget."

Enlarging on their use, Aurora president Richard Shoup told *BC*, "The challenge for the videographics user is to make intelligent, aesthetic use of these new capabilities to communicate effectively with the audience and to contribute to their viewing experience, not just to produce the latest visual cliches."

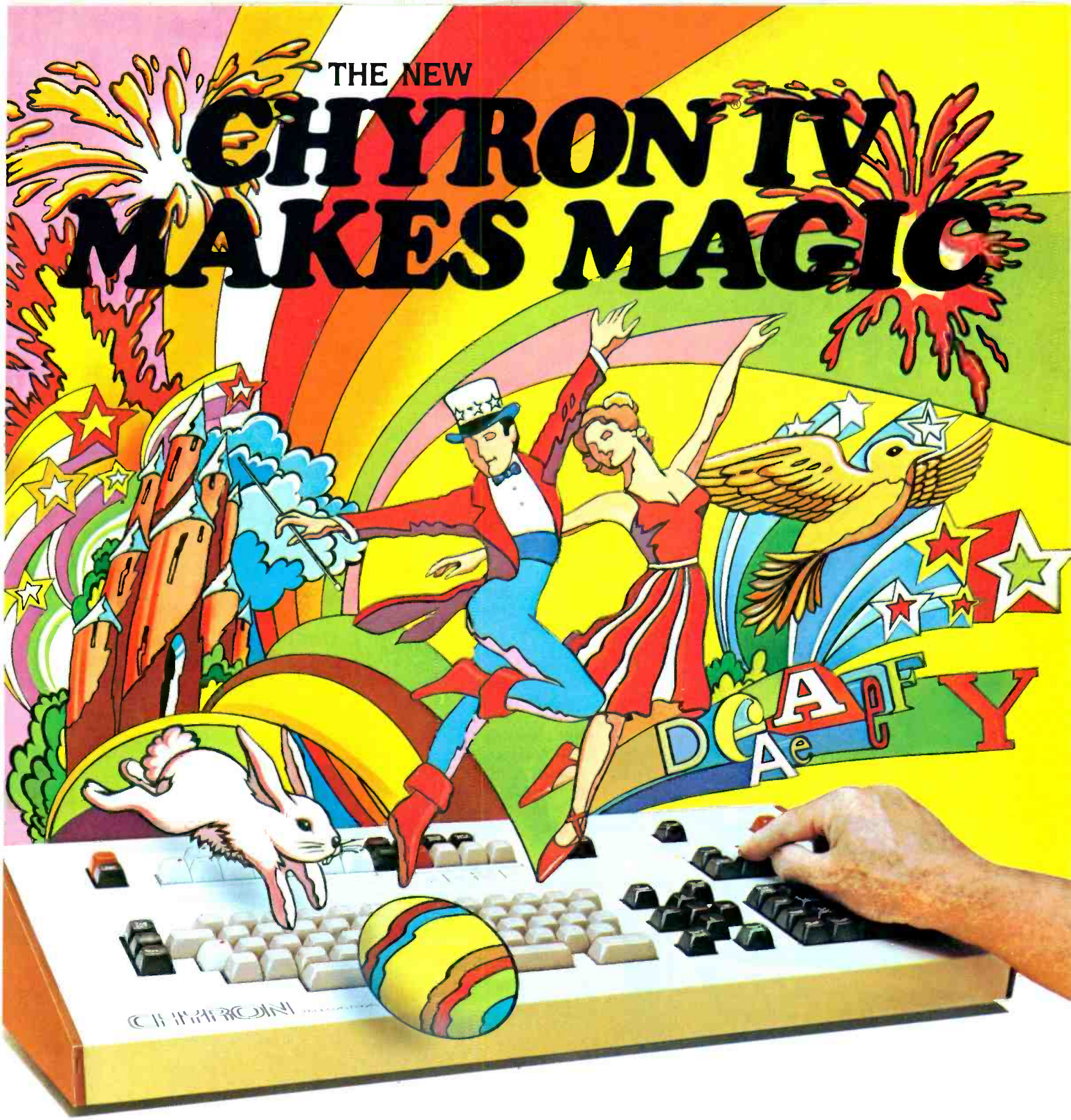
The traditional character generator is gaining momentum so fast that this once-easy-to-describe equipment may soon require a new definition or a division of the category. . . But however you define them, the new generators . . . are more cost effective.

New-look character generators

Silently moving toward graphics animation and computer art is the trusty character generator. The Dubner system is a good example. It started as a simple background generator, moved into character generation, and then added graphics manipulation.

The traditional character generator has been undergoing an evolution that

Continued on page 38



The electronic magic of the new CHYRON IV is at your fingertips: 512 color choices...animation ...multi-color characters...independent background graphics...advanced camera font compose...digital drawing tablet...special effects...as well as the widest assortment of font styles and sizes available. And you don't have to be a magician to work the magic. CHYRON IV is still easy to use, totally versatile, and provides unsurpassed resolution.

Perhaps best of all, earlier models of CHYRON IV can be retrofitted to provide all of the features of the new CHYRON IV.

So, isn't it time to bring a little magic into your television production? Call or write for all the details on today's most sophisticated and versatile electronic graphics system. CHYRON IV. The magician's choice.

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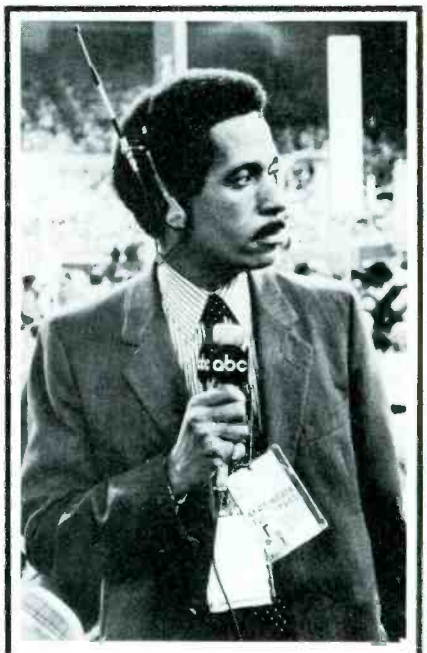
is gaining momentum so fast that this once-easy-to-describe equipment may soon require either a new definition or a division of the category into new subdivisions. But however you define them, the new generators and their software packages are more cost effective.

On this point, David Buckler at Chyron agrees. Buckler told *BC*, "We believe that the direction of character generators will be to even greater graphics capabilities. However, we feel very strongly that these future systems must still provide for ease of operations, as well as the ability to quickly churn out the 'meat and potatoes' work of titling, day in and day out. It must also be of the highest quality in terms of character resolution, proportion, and precise positioning."

Keith Thomson, a systems designer at Dubner Computers, responded to the trend this way: "Despite the recent proliferation of computerized paint and animated systems, the lowly character generator is still TV's most widely used computer graphic device. Character generators have earned a place in virtually every TV studio and post-production house. They're a known quantity—they're budgeted for, and people are available to run them."

He added: "The paint and animation systems, on the other hand, have yet to gain general acceptance. While this is certainly due in part to their hefty price tags, it is also because the production world has not quite figured out how to use them. Another problem is the lack of skilled operators.



When wireless microphones were first introduced, they were little more than a novelty item. Even in the 1940s they were sold in consumer magazines as a way to put yourself on the radio . . . The novelty has worn off, and today they're standard working tools . . . .

With all the rush to fill up the hours needed to program traditional broadcasting and the new media, attention in 1982 turned to vans. They're proving that there is as much (and maybe more) profit on the road as there is on the set . . . Both stations and production houses are finding that you don't have to own a van to profit from them.

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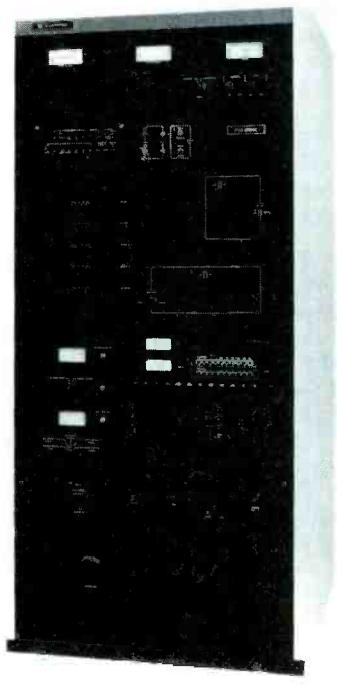
Tom Hindle is the senior product manager of graphic products for Thomson-CSF. "For now," Hindle said, "the gratification is seeing graphic artists creating the unique look that is essential for maintaining a competitive edge among the proliferation of programming."

Hindle recalled that, "It used to be that the only way to animate a series of visual elements was to off-load them onto film, still store, or videotape. While each process has its own uniqueness, they all add people, equipment, and time. . .elements that slow down the creative flow. What I see now is a news story, program open, commercial, or other production idea being brought to a Graphics V operator and having the visual idea developed into a displayable format. Some people call it biotechnology; others call it ergonomics or user friendliness. The key element to success is system transparency during the creative process."



It's becoming clear that most transmitter manufacturers are offering diagnostics as features, or considering them for near-future designs. Still, the emphasis has been on shifting to solid-state. Like other equipment categories, transmitters have been profiting from the solid-state invasion.

Lester Turner sees a trend toward displaying more and more alphanumeric information in the video signal. A senior staff engineer at Datum, Turner has detected real interest in the 16-character-per-block, 4-block-per-display format because of minimum screen usage. "This format," said Turner, "will be generalized and extended. Standard interface capability will be expanded to include most industry-compatible digital interfaces such as EIA RS323 serial data, 8-bit parallel demand-response, and/or IEEE 8-bit parallel bus."

"Within this context," he continued, "it is anticipated that microcomputers will be increasingly used to drive video character generators. In becoming peripheral equipment to microcomputers, character generators will have to be completely remote-controllable, able to store input commands, and implement them sequentially. Thus, video character generators will actually become computer graphics equipment with all that application implies.

"One of the latest advances in design," according to Dynaquip's Alan Lambshead, "is the capability of setting up various parameters in software, such as character size, position, etc., and saving them in non-volatile EE PROM. This eliminates the cumbersome banks of dip switches, yet allows configurations to be saved when power is removed, making the unit much easier to operate."

As these capabilities are added to the character generator, their new functions at the station make them more cost effective. Instead of being forced to buy multiple black boxes to perform a variety of tasks, the trend is toward units that combine functions for much broader applications. This keeps the total capabilities package cost down while increasing the on-line time of the multifunction generator.

Wireless microphones

Shifting to another aspect of product development, the wireless mike made its way into the limelight in 1982.

When wireless microphones were first introduced, they were little more than a novelty item. Even in the 1940s they were sold in consumer magazines as a way to put yourself on the radio. "Amaze your friends. Put your voice on the radio."

We've come a long way since those days.

The novelty has worn off, and today they're standard working tools that play a vital role in the communications scene.

Continued on page 40

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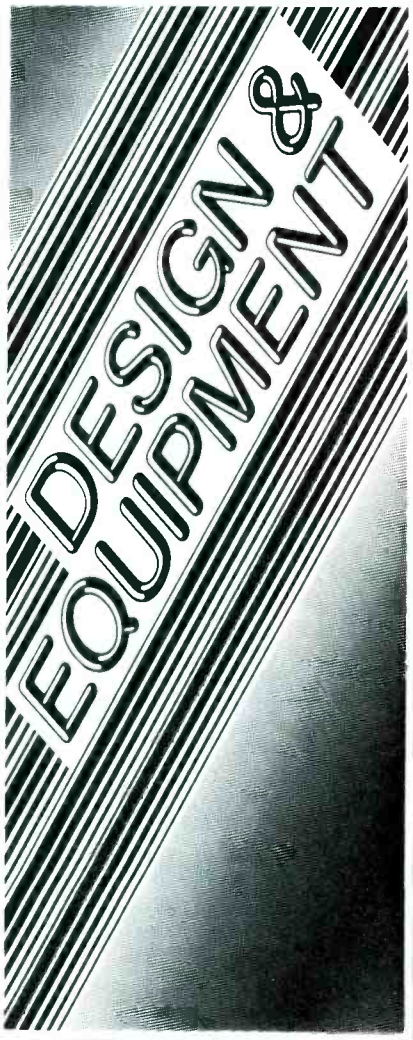

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Consider the case of San Diego's KFMB-TV and their *PM Magazine* sequence that was shot at Sea World. As Dale Scott of HM Electronics told *BC*, wireless mikes do eliminate the shock hazard associated with hard-wired mikes. And they do allow you to go where wired mikes can't. The wireless mike can enter a hostile environment, such as Sea World, and survive quite well. The opposite extreme is equally challenging. As Scott puts it, try bringing back the sounds from a hot air balloon with a wired mike!

Donald Mereen of Telex agrees. "We do not anticipate a great change in the way wireless microphones are used at the present time," says Mereen, "but we do anticipate that there will be considerably more remote control applications implied for broadcast use. The freedom from cabling and shock hazard alone, makes this the way of the future."

But how about range. Aren't wireless mikes terribly limited by their effective range? Lynn Distler of Comrex told *BC*, "Very often we'll hear of people boasting they've covered a mile with their 30 mW wireless mike. They probably have, but they'd be fools to think they could do that consistently and reliably. With the 1-watt transmitter, a broadcaster can get some serious distance, i.e., an entire sports stadium, including the locker room."

As Comrex sees it, potential users should understand that there is a difference between field and studio wireless units. In a studio, you can get away with many things. Because the maximum range rarely exceeds 50 feet, very low-power transmitters (under 50 mW) can be used.

But no matter where they're used, wireless mike operation faces the possibility of multipath cancellation. Referred to as dropouts or dead spots, John Nady of Nady Systems says that there are two methods for eliminating the problem: antenna diversity and receiver diversity. According to Nady, antenna diversity is a lot simpler and cheaper than receiver diversity systems. In a true diversity system, a silent comparator circuit monitors the signal strength of both receivers and instantaneously picks the one receiving the strongest signal.

On the equipment development side, wireless mikes have been undergoing changes that have made them a logical choice for professional applications. Sony, for example, supplied the wireless units that were used for the Jerry Lewis Telethon last year, and they have seen duty during NFL football games covered by ABC. Alan Gordon Enterprises units were used during the Lake Placid Olympics coverage. And the list of applications goes from there on into even film production.

At Telex, Mereen doesn't see any esoteric modifications. "However," Mereen said, "it is reasonable to assume that frequency synthesization will ultimately take the place of some of the crystal-controlled circuitry now employed."

Despite the problems and challenges facing manufacturers and current users, applications of wireless mikes will grow. So will sales. Here is a product that has paid its dues. And as more and more stations and production houses learn how to take advantage of wireless mike features, its use will be commonplace, and wireless mikes will gain the professional respect they have earned.

Vans on the road

With all the rush to fill up the hours needed to program traditional broadcasting and the new media, attention in 1982 turned to vans. They're proving

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that there is as much (and maybe more) profit on the road as there is on the set.

Both stations and production houses are finding that you don't have to own a van to profit from them. You can make money from using it, with additional profits coming from leasing it to another operation when your own production requirements periodically tail off. Or, rather than owning one, you can lease it yourself.

Even in the van market, there's more to what's happening than changing applications. Their evolution has been speeded by the packages they put on the scene, packages that are smaller and lighter.

Broadcast vans are no longer a luxury. There aren't many bargains, but they can give you the competitive edge and make extra profits for your station.

At a time when the automotive industry is crying the blues, the van business is booming.

Part of the reason van costs are not rising at the same rate as cars is that the van manufacturers have moved a long way from the days when every van was strictly bumper-to-bumper customized. Economies of standardizing basics have helped to hold the line. But there's more.

Because they can buy at a larger volume than a local station, they get some breaks on equipment. And these breaks, to a degree, are passed along to the customer. Even strictly custom companies have learned how to cut the corner on costs without sacrificing.

Oddly enough, while cars seem to be in a constant engineering cycle, the vans supplied to the van manufacturers have not seen many structural improvements. If anything, they might be somewhat stripped from their previous iron and chrome look. They are making better gas mileage these days; but if you have to get terribly concerned about gas mileage, you probably can't afford a van anyway.

One thing that is discernible as a trend today is for van manufacturers to produce a standard design, and then add some custom touches. One manufacturer has taken this approach so far that they can give you a van in 30 days or less. It's what you could call an "off-the-shelf" van.

In the past, when a station finally took delivery on a van, it usually extended the station's capability, but not profits. Of course some stations got into the van-buying game because they needed it for their sports contracts. In that respect, it was profitable. But today, more and more vans are being used to extend the profit base.

The problem is that too many television and radio stations think of a van as important only for ENG and image. But ENG, attractive as it is for building that "live" look, doesn't affect the bottom line directly. Even when you add EFP (in the promotional sense), the economic effect is indirect.

There is money to be made on the road from production and advertising. And with more and more takers for what seems to be a limited supply of programming, the prospects for selling local productions are good and getting better all the time. Even the cable TV industry senses it.

With low-power TV on the horizon, television stations should be thinking about serving LPTV to extend their economic base. Whatever effect they may have on cutting into viewer numbers could be offset by the production income they would give to the station. Cable TV, of course, represents another added income source.

To increase their cost effectiveness, several manufacturers are shaping their vans into more standardized units. This way, when the vehicle itself becomes a

Continued on page 42

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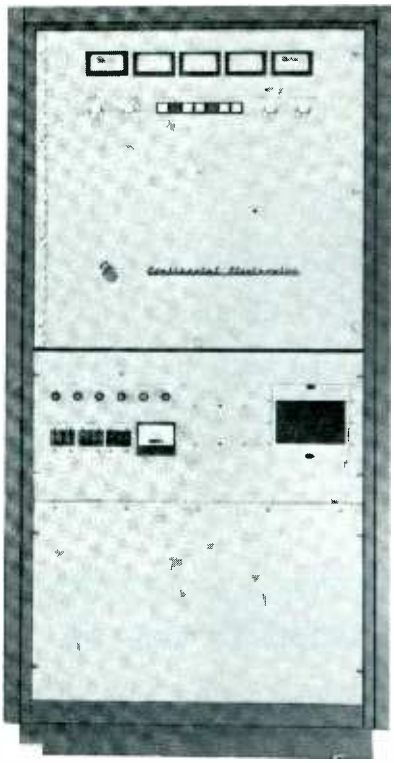

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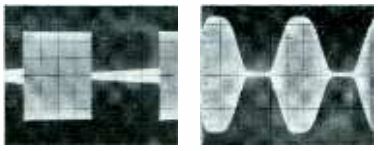

Left: Photo shows excellent dynamic response of Continental's 5 kW AM transmitter at 20Hz modulation. Right: photo of modulation wave form shows effect of Instantaneous Peak Limiter

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maintenance problem, you buy a newer version of the same van and all the equipment and racks fit right in. It might take less than a week (one manufacturer estimates two days) to strip the old van and have the new one ready to go on the road.

Not surprisingly, the most popular new vans are not the tractor-trailer type. The big ones are still popular for specialized remotes and production specials. But the medium-sized vehicles are taking advantage of the general miniaturization that broadcast equipment has been experiencing. Everything gets smaller and lighter. And the van user benefits every time.

An additional economy move can cut costs while making on-the-road operations even more flexible. The idea is to configure the electronics into modules that can be easily interfaced. When an assignment calls for ENG rather than EFP or advertising, only the ENG-type modules are rolled or lifted into the van. This way, it's not necessary to tote everything that's portable to every assignment. It saves wear and tear on the equipment, gives more room for the operation at the site, and it makes a lighter load. And, depending upon how it's configured a few hours before it's on the road, the same vehicle that's geared up for ENG today can be on a production assignment tomorrow. It could cut a two-vehicle need to just one.

Whether it's modular, standardized, or strictly custom, the 1982 vans were more efficient, built better, and offered better income potential than earlier models.

Vans can be very cost effective; but at the bottom line is the station's willingness to look at vans as profit extenders instead of image builders.

Pumping the power

Shifting to the radio side, even the power plant is changing. Some trends were obvious in 1982; others weren't. Take diagnostics, for example. It was just a year ago that most manufacturers, in almost any equipment category, were talking diagnostics only as an option.

As we end this year, it's becoming clear that most manufacturers are either offering diagnostics as features, or considering them for near-future designs. Still, the emphasis has been on shifting to solid-state. Like other equipment categories, they have been profiting from the solid-state invasion. Unlike others, the system—in most cases—still involves tubes.

"Today's real world of broadcasting in a highly competitive market insists on a louder sound and use of highly sophisticated audio processing to create that special-tailored on-air sound. And AM stereo demands a transmitter that is absolutely transparent. In other words, it cannot alter the complex wave shape of the program material."

That's how Vern Collins of Continental Electronics views the current transmitter market. "Rapidly expanding technology," adds Collins, "and increasing scarcity of capable technical people dictate that the most important trend in transmitter design has to be realiability."

Glowing filaments certainly lend a feeling of assurance to the transmitter engineer, but transmitters have been a lot more reliable since solid-state up to the final became a factor. What's more, turning those filaments off in favor of solid-state did have a positive effect on operating costs.

With utility costs drifting higher all the time, operating costs are important. After all, what CE wouldn't like to go to management with a new transmitter proposal based on a rig that would affect the bottom line in operating costs? So manufacturers have torqued down their designs to produce more effective, more efficient transmitters, while holding the line on unit prices.

Today, the majority of AM and FM transmitters have tubes only in the final stage. While all-solid-state transmitters are available, very few fall into the 1 kW to 5 kW range. And some are actually solid-state exciters for the larger rigs.

More than a few manufacturers today flatly state that they will not move into the all-solid-state designs until the technology is more mature.

At Singer Broadcast Products, Don Richardson told *BC* that international sales are an important part of their market. "I think the time is coming closer for solid-state," said Richardson, "but a lot of our market is international, and solid-state is not popular there yet."

The newest solid-state entry is from QEI. The QEI transmitters signal a newer trend that already has variations off the main theme: diagnostics. "Both of our new transmitters are unique in the industry," Bill Hoelzel said, "because they come with a built-in ATS system and remote control built in. They also feature full diagnostic programs with up to 40 critical parameters which can be called up at the transmitter or from the full remote control unit. The factory can even interrogate the transmitter by telephone and diagnose a problem with their computer."

QEI has vast experience with lower power transmitters, and according to QEI president Charlie Haubrich, "It took a little time to get a system that would read-out direct values rather than codes. We also wanted telephone

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access to the transmitter with our computer. Once having done this, it was simple to build the diagnostic capability and the remote control unit."

Peter Balodis at Larcan Communications (formerly Canadian GE), told *BC* that their transmitters use solid-state control logic/diagnostic plug-in units that include a bypass panel. As Balodis puts it, "The control logic has a bypass so you can override the control logic. That really helps in troubleshooting. This is an important feature, because you can over complicate these transmitters."

Boasting the world's most powerful one-tube FM transmitter, Broadcast Electronics' FM-30 includes a microprocessor control system that gives you 127 status indications. It also has 13 meters, including four multi-function meters!

According to Larry Cervone at Broadcast Electronics, all their transmitters include extensive metering, as well as microprocessor control and diagnostic circuits, with automatic power control also standard. Speaking of diagnostics, Cervone told *BC*, "I think it's the beginning step in the completely self-monitored, automatically controlled transmitters. I think ultimately the FCC will eliminate all rules which have to do with having analog meters and having any attended operation."

Elcom-Bauer Broadcast Products extends another trend with features such as automatic power control, VSWR protection, and remote-control interface. This is another important trend, because at Elcom-Bauer, these are not options. They're standard.

Bayly Engineering follows the redundancy tradition by providing several amplifiers connected in parallel. Keep it simple, but keep it going. They're solid-state, but Bayly's power transistors are backed by protective circuits that allow you to operate with lower power, even when you have a high mismatch.

Always looking to the future, Harris has been a leader in solid-state design. But Harris looks at digital audio as inevitable. Already Harris says 1,400 broadcasters around the world are using the digitally synthesized modulation available in their FM line. In Harris' view, broadcasters today are mainly concerned about the increasing cost of power, servicing requirements for the more sophisticated technology, and the need for increased audio performance due to the "imminent" introduction of high-quality digital audio equipment.

Despite the claims and counter claims, most manufacturers would agree with Vern Collins and his thoughts on transmitter reliability.

Solid-state will continue to inch forward, but the final amplifier tubes will be with us for a long time to come, especially in the higher power ranges. Lou Page of Larcan Communications explained it this way: "We're getting tremendous gain out of the tubes we're using today. To duplicate that in solid-state, you'd have modules all over the place. You can build in redundancy, but don't complicate the transmitter. Keep it simple."

Today's transmitters are cleaner, more reliable, and offer assist circuitry that takes the guesswork out of operating and maintaining them. But the tech or transmitter engineer is still the key to their competitive sound. All the super logic and control circuitry will not tune up the transmitter or repair it. What the new trends do bring to the station budget dialogue is truly more reliability. And the diagnostic aids are important to the bottom line, because they will cut your down-time. Transmitters have never been more cost-effective.

There's more elsewhere

Any review of 1982 wouldn't be complete without considering the new combo cameras, HDTV, AM stereo, and the like. But here the important development is more FCC-oriented. It comes down to the commission's view that the marketplace should decide what standards we'll be using. The chaos isn't serving the public. but the AM stereo non-decision came after shouting matches over their earlier choice.

The combo cameras couldn't even get through the SMPTE with a universal standard. The economics and the politics in the current state of the industry militate against uniformity. And so once more the decision goes off to the marketplace.

HDTV is another matter. Demonstrated in 1982, the development of that technology is still down the line. However, if HDTV must suffer the decisionless process of other recent technologies, the resulting costs will be passed along to the industry and the public.

As the new low power community broadcasters gear up for the beginning of a whole new industry, many standard and industrial-grade products will flourish in the marketplace despite their lack of whistles and bells. The rule will be: get it on the air.

Meanwhile, just as we were getting used to the idea that the microprocessors and computers would rule the industry, things changed again. The king now, at year's end, is software. Maybe we should call it soft-tech. But whatever we call it, the new machinery, regardless of application, will play out their roles by the direction of the emerging monarch. BC

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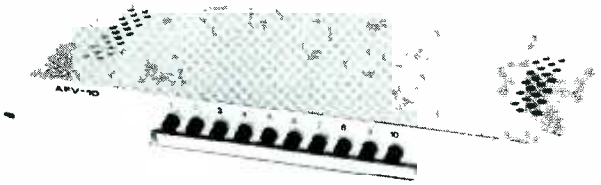

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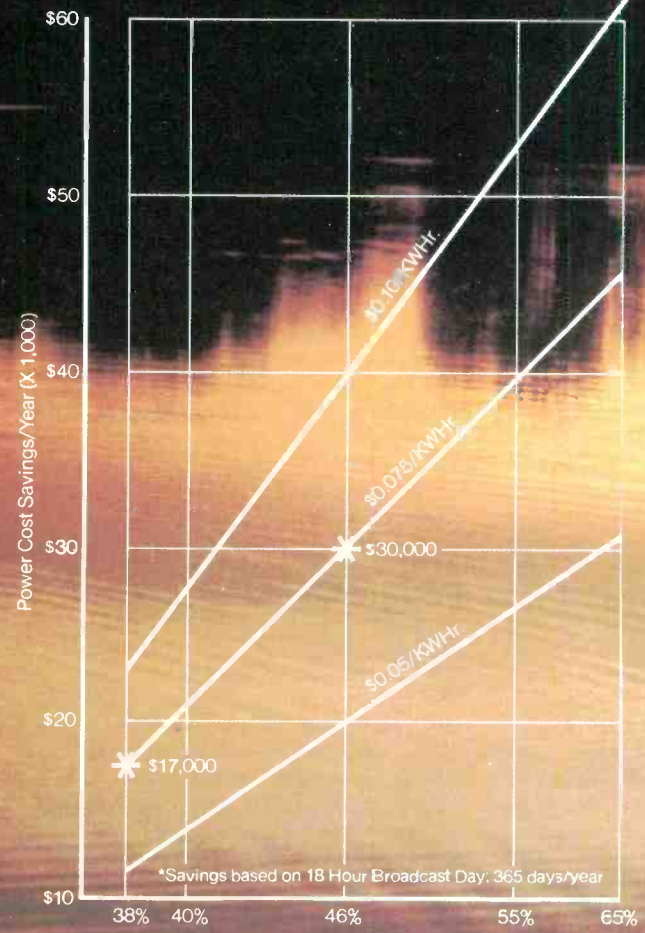

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ED SHANE

Past events reveal the future

Recently, I've been caught between the future and the past.

For an October issue of *Adweek*, I was asked to think forward and identify changes in the sounds of radio formats in the '80s. I examined the technology of this past year and its impact on radio audiences. Home computers, VCRs, and Pac-Man are not radio's direct competitors, but they all provide "distractions" for the radio audience. They will change the use of the product called radio.

In the article—directed toward advertising executives and broadcasting account people—I predicted vulnerability ahead for AOR: "Add video to today's music and audio alone pales." I also pointed out that AOR's staple, new music, is diminishing because of the pressures on the record industry.

More format predictions: *Country* radio stronger than ever. *Nostalgia* bringing people back to the radio. *Beautiful Music* in continued decline. Growth for black-oriented *Urban Contemporary* radio. *Information radio* with specific subject matter like medicine, oil, and business.

We can look to the future only in terms of the past, of course. But when *BC* suggested a look at the year behind us, I reversed the procedure and began to look at the past in terms of the future I had outlined in *Adweek*. I asked myself what events of 1982 would have enough impact later in the '80s. What would change the public's use of radio?

While I cannot produce a complete list of all those elements that will have impact in the future, let me propose this "Top Five of 1982": 1) AM stereo on the air; 2) the home taping controversey; 3) the crash of ABC's "Superadio"; 4) continued growth of MTV; and 5) Arbitron's introduction of DST.

Frankly, I stopped at five because I don't have space to offer explanations for more than that. And it's only fair that I explain.

I've said many times that AM stereo is *not* the salvation of AM radio. Yet, AM stereo is at number one on my list.

I know that only a few engineers and a handful of experimenters are able to receive AM radio today. However, the advertising community proved long ago that the words "New and Improved" on a package would stimulate sales. I think that the era of stereo is AM's chance to show something "new and improved."

After all these FM-intensive years, it's nice to know that AM is "OK." Stereo has given AM something new to promote. As long as the stereo pioneers *promote* stereo well, the excitement will be contagious.

But promotion is not enough. The programming that passes through an

1. Am Stereo on the air
2. Home Taping controversy
3. "Superadio" crash
4. MTV's continued growth
5. DST's introduction

1982 EVENTS HAVING FUTURE IMPACT

AM stereo transmitter must be good, or AM stereo will be dismissed as hype.

The major event in AM stereo is yet to come. Once the marketplace chooses an AM stereo system, the concept will be here to stay. Music formats will come alive again.

Who knows? Maybe the development of AM stereo will give home taping enthusiasts a new source for materials. Home taping is one of the Top Five, because it has the greatest potential for changing radio listening patterns.

Before I go further, let me say that I'm *in favor* of home taping. The record industry may claim that my attitude has closed pressing plants and caused CBS to turn 300 staff members out during 1982. I still feel that what a person does in his own home for his own amusement with no financial gain is no business of the record companies. Let me add that I am in favor of the performer and the writer receiving compensation. That compensation should come from the person doing the taping, either through a copyright "tax" or other license fees. I'm afraid that still leaves records out of the picture.

The consumer has traditionally opted for convenience. Having a collection of tunes on tape appears most convenient now; and it is of little concern whether those tapes come from borrowed and rented records or from the airwaves. A person listening to tape is a person *not listening to radio*.

There is additional listener impact here. Cutbacks in the record industry have bred caution in the material released. Radio has responded by following record industry sound-alikes instead of looking for fresh material. Each side blames the other. The consumer, oblivious to this industry bickering, programs his own music "shows" on tape.

Next on the Top Five is "Superadio." The fact that a major company with good financial backing and a proven track record couldn't pull it off said to me the old days of big time personalities had passed. Another symbol of the death of ideas past is the rapid decline of the Beautiful Music format in 1982. Its greatest challenge has come from audiences weaned on rock, country, or funk. Given the option, these audiences seek rock, country, or funk, now provided by many stations in what used to be called Beautiful Music presentations.

Warner's Music Television makes the list because it has made such inroads into the young audience. MTV is not something one *watches*. Rather, one uses it as environment. Anyone who called early TV "radio with pictures" could never have dreamed of either pop radio or MTV. In a recent nationwide Reader Poll by *Home Video* magazine, MTV had a strong showing (51%) among "favorite basic cable services."

Finally, what would a radio list be without Arbitron? Differential Survey Treatment caused uneasiness in the radio industry during 1982 as broadcasters wondered whether paying some dairy keepers an additional fee would change listening habits. Indeed it did among those paid the fee. How will that affect future radio? Since Arbitron results determine so many radio dollars, the public will be subjected more than ever to format adjustments or format change. This will create a cycle that seems to impose the will of methodology on an unsuspecting radio public.

Since the future is so much a product of the past, I'll venture a guess that it'll be a list of events from 1983 or even 1984 that shows the truly significant events of 1982. BC

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

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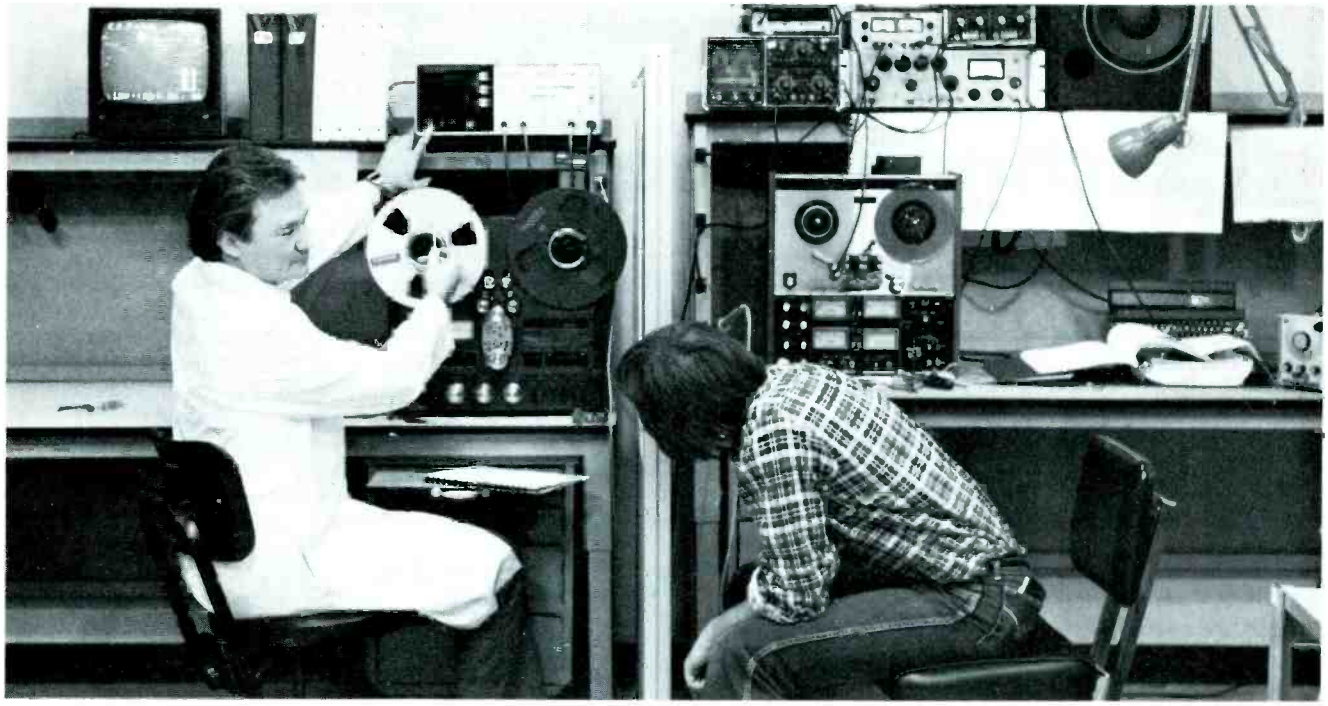

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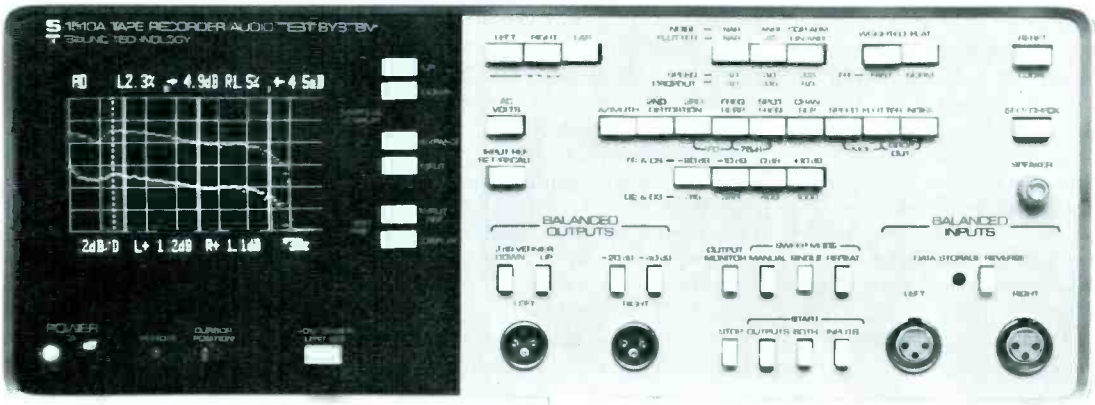

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NEWS DIRECTIONS

PHILLIP KEIRSTEAD

Technology reigned in '82

We were reminded recently that we had been writing this column for two years. It's not a question of where the time went. Our query is, "Where did the technology go?"

We've seen the newsroom computer industry start up, falter, regroup, gain competition from microcomputers, and finally begin to sell its product.

We've seen fantastic weather graphics systems devised, displayed, and disappear.

Other devices have grown from dreams into demonstration models.

We've even seen a partnership evolve into a marital union.

If 1981 was a tour on the autobahn, 1982 was traveled in the passing lane!

We got our first glimpse of combined camera/recorders in '81. This year, they are available for sale with deliveries assured. Of course, the birth has not been without its pains. Competitive firms have reached the same end by different routes. Even a strong referee couldn't stop the scrapping in the middle of the ring and get the manufacturers to decide what format (½-inch or ¼-inch) and what standard to adopt.

Before you start pointing at the camera industry, however, remember two truths revealed to attendees at a recent RTNDA Technology Day session by Joe Flaherty of CBS. First, the only way news directors are going to get the products they want—with or without standards—is for news people to stand together and tell manufacturers what they need. Second, we can't take advantage of some of the best technologies until we get all parts of the system converted from composite to component form.

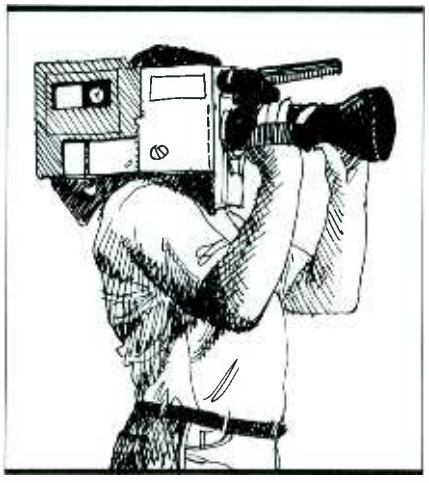
We think the combo camera is an idea which has found its market, provided everyone pulls together to make the camera a worthwhile addition to our newsgathering arsenal.

This has been a year for improvements in production equipment: better and less expensive 1-inch VTRs, improved ¾-inch machines, and new editors.

Think of this: If we can ever get a coordinated effort going, we could go to ¼-inch for portable and 1-inch for field production and studio replay. That puts television in the "electronic pencil" stage. Then we might be able to cover, rather than *smother*, stories.

How about graphics! Some of the newest gadgets make your eyes counter-rotate. This has been a year for real progress in editing-suite and weather graphics. And you thought John Coleman was a member of the magician's union!

The tough decision is picking the right expensive graphics system. It



might not be a bad idea to remember the basics: Will it help me tell my story better—journalisticly?

This has been a great year for newsroom computers. No, not a great year for the folks who make and sell them. I mean a great year because a significant number of people in broadcast journalism now agree that the computer will play an important role in the broadcast newsroom. We are continually impressed at the number of news directors who are taking computer courses, have a micro at home, or are using some form of computer assistance in their newsroom. The trend is not yet reflected in sales of newsroom computer systems, but it soon will be. The systems are proving themselves; and the manufacturers have given up any thought of making a quick killing by selling 10 quarter-million dollar systems. Prices and configurations are now compatible to the needs of any busy newsroom, radio or TV.

We still say that you're going to buy some sort of computer for the newsroom. . . in the not-too-distant future.

Radio ENG is also getting a lot of attention. Guys like Dick Rudman of KFWB, Los Angeles, are putting a lot of effort into creating sophisticated systems and solving frequency problems. Radio is bouncing back, after letting TV get the jump on spot coverage.

Here again, the manufacturers need to know what broadcasters desire. Tell them and they'll make it!

The new remote units for radio sports, election, and events coverage are exciting. There's a lot of good equipment on the market, tailored to your needs and budget.

Perhaps the most hopeful development of the year for radio newspeople is the birth of a newsperson's cassette recorder. The Scribe looks good, the prototype sounds good, and the only reason it had the gestation period of an elephant is that Frank Beaman is a newsman's newsman—he wants it to be perfect.

We don't talk too much about satellites, simply because they help us deliver the news—rather than gather and prepare it. But we must note a couple of developments: satellites are freeing the state radio networks from the tyranny of telephone companies; they're bringing localized coverage of Washington events into TV markets all over the country; and new ground is being plowed every week in special events coverage by satellite.

This year's good news has been the commitment by wire services and networks alike to move rapidly into high-quality satellite delivery. We're getting both quality and options, and that's nice for a change.

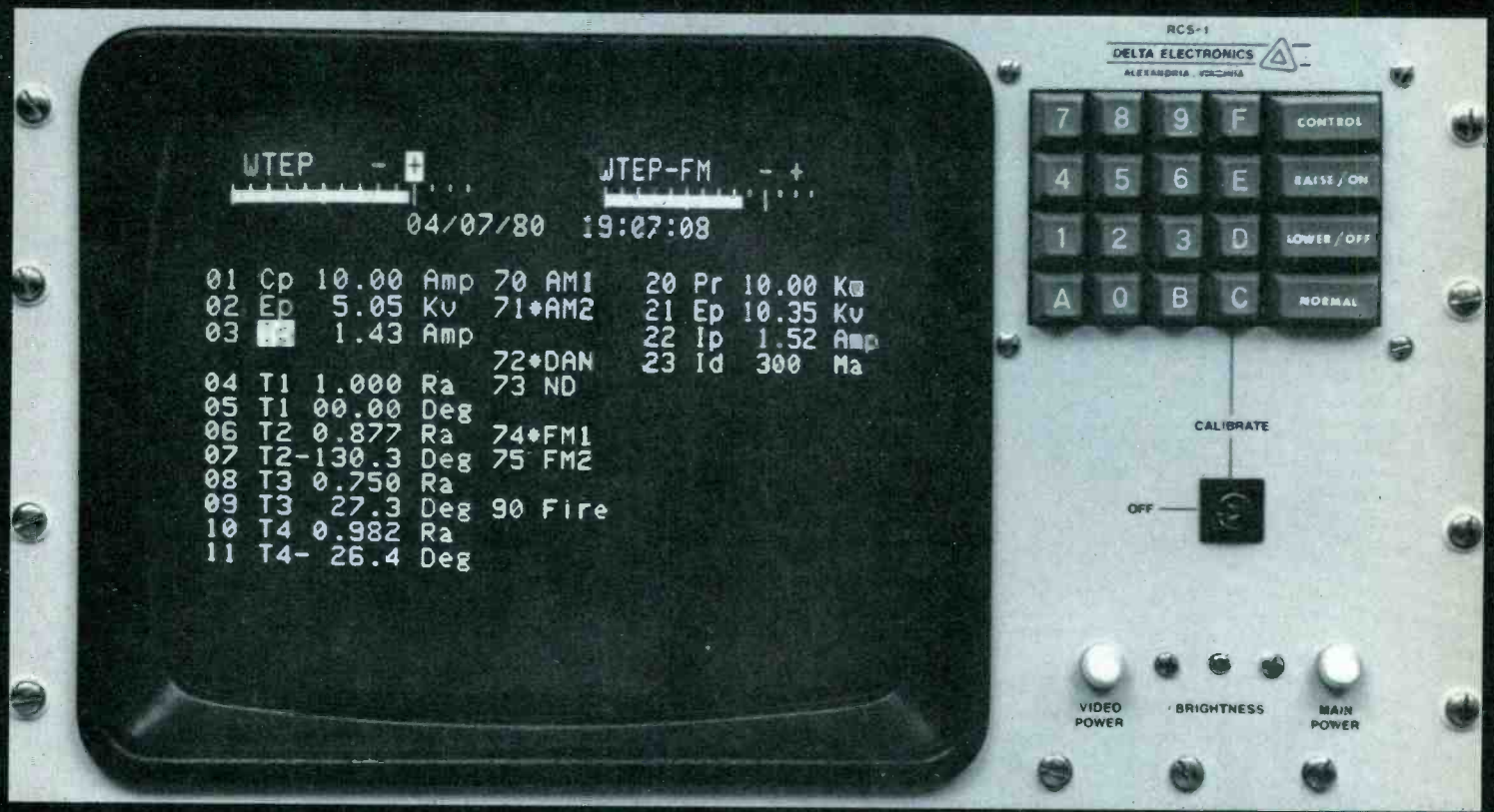
This has been a good year for technology to help us do a better job of gathering and presenting news. It has also been a turning-point year for the broadcast industry. All the new technologies we've been hearing about are with us—some on the drawing board, others down the block—competing with us for audience and revenue.

We're given to worrying. Right now we're concerned that broadcasters in general and broadcast newspeople in particular aren't responding aggressively to the challenges of the new technologies.

On-air broadcasters must look at the need to convert their newsrooms into true "news centers." While the signal

Continued on page 50

LISTEN TO THE DIFFERENCE.



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which goes up the tower will continue to be the focal point of our attention, we must think in terms of distributing the product of our news activity in more than one direction. Television newspeople need to consider the possibility they may be feeding news to a cable system, either in the traditional live anchorperson form or as alphanumerics (or teletext).

Radio broadcasters will find increased opportunities in "music-radio" (radio with pictures), alphanumerics, cable programming, and even low-power television.

We think some smart news directors are going to look at ways they can reuse the information their departments gather to produce these additional services without major additional expense.

Probably the first outlet for our creative energies will be cable. WIVB-TV in Buffalo and WELI-AM in New Haven, Connecticut, are doing for CNN what the regional affiliates are doing for Satellite News Channels. It seems to us there will be many opportunities for experienced broadcasters to program cable channels as the capacity of the systems expands.

We don't have any negative feelings about these changes. It seems to us the expertise of on-air broadcasters makes us the logical sources of news/public-affairs content for these new services. We see some shifting in the structures of news departments; but aggressive managers and news directors will simply repackage and diversify their product and continue to make money.

Overall, we should see a gradual increase in the total number of jobs available in the industry as the number of local offerings increases. This is healthy, since we generally have more people interested in working in broadcasting than there are positions available. We should also see more opportunities for beginners, which means an expansion of the pool of lightly-experienced personnel. Some news directors say they are having trouble finding middle-level employees since the cable networks came through town.

Whether the technology is called DBS, cable, satellite, low-power television, or teletext, the newsgathering, production, presentation, and management skills are the same. We expect 1983 and the rest of the decade to be a great time for heads-up newspeople who remember that communication is still a people business. Technology is dynamic, but only in the hands of people who utilize it intelligently. BC

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

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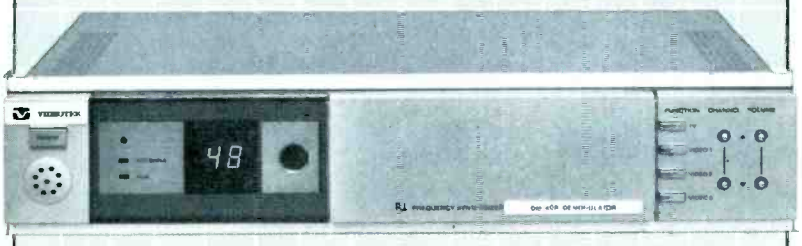

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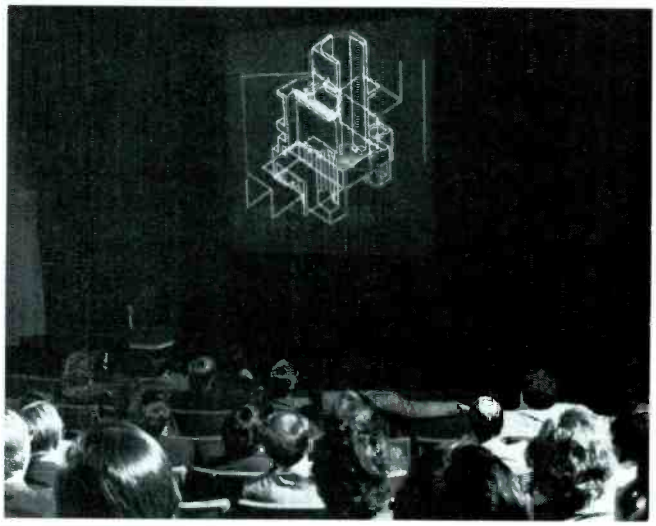

IN ENGINEERING—General Electric projector enlarges computer-assisted design graphic for the Engineering Society of Detroit.

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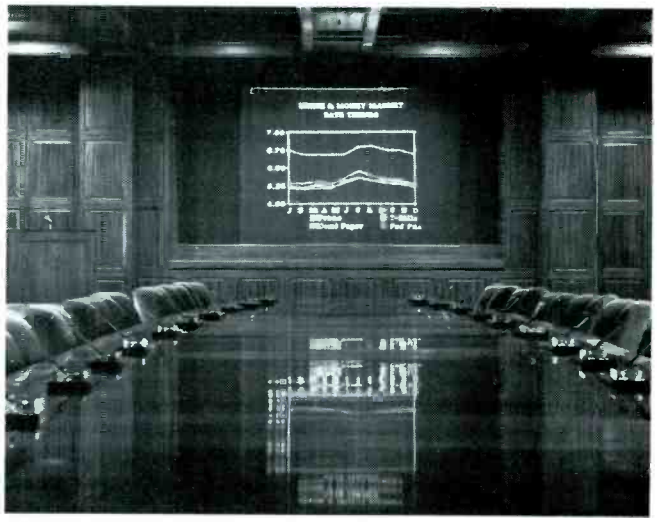
IN SALES—General Electric color TV projector dramatically displays new product highlights at Keepsake®, Inc. annual meeting.



IN THE BOARD ROOM—At Mellon Bank, N.A., Pittsburgh, General Electric color projector displays computer data, graphs and information.

GENERAL ELECTRIC

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COMPUTER PRINTOUT

BRYAN BOYLE

'82 was the year of the computer

Well, at this time of the year, it's a good time as any to look back at some of the advances that have been made, including those that were predicted and didn't make it, and some of the things that weren't predicted and did make it.

The area of total station automation for radio broadcasters still is, for the most part, untapped in terms of integrating the station technical operation with the billing and traffic areas of the facility. However, many strides have been made in terms of reliability and sophistication of these small computers.

I don't think the continued expansion of the news and graphic capabilities of these small computers should be made at the expense of engineering. Even though the engineering side of the computer could never realistically be used as either a promotional or sales tool by management, giving short shrift to the expansion of micro- and mini-processors into this area will eventially limit the improvement of the engineering art.

The cost of these machines has been constantly decreasing (in the initial purchase price as well as peripherals and software). This is an extension of manufacturing theory that the cost goes down as the number of units sold increases, because manufacturers like to recoup the cost of R&D up front, then pass the cost savings along to the consumer.

So, what do you do if you are considering the purchase of one of these machines in the near future? Should you wait for more price reductions or jump in now? If you wait, there could be more price reductions and you might save $100. Then again, you might not. The longer you put off the purchase of a computer in order to save money up front, the more it might end up costing you in the final analysis. The money you might save will probably be less than the real dollars you would save in the same period through efficiency and throughput with the computer. The choice is yours.

What ever happened to the fine art of guessing? I think the oddsmakers would say you have a 50-50 chance of calling something, but I missed the call on the trends in portable communication for computers by a country mile. I saw it as being at least a year or more off, but then came the IXO terminal. (See the August column, page 36.) There are about 10,000 in circulation right now in all fields, from the stock market to energy management. Now we have to introduce it to broadcasting. Several good uses have been found for this handy device. (I even used it on vacation to check in with my computer in New York from the West Coast.) But again, the potential has just been tapped for these instruments. I would be interested in hearing from anyone who is using one.

I recently addressed the RTNDA convention in Las Vegas on the use of small computers in small-staff newsrooms. This convention was also marked by the emergence of some manufacturers in news dataprocessing and archive management. One of the most difficult decisions station management has to make, especially after returning from one of these meetings, is how much machine is best for their operation.

If yours is a small staff, with limited airtime, then the purchase of a $100,000 computer would not be in your best interest if news is the only intended use. By the same token, if you are a large metropolitan station with a full news staff, then the purchase of an Apple or TRS-80-type machine would be a waste of money. You should plan to purchase a machine that will last you for about 5-7 years, with an option for an increase in sophistication to handle staff increases. This gives you what you need now, and allows for further expansion should the need arise.

In this area, there have been some advances made both in cost and performance. The trend now seems to be toward the integration of small computers used for text editing, with the ability of reading the various wire(s) that a station normally uses. This area is bound to advance more rapidly as the cost decreases for the various subsystems that make up such a device. This has the effect of introducing those features of the larger broadcast newsroom computers to the smaller staff facilities. Right now, the prices for such features are still in the $10K range.

Tied into all of this progress is the question of software and what is being done both now and for the future. While these machines have developed in complexity and sophistication, the existence of good, intelligible software to operate these machines to their full potential is the weak link in the chain. For the most part, 1982 was a year for the major software houses to keep themselves in a "holding pattern." 1983 should be a year when the major houses involved in the broadcast industry build upon what is already in the marketplace and introduce new packages that add to the usefulness of the machines already in place. Watch closely for new developments, because the abilities of these machines are only starting to be tapped.

What can we see in the future, specifically 1983, in the realm of small computers? Tandy Corporation, manufacturers of the TRS-80 line of

Continued on page 54

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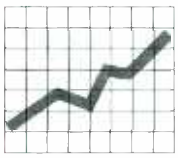

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microcomputers, will introduce a new machine (rumor has it labeled the Model 12) which will be (in price anyway) somewhere between the current Model 3 and their recently introduced Model 16. Let's hope that there will be some software available with the introduction of this machine that will push it to its capabilities, rather than the debacle we witnessed with the introduction of the Model 16.

The price of large-scale mass-storage devices is steadily declining: a 5-megabyte fixed media drive is under $1K now, versus over $2K last year at this time. This will allow for greater storage of information on line for less cost than has been currently available. Now, your active archives don't have to be spread over a couple of boxes of flexible diskettes, but can be online immediately without the wait of digging through mislabeled, misplaced removable media.

Computers will continue to make inroads into all areas of the operation of this profession. The friendly clatter of typewriters will become less and less pervasive, to be replaced by the clicking of electronic keyboards in the newsrooms of the near future. ATS, which was introduced with such hoopla not too many years ago, will finally have the ability to keep the station on the air with some modicum of efficiency, while allowing more efficient maintenance of the equipment through the use of microcomputerization. Sales, traffic, billing, and the rest of the office will continue to use computers to integrate their routines into an efficient flow of management information.

The problem with talking about computers and their effects on the work-and-marketplace, is that by the time a statement is made, the relentless march of the art makes the statements seem dated. The need for clear, concise information is greater than ever before. Hopefully, manufacturers will continue talking to users to find out what is needed, and the users will *speak up* when something is not right with a new computer-driven product. In this way, the gap between what is needed and what exists will narrow, to the benefit of all. Yes, 1983 promises to be an exciting year.

If you have any suggestions about future topics, questions about current experiences, or information to share with your fellow broadcasters, both from the manufacturing side and the users side, write to Bryan Boyle, ABC Radio Network, Radio Master Control, 1926 Broadway, New York, NY 10023. It is through the constant exchange of information that we all learn and improve the state of the art.

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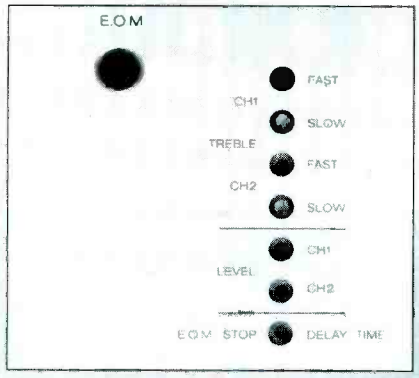

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Cable has been heralded as the most dramatic development in mass communications since the emergence of television. But while the future growth of cable seems assured, the rising costs of doing business and the promise of new technologies have helped put

CABLE IN PERSPECTIVE

BY MICHAEL SCHEIBACH

Local origination will become more important to cable, as the new media begin to compete for satellite-delivered programming.

An important part of LO is election coverage, especially coverage of local races that are not covered in-depth by over-the-air television. Cable can benefit from strong local election coverage in several ways: by providing programming not available anywhere else; by performing an important service to community; and by developing respect as an important part of the media.

The Playboy Channel, introduced last month, has added a new respectability to adult programming. Eros and the other adult services are also beginning to find wider acceptance; and even the major programming networks are looking at more adult fare.

This year began with a burst of activity in the cable industry, as the competition for franchises intensified, new programming services appeared, cable activity intensified in other countries, new publications were launched to serve the industry and the cable viewer, and the number of channels and multi-tiered services increased dramatically.

But as 1982 progressed, the slowdown in the economy and the increasingly unrealistic demands for new franchises resulted in franchise bidding no longer being economically feasible for many companies. The most recent example occurred in Baltimore where several companies, including Times Mirror, United Cable, and Tele-Communications, did not even enter a bid for the local franchise.

Another sign of cable's declining momentum was the recent decision by ESPN to drop its compensation program under which it paid affiliates five cents per subscriber every six months. ESPN, facing loses of $15 to $20 million this year, has also elected to distribute its programming to new media. The first step in this direction was the signing of an agreement with Telestar Corporation to deliver ESPN's programming to SMATV outlets and the lodging industry.

Cable faces more competition in the future from DBS and low-power television. Last month, the FCC approved seven new direct-broadcast satellite systems: CBS, Direct Broadcast Satellite Company, Graphics Scanning Corporation, RCA Americom, Hubbard Broadcasting's United States Satellite Broadcasting Company, Video Satellite Systems, and Western Union. These new DBS systems join Comsat's Satellite Television Corporation, which was approved earlier this year. When these DBS systems are operational, which could come within two to three years, they will offer a potent new outlet for basic and pay programming services which, until now, have only been available to cable.

Low-power television is just emerging, but conservative estimates call for 2,000 additional television stations within two years, and close to 5,000 by the end of the decade. And, with approximately two-thirds of these stations expected to be offered on a subscription basis at least part of the day, they, too, will attract programming services in need of new outlets.

Despite these economic obstacles and challenges from the new media, cable continues to show signs of strength and expansion. More than 10,000 persons attended the recent Western Cable Show in Los Angeles. Another 2,000 attended the Atlantic Cable Show in Atlantic City, New Jersey. The number of exhibitors at these shows was up, and included several new programming services that have just recently become available, such as The Playboy Channel.

Latest estimates are that by the end of this year, there will be 65,000 full-time cable employees—up nearly 20,000 over a year ago. And as more cities

Continued on page 58

Prior to doing local origination, a cable operator must put together an equipment package, including cameras and other production gear.

Cable radio is limited only by the imagination of those radio broadcasters and cable operators exploring various co-ventures. Cable radio is a local radio station supplying FM background music on several cable channels; or it can be a cable channel providing video coverage of radio newscasts or talk show.

become wired in the months and years ahead, cable will become an even more attractive profession for those interested in management, programming, production, engineering, advertising, and marketing.

Yet another positive sign is the report from Turner Broadcasting System that Cable News Network, introduced in 1980, has shown its first quarterly profit.

CNN's move into the black is an indication that advertisers are viewing cable as an integral part of the media package. More national and local advertisers are using cable; and, with the increased popularity of basic services offering advertising avails (such as USA, CNN, and Madison Square Garden), and with some pay services exploring the use of *creative* advertising spots, advertising revenues will become more important as a source of income in the years ahead. Several systems will exceed $1 million in ad revenue this year; and even smaller markets, such as Tulsa, Oklahoma, report strong ad revenues in excess of a half million dollars.

Cable has shown tremendous strides in other parts of the world as well, including Japan, Canada, and Europe. According to a report by Link Resources Corporation, there will be 42 million cable subscribers in Europe by 1987. (See World Update in this issue.) This means a tremendous new outlet for cable equipment manufacturers as well as programming services. In the United Kingdom, for example, the Hunt Committee has recommended that foreign programming on cable should not be restricted, as it is on existing British television networks.

The appetite for more and better programming by the American public assures the cable industry of continued growth and greater profits. The emergence of the new media, however, will force the cable operator to become more knowledgeable about the competition; to understand the implications and applications of the new technologies; and to improve his management, production, programming, and engineering skills.

For this reason, BROADCAST COMMUNICATIONS added nearly 4,000 cable subscribers in 1982, and introduced ACCESS, a quarterly cable supplement containing informative, applications-oriented articles on all phases of cable operations.

ACCESS has featured articles on local production, equipment selection, studio design, channel leasing, programming, cable radio, and advertising. The following is a review of some of the articles published in ACCESS during 1982.

Local origination

The debate continues over the role of cable: should cable be a carrier of signals, or should cable become involved with local origination to provide communities with programming not available from other media?

While there is still no consensus on this question, the emergence of new technologies, specifically DBS and low-power television, has forced cable to reassess its commitment to community programming. In his address at the Atlantic Cable Show, Irving Kahn, chairman of Broadband Communications, focused on the new challenge facing the cable industry. He stressed to the audience that they should not take for granted new services such as DBS, STV, and SMATV. Commenting on DBS, Kahn said, "In rural areas, DBS can bring pay TV services long before

Continued on page 60

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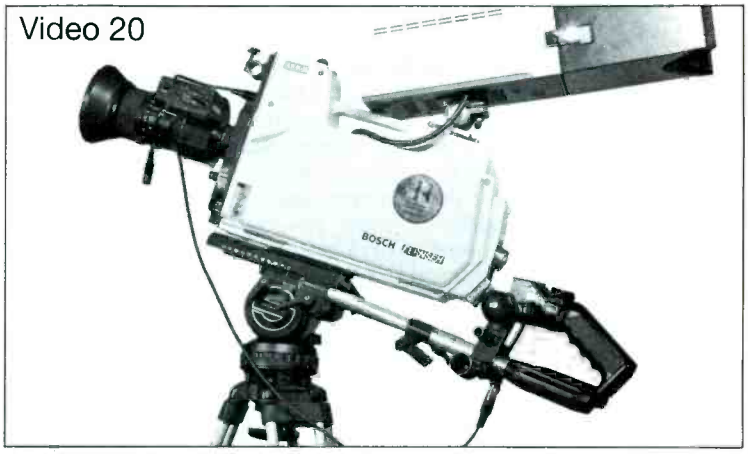

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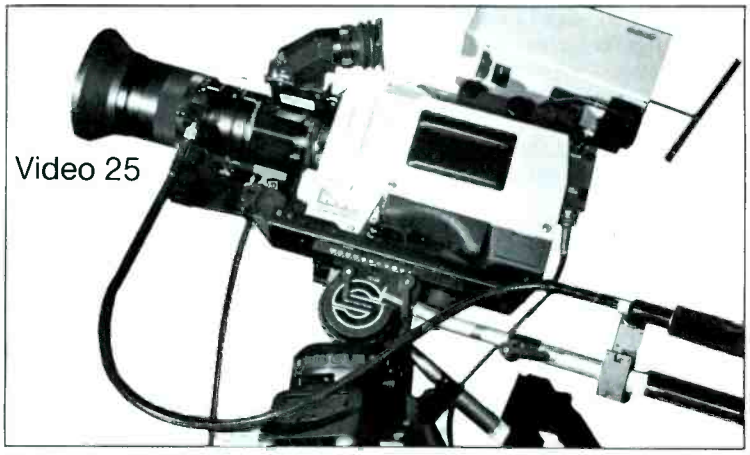

Video 30

any other delivery method irons out the economical and technical problems of servicing those sparsely populated markets." And what can cable do to offset the new media? Move into local origination, which, according to Kahn, will be what separates cable from DBS, STV, and other new technologies.

As cable operators enter cablecasting (i.e., the production of local programming), the need for basic information increases. For this reason, BROADCAST COMMUNICATIONS asked one of the nation's leaders in local origination, Greg Vandervort, to become a contributing editor on cable production. Vandervort, the director of local origination at Suburban Cablevision in East Orange, New Jersey, has participated on several cable panels, most recently at Video Expo in New York.

What follows is a recap of some of the important points made by Vandervort during the past year:

"The size of the cable system can be an important factor in what you do with LO. Since access programming is less expensive than local programming, it follows that a small system may not be able to support a large-scale local-origination effort. Small systems tend toward access because of this. But with quality video equipment becoming less and less expensive, smaller systems are finding out that there is more that they can do with LO. Smaller systems should also consider pooling resources with other systems for cooperative LO. These days, systems of 20,000 to 30,000 subscribers can support a decent LO effort. And larger systems can really develop their own production capabilities.

"What the cable system wants its LO to do for the system is certainly important. But what can LO do? Whether you develop access or LO, or both, it can be an extremely important community/public-relations tool. Both provide good community services, a good image for the company, and can be helpful politically. The idea behind access is that you get more involvement in your system by having people from the community do everything on the productions. The idea behind producing it yourself is that you can do something better than people without experience, and you will get more viewers. The involvement and the viewers are both important to a cable system.

"The simplest form of access would be to allocate a channel, or part of one, set up some playback equipment, and show videotapes that come from your communities. A simple playback facility could be constructed for $10,000. All the cable system would have to do would be to schedule the programs to be run, run them, and develop some guidelines for use of the channel. Usually the guidelines are based on old FCC regulations for cablecasting. These state that programs cannot contain advertising, cannot contain a lottery, and cannot be obscene. You do want to protect the cable system legally from programs received, and an agreement should be made which states that the person or group that provides the tape is responsible for content. They should have clearances for anything used in the program. An access advisory committee, comprised of the public and the cable system, is helpful in determining the use of an access channel.

"For a local channel to work you need . . . a core of regular programming. How much regular programming you can produce will depend on the manpower . . . ."

"To develop access further you may want to provide equipment and advice to the community. The equipment could be a color portable camera and a ½-inch VCR that can be loaned out on a first-come, first-served basis. This type of equipment could be purchased for $2,000 to $3,000. For $20,000 to $30,000 you could construct a simple two-camera access studio. An important thing to remember with access equipment is that the person using it could have very little experience with it. Therefore you want equipment that is simple, easy to operate, and rugged.

"If you really want to develop access you must have a person as an access coordinator. A big part of this person's job is to make people aware of and excited by what they can do through the system's access facilities. Another large part of this position is to advise, help, and teach the public how to communicate through video.

"To produce your own LO programming you will need more equipment and a larger staff than for access. The staff could range from two or three people, up to 25 full-time employees.

"An important element for an LO operation is a successful internship program. College interns can supply a skilled complement to the cable system's staff. The intern can receive valuable hands-on experience. The interns also serve as an excellent pool from which to hire your full- and part-time staff. But an internship program needs to be well-organized and supervised for it to work well for both parties. . . .

"Your purpose for doing local programming is for the community-relations value, and to attract viewers. You want to produce as much programming as you can. The more you do, the more you build up community involvement, and your channel. However, you have to put enough time into each program to make it successful. With most local programming you walk a tightrope, balancing between the PR value and the watchability, between quantity and quality.

"You should realize that the key to local programming is in staying local. Programs which lack a local angle can often be found on broadcast television. Chances are broadcasters can do it better than you can. You don't have to define local by your franchise boundaries. Perhaps a better term is local interest. If your subscribers are interested in an event that occurs in an area your cable doesn't service, it will still make good local programming.

"For a local channel to work you need to develop a core of regular programming. How much regular programming you can produce will depend on the manpower available. Even if you don't have much of a staff, you can still develop a few regular studio talk shows. This type of television requires a relatively small amount of production work.

"A talk-show format becomes even easier when you get an outside group or individual to produce it. For instance, if you wanted to produce a program on local politics, you could probably find someone in the community who is knowledgeable, and has the necessary contacts. This person could be trained to produce and host your program. The producer/host could spend seven or eight hours researching, and lining up a half-hour program. The cable system would only have to spend an hour of production time. The cable system ends up with the half-hour of programming, an excellent return on its investment.

"If you have equipment that allows you to go on location, then your regular programming can be supplemented with coverage of events. Look for events which have community interest, and lend themselves to television. This type of coverage will usually give you something more visually interesting than a talk show, and it is still relatively easy to produce. For instance, coverage of a parade requires approximately eight hours of production time, and could yield a two-hour program. . . .

"Some other events that work well are local sports, concerts, plays, lec-

tures, conferences, and town meetings. Community involvement and support are vital. . . .

"Probably the most time-consuming type of programming is documentary or in-depth reporting. To do it right, you need to spend time in researching, shooting, and editing. Although it does help if local experts are working with you, a documentary will be a big project. You could spend a couple of months on one half-hour program."

News coverage

Another aspect of local origination is news coverage. In the October edition of ACCESS, Vandervort addressed the subject of local election coverage:

"In many areas of the country, the only media coverage local elections get is in the local paper. Broadcast television, for the most part, can focus only on major area races. There are just too many candidates for the broadcaster to look at very local contests. But cable television is now starting to fill that void. A local programming channel on cable is a perfect forum for pre-election debates and live election-night coverage.

"Cable systems have good reasons for plotting out strong local election coverage. First is the fact that they will be providing programming not available anywhere else. The more programming that is unique to cable, the better off cable is. By providing informative programming, the cable system is performing a great community service. Election coverage helps a local channel establish itself as a strong media force within the local community; and it is an important step toward being taken seriously as a source for news and information.

"The election package offered will be greatly influenced by the size of the system. A small system should be able to give pre-election exposure to all its local races; a larger system may find itself overrun with too many candidates. But even if you, the local programmer, can't produce pre-election programs on all races, you should include results from every race in an election-night report program.

"The first step is getting a handle on what local elections you face and when. General elections are held the first Tuesday after the first Monday in November. The primaries are held the first Tuesday after the first Monday in June. At certain times the primaries could be a hotter contest than the November election. Contact your county seat and speak with the county clerk. The clerk can tell you all races that will be on the ballots within the municipal-

Continued on page 62

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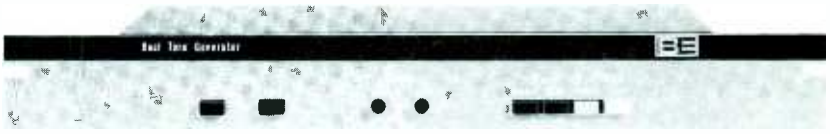

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ities of the county. This should be done well in advance of elections so you will know what you're up against. For instance, with the November elections you could contact the clerk in July or August. It is important to note that while you can find out what offices will be up for election well in advance, the candidates themselves don't have to file until 40 days prior to the election.

"There are really two main elements of election coverage: pre-election coverage and election-night coverage. The pre-election programs are designed to make viewers aware of races and candidates. Election night is live coverage of results. After you have a list of races that affect your area, you need to determine your coverage for both pre-election and election night.

"Remember to take advantage of your local nature. If a broadcast station on your cable system is producing a debate program between candidates for the U.S. Senate, should you do the same program? I think you are better off giving subscribers something no one else is giving them.

"So what do you do for pre-election? Focus in on important local races that won't get TV coverage. If there aren't too many, you can do some sort of debate program on each race. If there are more than you can handle, you could streamline important information on the races and present that to your subscribers.

"In putting together a debate-type program, you may want to contact a local office of the League of Women Voters. The League holds forums for candidates both on national and local levels. If they are sponsoring a forum with candidates for your county freeholder seats, it makes sense to cover the event rather than to stage one of your own. League members can also serve as invaluable resource people when it comes to local politics....

"Debate programs are easy to format. Usually each candidate has time for an opening statement, then questions are put to the candidates allowing time for responses by each. Each candidate's closing statement makes up the final segment of the program. If you need help with the right questions to ask, again check with your local League of Women Voters, or with a local newspaper.

"Another idea for presenting pre-election information when you have many races to cover, is to have each candidate send in written statements and photos. Then with a studio host, you can present this information to viewers.

"Your pre-election programs are leading up to live election-night coverage. The basis of this coverage is giving the results of the races. Your coverage can be spiced up with in-studio analysis of what's happening, pre-produced tape features, tape features produced that night and bicycled back, live cut-aways, and live phone-ins.

"Before you can determine the elements of your coverage, you must again sit down with the list of all races that affect your system, and decide what is important. Local results will be your bread and butter, but you have to give some state and national results to hold your viewers. If there is a presidential election, you had better tell people what's going on with that as well as with your mayoral race, or they'll be switching away to get the information they want.

"The election package offered will be greatly influenced by the size of the system. A small system should be able to give pre-election exposure to all its local races."

"Results are the key to your coverage. You've got to get them quickly, accurately, and present them to your viewers. For local results you can have people calling town halls to get information. However, you'll have a problem if you can't get through on the phone. If you've got the manpower, you may want to send someone to each town hall to get the results and phone them in to you. Information on county races can be obtained by a correspondent at the county courthouse. Here especially you will have to send someone if you want the results. Information on statewide races can be gathered from several sources. Newswire services may have some results you need.

"Perhaps you can find a local radio station or newspaper that has a news ticker that will allow you to station a person there. Another source is broadcast television. Have some people monitoring some broadcast election coverage and 'borrow' useful information and results.

"An additional source for statewide information is the candidates' campaign headquarters. Unfortunately, the only other way to gather statewide information would be to station people in each county and then compile the results they phone in. For national information your best bet is to keep your eye on network television....

"A creative LO channel can do a great deal with election coverage. Programs can be simple and straightforward or very complex. Election coverage is an important area for any local cable channel to develop."

An excellent example of a cable system that is "winning" with local news and election coverage is Palmer Cablevision of Naples, Florida. In his October article, "A Commitment to News Excellence," Phillip Keirstead took a close-up look at the award-winning efforts of this innovative cable system:

"Palmer Cablevision, which serves 32,000 homes in Naples and Marco Island, Florida, has proven that AM radio and cable television can combine forces to produce a professional and financially sound cable television newscast.

"Palmer Cablevision has been doing local TV news for the past nine years. During that period, the system has won the NCTA Excellence for News award three times, and has been a finalist three other times.

"Getting into local cable television news was easy for Palmer Cablevision, however, because it also owns WNOG radio, serving Naples and adjacent Collier County....

"Palmer's news program, *The Naples Report*, airs at 6 p.m. weeknights over Channel 9. The newscast used to be broadcast as a tape repeat at 8, 9, 10, and 11 p.m., but this practice was discontinued recently when Palmer became the first 'affiliate' of the USA Network. Now the newscast, and the public-affairs program *Page Two* which follows at 6:30, are slipped into a regular schedule of programs from USA.

"Palmer staffs *The Naples Report* by running a combined news department, which provides news for WNOG-AM, brief taped inserts for co-owned WCVU-FM, and Palmer Cablevision.

"The show is produced by co-anchor Susan Gardner, with Dave Bristow splitting his time between radio and TV co-anchor duties. The news staff is headed by Ray McNally, who joined Palmer over five years ago after working as a reporter for WHYN-AM-TV in Springfield, Massachusetts.

"McNally says there's very little difference between doing news for cable and doing news for an AM-TV combo as he did in Massachusetts. 'It's just another means of transmission,' says McNally. 'News is news.'

"The news is gathered by a staff of three reporters and two videographers. They get additional support from McNally, who normally anchors the 6:30-9 a.m. morning drive period on WNOG, and production department camerapersons, who can shoot news

when needed. McNally says frequent substitutions have to be made on radio to allow for outside interview appointments. All interviews are recorded separately on audio cassettes and videotape.

"The station's sports director, Joe Klimas, handles the sports strip. Morning radio sports is read by a radio station staff member. The weather is presented by a radio personality, who is backed up by a retired National Weather Service meteorologist who is on a retainer. In the event of a hurricane warning, the meteorologist comes to the studio to assist with weather coverage.

"McNally says intensive coverage of the Naples area keeps his staff hopping. Each of the three reporters has an assigned 'beat' to cover, in addition to covering an on-air shift on radio and making regular phone calls to the police, hospitals, etc. . . .

"Palmer Cablevision also produces live news and sports coverage. The system recently covered a murder trial live from beginning to end. During the controversy preceding a vote on a new charter, the system aired three debates in conjunction with the League of Women Voters. . . .

"In addition, Palmer schedules live radio and TV coverage of major elections. In September, the system presented local-origination programming of Primary '82, originating their coverage from the Collier County Commission Chambers. . . .

"McNally believes part of the system's success has to do with the low staff turnover in the news department and a spirit of cooperation which exists. 'I'm pretty loose about the way I run things, and everybody knows what they're supposed to do and they just go out and do it,' says McNally."

The equipment side

Prior to doing local origination, a cable operator must put together an equipment package. This package would include studio production equipment and, quite possibly, a mobile unit for on-location shooting.

Covering the equipment side of cable this year was John Kompas, president of Video-Ink, a cable and low-power broadcasting consulting firm located in Milwaukee. Kompas brought to the magazine a strong broadcast background in the selection, installation, and maintenance of equipment, as well as studio design.

Among his articles appearing in ACCESS this year were two on selecting an equipment package and the art of "vanning." Here are some excerpts from these articles:

"One of the problems facing cable operators and owners is the question of how much and what kind of video equipment they need for a successful cable operation. If you are a new cable owner, no doubt you have found the hundreds of makes and models, and the large price variances, somewhat confusing. This article will lay down some basic logical guidelines so that you can make a more informed decision about the equipment you'll be buying. . . .

"The first step to putting together a successful local-origination and access equipment package is to decide on a budget. Since most equipment decisions are made well before a franchise is awarded, however, realistic budgets are hard to determine. Should you promise a large amount of equipment in order to make your franchise application sound sweet? Or should you design an austere equipment package and concentrate your money in programming services?

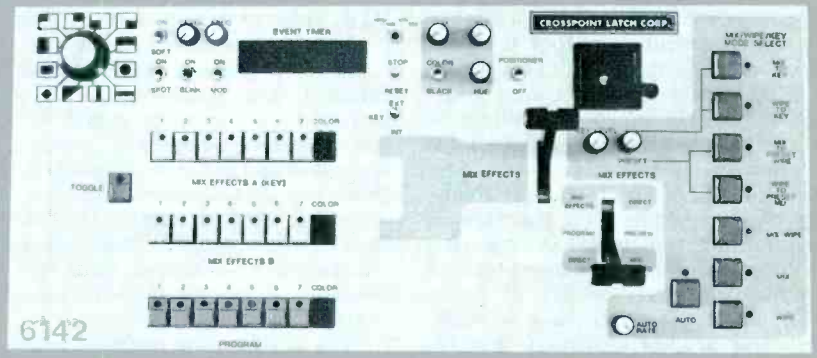
"To answer that question, listen. Listen to what is important to the community you hope to serve. Survey in-

Continued on page 64

VERSATILITY AND FEATURES

Complete a mix or wipe on a 6142 (or any of our switchers for that matter), and there is **ABSOLUTELY** no **COLOR CHANGE** or **HORIZONTAL SHIFT**, we mean just that, absolutely none. That is because the 6142 has a blanking processor which replaces the sync and burst on all incoming video signals with a constant amplitude internally generated signal; completely eliminating the continuous problems caused by small drifts in your cameras and TBC's. **You never know the value of a blanking processor until you own a switcher that does not have one.**

Model 6142
Price NTSC $5245.
PAL $6245.



DELIVERY WITHIN TWO WEEKS

- **DISSOLVE TO AN EFFECT**
- **AUTOMATIC MIX AND WIPE**
- **BLINK/KEY EFFECTS**
- **LOOP THRU INPUTS**
- **PATTERN MODULATOR**
- **BLANKING PROCESSOR**
- **BLACK BURST OUTPUT**
- **DOUBLE RE-ENTRY**
- **BACK PORCH INPUT CLAMPS**

The 6142 is an extremely stable and versatile switcher. A very useful feature is the program and the preview cross-fade. This permits a convenient dissolve from one camera to a previewed effect between two other cameras and then a dissolve to a previewed fourth camera.

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dustrial leaders, educators, and the people on the street, and ask what they want from their system: local school sports coverage, interactive information systems, classic films, and so on. Remember that the political leaders who will decide on the franchise are listening to these very people.

"After you've finished your survey, ask two questions: What does the average citizen want? What do the dreamers want?

"Examine the answers to each of these questions and determine if a single local-origination studio is sufficient or if you need to augment an LO studio with access studios. The first question is the more important because it will tell you what is expected by most of the people you will be serving. But the dreamers are important too. These people are video buffs who wish they were broadcasters, and they're likely to specify definite types and even model numbers of equipment.

"Although they may not realize it, they are pointing out something very important: the whole community will be subconsciously comparing any signals you generate to those of the networks. Remember, we all were raised on high-quality network television pictures, and your system had better be competitive.

"After you've analyzed the desires of these two groups, you can begin to determine your studio requirements and your budget. In order to win that franchise, you *must* find a middle ground between the inflated desires of the dreamers and the possibly undeveloped requirements of the average citizen or business....

"If you're equipping a single local-origination studio, you want to make sure that the studio's output is of the highest possible quality. VTRs should be ¾-inch at least, and in some situations, 1-inch. You'll need a minimum of two, and preferably three, cameras of the medium- to low-end, 3-tube configuration, or of the high-end, single-tube type, depending on the type of programming you intend to originate. Do not opt for the consumer-type of camera. They are usually of lower quality, and color rendition is weak. Also, most are not externally drivable and therefore do not lend themselves to future expansion.

"Give more than adequate consideration to lighting. Remember that light is what makes television work. Poor lighting will make your cameras work harder and will produce lower quality pictures, while even the lowest grade of equipment will show a 100 percent improvement in picture quality when the right light is used.

"The expense outlay you're facing may tempt you into buying used broadcast equipment. Don't. This type of equipment requires expert technicians if it's going to produce high-quality video, and the operating costs are usually quite high.

"If you want to supply access studios for the franchise, you can go with high-end, single-tube or low-end, 3-tube cameras and ¾-inch VTRs. (In some cases, depending on what you want to use them for, you can consider ½-inch industrial-grade VHS/Beta recorders.) But in the access, as in the LO, studios, get the best lighting that you can afford....

"When we talk about mobile production we don't necessarily have to be discussing a semi-trailer with a half million dollars worth of equipment inside. Mobile production can be as simple as a convertible camera, a portable VTR, some lighting, microphones, and a small hatchback car. This equipment —along with a small point-to-point, car-mounted microwave transmitter or (system permitting) a sub-channel modulator for program return to the headend—and you're in business to cablecast live to your subscribers. The key to this simplest means of mobile production is a camera that can be used in two configurations: 1) as a portable, shoulder-mounted camera, or 2) with the addition of accessories, as a studio camera. Convertible cameras range in price from $7,000 to $70,000, with the price being directly related to quality....

"If a single camera/VTR combination is not adequate for your shoot, two-camera capability is still within your reach without going to a van....

"When a van is required, the lowest configuration would be an Econoline-type van with two cameras, ¾-inch VTR, video switching, a sync generator package to include test signals and black burst outputs (most convertible cameras are synchronous via genlocking to a composite signal such as black burst or color bars), audio mixing, video and audio monitoring, power generator, and climate control (air conditioning and furnace). The output from this van could be microwaved or sub-channel modulated back to the headend for recording or instant cable casting.

"The number-one problem with this kind of van is that it will comfortably hold only one person. Thus, that person must act as engineer, director, and switcher—a combination that's hard to find in the job market.

"If this van meets your needs, you should budget approximately $25,000 for the van, generator, and processing equipment, less camera and VTR.

"The next step up in mobile van size would be a Kary-All-type truck. The big advantage of this van is, of course, more space. But you should not plan on using all your new space for equipment. The panel type van was big enough for only one person but the Kary-All truck will give ample room for two and possibly three people. This truck is also the first really practical-size vehicle for a multi-camera shoot. Less cameras and VTR, this vehicle would carry a budget of about $30-35,000.

"The majority of all cable operators will find that the panel van and the Kary-All truck are quite adequate for 95% of their applications. But large city franchisees will find that the requirements for mobile video in their cities will be more than even a Kary-All truck can handle. You may be required to cover the symphony, an off-Broadway play, or a major sporting event— all of which would be best served by more elaborate switching and video processing. Here, of course, you would also want to consider seriously a 1-inch SMPTE Type C VTR. If you find yourself having to move in this direction, the vehicle size that I would recommend would be 25 to 35 feet overall length with a straight frame and tilt cab. This size vehicle will give you ample room for three engineers and one or two clients as well as all the necessary basic video and audio equipment. Budgets for a van this size would run about $125,000, less camera and VTRs...."

Cable radio

The July edition of ACCESS featured a special report on cable radio. And what is cable radio? Its definition is limited only by the imagination of those radio broadcasters and cable operators exploring various co-ventures. Cable radio is a local radio station supplying FM background music on several cable channels. Cable radio is a cable channel providing video coverage of radio newscasts or talk shows. Cable radio, in a more general sense, includes a vast array of audio services designed specifically for cable, including narrow-formatted programs such as black jazz.

During the past few months, more stations have moved into cable radio, and 1983 will no doubt continue to see new partnerships among broadcasters and cablecaseters. Among the articles included in the July ACCESS was one by nationally-known radio consultant Dennis Waters. Here are a few of his comments:

"Ever since cable television has been taken seriously as an advertising medium, pundits have devoted many words to the similarities between CATV and radio broadcasting. Indeed, this favorable comparison has been made so often that it has spawned its own backlash from other pundits who emphasize that cable and radio operate with very different underlying assumptions. Both points of view are correct. Cable and radio are similar because they are local media providing a fine

degree of audience segmentation. They differ as audio and video differ, and as over-the-air and through-the-wire transmission differ.

"The family resemblance between cable and radio has not been lost on radio broadcasters; during the past year they have begun to monitor developments in cable TV. Their interest was triggered by the April 1981 release of a National Radio Broadcasters Association report entitled 'Cable: Radio's Newest Competition,' and was accelerated by the launch of MTV: Music Television, a cable programming service with what for radio operators is an uncomfortably familiar format.

"By the same token, more than a few cable operators are starting to think about radio; they are of two minds. Some would like to offer stereo audio and other radio-type services, an interest spurred by the success of MTV in raising subscriber awareness of cable FM service. Other operators look at local radio stations as potential joint venture partners for marketing and programming projects.

"Historically cable operators have paid little attention to audio programming. Cable is a video medium, and while it almost certainly will be less of a video medium tomorrow, operators thinking of non-video services today are more likely to think of home security than they are of audio. Yet audio programming offers special advantages. MTV has demonstrated the most obvious of these advantages: if cable audio is promoted, cable audio sells. A second advantage is technical: audio hardware is cheap, reliable, and readily available, quite unlike the gear needed for many enhanced services. A third audio advantage is bandwidth: even mature 12-channel systems can usually add channels of audio programming. Finally, and significantly, the audio programming available to operators is more varied and marketable than many realize. . . ."

Programming, etc.

ACCESS articles also focused on adult programming. The first edition, published last January, predicted the appearance of more *quality* adult programming, and more acceptance among cable operators.

"Adult-entertainment programming will be taken by as many systems as presently take the maxi services, such as HBO, Showtime, and The Movie Channel," said Marc Brenard, director of marketing for Private Screenings, in the January issue.

Also commenting on the future of adult programming was John Detwiler, Eros sales manager. "There are barriers which prevent adult-oriented programming from being more available to cable subscribers, but I don't think it is a matter of subscriber interest."

Brenard and Detwiler may prove to be right. Just within the last month, Eros signed with International Cable of Buffalo, a system of 95,000 subscribers. Also last month, The Playboy Channel finally made its appearance. . . and added a touch of class to adult entertainment.

This was the year of cable advertising; and James Jenner, president of the Cable Advertising Network, offered his views on setting up internal sales departments and working with outside services.

In addition, Nicholas Tortorello, co-chairman of Dresner, Morris & Tortorello Research, a cable consulting firm, took aim at the future of cable.

These and the many other ACCESS articles reviewed here were only the beginning. In 1983, BROADCAST COMMUNICATIONS, through regular features as well as the quarterly installment of ACCESS, will continue to provide informative, useful articles on all phases of cable operations. BC

HDTV IS CLIMBING OVER THE HORIZON

The U.S. Standards for black-and-white television were established more than 40 years ago; and the NTSC color system was approved by the FCC in 1953. Based on these standards, the present-day color-TV broadcast system, although satisfactory for present home viewing, leaves much to be desired if a higher resolution picture is to be displayed. During 1982, high-definition TV (HDTV) became a popular topic, but it immediately ran into a major roadblock.

A television broadcast picture with higher definition would require an updating of the present standards. Although some are in favor of this, others oppose it as it would render our present TV system and associated equipment obsolete.

However, a higher resolution TV picture would have many applications at present. Some of these include the use of direct satellite transmission to cine theatres where high-resolution TV projection could be employed for sporting events or special programs, and the use of high-resolution mastering on tape or for transfer to film.

Other possible uses for HDTV include direct viewing as in military applications; TV pre-production requiring higher picture resolution; as well as industrial, commercial, educational, or medical applications.

In fact, any other closed-circuit operations where over-the-air broadcasting is not required could take advantage of HDTV. Such closed-circuit applications are not limited by home-broadcast regulations; and several adjacent CCTV channels can be used for high-definition transmissions.

Suggested standards

A number of organizations in this country and abroad, have been working on setting up high-definition color-TV systems for experimental and development use. One of the leaders in this area has been Japan's national broadcasting company, NHK, whose technical research laboratories have been working on this project for about 12 years. Based on laboratory measurements, the use of human observers, and practical equipment considerations, specifications have been set up for a system.

Provisional specifications for the high-definition TV system proposed by NHK are as follows: The number of scanning lines is to be 1125 lines per frame, or more than twice the 525 lines in the present U.S. standard. The same interlace ratio of 2:1 with a 60-Hz field frequency are retained. The aspect ratio is proposed to be 5:3 rather than the present 4:3. This is the same as the width:height ratio used in present wide-screen motion pictures, and permits a greater display of horizontal motion, sporting events, and landscapes.

The number of picture elements (pixels) in the high-definition system is five times that available in our present U.S. standard. In order to accommodate the additional information, the video bandwidth is increased from the present 4.5 MHz to 30 MHz.

As a result of this proposed step up in standards, TV pictures have been demonstrated that have higher definition than that produced by 35mm motion-picture film, although a little less sharp than that produced by a 35mm still-camera slide. The definition is so high that viewers are able to observe the pictures from a distance as close as three or four times the picture height without discerning the scanning lines.

The TV camera

In order to produce such a high-definition picture and take advantage of its quality, it is necessary to redesign much of the associated equipment. All elements in the chain from the TV camera, through video and film recorders, telecine equipment, distribution amplifiers, special-effects generators, monitors, and projectors must be able to handle the higher resolution picture with its greater bandwidth. A number of manufacturers have participated in this project and have designed and built equipment for the system.

For the past 10 years or so, Ikegami Tsushinki Co. Ltd. has undertaken research and development of high-definition TV cameras for the above system under the guidance of NHK. Several cameras have been produced using a variety of pickup tubes.

The most recent such camera employs three 1-inch diode-gun impregnated-cathode Saticons with pin-lead construction. The tube was developed by NHK. It has proven to be excellent not only in obtaining high resolution and low lag, but also fairly uniform resolution over the entire picture area with negligible shading.

The pickup tubes employ photoconductive material in their targets similar to that used in conventional Saticons, but the tubes have a number of modifications for even further improvement

in resolution and reduction of lag. The electron gun employs diode operation rather than the conventional crossover type. The use of a barium-impregnated cathode permits a higher density of electron emission while a fine beam-defining aperture in the gun ensures high resolution. Definition at the picture edges is even further improved by the use of a smaller electron beam divergence angle. Also, the capacitive lag is reduced by eliminating the crossover point of electron flow where the current density is locally high. In addition, pin-lead terminals which penetrate the faceplace of the pickup tube, instead of the target ring, reduce stray capacitance resulting in higher frequency response and lower noise.

Laboratory studies have shown that the new pickup tube has an amplitude response of 50 percent at 800 TV lines and over 20 percent at 1200 TV lines. Lag is less than 1 percent after three fields with a signal current of 0.5 uA and only 6 percent at the very low current of 0.05 uA which occurs at very low light levels.

A high-resolution zoom lens (14X, focal length 16.5 to 230mm, f/2.1) capable of producing a 1.2-inch image is used with the high-definition camera. This larger size optical image results in producing a higher resolution picture at the edges.

The overall limiting resolution of the Ikegami camera is 1600 TV lines at the center and 1200 lines at the edges. Sensitivity is 4000 lux of illumination at f/2.8. All video signal circuits, with the exception of those used for the viewfinder have a bandwidth of 60 MHz.

The preamplifier was designed for extended bandwidth and adequate signal-to-noise ratio compared to contemporary designs. Overall signal-to-noise ratio is 44 dB over a 30-MHz bandwidth. As is usual, the first stage of the preamp is located close to the signal pickup pin of the tube in order to reduce stray capacitance. FET transistors are employed and special wideband design techniques are used to maintain high gain and good stability over the entire frequency range.

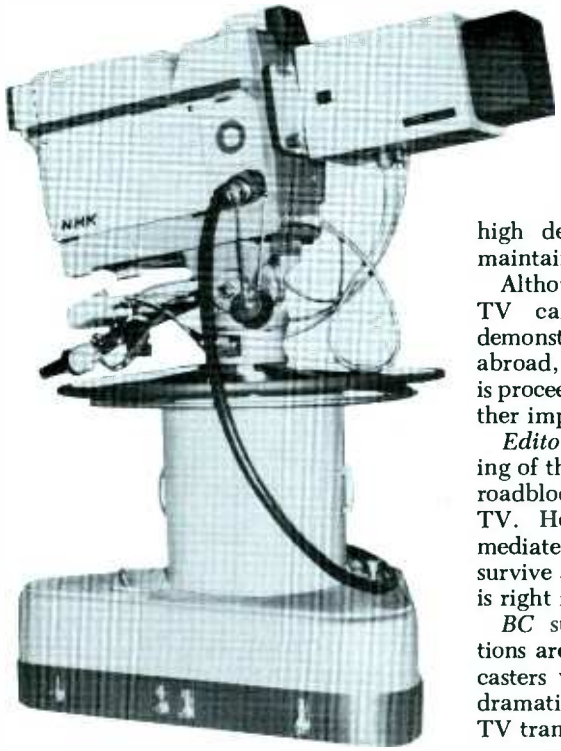
The deflection system

A special digital sampling circuit has been incorporated into the Ikegami camera in order to provide optimum registration of the images from the three pickup tubes.

There are 570 points (30 horizontally, 19 vertically) uniformly located over the entire picture area that are sampled for automatic registration. The amount of misregistration at these points is compared with the proper registration and corrections are applied to the deflection currents to achieve proper registration.

The sampling information for each point consists of an 8-bit signal. Assuming that the entire deflection adjustment range is 3 percent of the picture size, then the smallest amount of automatic adjustment amounts to 0.012 percent (3 ÷ 256) of the picture. As a result, the error in deflection or registration will always be within 0.025 percent over the entire picture area with this sampling rate. Hence, a high degree of picture definition is maintained.

Ikegami high-definition TV camera developed for NHK.



Although the high-definition Ikegami TV camera has been successfully demonstrated both in this country and abroad, still further development work is proceeding on the camera to even further improve its performance.

Editor's Note: As noted in the opening of this article, HDTV faces a major roadblock when it comes to over-the-air TV. However, there are more immediate applications, and HDTV will survive and even prosper until the time is right for broadcast applications.

BC suggests that more demonstrations are in order. This way all broadcasters will have a better idea of the dramatic difference it could bring to TV transmissions. BC

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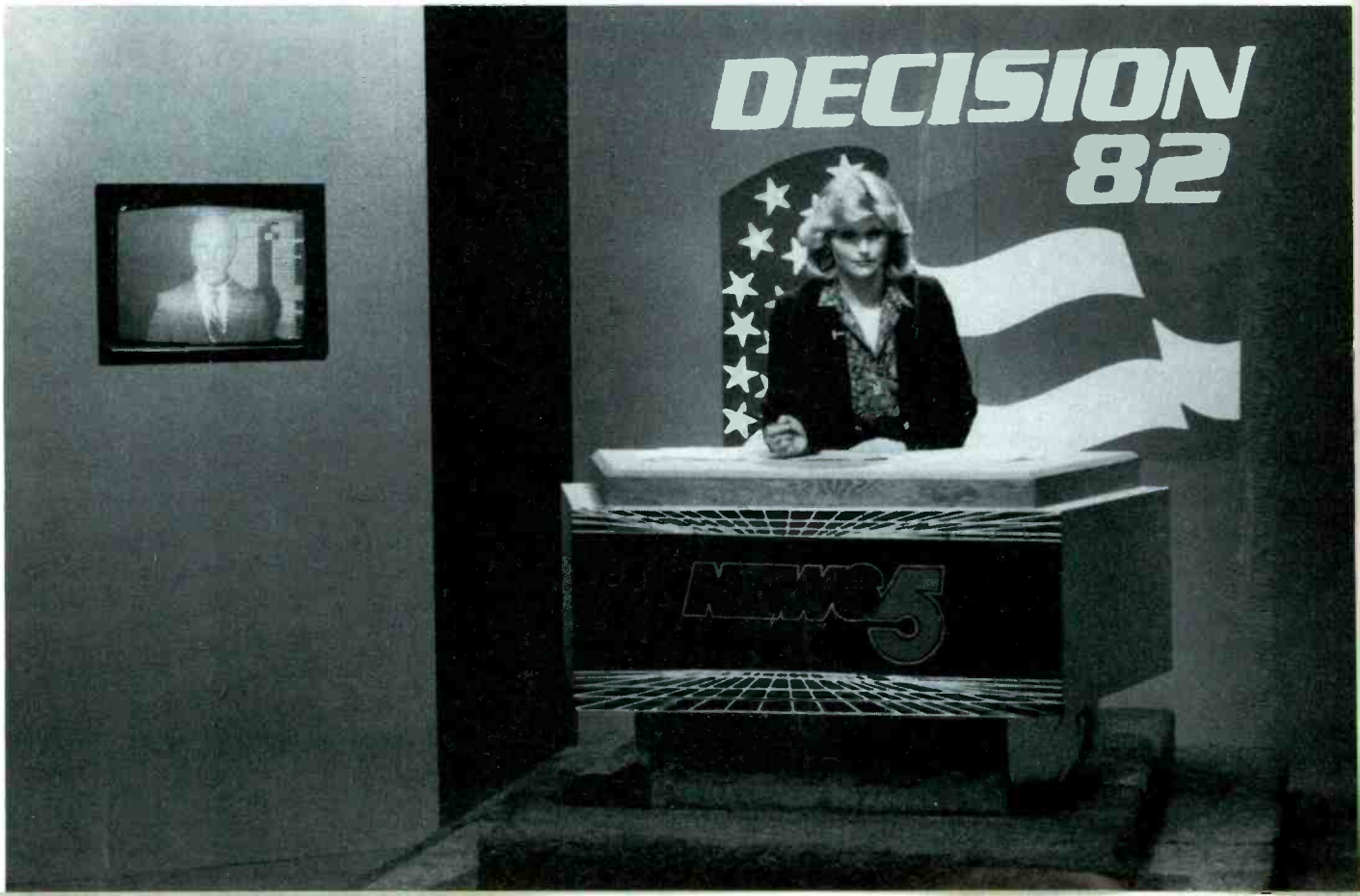
ELECTIONS . . .

When winning means SURVIVING

BY BILL AVERY

On Election Night 1982 in the 52nd ADI, WNEM-TV—serving Flint, Saginaw, and Bay City, Michigan—went live from six different counties. But the station has only two microwave trucks. To build the mini-network, the engineering staff, headed by chief engineer Greg Surma, lashed borrowed microwave gear to courthouse steeples; strapped a 2 GHz receiver 180 feet up the station tower; built a feed point on the roof of a Sears department store; and performed some more serious miracles to bring the multitude of signals into the switcher. Complicating an already complicated situation was putting on-line, for the first time, a new Vidifont V character generator the Monday before the election.

Planning began four months prior to the general election. The August 10th Michigan primary election served as a test for the general election with live shots from four counties. That proven, additional microwave gear was rented and borrowed from other stations to add the additional counties. Two weeks prior to election day, engineers began checking out the live locations and how the gear could be best utilized. A seventh county that had been targeted for live coverage had to be scrubbed



when terrain interferred with the microwave path.

Getting the microwave signals out from all of the courthouse locations was one problem to coordinate. The other was that four sites were being brought in on only two receive horns due to their proximity. That required the photographer to immediately shut off the transmitter when we left one location so the signal wouldn't interfere with the other.

Election coordinator Doug Bunze scheduled the live shots through a system of two-way radio and telephone hookups while director Dan Wozniak set up the shots in the news control room. Director Ray Shaver, using the production control room switcher, put the shots on the air and inserted the full-screen Vidifont with the race totals.

To emphasize the magnitude of the effort, a rotating quad split opened the election coverage segments with reporter throwing to reporter as the various live shots were called up on the screen.

Assistant news director John Petersen set the format for the inserts and plugged in statewide races from a newly-installed APTV high-speed printer. APTV gave us a 20- to 30-minute lead over the old radio wire.

Obviously, with all of the opportunities to shoot yourself in the foot, something's bound to go wrong. We had to blow dry a microwave line after water seeped into it. The remote switch for the microwave receiving horns failed and had to be reset manually at the transmitter. Communications faltered to one live site and the crew was barely set up in time for the cue.

Reporter Barb Handley introduces Congressman Bob Traxler during live report from one of six counties being covered.

By 2:45 a.m. Wednesday morning, we had done a dozen inserts and two major news blocks using the six-site technical lash-up. The on-air look was clean. And the election staff of nearly 80 people was elated that we had pulled it off. . . and that elections like this happen only every two years. **ac**

Bill Avery is news director of WNEM-TV, Flint/Saginaw/Bay City, Michigan.

A rotating quad split from each of the live sites serves to introduce the scope of the coverage for the 6 and 11 o'clock news and the first insert.

WNEM-TV anchor Marian Strozier (opposite page) prepares to resume her report following live remote (in monitor).

(At left) Election coordinator Doug Bunze (center) and director Dan Wozniak (top) line up a series of four live shots for next cut-in.

PRODUCT PREMIERE

Our products this month are like those mentioned or reviewed in the articles of this issue: they are among the hottest of the year. It's 1982 in review.

The Action Cards in each issue can be used any time over a four-month period. If you missed getting more information on these products (and several have never been shown here before), this is your opportunity to complete your year-end review by updating your product files in a wide variety of categories.

For more information on the products that follow, circle the appropriate numbers on the Action Card and drop it in the mail.

Time base corrector (Circle 101)

ADDA—ADDA's DTBC (dual-channel time base corrector) is moderately priced, and permits A/B roll tape editing through a single black box. In addition to "cuts" between A & B channels, the ADDA DTBC will fade and dissolve between channels, as well as perform horizontal/vertical wipes, and push video on and off screen.

The dual-channel time base corrector offers excellent reliability, since all wiring has been eliminated from the unit. Modular design will permit prospective users to purchase a one-channel unit, if desired, and add a second channel at a later date.

Batteries (Circle 102)

ALEXANDER MANUFACTURING—The model 7600 "Ride Behind" rechargeable battery pack is a NiCad 14.4-volt, 4AH replacement battery pack that comes with three studs for snap-on mounting for any camera with a keyhole mounting bracket. Also available from Alexander is the CR7600-2 10-hour charger, developed especially for the Ride Behind.

Recorder (Circle 103)

AMPEX (AVSD)—The new Ampex Nagra VPR-5 is a portable 1-inch Type-C VTR, measuring 17½ X 8½ X 5½ inches, and weighing 15 pounds (including 20-minute reels, battery, and cover). Features of the VPR-5 include dual microprocessors, two high-quality audio channels, a SMPTE/EBU time-code channel, LCD display of VU and PPM levels, and an audio-confidence playback selector independent of the video.

Videotape (Circle 104)

AMPEX MAGNETIC TAPE—Ampex 196 1-inch videotape is tested at the extreme environments of 90-percent RH and 90° F friction-free operation under any conditions. Ampex 175 Highband Quadruplex videotape promises excellent color performance, low dropouts, and durable formulation with low headwear.

Automation system (Circle 112)

CETEC BROADCAST GROUP—Cetec's System 7000GLS was introduced in mid-1982 as a "building-block" version of the much larger System 7000, with identical basic features to allow expansion. System 7000GLS (for "great little system") is thus described as an entry-level radio-program automation system for the small station, which can be expanded to the larger and more versatile full System 7000 at any time. 7000GLS is also designed to work as a full local studio partner to any live-via-satellite system.

A single, rack-mount cabinet houses the System 7000 microprocessor-based controller, universal source cards for up to seven audio-channels, two "extra" source boards (for audio interface with a satellite network, for example), a self-analysis "debug" module, silence-sense and closed-loop alarms, and a 48-tray mono or stereo Audiofile IIA multicart machine.

Recorder heads (Circle 143)

SAKI MAGNETICS—Saki Magnetics, supplier of ferrite heads for Ampex, Scully, Studer, and most other professional recorders, has released the Ampex ATR-100 2-track heads, constructed of hotpressed, glass-bonded ferrite. They are available from stock in both 1/4-inch and 1/2-inch formats, under a 100-percent unconditional quarantee.

Preamp (Circle 141)

RUSSCO ELECTRONICS—Russco's MLD/22 Multi-Purpose Preamp was designed as a dual-channel unit capable of driving a 600-ohm line to a maximum level of + 18 dBM. The MLD/22 can be used as an unattended piece of remote equipment, as a stereo preamp, or can combine both mike or line channels into a single line out. The preamp features adjustable gain levels and can be used for balanced or unbalanced operations.

Modulation monitor (Circle 105)

BELAR ELECTRONICS—To meet the needs of AM stereo, Belar recently introduced the AMS-2 AM-stereo modulation monitor. The unit boasts truely impressive specifications, like a frequency response of 0.5 dB from 50 to 15,000 Hz; harmonic distortion of less than 0.5 percent at 90-percent left or right modulation; separation of 40 dB, 100 to 10,000 Hz, left to right, or right to left; and crosstalk at 90-percent modulation is 40 dB L + R to L - R, and 60 dB L - R to L + R.

Film scanner (Circle 106)

ROBERT BOSCH GMBH—The FDL-60 from Robert Bosch GmbH, Germany, is a four-format scanner that can accommodate 35mm, 16mm, super-8, and silent-film formats in combination with all the usual types of sound track. The scanner uses new-generation long-life CCD line sensors that will eliminate burn-in and lag problems. Other features of the FDL-60 include variable operating speeds, auto cue and time code control, superb color reproduction, and drastically reduced running costs.

Format controller (Circle 107)

BROADCAST ELECTRONICS—With the introduction of the SAT-16, Broadcast Electronics entered the field of automating satellite formats. The SAT-16 allows the satellite announcer to start the local station ID or weather with fade-in, fade-out capability; and up to 15 sources can be "direct start." A printout of events aids the operator in analyzing the sources played.

Programming is kept simple, and its memory is used only for storing the station's commercials. For 2,000 events, the SAT-16 has more than enough memory capacity to permit programming just once a day for a 24-hour operation. The output of the system can be fed directly to the station transmitter for broadcast.

Edit controller (Circle 109)

CMX SYSTEMS/ORROX—A recent addition to CMX's 340X editing system is a feature called the "Look Ahead." This feature permits previewing or recording multiple events virtually in real time. The system literally looks ahead, and automatically recues in anticipation of the subsequent event on tape. It saves machine time, and therefore system and operator time, which means lower cost.

AM stereo exciter (Circle 115)

CONTINENTAL ELECTRONICS—Under an agreement with Magnavox, Continental produced an AM-stereo exciter that is based on the Magnavox system. Continental's type 302A AM-stereo exciter mounts in a 19-inch rack and uses seven inches of vertical height. Control

and metering are on the front panel, while interconnections are at the rear. The 302A is designed to interface easily with most existing AM transmitters, providing there is time-delay compensation for matching transit lines for envelope and phase modulation channels. The 302A also provides a test monitor which allows the user to monitor all points to set up the system without the use of an external monitor.

Jack panels (Circle 108)

BROADCAST SYSTEMS—BSI's BJ-240 prewired audio jack panel is ruggedly constructed to the dimensions of 3½ X 15¼ X 19 inches. Its features include 48 tip-ring sleeve jacks—2 rows, 24 per row—prewired to the rear terminal strip; and the panel can be used as a 24-circuit tip-ring sleeve or a 12-circuit tip-sleeve. All audio ground circuits are insulated from the chassis, and the panel includes a large terminal strip with oversized terminals for ease of wiring. The BJ-240 boasts superior cross-talk isolation.

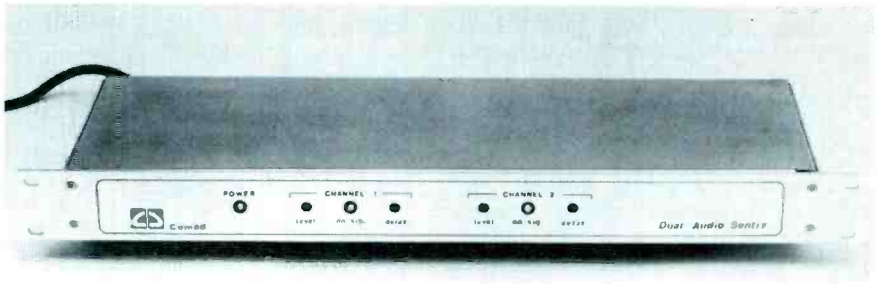
Broadcast cartridge (Circle 110)

CAPITOL MAGNETIC PRODUCTS—The AA-3 is a stereo-phased radio broadcast cartridge, produced by Capitol Magnetic Products, which provides studio-quality sound reproduction. Both the cartridge and the high-output low-noise tape in the AA-3 are manufactured by Capitol Magnetic Products and are carefully mated to be fully compatible with all cartridge recorders/reproducers. The AA-3 features long life, extremely low wow and flutter, and exceptionally stable stereo phase between the two channels.

Another Capitol Magnetic Products broadcast cartridge is the A-2, the standard work-horse of the industry for many years. The A-2 is very rugged and durable, and is designed for all applications where stereo phase is not mandatory. The lube tape used in the A-2 is the recognized industry reference, and it features wide frequency response and low distortion.

Dual-audio sentry (Circle 111)

COMAD COMMUNICATIONS—The Comad dual-audio sentry is designed to monitor two separate audio channels simultaneously, and to alert an operator instantly if the audio signal disappears from either channel. The sentry can be used to signal the absence or presence of audio in any number of broadcast situations: stereo left and right, AM and FM programming, AM and TV audio, audio in and audio out, etc. Two red panel lights on the 1¾-inch rack-mounted chassis show the status of the



two monitoring circuits in the sentry. The sentry can also be equipped to provide audible tone to replace lost audio signal and to turn equipment off after a time period which is adjustable.

Wireless microphone (Circle 113)

CETEC VEGA—The latest version in their line of wireless microphones, the model 82 hand-held wireless mike uses the Shure SM85 electret microphone element. The antenna for the 82 is completely self-contained, and is generally unaffected by how the unit is held. The unit is a perfect companion to the Cetec Vega model 63 receiver. The model 63 features an ultra-sensitive, high-performance, dual-diversity system, which virtually eleminates fading and dropouts. The system operates in the 150- to 216-MHz range, which includes the new wireless microphone channels.

Character generator (Circle 114)

CHYRON—Several new features were added to the Chyron IV character generator, including a multi-colored logo display, diagonal typing, 512 color selections for characters and backgrounds, and safe-title override. The Chyron IV Multimode Graphics Module generates an independent graphics background. Text and other graphics from the normal Chyron channel can then be montaged onto the background graphic for a multi-layered frame. It also allows, with advanced

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camera font compose, for the creation of fonts, graphics, and multicolored logos (up to seven colors per character).

Production switcher (Circle 116)

CROSSPOINT LATCH CORP.—The Crosspoint Latch 6139 is a six-bus, eight-input production switcer that features three mix effects systems; downstream keyer; quad split; fade to black; colorizer; pattern modulator with freeze; four key inputs (not including the downstream keyer); dual back-porch clamps, including a clamp on each input; and a blanking processor which eliminates shifts or color changes at the end of a transition, even if the signals are not accurately timed to the system. A very unique feature of this switcher is its ability to be expanded in the field to a 16-input switcher.

Adapter (Circle 140)

RCI—The model 440 pro adapter from RCI is a complete two-channel amplifier system, designed to provide proper interface of pro and semi-pro gear. It features balanced output drives of 600-ohm lines at +4 or +8 dBm. Dual fixed attenuators are included to provide − 10 dB nominal return, and a ± 1/4 dB response in a 20-20 KHz bandwidth provides highly transparent sound.

Remote-control system (Circle 117)

DELTA ELECTRONICS—The RCS-1 remote-control system has been designed to grow with your plant, with additional control, input, and alarm boards that may be added as needed. It features an automatic-logging option and hands-off operation unless an actual control function is required. In addition, direct antenna-monitor interface, modulation bargraphs with peak flashers, and telephone couplers with speech synthesizers providing telephone interrogation are unique to the RCS-1 remote-control system.

Controller (Circle 118)

DI-TECH—Two new products from Ditech are the model 9000 X-Y controller and the model 2100 auto-logger.

The model 9000 X-Y controller utilizes a CRT terminal to access any input/output crosspoints in the 5800 and 5840 routing switchers. What makes this controller unique is the feature that allows the users to assign their own five-character/number description for input/output designations to the switcher. When the labeling is completed, the user in the future can make any change at any time to their original assignments.

The model 2100 auto-logger is a device that reads the tally-back information from the switcher, and with a printer, provides a hard-copy printout each time a crosspoint is taken. The printout indicates date, time, and crosspoint. A video terminal is required in order to assign the five-character input/output designations that have been assigned to the switcher.

Switcher (Circle 119)

H. M. DYER—The model AFV-10 10 x 1 passive switcher from H.M. Dyer features two-channel audio, BNC connectors (video), and TRW multiple connectors (audio). Also included are interlocking centralab switches and bifurcated silver contacts. The AFV-10 ensures no signal loss or degradation, with crosstalk better that -60 dB.

Leddicon (Circle 120)

EEV INC.—EEV features a wide range of Leddicon® and Vidicon tubes for broadcast television cameras and film chains, including the new ½-inch, lightweight broadcast-grade Leddicon, Type P8470. This tube has a 13mm diameter designed to have a useful target area of 6.4mm X 4.8mm (8mm scan diagonal) and is being developed for the latest generation of compact ENG/EFP miniature TV cameras with integral VTRs. The tube has an integral yoke with magnetic focussing and deflection for maximum resolution.

Audio systems (Circle 121)

ELEKTROIMPEX—Elektroimpex, located in Budapest, Hungary, is the manufacturer of audio systems for TV, radio, and recording studios. For more information, circle the appropriate number on the Action Card

Facility design (Circle 122)

EVERYTHING AUDIO—Located in Encino, California, Everything Audio boasts the experience in audio facilities, for both production and recording, to offer acoustic facilities to maximize production efficiency. In addition, they offer a wide background of knowledge in professional equipment to help assist in your equipment decisions.

Error corrector (Circle 123)

FORTEL—With the Y-688[32] Total Error Corrector, professional teleproducers and broadcasters can produce third- and fourth-generation videotapes of quality close to first-generation playback through conventional systems. The Y-688[32] is an excellent unit for correcting multigeneration video-signal errors.

Inputs include dub in, video in (encoded), DOC RF, genlock (sync loop), and subcarrier (loop). Outputs include dub out, video 1 (encoded), video 2 (encoded), VTR advanced sync, VTR subcarrier, blackburst, Y, R-Y, B-Y, sync, subcarrier, blanking, and 7.2-MHz color or video.

Switchable decoder (Circle 125)

GE VDEO—GE recently introduced a new automatically switchable decoder for its professional large-screen projectors. The decoder adjusts the projectors to display input at any one of the three primary television scanning standards used in different parts of the world; NTSC, PAL, and SECAM. It also improves on the projectors' NTSC capabilities.

The built-in decoder accepts input signals from sources in any of the three scanning standards, enabling users to display encoded videotapes, video transmissions, as well as inputs from video cameras and other software, generated at any of the three standard scanning rates, without employment of auxiliary equipment or manual adjustments. The new projector system is equipped with logic circuits that automatically identify input signals, and make the necessary adjustments. The projector operator does not need to know which TV standard is being fed to the projector.

Fiber-optics (Circle 126)

GRASS VALLEY GROUP—Grass Valley Group introduced a family of fiber-optic transmission products under the WAVELINK™ name. The new system is designed to cost-effectively deliver the inherent superiority of optical transmission for a wide range of broadband communications.

Superior performance, reliability, adaptability, and economy make WAVELINK equipment ideal for applications in television broadcasting and production, closed-circuit communications systems including local networks and video conferencing, and security and surveillance systems.

Current WAVELINK equipment includes a full wideband 10-MHz broadcast-quality channel and a 6-MHz video-plus-audio channel. Both systems consist of LED-based transmitters and APD receivers, and have been designed to accommodate future enhancements in a modular arrangement.

Satellite receiver (Circle 144)

SATELLITE DATA SYSTEMS—A new generation of direct 4-GHz satellite receiver systems, the 204 series from NEC, has been introduced and is distributed by Satellite Data Systems of Skokie, Illinois.

The 204 series consists of a low-noise converter, demodulator, and a 4.5 and/or three-meter antenna for

superior, reliable performance. A single, small-diameter coaxial cable carries the UHF transmission signal between LNC and demodulator. This offers maximum installation flexibility and overall cost savings. The LNC has a low-noise amplifier that uses NEC high-performance GaAs FET components, and maintains a 120-degree kelvin noise temperature.

Videotape (Circle 124)
FUJI PHOTO FILM—Fuji Photo Film now features a complete line of professional 1-inch videotape for helical-scan VTRs. Fuji H621 is available in both Type C and BCN B 1-inch formats in six different lengths: in addition to featuring 1/2-hour, 1-hour, and 1½-hour reels, Fuji recently introduced a 2- and 3-hour reel. A 2½-hour length is also available.

Fuji H621 can provide the best performance possible from helical-scan machines. The tape gives better color,

better S/N ratio, fewer dropouts, longer life, lower abrasion, and lower jitter from the capstan and drum. Packaged in flame-retardant shippers, Fuji H621 features the company's exclusive Beridox (Berthollide iron oxide) magnetic formulation.

Routing switcher (Circle 127)
HEDCO—HEDCO introduced a new, small switcher into the broadcast and professional video market. The model AVM-100 switcher provides one-bus selection from 16 video inputs and 16 stereo AFV-audio inputs in a 1-RU package. The switcher's front panel incorporates 16 illuminated and relegendable pushbuttons and separate audio monitoring controls.

The AVM-100 is a broadcast-quality 3-channel switcher with an audio plus. The basic audio section offers bridging-balanced inputs, stereo switching, and line-level outputs up to + 18 dBm. The unique audio monitoring section has front panel balance/gain adjustments, headphone jack, and separate left/right speaker amplifiers capable of 4 watts into 2 ohms. The video section features transparent buffers, T-style isolation crosspoints, and front-panel-accessible gain and response adjustments in the output amplifier.

Studio camera (Circle 128)
HITACHI—Hitachi's SK-110 computer-controlled studio camera boasts computer-registration capabilities to provide pictures of high clarify and resolution. The system features a high-performance contour corrector, five automatic-setup modes, and five data files. The SK-110 is self-correcting and self-diagnostic, and can provide both video-screen display and hard-copy printout. Auto-setup is completed at the push of a button.

Animation/maipulation system (Circle 129)
MCI/QUANTEL—MCI/Quantel introduced what it calls "Mirage, the ultimate illusion." Mirage manipulates pictures and creates illusions in real time that previously could only be produced using costly and time-consuming techniques; it can rotate pictures along any axis, add perspective, roll pictures up into a cylinder, make the cylinder transparent or opaque, simulate page turns, and swirl pictures into whirlpools with the outer portions turning faster that the inner. (For an example of these manipulations, see this month's cover.)

These manipulations are in addition to a whole range of standard effects such as electronic zooms, picture enlargement, tumbles, flips, picture splits, and others.

Extended-play kits(Circle 130)
MERLIN ENGINEERING WORKS—With Merlin's ME-238 extended-play conversion kits, you can record and play back up to two hours, 40 minutes on any standard Sony BVH 1000, 1100, and 1100A, or Ampex VPR-1C, VPR-2, and VPR-2B Type C VTRs. Extended play time allows full-length movies and sporting events to be recorded on a single 12½-inch reel. The ME-238 is ideal for master playback when dubbing to small-format machines, as well as for cable and broadcast-automated programming.

Mobile vans (Circle 132)
MIDWEST CORPORATION—Midwest's engineering and development departments can design and construct vehicles of all sizes, from small ENG/RENG vans to 45-foot semitrailers. But the models M-1 and M-20, described as "off the shelf" vans, are completed to the point of being ready for electronic equipment istallation, and then placed in stock. This enables Midwest to respond quickly to customers' time-line requirements. Since the racks and consoles are in place, and all the cabinets, carpets, and finish work is completed, they can draw equipment from their complete inventory and put a vehicle on the road in short order.

Microphones (Circle 131)
MICROPHONICS—This Brooklyn, New York-based company is a dealer and distributor of the complete line of Sennheiser microphones. For more information, circle the appropriate number on the Action Card

Isolation transformers (Circle 133)
NORTH HILLS ELECTRONICS—North Hills' ultra-wideband isolation transformers come in a line of standard models to solve ground-isolation problems in video/data line. The models are designed for 75-ohm coax and 124-ohm balanced-video lines with flat frequency and linear phase characteristics over video range; high-frequency 50- and 75-ohm coax pulse-transmission systems in 1:1, and 50- to 75-ohm adapter versions; 10-kV isolation in public utility data transmission with 6-kHz to 2.5-MHz bandwidth in 75-ohm coax, 124-ohm balanced-line and hybrid versions.

Microprocessor remote controller (Circle 134)
NORTHEAST BROADCAST LABS—This broadcast equipment distributor carries a complete of line of products from Moseley Associates, including Moseley's MRC-1600 microprocessor remote control for general AM-FM remote control applications. The MRC-1600 comes equipped with 16 status inputs, 16 telemetry inputs, 16 raise-command outputs, and 16 lower-command outputs. For easy adaptation to current system interconnections, plug-in modules are available to accommodate almost any interconnection system. The front panel of the MRC-1600 is easily understood and simple to operate, with LEDs for the displays of all status channels simultaneously.

Converter (Circle 135)
OKI ELECTRIC—Oki's LT1200 digital television-standards converter for NTSC/PAL/SECAM conversion is a low-cost, highly portable version of the widely accepted LT1100. This system can easily be taken on-location, and concentrates the latest digital

Continued on page 74

technology, including 16K RAM low-power, high-speed ICs, and high-density PCBs, for simple and highly reliable television-standards conversion. Among the many applications of the LT1200 are conversion of satellite broadcasts, editng programs on different standards, VTR conversion, and gathering international programming.

TV limiter/compressor (Circle 136)
ORBAN ASSOCIATES—The OPTIMOD-TV (model 8180A) and its optional accessory chassis can be used to split the processing into separate compressor and limiter sections.

Derived from the OPTIMOD-FM, OPTIMOD-TV provides subtle, multiband compression, high-frequency limiting, and effective control of peak levels and output spectrum. Its circuitry has been custom-tailored to the characteristics of typical television audio feeds, providing significant increases in transparency, naturalness, and consistency when compared to conventional processing techniques.

OPTIMOD-TV is delivered as a stereo processor, and its built-in 15-kHz low-pass filters assure compatibility with future multiplex stereo systems, and prevent interface to the video.

Mixing consoles (Circle 137)
PACIFIC RECORDERS & ENGINEERING—The BMX Series II console features, in a no-nonsense panel layout, a choice of 10-, 14-, 22-, and 26-input mainframe configurations, with RF immunity and CMPS remote-control flexibility. In addition, a mix module is available to offer two mix-minus busses for telephone talk shows.

Recording consoles (Circle 138)
PANASONIC, PROFESSIONAL AUDIO DIVISION—Panasonic has two new recording consoles. The WR-8816 recording console provides 16 inputs, and four group and master L&R outputs for 4-, 8-, or 16-track recording. Among its important features are 100mm-long throw straight line faders, three-band adjustable frequency equalizers, extremely flexible input and output facilities, and all-modular construction.

A highly flexible unit, the WR-8210 Ramsa recording console offers 10 inputs and four outputs for 4- and 8-track recording. Other features include three-control variable frequency equalizer providing high, mid, and low frequency adjustments; EQ bypass switch; input channel mute switch; insertion patch points; smooth, straight line fader; and stereo-effect inputs with level control and buss-assignment switches.

Routing switcher (Circle 150)
TELEMET—From Telemet was the model 7934 computer-controlled routing switcher. A computer-based control system (Z80A/CP-M) allows total system control (100x100 matrix) via single control panels, thumbwheels, touchpad, and computer terminals. All control panels are interchangeable on twisted-pair line. The model 7934 also features complete 4-level breakaway control: 1 video channel, 1 auxiliary channel, and 2 independent stereo. Any combination of these four can be remotely programmed and/or selected. An RS-232 interface port is also available for connection to additional computers.

Low light-level Vidimax (Circle 151)
THOMSON-CSF BROADCAST—Thomson-CSF's Vidimax is designed to aid broadcasters with low light-level problems by the addition of two F stops to ENG cameras with only a minor modification, thus greatly increasing the sensitivity of the camera.

Vidimax exploits a little-known characteristic of camera pickup tubes, altering the camera blanking sequence in a way that increases sensivity. The video signal can be recorded and played back through a Vidimax-modified TBC.

Frequency-response plotter
UREI—UREI's frequency-response plotting system is intended for the engineer who needs precision audio instrumentation which can perform a multitude of functions. The system consists of the model 200 X-Y recorder for automatic hard-copy graphs, and the following plug-in test modules: the model 2000 frequency response module; the model 2010 level and frequency detector module; and the model 2020 DC input module. Additional accessories include the model 20 warble generator, and the model 21 mike preamp/warble generator.

For additional information, contact UREI at 8460 San Fernando Road, Sun Valley, CA 91352; (213) 767-1000.

Cavity amplifiers (Circle 153)
VARIAN (EIMAC)—Varian Eimac has a complete line of cavity amplfiers, one of the newest being the Eimac 4CW25.OOOG. This is a ceramic/-metal power tetrode intended for use in UHF-TV applications through U.S. channel 80 (806 MHz). The elements are of a coaxial design, utilizing pyrolytic graphite grids in a structure which permits high-RF operating efficiency. The anode is rated at 25-kW dissipation with multiphase liquid cooling.

Data acquisition processor (Circle139)
POTOMAC INSTRUMENTS—Potomac has introduced the DAP-11 data aquisition processor which continuously monitors transmitter and antenna parameters of AM, FM, and TV stations. The DAP-11 signals the station operator by visual or aural alarms if a given parameter is out of tolerance. It may be used with transmitters under local or remote control, and if connected to an optional printer or CTR, it can provide complete transmitter operating logs. An optional "auto-dial" feature enables the DAP-11 to use standard telephone voice circuits to transmit logging information, at selected intervals, to any location which is accessible by telephone.

Wireless microphones (Circle 145)
SENNHEISER—Sennheiser has developed three different wireless microphone systems which they dub their "Mikroport" systems. They operate in two different bands: high-band, 174-216 MHz, to take advantage of the unused TV channels eight through 12; and low-band, 30-50 MHz. Receivers from all three systems operate from 110-220 VAC, or from internal batteries, and include a built-in amplifier and monitor speaker. In addition, they feature headphone output jack, adjustable squelch, balanced line and mike level outputs, tape start/stop facilities, and diversity operation via two separate antennas and receivers.

Studio engineering (Circle 146)
SIEMENS AG—Located in Austria, this company offers expertise in the development, planning, and manufacture of

SENNHEISER
MKH416TU/P48U....$553.- MD421U.....$208.-
MKH816TU/P48U.....729.- MD441U.....289.-
HMD224.....139.- HD414.....50.-
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Circle (54) on Action Card

radio and television studios, intercommunications systems, microprocessor-controlled signal routing systems, and sound control desks for TV and radio transmission vans, and sound transmission systems. Circle the appropriate Action Card number for additional information.

Combo camera (Circle 147)

SONY CORP. OF AMERICA—As the year came to an end, the hottest product from Sony was their Betacam™ combo camera. The Betacam system uses a three-tube camera with an overall design that's 14 percent lighter and 26 percent smaller than other combo cameras. It's also 20 percent shorter, making it easy to carry, pivot, and shoot. Other camera features include an internal viewfinder connection, instead of a troublesome cable; and it takes lenses that are interchangeable with other cameras.

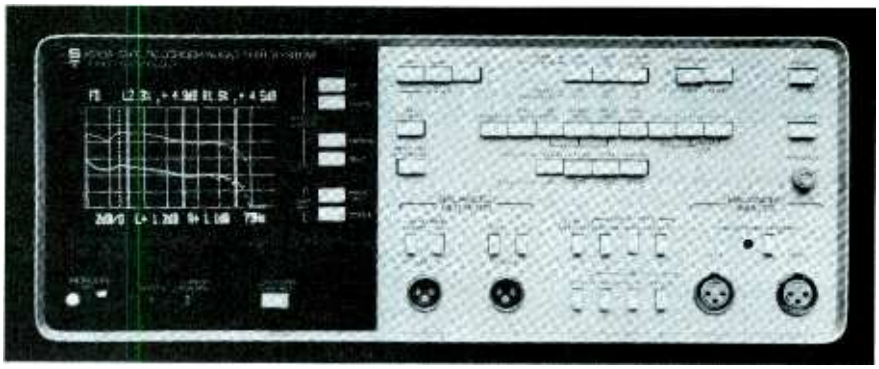
The recorder uses a 30 percent smaller cassette, has 20 percent faster writing speed, and relies on compressed-time-division multiplexing for improved color resolution and reduction of unwanted distortions. The recording format is compatible with current worldwide analog and digital standards.

Tape transport (Circle 149)

STUDER-REVOX—New from Studer is the A810 tape transport, the first professional tape recorder with a comprehensive "nervous system" for digital studio system control. The A810 features microprocessor-assisted tape transport control. All audio parameters are programmable. There is no need for trimmer potentiometers. Calibration data for two types of tape can be programmed into its memory and retrieved by a pushbutton. The audio electronics are completely accessible from the front. The inputs and outputs are balanced and floating. Features such as drop-in and drop-out delay and switchable VU or PPM meters are standard.

Tape recorder/audio test system

SOUND TECHNOLOGY—With the introduction of the 1510A tape recorder/audio test instrument, the audio engineer has the capability of performing all of the necessary tests for maintenance, troubleshooting, and general check-out of any professional audio device. The 1510A features two-channel outputs that are electronically balanced and floating; the inputs are different and the output levels are from + 30 dBm to − 70 dBm into 600, with a pushbutton resolution of 0.1 dB. For those facilities with automation in



mind, the IEEE-488 general-purpose computer interface bus is available.

For further information, contact Sound Technology, 1400 Dell Avenue, Campbell, CA 95008; (408) 378-6540.

Editing controllers (Circle 154)

VIDEOMEDIA—Videomedia's 6000 series of components is a completely software-based system designed to allow for ease of expansion and upgradeability. The Z-6000C and Z-6000E editing controllers make possible the mixing and matching of machines and control codes. For example, the Z-6000's software can automatically compensate for the 14-frame difference in time-code location between BVU-200 and BVU-800 tapes. Both Echolab and Crosspoint Latch switchers can be interfaced, as can be a SMPTE-coded Otari 550 8-track audio machine.

Intercom system (Circle 156)

WARD-BECK SYSTEMS—The state-of-the-art microprocessor-controlled MicroCOM is available from Ward-Beck in configurations greater than 200 X 200 crosspoints. The unique digital control philosophy, utilizing a single serial date line between intelligent terminals and a central matrix, permits unlimited access from any one station to any other station in the system. At each communications terminal, key assignments can be made either locally by keypad entry, or automatically by the incoming call.

Demodulator (Circle 155)

VIDEOTEK—A new demodulator was recently added to Videotek's product line, the DM-40R, adding to the company's group of affordable rack-mount demodulators. The DM-40R features 105 programmable channels with phase-lock loop tuning of VHF, UHF, midband, and superband; remote-control commander; dual demodulated video/audio outputs; internal 4x1 video/audio switcher; and front-panel-mounted speaker.

Camera support systems (Circle 142)

SACHTLER CORPORATION OF AMERICA—Sachtlers' complete line of camera support systems includes the Sachtler Panorama 7 + 7, a small, lightweight fluid head for real-news gathering with an integrated counter-balance spring adaquate for today's ENG cameras. In addition is Video 20, ideal for use in mobile units; Video 25, a medium-sized ENG/EFP fluid head optimized for on-location shooting; Video 30, for studio and field production; and Video 35, for studio and OB, and optimized for cameras requiring even more stable support and a more powerful counter-balancing system. BC

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LO Brings Local Government to the People
Phillip Keirstead (October 1982, page A7)

LO Is Important to Cable's Future
Greg Vandervort (September 1982, page 58)

Leasing: The Newspaper-Cable Connection
Phillip Keirstead (April 1982, page A8)

Let's End 'Computer Mystique'
Bryan Boyle (January 1982, page 28)

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Greg Vandervort (April 1982, page A13)

The Local Payoff
Michael Scheibach
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The Lowdown on LO
Greg Vandervort (January 1982, page A8)

The Making of a PD
Ed Shane (July 1982, page 27)

Meeting the Demands of a Changing Marketplace
Ron Merrell (July 1982, page 52)

Microcomputers Fit Small Budgets
Phillip Keirstead (November 1982, page 37)

Mike Location Affects Sound
Eric Neil Angevine
(November 1982, page 47)

Mobile Vans... They'll Drive You to Profits
BC Staff (April 1982, page 50)

NAB '82 Directory of Equipment and Services
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NAB '82 Makes the Sky the Limit
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NAB Dallas: It's About Time
Ron Merrell (March 1982, page 68)

NAB Seeks Review of Cable Copyright Royalties
Ron Merrell (June 1982, page 8)

NAB Set the Stage for More 'Freedom of Expression'
Joe Roizen (May 1982, page 66)

NAB Sneak Preview: The Sky's the Limit
(February 1982, page 36)

NRBA '82: The Big Winner for Radio
(August 1982, page 44)

A New Riddle for AM Stereo in '82
Peter Burk (May 1982, page 70)

New Technologies Make Headlines at Videotex '82
Joe Roizen (August 1982, page 62)

One-Upmanship, Or How to Play the Game of Franchise Bidding
John Kompas (October 1982, page 68)

Paint Can Form 'Sound Barrier'
Eric Neil Angevine
(February 1982, page 32)

Panasonic Combo System Is Based on High Tech
(March 1982, page 64)

Past Events Reveal the Future
Ed Shane (December 1982, page 46)

Plan Now or Pay A Lot More Later
Frank Rees (March 1982, page 56)

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Eric Neil Angevine (July 1982, page 29)

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Ruth Macy (September 1982, page 68)

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Ruth Macy (November 1982, page 70)

Polling Returns to the Airwaves
Phillip Keirstead (May 1982, page 41)

Portable Communication Is Here
Bryan Boyle (August 1982, page 36)

Portable RPUs Will Make Your Station More Mobile
Dennis Martin (January 1982, page 47)

A Primer on Media Buying
Ed Shane (October 1982, page 44)

Product Intros for the Newsroom Hit Radio and TV
Phillip Keirstead (May 1982, page 62)

Profit from Improved Production
Steve Cooper (July 1982, page 24)

Profitable Ad Production in an Open Marketplace
Glen Pensinger (November 1982, page 60)

Put Your Focus on Local Research
Ed Shane (April 1982, page 26)

Put Your Promotion on the Bus
(February 1982, page 26)

RCA Focuses on Hawkeye's Flexibility as ENG System
R. J. Boyland (February 1982, page 50)

RKO Facility Meets its High Tech Needs
Wolf Schneider (March 1982, page 50)

RTNDA Brings Technology to the Forefront
Phillip Keirstead
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RTNDA Exhibitors
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The Race Is On for Low-Power Television
Ron Merrell (November 1982, page 8)

Radio and the Cable Challenge
Ed Shane (July 1982, page 35)

Radio Enhances TV Promotion
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Radio Is Strictly Upbeat at NAB
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Radio Nets Select RCA System
(August 1982, page 42)

Rental Vans Can Snare Your Critical Remotes
Glen Pensinger (April 1982, page 46)

Research Is a Preventive Measure
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The Road to Remotes Can Lead to Profits
Ron Merrell (November 1982, page 64)

SMPTE Turns Focus to New Technologies
Joe Roizen (October 1982, page 84)

SNG Comes of Age
Phillip Keirstead (November 1982, page 48)

Satellite News Gathering Will Get You the Business
Ruth Macy (November 1982, page 52)

Standards... Catch 22 of '82
Ron Merrell (May 1982, page 8)

Studio Design Starts with Floors
Frank Rees (May 1982, page 48)

Superstation Economics
Phillip Keirstead (April 1982, page A6)

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Ed Shane (January 1982, page 24)

TV and AM Stereo Draw Top Ratings
Ron Merrell (May 1982, page 50)

TV Audio Can Beat the 3-Inch Speaker
Richard Burden (October 1982, page 52)

TV Stereo Audio Moves Closer to the Marketplace
Joe Roizen (October 1982, page 54)

Technology Reigned in '82
Phillip Keirstead (December 1982, page 48)

Teletext Is in Your Future
Phillip Keirstead (August 1982, page 30)

Teletext Is Where the Action Is
Phillip Keirstead (January 1982, page 26)

There's No Going Back... to Chicago
Ron Merrell (March 1982, page 8)

Transmitters: They've Never Been More Cost Effective
BC Staff (July 1982, page 58)

Uplinks Add to News Coverage
Phillip Keirstead (October 1982, page 50)

A User-Friendly Guide to Newsroom Computers
Carl Tyrie (November 1982, page 74)

Varied Themes Highlight RTNDA
Dean Mell (September 1982, page 10)

Videotex on Your SCA Could Mean More Profits
Glen Pensinger (August 1982, page 68)

WBAL Puts Accent on Remotes
Caryn Coyle (November 1982, page 40)

Wanted: More Productions for the Local Stations
Robert Nelson (July 1982, page 54)

Where to Install Your Computer
Bryan Boyle (October 1982, page 40)

Where Will the Combo Camera Standards Go?
Glen Pensinger (May 1982, page 56)

Winning with Local Election Coverage
Greg Vandervort (October 1982, page A5)

Wireless Mikes Put You on the Scene... Anywhere
Ron Merrell (April 1982, page 35)

Year of Enhancements
Ron Merrell (December 1982, page 36)

SBE MONTHLY LOG

ARIZONA
PHOENIX (Chapter 9)—Wally Brenton of Motorola provided a program on RFI. He exhibited a 2-inch thick computer study of interference sources on South Mountain.

CALIFORNIA
LOS ANGELES (Chapter 47)—The program was presented by Arthur Sterman, chief engineer, and Rex Newcombe, assistant chief, of KABC/KLOS; they were aided by Jack Williams of Pacific Recorders. The main focus of discussion was the recent addition of two new studios to KABC's building to handle separate and/or combined distribution of live talk-format programming.

COLORADO
GRAND JUNCTION (Chapter 81)—Dave Colby and Rich Cron conducted a tour of the KQIL/KQIX/KZOO studios. The stations each use a SMC DP-1 automation system.

CONNECTICUT
CONNECTICUT VALLEY (Chapter 14)—David Hartman and Kent McQuire demonstrated Sound Technologies model 1500-A tape recorder test system featuring microprocessing control and CRT display. Bill Hosking and Joe Petriss of Northeast Utilities conducted a tour of their training department's televison studio.

FLORIDA
CENTRAL FLORIDA (Chapter 42)—Murray Shields of ADM presented a slide show of their products with a discussion of the merits of their various products. New officers are Chalmers Stromberg, chairman; Nile Hunt, vice-chairman; Bob Diehl, secretary; and Lee Watkins, treasurer.

PALM BEACH AREA (Chapter 88)—Through the efforts of Dave Walters and Bud Dehnart of Tektronix, there was an excellent program on the use of their test equipment.

HAWAII
HAWAII STATE CHAPTER (Chapter 63)—Greg Silsby of Electro-Voice delivered a presentation on microphone design and application oriented toward broadcast and recording studio uses.

KANSAS
KANSAS (Chapter 3)—There was a tour of the KSNW satellite uplink at the KARD transmitter plant and the massive mountain erected for interference protection. Winston Rogers showed a movie taken during the various phases of construction of the uplink dish and explained some of the problems and cures encountered. New officers are Elmer Gunderson, chairman; Don Englehart, vice-chairman; and Rod Rogers, secretary/treasurer.

MARYLAND
BALTIMORE (Chapter 46)—Michael Fast, director of engineering, WPOC, provided a brief history of where we have been, where we are now and where we should be headed in the future in the area of equipment design, signal processing, consoles, tape recorders, microphones, turntables, cart machines, STLs and transmitters.

MINNESOTA
MINNEAPOLIS/ST. PAUL (Chapter 17)—There was a general discussion on the "demise" of Northwestern Bell Special Services for broadcasters, with a look at alternatives, cable television links, and microwave links.

MISSOURI
ST. LOUIS (Chapter 55)—New officers are Fred Steurer, chairman; Andy Butler, vice-chairman; Sam Caputa, secretary; and Bob Goza, treasurer.

NEBRASKA
HOLDREGE (Chapter 87)—Wayne Gudgel conducted a tour of the NTV studio facilities.

NEW YORK
BINGHAMTON (Chapter 1)—Jack Ferguson of Hewlett Packard discussed and demonstrated audio analyzers and computers.

SYRACUSE (Chapter 22)—Mim Meehan, president of Delta RF Installers, addressed a program on RF transmission lines, towers and antennas.

OHIO
NORTHEAST (Chapter 70)—This meeting was held in conjunction with the NAB Annual Directional Antenna Seminar. George Brown, now retired, formerly employed by RCA and one of the inventors of the ground plane antenna, had numerous stories to tell relating back to the days of Marconi to the present.

PENNSYLVANIA
PITTSBURGH (Chapter 20)—A luncheon meeting was held in conjunction with the regional convention.

SOUTH CAROLINA
GREENVILLE AREA (Chapter 86)—John Timm of Allied Broadcasting showed various products relating to broadcasting, including the MTR-80 reel-to-reel recorder, sound-proofing materials, microphones, and telephone interface units.

TENNESSEE
MEMPHIS (Chapter 61)—Rob Herring III, CE of WHRK-FM, demonstrated the Timex 1000 computer (Sinclair ZX-81).

TEXAS
NORTH TEXAS (Chapter 67)—Roy Edenson and Herb Hoff of RCA discussed and demonstrated the RCA Hawkeye camera system.

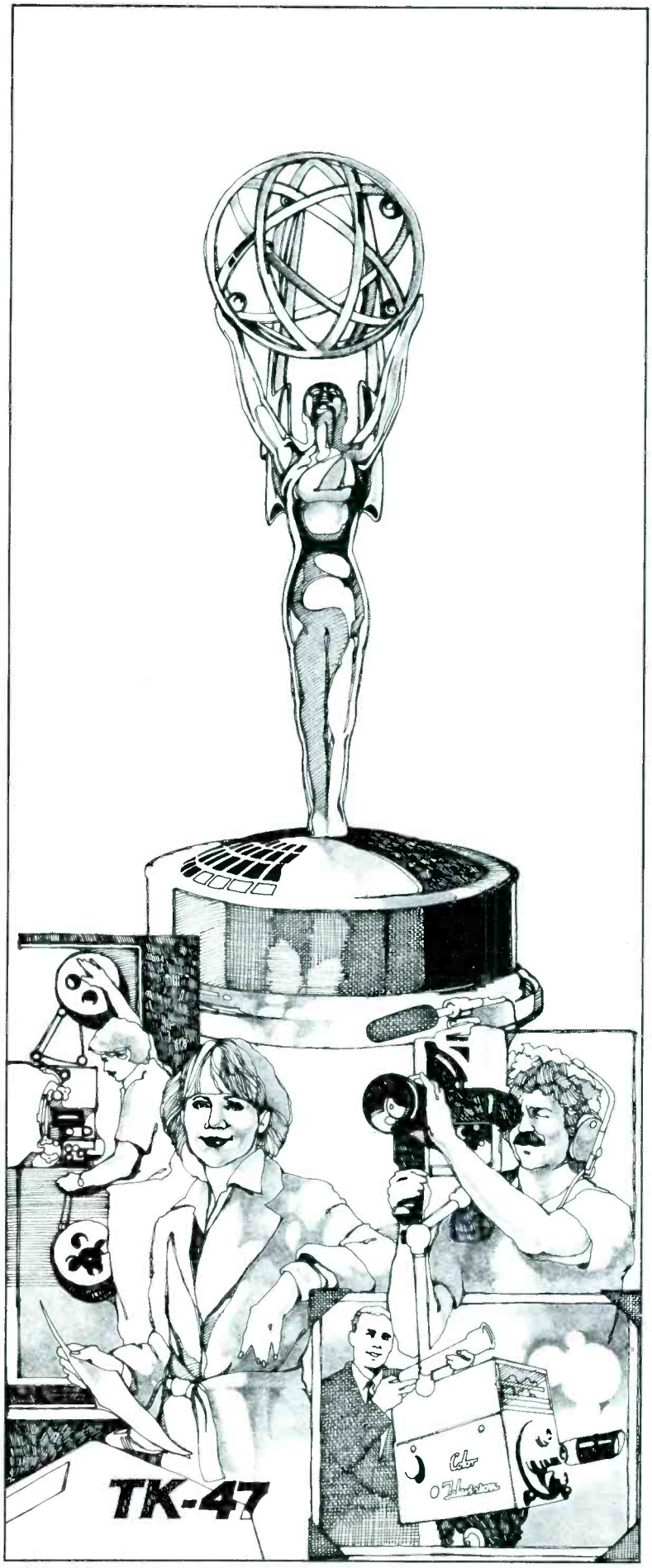
VIRGINIA
RICHMOND (Chapter 60)—Jim Dugger conducted a tour of the WRLH-TV facilities.

WISCONSIN
MADISON (Chapter 24)—The meeting was held in conjunction with the Univ. of Wisconsin Broadcast Clinic. Jim Wulliman discussed certification and recertification.

MILWAUKEE (Chapter 28)—Presentations on AM stereo systems were given by Jack McCleland, Belar; Gary Jones, Harris; Phil Klinger, Kahn; Nels Harvey, Magnovox; and Dave Janzer, Motorola.

NEW CHAPTER
SBE welcomes their newest Chapter located in the Palm Beach area of Florida. This new Chapter #88 has elected the following officers: Edward J. Roos (WPTV-TV) chairman; George Danner (WPEC-TV) vice-chairman; and James M. Johnson (James M. Johnson & Associates) sec./treasurer.

CERTIFICATION NEWS
This will be the last reminder to the certified "grandfathers" who have not applied for recertification. If you were certified by SBE in 1977 under the "grandfather" provision, you must apply for recertification by December 31, 1982. For a copy of the Recertification Instructional brochure and application, write to the Certification Secretary, SBE, P.O. Box 50844, Indianapolis, IN 46250. BC



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F ☐ 4 AM Station
G ☐ 5 FM Station
H ☐ 6 TV and Radio Combination Station
I ☐ 9 AM & FM Station
L ☐ 12 Teleproduction Facility
N ☐ 14 Recording or Sound Studio
O ☐ 15 Educational, Public or Religious TV
P ☐ 16 Educational, Public or Religious Radio
Q ☐ 17 Corporate, Industrial or Med. CCTV
U ☐ 20 Cable TV: MSOs, Independents, Networks Consultant, Contractor
V ☐ 22 Govt. Official, Agency or Admin.
W ☐ 26 Broadcast/CATV Cross-ownership or Leasing Arrangement
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1 ☐ A Corporate Management
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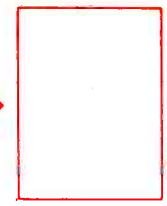

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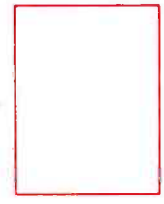
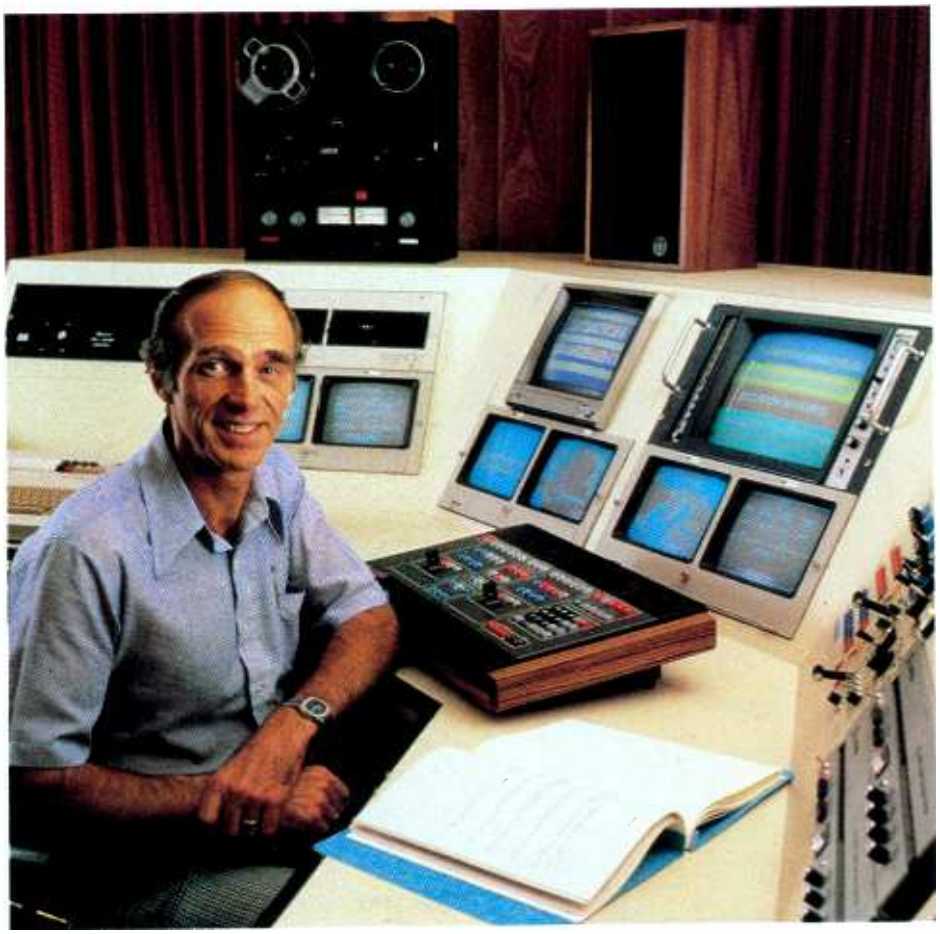


BROADCAST COMMUNICATIONS®
THE INTERNATIONAL JOURNAL OF BROADCAST TECHNOLOGY

P.O. Box 2820
Clinton, Iowa 52735

Todd Communications helped our company find an editing system that could work as hard and grow as fast as we did.



We needed an affordable editing system that could expand with our company. But the pressures of a growing video tape editing business can make saving time as important as saving money. At Greatapes, our Videomedia Z-6000D has saved us valuable hours in operation, training and maintenance.

The operators of our equipment had a wide range of editing experience. We didn't have the time to train each new operator in a complicated computer language. The Z-6000 uses plain English. The keyboard design is a straightforward entry system, so the whole process is just a series of easily learned key strokes. This common sense approach simplifies operation and saves editing time by clearly identifying input errors for quick and accurate corrections.

Sixteen hour days are normal for us. Sometimes, meeting a customer's deadline means the equipment is in use for twenty-four hours straight. We can't afford the added pressures of costly and time-consuming repairs. The Z-6000 is consistently meeting the demands of our heaviest schedules.

Todd Communications helped us make our selection of the Z-6000 editing system. We relied on their years of experience with Videomedia equipment for expert installation and training. With a minimum amount of time and trouble, Todd's technical staff was able to integrate the Z-6000D into our existing system and help our staff learn to exploit the sophisticated capabilities of the editor. Now it's time to expand to additional tape formats and machines-on-line. The business of video tape duplication and editing is growing so fast in the Minneapolis and St. Paul area, we need to know that we won't outgrow our equipment. We're counting on the expansion of the Videomedia Z-6000 system to make sure the growth of our company keeps pace with the demands of our market.

GREATAPES™

Roger Rude

Videomedia
Professional Television Systems

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