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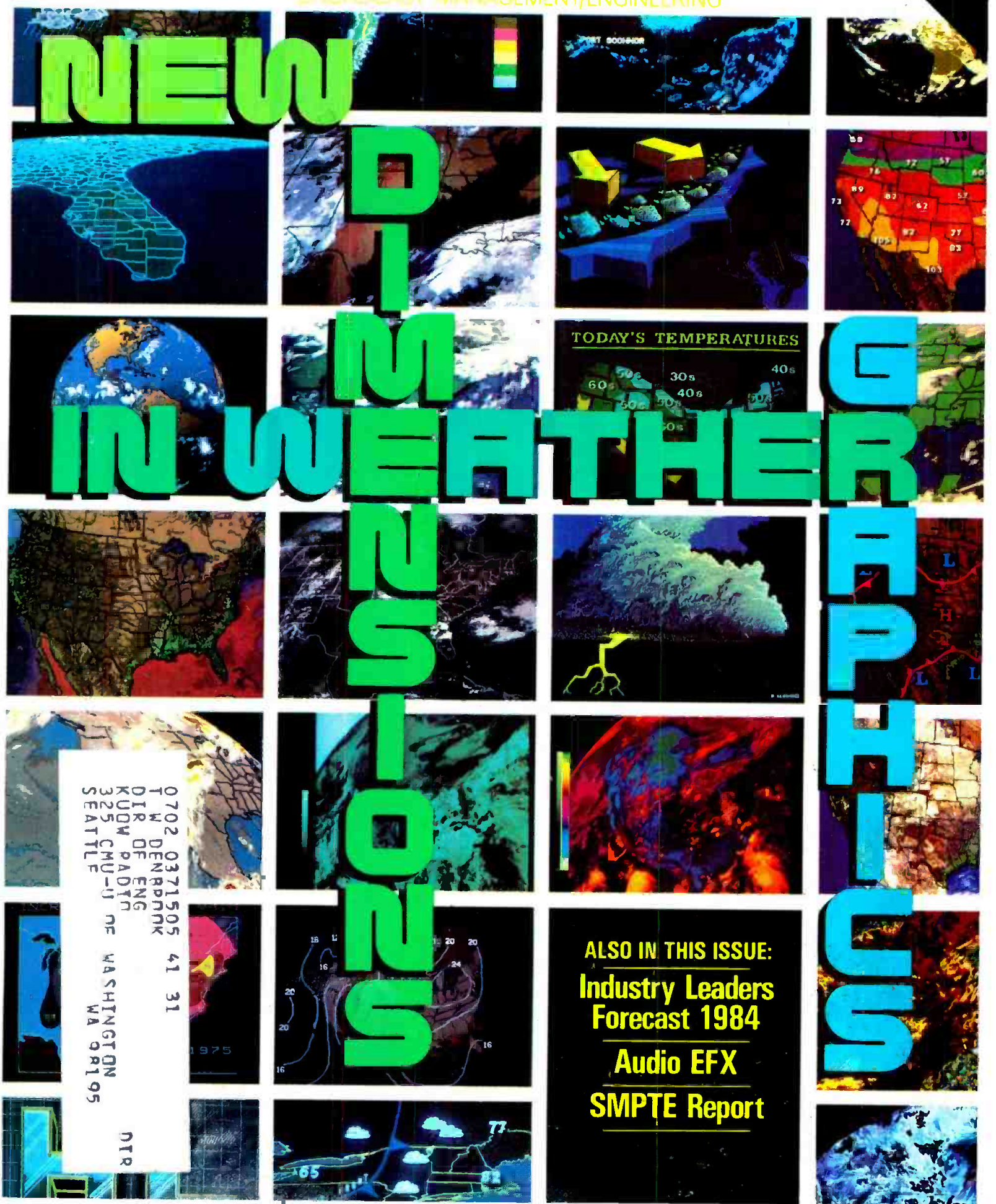

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SMPTE Report

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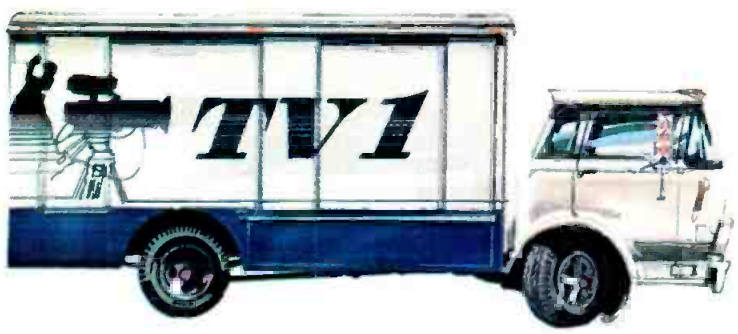

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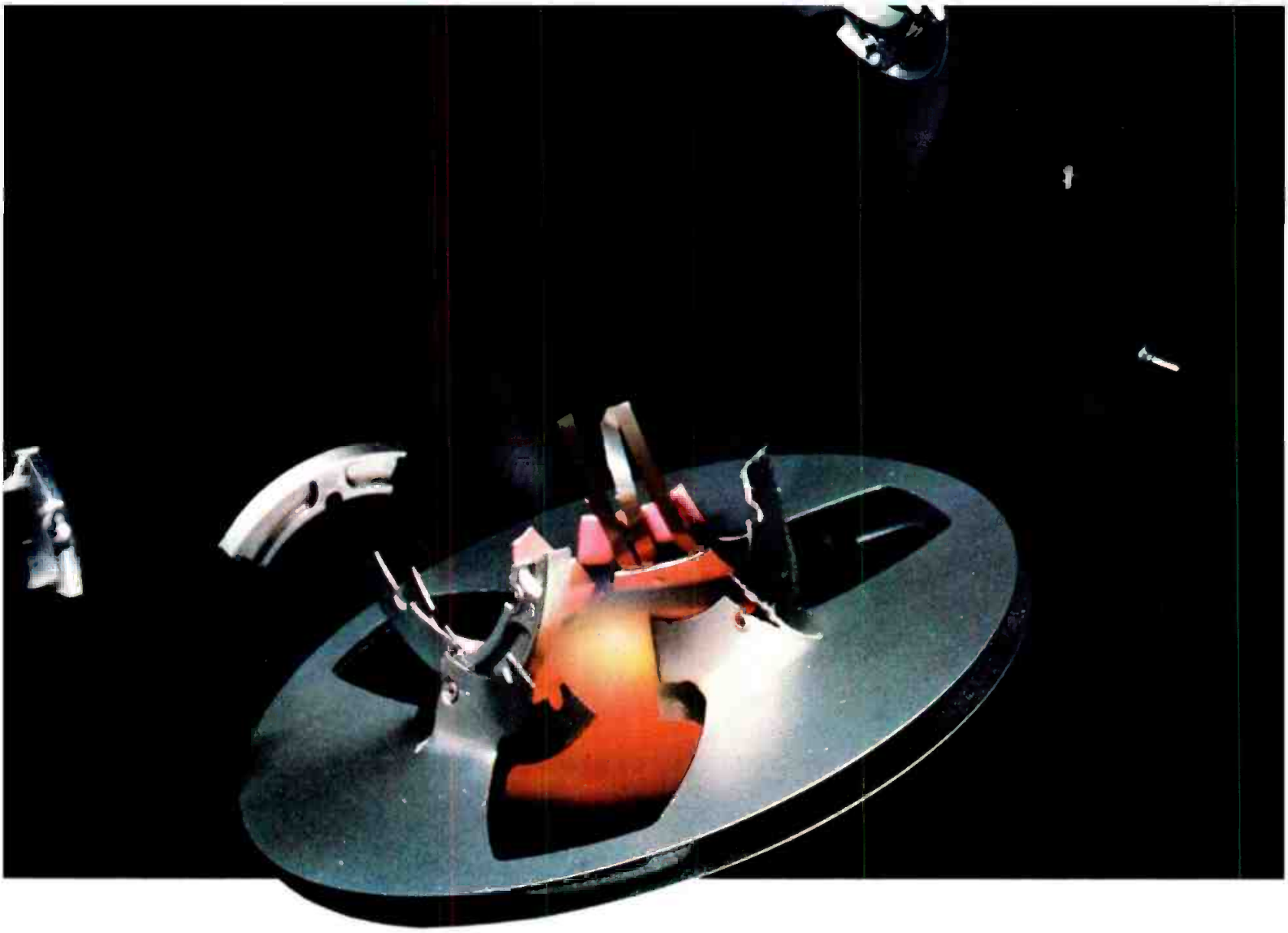
Circle 102 on Reader Service Card

BM/E
BROADCAST MANAGEMENT/ENGINEERING
JANUARY 1984 VOLUME 20/NUMBER 1

FEATURES

DEPARTMENTS

COMING IN
FEBRUARY
POST-PRODUCTION
SATELLITES IN BROADCASTING



Ramko Research Explodes The Reel To Reel Versus Stereo Tape Cartridge Myth!

FACT: There is now a stereo cartridge system so advanced that you can't tell the original material from the reproduction. A system that performs like a professional reel to reel, yet has all the advantages inherent in the tape cartridge format. The PhaseMaster from RAMKO RESEARCH. The only cart system in the world that allows AM or FM to program in full stereo. Spots, special effects, Beethoven, or hard rock. Consistently, everytime, cart to cart, machine to machine. Not only that, but there are over 300 systems that have been field proven for the last 1½ years. No bugs, no surprises. What you see and read about is what you get.

MYTH: Tape cartridges do not have the mechanical stability nor precise enough guidance systems to produce truly high quality, wide separation, stereo.

FACT: The new PhaseMaster completely eliminates this problem via its exclusive electronic, real time, tape path and phase correction circuitry. No pretesting of carts or adjustments to make. It is so sophisticated and responsive that you can actually bend, twist and move the cart in and out while playing, without any discernable difference between the original source material and that which is being reproduced. In fact, in all of our demonstrations to broadcast managers and engineers, none could tell the difference between an A/B comparison of the record played and that simultaneously reproduced on the PhaseMaster. In addition, this exact reproduction will be repeated on any other PhaseMaster, regardless of head and tape guide alignment (within reason) or cart warpage. No other machine in existence, reel to reel or cart, has this ability.

MYTH: Only reel to reel provides the low noise and distortion, and the wide response demanded by my listeners.

FACT: We are willing to match the PhaseMaster against anything you are currently using or anticipate buying. Judge for yourself or ask for our comparison guide. We believe you'll agree with us (and our competitor's engineers), that RAMKO has indeed advanced the state of tape cartridge technology far beyond what was believed possible.

TO SUM IT UP: If you are stereo formatted and looking for the best, most effective way to program your station, then the PhaseMaster is your answer. Whether it's highbrow or punk rock, you will experience the best of both worlds with all the quality demanded by even your most discerning listeners.

Find out for yourself the whole PhaseMaster story. From its superior mechanics for long term wear and stability, to the totally unique phase correction circuitry and 2 year warranty.

Contact your nearest rep or dealer today, or call RAMKO RESEARCH toll free, (800) 821-2545, for your full color, descriptive brochure. Hurry though, your competition may have already ordered theirs.

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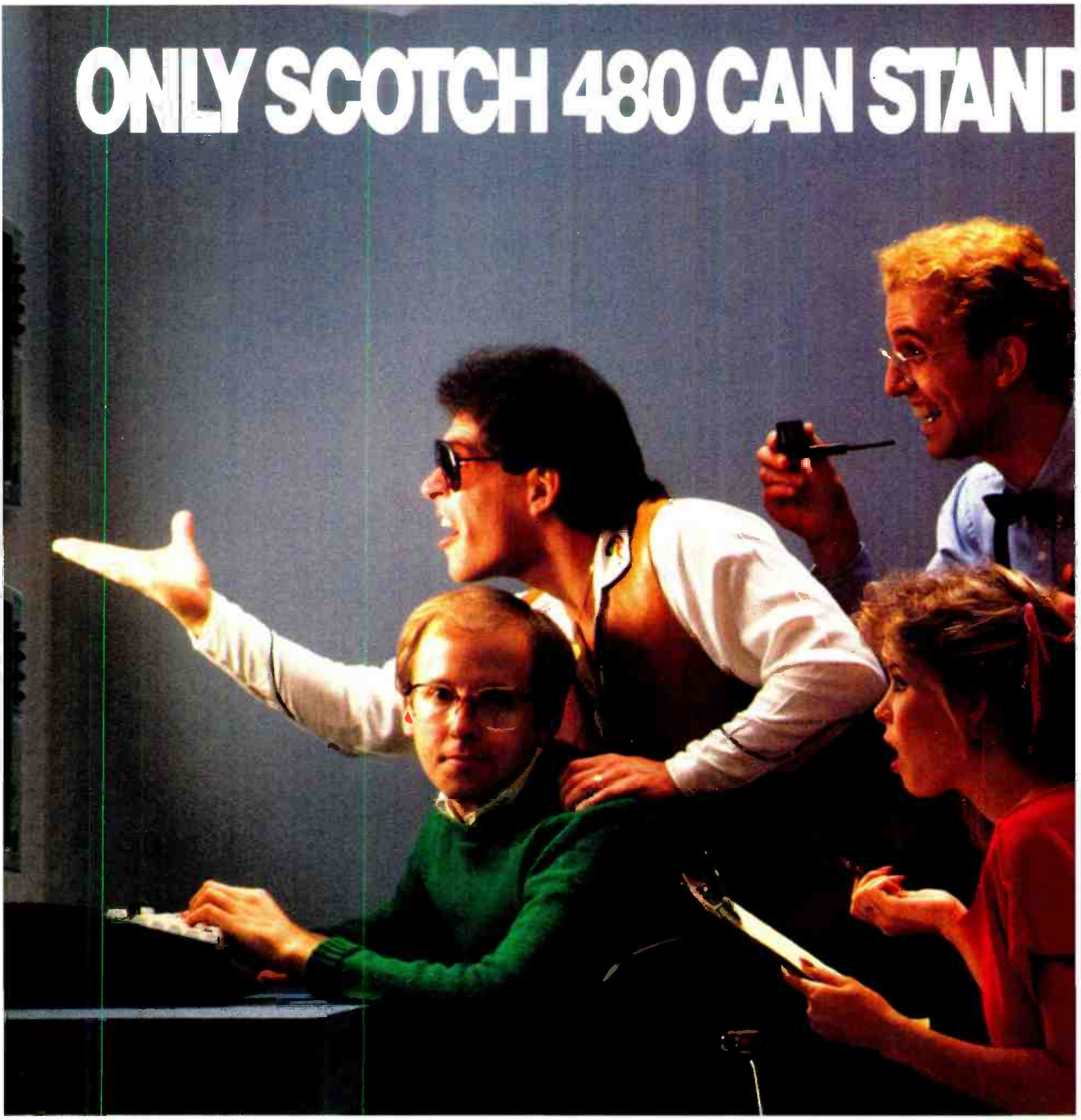

Every opinion expressed in an editing session adds up to more starting, stopping and rewinding of the tape. And that can lead to reduced picture quality, unless you've got new Scotch™ 480 one-inch video tape working for you.

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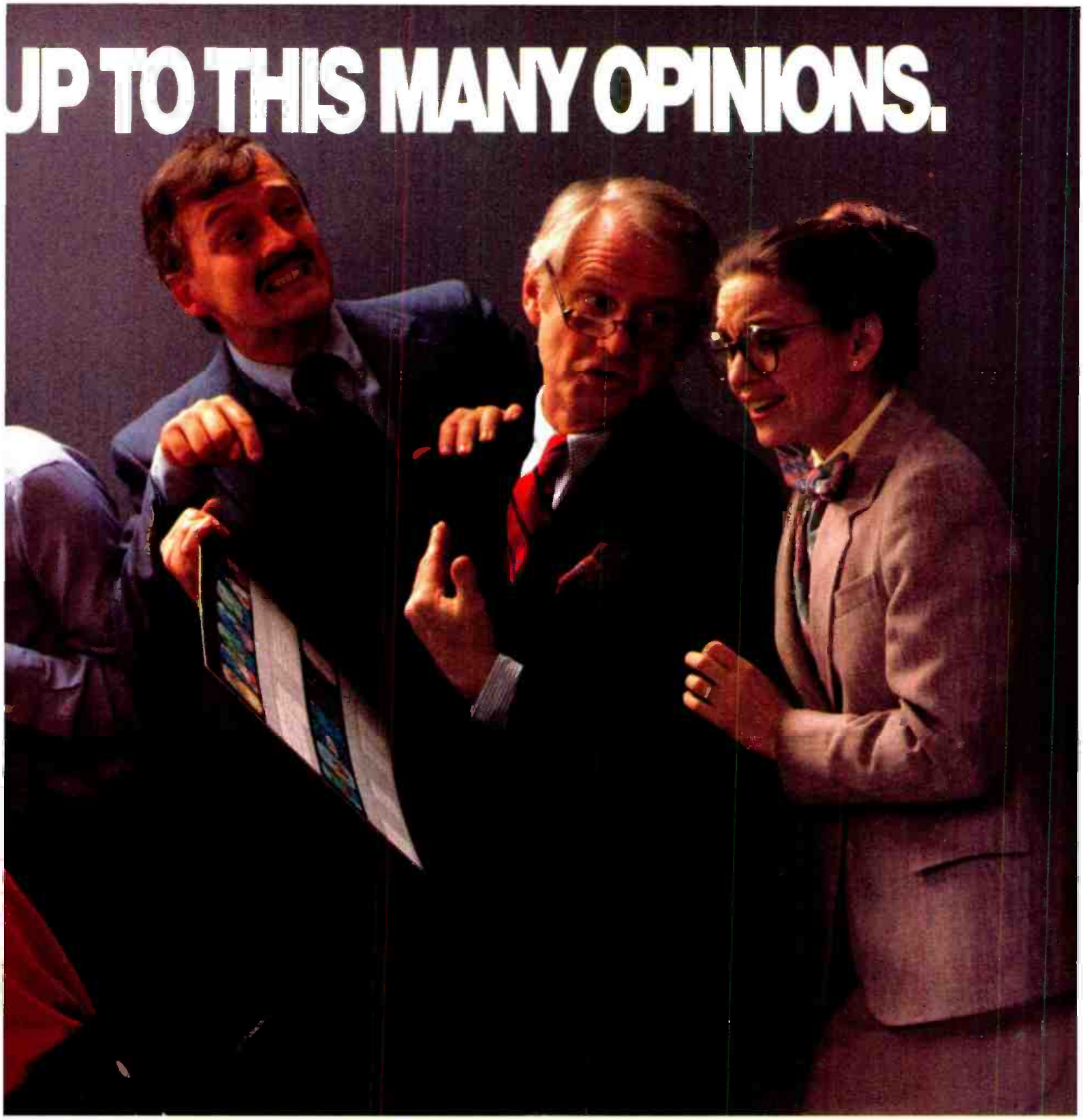

same preroll point, with no significant reduction in playback picture quality.

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EDITORIAL

Wish List Revisited

Last year at this time we ran a list of things that we wished would come to pass during 1983. In looking over that list to prepare this year's lineup, it is obvious that we were too ambitious or too optimistic or both. The fact that the '83 wishes did not all come true, however, will not prevent us from putting together another.

First, let's take a look at last year's list, because most of the items could easily be carried over. We wished:

- For a SMPTE standard for small-format recorder systems. Not much to add on the half-inch front, but at least the quarter-inch crew agreed to agree on a standard for that format. Progress, perhaps?
- That the FCC would modify its dedication to the "marketplace" in dealing with technical standards. Jim McKinney, the new chief of the Mass Media Bureau, seems to have received this message, but we'll wait and see.
- That multichannel TV would become a reality. It is getting there—production facilities are gearing up for stereo (cable has triggered some of it) and broadcasters are eagerly awaiting a go-ahead. That cable is already using stereo is the nub of another upcoming problem, however.
- For a single worldwide digital audio format. Will the industry DASH into the latest proposal, wait for AES, hope for SMPTE to step in, none of the above? Tune in next year.
- That DBS would be sorted out. It's beginning to happen as the participants jockey for position.
- That TV broadcasters and teleproduction facilities would speed up their movement toward higher-quality audio. We think that there has been marked progress here and more to come with stereo TV.
- That costs of satellite delivery systems would decline. Well, you gets what you pays for. Now, about the cost of the satellite downlinks. . . .
- For a marketplace decision for AM stereo. Despite the fact that this has not happened, AM broadcasters remain enthusiastic on the whole. Why? The receiver manufacturers came up with quality, multi-standard radios, that's why.

There are a few wishes to add for 1984, again in the knowledge that they may not all come to pass this year.

For television we wish that a standard digital interface proceed. We wish for finalization and acceptance of new SMPTE standards on edit decision lists and serial interfaces for post-production equipment.

For radio we hope that the industry will take full advantage of the new services—SCAs, satellite networking, the "cable connection," to name a few—now in the offing.

Finally, we wish our readers an exciting year. We are confident that at least this last wish will come true.

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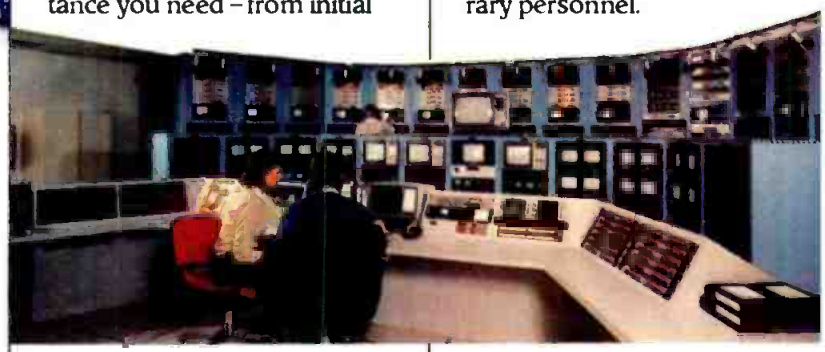

Plus, Control Systems

Whatever the control application, from CATV Commercial Insertion to Broadcast Station Master Control, the Midwest Team can provide the solution, from design through implementation.

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Consumer Service Debuts Amid DBS Scramble

Leaving its competitors jockeying for position, United Satellite Communications Inc. has taken the momentary lead in the DBS race. After its introduction of the nation's first commercial DBS service in Indianapolis last November, USCI plans to move on to 26 states in the Midwest and Northeast, charging $300 for installation of its 1 m dish and $40 per month for five channels of round-the-clock programming. RCA Service Co. will install and service the home equipment, which eventually will include descramblers. Prudential Insurance, General Instrument, and a group of private investors are backing the venture.

As for the competition, later this year Satellite Television Corp. will offer a similar service on the East Coast as a preemptive step to full service in 1986. Direct Broadcast Satellite Corp. signed a $240 million contract with Ford for two satellites, making it the second company after STC to use its high-power DBS construction permit; USCI is the only other of eight permit-holders likely to act. Rupert Murdoch's Skyband service was also due this year but has dropped out of the running, officially until 1985, citing its low-power transponders, a lack of available hardware, and a lack of suitable programming.

In fact, programming is likely to be the critical factor. USCI's main offerings have been two movie channels, Movietime and Showcase, and ESPN; it has obtained DBS rights for a film package HBO owns in the cable market, but probably lost its news source when Turner Broadcasting bought out Satellite News Channel. Meanwhile, Home Box Office has been talking with TBS and others such as ESPN about a DBS service made up of the many cable programmers now using the low-power Galaxy I satellite, which can itself provide a DBS signal to four-foot dishes. Showtime is considering distribution on a Viacom transponder. Whatever groupings of programmers and/or carriers result, they are all heading for the 25 to 30 million homes beyond cable's reach.

One-Inch Edit Suites Open at Panavideo, NYC

New York City production and post-production house Panavideo has just expanded its editing facilities with the opening of a pair of one-inch edit suites. According to chief engineer Jim Parkinson, the new rooms represent a significant step forward for Panavideo, which took over an additional floor in its headquarters at 248 E. 35 Street to build them.

The two rooms are similar in most respects and are built around Sony BVE-5000 computer editors, with a total of seven BVH-2000 one-inch VTRs. Each system can handle up to four playback machines and two recorders, according to Parkinson, and the machines can be reassigned between the rooms if needed.

The larger room has a Grass Valley 300-3A switcher with DVE and an Ampex ADO; the two rooms share the DVE and ADO by means of a delegation switch. Each has a Chyron IV (with MGM and Color Palette in the larger room), full stereo audio with Dolby capability, and a soundproofed announce booth for self-contained operation. "Everything is run through one large routing switcher, so no patching is necessary," Parkinson adds. The new suites replace Panavideo's previous one-inch edit room, which had three Sony BVH-1100s; those recorders are now used for dubbing, studio recording, and satellite transmission feeds.

Aided by assistant editor Wayne Leone (right), Panavideo chief engineer Jim Parkinson works at the Sony BVE-5000 editor in one of the new editing rooms.

Data Broadcasting Test Results Made Available

Pursuing its goal of digital FM data transmission, Modulation Sciences (MSI) has released preliminary test results conducted over two New York City FM radio stations. The actual transmission tests were conducted in an attempt to establish the feasibility of wide-area data broadcasting to inexpensive receivers.

Some FM data transmission has taken place prior to these experiments, but it employed telephone-type audio frequency shift techniques which require a good S/N ratio and a relatively expensive decoder. The Modulation Sciences method shifts the frequency of the FM subcarrier directly, permitting S/N ratios as low as 12 dB, and dropping decoder parts to under $10.

According to Eric Small, VP engineering of MSI, "Data transmission error rates are at least two orders of magnitude better than the standard for telephone lines."

Test data were broadcast for three weeks over subcarriers of two New York FM stations, WBAI and WPAT. Transmission rates were 1200 to 4800 baud. Error rates proved to be better than one in 10 million, with accurate reception extending 30 to 40 miles from the transmission antennas located atop the Empire State Building and the World Trade Center. Simple indoor whip antennas appeared to be satisfactory for reception in many instances.

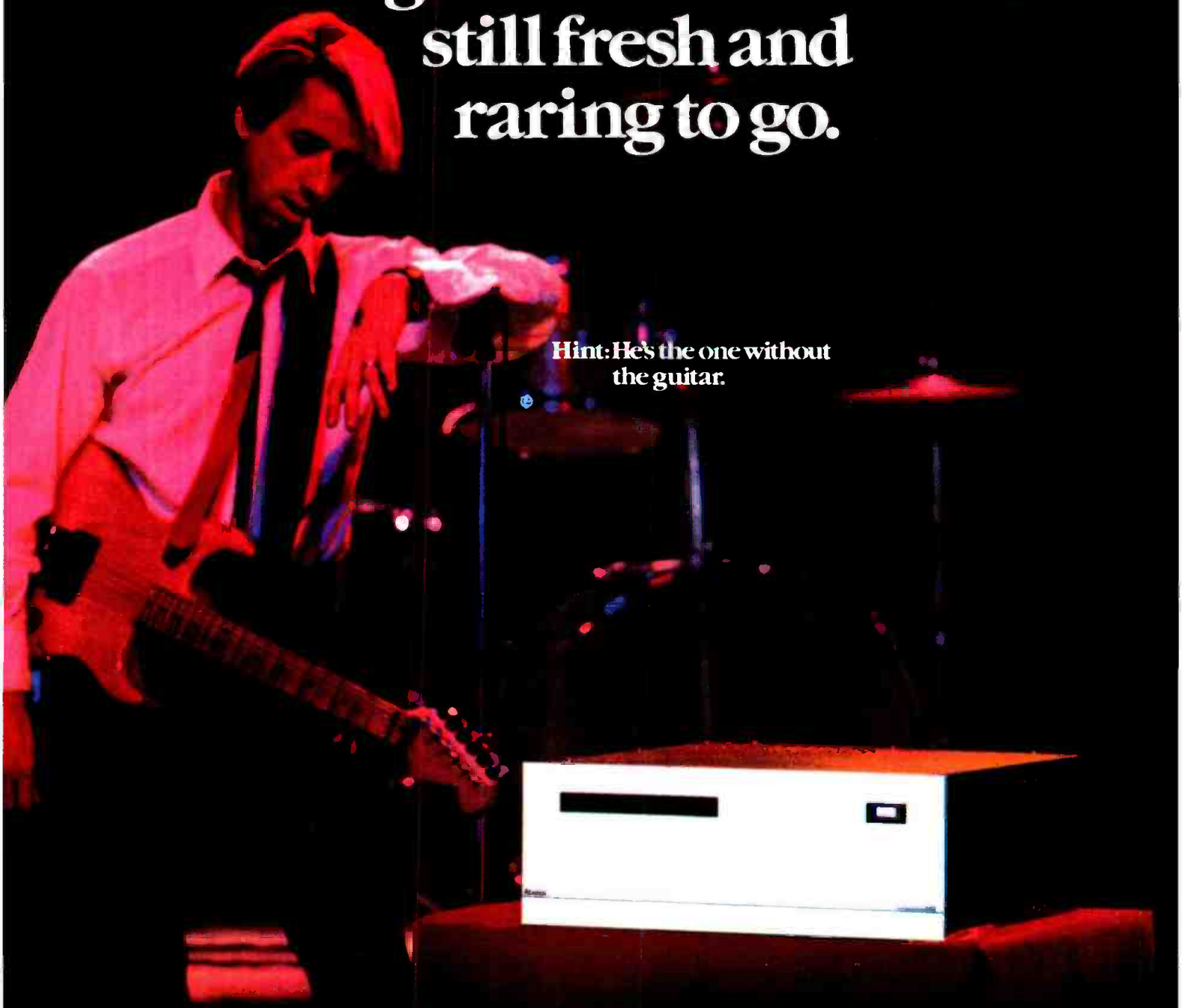
Small believes that, in light of recent FCC deregulation of FM SCAs, it will be economical for organizations that transmit large amounts of data in one direction to employ the new data transmission method.

"Potentially, the method could result in two new channels per FM station. Up to 10,000 new channels could replace phone lines at less cost and with equal or superior error rates," says Small.

Teletext Faces Snags Over Decoders, Captions

Proponents of the North American Broadcast Teletext System, including CBS-TV, faced some hard questions on teletext at a recent meeting of the

One of these performers has done 18 one-nighters in a row and is still fresh and raring to go.



Hint: He's the one without the guitar.

Not so long ago, still store systems were big and bulky beasts. They took forever to install and were hard to move. And they had to be handled with "white gloves" and plenty of TLC.

We've taken a different tack. We believe a still store should be a small, rugged video black box capable of taking all the knocks and scrapes the real world can dish out.

Our compact 7-inch A42 digital still store recently hit the road as part of the Simon & Garfunkel reunion concert tour. It assisted in the live video production. And it took abuse no still store had ever taken before. The A42 was thrown onto a truck, unloaded, set up, used at each concert, packed back up, and then tossed back in the truck again for the next one-night stand.

The A42 came through with flying colors—offering the latest innovations in still store technology, super reliability, space savings, and at a very affordable price. If the A42 can do 18 one-nighters on the road, think what it can accomplish for you in your studio. Call today for full details or to arrange for an in-house demo: (415) 571-1711. Or write Abekas Video Systems, Inc., 319 Lincoln Centre Drive, Foster City, CA 94404.

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Video Systems, Inc.

Science, Research and Technology Subcommittee of the House of Representatives Committee on Science and Technology. Concerns over closed captioning for hearing-impaired viewers and the cost and availability of teletext decoders were raised by the subcommittee members.

CBS reportedly feels that the wait for NABTS decoders—which could be 18 months to two years, according to some—is justified because of the much larger amount of information teletext will provide to deaf viewers. Proponents of Line 21 closed captioning, such as the National Captioning Institute, are concerned that teletext could spell what NCI president John Ball terms the "premature obsolescence of the present technology, in which hearing-impaired audiences have already invested in excess of $20 million." Speaking at the House hearings, Ball urged, "The introduction of new technologies must be done in a way that complements the Line 21 technology now in use."

Supporters of World System Teletext, the British-developed rival to NABTS, point out the ready availability and much lower cost of decoder chips, and the compatibility of the system with Line 21 captioning. On the other hand, the NABTS camp praises what it calls its system's far superior graphics, which may make NABTS more attractive to advertisers. NABTS may have suffered a setback, however, from Zenith's recent announcement that it will install an ITT-developed World System Teletext decoder chip in its 1984 sets, with only a $1 price increase to consumers. Some observers feel that the Zenith move will leave World System Teletext the U.S. de facto standard.

In another teletext development, Time, Inc., has discontinued its teletext trial. Reportedly, Time was dissatisfied with customer attention span and with the service's lack of interactive capability. In addition, converter supplier Matsushita was unable to reduce the price of the box below $200, above the $150 price Time had targeted.

Political Debates OK, According to FCC

The FCC's reinterpretation of station-run political debates as "on-the-spot coverage of bona fide news events" will give U.S. broadcasters greater leeway in this election year. (See page 91 for analysis). Now broadcasters may arrange, sponsor, and air at their leisure political debates between candidates without fear of equal-time challenges from excluded minor candidates. Previously, a third party, such as the League of Women Voters, had to sponsor such events, which had to be aired in their entirety within twenty-four hours. The new rule relaxation allows debates to be shown days later.

The decision came in response to petition by the NAB, RTNDA, and Henry Geller, former NTIA head, asking for removal of what commissioner James Quello called "restrictions on broadcasters' First Amendment rights." The FCC refused to rule on the part of the filing that would have allowed documentaries with "significant candidate appearances" to avoid equal-time requirements.

On another front, the FCC denied a request that broadcasters be allowed to

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sell time to one party or candidate without having to give time to opponents. CBS, Gaylord, Metromedia, and the NAB had asked that the Commission drop the Cullman principle, which requires airing of opposing viewpoints at any time during the year whether or not someone pays for it. The broadcasters requested that only the Zapple doctrine apply, by which a broadcaster must make time available, during campaigns, similar to that sold to an opponent.

RCA Hybrid Satellites to Combine C, Ku Bands

RCA American Communications has filed with the FCC for authority to construct, launch, and operate three additional Satcom communications satellites. The hybrid birds would each carry a total of 40 transponders, 16 Ku-band and 24 C-band.

The requested orbital slots of 61, 63 and 65 degrees would provide coverage to the continental U.S., plus the Caribbean basin. The satellites' Ku-band transponders would operate at 54 MHz bandwidth with a power of 50 W, providing 46 to 52 dBw signal strength on the ground. The C-band transponders would transmit 10 W of power over a 36 Mhz bandwidth, for 36 dBw signal strength. Each satellite would have two backup Ku-band transponders and three backup C-band transponders.

Tape Makers Step Up Distribution Efforts

Sony Tape Sales Co. and Maxell America, Inc., have both taken recent steps to improve their tape distribution to U.S. broadcasters.

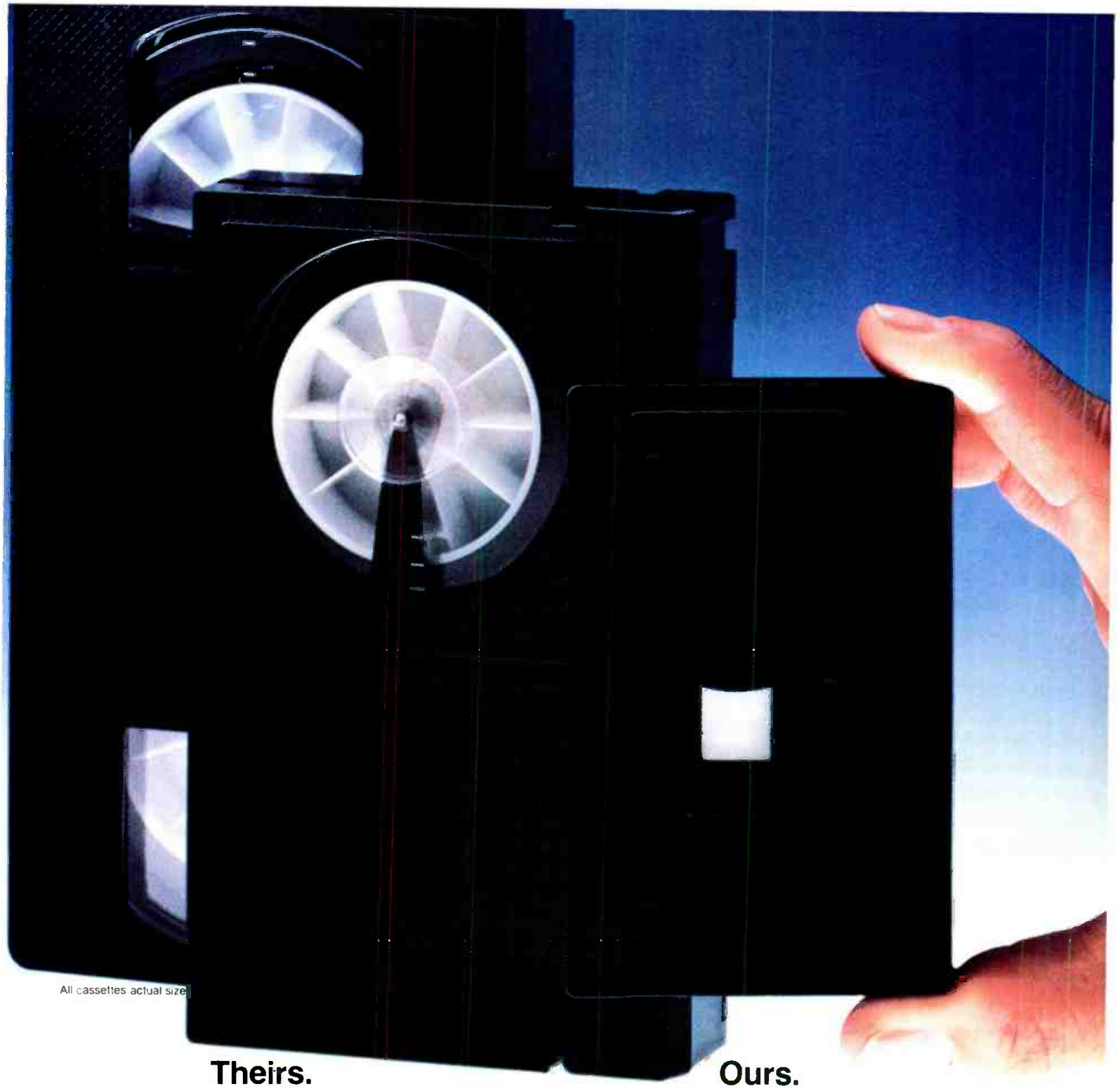
Maxell recently opened a new 36,000-square-foot automatic, computerized storage and retrieval warehouse and distribution center adjacent to its Conyers, GA, manufacturing plant. The company has also added a new molding and video production area and employee cafeteria to the manufacturing facility, which produces VHS videocassettes, audio cassettes, and mini floppy disks.

Sony, too, has been working to improve deliveries to broadcasters, with management and sales force changes over the past few months and stepped-up production at its Dothan, AL, manufacturing plant. The company recently signed an agreement with Turner Broadcasting System to supply U-Matic videocassettes to WTBS and Cable News Network.

FCC Tables Action on Syndication Rules

FCC chairman Mark S. Fowler surprised industry observers recently with his sudden announcement that the Commission would hold off any action on liberalizing its financial interest and syndication rules until the spring. The FCC retreat was answered by Congress's abandonment of legislation that would have forced a moratorium on FCC action on the rules.

Fowler's move came as the result of pressure from the House and Senate, which wanted additional time for the industry to come to agreement. Both legislators and commissioners have warned, however, that if agreement is not forthcoming they will act in its absence.



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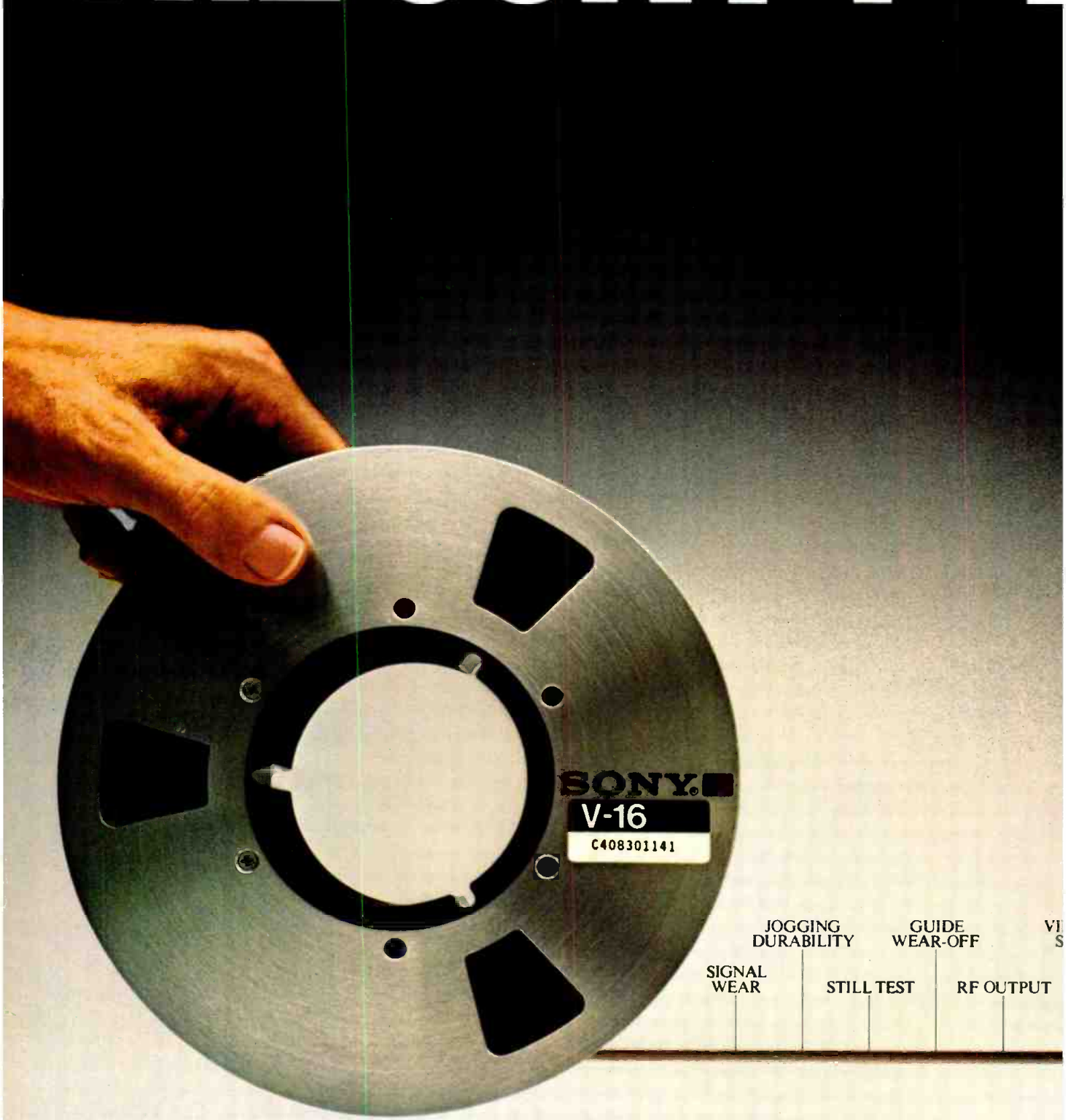

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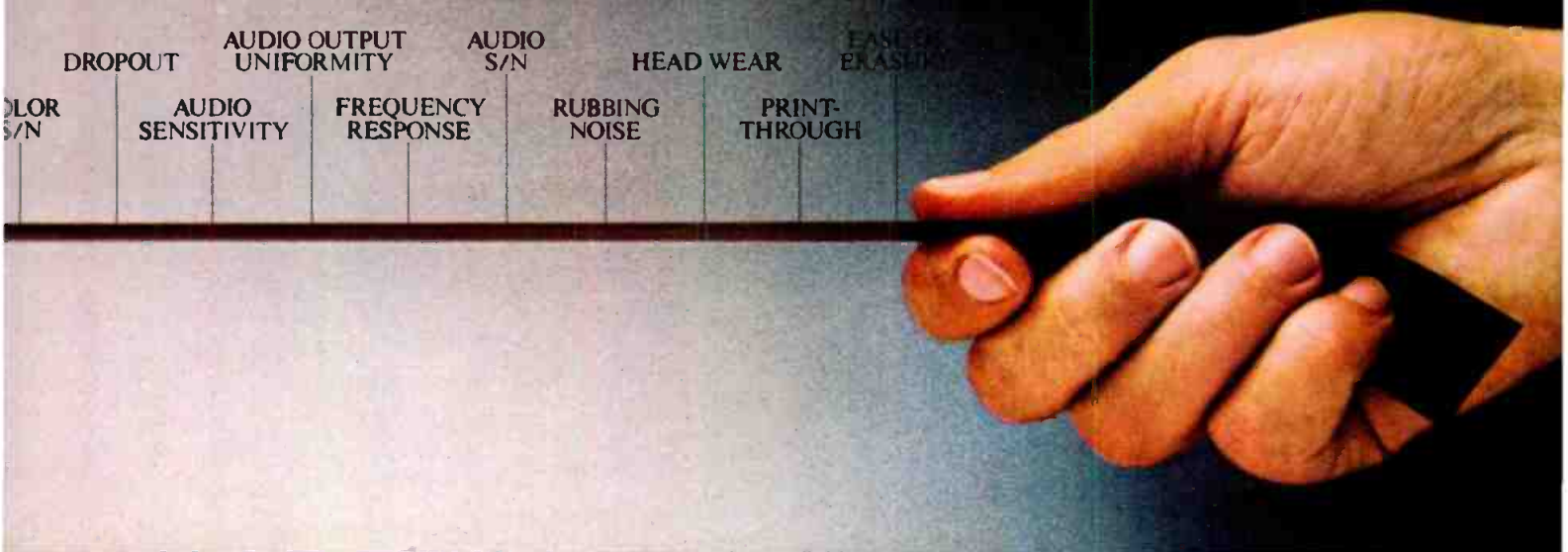

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WDHA-FM Exploits New Video Technology

By John Storm Roberts Special Assignments Editor

When it comes to getting the best production results with the least money, there are probably few "firsts" left in radio. But WDHA-FM's use of video to keep costs down while maintaining the station's reputation for technical innovation is successful enough that it just might raise a few eyebrows.

WDHA-FM, Dover, NJ, is a Class A radio station transmitting at 3000 W, lurking on the fringes of the ultra-big-city market that is New York City. An AOR station in competition with New York's AOR stations, WDHA has, over the last couple of decades, established a quiet but profitable niche in the forefront of the industry.

It was WDHA that pioneered FM stereo back in 1961, winning a Major Armstrong Award for FM engineering excellence in the process. It was, according to VP and general manager Robert Linder, WDHA that first introduced the Compact Disc into its regular programming—a "first" whose nature and scope can be measured by the fact that the station cannot find enough U.S.-issued rock CDs for its purposes, and regularly imports them from overseas

And now, since early fall 1983, WDHA is claiming another equipment/programming first: broadcasting the audio tracks on videocassettes alongside its CDs and conventional audio albums. To be more specific, the station has hooked one of the new Hi Fi consumer VCRs into its system

Quality sound source

The reasons neatly bracket the concerns of any competitive commercial station. As GM Bob Linder puts it, "As a small station, it allows us quality production at minimal cost. We got interested in the Sony Beta Hi Fi concept because we'd been working with Sony on the CD. The quality of the Beta Hi Fi audio still amazes me. Using it strictly as audio, it still far surpasses reel-to-reel at a dollar-for- dollar cost. As a tape recorder, it's unexcelled except by CD."

During his decade as general manager of northern New Jersey's WDHA-FM, Robert Linder has kept the station in the technological frontline, from FM stereo to the CD.

Linder describes the tradeoff as follows: The audio quality of the Beta Hi Fi is described in terms of dynamic range. CDs are at the top of the performance charts, with a dynamic range of around 90 dB; a regular VCR is at the bottom, with a range of perhaps 45 dB; record albums check in at 65 dB and reel-to-reel tapes at about 70 dB. The Beta Hi Fi machine, with a dynamic range of 80 dB, is just 10 short of the current summit of achievement (CD)—and 20 dB wider in range than FM broadcasting itself.

The cost factor can be judged, says Linder, by the fact that Sony is making the Beta Hi Fi machine available to qualifying radio stations at a wholesale cost of around $500. Compare that with a discounted price of around $1200 for a basic broadcast-quality ATR.

Cost/quality factors

The basic cost/quality factor is the major practical benefit to WDHA of using the Beta Hi Fi as though it were an audio machine. But it is not the only one. Another is the fact that it allows for electronic tape editing that would be impossible with audio equipment except at a considerable investment.

A third plus has to do with the nature of FM as it is now practiced. In Linder's words, "FM is criticized for its heavy compression—there's often been a war of who is loudest. If you're compressing, you must start with a high-quality source, and there's no question that either CD or Beta Hi Fi gives that. Beta Hi Fi helps us achieve a compromise of 'tasteful' compression: Loud but not obnoxious!"

The simple ratio of cost to quality would be sufficient justification for WDHA's use of Beta Hi Fi. But there is a whole other area of benefit that—while not so neatly quantifiable in dollars and cents—is perhaps even more important to WDHA. This is the area of image-making and the promotion that lies behind it. In a nutshell, the use of Beta Hi Fi, like the station's pioneering use of CD in regular programming, and

the still earlier pioneering of FM stereo, is promotable. "WDHA has always been an engineering pioneer," says Linder. "Living in the shadow of New York City, we have to be one step ahead of our competition there."

Engineering innovation is one way in which WDHA has managed to preserve an image of hipness that is important to an AOR station. Another is programming within the general AOR format. WDHA—"Rock of New Jersey"—serves an audience in the New Jersey market of 88,000 in weekly cume. The target demographic, predictably, is 18-34, and within that an average age-group in the early 20s. It's a demographic that is particularly interested in new things, and WDHA caters to that interest by maintaining one of the widest AOR playlists in the country. The playlist for the week of November 16, 1983, was typical in its range. Classic AOR standbys such as the Rolling Stones, Genesis and Billy Joel rubbed grooves with Culture Club and Police.

MTV challenge

Like AOR stations everywhere, WDHA is nervous about the impact of MTV. To some extent WDHA fights back toe-to-toe. In Linder's words, "We provide an avenue for new music, just like MTV." Nevertheless, he believes, despite the reassurances offered by the various market surveys on the subject, that "the impact of MTV has been quite significant." Aside from anything else, he maintains, the record companies show signs of regarding MTV as a more important vehicle for breaking new product than radio. "The new Duran Duran was released on MTV exclusively," he points out.

The use of Beta Hi Fi helps WDHA fight back in two ways. First, it gives the station access to product that might otherwise not be available. An example cited by Linder is the unedited version of Duran Duran's "Girls on Film," whose video is too explicit for MTV. Secondly—bizarre as this may sound—the fact that the DJs can watch the video of the Beta Hi Fi software and comment on it on the air seems to please the innovation-addicted listeners. And not the listeners alone: In a market whose potential advertisers are not particularly geared to Arbitron, the local advertisers are also impressed, it seems. Cost, quality and image become a package of advantages to suit a GM's dreams. **BM/E**

WDHA's Beta Hi-Fi unit—and attendant TV monitor—perch top right above the console, part of an arsenal that includes the usual turntable and carts and a CD player. Among its merits are not only quality and cost, but material for an enlargement of the DJ's rap.

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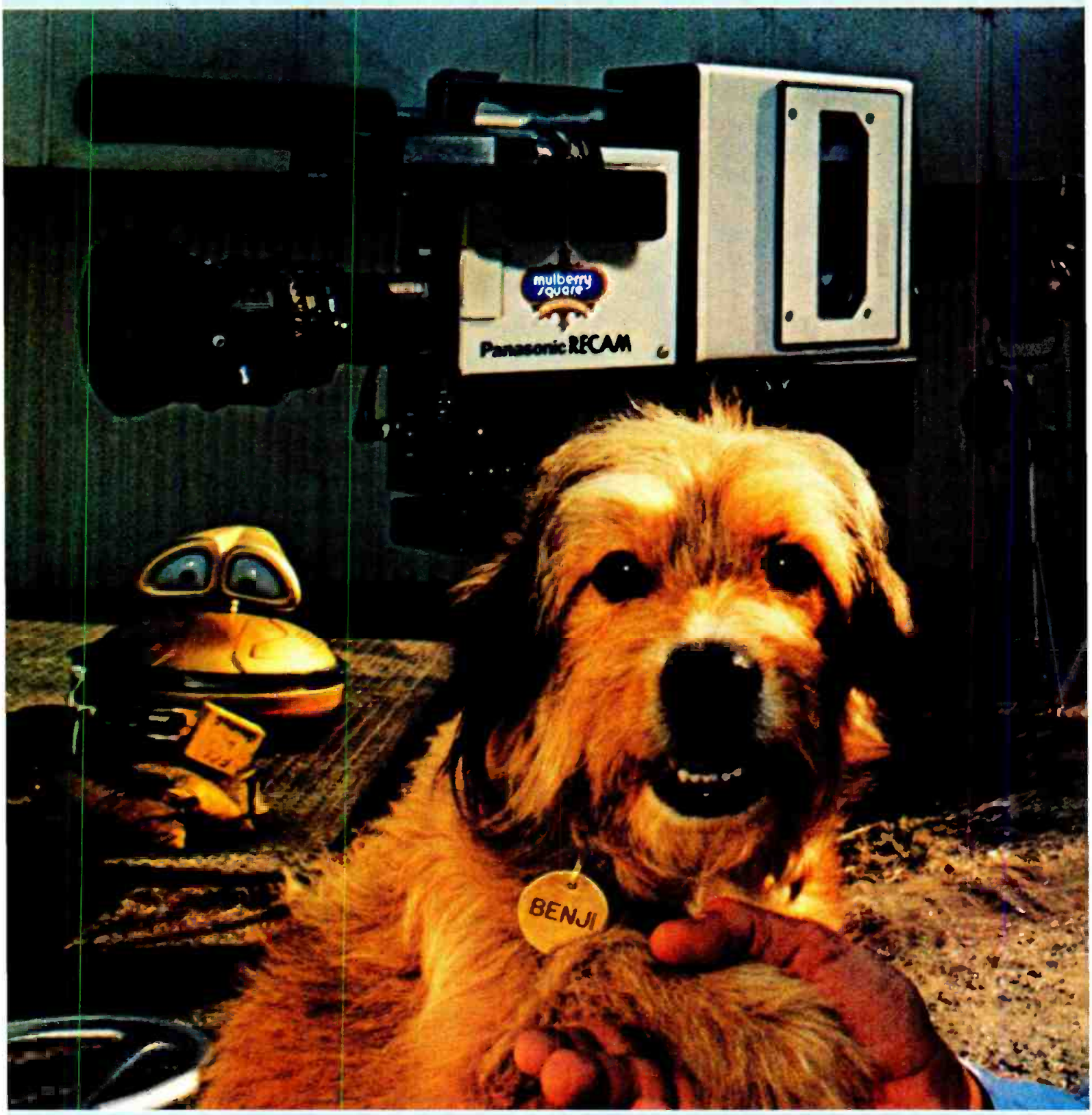

On Saturday mornings, children all over America are being entertained by a unique new CBS-TV series, "Benji, Zax and the Alien Prince." What makes this show unique is more than a lovable dog. It's the fact that this Mulberry Square Productions project is the first network series entirely shot and edited on ½-inch tape. And the system they selected was Panasonic Recam.

One of the reasons Joe Camp selected Recam is its incredible YIQ M-Format picture quality. Another reason is its portability. It makes changing scenes and locations fast and easy. And that's important on a tight production schedule.

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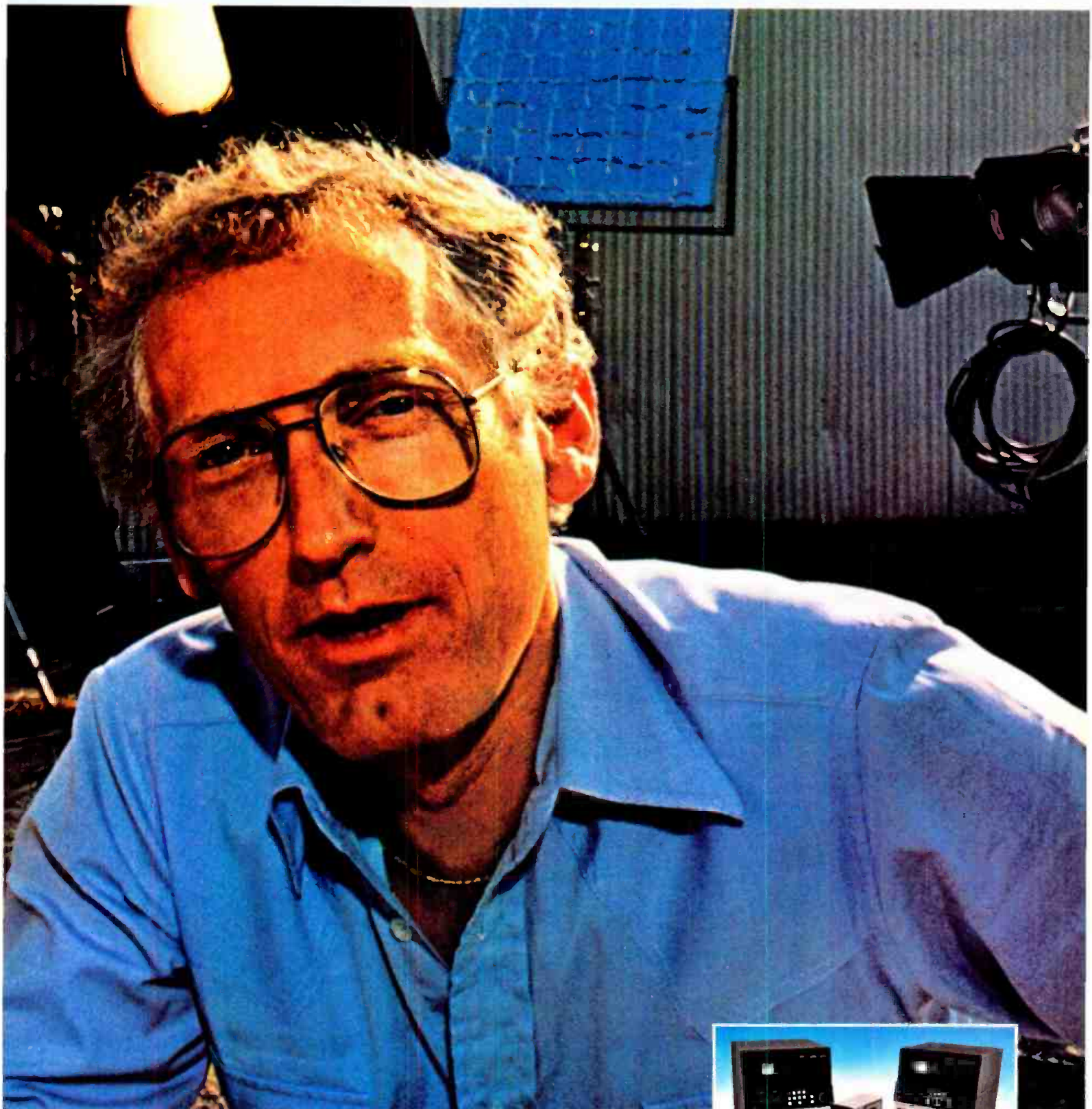
Joe Camp, *Creator of Benji.*



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Benji, Zax, and Recorder/Camera Return Dramatic Programming to Kidvid

By Eva J. Blinder
Senior Associate Editor

Mulberry Square Productions, the Dallas facility responsible for the new CBS children's show, *Benji, Zax, and the Alien Prince*, claims an impressive list of "firsts" for the series. According to the Mulberry Square crew, the show is the first network dramatic series to be shot entirely on location on half-inch videotape with an integrated recorder/camera. Mulberry Square believes also that it is the first network dramatic series created, developed, and produced outside of the New York or Los Angeles areas, and the first dramatic show on Saturday morning in several years.

Joe Camp, president and founder of Mulberry Square, went all-out for the "film-look" in this videotape production, the first all-tape show his company has produced. (Mulberry Square's previous achievements include five feature films—three based around shaggy-dog star Benji—and four prime-time specials for ABC, also Benji-related.) As someone coming from a film background, Camp is delighted with the portability of the camera, coupled with the excellent quality of the half-inch tape.

"We need complete, total portability and flexibility—to get into corners, hang the camera from trees, or chase Benji across a field in a handheld or Steadicam mode," Camp explains. "We can do anything from a logistical standpoint that you can with a Panaflex [the film camera he used for previous Mulberry Square productions.]."

Camp worked in conjunction with Hanna-Barbera, owned by Taft Broadcasting, on the series. Tests run by Taft engineers convinced their counterparts at CBS (who had been slightly skeptical) of the recording quality of the half-inch M-format.

Filming on video

Although he appreciated the convenience of videotape, Camp had no intention of sacrificing the "film look" in the series. As he explains it, there's no need to do so.

"In England," Camp relates, "the lighting cameraman has never cared whether he was dealing with videotape or with film. If you look at some of the PBS shows that were produced on tape in England, it's hard to tell the difference. But here, never the twain has met.

"If you walk into a standard video studio and start trying to do low-key lighting, you send the engineer right up the wall," Camp complains. "The standard videotape look is to go into the studio and turn on every light in the house. The lighting is very flat, with no usage of source lighting or fills. We used heavy source lighting with lots of dark areas and lots of silhouetting—things you don't often see in video."

First assistant cameraman Gary Jay (far right) adjusts lens on ReCam as director Joe Camp coaches Benji.

Use of filters

One other aspect of the film look that Camp wanted to maintain was film's shallower depth of field, with the center of attention in sharp focus and the rest of the frame a little soft. Constant use of neutral density filters lowered the lenses' sensitivity, allowing him to keep apertures at f/4 to f/5.6 at maximum. Most shooting was done in the f/2 to f/2.8 range.

In addition, Camp mixed low contrast and soft contrast filters to minimize the harshness and loss of detail inherent in high-contrast scenes. "The filters gave us a softer contrast curve with an apparent increase in latitude," Camp says. "Videotape has a much flatter curve on what it will hold—for example, at f/5.6 on a brightly sunlit day, areas in the shadow will show up dead black." Another typical problem situation is the backlit subject on a sunny street. "On videotape, the sky can be as high as 140 percent on the waveform monitor," he says. "You can bring in lots of lights, or stop down so the light comes down to 100 percent—but that way you silhouette the person."

The soft contrast filter brings the hot areas of the scene down to manageable levels while leaving the darker areas unaffected. Its counterpart, the low contrast filter, acts to bring up detail in the dark areas without affecting the lighter areas. "On normal video, the engineers like to have black at 7.5," according to Camp. "In many things we shot we had black at 15 percent on the waveform monitor . . . what they'd consider dead black we never let go to dead black." Between the two filters,

Camp was able to increase detail and avoid some of the harshness often found with tape.

He also made almost constant use of fog filters for what he calls "a selective softening" effect. "We have at least a half fog on every picture we've shot," he comments; the show often used a number one fog and occasionally a number two to give a softer edge to the lighting. The only time Camp omitted the fog filter was on very cloudy days when using a very long focal length.

Camp used two Fujinon zooms with the Panasonic ReCam, a 10:1 with 2X extender and a 6.5-23 mm wide angle with MOD of one foot. "I would dearly love to have fixed focal length lenses, but they just don't exist," he adds. "We prefer to move the camera rather than to zoom in." The wide angle zoom, however, allowed him to get close in for closeups, a technique he prefers because if affords a wider perspective than zooming in with a longer lens.

Easy effects

"Basically, it would be very difficult for someone short of an expert to tell whether the show was shot on film or tape," Camp states. "We were able to get the mode and mood and feel of film with the convenience of videotape." That convenience aided the addition of special effects, which were done in Mulberry Square's studio.

The effects centered around Zax (the android guardian of the exiled prince from the planet Antares, played by a real Earth boy). Zax, who looks "not unlike a squashed grapefruit," in Camp's words, locomotes by floating through the air.

"Occasionally we'd float him with wires," Camp relates, "but usually we shot plates with the people talking to dead air and matted Zax in." Mulberry Square used the Newsmatte device by Ultimatte, which Camp says was especially effective in eliminating blue edges and other problems often associated with chromakeys. "The Newsmatte allows the matted-in figures to cast shadows on the background," he explains. "It makes the chromakey look exactly like it was shot normally under most lighting conditions. It also lets you light down—it differentiates between the real blue background and reflections so you can actually have little wispy hairs chromakeyed over the background."

The ability to soften the lighting helped Zax look more natural in such scenes as a dimly lit barn. "With a regular chromakey, Zax would have looked like he was in a supermarket, but with the Newsmatte we can lower his level down to black if we want to."

Editing took place at Mulberry Square on the facility's full Videomedia Z-6000 editing system. The show was first edited off-line from half-inch dubs on a Convergence ECS-201 and a Panasonic M-format editor. On-line editing, from the half-inch originals, produced a master copy on the Hitachi one-inch decks. According to Camp, Mulberry Square has five Panasonic AU-300 M-format studio decks in house.

Setting a trend?

At press time, Mulberry Square had completed 12 of the 13 episodes of *Benji, Zax, and the Alien Prince* and was at work on the final installment. Will CBS renew the series?

"I think CBS is to be commended for striking out at [dramatic programming on Saturday mornings] again," Camp states. "But I don't think drama will become a trend unless the ratings improve." He says CBS is committed to running the show for the full year, but the entrenchment of animated cartoons has left the network with disappointing ratings so far.

If dramatic programming on Saturdays doesn't become a trend, production outside the New York and Los Angeles center may very well do so, according to Camp. He notes that the networks are continuing to lose audience share and thus revenues, so their interest in cost-effective program production is rising. At the same time, cable is becoming more able to afford original production—but not necessarily at New York/L A. prices. "Dallas, Atlanta, and Miami all have solid, growing production industries," he notes

Camp is certainly devoted to the destruction of stigmas. He has turned the "stigma" of Dallas production and the "stigma" of videotape into creative advantages for a most unusual children's program. **BM/E**

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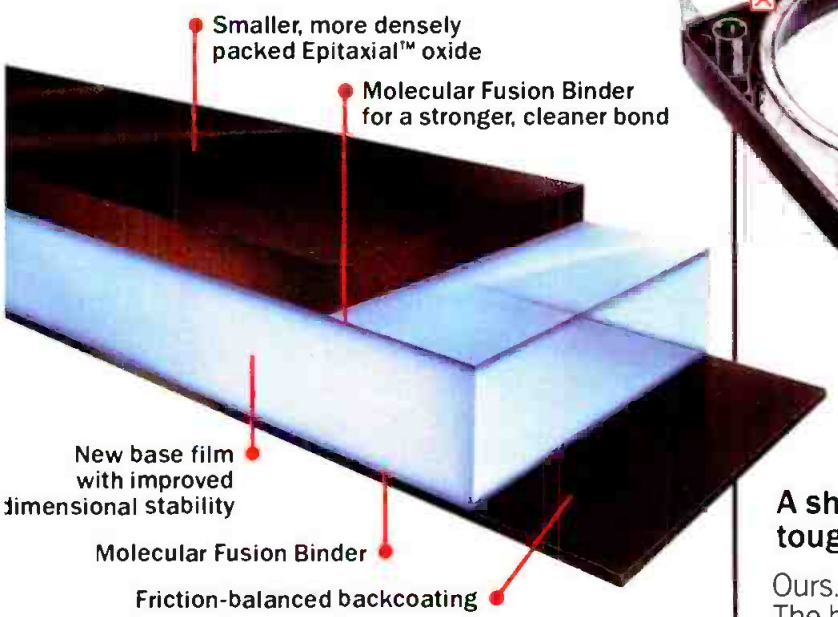

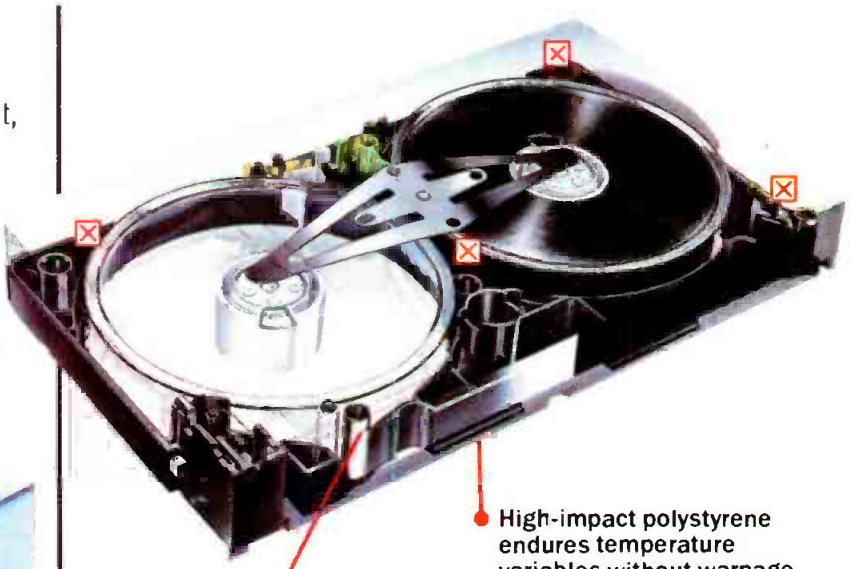

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Special Report: weather graphics

The increasing amount of weather data available to broadcasters has been matched by increasingly sophisticated weather graphics systems.

By Eva J. Blinder
Senior Associate Editor

Weather broadcasting is the focus of increasing attention at television stations around the country. Broadcasters are realizing that they can, indeed, do something about the weather: colorize it, animate it, and manipulate it to provide dynamic, eye-catching visual displays.

The growing interest in weather graphics is perhaps best illustrated by the dual trend of the past couple of years. Makers of standalone weather systems are increasing their graphics capabilities and upgrading their products into full (or nearly full) production graphics systems; at the same time, makers of advanced digital art systems are adding weather capabilities. This growth-from-both-ends phenomenon further illustrates the desire of broadcasters at all levels for the best graphics possible.

Data sources

To understand weather graphics, it is useful to look first at the kinds of raw data available. Several companies are involved in supplying this data, which comes from a combination of government and private sources. Perhaps the best known are WSI Corp. of Bedford, MA, and Environmental Satellite Data (ESD) of Suitland, MD. Both companies offer a variety of satellite pictures from the National Oceanographic and Atmospheric Administration's (NOAA) Geostationary Operational Environmental Satellites (known as GOES). The GOES-East and GOES-West satellites gather infrared data on weather conditions, together covering the entire U.S. and going west past Hawaii and east as far as the Azores. This information is received and processed in digital form by the computers at the databases, which then add such information as political boundaries. Users are then offered a large selection of pictures, each broken into 16 luminance levels (representing bodies of water, land masses, political boundaries, and 13 cloud layers) that can be individually colorized.

The data services also offer conventional weather graphics, such as temperature and humidity curves, and information taken from the government weather radar installations around the country. This information, too, is formatted for digital transmission over telephone lines. Another source of conventional weather data is Weatherscan, which processes raw radar data from the National Weather Service and Federal Aviation Administration weather circuits in its mainframe computer in Oklahoma City for transmission to clients. (Weatherscan does not provide satellite data.) In addition, ESD offers graphics prepared on a ColorGraphics system by Accu-Weather, the Pennsylvania-based weather forecasting service.

To use the information on the air, the station needs a graphics system capable of receiving data over a telephone modem. The user dials the access number for the database and punches in a code representing the specific weather products desired. The pictures take approximately three to four minutes to be transmitted and received.

What happens next depends on the abilities of the system. Virtually all, whether standalone weather graphics systems or advanced digital graphics units, allow the user to select colors, plug in alphanumeric data such as temperature and humidity, add weather symbols for fronts, clouds, rain, and other conditions, and loop a series of consecutive satellite pictures for animation to show moving weather patterns. Most systems now offer graphics tablets that allow the meteorologist or an artist to draw directly on the screen for unique images. The advanced art/paint systems, of course, have all these features, plus their advanced picture manipulation capabilities.

What makes a system appropriate for a given application? That depends largely on the station's aims. The standalone weather systems may offer more flexibility in processing weather information, especially since many were designed for real-time creation of graphics. With a graphics tablet, such a system can often double as a production graphics system. For the most sophisticated on-air graphics, however, the art/paint systems win easily. Using such a system for weather can also contribute to a more unified on-air look for a station.

Standalone systems

Still, even large stations and networks often rely on the standalone systems for weather, if only to ease the burden on their advanced art/paint systems. Among the most widely used are the LiveLine I and LiveLine III from ColorGraphics, which claims to serve about 80 percent of the TV real-time graphics market, with over 210 systems installed. According to company presi-

dent Terry Kelly, the ColorGraphics hardware is designed to make graphics production simple even for those with no knowledge of computers. The systems' real-time design makes graphics production especially fast, Kelly says.

The systems include a font generator for adding alphanumeric information to the weather pictures and are capable of producing three-dimensional maps. Resolution is 760X484 pixels, which Kelly says is the highest of any real-time system. The system also has the largest amount of storage—up to 2500 frames on hard disk. It can perform looping animation at a continuous speed of five frames per second, and Kelly says ColorGraphics will soon offer full animation at 30 frames per second.

Options to the ColorGraphics systems include a sports package that processes data from SportsTicker, the score reporting service, allowing scores to change on air in real time; an election package including graphics; and a digitizer package that inputs video from any source, including VTRs, cameras, or radar, and can automatically access frames of radar, add graphics, and store the completed images. Base price for the LiveLine III is $49,900, but a typical system with options is usually priced in the upper-$50,000 range, according to Kelly.

Another widely used standalone weather system is WeatherGraphics, developed by McInnis Skinner & Associates (recently acquired by Beston Electronics) and distributed by Weatherscan. The development of the system, introduced in 1979, is typical. "Our system started primarily as a weather graphics system," explains engineer Doug Wingard. "Now it has the potential for an art system, and more users are using it as a production tool." WeatherGraphics can also serve as a starter package for the Beston/McInnis Skinner automated newsroom system, since all the newsroom software can operate from the same CPU as the weather system.

The system hardware consists of a Hewlett-Packard HP 1000 host computer, which drives a microcomputer for graphics; a graphics tablet, terminal, and standard 16.5 Mbyte disk drive complete the package. Stations can opt for disk drives as large as 65 or 67 Mbytes or even bigger; a tape drive system is available for archive and backup storage.

Users input information through either the terminal or the graphics tablet, and can design their own weather symbols or use symbols supplied with the system. The present system is capable of some simulated movement and simulated animation, and has resolution of 640X480 pixels. The graphics are based on a square pixel, which Wingard says causes less distortion of pictures drawn on the graphics tablet and makes them look cleaner.

Scheduled for this month is the debut of an enhanced system from Beston/McInnis Skinner that will incorporate a larger grid system with 1920X480 resolution and will be able to pan, zoom, and offer more sophisticated graphics and animation. It will also feature full character generator capabilities (a Beston addition) and will be capable of supporting up to eight workstations for simultaneous on- and off-line work.

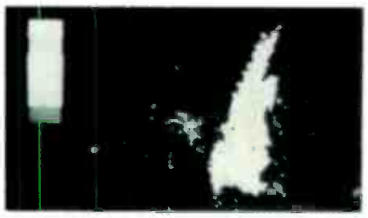
Cutting costs

One newcomer into the weather graphics field, Vectrix Corp. of Greensboro, NC, offers what it claims as the lowest-cost television weather display system available, according to Willard Watts, broadcast applications manager. Known as WITS (for Weather Image Terminal System), the system is designed for the smaller station that may be unable to afford a full-blown graphics system. The basic system is an under-$10,000 terminal that can call up ESD or WSI data; another $750 adds an RGB-NTSC encoder for an RS-170A output and external sync input that allows total compatibility with the TV station environment. A client steps up to the full system by adding the Paint Pad option, a graphics tablet and software that runs off an Apple II or IBM PC. The color pallette allows any 512 colors to be displayed on screen at one time—out of a possible 16.8 million. Resolution is 672X480 pixels.

Vectrix, which first exhibited for broadcasters at the 1983 NAB show (in the WSI booth), has been producing graphics systems for other applications for several years. One unusual offering is a color printer that turns any on-screen image into a plain paper copy. It uses a direct video-to-film interface through the RGB connector for reduced distortion. A new low-cost model of the printer will be on the market soon for under $1000, Watts says.

Vectrix plans to continue adding to the system and will bring out a color frame grabber sometime during the first three months of 1984. Other planned options include earth station interfaces to allow users to pull data directly off the satellites. In addition, Vectrix plans to introduce a new high-speed dual-buffered system this spring that will have 1600X480 maximum resolution and eliminate some of the speed deficiencies of the present system. With all the bells and whistles, the new system should still be under $20,000, according to Watts, who claims that graphics on the new system will be comparable to an Ampex ADO.

ESD, the weather database, recently got into the hardware business with the introduction of the PMT-100, a low-cost standalone weather system. About 10 of the $19,500 systems have already been installed in the U.S. and Canada. The system provides everything the user needs to do a basic weathercast, including adding weather symbols and



Alden

Kavouras

ColorGraphics

ColorGraphics

fronts; it also has a built-in font-creating program. The system is capable of preprogramming up to eight fast frame loops of up to nine frames each; optionally, up to 19 loops can be programmed. Resolution is 380x240, but graphics may be generated in a high-resolution (760x480) mode. Sixteen out of a possible 4000 colors are displayable at one time. Graphics may be created with a joystick, pixel-by-pixel through the terminal, or with an optional graphics tablet.

The PMT-100 is set up to prepare a weather show in two basic steps. First, the user punches in one command string that selects the desired images and directs the auto-dial modem to acquire and store the images; the same string assigns label and color table selections. A second command string selects the desired program sequence, which is loaded and presented to the switcher ready for air.

Vectrix's graphics system includes hard copy printer.

New RRWDS radar

As the NWS upgrades its radar transmitters to the new Remote Radar Weather Display System (RRWDS), weather graphics companies are beginning to offer hardware to take advantage of this increased capability. At press time, Alden Electronics & Impulse Recording Equipment Co. was the only company offering a RRWDS-compatible terminal, although both Vectrix and ESD plan to introduce RRWDS compatibility shortly. The RRWDS system, which is scheduled for completion sometime this year, digitizes radar information and transmits it in six intensity levels; it will be available to users through direct-dial lines, rather than only through private radar receivers, as is now the case.

The Alden C2000R radar system receives the RRWDS data through a built-in modem and stores up to 16 pictures (240-frame storage is optional). Precipitation levels can be displayed independently or together in any combination, colorized separately, and flashed independently. The unit also features quadrant and pan zoom for magnification of areas of the picture, and an auto collect mode that stores picture ranges. It is also capable of time lapse record and playback.

Rounding out the system is the C2000S color satellite system, which consists of a 300/1200 baud modem and CRT terminal for reception of satellite imagery from ESD and WSI. Features are similar to the radar receiver, and Alden also makes a unit that combines the radar and satellite functions, the C2000R/S.

Weather graphics hardware is also provided by Kavouras, Inc., of Minneapolis, but this is a special case: the Kavouras hardware can only receive data from Kavouras's own private database. The data service, known as RAM (for Real-Time Atmospheric Monitoring), draws on three basic sources for information: NWS and FAA high-speed weather circuits for alphanumeric data; the Kavouras Radac color weather radar network, which receives data at NWS radar sites; and the company's own satellite earth stations, which pull in signals from GOES-East and GOES-West.

All that info gets to the client via the Triton X terminal, a high-speed, high-resolution (640x480) computer graphics system. The system is built around a 35 Mbyte Winchester hard disk that stores the operations programs and between 2000 and 3000 images. A floppy disk drive provides unlimited backup and archival storage.

The graphics capabilities of the Triton X are fairly extensive and include anti-aliasing to eliminate jagged edges. The user has a choice of 32,000 colors, of which 64 can be displayed at any one time. A graphics tablet gives draw-on-screen capabilities, and clients can use standard fonts or create their own. In addition, a Marquee feature permits the colors to cycle, creating a pseudo-animation effect for displays of the jet stream or other information. Another interesting effect is dynamic draw, which, for example, permits a bar graph to grow on screen step-by-step, or a name to be drawn gradually.

Advanced Designs Corp. of Bloomington, IN, will bring to NAB a new standalone weather display unit designed to take advantage of one of the newest weather forecasting technologies—Doppler radar. Unlike conventional weather radar, which detects rainfall intensity, Doppler radar uncovers developing tornadoes and potentially damaging winds, allowing forecasters to warn of such dangerous weather conditions before they are actually sighted.

At present, Advanced Designs is retrofitting Technology Service Corp. weather colorizers to receive the Doppler radar, and company president Marty Riess says ADC is working on designing interfaces for several of the most popular weather and graphics systems. The standalone system, still under development at press time, will be able to access the WSI and ESD databases in addition to ADC's radar, and will be sold only in complete packages that include the radar equipment. It will be available in two resolution modes: a high-resolution broadcast mode (750X480 pixels) and a super-high-resolution mode, designed pri-

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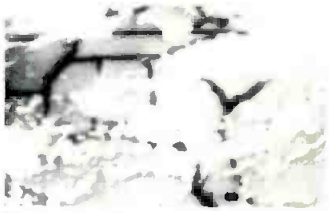

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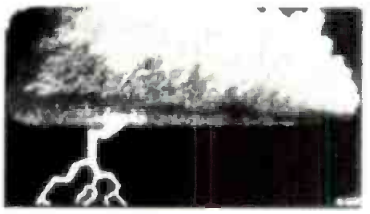

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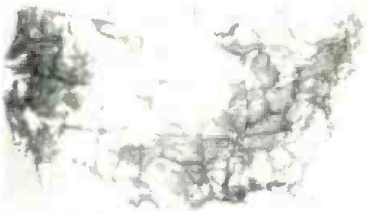


Thomson-CSF

Aurora

marily for analysis (1024X1024 pixels). A special feature will be a range height indicator (RHI), which can display a cross section of a weather system from either the reflectivity (normal) radar or the Doppler radar. It will also be RRWDS-compatible.

Although the system will be aimed at broadcasters and designed for on-air weather work, Riess says ADC's emphasis will be on forecasting, not production-type graphics. The system will have limited character generator capability, but will eschew the bit pads and highly sophisticated graphics of some of the other systems. He notes that NWS's planned NEXTRAD Doppler system is not scheduled for completion until sometime during the 1990s, and says that television stations that have installed the ADC retrofit system have already supplied Doppler information to their local NWS offices.

Full graphics systems

Despite the attractive features of the various standalone weather graphics systems, many stations prefer the extra graphics capabilities they get with a full-blown digital art system. As already noted, using the same system for weather and for general production can contribute a more individual and identifiable on-air image for a station. And especially in the larger markets, the extra zing possible with a digital art system can be a competitive advantage.

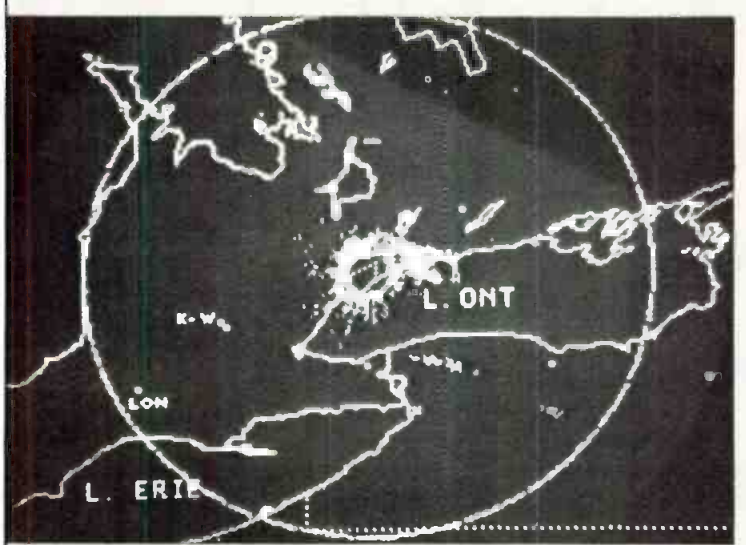
One well-known name in digital art, Aurora Systems, recently announced an expanded weather and sports package option for its Aurora/100 digital graphics and animation system. The system is now able to receive WSI picture and alphanumeric information over a telephone modem for on-air display.

In addition to its inherent high quality, the Aurora system offers several capabilities not generally found in the standalone weather systems. All the systems, for example, can individually color any of the 16 display levels WSI provides; with the Aurora system, a user can also vary the transparency of the levels. The system allows 128 colors to be displayed simultaneously out of a universe of 16.8 million colors; resolution is 512X486 pixels, and anti-

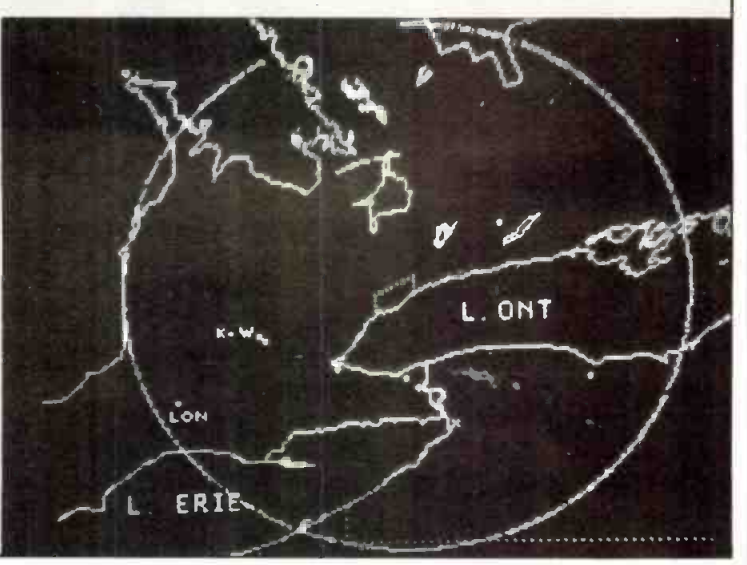
Radar System Circuit Reduces Ground Clutter

Meteorologists and others who need accurate weather information are plagued by the problem of ground clutter—the spurious radar images that bounce off buildings and other objects in the vicinity of the radar tower. The additional reflections often give the appearance of precipitation even on a clear day. The weather databases vie for who can supply the most accurate radar information, and forecasting services like Accu-Weather pride themselves on "cleaning up" radar images to eliminate ground clutter.

For TV stations with their own radar systems, such as those sold by Advanced Designs, Arvin/Diamond, Enterprise Electronics, Technology Service Corp., and others, ground clutter can seriously hamper efforts at local weather reporting. One solution is offered by Torpey Controls & Engineering of Scarboro, ON, which has developed a clutter reduction circuit for the Enterprise Electronics WR-100 weather radar system. According to Torpey, this circuit contains a memory system that "remembers" the pattern of the permanent echoes and subtracts them from incoming radar data. The result, the company says, is a 95 percent reduction in ground clutter within a 32 km diameter zone. The system, which uses all-digital processing, was originally commissioned by CFTO-TV, Toronto.



Above: Radar image from CFTO with clutter elimination circuit bypassed taken on a clear day.
Below: The same image with clutter elimination circuit operating.



Aurora


Aurora

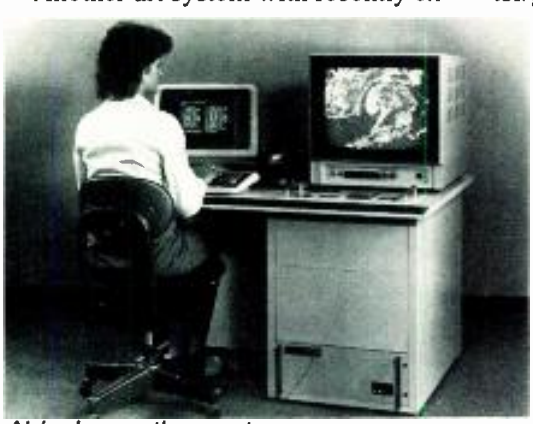

Alden


Vectrix

aliasing results in perfectly smooth edges.

Besides true, real-time animation, the Aurora offers something else beyond the capabilities of the standalones: two-plane animation. Instead of simply looping satellite pictures, a user can, for example, show cloud movement on one plane while sliding in fronts and temperature information on another—all in real time. The artist can choose from eight electronic "brush" styles, including an air brush, and can also create custom brushes for unique effects. In addition, the operator can take advantage of all the Aurora's graphics manipulation features, such as overlay of graphics elements, unlimited fonts, immediate color replacement, automatic edging, drop-shadow, glow, and other effects.

Another art system with recently expanded weather capabilities is Dubner, whose CBG can access pictures from ESD or WSI and alphanumeric information from WSI. According to Dubner's Jerry Howite, the CBG will soon be able to process radar data from RRWDS. With the CBG, a user can predefine data locations (for temperature, humidity, or other information) without adding the actual numbers, and plug in the data just before air time. The CBG's full character generator, painting system, and animation capabilities give the weathercaster greatly expanded creative options.


Alden's weather system.

The IMAGES art system from Computer Graphics Labs differs from those previously discussed in that it does not accept database information over a modem. Data must rather be scanned in photographically or entered through the keyboard. According to CGL creative director Billy Sunshine, the now-defunct Satellite NewsChannels used the IMAGES system (developed by the New York Institute of Technology and a scion of the Ampex AVA system) to create six to 10 animated weather maps twice a day. Its inability to receive information directly from the data providers has limited its acceptance as a primary weather system, but its capabilities as an art system still give it many advantages, according to Sunshine. It can create animated effects for clouds, rain, or lightning, and allows the artist or meteorologist a full range of creative possibilities. As many as 16.8 million colors are available, and the system can output video or hard copy through a color printer.

Both Thomson-CSF and Chyron offer weather packages for their character/graphics systems. Thomson's Vidifont Graphics V, through its Vidicast option, accesses WSI information and processes it in several interesting ways. For example, the multi-plane system can display a satellite or radar picture on one plane and automatically grab weather data and superimpose it on the map in previously user-defined locations, with no need to type in the numbers. This automatic function can be repeated night after night. A WAIT command will automatically dial the service at user-designated intervals, request predefined information, and store it on disk for future use. Graphics V will also automatically assign custom color palettes if desired, with 4096 colors.

With the optional graphics tablet, users can create weather symbols and mix them on top of the WSI pictures, or create custom maps, perhaps with zoomed-out pictures of a region or state superimposed on the national map. The system, which is also capable of such effects as "growing" bar charts, can be operated on-line and off-line simultaneously. It also offers a sports package.

That production workhorse, the Chyron IV, when equipped with the optional Multimode Graphics Module, has been capable of receiving WSI and ESD data since the last NAB. "People are spending $15,000 to $40,000 for weather systems," comments international sales representative Steve Sadowsky. "It was simple for us to incorporate that into our machine." The system will store "a few hundred" pictures on Winchester disk and can provide pseudo-animation if desired. With the MGM, users can compose their own fonts and weather symbols, superimpose the high-resolution characters on the weather pictures, and colorize the data with up to 512 colors. Because the weather option is available at no extra cost to Chyron IV users, the cost of doing a weather show is limited to the database subscription and talent. And again, by using one system for most on-air graphics, a station can create a unified look.

Air-ready weathercasts

Broadcasters who don't want to create their own graphics can still put on an attractive weather show with the help of Accu-Weather, Inc., of State College, PA. Accu-Weather's staff of 51 meteorologists and six artists creates graphics on a ColorGraphics weather system and offers the results, which include current data and forecasts, either through the ESD database or through direct dial-up. According to Dr. Joel Myers of Accu-Weather, the company produces over 40 graphics each day, combining satellite information with reports from about 1100 government ground stations to make highly accurate depictions of weather conditions around the country. Accu-Weather's forecasting service is exclusive in each market, with about 40 TV stations and 120 radio stations subscribing; the graphics, however, are available to all. Compatible hardware systems include ColorGraphics, WeatherGraphics, Chyron, Thomson-CSF, Aurora, and Dubner.

As this overview shows, attractively produced weathercasts are within the reach of almost any station due to the variety of available systems at all price levels. The view of weather as the stepchild of the news is fading fast as television stations realize its potential for increasing viewer loyalty and adding visual excitement. **BM/E**

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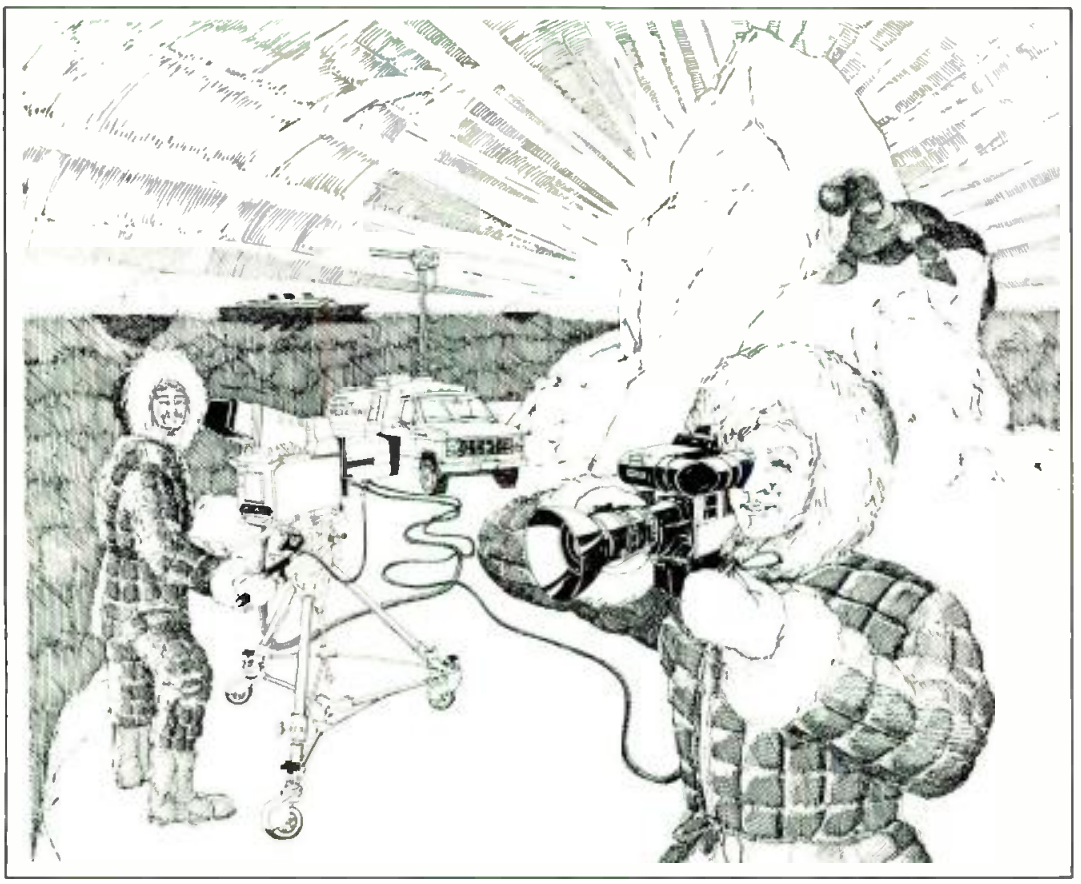

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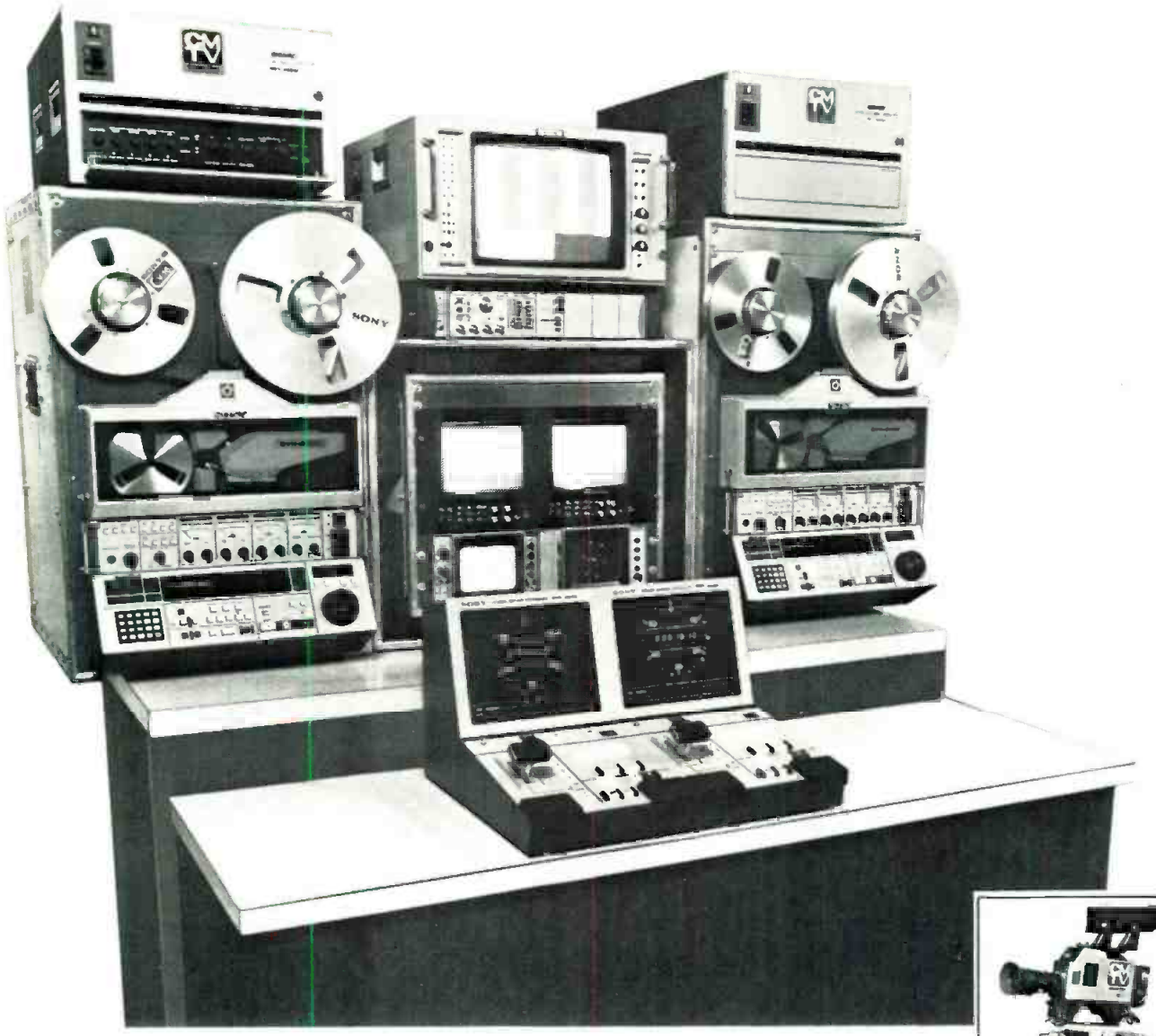

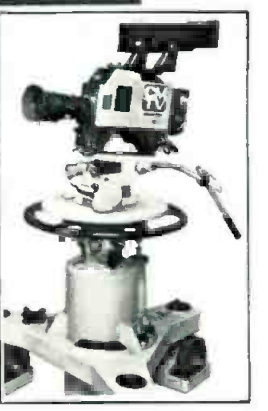

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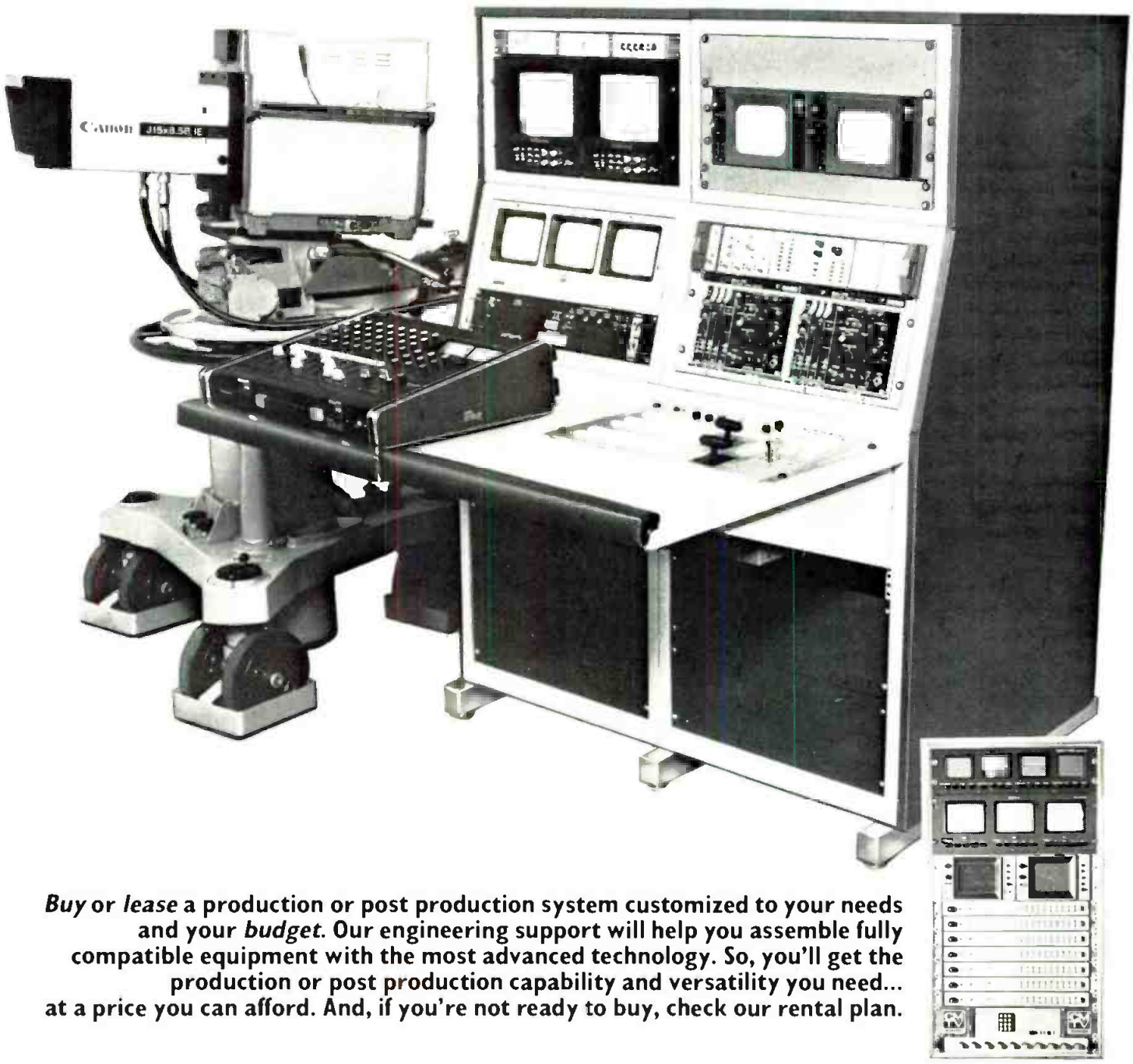

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Special Report:

Digital Audio Effects – Broadcasters Learn

By Tim Wetmore
Associate Editor

So your station really wants to impress its new client with your digital audio capability? The client, who owns a local chain of stereo stores, wants the audio to have a space-age, high-tech quality, and asks for a sound resembling lasers being fired, "just like in *Star Wars*."

The engineer's typical response is that he can't do it exactly, "but how does this sound?" And out comes what sounds like the death throes of an old computer game. Not a very good beginning to a new and potentially lucrative relationship.

How can a station avoid such a situation when it is trying to increase its revenue through commercial production and customers are clamoring for the high-tech sounds that digital makes possible?

Bo Tomlyn, a synthesist, veteran studio and touring musician, studio owner and special effects artist, sums it up clearly: "Good equipment is essential. But if a station is going to be successful in commercial effects production, it will have to be conscientious about the people doing the job, and how they are employing the equipment at hand."

Preparing for special efx

Clearly, moving into the production of digital audio effects is a significant step for a radio or television station and requires more than the simple purchase of a digital delay unit. Both equipment and personnel are important, and Tomlyn's experience points up the obstacles one is likely to run into.

Tomlyn started his career in New York City as an opening act for many famous touring musicians, while at the same time maintaining a studio in his house. There, he wrote musical parts and did commercial effects, acquiring a prestigious list of customers, including Phillip Morris (at a time when cigarette commercials were still on the air).

Tomlyn's acquisition of the Phillip Morris account is indicative of the way he works in general. No one involved in a Phillip Morris Marlboro commercial, from the parent company to the agency, could get the right sound of a cricket. At first, the company thought it could simply go to a standard sound effects library for the material. After working with it, re-recording, overdubbing, and copying the sound effects tape, however, the clients discovered that the noise level on the tape was just too high and that it wasn't going to work. (There are now a number of production houses that maintain a library of effects on banks of computer disks, virtually noise-free.)

For the Marlboro commercial, however, the company went to Tomlyn on a colleague's recommendation. Tomlyn instantly produced the cricket sound on a synthesizer, with absolutely no noise. The client loved it, and wanted more. How about a cattle stampede for the Marlboro man? No problem. Synthesizer, a little delay and reverb. Bobcats? Also no problem.

How, even with limited equipment, can these kinds of results be obtained on a regular basis? Tomlyn is of the opinion that the person handling the production needs to open his ears, to rip the sound apart in an analysis of the particular qualities the customer is after. With the Marlboro man, rather than trying to fix what was already on tape, or to cover up some of the glaring problems, Tomlyn got to the essentials and redid the whole commercial.

In 1979, Tomlyn moved to Los Angeles and set up another in-house studio and continued his operation. "I knew people in the music production business from experience in New York," observes Tomlyn, "and was able to get some commercials and music assignments for TV specials. I did them on my eight-track studio in my house. But even then, I did the commercials and specials with an eye toward sonic quality, not just thinking of trying to get great-sounding noises." This, Tomlyn feels, is at the center of a successful formula for anyone, individual or broadcast station, who is trying to do quality effects work and make money. It's all in the professional approach.

Different approaches

Indeed, there are many theories and approaches to recording special effects for commercials and programs. Much of the reasoning behind a particular approach results from budget restrictions, client preference, and the availability of talent. Now that broadcasters are doing more of the effects in their own plant, there are a number of considerations combining both the engineering and aesthetic elements of special effects production techniques that broadcasters must learn if they are to be successful.

As with any emerging technology, digital special effects devices are not that well understood and are misused by many. Before a station takes the leap into the world of digital special effects, it would do well to consider the facilities and personnel it can dedicate to that purpose. It takes more for a radio station to achieve quality effects capabilities than just adding a digital delay to its production studio. Likewise for a television station; more is required than adding an effects rack in the post-production suite.

The design of the effects production area is important and, from Tomlyn's point of view, it should be dedicated to that purpose. Tomlyn's approach, upon reaching Los Angeles, was to work out of his house, using an eight-track studio. When his client list got to be too

Digital audio effects for programs and commercials are being produced in broadcast stations more than ever before. But are they being done right? A profile of Bo Tomlyn, a special effects artist and musician, reveals how an individual experience can be an industry model.

From an Audio Specialist

Bo Tomlyn, veteran musician, synthesist, and special effects artist for film and television projects in his Main Street studios.

big, and in order to avoid an ever-increasing overhead, he decided last year to consolidate his assets with two other local musicians involved in the same type of work.

The result was a unique studio design permitting Tomlyn and his partners, Steve Bach and Geoff Levin, the space and the equipment they could never have enjoyed on their own. All three partners have equal shares of ownership.

To begin the partnership, they had to search for a building that would provide the space and the construction stability required for recording and production work. The search led them to an abandoned chemical warehouse with the right amount of space, and at the right price. A good deal of labor was necessary to finish the basic preparation, and the three partners did much of the work themselves (the design was done solely by the three).

The first step in the preparation was to tear up the old floor and to lay a new one. Then, measurements were taken as a prelude to cutting the warehouse into a studio layout that would allow space for live orchestration when necessary, while still providing areas where musicians and engineers could work privately.

Completed in early 1983, the studio design for the existing structure now houses Juniper Studios, the large, 24-track recording studio with control room, while an add-on building became Main Street Music. Main Street's facilities, which partially surround the Juniper and adjacent Main Street control rooms, consist of three satellite eight-track studios. Main Street's control room, which borders on the Juniper control, provides an interface function.

allowing hookup of any or all of the smaller rooms with the 24-track studio if and when necessary.

In this way, Main Street Music can serve as three rehearsal studios, as isolation booths, or just as individual practice areas. Someone can work independently on getting a specific effect in one of the Main Street studios while different work on the same, or different, project is going on simultaneously. Any effects achieved in the satellite rooms can be instantly sent to the recording studio or to either of the other two Main Street rooms if desired. This allows Tomlyn to make eight-track recordings for later use in the larger studio, or to avoid doing recordings, making dubs, or tying up equipment unnecessarily, by patching directly to Juniper.

Equipment is key ingredient

Each Main Street studio contains its own Otari eight-track reel-to-reel recorder, Ramsa 16 console, Eventide Harmonizers, digital delays, and racks of phase shifters, flangers, echo units, and reverbs. A Tangent 24 is in the Main Street control room.

On the other side of the complex, a modified Quantum console is the heart of the Juniper studio. The taping is done on an MCI 24-track recorder. Synthesizers used in both areas include Roland and Moog, while in each Main Street studio are Yamaha DX-7s. In addition, two Emulators, dedicated audio effects computers, can simulate sounds and waveforms, allowing unlimited manipulation of recorded sounds or newly created effects.

Tomlyn plans to add six to eight more of the Yamaha DXs soon. "I like the DXs because of the flexibility and fidelity, and they are better in terms of range of expression, which helps when doing commercials for different clients. Flexibility is an important thing to remember, even if you don't have the extent of equipment we have here. When you are dealing with a range of clients who all have different ideas of how they want things, flexibility is a necessity," Tomlyn asserts.

A quick glance at only a very small part of the customer list reveals the truth of the statement: Apple Computers, Phillip Morris, Dr. Seuss TV specials, several PBS documentaries and specials, as well as the theme and an album for the upcoming *Blue Thunder* TV series.

The Juniper studio 24-track facilities can handle complete orchestration or small recording jobs, and contain a slew of outboard equipment for any desired special effects.

Another national account handled by Tomlyn is Sinclair Paints. Several devices were used for these spots, though the purpose was for a fairly simple effect. First, a standard synthesizer riff was laid on the bottom, with droning effects added later. Then, breath control synthesizers were added for an airy feel. And digital delay finished off the work to produce the exact mood impression.

For the Dr. Seuss specials, a variety of standard types of sounds were produced in the studios, using synthesizers and the racks of digital processors. They were then sent to Marvel Sound Effects Laboratories in Los Angeles, where they were inserted during the visual production process.

All of this fancy footwork requires a special combination of elements if the proper effect is to be achieved. It is more than just twisting the knob for more reverb. Purchasing the right equipment is the first important phase to success but, as Tomlyn cautions, everything from the way the equipment is hooked up to the people using it can contribute to success or failure. Tomlyn's advice, offered to anyone doing any kind of audio special effect, is to satisfy the customer and complement the product while maintaining your own interest in the process.

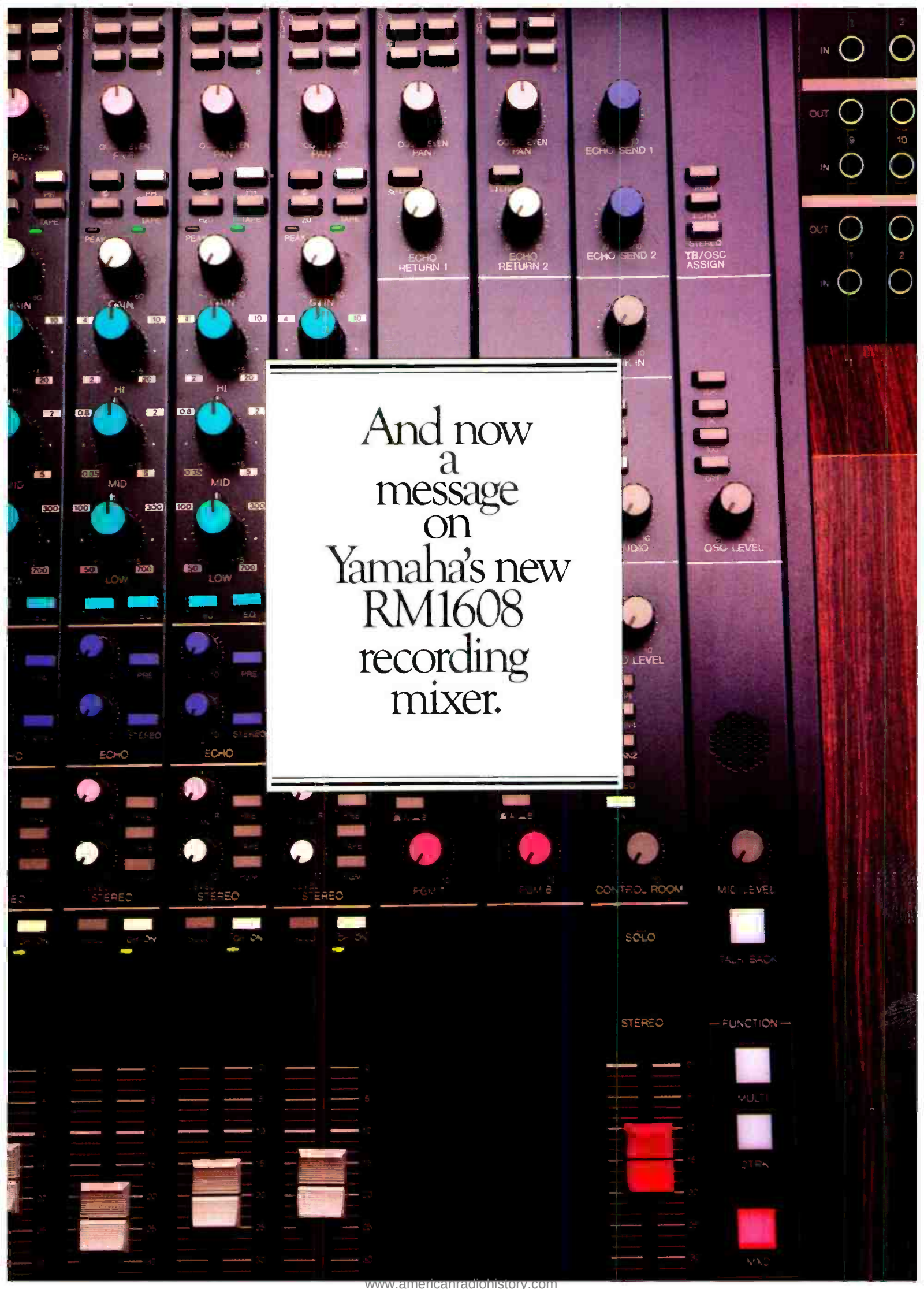
Tomlyn's formula involves a preliminary process of finding out what the job requires. He works with the client to decide if the task needs complete orchestration with a lot of effects, or an expressive mood, or something simple and direct.

"You don't necessarily make more money," Tomlyn insists, "just because you are adding more effects. Do what the job requires. If the effects person on any level is thinking of these things before he begins, it will help in the final analysis." Further, Tomlyn states that these are good guidelines to keep in mind, no matter what level of sophistication one deals with.

Another facet of Tomlyn's philosophy regarding the use of equipment is that, as a matter of policy throughout the studio, all connections of equipment are permanent. Tomlyn insists that the inputs and outputs of every device in every room always be connected so that any function can be executed at any time. If the operator suddenly thinks of a type of sound he wants, and it takes 20 minutes to hook things up, or to rewire something, the exact sound and the proper settings may be lost in the time it takes to reconnect.

"If a station is going to be successful in commercial effects production, it will have to be conscientious about the people doing the job." —BO TOMLYN

"I also think this policy makes for more efficiency and saves money in the long run. I carry this operating procedure all the way through, including the synthesizers, which are permanently connected in each studio, always ready. Beyond efficiency and creative enhancement, the procedure helps the clients get what they want. Initially there is greater expense because of the extra equipment purchases, but in a



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–73dB	(77dB S/N) STEREO Master Fader at maximum and all CH STEREO level controls at minimum level.
–64dB	(68dB S/N) STEREO Master Fader at maximum and one CH STEREO level control at nominal level.
–80dB	(70dB S/N) ECHO SEND volume at maximum and all CH ECHO volumes at minimum level.
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	24dB: TAPE IN to PGM OUT.	C/R	74dB: MIC IN to C/R OUT.
	34dB: ECHO RETURN to PGM OUT.		24dB: 2 TRK IN to C/R OUT.
	14dB: PGM SUB IN to PGM OUT.	STUDIO	74dB: MIC IN to STUDIO OUT.
STEREO	74dB: MIC IN to STEREO OUT.		24dB: 2 TRK IN to STUDIO OUT.
	24dB: TAPE IN to STEREO OUT.		
	34dB: ECHO RETURN to STEREO OUT.		

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YAMAHA

Circle 121 on Reader Service Card

short period of time, the investment is more than redeemed."

Digital recording

With a substantial investment in racks of digital processing equipment, Tomlyn and his partners realized that the next step was to go to digital recording. The team reasoned that with digital, many effects changes and dubs could be made without signal degradation. Also, the digital medium would provide the greater dynamic range they felt necessary when recording digital effects. The expense of multitrack digital ATRs, however, provided an obstacle for the studios.

Instead, Tomlyn decided to go to a digital converter for recording on a videocassette recorder, using it for mixdowns. Using an Alpine digital encoder/decoder hooked to a half-inch Panasonic industrial VCR, Main Street Studios has a two-track mixdown recorder that provides a wide range of uses. The Alpine is so handy, they bought two of them. One is installed in one of the Main Street studios and the other is kept portable for transportation to the mastering lab.

In a typical session, Tomlyn will record six tracks on the Otari eight-track machine in one of the three small studios at Main Street and then mix down to two digital tracks on the VCR. These two tracks can be relayed back onto the Otari, leaving six tracks open for any overlaying or additional effects. Using this method, the eight-track studios allow plenty of flexibility in terms of production capability, and with the high-quality digital source, nothing is lost, no matter how many times the operator decides to pingpong.

Some other equipment Tomlyn plans to buy includes several more of the Yamaha DXs, possibly two Roland analog synthesizers, and six Kurzweil digital keyboard synthesizers, recently on display at the AES convention in New York. He is always in the market for outboard digital effects processors.

"You don't necessarily make more money just because you are adding more effects. Do what the job requires."
—BO TOMLYN

Regarding the care and feeding of sound effects productions, Tomlyn feels it is important for those interested to take care in the process: buy the proper equipment, keep it in a properly designed facility, and operate it with qualified personnel. Another helpful hint for success in the vacillating world of digital effects is the following: "Outboard equipment and multitrack machines will help, but the user must go beyond the settings and supposed limitations of the device. Go past the manufacturer's recommended setting. You have to be creative. Try new things and don't eliminate a lot of options before you even start."

Freelance help

One option that is less expensive than most broadcasters think is to look for a qualified synthesist. It is free for the station to hold auditions, asking the synthesist to create sounds the chief engineer or production people think may be needed: a rocket; a bird; a garbage can falling over; or any sound one can think of. If a station can find the right person and use him on a freelance basis, it will have an advantage. Measured against the return, the synthesist

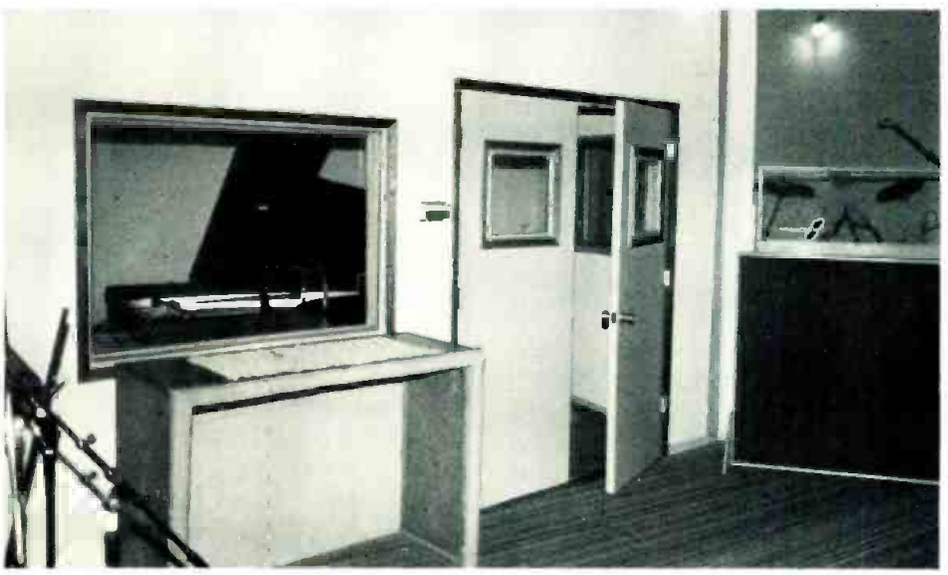
Tomlyn, left, and studio co-owner Geoff Levin, center, review commercial effects score in Juniper's 24-track control room.

could bring in new accounts wanting very special digital effects, the cost could be small since he only has to come in when needed, and a talented synthesist could expand the station's effects capabilities many times over. This is a competitive advantage not to be scoffed at.

One thing to consider with this method, warns Tomlyn, is that "the synthesist should not feel restricted in the use of outboard devices or it will preclude successful experimentation which, when allowed its course, results in outstanding effects and consequently a happy and loyal clientele."

Broadcasters now possess most of the equipment necessary for providing effects services, and even if a station chooses not to go completely into the artistic phases of effects production, some degree of creative commercial production is possible. Providing the equipment, the time, and the personnel are the first steps to a potentially profit-making endeavor.

There is no reason that television and radio stations cannot be the creative source for audio effects if they are willing to go about the business of effects in a special way. Crickets anyone? Or maybe a little laser fire? **BM/E**



The isolation areas in the Main Street studios are complete eight-track recording studios and include an Alpine digital converter for two-track mixdown.

"Outboard equipment and multitrack machines will help, but the user must go beyond the settings and supposed limitations of the device. You have to be creative. Try new things . . . ."

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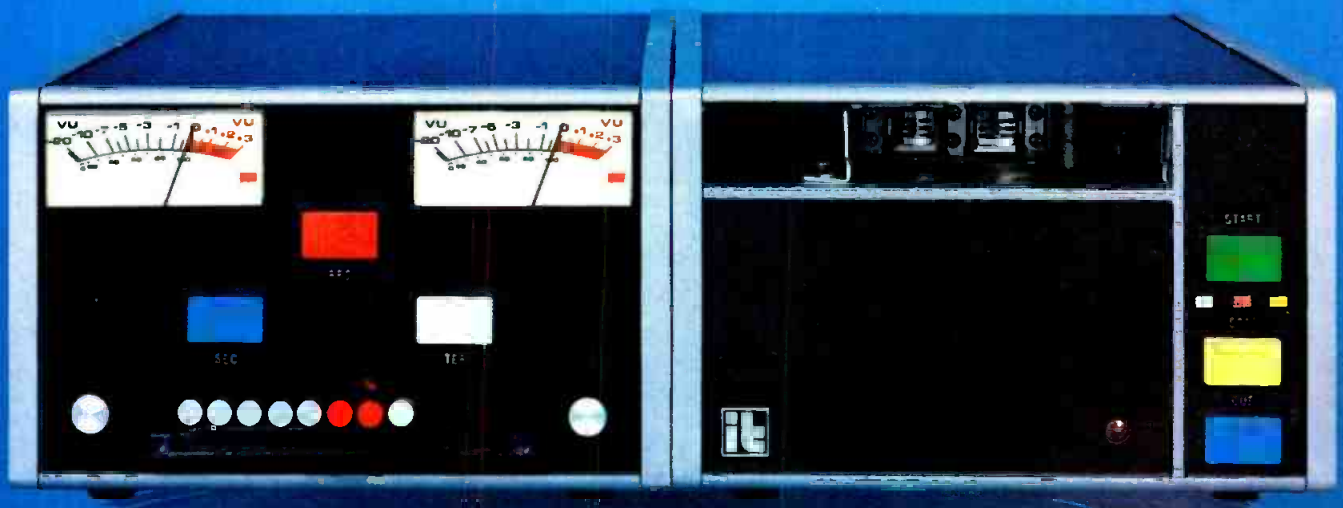

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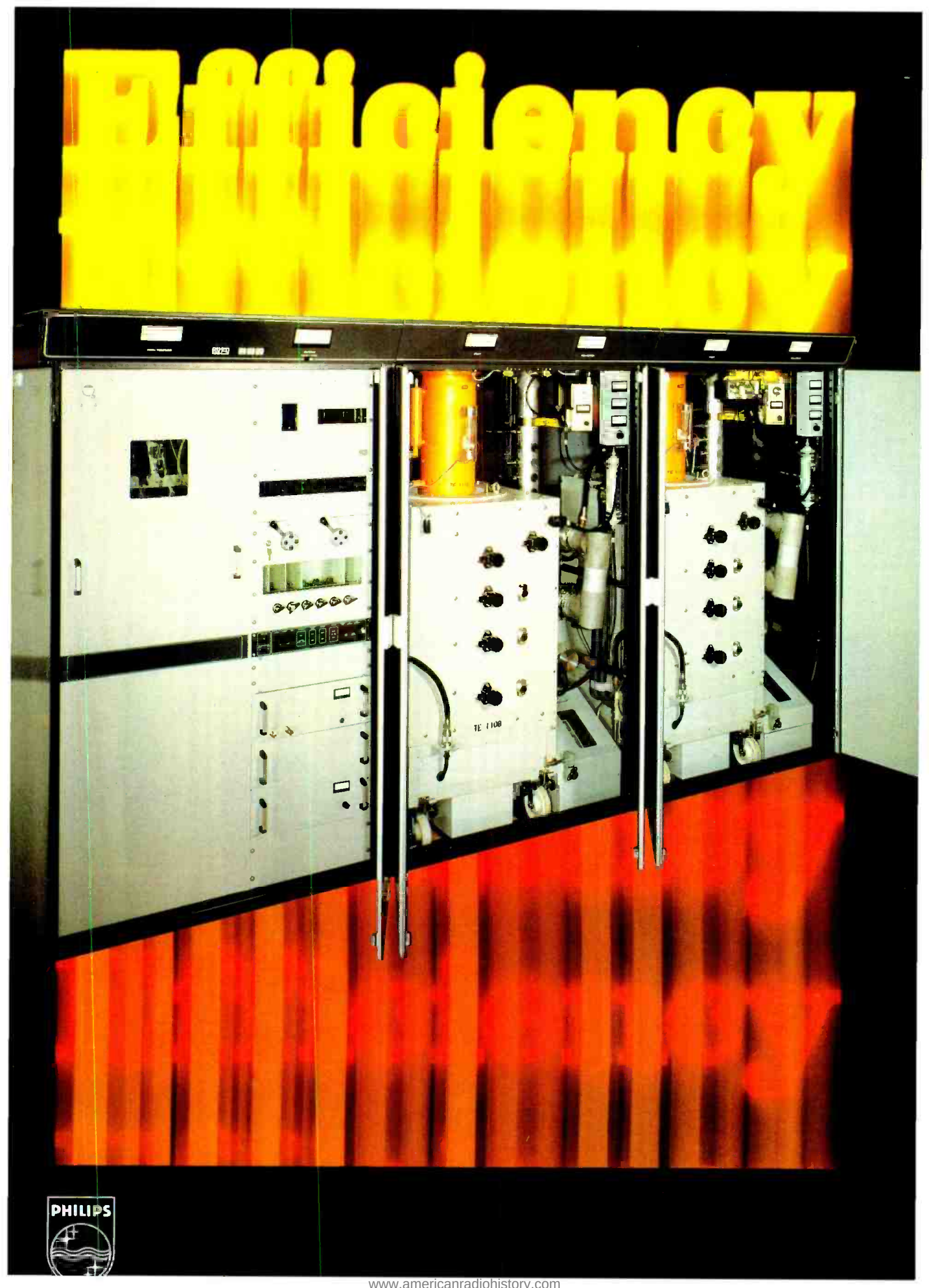

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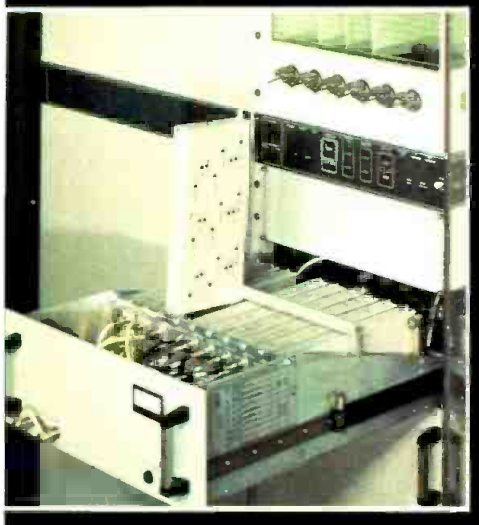

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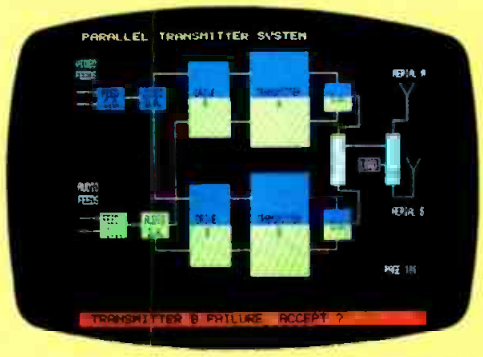

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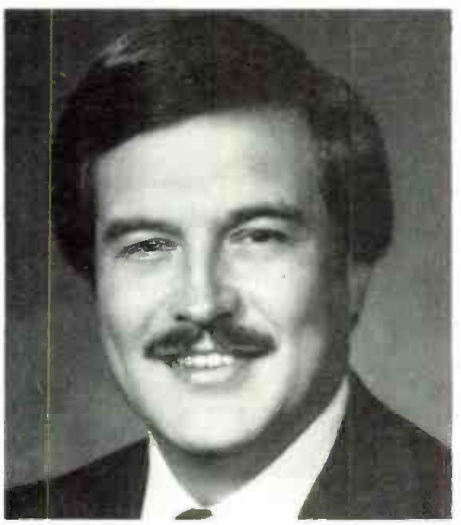
Circle 124 on Reader Service Card

With a presidential election, the Olympics and major innovations coming on-stream, 1984 shapes up as a banner year for broadcasters, but not without problems, industry leaders tell *BM/E*.

INDUSTRY LEADERS FORECAST A HOT YEAR

Federal Communications Commissioner Henry P. Rivera, whose outspoken views have run counter to the Commission majority on several broadcasting issues, thinks 1984 will bring a continuation of the vigorous deregulation policies the FCC has recently pursued. "You'll see the Commission continue to deregulate wherever possible, and even strain to deregulate," Rivera predicts. "That's not all good, in my opinion." Specific changes in the coming year will probably include elimination of the seven-station rule, significant modification of the attribution and regional concentration rules, and the introduction of additional competition.

Heading the agency's agenda for the year is implementation of the AT&T divestiture; in the broadcast arena, the top item will be deregulation, with the Commission looking at deregulating TV along the lines already adopted for radio. Rivera himself is not convinced that such action is the way to go. "To model television deregulation on the basis of radio is patently absurd," he argues. "In sheer numbers alone, the level of competition differs greatly. There are 9000 commercial radio stations and barely 800 commercial TV stations—it's just not the same animal."



Henry P. Rivera
COMMISSIONER
FEDERAL COMMUNICATIONS COMMISSION

Regarding the seven-station rule-making, Rivera is concerned with what he sees as a lack of "meaningful alternatives to abolition of the rule," such as elimination of the guidelines for radio but not television, or tying ownership to market size. Removing restrictions on the number of stations a single entity can own, along with the soon-to-be-proposed elimination of the regional concentration rule, "could result in one large entity owning every media outlet in one town," Rivera warns.

On technical matters, he thinks chances are good for FCC designation of a single system for stereo TV—as long as the industry can agree on a single standard to recommend. "If that happens, as I expect it to," he comments, "the Commission will probably elect to go with that standard." Rivera makes a distinction between multichannel TV sound and AM stereo: "With AM stereo, we had five apples that were different shades of red—there was no way we could justify choice of a single system. With TV stereo, we will probably have one apple and five oranges, and we'll be able to justify a choice to the courts."

"To model television deregulation on the basis of radio is patently absurd . . . it's just not the same animal."—RIVERA, FCC

"[Advertising and promotion] to me is the new battleground for success in our business. We're getting a little like the detergents—there are an awful lot of them on the shelf!"—HARRIS, GROUP W RADIO

Richard H. Harris

PRESIDENT
GROUP W RADIO

"First of all," says Richard H. Harris, president of Group W Radio, "we're expecting a very good year in 1984. That's the bottom line—and the top line, if you will."

There are several reasons, says Harris, for this bluntly optimistic assessment. First, 1984 is both an election year and an Olympic year, and "history shows that in every election year and Olympic year, business for broadcasting and the media in general is good."

Not that Harris expects that radio will participate to any great extent in the revenue that the Olympics will generate. "That's primarily a television thing." But the excitement of the Games, added to the increased news activity during a presidential election, plus the return of good economic conditions, will provide a general boost to radio.

Looking in more detail at some of the developments that have concerned radio recently, Harris is not pessimistic over the future of AM. "People tend to say AM is dead. I don't think that by any stretch of the imagination. I think what has happened is that [AM and FM have] come to parity. We have to learn to think about *radio* in the market, rather than about AM and FM radio stations."

Another major problem that Harris sees for 1984—and beyond—is the growing fractionalization of the market, and the increased competition that it brings, together with a blurring of existing formats. "The crossover is so close, what would be called a Soft Rock station today could have been a Beautiful Music station a decade ago." What this trend means for individual stations, Harris feels, is a greater attention to detail, and greater stress on advertising and promotions. "That to me is the new battleground for success in our business. We're getting a little like the detergents, if you will. There are an awful lot of them on the shelf!"

Jeffrey P. Meadows

VICE PRESIDENT
ENGINEERING AND
TECHNICAL SERVICES
NBC-TV

Standardization—or the lack of it—will affect several aspects of technical operations at NBC-TV this year, according to Jeffrey P. Meadows, VP of engineering and technical services. The network has already extended a toe into the murky waters of stereo television with its simulcasting (over NBC radio) of *Friday Night Videos*, its weekly video music show. That project, Meadows says, "has given us an opportunity to think about stereo production for stereo television.

"The FCC has not recently been very diligent in terms of setting or endorsing standards," Meadows continues. "We hope that the EIA vote on multichannel sound [slated for December] will provide a consensus and that the FCC will support it. What worries us is that the FCC will take its usual stance of letting the marketplace decide . . . . We have our fingers crossed." With a standard, stereo TV could be on its way within the year, he suggests.

In the area of small-format video, too, the lack of standards is causing NBC to take a "wait and see" posture. "Ideally," Meadows comments, "we'd like to see something that would give us more portability, preferably with an increase in quality." The greatest problem with the half-inch formats, according to Meadows, is that there are two of them. The standardization of U-Matic is "an advantage that our news department would be reluctant to give up," he notes.

This year NBC will continue to expand its studio capabilities, especially in the graphics area. Several projects, some recently completed and some still under way, involve extensive upgrading of graphics equipment. "We're coming into a convention and election year," Meadows explains, "and we need a competitive look." The problem with buying effects devices, he notes, is that "each will do something the other won't." This hasn't stopped NBC from deciding on ADO and Mirage, among other items; the Mirage is the first resident of a new graphics and video manipulation facility, under construction at press time, that will house some of the very expensive effects boxes for distribution to the post-production suites that need them.

"There's beginning to be a consensus, or at least a rallying around, the new SMPTE control protocol," according to Meadows. He says NBC is following RS-422 in all its new construction and is "encouraging" manufacturers to fit in with the emerging

"There's beginning to be a consensus, or at least a rallying around, the new SMPTE control protocol."—MEADOWS, NBC-TV

"Of those domestic transponders, over half are dedicated to television and we would like to use more and more of our increased capacity for broadcasting." —LATTER, AT&T

standards. "We'd love to see a way to transfer video in digital form from one piece of equipment to another," he adds.

Robert Latter

ENGINEERING DIRECTOR
OF TRANSMISSION PLANNING
AT&T COMMUNICATIONS

Although the much-publicized divestiture of the Bell Operating Companies from AT&T became official this month, Bob Latter believes that the newest incarnation of AT&T will "still be in the same business as before, and will do a lot of business with the broadcast industry."

"I see one of our biggest challenges for the upcoming year to be the efficient use of satellites and facilities for broadcast. Two other areas that will provide new challenges this year for AT&T Communications, in terms of television broadcasting, will be an increased use of fiber optics and microwave."

Addressing the future of developing the efficient use of its satellite technology, Latter declares, "Transmitting more than one video signal through a transponder is a challenge we hope to meet in the very near future and the chance of success looks promising. One step in this direction came last July when Telstar III, the first in a new series of satellites, was launched. We will be transferring some services from existing satellites to this one. We now have three active satellites and a fourth one in orbit being relocated."

In Latter's assessment of terrestrial broadcast services, microwave plays a big part. "Currently, microwave comprises two thirds of our distribution facilities. We have new microwave systems, some single sideband, that we are always working on improving. We are also working on high-capacity digital microwave, increasing our current systems to handle higher bit rates."

Latter sees the future of all of these technologies tied together, making AT&T broadcast services an increasingly important part of the company's overall picture. "We have 18,000 circuits in our satellite system. We have 12 transponders to handle offshore traffic and 17 for the continental U.S. Of those domestic transponders, over half (nine) are dedicated to television, and we would like to use more and more of our increased capacity for broadcasting."

James C. McKinney

MASS MEDIA BUREAU CHIEF
FEDERAL COMMUNICATIONS
COMMISSION

The FCC's Mass Media Bureau faces another tight year in 1984, but bureau chief James C. McKinney says the outlook is no worse than last year, if no better.

"The budgetary outlook is grim as always," says McKinney, who admits to being "jaded by the federal budgetary process—it's always gloomy." He adds, "I'm sure we'll have to go through an exercise of trying to cut back." He hopes the bureau can avoid staff cutbacks, since the work of the bureau has expanded greatly.

McKinney predicts the top broadcast emphasis at the Commission will continue to be deregulation. "I expect that before [1983] is out we will complete action on radio deregulation, and that will be followed by action on television deregulation and noncommercial deregulation," McKinney predicts. "The only concern that I have is about action on the Hill. I'm watching with interest the action in both the House and Senate on deregulation. We're hoping their actions will encourage deregulation, but if the Hill takes a different tack we'll have to conform to their actions."

Spurred on by the license lotteries, LPTV will flourish in 1984, which McKinney predicts will be the record year in low-power licensing. Of the 12,000 applications currently in-house, "an enormous number—in the thousands—of new low-power TV stations will be authorized by the Commission" in 1984, according to McKinney. Whether other services will similarly benefit from lotteries remains to be seen, he says. "We're somewhat constrained by the legislation, which requires that the number of applicants be very large and the differences between the applicants small," he explains.

Richard Martinez

DIRECTOR OF TECHNICAL
OPERATIONS
ABC RADIO NETWORKS

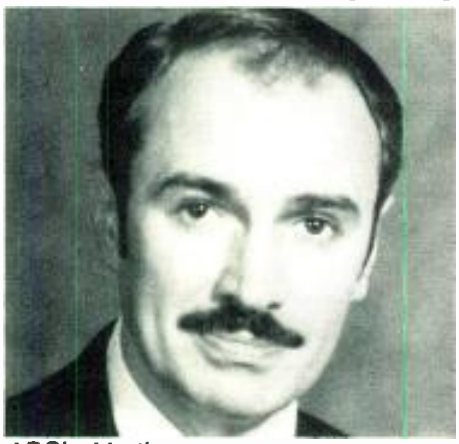
"I see the biggest impact on ABC and its affiliates in 1984 coming through the plethora of services available from satellite delivery of program material. And though this technology will provide unprecedented

"An enormous number—in the thousands—of new low-power TV stations will be authorized by the Commission."

—McKINNEY, MASS MEDIA BUREAU

"I see the biggest impact . . . in 1984 coming through the plethora of services available from satellite delivery of program material."—MARTINEZ, ABC-RADIO

opportunities, it creates many problems as well." So states Richard Martinez, director of technical operations for ABC Radio Networks, the engineering



ABC's Martinez

brain behind the design of the 1984 Olympics radio signal distribution systems and equipment packages and the design and completion of ABC's new broadcast headquarters in New York.

It will force not only ABC but all the networks to "gear up" their head ends in a cost effective manner so that the many services available through satellites can be delivered. Martinez feels this forces the networks to rely on automated systems that can deliver programming quickly and efficiently.

Yet, he claims, "the wider variety of programs made available with this technology brings the radio industry around full circle. The new technology in turn creates a greater need for more program material and more innovative types of programming to meet the demand which is sure to come from broadcasters when all the satellite delivery systems are fully in place. Programming must, in the upcoming year and beyond, respond to the challenge.

"We think that we have responded to the challenge in 1984 with the Olympics and with extended sports coverage, in addition to greater news production and a general effort to get out there and deliver youth-oriented and other types of programming."

Turning to the question of how much the influx of digital audio systems will affect radio programming and engineering, Martinez maintains a cautious position. "I think digital technology will have its most thorough and important implementation in storage systems. It will be a good way to keep a library of commercials and programs for instant access, for sending them down the line immediately with almost no search time, and all the while maintaining high quality."

While looking beyond 1984 and to the future of radio in general, Martinez responds with a positive outlook. "Radio is alive and well, and," he predicts, "going into the '90s, it will be delivering more product better and faster than ever before. More diverse programming of better quality for the listening public will become the standard. I only see the medium of radio getting better."

Len Coleman

PRESIDENT
SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS

"There has probably never been a greater need for an organization such as SMPTE," observes the Society's newly elected president, whose background is with the Motion Picture Markets division of Eastman Kodak. "Quantum leaps forward are being made in both electronic and photographic imaging technology. And with the rapid and often overlapping advances being made, the challenge facing SMPTE is much greater today than it has ever been before. We need to find ways to accommodate the quickening pace of the technology so ideas can be considered and standards implemented faster.

"SMPTE is addressing this issue by making specific structural changes—for instance, in the organization of our committees whose VPs are no longer segregated by optical and electronic disciplines. Instead, we are looking at the various developments being made in imaging technology in a much broader context. This is especially important today, because of the way that the broadcasting and motion picture industries are overlapping.

"SMPTE's committees which study and analyze new technologies and recommend standards that are necessary for progress have been a classical part of the organization from the very beginning. If you can agree upon standards, you can get everyone pulling in the same direction. This is a way to get new technology implemented faster, while controlling costs. You can't overestimate the value of standards."

Which committees are particularly active right now? "SMPTE has committees actively investigating all aspects of the various proposed enhanced and high-definition TV systems. We are considering far more than the technical problems, which should be comparatively easy to resolve. There are also human factors which have to be considered before standards for a worldwide HDTV system can be considered. For instance, you need to consider the conditions under which people are going to be looking at TV screens in the future before you can design a system to improve viewing. There are also a multitude of political and technical agreements which will have to be concluded if we are going to be able to successfully adapt a new worldwide TV system."

Some other areas of interest in-

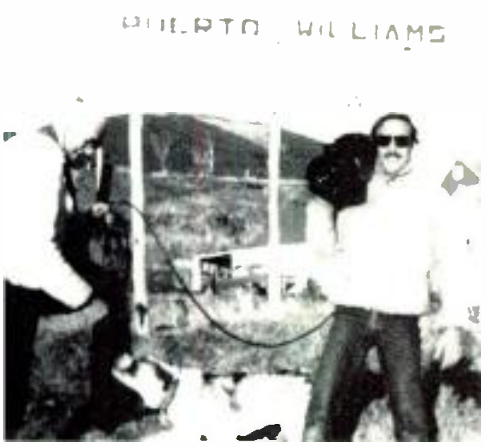
"What this all adds up to is a rich period with opportunity for people able to grasp emerging technologies quickly."

—COLEMAN, SMPTE

"I'm glad we had Perrott Silver 110s the last time we went to war."

—Bernie Nudelman
Video News, Inc.
Miami, Florida

'ideo producer Bernie Nudelman and ameraman Steve Born have spent the ›etter part of the last four years covering he battlefields of Latin America—with a amera, a recorder and two Perrott MP-10 batteries.



"Nicaragua. El Salvador. Honduras. Guatemala. They're all routine assignments to us," explains Steve. "And when he networks hire us to cover these hot pots, they expect us to come back with he story every time. That's why we use he MP-110s. They're the most reliable batteries we've ever worked with."

"And that's why we took only two MP-110s with us to cover the war in the Faulklands," adds Bernie. "We'd charge them both up overnight on the Perrott PE-100 dual charger, then go out in the field for two days and leave the charger behind. We did this for six weeks straight—all over Chili, Argentina and Uruguay. And the MP-110s came through every time—even in 30° below temperatures off Antarctica. You can't beat that."

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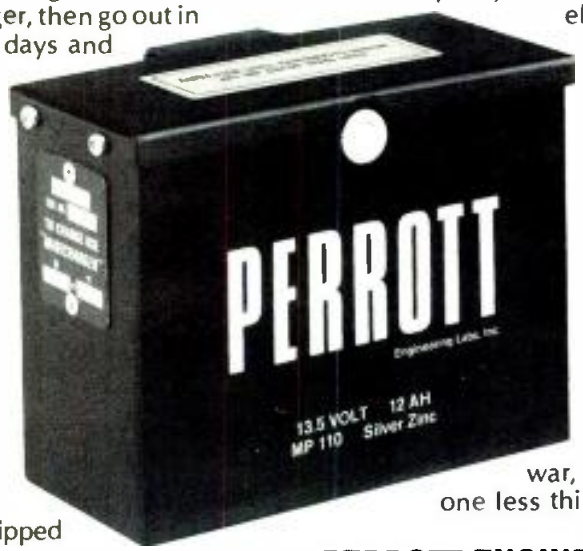

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"We are building an organization that will respond to the issues . . . in a way that will be very meaningful on Capitol Hill."—FRITTS, NAB

...ode new methods for distribution of the television signal. "The rapid evolution of new distributing techniques, ranging from home videodisc and videocassette players to satellite, cable, and other means of delivery, has probably been a driving force behind the quickening pace of other technological developments.

"What this all adds up to is a period rich with opportunity for people able to grasp emerging technologies quickly."

Edward O. Fritts

PRESIDENT
NATIONAL ASSOCIATION
OF BROADCASTERS

As Eddie Fritts views the broadcast industry and the association of broadcasters that he heads, he likes what he sees. For one, he expects the industry to have a very good year, despite the challenges presented by alternate delivery systems.

NAB's Fritts

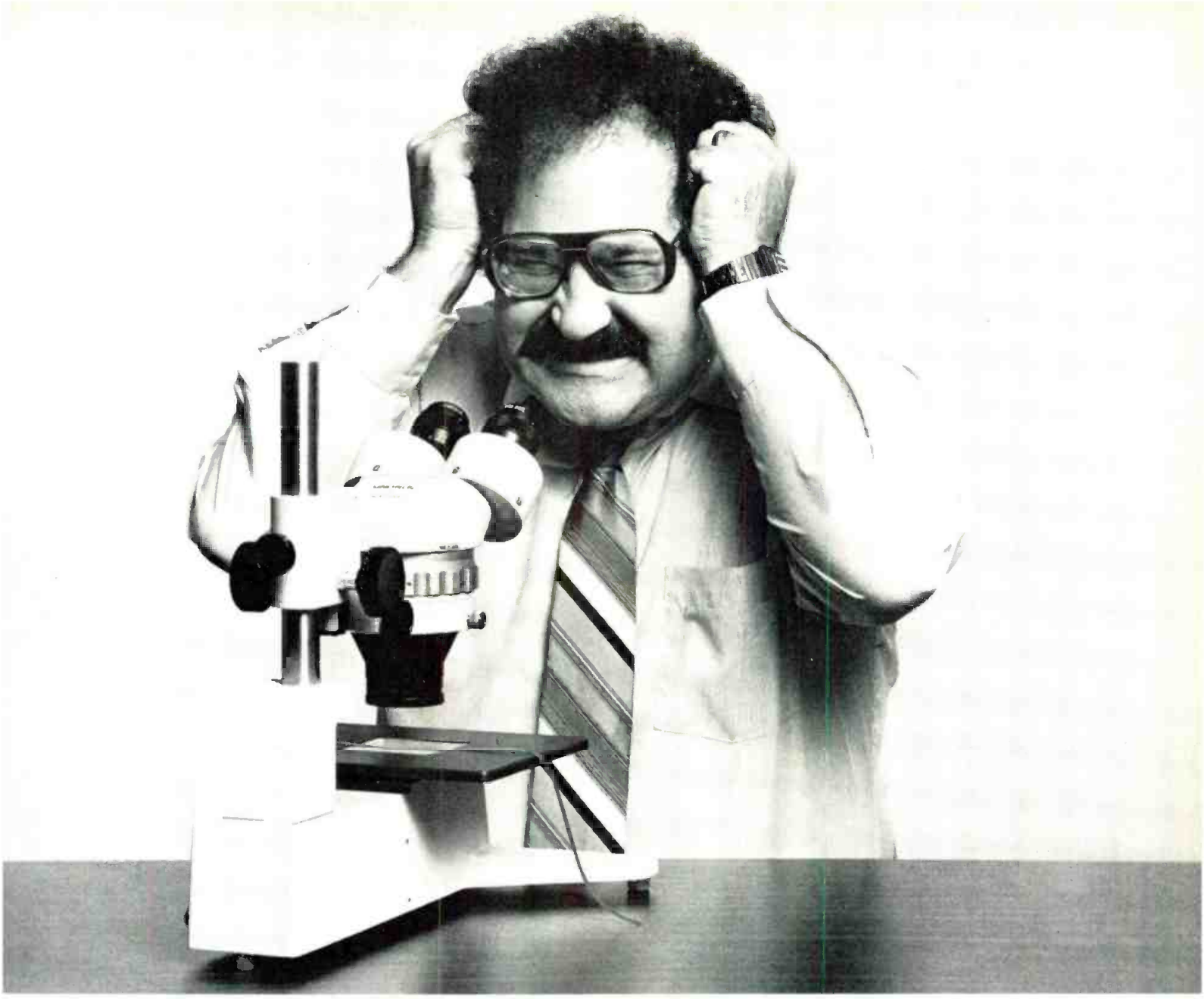
For another, he feels that the NAB is responsive to the needs of its members and will vigorously pursue those needs.

"As we are challenged by direct-broadcast satellites, LPTV, SMATV, and all these alternative delivery systems, the programming will make the difference. Local broadcast stations historically have been geared to the local communities, because broadcasters have been reflective of what's taking place in the local communities. There's only so much consumption of movies etcetera. There's a thirst for things that are happening locally and broadcasters present that best," according to Fritts.

Even with deregulation, broadcasters will continue to have a public interest responsibility, he adds. Although Fritts expects the FCC will continue on its course of cutting away regulations this year, there will be no "restructuring" of the industry, as has happened with the airlines.

"We do have concerns that in the area of technical standards the Commission has chosen sometimes not to be involved. There are areas like teletext, which we think is a viable service that should be afforded must-carry protection —we are concerned that it is not," Fritts observes.

Another major issue this year is the impact of the new AT&T. Says Fritts, "We think broadcasters could be affected very significantly by this change and as such we have formed a program



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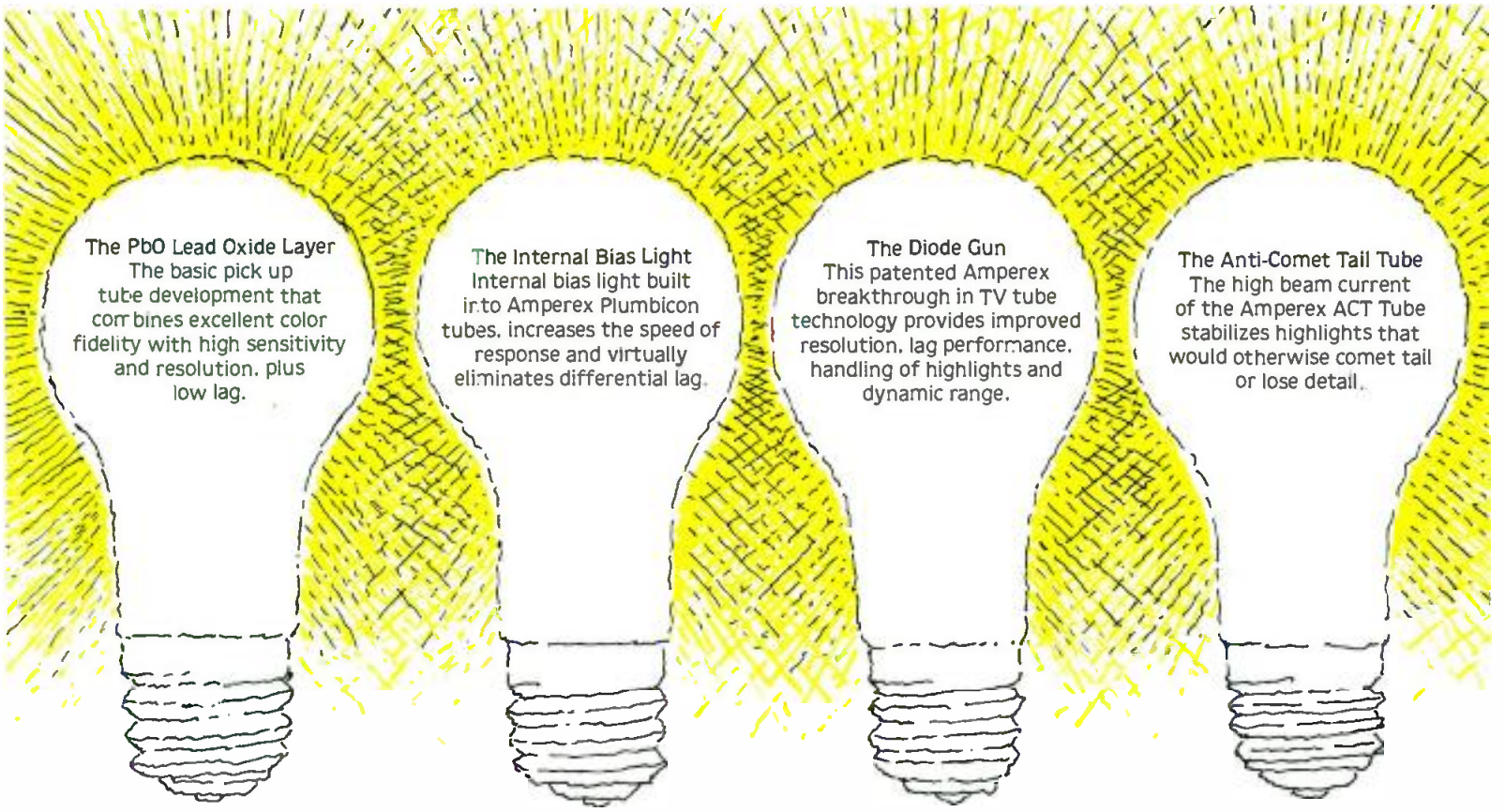
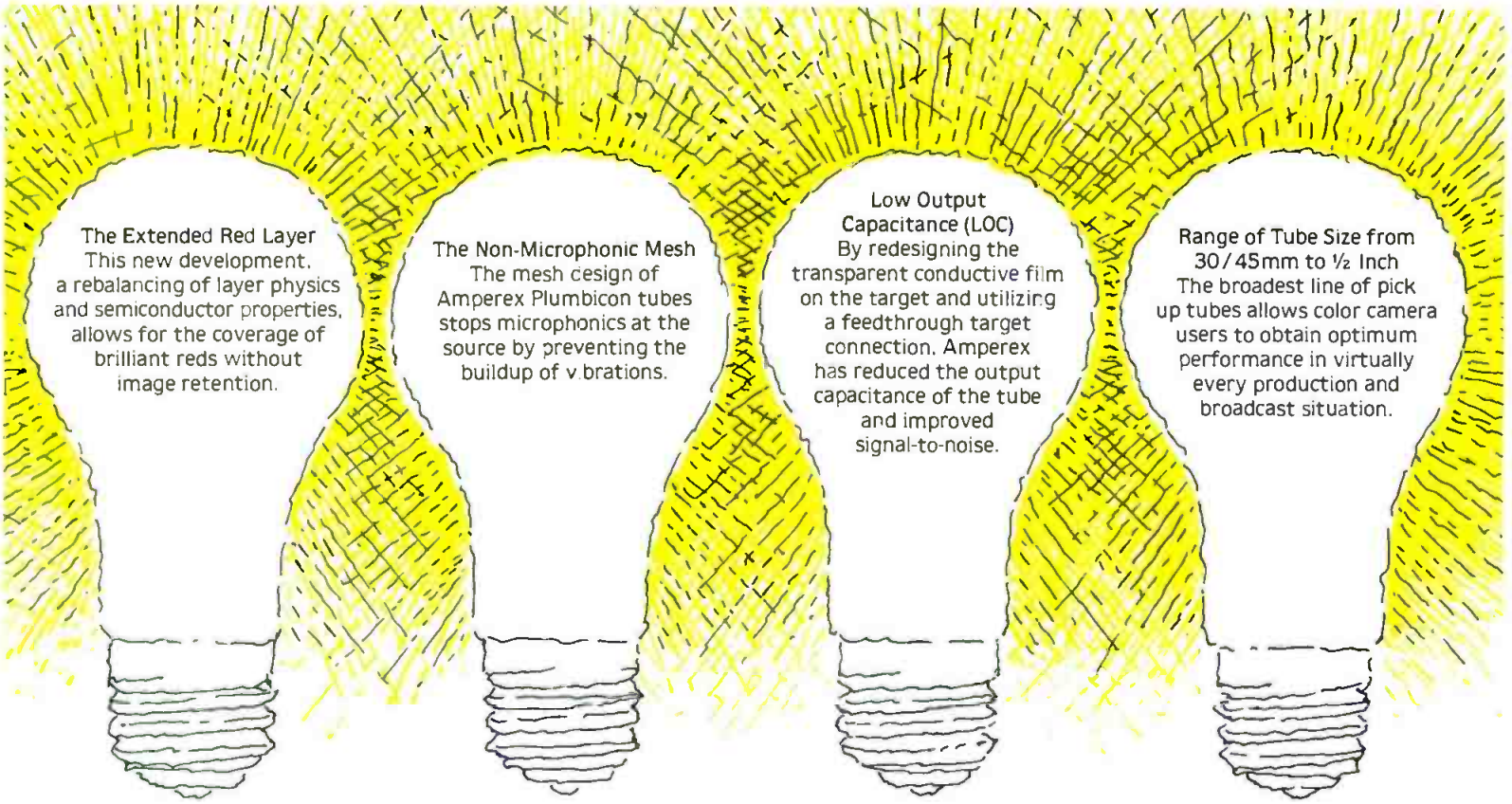


Eight brilliant ideas in TV



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"By the end of 1984 every radio station will have a satellite dish, or at least access to one, in order to get the variety of programming available and stay competitive."

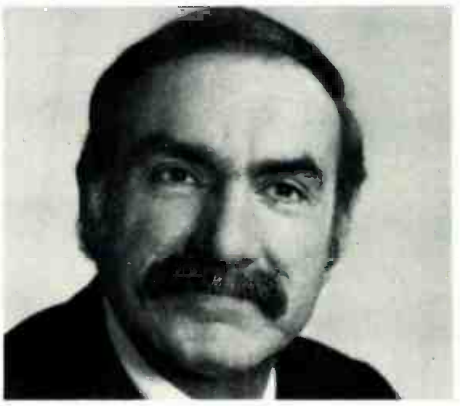
—MANN, NRBA

transmission task force headed by former FCC commissioner Robert Wells. We are bringing together a blue chip committee of broadcasters to ascertain what problems will be presented and to work toward forming solutions, whether they be legislative or through the regulatory process or just going heads-up with the phone systems to work out a better package for the broadcasters."

Bernard Mann

PRESIDENT
NATIONAL
RADIO BROADCASTERS
ASSOCIATION

Recently congressmen and senators on Capitol Hill have seen a lot of NRBA president Bernard Mann. Because of the state of flux in which the broadcast industry finds itself in terms of regulatory matters, there remains a great deal to discuss



NRBA's Mann

with individuals and committees.

"I have been talking to the lawmakers and they are anxious to give broadcasters relief from paperwork, but feel the need to create public interest constraints for all of broadcasting because of television," explains Mann, who is head of station owner Mann Media.

"I oppose the Tauzin-Tauke bill which seeks to implement such constraints. My problem with it is that it does not define the public interest it wishes to ensure, nor does it make clear what broadcasting is. To me, there is no such thing as broadcasting as a general industry. It is now, and will continue to be, such a complex and diverse business that it is too broad to easily define."

Considering regulatory matters from an FCC standpoint, Mann states, "deregulation is good. How can politicians know more about television and radio than broadcasters do? Also, I think deregulation speeded up AM stereo and other technologies as well, because if the Commission had set standards, the lawsuits would have delayed things even longer."

In a more specific area of deregulation, namely SCA, Mann has some projections for the coming year that are sobering. "Local state govern-

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"At the end of 1984 I would like to point back to the establishment of a federal cable television policy."—WHEELER, NCTA

ments still have stiff regulations concerning the paging business and this will cool some of the enthusiasm, but there is work going on for the FCC to override the local restrictions."

"Some radio people are just waiting to see what happens. Still, SCA deregulation will open up a lot of opportunities in creative equipment and program use. I'm not sure it will happen in 1984, but it will happen soon. It all depends on the equipment manufacturers to a great extent," he notes.

Turning to another item recently of great concern to radio broadcasters, Mann believes the effects from Docket 80-90 will be felt more in the less-populated areas than in the standard large markets. "Radio as a business will be more competitive and people will have to get to work to stay alive. Still, at some point, when it gets too crowded, there just won't be any more space to drop more stations into."

Considering new technology, Mann has one final prediction: "By the end of 1984 every radio station will have a satellite dish, or at least access to one. You'll need one to stay in the radio business, in order to get the variety of programming and stay competitive."

Thomas E. Wheeler

PRESIDENT
NATIONAL CABLE
TELEVISION ASSOCIATION

"This is an industry that is getting its financial and marketing house in order and should look to 1984 to reap the rewards of that financial stability," observes NCTA president Tom Wheeler in assessing cable TV.

He feels that the legislative, programming and cable advertising fronts are positive going into the new year despite the fierce competitive situation. "Let's say that I'm cautiously optimistic."

Even the advent of the new AT&T has a positive side for cable TV, according to Wheeler. Cable operators will be able to set up information transmission ventures with AT&T.

NCTA's Wheeler

"It's a new day for alliances between cable and AT&T. But we expect the Bell Operating Companies to maintain their adversarial role as before," he predicts.

Concerning the failures of some of the program services, Wheeler prefers to call the situation a metamorphosis rather than a shake-out. "It is kind of standard for any new undertaking to have a period where a lot of people enter with a lot of ideas and then you begin to find out through normal evolution what ideas are going to work. You find strengths through alliances. It's a classic business cycle. Frankly, I think we have come away from all of that a lot stronger than we were before—we have viable programming services that are strengthening their base."

But by far the biggest single issue that occupied cable operators in 1983 and will continue to occupy them in 1984 is the federal cable TV policy legislation that was passed by the Senate last June (S-66) and worked its way through the House Telecommunications Subcommittee (HR-4103) just before the recess in November. The NCTA is determined to get this bill on the books this year to cap its long trail through the legislative process.

NCTA will no doubt clash with NAB over the teletext must-carry rule, which the FCC is reconsidering. Other goals, however, are second to the cable bill.

"At the end of 1984 I would like to be able to point back to the establishment of a federal cable television policy," Wheeler concludes.

Doyle Thompson

PRESIDENT
SOCIETY OF BROADCAST
ENGINEERS

As Doyle Thompson, director of engineering for The Weather Channel, looks forward to 1984, he sees a long list of tasks waiting to be tackled by the SBE and the broadcast industry in general. The topics his society is taking under serious consideration include technical deregulation, the SBE's newly established National Frequency Coordinating Committee, and the continuing need for qualified engineers.

"The National Frequency Coordinating Committee will mount an aggressive campaign in the coming year to solve the problems we are having with the overcrowding of ENG and STL frequencies. They are getting used up, and the FCC is allowing shares by cable and broadcast, causing an even greater problem.

"We will contact all networks, station managers, and even the field operators and make recommendations. Also, we will maintain a data base, allowing users to find out what frequencies in their area are available."

Another subject in which Thompson believes the FCC has made mistakes deals with the area of technical deregulation. "One of our biggest problems as broadcast engineers is de-

"We are pushing for a certification program to combat this negative trend which springs from the FCC overworking the 'marketplace' idea and causing a degradation in engineering quality." —THOMPSON, SBE

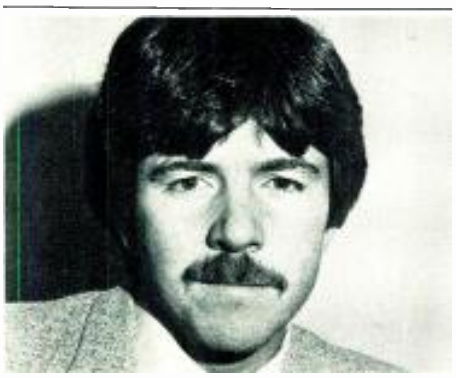
"Computer graphics and animation will become an expected service for post-production houses."

—HOWLEY, VIDEOTAPE PRODUCTION ASSOCIATION

regulation by the FCC," claims Thompson.

"Because of their posture on this, we are continually forced to file comments regarding the lack of technical standards in the engineering setup under deregulation. We are pushing for a certification program to combat this negative trend which springs from the FCC overworking the 'marketplace' idea and causing a degradation in engineering quality."

"This testing procedure, plus going out to the schools to attract newcomers, should ensure our industry of maintaining a high standard of quality for years to come."



Pat Howley

CO-CHAIRMAN,
ENGINEERING COMMITTEE
VIDEOTAPE PRODUCTION
ASSOCIATION

Pat Howley, VP of operations and engineering at New York's VCA/Teletronics, co-chairs the engineering committee of that city's Videotape Production Association with Mike Werner of Broadway Video. According to Howley, the main goals of the engineering committee, which brings together the chief engineers of the major New York teleproduction facilities, involve information exchange among the membership and with manufacturers.

"We want to talk to the manufacturers in numbers," Howley explains. "We don't want a manufacturer to be able to say to one person, 'You're the only one that has that problem.' " The idea, Howley says, is not to "go after" the manufacturers, but rather to start a dialog with them about equipment problems and needs. Ideally, the VPA could have some input into future equipment designs.

The engineering committee, which hopes to expand its membership during the coming year, is represented on the Advanced Television Systems Committee, presently working on standards for high-definition TV.

Looking ahead over the next year or two, Howley sees change occurring in three major areas. First, he predicts that on-line editing suites will become more sophisticated, with editors able to control many special effects devices through serial interfaces. "I think the next generation of editing systems will be more user-friendly and more powerful," he predicts. "Some manufacturers are making them more complicated—I think that trend has to be reversed."

Secondly, Howley says, "Computer graphics and animation will become an expected service of post-production houses," perhaps involving component videotape recorders and switchers for matting work.

James C. Hilliard

PRESIDENT
BLAIR OWNED
RADIO STATIONS

As the new president of Blair Owned Radio Stations, James C. Hilliard must fine-tune profitable operations while watching for shifts in radio's direction. Despite the abrupt changes which have recently overtaken radio broadcasters, he predicts that radio's future "for the next two or three years could not be brighter."

The radio broadcasters who will find this true, Hilliard says, have repositioned themselves to provide targeted audiences. "Radio is being recognized finally by the sharper advertiser, the merchandisers, as more of a magazine—a selected, targeted vehicle that is probably among the very best." He cites KBIL, a Blair station in Dallas which has programmed itself into an audience high in 25-34 females and thus become the target for a lot of light beer commercials, among others. The station is "very successful, but it's the advertiser who has utilized this (market) so brilliantly who's really cashing in the chips." He foresees that the industry's focus for the next couple of years will be on refining its ability to deliver these markets.

Asked about the programming necessary to get and keep such audiences, Hilliard points to demographic change as another major force.

Satellite distribution changed some things in radio, but the new president of Blair radio stations says that mostly it has replaced the telephone company.

"The new networks presently on satellite are only accomplishing what was available before. That isn't what I think satellites are all about . . . . Why is DBS thought of as for television only? Why isn't it for radio? Right now the manufacturers don't even know what I'm talking about. We've missed it."

Last but not least, Hilliard commented on operating a broadcast station with the long-term prospect of high interest rates and a "mature" economy. "In the old days, you could do nearly anything and make it work. But the cherished days of yesteryear are much like the Lone Ranger—they're not going to come back. All of us are going to have to plan more carefully, at least regarding all kinds of capital expenditures. We have to be more sure of ourselves and understand where we're going. The well-plotted plan, executed properly, will continue to win." **BM/E**

"The cherished days of yesteryear are much like the Lone Ranger—they're not going to come back. All of us are going to have to plan more carefully, at least regarding capital expenditures."—HILLIARD, BLAIR RADIO

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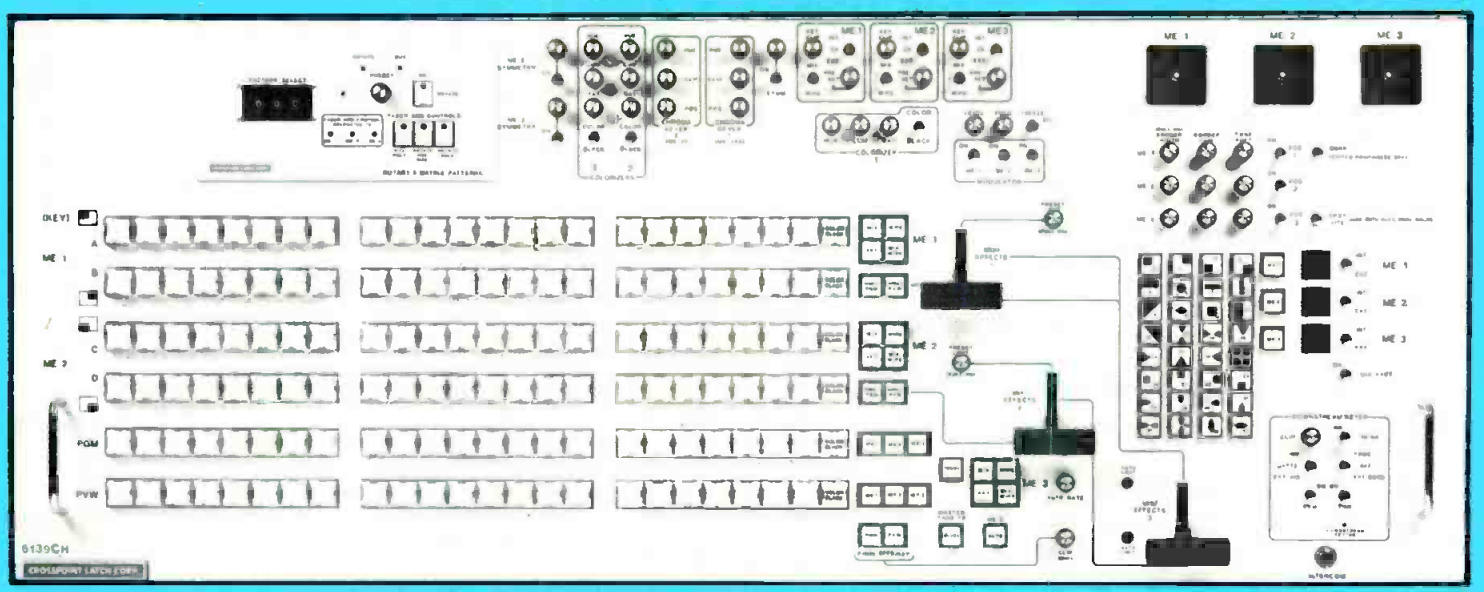

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THE 6139 INTERFACES WITH MOST EDITORS. It will accept commands directly from their keyboards, when used in conjunction with the CROSSPOINT LATCH 6403 Editor Switcher Interface, or the 7200 AUTO DRIVE. These are not mere "INTERFACES", nor are they merely "PROGRAMMABLE". They are human engineered devices SPECIFICALLY designed for use in editing. Consider just one point; they allow the operator to set the START and FINISH points of a transition precisely, (in order to obtain FRAME ACCURATE edits) while at the same time leaving the editor full control of the rest of the switcher functions; and the ability to insert and control these other functions from the edit list.

THE ELECTRONICS

New state of the art design. Multiple back-porch feedback clamps provide a very high degree of stability. Modular construction, with standardized function oriented plug-in boards facilitate maintenance, and field replacement. We recognize the fact that no matter how reliable a unit is, there is always the possibility that a component can fail. The 6139 has been designed with back-up paths, to reduce the possibility of complete shut down. For instance the PREVIEW system is an exact duplicate of PROGRAM. Several boards are interchangeable, and may be swapped to at least provide essential functions in an emergency.

BLANKING PROCESSOR eliminates color shift at the end of a mix or wipe
FIVE LEVELS OF KEYS
ROTARY AND MATRIX WIPE OPTION
HIGHLY EFFICIENT CURRENT MODE AMPLIFIERS INCREASE STABILITY AND REDUCE SIZE OF ELECTRONICS
INTERFACES WITH MOST EDITORS
AUTO DRIVE™ OPTION (COMPUTER CONTROL)
TWO CHROMA KEYERS (RGB OR ENCODED)
UNIQUE "TEST" MODE TO FACILITATE SYSTEM TIMING

DELIVERY
LED VERSIONS - 2 WEEKS

8 input LED version starts at **$14,500.** With illuminated push buttons and options approx. **$70,000**

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Circle 132 on Reader Service Card

SMALL-TOWN TELEVISION AT ITS FINEST:

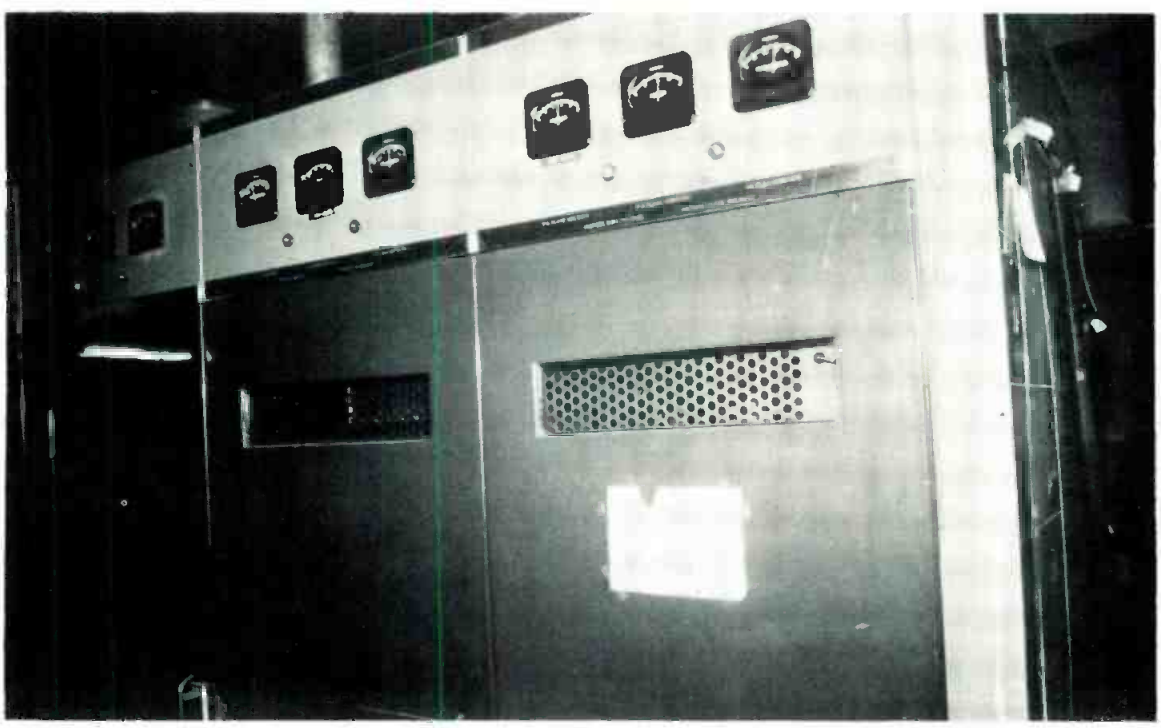
By Glenn Calderone

NBC affiliate KYUS-TV, Channel 3 in Miles City, MT: small-town television at its best! This year the station will celebrate its fourteenth year as the only station in what seems to be the smallest market in the country. David Rivenes and his wife Ella operate the station, handling everything from programming to sales with a total staff of six. To local viewers, David Rivenes is also the TV star—field reporter and studio anchorman for news, weather, sports, and public affairs.

The network feed arrives via microwave, and everything else is either live on Camera 1, or on videotape (either VHS or ¾-inch cassette). Camera 2 is reserved for slides and 16 mm film. And it all ends up on Channel 3, serving southeastern Montana with 10 kW visual ERP. **BM/E**

Glenn Calderone *is an independent writer and TV/radio engineer residing in Fountain Valley, CA.*

Master control: Sony VO-2800 and two VO-2600s, plus a Panasonic VHS deck fill the needs for local videotape playbacks, while a Dynair 12-input switcher handles camera, tape, and network video. Shure M-67 mixer and custom switcher route audio separately from video.

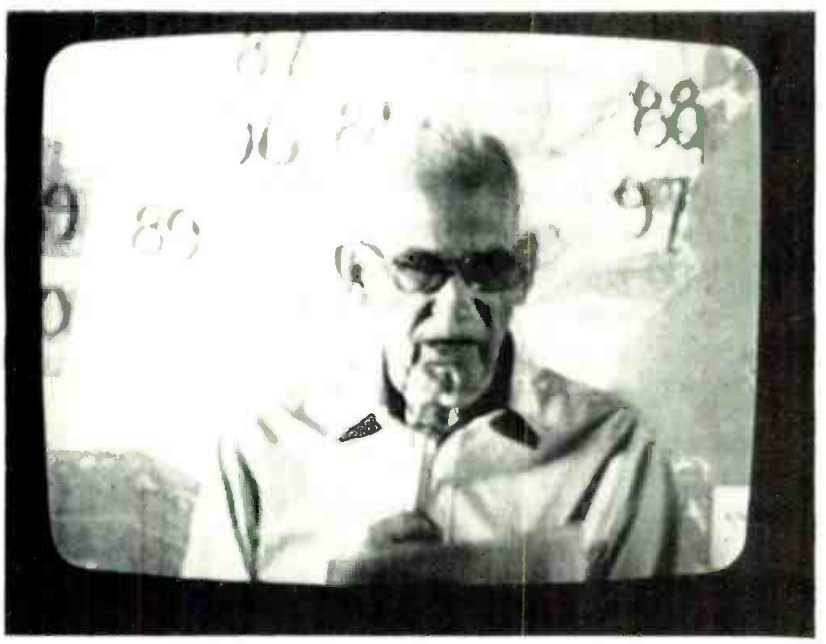


RCA TT-5 VHF transmitter occupies eight racks, and is located behind the master control monitor rack. ERP is 10 kW visual, 1020 W aural.

KYUS-TV, Miles City, MT

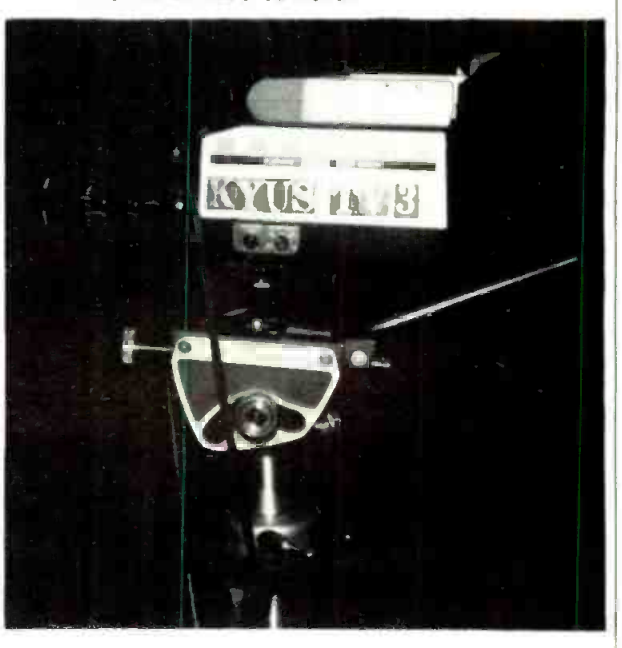
General Radio 1170 aural and 1183 visual monitors handle the transmitted signal.

In the studio, flats for various local programs line the walls, and portable lights are moved to each set as required. One tripod-mounted camera is all it takes.



TV "star" David Rivenes shares the hats of owner, manager, and talent as he makes the weather forecasts as part of his on-air news/weather/sportscast.

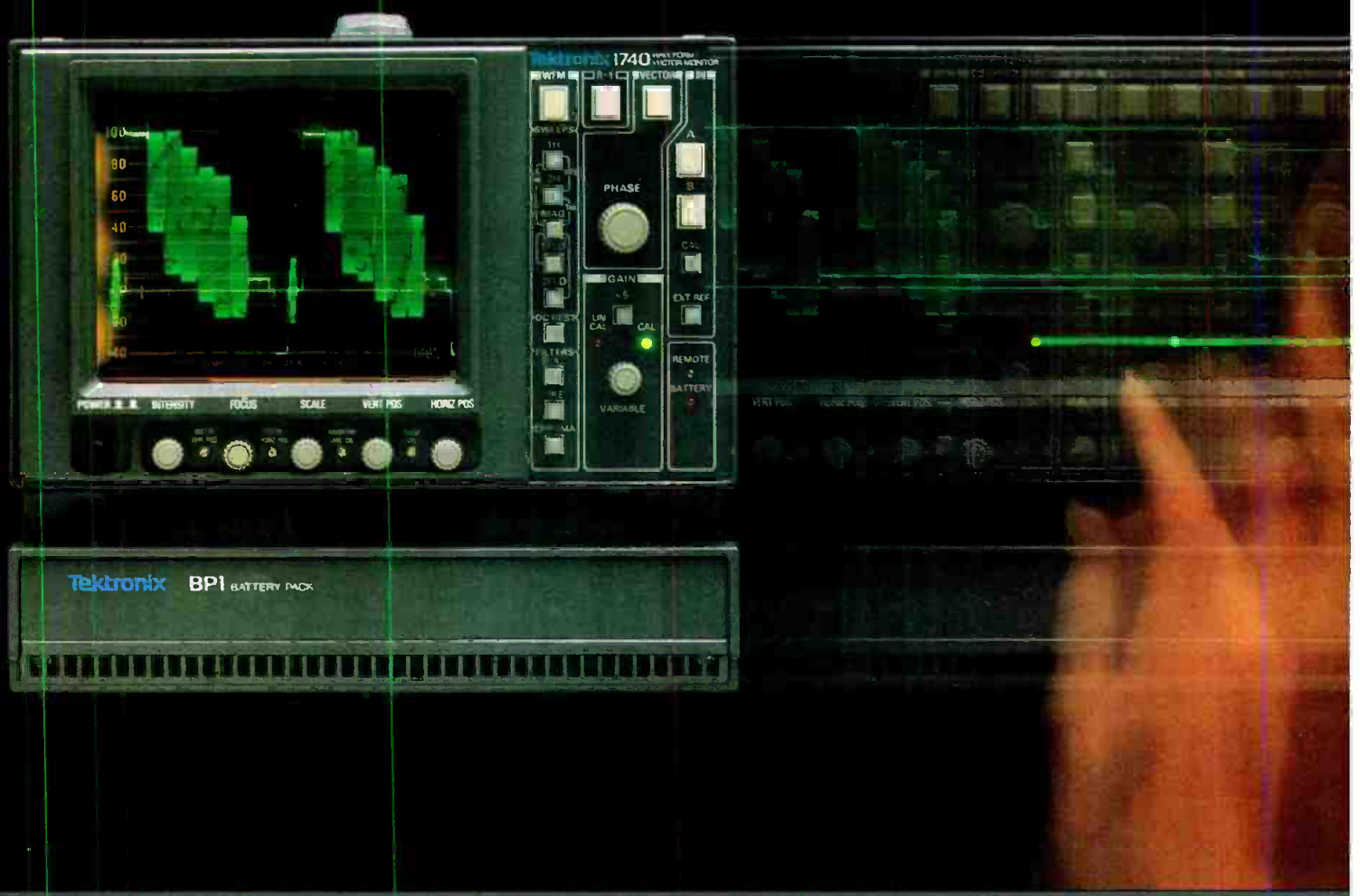
The Hitachi one-tube color camera is used for almost everything local. Film and slides are broadcast on an IVC three-tube camera.



TEK 1740 SERIES
WAVEFORM/VECTOR MONITORS

TWO MONITORS IN ONE PORTABLE PACKAGE...

THAT'S A NICE SWITCH.



The model above is pictured with the optional battery pack.

Tektronix introduces a new product to help improve your signal quality: The 1740 series portable waveform/vector monitor.

We know that in-studio or out on remote, space is critical. And the smaller the equipment is, the better. So we've combined our waveform and vector monitoring functions, and integrated them into one compact, go-anywhere package.

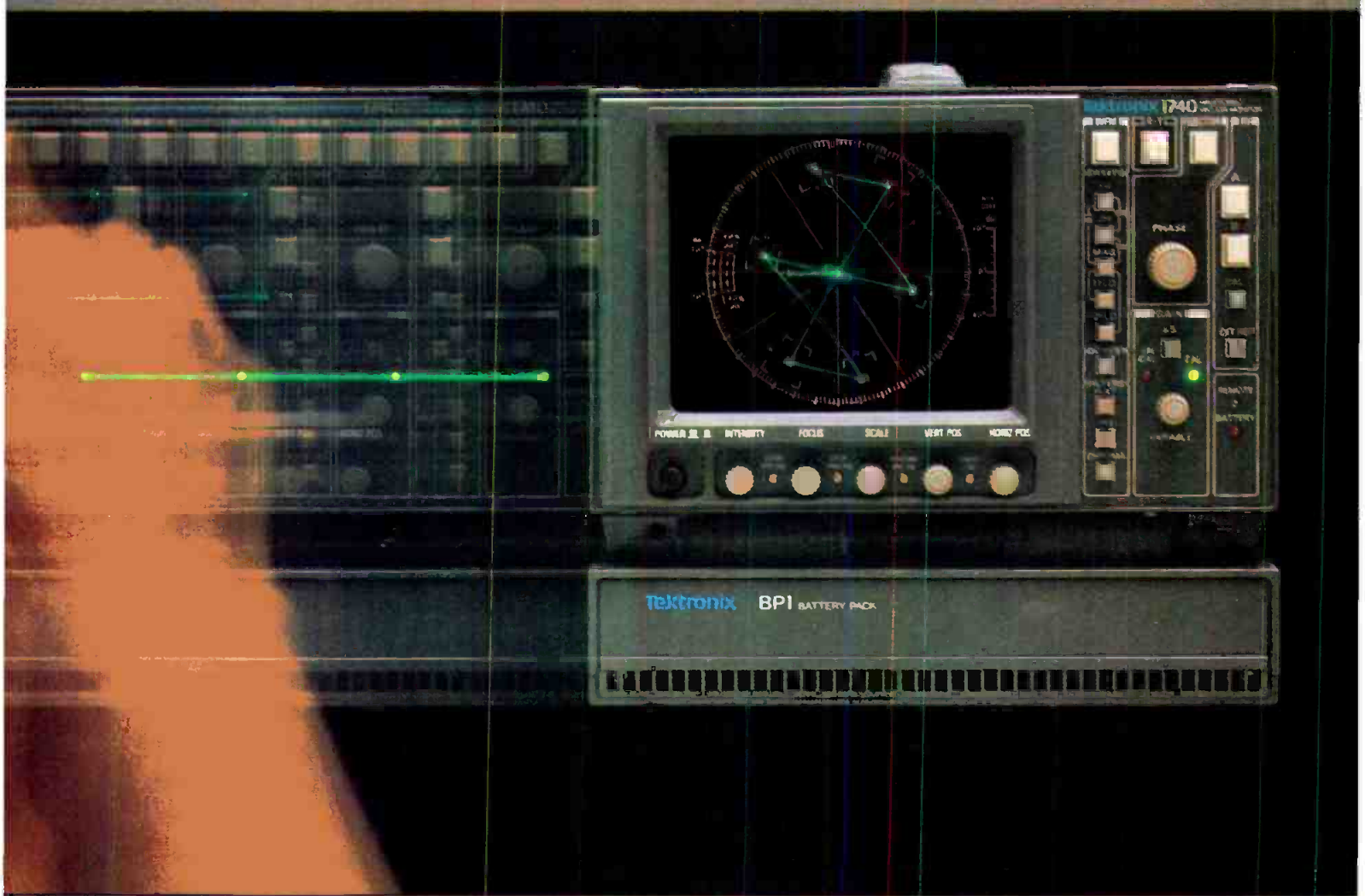
HALF THE RACK SPACE.

At 8½ inches wide and 18 inches long, the 1740 series uses only half the normal rack width. That means you gain more usable space and more flexibility than ever.

To change from waveform mode to vectorscope mode and back, just press a button. Couldn't be simpler.

There's a brighter CRT display on the 1740 series, too. Viewing is easy even in high ambient light.

And, because it operates on either AC or DC, the 1740 can go wherever you go.



TWO-IN-ONE ECONOMY.

Using one monitor where two were needed before lowers your equipment costs. And because the 1740 series is completely portable, it makes a sensible purchase for either studio or field use.

And there's more. The 1740 series operates on only 50 watts of power. And that means less heat build-up (which is important in crowded equipment racks).

And in addition, there's a single line display preset for monitoring VIRS.

SEE FOR YOURSELF.

Now that you've heard about our new two-in-one tool, you should see one. Call or write us for a demonstration. We have field offices in most cities. Or you can call Toll Free 800-547-1512 (in Oregon 800-452-1877), or contact your authorized Tektronix professional video dealer.

And remember. You can depend on Tektronix for video monitoring equipment that works, and for technical support and service worldwide.

WORKING HARD FOR YOUR SIGNAL QUALITY.

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Beaverton, OR 97075

Tektronix
COMMITTED TO EXCELLENCE

Circle 134 on Reader Service Card

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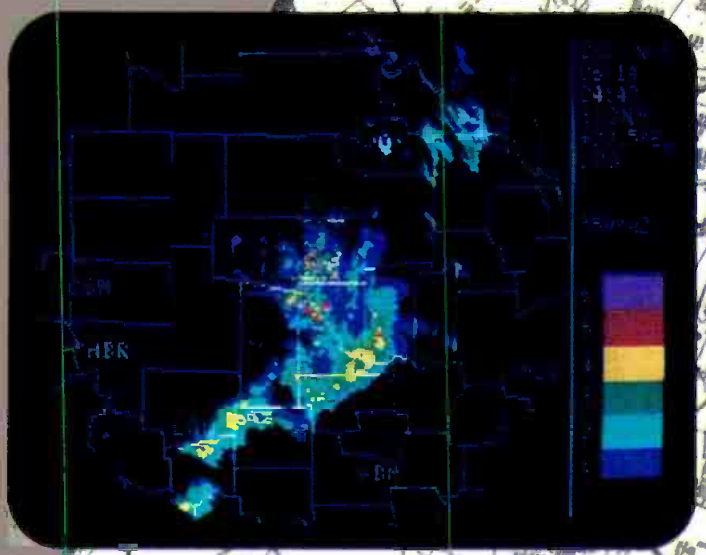

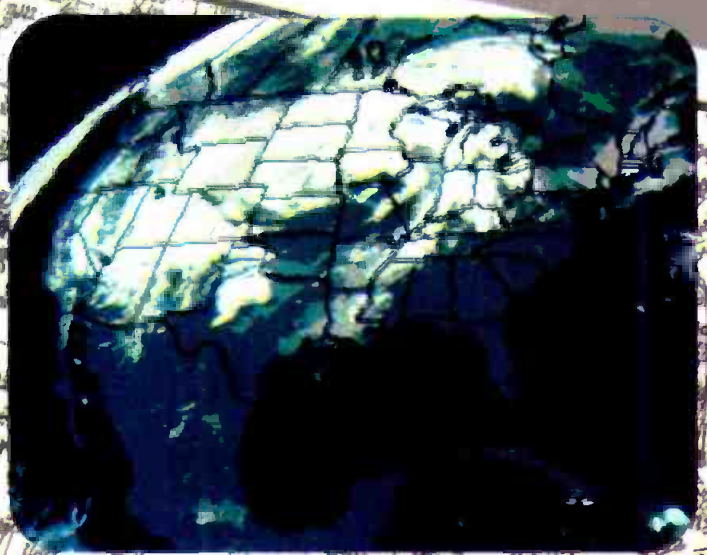

LIVE COLOR RADAR WITH FREE ACCESS

PLUS COLOR SATELLITE AND WEATHER GRAPHICS

You already know Alden as the first name in facsimile weather chart systems. In fact, you probably already use one of our chart recorders.

Now Alden introduces a new family of systems to add live color radar and satellite/weather graphics to your information sources.

LIVE RADAR. Alden's C2000R system brings you a new network of government weather radar transmitters (RRWDS). And provides you with live weather radar coverage anywhere in the country, with no annual access fees. Direct phone hookup will be available as early as Fall 1983, with dial-up to many transmitters nationwide available in Spring 1984.

Display different precipitation levels in up to 6 colors, with level flashing for easy identification, or store multiple-region and time-lapse pictures. Numerous other features make its low price a pleasant surprise.

GRAPHICS. Alden's C2000S is a low-cost, high-performance unit for displaying weather information from private and government data bases. Color satellite pictures, surface weather, temperature contours and hourly NWS pictures are available, with 16 selectable colors, zoom, flash and loop capability.

BOTH. Alden's C2000R/S offers the combined capability in one system. Our "building-block" design permits field conversion of the stand-alone C2000R or the C2000S into the C2000R/S model at any time. All systems offer the flexibility to acquire not only today's data, but the data of the future.

Call or write us for complete information. Alden Electronics, 118 Washington Street, Westborough, MA 01581. Telephone 617/366-8851.

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Company_____

Address_____

City_____ State_____ Zip_____

Phone_____

ALDEN ELECTRONICS

The First Name in Weather

Circle 135 on Reader Service Card

Bread 'n' Butter Equipment, Satellites Head Broadcasters' Needs for 1984

Stations and facilities are shopping intensely, and they are now ready to buy a large part of the equipment on their high-priority lists, the annual BM/E Survey of Broadcast Industry Needs reveals.

Starting with the active shopping at the NAB show last April, it began to appear that 1984 was going to be an active year for adding and for replacing equipment. The annual *BM/E* Survey of Broadcast Industry Needs confirms this impression.

The results, based on returns from readers representing a cross section of market size, indicate that broadcasters and teleproduction facilities will once again put high priority on bread-and-butter products. Thus, for TV equipment, ¾-inch VTRs topped the priority list, followed by video monitors and time base correctors (see table). Consoles, mixers headed the field in radio/audio equipment, with cart decks and microphones second and third.

Budgets are generally up for the year as well. Radio stations are expecting sharp increases on the average, production facilities are also anticipating substantial gains, and TV stations will be about equal to last year's high levels. It is not surprising then that a large proportion of the items that respondents checked as high priority will be purchased this year.

For example, on the list of 26 radio/audio products, 21 were earmarked for actual purchase by 50 percent or more of those who marked those items as high priority. Twenty of the 42 TV equipment categories were also slated to be purchased this year by a majority of those responding (see charts).

There was very little change in the top five purchase priority ranking com-

Radio Equipment Needs

Rank '84	Rank '83		Definite Purchase
1	2	Consoles, Mixer	*
2	1	Cart Decks	*
3	3	Microphones, Accessories	*
4	5	Audio Processors	*
5	8†	Remote Pickup & STL	*
6	12†	Monitor Speakers	*
7	6	Monitoring Equipment	*
8	4	Test Equipment	*
9	17	Antennas	
10	7	Turntables	*
11	8†	Satellite Earth Station	*
12	20	AM Transmitters	
13	25	AM Stereo Equipment	
14	11	Power Supplies, Batteries	*
15	15†	Telco Interface Equipment	*
16	10	Noise Reduction Equipment	*
17	12	Studio ATRs	*
18	18	Reverb and Special Effects	
19	15	Business Automation	*
20	24	Mobile Vans	*
21	19	FM Transmitters	*
22	22	Studio Automation Equipment	*
23	14	Time Compression Systems	
24	23	Field ATRs	*
25	26	ATS Equipment	*
26	21	Digital ATRs	*

* Over half of those rating this category high priority will actually purchase in 1984.
† Tied in 1983 ranking.

Bread 'n' Butter Equipment

TV Equipment Needs

Rank '84	Rank '83		Definite Purchase
1	1	VTRs, ¾-inch	*
2	2	Video Monitors	*
3	3	Time Base Correctors	*
4	7	Character Generators	
5	17	VTRs, One-Inch	*
6	4	ENG Cameras	*
7	6	Studio/Field Cameras	
8	5	Test Equipment	*
9	14	Production Switchers	*
10	10†	Power Supplies, Batteries	*
11	10†	Frame Synchronizers	*
12	7†	Lighting Equipment	*
13	9	Digital Effects Devices	
14	17†	Audio Consoles, Equipment	*
15	10†	Satellite Earth Station	*
16	14†	Time Code Equipment	*
17	21†	Electronic Still Stores	
18	16	Routing Switchers	*
19	19†	Multisource Video Editors	*
20	23†	VTRs, ½-inch	
21	10†	Simple VTR Editor/Controllers	
22	23†	Studio Cameras	*
23	32†	Digital Art/Paint Systems	*
24	19†	Noise Reduction Systems	
25	26	Recorder/Camera Combos	
26	21†	Image Enhancers	
27	28	Master Control Switchers	
28	21†	Microwave for ENG	*
29	29	ENG/EFP Vehicles	
30	30†	Weather Radar/Graphics	*
31	35	Automation Systems	*
32	39	Teletext Equipment	
33	27	Telecines	
34	32†	Switching Automation	
35	30	Remote Control	
36	32†	Slow Motion Recorders	
37	36†	Transmitters, VHF	
38	40	CP Antennas	
39	42	LPTV Equipment	
40	41	ATS	
41	36†	VTRs, Quad	
42	38	Transmitters, UHF	

* Over half of those rating this category high priority will actually purchase in 1984.
† Tied in 1983 ranking.

pared with last year's for radio/audio. Consoles, mixers and cart decks traded places this year for one and two. Remote pickup and STL moved to the number five slot from number eight. Test equipment dropped from fourth ranking to eighth in the weighted scoring system.

The only changes in the top five among TV equipment was that character generators moved from seventh to fourth, and one-inch VTRs leaped from seventeenth to fifth, replacing ENG cameras and test equipment, respectively. Worth noting on the TV chart this year is that several items rated well down on the priority list will nevertheless be purchased by a majority of those interested in that equipment. This is the case for digital art/paint systems, weather graphics and automation systems, to name a few.

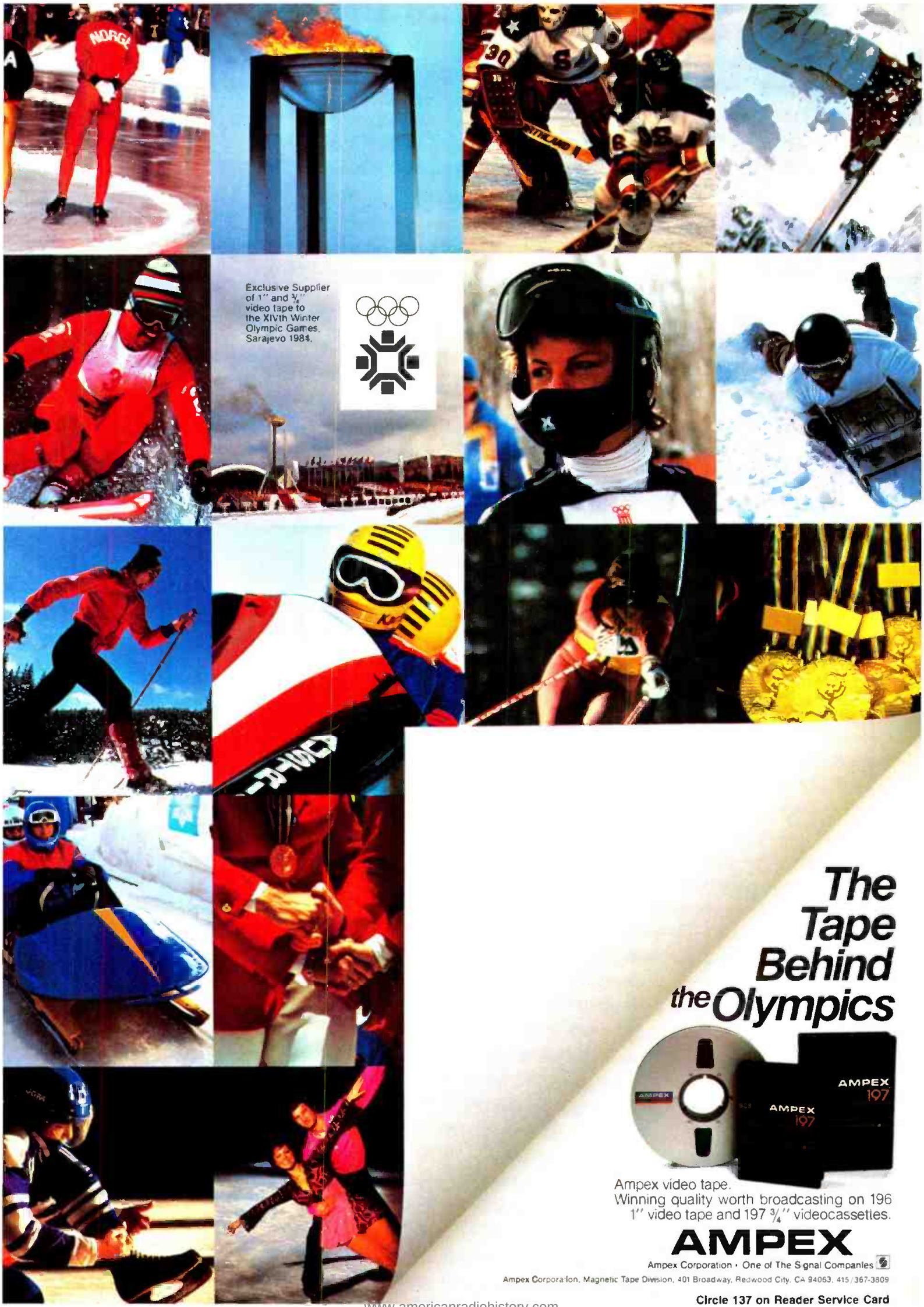
Size comparisons

There were variations in priorities by market size for both radio and TV. For example, for respondents from radio Metro rankings 1-10, microphones and consoles, mixers tied for the top and cart decks third. The medium-sized markets, Metro 11-50, heavily favored cart decks, followed by consoles, mixers and audio processors. The top three categories for the small markets were consoles, carts, and microphones.

Differences among television markets and production facilities were more striking. Respondents from ADI 1-10 ranked video monitors as their top priority need, with ¾-inch VTRs second; one-inch VTRs, third. For ADI 11-50 stations the top need was time base correctors followed by one-inch VTRs and test equipment. The small-market TV stations had video monitors first, but put ENG cameras second and satellite earth stations third. The teleproduction facilities (all markets) listed ¾-inch VTRs first and character generators second, followed by studio/field cameras.

Satellite plans

This year's special question concerned installation of satellite earth stations. Just over 54 percent of radio respondents have earth stations installed, slightly over half within the last 12 months. Of those that do not have earth stations, 71 percent will purchase a system in the coming year and the re-



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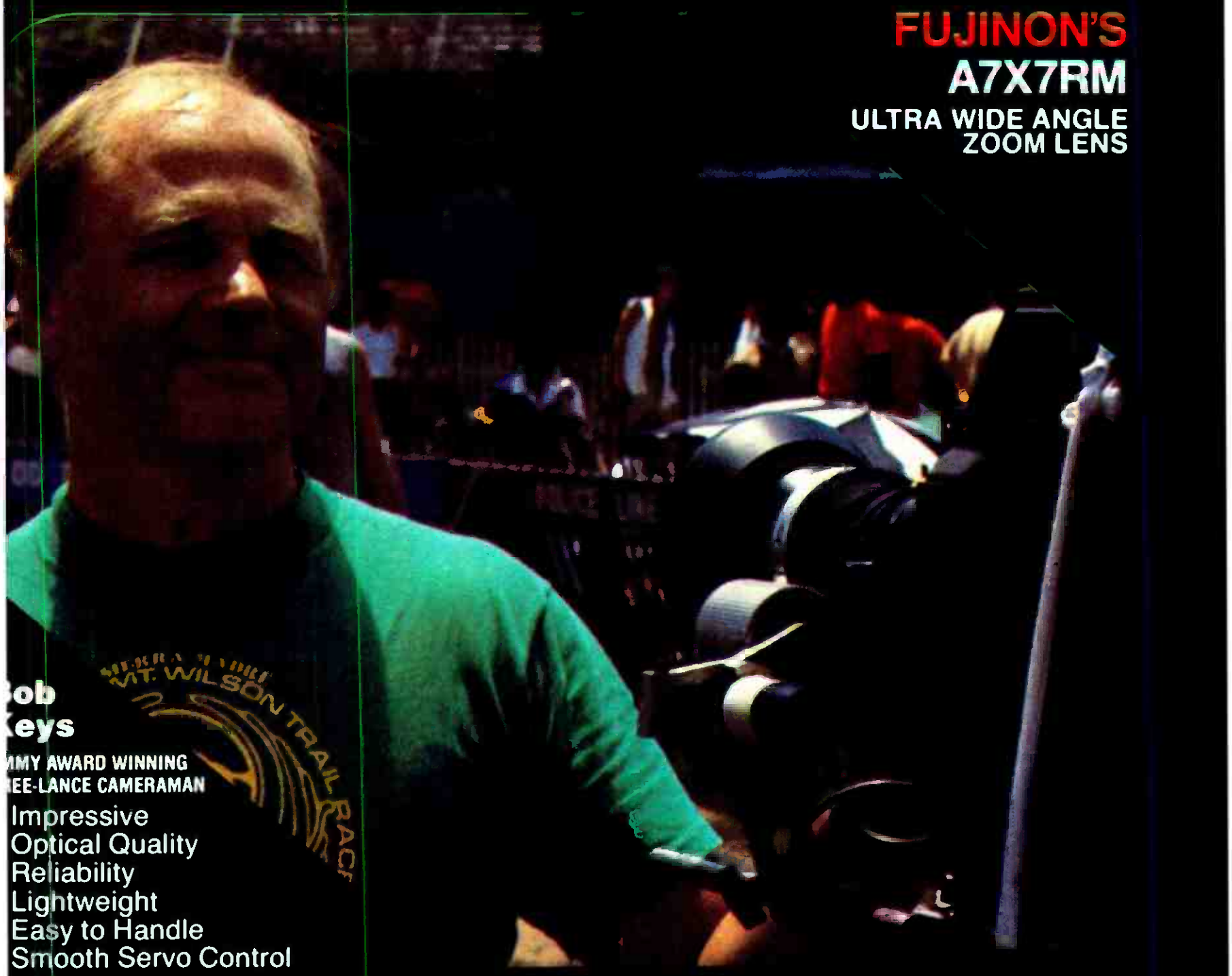

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Bread 'n' Butter Equipment

mainder, next year. Two thirds of the large-market stations with earth stations have had them for over a year. Of those planning to install an earth station, over 85 percent in Metro 1-10 will do so this year. Not quite 58 percent of the medium-market radio stations have earth stations, the survey reveals, three fifths for over a year. A like percentage of small-market stations have earth stations, with nearly 55 percent installed in the last 12 months. Almost two thirds of those stations planning an earth station will get it this year.

Over 64 percent of the television stations responding have earth stations installed, most of them for over a year. Of those TV stations planning to install earth stations, over 60 percent will do so this year. Over 71 percent of the ADI 1-10 stations already have dishes. A similar percentage of medium-market stations have earth stations, whereas 53 percent of the small-market stations presently have satellite equipment. Almost all of the dishes presently installed are 10 m units, according to the survey.

Budget plans

How are broadcasters going to spend their 1984 budgets? The average TV budget of about $1 million this year will be fairly evenly split between replacement and additional capacity, with replacement purchases getting most of the dollars. Teleproduction facilities, on the other hand, will put more dollars into expansion this year. Average budgets are up considerably for production houses. Seventy-five percent of those responding said budgets were up and the average change was a whopping 265 percent.

As might be expected, TV stations in ADI 1-10 reported the largest total budgets. This year's average of $2.12 million, however, was 8 percent below the 1983 figure. More money was allocated for expansion last year than this year, the survey indicates. The medium-market stations in ADI 11-51 report that their budgets will increase this year by a little over 3 percent. The small-market stations indicate a decline this year.

The situation is quite different for radio stations. Although dealing with smaller numbers, the budget increases are dramatic. The average 1984 budget of $184,000 represents a jump of almost 400 percent over 1983. Over 60 percent of respondents said that their budgets will increase this year.

In Metro ranks 1-10, 70 percent expected higher budgets for '84 with an average change of 154 percent. Half of the respondents from Metro ranks 11-50 reported budget increases and 60 percent from small-market stations (Metro 51 and above) reported increases.

Who were the respondents? For radio, just under 11 percent were from Metro rank 1-10; almost 13 percent were from ranks 11-50; and the rest were from 51 and above. For television, 16 percent represented stations in ADI 1-10; another 16 percent were from ADI 11-51; almost 23 percent were from ADI 51 and above; and the remainder, 45 percent, were teleproduction facilities. **BM/E**

HOW TO AVOID A FORMAT FAUX PAS.

There has been mounting confusion over which combination camera/recorder format to choose. And for obvious reasons. With the addition of so many new formats, nobody wants to make a mistake that can range from thousands to millions of dollars.

But if you follow these simple steps, you'll never get caught with your wallet, or your neck, in the proverbial wringer.

LOOK FOR EVOLUTION. NOT REVOLUTION.

Apparently, many manufacturers feel it's in their best interest to have you replace your existing U-matic™ equipment with their new stand-alone systems.

At Sony, we think it's foolhardy to leave you no option but to make a 180° turn and orphan your existing editing suite. So we designed Betacam™ as an evolutionary system. One that easily and efficiently plugs into what's come before.

This Sony theory of peaceful coexistence allows you to enter the world of one-piece camera/recorders at your own pace. And in this way you not only protect your existing U-matic investment. You gain field equipment that's more compact and portable, and a dramatic improvement in technical performance. Furthermore, dramatic improvements are also on the horizon for Sony U-matic. The evolution of both these formats is planned and it's total.

FIND A ½" SYSTEM THAT'S WHOLE.

For those of you who want to capitalize on the outstanding technical performance of an overall ½" system, scrutinize carefully the complete system from Sony.

After all, who else has a portable color field player like our BVW 20? Or our ½" edit-recorder, the BVW 40, which looks and feels like the Sony U-matic equipment you're accustomed to using? And who else promises an ongoing commitment to ½" system expansion and refinements that you wil see next year and every other year?

BE PENNY-WISE
WITHOUT BEING POUND-FOOLISH.

The Sony Betacam system has proven itself on both the

firing line in Nicaragua and the fifty-yard line at the Super Bowl.

That's because our format was chosen to be optimum for both ENG and EFP, which is why Betacam is not just the lightest, smallest, most compact ½" system you can buy (as well as the least expensive), but its picture quality rivals 1".

Whatever you've been told you might gain from the various ¼" formats, when and if they become available, will be totally erased by the fact that ¼" is not at all suitable for high-quality EFP. Which means, if you purchase ¼" for ENG, you'll no doubt have to purchase an entire new system for field production.

THERE'S SAFETY IN NUMBERS.

With over 1,000 Betacams already sold to key end users, Betacam is virtually the worldwide de facto standard now.

We believe Betacam is outselling all the others by such a wide margin because it's better than all the others by such a wide margin. It's the only camera/recorder that focuses on the big picture. A picture that includes your existing investment; your need for both ENG and EFP; your desire for light weight and high quality; and a total system approach.

If you want to make sure you'll own the standard of excellence in the years ahead, insist on the camera/recorder from the people who created the standard of excellence in the years past.

For a demonstration, in New York or New Jersey call (201) 833-5350; in the Northeast/Mid-Atlantic (201) 833-5375; in the Midwest (312) 773-6045; in the Southeast (404) 451-7671; in the Southwest (214) 659-3600; and in the West (213) 841-8711.

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Broadcast

The new 30-kilowatt high band overachiever

The Harris TV-30H does it better at 30 kilowatts than any other high band TV transmitter. By design.

Better Performance

Specifications approach the measuring limits of the very best television test demodulators to easily handle the demands of new technology.

For example, highly linear amplifiers and the Harris Quadrature Corrector hold incidental phase modulation to ±1.5°.

Our unique VIDEO* SAW filter provides visual sideband attenuation of −10 dB at 4.5 MHz.

*Visual IF Delay Equalized Output

These specs—vital for transmitting high-quality multi-channel (stereo) sound—are unmatched in the industry.

Greater Reliability

Because of the VIDEO SAW filter's built-in FCC receiver group delay pre-correction, the TV-30H is the only 30-kilowatt high band transmitter that needs no complicated receiver equalizer circuitry. Fewer circuits mean greater reliability.

And this is the only 30-kilowatt design linear enough to combine aural and visual signals at the exciter outputs for emergency multiplex operation (available as an option).

More Headroom

Other than the visual cavity and the cooling system—which were redesigned for maximum efficiency at 30 kilowatts—the TV-30H uses the same components and circuits as our field-proven 50-kilowatt high band transmitter. Result: a greater degree of headroom for added dependability, longer component life.

Find out more on why the new Harris Overachiever is your best buy at 30 kilowatts. Contact: Harris Corporation, Broadcast Transmission Division, P.O. Box 4290, Quincy, Illinois 62305. 217/222-8200.

HARRIS

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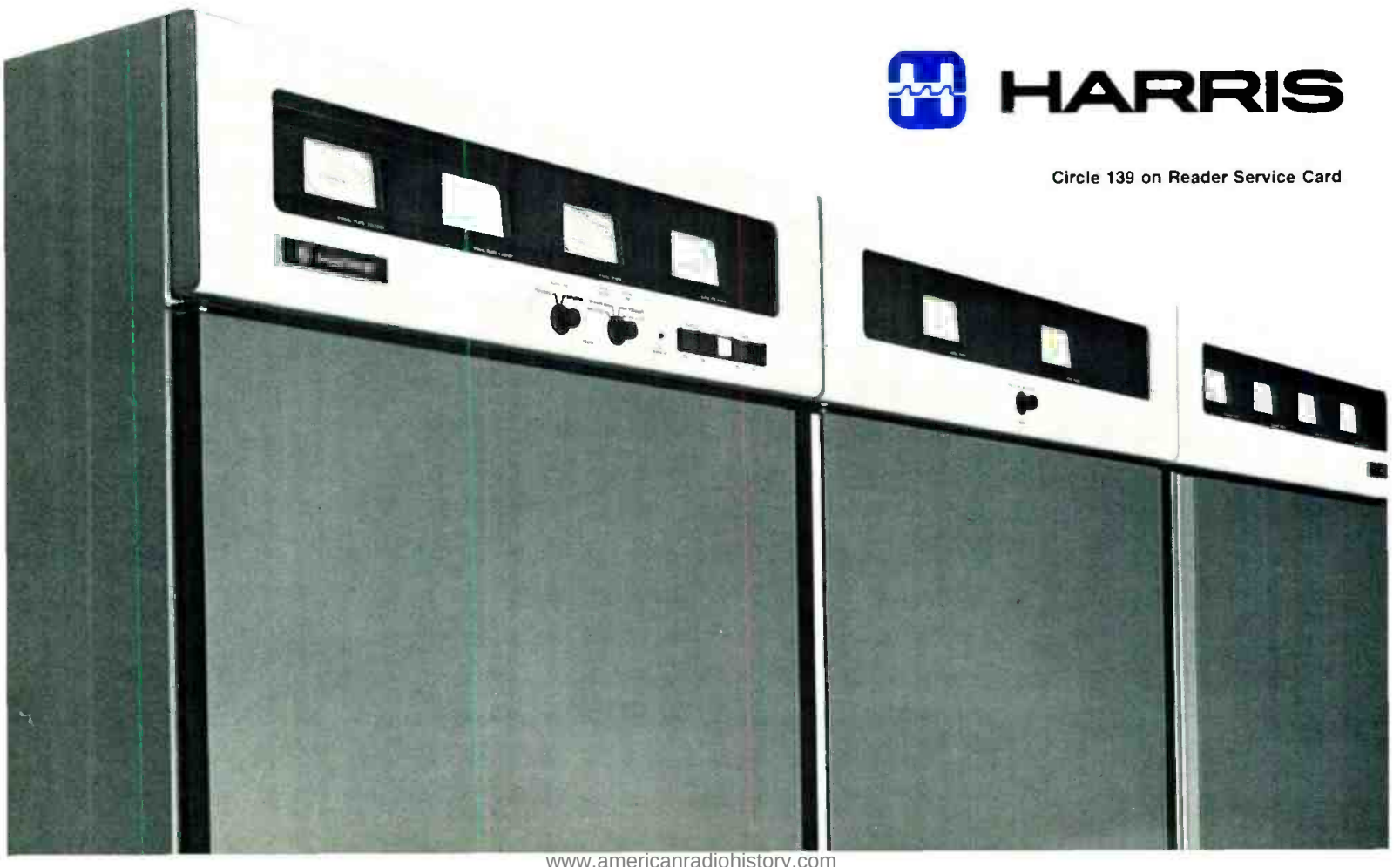

SMPTE Chronicle

STANDARDS SET TONE AT LIVELY CONFERENCE

Team Report Prepared By

Gerald M. Walker, Editorial Director — Robert Rivlin, Editor — Eva Blinder, Senior Associate Editor

In a new locale, together with record-setting attendance and exhibitors, the SMPTE conference was a winner by any standard. And speaking of standards...

...if there was one theme that got the one hundred twenty-fifth conference off and running, it was standards. From the opening speakers to the conference sessions, it was clear that the onrush of technology has made standards-setting vital.

If further proof were needed, it was only necessary to walk the exhibit floor of the Los Angeles Convention Center to see where SMPTE standards had set a course for manufacturers and where there remains uncertainty because of a lack of standards.

The exhibit hall was an impressive sight. Taking advantage of the new show site, some 260 exhibitors in over 610 booth spaces filled the LA Convention Center. Surpassing all previous shows, this year's SMPTE also attracted many new firms, especially from the audio industry. And over 10,000 attendees made the rounds.

This show, coupled with the technical sessions, underscored that SMPTE certainly has its work cut out for it in setting standards. This point was emphasized on the opening day by guest speaker Julie Barnathan, president of Broadcast Operations and Engineering for ABC Television.

Pointing out that to him standards is the most important function of SMPTE, Barnathan went on to state that action is needed. "Never before has the need for action from SMPTE been more important. We cannot wait for all-purpose solutions," he claimed.

Going beyond the standards for equipment, Barnathan also ascribed to SMPTE a role in setting standards for expectations—what technology can do and not do to help make broadcasting better; and standards of efficiency—making the equipment productive.

Rollie Zavada told the opening day audience that with the establishment of the new committee system, SMPTE had laid the groundwork for attacking the difficult tasks ahead. A telling reminder of SMPTE's role came from the very first society meeting in 1916 when president C. Francis Jenkins said that every new industry must standardize and the society must provide the "unselfish circumstances for enduring standards," certainly a statement equally true for the television era.

The conference was a tour-de-force of technology. New developments in HDTV were discussed. New introductions spiced the show. CCD cameras, poised at the marketplace, were hot. Component video switchers were very much in evidence. The battle among small-format systems went on. A digital VTR was demonstrated. Special effects and graphics once again dazzled attendees.

And along with the technology came announcements of new marketing agreements marking a realignment or consolidation in marketing efforts—in some cases uniting strange bedfellows—and involving international connections.

Here is a roundup of the highlights of the SMPTE conference to put the swirl of events into perspective.

HDTV Interest High in Sessions, Show

Broadcaster's interest in high-definition television technology continued high at SMPTE, with the Wednesday morning HDTV session drawing what appeared to be the highest attendance of any of the broadcast-related sessions.

Two papers from Sony analyzed some of the problems facing HDTV and offered solutions. Larry J. Thorpe of Sony Broadcast Products Co. called signal transmission "a great technological challenge" and suggested fiber optics as a "promising" direction. "We expect a very successful dovetailing of fiber optics and HDTV in studio environments," he stated. He also noted Sony is at work on a second-generation HDTV standards converter. In another paper, Donald E. Morgan of

SMPTE Chronicle

the Sony Technology Center in Palo Alto described Sony's HDTV test signal generator, designed to handle the full 30 MHz bandwidth of the NHK standard on three channels. Sony will show the test generator as a product later this year, Morgan said.

A paper written by Joseph S. Nadan of Philips Laboratories (and delivered by a colleague) outlined the design considerations for a compatible two-channel HDTV system. Nadan's proposed system would double vertical and horizontal resolution; the picture would be transmitted in about 657 lines and would have a 5⅓:3 aspect ratio. It would use two channels with standard NTSC encoding to display the high-definition picture. A Philips framestore chip in the receiver would enable the viewer to watch up to nine standard NTSC programs simultaneously. Nadan suggests cable transmission for the system.

On the exhibit floor, Digivision showed a full, eight-bit production model of its DRGB-343 high-resolution digital video converter, which receives a standard NTSC picture and processes it into a high-resolution display. The booth demo—side by side with NTSC from the same source—showed excellent depth and saturation of blacks and colors, and no chroma crawl or flickering for both static and dynamic elements of the picture. Digivision is now at work on an NTSC-compatible transmission system with a 1049-line picture, which it hopes to show by late 1985.

Latest Bulletins From the Format Wars

Ikegami recorder/camera with Bosch Lineplex quarter-inch VCR.

Although standardization was more or less the SMPTE theme, the proponents of the small-format recording systems, which are anything but standardized, continued fighting it out on the show-room floor. Here are the bulletins:

- Ikegami, as expected, announced an agreement to market with its camera a quarter-inch recorder—no, not Hitachi's, but the Bosch Lineplex format, which is the recording end of the company's QuarterCam combo. The move consolidates Bosch's position, with Bosch having previously brought Philips into its camp.
- Sony, on the other hand, made a point of stating that it would not, repeat *not*, market a quarter-inch or an 8 mm system for broadcasting. The company did confirm that it will have more new Beta-format products to introduce at the NAB show, including a multi-cassette player system to rival the M-format products now on the market.
- Panasonic showed the MVP-100 M-Vision half-inch cart machine that it unveiled at NAB. The eight-transport unit is due to go into field test and then production this spring. Another manufacturer jumping into the on-air format battle head-first is Lake Systems, whose La-Kart station automation system was unveiled in its new M-format cassette configuration.
- Frezzolini, which startled last year's SMPTE crowd in New York, still believes it has the answer with the Frezzi half-inch VHS-C on-cam VTR that attaches to most ENG/EFP cameras. The On-Cam recorder is also distributed by Perrott.

Meanwhile, SMPTE continues its efforts to standardize on component systems. Restating the views held a year ago, the SMPTE ranks left no doubt that standards are needed to keep up with the industry's desire to use component systems. As for the digital VTR—still a long way away, although reports circulated that Hitachi has developed a digital half-inch VTR.

RCA Signs Sales Packs with Rank Cintel, Ampex

Rank Cintel's first broadcast station telecine product will be marketed worldwide by both Rank and RCA Corp., the two companies announced jointly at SMPTE. Under the terms of the nonexclusive agreement, RCA will market the new machine as the RCA TKS-100 in NTSC, PAL, and SECAM versions, while Rank Cintel will sell the telecine as the ADS 1.

Designed for on-air use, the ADS 1 is a solid-state telecine with a multiplexed design that accepts up to three film transports for smooth reel changes. A spokesman for Rank Cintel could not quote an exact U.S. price for the ADS 1, but said that the basic configuration of the control electronics unit and one 16/35 mm film transport would run "a little over half" the cost of Rank's Mk III flying spot scanner. The ADS 1 was not on exhibit at SMPTE, but the spokesman said the company would display one at NAB.

Rank Cintel's Mark III flying spot scanner.

At the show, RCA announced a second marketing agreement, this one with Ampex. Under that agreement, RCA will market the Ampex VPR-80 worldwide in all standards as the RCA TH-400.

Component Video Switchers Abound

Lest there be any doubt that component video—whether from the small-format recorders or from some still undetermined source—is going to become a permanent part of broadcasting, witness that the SMPTE show had *three* component video switchers.

The first of these, the Model 390 from Shintron, was unveiled at last

year's NAB. With two built-in Z-80 microprocessors for control, it has four inputs each, with three channels for the component signal; YIQ is supplied as standard, but it can be configured for either R,G,B or Y, R-Y, B-Y. Similarly, it can be adapted for use with the various sync standards specified by the different formats (Y and I channel sync pulses in M-format and Y sync only in the Y, R-Y, B-Y Betacam specification). Other features include 16 wipe patterns, and color/black background with the colors synthesized from YIQ components.

The second system, seen in prototype at last year's NAB but now available as a full production model, is the Grass Valley 1600-1XCV. This switcher has 10 three-channel inputs (either Beta or M-format), but uses standard 1600 Series switcher modules to provide three parallel switching and processing paths to operate on full-bandwidth R, G and B signals. One of the switcher's main advantages is a fully integrated E-MEM II system (with sequencing), standard on all units. A downstream keyer is also standard.

The Shintron and Grass Valley units were joined at SMPTE by a third component switcher: the Crosspoint Latch 6116 system, shown in prototype but expected to be in full production by NAB. This switcher has four component inputs (M-format or Beta, configured at the factory); three encoded inputs also allow the switcher to be used with conventional signals. The chromakeyer (either RGB or encoded) is standard, as are 32 wipe patterns on the single M/E. The price is expected to be in the $20,000 range, including the microprocessor controller that will allow the switcher to be fully controlled through editors such as the Sony BVE 5000 and eventually Convergence and Datatron editors.

RCA, NEC Show CCD Camera Developments

RCA's CCD camera.

In suites and on the floor, the CCD made its presence felt at the SMPTE show. RCA demonstrated what it termed an "advanced development model" of its CCD camera in a suite in the Biltmore, and attendees were generally impressed with its performance. First shown to the press at Montreux last summer, the camera is built on a Hawkeye frame and incorporates three half-inch CCDs, frame transfer devices that read out the contents of the multiple solid-state storage registers during the picture's vertical interval.

The camera fulfills all the promises of the CCD, including complete absence of picture lag, excellent highlight handling, lack of image retention and improved dynamic resolution. Performance figures are excellent: S/N greater than 65 dB; sensitivity 590 lux at f/1.4 in standard mode and 73 lux at f/1.4 in 18 dB high-gain mode.

RCA is not ready to estimate publicly when the CCD camera will become a product, although a spokesman said he thought it would not take less than a year. RCA still must grapple with the unacceptably low manufacturing yield for the CCD chips and with their extreme sensitivity to temperature.

Meanwhile, NEC showed its CCD camera, the SP-3, as a production model in its booth. Company spokesman Jeff White said the camera's response had been improved since its first showing at NAB, and that some U.S. orders had already been taken. The SP-3, which is optimized for ⅔-inch format lenses, can accept a Betacam or M-format recorder and sells for $19,900 without lens. The three-chip design—two for the green channel and one for red and blue—yields 500-line resolution, according to NEC.

Audio Gets SMPTE Hearing

There was a significant increase in audio equipment exhibitors at the SMPTE conference despite the fact that virtually all of the companies had just taken down their booths at the AES show in New York. This turnout confirmed once again the growing importance of quality sound and special effects in video post-production.

On the whole the audio exhibitors were pleased with the traffic and attention they attracted. Harrison Systems, which has long been on the video bandwagon, demonstrated its new PRO-7 sound mixing console designed as a stripped-down version of the TV-4 console. The PRO-7 is available in two major signal flow configurations, depending on the application. Type 1 has two active direct stereo assignments from each input module and two monaural assignments. There are two master modules and two auxiliary sends, plus a control room monitor module. Type 2 has four indirect group assignments. Four stereo group modules are required for this console.

A first-time exhibitor, Solid State Logic introduced to SMPTE attendees the SL 6000 E Series Stereo Video System, which can provide separate stereo dialog, effects and music mixes for video post-production. In addition, SSL announced that it had delivered its eleventh console to the British Broadcasting Corporation and expects to announce several new North American broadcast contracts, including the first SSL-equipped OB van in the U.S.

Neve display at SMPTE.

Another first-timer, Ursa Major, had its 8X32 digital reverberator and the Space Station SST-282 signal processing unit on hand. The 8X32 has simultaneous control and display of seven programmable reverb parameters.

Lexicon also showed its Model 200 digital reverberator. In conjunction with the reverb unit was the Lexicon Alphanumeric Remote Console (LARC) Model 224X, which not only permits remote control of all the digital reverberator's functions, but also stores the settings for recall and repeat.

Shure took the opportunity to show its new FP31 portable microphone mixer designed for ENG/EFP applications. It measures 1⅞x6¹⁵⁄₁₆x5 ⁵⁄₁₆ inches.

Other audio-for-video products

ranged from ADM's consoles to Studer's TLS 4000 synchronizer to Dolby noise reduction units to Sound Technology audio test equipment. In short, the audio equipment exhibitors have found a home at SMPTE.

Editors Get More User-Friendly

Since the first computer-assisted video editing systems were introduced, the buzz word heard all around has been "user-friendly." Therefore, it was not surprising to find new levels of friendliness at the SMPTE show.

For example, Convergence demonstrated its recently introduced 200 Series, designed specifically to permit the editor to concentrate on artistic concerns rather than computer operations. In addition, the series is upgradable; that is, the editor can expand its capabilities and edit line memory as needed.

One of the interesting features available with the ECS-204 is the Block Move. This command makes it possible to "pick up" a group of edits and move it to a specific scene and add another single shot to the edit. The edit list is automatically changed to reflect the new sequence.

Convergence ECS-204 editing system.

Another new introduction was the Datatron Edit-Star, a moderately priced system featuring multiple 16-bit microcomputers and containing serial interface technology found in the company's high-end Vanguard.

"With ¾-inch, one-inch, Types B and C, one-half inch Beta and M-format already here and quarter-inch just around the corner, the question of the day often becomes, 'from what to what?' We feel that the capability to assign from the keyboard which of the VTRs is the record VTR is an essential feature for our entire line of editors," says Joe Horning, Datatron's national sales manager.

Like Vanguard, Edit Star also has the HELP feature. This key can be used when the editor knows what is to be done, but has forgotten how to do it. The HELP key calls up a guide for the operating key in question.

Edit-Star has a dedicated keyboard with user-definable key capability so the editor does not need to follow a computer-driven menu during editing. Up to 20 keystrokes per soft key can be preset.

Videomedia unveiled the Eagle III editing system for the first time at SMPTE. Eagle III is a complete A/B roll system with computerized production switcher. All key functions, border wipes, pattern limits, and EMEM type functions can be user-defined. It is a medium-priced system.

Digital Video Recorder Demonstrated

While VTR manufacturers such as Sony and Ampex are presumably working on the development of digital VTRs, a "dark horse" company, Picture Element Limited, stole the SMPTE show's new technology category with the introduction of a digital recorder/processor that allows up to eight minutes of video to be recorded in real time on mass-storage computer disks, using eight to 12 bits-per-color processing. The recorded image can then be processed and edited, as with a computer word processor or graphics program, then played back in real time or at any other selected frame rate. Zoom, roam, split screen, and memory overlay are some of the editing/effects capabilities.

PEL's digital recorder/processor.

PEL, located in Palo Alto, CA, has designed the system for a multi-user (up to four) environment, and the user can use either its internal computer or an external computer as the controller. The VSP (video sequence processor) can also handle any worldwide standard (NTSC, PAL, or SECAM), with a variety of resolutions, making it ideally suited for testing HDTV images. The mass storage system is unique, offering read/write speed up to 200 Mbytes/second, fast enough to handle a full-bandwidth R,G,B HDTV signal.

The company's marketing plan is somewhat ambiguous at this point, since VSP could be viewed as a highly sophisticated (and also rather expensive) video production/special effects tool. More likely, however, it will be adopted by other manufacturers who are doing HDTV or high-resolution digital effects/graphics work, the VSP being the only device which can currently record and display images created outside the current worldwide standards.

Effects, Graphics Still Draw Crowds

Aurora/100 graphics system.

As usual at shows such as SMPTE and NAB, the biggest crowds are often found around displays of digital effects and graphics of various sorts. The fall SMPTE was certainly no exception.

Leading the list was undoubtedly the FGS-4000 from Bosch. What started out as an ultra-sophisticated character generator that could create and manipulate objects in three-dimensional space has now grown into a graphics system of epic proportions. Resembling a

EVEN THE HAIRIEST SITUATION CAN'T SHAKE UP THE FIRST 3-CHIP CAMERA.

Some gripping news from NEC: the ENG camera has come of age. Our new SP3 packs so many features into 7.3 lbs., it's a small wonder.

With three CCD chips instead of tubes, the SP3 can take all the abuse your crew dishes out, and never needs registering. It produces broadcast quality pictures with over 500 lines of resolution. And better still, you can use it with any format — VHS, Beta,™ or ¾ inch.

To find out more about the SP3, the most newsworthy camera around, call NEC at 1-800-323-6656. In Illinois, call 312-640-3792.

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Abekas A42 video slide projector.

computer graphics CAD system in the complexity of its images and manipulations, it does all its processing in real time—a lesson many CAD system manufacturers could learn from. The pipeline processing allows, for instance, the creation of a three-dimensional image of a "car" into which the camera/eye can be zoomed through a window, explored from the inside, then zoomed out again through the back door. Soon to come will be other perspective and shading algorithms and also the ability to handle color changes. all in *real time*.

Innovative product development is also happening at 3M where, for the first time, the company has introduced a digital art/paint system. The standalone unit offers both camera-based and digitizing tablet input with 128 colors out of a 16-million-color palette, color mixing, 28 brush sizes and shapes, textures, several painting modes, and pseudo-animation techniques.

Ampex, meanwhile, is beginning to enjoy some success with the ESS-3 digital still store. Signals are processed in component (Y, R-Y, B-Y) form, with less than one-second recall time to 400 stills per disk drive (up to five drives per system). In true Ampex ESS tradition, the ESS-3 is far more than a simple slide store, however, offering full graphics capabilities such as cropping, bordering, and hard and soft keying.

Harris, which has announced it will have a brand-new digital effects system ready in time for NAB (it is presently in negotiations with a leading Japanese electronics manufacturer which will OEM the product), and which also introduced the new Model 550 digital TBC at the show (priced at $8450, it tracks at up to 10-times normal speed), has also beefed up its digital studio products line with a new addition to the IRIS still store—a graphics compose module. The ICS (IRIS Composition Station) uses a multi-plane approach to create complex images, which are then "pasted" together. Graphics features include 2X expansion, compression/positioning, infinite border and background color, and H & V inversion—all with single-joystick control. Up to six users are accommodated simultaneously on the IRIS system.

Quite the opposite approach is being taken by Abekas with its A42 "video slide projector" still store—one of the big hits of the show. "Why invest thousands of dollars in a multi-user, multimode still store/graphics system?" asks Abekas's VP marketing Junaid Sheikh. The A42 solution, under $30,000, stores 100 frames on-line with additional storage on streaming tape cartridges. "The computer industry has learned that distributed processing is not necessarily the best or most economical way to go," he observes. "Our approach to digital processing is to go to small dedicated units that get the job done without a lot of overkill."

Mics, Intercoms Picking Up

Among the news items concerning microphones was a significant product unveiling from Shure. The company introduced the SM83-CN omnidirectional, lavalier condenser mic. To compensate for "chest resonance" the mic has an electronically created dip at 730 Hz and an acoustically generated high-frequency boost at 3 kHz. It also features controlled low-frequency rolloff to reduce clothing, handling, and room noise.

Shure's SM83-CM lavalier.

The amplifier measures 3¾x1 15/16x2 29/32 inches. It runs on a nine-volt battery or by simplex power.

In wireless microphone receivers there were the Cetec Vega Models R-41 and R-42 with DYNEX II, a new audio processing technique.

Also on hand was the Clear-Com wireless intercom system with WRS-1 simplex base station and WRS-3 duplex base station.

An ear-catcher for R-Columbia was a raft of new headphones, Model UL-85 Ultra-light, weighing ¾ oz. without mic, 1 oz. with mic. Because of the light weight, the headphone can be worn with an ear hook rather than a headband.

VITC: When Will Its Time Come?

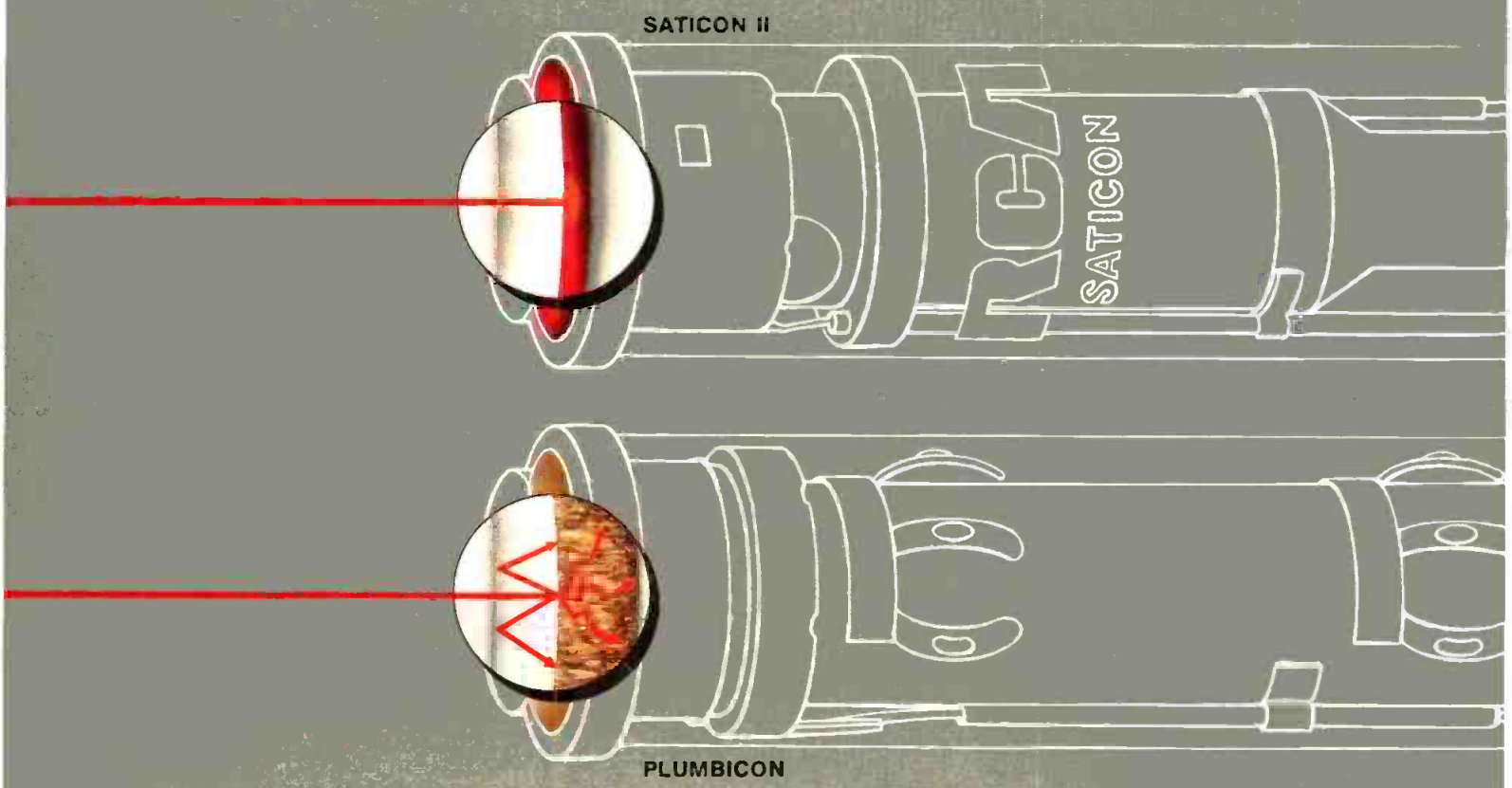
Despite the enthusiasm at the NAB show for vertical-interval time code, its application has been slow in large part because of the cost compared to longitudinal edit code. But even the cautious attendees at SMPTE believed that there is a future for VIT code—the key being the path taken by the editing systems makers.

It is a case of time code readers/generators being available, but waiting for the market to develop. "Until the editing companies come up with direct VITC input, it will be too expensive to implement," one time code maker comments regarding the desire to avoid a tape generation.

"It's a question of understanding what it [VITC] can do and why," says another. "For now, the computer controlling the editing system cannot recognize both VITC and control sig-

Evertz 4500 portable VITC generator/reader.

Part of your best work may never get past your camera tube.



What you see is not always what you get. The character and quality of your pictures are dependent to a significant degree on the camera tubes you use.

With high performance Saticon* II tubes, you can expect distinctively cleaner, clearer and sharper pictures. The reason lies in Saticon II's newly improved photoconductor. Developed through computer-aided processes, this thin glassy film allows the light to pass through without color diffusion or distortion. The end result is high resolution, distortion-free color, very low lag, high sensitivity and depth of modulation. Highlight memory (without red trail) is also significantly reduced with Saticon II.

With Plumbicon™ tubes, the polycrystalline structure of the photoconductor causes diffusion of incident light. The Plumbicon photoconductor is three times thicker than Saticon II's, which limits its resolution.

Make sure your best work gets past your camera and on the air by specifying high performance Saticon II camera tubes in your original equipment and for tube replacements.

For our guide to camera tube selection, contact your RCA distributor or write to RCA Camera Tube Marketing, New Holland Avenue, Lancaster, PA 17603. Or call (800) 233-0155. In Penna., phone collect to (717) 397-7661. Overseas, contact RCA Brussels, Belgium. Sao Paulo, Brazil. Sunbury-on-Thames, Middlesex, England. Paris, France. Munich, W. Germany. Hong Kong. Mexico 16 DF, Mexico.

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RCA

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nals, so we have an interface need."

Most agree that as prices come down and there is a standard interface, the market will grow.

Harry Adams of Adams-Smith, which has been in the VITC vanguard, acknowledges the slow acceptance. One of the problems has been that the industry has not appreciated what VITC can do in editing; for example, avoiding using LTC and thereby freeing up an audio track.

"Stereo is not yet here, although it is coming fast, so there is not the demand for multitrack audio as there will be in the future," Adams explains.

"The fact that you can edit with it [VITC] as well as make decisions with it is not known to many people. Some edit with longitudinal code and make decisions with vertical code. There's a big distinction there. And many people in the industry do not understand the significance of this, causing confusion in the market," Adams adds.

Meanwhile, EECO made news with a new SMPTE time code line for computer-assisted video post-production. Called EECONOLINE, the peripherals are designed for entry-level post-production and editing applications.

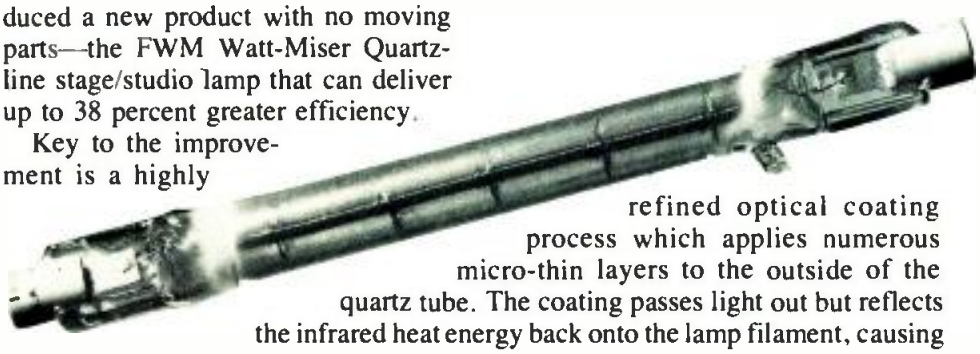
The peripherals include the MTG-55 longitudinal time code generator, the TCR-65 time code reader, and the VCG-75 video character generator.

Amtel, the U.S. distributor for Evertz, demonstrated the Canadian company's new portable VITC generator/reader, Model 4500. The advantage of a portable unit is its ability to lay down VITCode along with the program video in the field. The 4500 generates color-field-accurate VITC and generates and reads longitudinal SMPTE time code. A key pad provides time and user bit entry.

Datum added the Model 5300 Intelligent Time Processor to its line of SMPTE time code equipment. The 5300 can produce SMPTE/EBU time code simultaneously with user bits, vertical-interval time code and video characters. It reads standard serial code at speeds ranging from ⅓ to 90 times normal play speed in both directions.

New GE Lamp Promises More Lumens Per Buck

Amid the hubbub of the equipment demonstrations, General Electric introduced a new product with no moving parts—the FWM Watt-Miser Quartzline stage/studio lamp that can deliver up to 38 percent greater efficiency.



GE's FWM Watt-Miser Quartzline lamp.

Key to the improvement is a highly refined optical coating process which applies numerous micro-thin layers to the outside of the quartz tube. The coating passes light out but reflects the infrared heat energy back onto the lamp filament, causing

the filament to operate at much lower input watts.

The lamp uses 650 W to produce nearly the same amount of light as a standard 1000 W quartz lamp. Lower heat from the lamp also means reduced air conditioning and less heat on performers and camera crews.

It can be retrofitted in existing scoops, cyclorama strips, softlights, and portable boards or floods that use standard T-3 quartz lamps. According to GE, the Watt-Miser lamp can save users $14 per lamp in energy costs over its 400 hour rated average life, at an electricity rate of 10 cents per kilowatt hour when used to replace a standard 1000 W FCM or FHM tungsten halogen lamp in existing lighting equipment.

Other Significant Developments

- Nova Systems, a newly formed company in Avon, CT, introduced the Nova 500, a digital TBC priced at only $6450. Processing is 8-bit 4x fsc with 32 lines of memory.
- Tektronix announced at the show its lease/maintenance agreement with ABC, under which the network will spend more than $1.2 million for Tek T&M equipment and 57 110-S 10-bit synchronizers—to be used in covering the 1984 Summer Olympics.
- Sharp introduced the XM-1300, its first-time entry into the video monitor field. The 13-inch high-resolution unit has more than 600 lines of resolution and sells for less than $3000.
- AFA has signed an agreement with Protel, the British computer/automation system manufacturer under which AFA will become the exclusive North American dealer. On view at SMPTE for the first time was a commercial insertion program using two one-inch VTRs under Protel computer control. A full-blown station automation system is expected by NAB.
- Scientific-Atlanta, rare among satellite system manufacturers to exhibit at SMPTE (another exception was Antenna Technology, which showed its Simulsat receiver), unveiled "Four-Matte," a new system that receives four satellite signals simultaneously and displays them as quadrants on a single video monitor. Network operations centers are a likely user of the $2500 system.

Scientific-Atlanta showed its "Four-Matte" system.

- Kodak unveiled the 5380/7380, a new low-contrast color print film specifically designed for TV applications. The new stock has about 15 percent more upper scale contrast than 5384/7384, providing a far better contrast range when the print is designed to be broadcast.
- New exhibitor Proton USA unveiled a 19-inch video monitor priced at $650. H resolution is better than 370 lines, thanks in part to the comb filter decoder. The sound system is noteworthy, and features two stereo inputs. BM/E

Outstanding Outdoors

Camera location 3 behind home plate is no place to tear down a camera. Especially if the director wants to punch it up on air to catch the next pitch. That's just one reason why the rock-steady, works-every-time HK-357A is an outstanding choice for production in the field.

Beyond its reputation for legendary Ikegami reliability, the HK-357A has a lot more to recommend it as the ideal field camera. For example, its crisp, high resolution picture, signal-to-noise ratio of better than 53 dB, and superb colorimetry.

What's more the camera really shows off when it's time to set up. Add the optional computer setup and you can trim checkout time to less than a minute. Simply press one button and the computer automatically refreshes all set up and registration adjustments in about 45 seconds. No chip charts blowing in the wind, no tweaking. Just unpack, plug-in, auto-setup, and shoot.

Hook up is a simple matter too. Choose the triax option and you can position the camera as far as a mile from the van with absolutely no compromise in picture quality as compared to multicore. And for versatility, our triax camera interfaces with TV-81 multicore at the flip of a switch.

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Year-End Impact of Rule Changes and Actions

By Harry Cole, FCC Counsel

In the waning months of 1983, the Commission, true to its usual form, took a number of steps which could have a broad impact on broadcasters. Included in the manoeverings were two actions which effected changes in rules and policies applicable to all broadcast services. Also instituted were two proposed rule changes, one of which would affect Class IV AM licensees and the other of which could have significant implications for FM and TV licensees. One of the rule changes already adopted by the Commission involves limitations on broadcasters' ability to air debates among candidates for public office; the other involves the policies associated with multi-city identifications adopted by licensees. Of the proposals placed on the table by the FCC, one is concerned with the possibility of nighttime power increases for Class IV AM stations, and the other would make it somewhat easier for incumbent FM and TV licensees to upgrade their facilities by changing channels. The changes are detailed in the following FCC actions.

Candidate debates

Among the most arcane areas of FCC regulation are the Commission's rules and policies governing political broadcasting, and especially those policies governing the broadcast of political debates. Without getting into how the policies got so complicated in the first place, we can at least summarize those complications and the FCC's solution to the problem. The difficulty starts with section 315(a) of the Communications Act, which requires that broadcasters provide equal time to legally qualified candidates for public office. That provision requires that, if a licensee airs advertisements or programming featuring a legally qualified candidate for public office, the broadcaster must take steps to assure that an equivalent opportunity for broadcast time is provided to all of that candidate's opponents. (For the sake of this discussion, and as a concession to the shortness of life, we will not here get into the various questions which may be raised by this abbreviated statement of the policy.)

The equal time provision is not absolute, however. The Communications Act sets forth a number of exemptions, including candidate appearances in "bona fide newscast[s]" and "on-the-spot coverage of bona fide news events." In other words, if a station airs an interview with a candidate during a regular, bona fide newscast, the station would not be required to air equivalent interviews with that candidate's opponents.

With respect to candidate debates, the Commission historically took the position that a debate itself did not constitute a bona fide news event if the debate was being organized by the broadcaster. The FCC's concern at the time was that licensees might try to circumvent the equal time concept by staging debates between a limited number of candidates, to the exclusion of other candidates who might otherwise be entitled to an opportunity to appear. The power to set up debates along those lines would give broadcasters the power to tip the scales in favor of some candidates and against others. Hence, the Commission concluded that debates staged by broadcasters would not fall under the bona fide news event exemption and, as a result, if a broadcaster arranged and aired a debate featuring less than all of the legally qualified candidates for a particular office, it incurred an obligation to provide the remaining candidates for that office equal opportunities.

To get around this problem, Congress intervened, in a one-time-only action, to permit the 1960 Kennedy-Nixon debates. Then, in 1976, the Commission agreed that broadcasters could cover the Ford-Carter debates as long as the broadcasters were not sponsoring the debate. Enter the League of Women Voters, which agreed to undertake the organization of the debates independent of the broadcast media. This opened the possibility of live coverage without any equal time problems arising from any third party candidates. The system worked reasonably well, and it was employed again for the Carter-Reagan debates in 1980.

The problem, however, was that the exclusion of broadcaster-sponsored debates may very well have discouraged the broadcast of local, as opposed to national debates. Now, in response to petitions filed by Henry Geller and the Radio-Television News Directors Association, the Commission has re-thought its policies and has concluded that the public interest really does call for the broadcast of licensee-sponsored debates.

Accordingly, while the risk that broadcasters will acquire too much power in the selection of candidates may still exist, the FCC has decided that the better course to take will be to permit broadcasters to organize, and broadcast, their own debates without incurring equal time obligations. In the same vein, the FCC decided that licensees could broadcast such debates (or any debate, for that mat-

FCC RULES & REGULATIONS

ter) on a delayed basis as long as the debate was "reasonably recent" and the broadcast is "intended in good faith . . . to inform the public and not intended to favor or disfavor any candidate." Previously, the Commission had ruled that any delayed coverage of debates had to be aired within approximately 24 hours of the actual event. Otherwise, it was reasoned, the coverage would no longer be "on-the-spot," and the broadcast would not fit under the various exemptions of section 315. Consistent with its overall about-face in this area, the Commission has simply abandoned any hard-and-fast time restriction and has left the question of delayed broadcasts of debates to each licensee's good faith discretion.

This decision may have a substantial impact on licensees during the coming year since 1984 is an election year at all levels of federal, state and local government. There are likely to be countless opportunities for broadcasters to take advantage of this new freedom offered by the Commission. Further, with the FCC's continuing concern about the locally oriented nonentertainment programming offered by its licensees, broadcasters may reasonably conclude that it could be in their own interest to make an effort to organize, and provide coverage of, local debates involving local candidates discussing local issues.

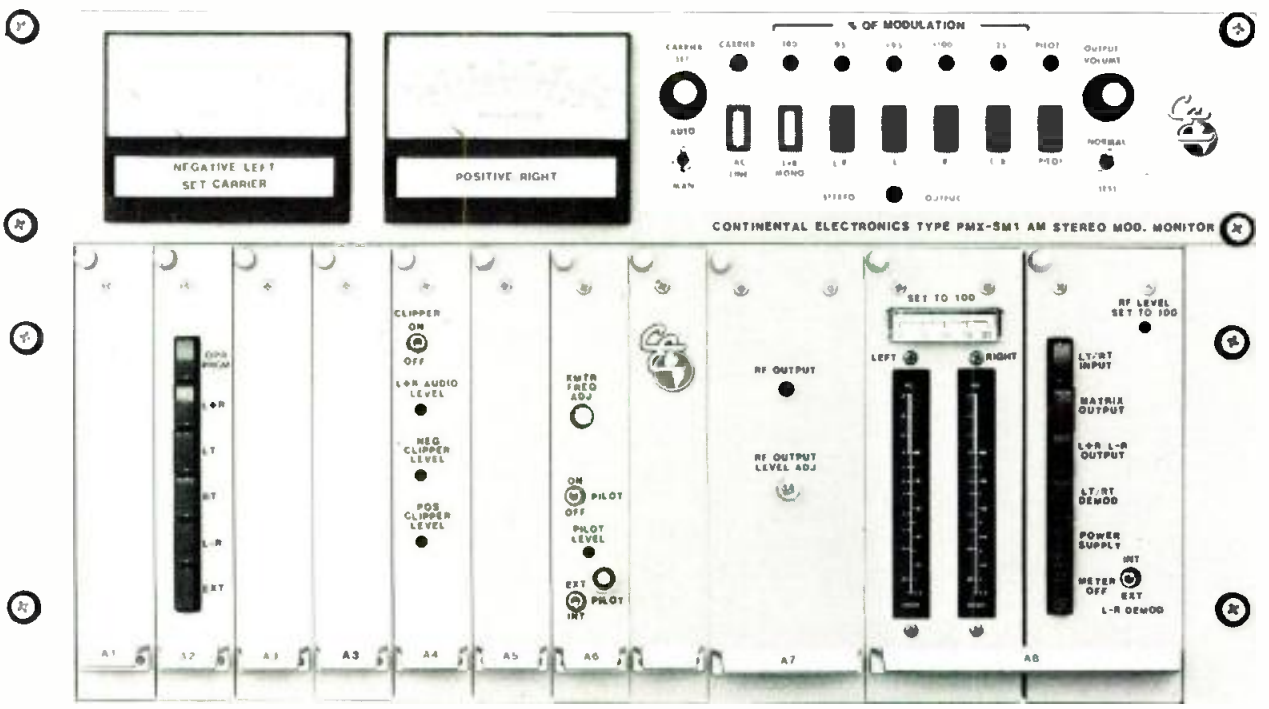
FM and TV channel allocation

As we have discussed previously in these pages, FM and TV channels are allocated by the FCC to specific communities. Parties interested in building a new station in a particular community must thus apply for a channel already allocated there. If no such channels are available, the table of allocations must be amended to include a new channel assignment. The Communications Act has, consistently since the 1940s, been interpreted as requiring that any new channel assignment be made available for application by any and all interested applicants. To assure this, once one application for a new station is filed, the Commission issues a "cut-off list" to notify all others who might be interested that they must file their own applications by a certain "cut-off date" or lose their right to file.

This system works relatively well for applications for new stations. However, what happens when an existing FM or TV station licensee wishes to change channels to upgrade its operation? Such a change normally involves allocation of a new channel to the community in question, which would, in turn, normally be available to one and all to apply for. However, the Commission historically has relied on an informal policy which permitted an existing FM or TV licensee, who wishes to upgrade, to file a request for amendment of the table of assignments and, simultaneously, a request that the FCC issue an order to show cause why that licensee's license should not be amended to reflect the new channel.

This approach worked fine until the late 1970s, when a number of parties notified the Commission, in response to an FM channel-change request, that they wanted to file for the upgraded channel. The Commission added the channel but did not change the existing licensee's Class A channel. Instead, it left the licensee on that channel and invited applications for the newly allocated Class C channel. Since then, the Commission has taken the approach that, where an existing licensee proposes allocation of a new upgraded channel, and where others express an inter-

Your winning combination for AM Stereo



Is AM Stereo ready to move up?

Market-place decisions notwithstanding, the recent introduction of receivers able to decode signals from any of the four systems in use today makes it easier for broadcasters to move ahead with AM Stereo plans.

Which system is #1?

The PMX (Magnavox) System was first selected by the FCC to be the Industry Standard for AM Stereo.

We established the system's viability during the 1979 NAB Show.

The politically-inspired "market-place" decision hasn't affected the technical performance of the PMX System .

Hearing is believing.

With the PMX System, AM Stereo music sounds like FM Stereo music. So it makes for higher listener appeal and better numbers: For audience and the bottom line.

The Winning Combination

Our Type 302A Exciter was developed for the PMX System, and our new Type PMX-SM1 AM Stereo Modulation Monitor gives you a superior package for AM Stereo broadcasting.

We've built a world-wide reputation for high-quality AM transmitters that offer unmatched on-air reliability with complete transparency.

Ultimately, the day-to-day operation of your AM Stereo System will depend upon equipment and service.

We stand on our track record of providing the best of both.

If you're considering AM Stereo, or if you just want more facts, give us a call. You can't lose.

Continental Electronics Mfg. Co
Box 270879 Dallas, Texas 75227
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Circle 147 on Reader Service Card

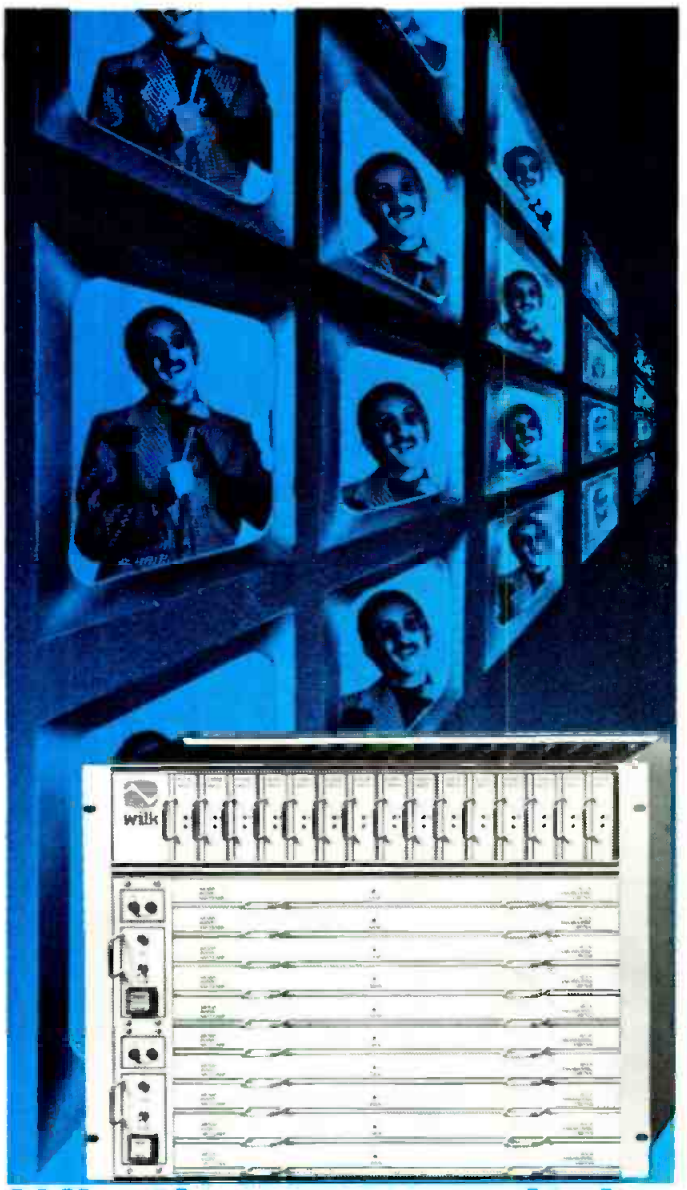
est in applying for that channel, the Commission will not automatically modify the existing license. In such instances, though, the Commission has permited the existing licensee simply to withdraw the proposal. Alternatively, if sufficient additional upgraded channels are available in the community, the Commission has occasionally allocated enough such channels to accommodate all expressed interests, and has, as part of that action, modified the existing station's license.

Those alternative solutions were not sufficient to handle all possible situations, however. In 1981, a new twist arose. The Commission was considering a channel change proposal involving two Class A FM stations in the same community which were proposed to be upgraded to Class C facilities. The licensees of two AM stations, also in the same community, came forward and expressed interest in the proposed channels. The Commission, consistent with its approach to these problems, agreed to allocate four Class C channels to the community, to modify the two existing FM stations' licenses to specify two of those channels, and to open the remaining two up for applications by the two AM licensees and by anybody else who might be interested. Needless to say, this was probably not precisely the result the AM licensees had in mind, since the result required that they face possible competing applicants for the two extra frequencies, while the two FM stations in town were permitted to use their two upgraded channels automatically, without being subjected to any competition. Accordingly, the two AM licensees challenged the Commission's policy.

Because of that challenge, the Commission has now proposed a new policy. The new policy would permit the Commission to modify FM or TV licenses (or permits) when requested to do so by the licensee—even where other parties have expressed interest in the new channel—as long as one or more other channels, open for application by anyone, are also assigned.

This matter of channel changes may seem a bit esoteric, and maybe even of questionable significance in the greater scheme of things. However, the Commission's policies in this area are likely to be of great significance in the next couple of years, particularly with respect to FM stations. As you know, the Commission adopted BC Docket No. 80-90 last spring. That proceeding is likely to result in the allocation of as many as 500 to 600 new FM channels, and could create oportunities for many existing licensees to upgrade their facilities. Obviously, adoption of the proposed policy would be helpful to such upgrading efforts since it would provide some assurance that channel changes could be accomplished without fear of generating comparative proceedings and possibly worsening an existing licensee's competitive situation. And, while BC Docket No. 80-90 involves FM allocations, the same general concerns are applicable to TV as well.

If you have any questions about any of these proceedings, and particularly if you would like to discuss their possible or likely impact on you, you should be sure to contact your communications counsel. **BM/E**



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Wilk offers superb performance at low cost.

Wilk's complete line of audio/video distribution and routing equipment offers superb performance at competitive prices. Design technology features state-of-the-art solid state electronics and virtually "transparent" operation where distribution or switching of audio and video signals is required. The 350 Series is based on a standard EIA rack frame with power supply, utilizing any Wilk audio/video distribution module or accessory. The "transparent" routing switchers comprise a series of basic switchers with separate video and audio matrices, which can be utilized to fit most switching requirements.

Wilk's line of Video Precision character generators and production titlers are available as either a desk top unit, or with separate keyboard and chassis. The 3300 Series is available with dual fonts, character tilt, eight-color background, two-speed crawl, 62 page memory, and audio cassette and RS-232 interfaces, as well as many more features available in more complex and higher-priced units. In the 3500 Series, each chassis can be accessed by a multiple number of remote keyboards and is available as either a single or dual channel unit, and features eight-color background, time and temperature, programmable fixed title or two-speed elastic length crawl, and 184 pages of memory.

For demanding character generation and switching applications, Wilk offers the best value for all your equipment needs. For more information call toll-free: (800) 828-7641.

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ADVERTISER'S INDEX

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TROUBLESHOOTING DIRECTIONAL ANTENNA SYSTEMS

By John H. Battison, P.E.

Directional antennas, although more complicated than a single-element antenna, obey basically the same electrical laws. Thus, any change in the common point resistance affects the common point current—assuming the transmitter output remains constant. In the same way, any change in the base operating impedance of a nondirectional antenna results in a change in base current.

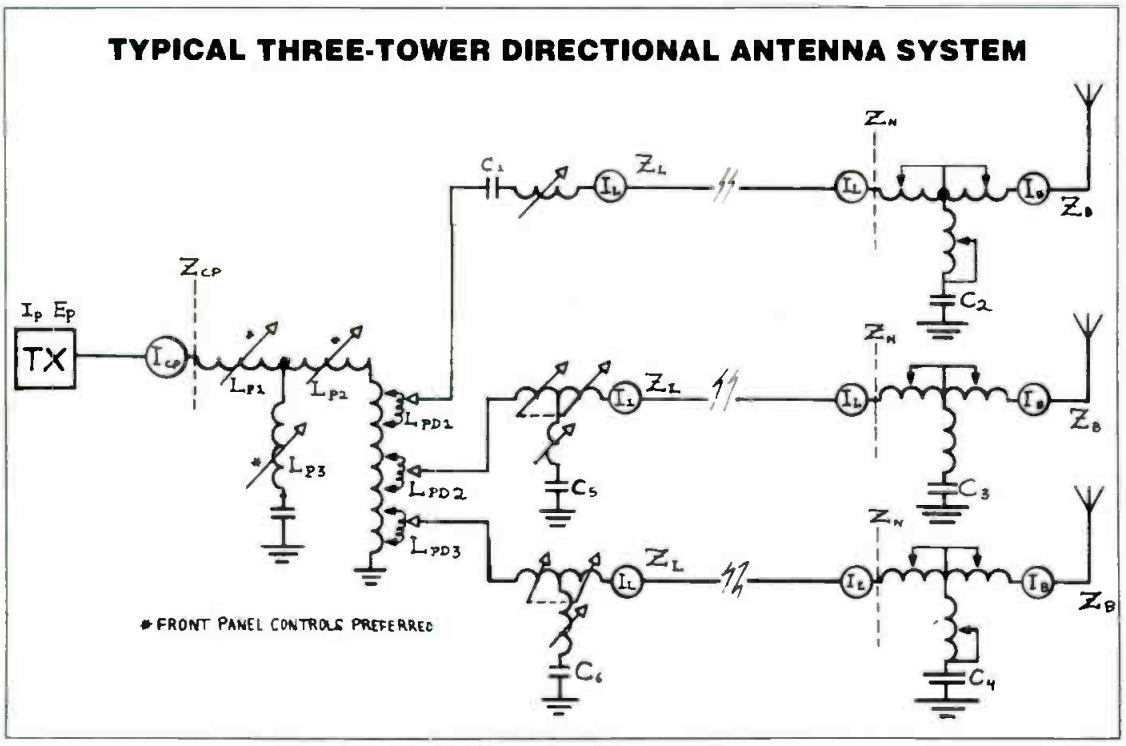
There are so many variables possible in a directional antenna array that it is almost impossible to list them all. This troubleshooting chart, however, attempts to show major causes of abnormal directional antenna operation, together with some appropriate actions to correct the causes shown in the middle column. It should be pointed out that because of the interactions between the radiators in a directional array, it is necessary to proceed very slowly and cautiously when attempting to readjust an array by moving the phasor controls. It cannnot be emphasized too strongly that everything you do must be written down, preferably in a notebook, for future reference. Do not attempt to "remember" phasor settings. Write them down in a table showing the effect of moving phase and power controls. A very useful format is to set up columns for each power and phase control, with columns showing the effect as read on the antenna monitor. Make very small

TROUBLESHOOTING CHART FOR DIRECTIONAL ANTENNA SYSTEMS

The licensed common point current is based on common point impedance and authorized power. Any changes in the parameters on the antenna side of the common point will be reflected in a change of common point impedance and probably common point current. The coupling (mutual impedance) between each of the antennas causes a change in one antenna circuit to affect the others to a greater or lesser extent. The closer the antennas (higher mutual impedance), the greater the effect.

SYMPTOMS	POSSIBLE CAUSES	PROBABLE CURE
(1) I_{CP} change	Change in Z_{CP}; change in I_P/E_P; change in TX input power; tuning change; loading change. Change in ground system (often occurs in wet weather). ATU relay or dirty contacts.	Retune final; adjust loading; check I_P/E_P (note: in case of large I_{CP} change, check Z_{CP} after readjustment). Clean ATU relay contacts. Check ground system.
(2) Change in antenna monitor readings	Phasor misadjusted; component failure; antenna monitor not calibrated properly; damage to sampling system; I_B changes; damage to tower or guys (consider severity of change in checking cause). Loose connections in sampling system. Tower lighting choke shortened/damaged.	Calibrate antenna monitor. Readjust phasor; if large correction required, look for further trouble. Check I_Bs. Compare base ratios with monitor ratios; check components for failure—heating/arcing. Check Z of sampling lines, loops and transformers compare with records. Ground system neglected or deteriorated. If large change in phasor settings, measure Z_{CP} after sign-off—adjust if necessary. Check lighting choke; disconnect from antenna lead for change.
(3) Sudden change Z_{cp}in (usually found when measuring Z_{CP})	Phasor readjusted recklessly; changed Z_Ls; ATU misadjustment; I_B ratios wrong. Contact failure in DA—ATU pattern relays. Compound failure-feel capacitors for heating.	Measure Z_{CP}, correct if needed. Adjust phasor. Find reason for large corrections; I_{line} should be approximately same each end; compare with records. Check relay contacts, clean. Repair ground system.
(4) Changes in I_B	Base meters damaged by lightning—very probable if antenna monitor shows OK. Loose connections in ATU or phasor; water in base insulator, cracked guy insulators. Lighting choke.	Repair, replace or recalibrate meters; inspect, clean tighten connections. Clear relay contacts. Check lighting choke, static drain.
(5) One or more MPs out	All out: cold weather; change in DA operating parameters. Changed phasor setting. One MP out: local conditions.	Cold weather—log readings and notify FCC. If desirable, run new radial to show changed conductivity. Check antenna monitor and phasor settings, readjust if needed—then see no. 3. If permanent local changes found, select new MP and notify FCC.

NOTE: If DA and MPs go completely out of limits, look for failure or damage to all parts of the system. If nothing obviously wrong and system can't be returned to normal, check impedance of line, networks, antenna bases, and sampling system. Compare with records. Advise FCC and request low-power authorization pending repair.



phasor control movements *one at a time*, and record in the correct column the effect of each knob as it is turned.

It is important to remember that before any adjustment is made to a transmitter, the preadjustment readings must be recorded on the operating logs—and, after the adjustment has been completed, the corrected (new) values must be recorded. Also indicate at the appropriate place on the operating log the adjustments made and the name of the person making the adjustments.

It goes without saying that any repair work done on the transmitter antenna system or phasor must be recorded in the maintenance log. If the antenna cannot be returned to its normally licensed operating parameters in a reasonable time, or by sign-on the next day, a telegram should be sent to the FCC requesting authorization to operate at variance from license parameters while the repairs are being made. This is to protect the station in case an inspector should arrive while the antenna system is out. *Remember: Write down the phasor settings before you move them!* **BM/E**

Have you called your switcher lately?

The new Bosch TVS/TAS-2000 video/audio distribution switcher is so advanced you can call it on the phone. And it can talk back to you.

If you're the station manager or chief engineer, you can control all your station's feeds directly from your desk—without affecting the program on-air. You don't even need a control panel. Just a touch-tone phone.

And if it makes you feel more comfortable, the TVS/TAS-2000 will confirm—verbally—what you've done.

Have it your way

Touch-tone control is just one of the sophisticated control options available with the TVS/TAS-2000 to let you fit your needs precisely.

And we know something about your needs because we've been a leading manufacturer of distribution switchers for years with our TVS/TAS-1000 and RKX models.

You can choose from standard control panels with leverwheel and button per crosspoint. Or customized panels for single bus to full matrix control. Or completely automated systems.

Our new 1400 and 1500 series control panels can handle multi-level breakaway—seven levels is standard.

Since the TVS/TAS-2000 is part of a family, you can add most of these control options to existing Bosch-Fernseh TVS/TAS-1000 and RKX switchers.

Outstanding specs.

As you'd expect in a state-of-the-art system, specifications are outstanding. Crosstalk is better than 60dB for video and 85dB for audio under worst conditions. Harmonic distortion is .02%. Impedance, 150 ohms.

We check our specs with the industry's most precise automatic test system, testing all possible signal paths for each measurement. And we record all test data, with a copy to you and one for us.

Features for now.
And into the future.

The TVS/TAS-2000 has standard and optional features you need today. And will need tomorrow. Such as redundant control card capability. Coax party line or RS-422 control. SMPTE RS-422 computer control. Vertical interval switching. Internal refresh memory. Local and remote alarms. Clamped video inputs. And many more.

Its compact 10 x 10 arrangement gives you a bigger matrix in an 8¾ inch card cage—60 x 10 audio and video or 130 x 10 audio or video.

You can expand in the field without rewire to virtually any size matrix you may ultimately need.

Call your local Bosch-Fernseh office for details on the new TVS/TAS-2000 and other members of the Bosch switcher family. Or write Fernseh Inc., P.O. Box 31816, Salt Lake City, Utah 84131, (801) 972-8000.

We won't give you any backtalk.

BOSCH

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broadcast EQUIPMENT

TSC Offers the ACORN

Terminal Systems Corp. has made available an expandable and flexible news management system called ACORN (Automatic Compilation of Radio/TV News). ACORN is a modular ENA system priced under $10,000 that can handle both high- and low-speed wires, provide full editing and writing facilities, and automatically sort news stories for processing to on-air.

Other capabilities of the system include automatically printing stories with flash or bulletin priorities, updating of public service features, and processing sports score boards. An added feature is that urgent items are flashed on the screen. In addition, wire stories are sorted as they are recorded into one of seven wire directories which include general, regional, and deferred wire services, sports and international wires, and Washington and single-line sports score services.

Within each directory the entry lists time/date, key word, length, category, and priority. A view key allows instant reading of the first page of a selected story, while a local directory of stories is keyboarded on the same terminal. A complete library file storage can be maintained on floppy disk.

Standard configurations range from large to small newsroom systems, with the large system handling up to six wire managers and 30 editor computers connected to four high-speed printers. The standard CPU is 10 Mbyte with one Mbyte storage on the editor terminals. All software can be custom designed.

For More Information
Circle 250 on Reader Service Card

Microdyne Extends Modulator Series

Microdyne has added the Model 1000-SCM-200 to its series of modulators for single-channel-per-carrier (SCPC) radio uplinks. Compared with the Model 40's range of 50 Hz to 7.5 kHz, the 200 has an input frequency range of 50 Hz to 15 kHz. Both models provide a frequency-modulated fixed carrier in the 50-90 MHz band for up-conversion and transmission to satellite. The 1000-SCM series modulates a baseband audio signal and provides an IF output to the 5.925-6.425 GHz band by a companion 1100-TVE frequency-agile exciter.

Standard features on the Model 200 include 3:1 compression and a crystal-referenced phase-locked loop modulator. Deviation and output level are adjusted from the front panel, which is 1¾ inches high.

For More Information
Circle 255 on Reader Service Card

Ibanez Racks Up Two Equalizers

Two new graphic equalizers are out from Ibanez: the GE1502 dual ⅔ octave and the GE 3101 ⅓ octave. Besides fitting single rack spaces, both feature EQ In/Out and a switchable high-pass three-pole rumble filter for PA applications. The range of boost and cut is selectable between ±6 dB for subtle EQ curves and ±12 dB for more extreme adjustment.

Frequency response is 20 Hz to 20 kHz, ±0.5 dB. Hum and noise is less than −95 dBm (IHF-A), and THD is less than 0.02 percent. Maximum signal level of input and output is +20 dBm.

Other specifications include input impedance of 47 kohms, balanced, while output is 220 ohms, unbalanced. The high-pass filter operates at 40 Hz, 18 dB/octave. Each model measures 19x1.75x9.2 inches and weighs 6.8 pounds. Price of either the GE1502 or GE3101 is $325.

For More Information
Circle 256 on Reader Service Card

McMartin Announces AM Power Reducer

Designed to enable AM daytimers to take advantage of new pending FCC rules permitting operation after sunset at reduced power, McMartin has introduced two models of power reducers. Called the post-sunset power reducer, the PS-1K will drop power from 1 kW to any lower power and sells for $1795.

The companion unit, the PS-5K, will take daytimers from 5 kW down to any lower power and sells for $2395. The units are designed to provide automatically the proper power reduction and switching.

Employing high-power RF relay/resistive attenuator/RF output meters and transmitter control relays, the new units are remote-controlled. Transmitter audio specifications are unaffected by use of the devices because only passive components are used.

For More Information
Circle 251 on Reader Service Card

Shure Adds Lavalier Mic

Shure Brothers has expanded its automatic microphone system (AMS) with the addition of the AMS28 condenser mic. The new mic is a lavalier unit that, when used in conjunction with a Shure AMS mixer, will turn on and off automatically in response to the wearer's speech, while the design of the system electronics prevents it from being activated by undesirable sounds that originate outside the microphone's 120-degree front acceptance angle. Sound sources from outside this window will not cause the mic to activate, regardless of source loudness. When a number of the units are in use simultaneously, each mic will operate independently in analyzing its own sound field.

When the microphone is gated on, it operates as a unidirectional cardioid pickup. The frequency response for the AMS28 is 100 Hz to 10 kHz. Equipped with an attached 20-foot two-conductor shielded cable with standard three pin audio connector, the AMS28 is priced at $205.

For More Information
Circle 252 on Reader Service Card

Color Posterizing From Knox

The Color Box colorizer for character generators can now be used to posterize color or black-and-white video signals. Knox Video Products has added two independent video colorizers to its Color Box, allowing full control over luminance, hue, and saturation. It also provides an adjustable luminance edger for drop-shadow or full-surround character edges.

With these new features one can use a black-and-white camera as key input over downstream video and display logos or commercial messages without disturbing program video. Additional effects are obtained by applying a moving image in color to both the key and downstream inputs. The color key creates a posterized image which is adjustable by key level and chrominance, luminance, and hue.

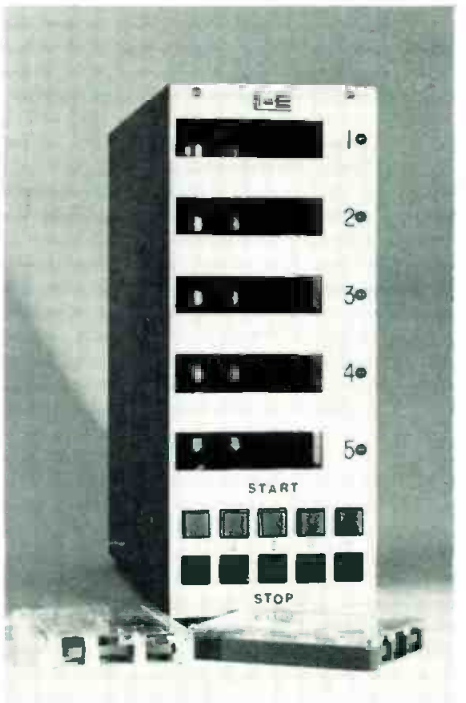
The Knox Color Box is a general-purpose standalone background and foreground colorizer for keying any character generator over downstream video or background color. It operates alone or will genlock to systems video. The Color Box is priced at $1950.

For More Information
Circle 253 on Reader Service Card

Broadcast Electronics Has Five-Deck Machine

The Model 5500B five-deck cartridge machine, new from Broadcast Electronics, is designed for multiple or sequential spot playback. Low wow and flutter, combined with wide dynamic operating range, make the 5500B suitable for use in all-cart music formats; a rugged deck support bulkhead provides consistency of performance.

The 5500B's design assists inspection and maintenance. The hinged front panel allows the plug-in decks to be removed, and all electrical connections are made through a connector on the deck. At the rear of the panel, small LEDs located on the PC cards indicate the machine's operational status. Deck



electronics are on individual plug-in PC cards, all with gold-to-gold connections. A low-voltage dc solenoid helps keep temperatures down.

For More Information
Circle 254 on Reader Service Card

Audio Engineering Develops New Mic

Ribbon microphones, renowned for their warmth, good response, and extended top-end, have had the liability of size, weight, and fragility. The new Coles type 4038 has attacked these problems by selecting pure aluminum foil as the ribbon material. It is corrugated and precisely tensioned between high-permeability pole pieces. The magnetic woven screens mounted on each side of the ribbon give a precise degree of damping and act as stops to prevent over-stressing.

The ribbon combines the functions of a very low mass, critically damped acoustical diaphragm and a low-resistance half-turn dynamic coil. The ribbon and pole piece shapes have been tailored for flat frequency response.

The low-impedance connections to a 4038 ribbon are made by means of a symmetrical cage of bars disposed around the ribbon, forming a humbucking system giving a high degree of electromagnetic rejection.

For More Information
Circle 257 on Reader Service Card

Strand Century Adds Spotlight

The Lekolite line from Strand Century now includes a 4.5-inch variable-focus spotlight. The compact unit accepts lamps of 150, 250, 400, and 500 W using a mini-can socket, which accommodates an axially mounted tungsten-halogen lamp.

The newly designed reflector is also mounted in the aluminum housing and is made of double-flatted, ellipsoidal specular, processed aluminum. A recessed lamp focusing assembly allows angles of 25, 30, 40, or 50 degrees and anything between; there are four push shutters and a template slot.

Fittings include a standard iron C-clamp, steel yoke with locking T-handle, and three feet of TAGT leads rated at 250 degrees C. The maximum length of the Lekolite is 20.5 inches, and its weight is 15 pounds. Among its accessories are color frame, high hat, pattern holder, six pattern set, an iris kit, and safety cable.

For More Information
Circle 259 on Reader Service Card

BUSINESS BRIEFS

◀ Bill Bostick of Microwave Filter conducts one of an ongoing series of Terrestrial Interference Seminars. The one-day seminars offer broadcasters practical knowledge of filtering and other avoidance and suppression techniques to cure microwave interference in TVRO systems.

The Solid State Operation of **Tektronix** has received the 1983 Corporate Recognition Award at the International Society for Hybrid Microelectronics (ISHM) Symposium in Philadelphia. In addition, three Tektronix employees have been individually recognized by the society.

In a cooperative effort with the **Chinese Academy of Sciences,** Tektronix has opened a product service center located at the Institute of Computing Technology in Beijing, China . . . . An expansion of its training efforts has been announced by CMX and will include the establishment of classes and operations in the New York area.

The 1984 **Radio Advertising Bureau's** Managing Sales Conference will be held from January 28-31 at the Dallas AMFAC Hotel.

United Media of Santa Ana, CA, is now offering a 14-page guide to buying a video editor, free to those interested . . . . **Rohde & Schwarz** has issued its technical sound and TV broadcasting catalog. It contains 280 pages on transmitter systems, measuring, and monitoring equipment.

Blonder-Tongue Laboratories in Old Bridge, NJ, has formed the National Association of Satellite Master Antenna Contractors. The association, open to installation contractors, provides professional assistance in system design and marketing strategy . . . . **Knudson-Benson Associates** is a newly formed television design and planning consulting firm located in Mercer Island, WA.

Adding to its range of services, **Microwave Filter** has established an earth station terrestrial interference diagnosis and suppression plan, with results delivered within 48 hours.

In its financial report, **Harris** claims its net income for the quarter ended September 30, 1983 as $14.3 million, an increase of 16 percent over last year's income . . . . Shareholders of Harris approved at their annual meeting held in Melbourne, FL, the merger of **Lanier Business Products** into Harris.

Clinton Recording of New York received a new custom-built Neve 8078 console for its opening in December . . . . In Baton Rouge, LA, Jimmy Swaggart Ministries will open its new broadcast complex incorporating five **Neve** consoles.

Broadcast Systems has been awarded a contract worth $0.5 million for the purchase of equipment, along with design and installation services for **KINT-TV** of El Paso, TX . . . . **Rank Cintel** has announced that during the three months since production began on Amigo, a programming system for its MK III series telecines, 12 of the 28 units were installed in the U.S.

Business people in the news include John M. Fluke Jr., who has taken over as chief executive officer, replacing his father, the founder of the **John Fluke Manufacturing Company** . . . . Richard Mathys has been appointed director of engineering for **VSA-Videographic Systems** of America. Mathys was formerly product manager for Video Recording Systems at RCA Broadcast.

Harris has named John Parke as director of television sales. Parke moves to Harris from his position as VP Marketing for Acrodyne Corp. . . . . Jerry Smith has been appointed VP of domestic sales at Harris, being responsible for the sale of transmission products in the U.S., Canada, and Puerto Rico.

The new national sales manager for broadcast products at **ADDA Corp.** is Frank Alioto, who comes over from ESP Systems . . . . New assignments have been announced at **Tektronix** as part of a reorganization of its Television Products Business Unit. Larry Kaplan has been neamed business unit GM; Austin Basso is the new national sales manager for the unit; and Steve Kerman is the unit's new marketing manager.

Carroll Barlow has been announced as the sales manager, **Broadcast Products,** for **Elector,** USA . . . . newly assigned to **Fortel** as the product assurance manager, Joseph Hanf will be responsible for product quality and reliability . . . . **EECO** has appointed Gerald Miller to the position of product specialist for video products marketing.

Acrodyne's new VP marketing is Richard Broadhead, who formerly held the position of business manager-UHF transmission systems for **RCA** . . . . **Nortronics** has added Edward Griffin as division manager of its Recorder Care Division . . . . A. William LeDoux has joined **Avantek Satellite Telecommunications Systems** as product marketing manager.

Vidifont® Graphics V. Performance that's picture perfect.

Picture crisp, clean, coordinated graphics that capture attention, provide information and create a distinct perspective that sets you apart.

Picture the Vidifont Graphics V. Combining the features and functions of character generation, graphics, animation and information displays into a single integrated system. All the creative tools you need for news, dial-up services such as satellite weather and sports, commercial spots, promos, elections and special programs.

Vidifont Graphics V allows multiple-user access of up to eight channels. On-line creativity is combined with off-line input, making it easy to update and display new information.

Vidifont. The picture of performance in over 500 TV and production studios around the world. Call or write Thomson-CSF Broadcast, Inc., 37 Brownhouse Rd., Stamford, CT 06902. Tel. (203) 965-7000. TWX (710) 474-3346. Telex 6819035-Answer Back 6819035 TCSB UW.

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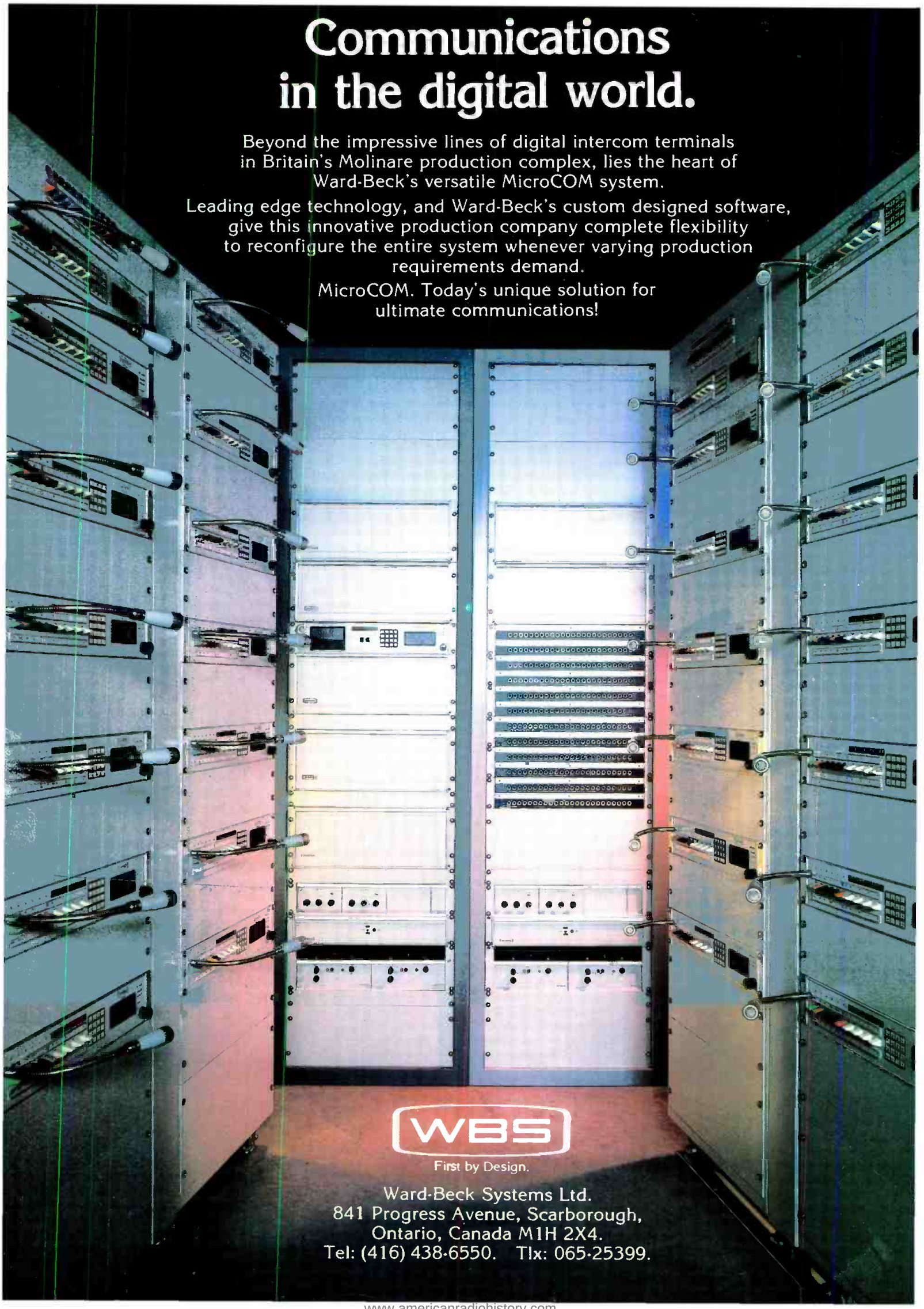
Communications in the digital world.

Beyond the impressive lines of digital intercom terminals in Britain's Molinare production complex, lies the heart of Ward-Beck's versatile MicroCOM system.

Leading edge technology, and Ward-Beck's custom designed software, give this innovative production company complete flexibility to reconfigure the entire system whenever varying production requirements demand.

MicroCOM. Today's unique solution for ultimate communications!



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