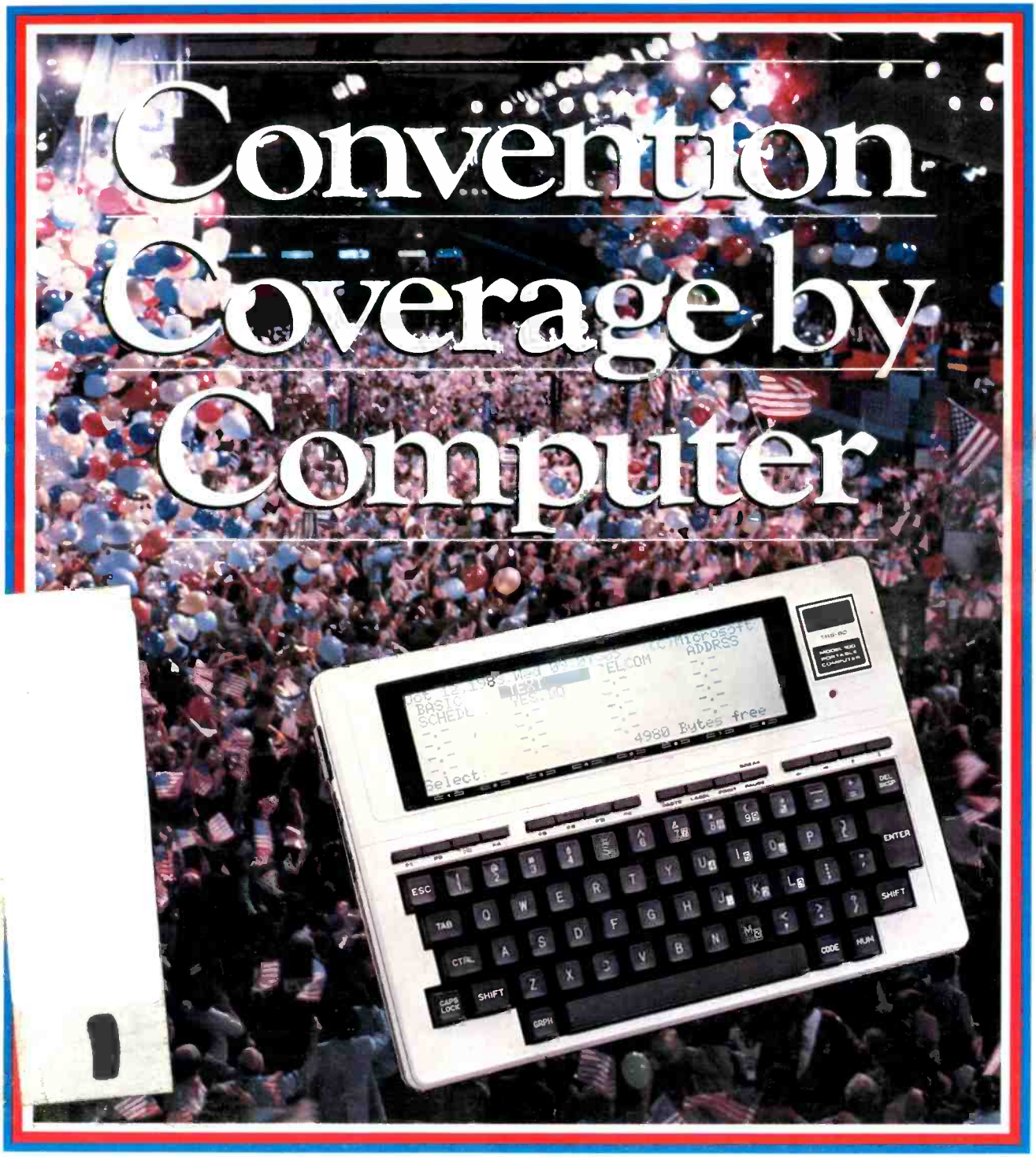
OCTOBER 1984 $3.00

BM/E

BROADCAST MANAGEMENT/ENGINEERING

ALSO... SATELLITES

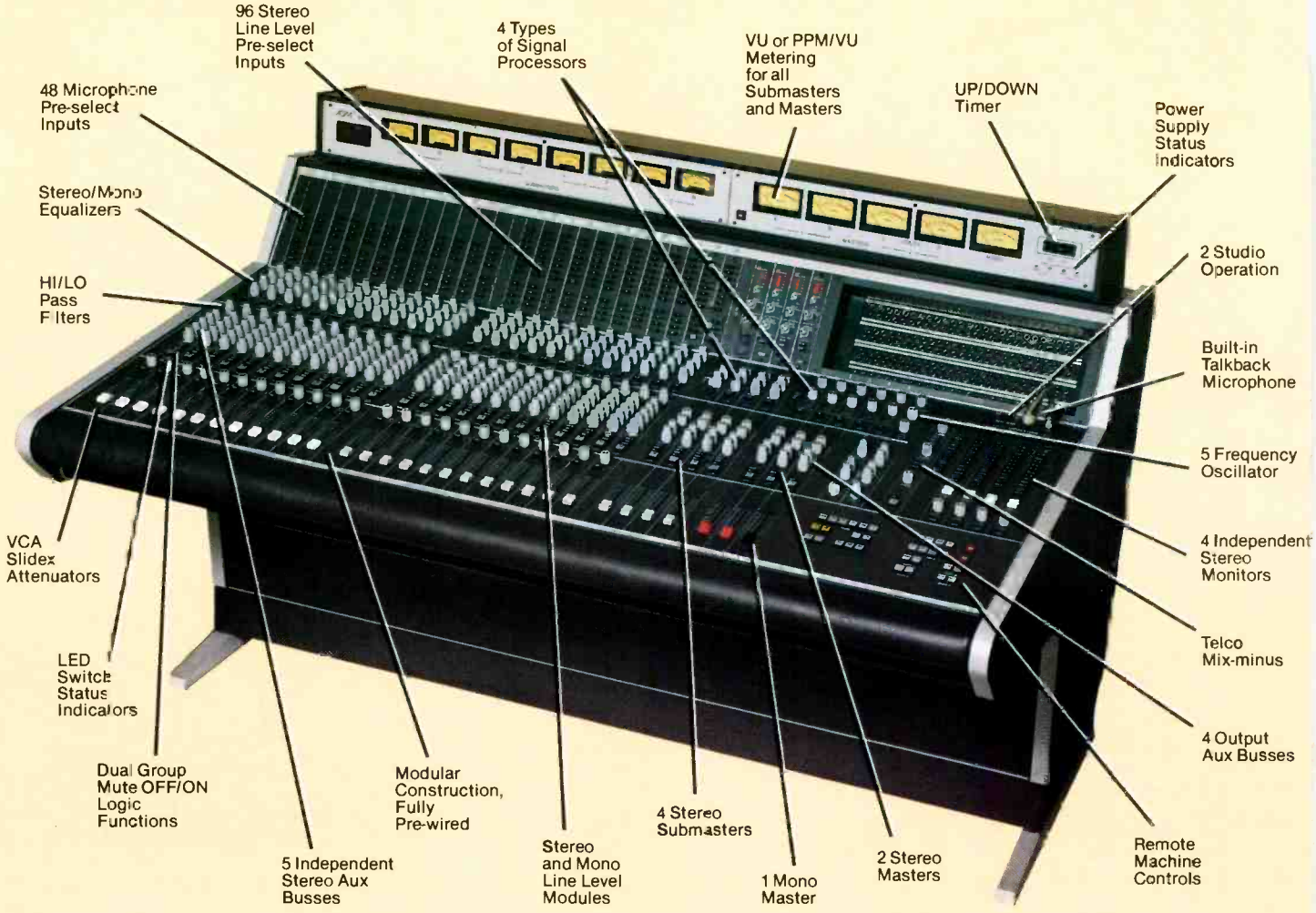
Convention Coverage by Computer



Also in this issue:

SMPTE PREVIEW

A True Stereo Console from the Leader in Television Consoles



Once again, ADM is ahead of the entire industry with introduction of the new BCS series. Designed specifically for TV, the BCS is entirely new, not merely a rework of a mono console. The result is total stereo capability.

The new BCS series stereo television console is designed to make the transition to stereo television simple and manageable. And, like all ADM consoles, it carries an exclusive full 5-year unconditional warranty on both parts and labor.

For more information, contact ADM Technology, Inc., 1626 E. Big Beaver Road, Troy, Michigan 48084. Phone: (313) 524-2100. TLX 23-1114.

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Circle 100 on Reader Service Card

"AFTER SCOUTING THE PROSPECTS, WE CHOSE THE CAMERA WITH THE BEST SHOOTING RECORD."

ROB DALTON, PRESIDENT AND GENERAL MANAGER, KAKE-TV, WICHITA

"At KAKE in Wichita, we're as demanding as they come. But let's face it. When you're Wichita's number one metro station, an ABC affiliate, and have a schedule as hectic as ours, you have to be.

And when it came to buying new cameras last year, we made no exceptions.

To satisfy us, the units had to meet network standards and be Triax compatible. Plus they had to be able to take the abuse of being hauled in and out of our remote van, from the studio to the field, and still deliver brilliant quality shots. That's why we went with Sharp.®

From our four years of experience working with their XC-700 and XC-800 Saticon® cameras, we knew that Sharp cameras could take the punishment.

But what really sold us were the results we got when we tested out Sharp's Diode-Gun Plumbicon® XC-900D at a number of those 49 basketball games we produced last year. Of course Sharp's competitive price was an added incentive. But we would have bought the XC-900D anyway.

Now if your situation involves buying a new Plumbicon camera, I'd suggest the Sharp XC-900D. From what I've seen, it will go one on one with any camera on the market. And come out on top every time."

For a demonstration or more information, contact your local dealer or write Sharp Electronics Corporation, Broadcast Group, 10 Sharp Plaza, Paramus, NJ 07652. (201) 265-5548.

Saticon® is a registered trademark of NHK (Japan Broadcast Corp.) Plumbicon® is a registered trademark of N.V. Philips.

SHARP

FROM SHARP MINDS COME SHARP PRODUCTS

A/V EQUIPMENT, AUDIO, BANKING SYSTEMS, CALCULATORS, CASH REGISTERS, COMPUTERS, COPIERS, ELECTRONIC TYPEWRITERS, FACSIMILE EQUIPMENT, MICROWAVE OVENS, PROFESSIONAL/VIDEO CAMERAS & MONITORS, TELEVISIONS, VIDEO TAPE RECORDERS.

Circle 101 on Reader Service Card

WHILE EVERYONE ELSE HAS BEEN PROMOTING A FORMAT, SONY HAS BEEN PERFECTING A SYSTEM.

Over the last three years, Sony's rivals in the combination camera/recorder arena have spent considerable time inventing wonderful things to say about their new formats. But apparently, they've overlooked inventing many wonderful new products to go along with these formats.

Sony has taken a different course.

In 1982, Sony introduced Betacam™ and the BVW-10 playback unit. An evolutionary system that didn't force stations to abandon their existing ¾″ and 1″ equipment.

Then, in 1983, Sony expanded the system with the three-tube Betacam, the BVW-40 edit/recorder, and the world's first battery-operated ½″ field playback unit.

And this year at NAB, Sony announced a major breakthrough in cart machine technology with Betacart.™ A system

that demonstrated the Betacam format's strength beyond the newsroom, beyond the studio, and beyond field production.

At the same time, Sony also unveiled the world's lightest camera/recorder, the BVW-2 Newsmaker.™ And a prototype coder/decoder system that will make it possible for Betacam to be transmitted by microwave.

Each of these products is the result of Sony's dedication to the needs of the ENG and EFP industry. Work which has earned the Betacam format widespread acceptance by television stations and production companies around the world.

Which only makes sense. After all, in this business you don't win sales on the merits of your arguments. You win them on the merits of your products.

SONY
Broadcast

BM/E
BROADCAST MANAGEMENT/ENGINEERING

OCTOBER 1984 VOLUME 20/NUMBER 10

FEATURES

An in-depth look at this year's show featuring booth listings, interviews with industry leaders, and a map/locator detailing places of interest.

DEPARTMENTS

COMING IN
NOVEMBER:
- UNDERCOVER ENG
- TV MONITOR DESIGN
- RTNDA PREVIEW

COORDINATE YOUR COMPLEX,

GET TOUGH . . .

Running a multi-site/multi-transmitter operation is tough. Hundreds of things could go wrong at any moment. Make this tough job easy with the MRC-2 Microprocessor Remote Control. It monitors and controls up to 99 remote sites, with as many as 255 commands per site. Multiple Control Terminals ensure fail-safe redundancy by switching from studio to studio as needed. MRC-2 options further simplify operation: status and telemetry data are displayed in plain-English on the CRT, and the user-programmable Automatic Control Unit issues time and feedback actuated commands without operator assistance.

The MRC-2 monitors each remote site, with up to 255 status and 255 telemetry channels. To prevent a telemetry parameter from reaching critical upper or lower levels, dual tolerance limits can be set to activate an event and/or alarm. Telemetry inputs can be calibrated in one of six modes. Status inputs can be set to initiate an alarm or event on a rising waveform, falling waveform, or both. Plain-English prompting and parameter menus on the front panel LEDs simplify system setup.

System operation can be recorded on the optional Logger, and each site may have several Loggers and/or CRTs. To further enhance MRC-2 performance, Multiple Direct Command, Multiple Status Display, and other options are available. Got a tough remote operation? Get MRC-2 tough!

- UP TO 99 REMOTE SITES
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- UP TO 255 COMMAND LINES, 255 STATUS AND 255 TELEMETRY CHANNELS PER SITE
- PLAIN-ENGLISH DISPLAY
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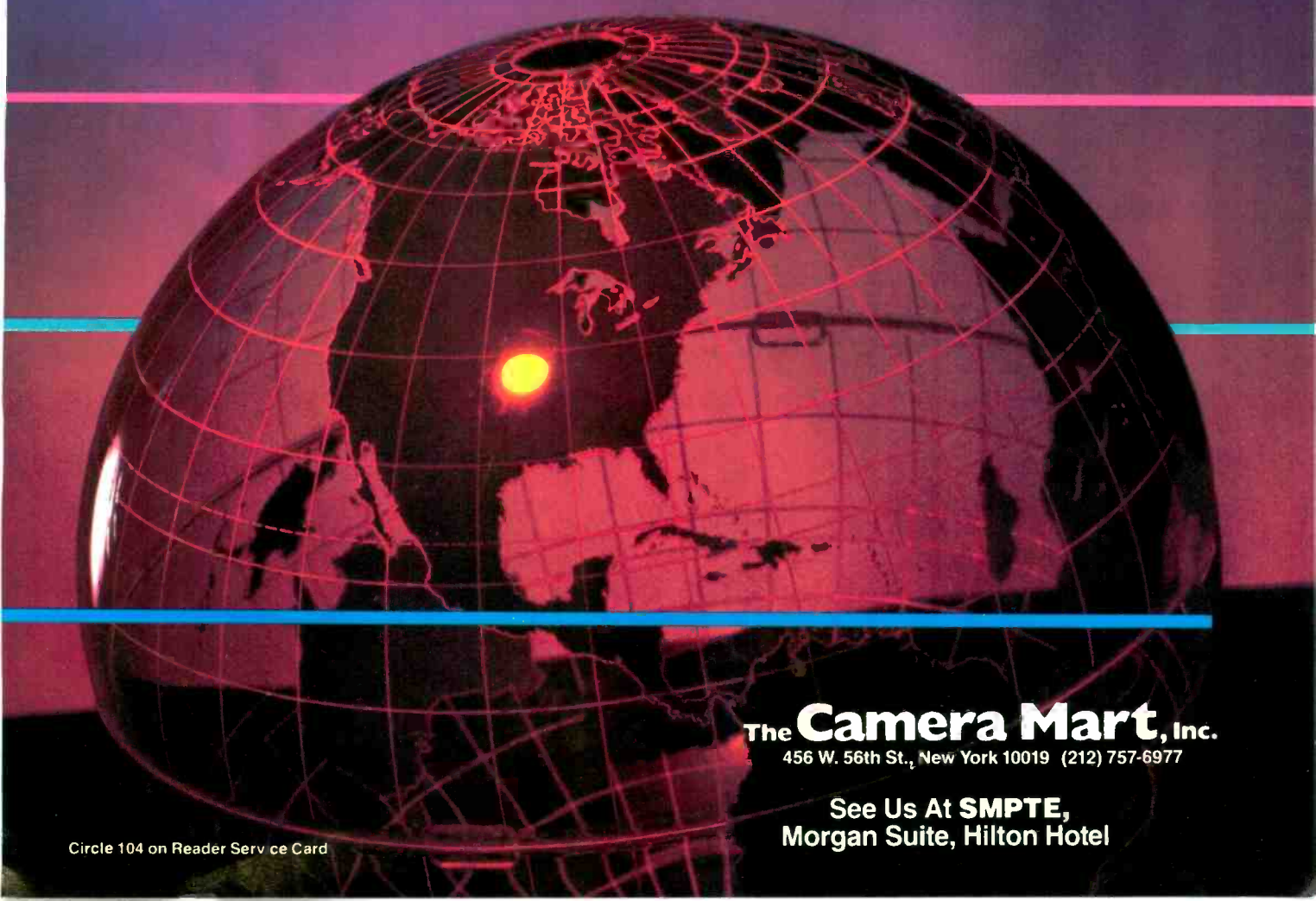

The **Camera Mart**, Inc.
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See Us At **SMPTE**,
Morgan Suite, Hilton Hotel

Circle 104 on Reader Serv ce Card

Midwest puts on a great show because it uses the best components

One of the reasons that the Midwest M-40 Series is the most advanced class of large mobile teleproduction units available today is our policy of only using the finest components. This "no compromise" design philosophy ensures a system of superior quality and reliability. Our M-40 units give you up to 47 feet of unparalleled technical and creative capacity. Because we only use the best components . . . from companies like Ikegami.

Ikegami HK-322 automatic color cameras make Midwest picture perfect

In the M-40, we wanted the ability to produce the best possible pictures. So we selected the HK-322 as a basic building block of the system. When the position as the world's most popular field camera passes from the Ikegami HK-357A, it will be to the HK-322. This fully automatic color camera sets the new standard for picture resolution, signal-to-noise ratio and registration accuracy. Standard computer set-up takes much of the hassle out of preparing for remote telecasts. With the Ikegami HK-322, the Midwest M-40 delivers perfect pictures everytime.

Ikegami HL-79E Series plays dual role for Midwest units

The Ikegami HL-79E Series camera was selected for use aboard the Midwest M-40 because it can handle two separate functions with superlative results. Although it's renowned as the perfect hand-held camera, the HL-79E Series can easily be converted into a field camera that produces higher quality images than many other manufacturers top-of-the-line studio models

This exceptionally fine performance is due to Ikegami's painstaking attention to detail. Designed to meet the most rigorous performance standards, the HL-79E Series also offers optional automatic set-up, either via its own set-up computer or by interface into the HK-322 set-up computer for total system integration. With the HL-79E Series, Midwest's M-40 offers you the versatility required to produce network quality productions in any circumstances.

Ikegami 9-Series color monitors give Midwest "true to life" pictures

Ikegami 9-Series Color Monitors are standard in the Midwest M-40 mobile unit because of their superb resolution and ability to reproduce colors that are amazingly life-like. This performance is unmatched by any other monitor in the world. Since the 9-Series monitors use In-Line Gun CRTs, they provide more than excellent colorimetry and

fantastic resolution. They also offer high stability, unit interchangeability, low power consumption, and convenient pull-out circuit panels. By using the Ikegami 9-Series, the Midwest M-40 can reproduce colors that are true to life.

Midwest road shows M40

For more information on how Midwest and Ikegami can deliver world class performance for your company, contact any Midwest office in the U.S. or call toll free (800) 543-1584.

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EDITORIAL

Use and Abuse of the FCC

Back before Fowler, when the FCC was in its regulatory heyday, it was usually fairly clear what actions the FCC would take on issues of technical regulation. Type acceptance was rigidly enforced. Station inspections were made regularly. Logs were required and sometimes even read.

In the new FCC, however, this is no longer the case; a far more insidious regulatory process has sprung up to take its place. The FCC is becoming a political straw in the wind, blowing in whatever regulatory direction large manufacturers want to push it.

The first instance of this was the recall of the Harris AM stereo exciter, supposedly because it did not meet its original type acceptance specifications. (The system has substantially been reaccepted with virtually no change from the original.) Insiders at the FCC admit that they were "tipped off" about the problem by a source they won't reveal. The tip may have come from a broadcaster. How convenient this must have been for other stereo exciter manufacturers, who were able to use the time when the Harris exciter was withdrawn from the market to make substantial extra sales.

With the introduction of the Sony frequency synthesized RF mic at this year's NAB, the same situation once again occurred. Other manufacturers of RF mics without frequency synthesis began pointing out some of the problems which might spring up if broadcasters began using the new system. Fair play. But then someone did a little research and came up with the fact that the Sony system had not yet been type accepted. Now the Sony system has been temporarily withdrawn; score one for the lucky manufacturers of non-synthesized RF systems.

The most recent example of potential abuse comes in the form of an NAB petition asking the FCC to reconsider its decision to allow Sanyo to market a receiver capable of receiving only one, and possibly two channel frequencies. Since the 1962 all-channel act, of course, TV receivers have been required to make all channels available on an equal basis. The NAB fears that the new design would be potentially harmful especially to UHF, non-profit, and LPTV channels which rely on all-channel receivers for their market penetration.

It is not that the Sanyo receiver design is not potentially harmful to these stations, nor is it wrong for the NAB to be acting on behalf of broadcasters in this way. But the fact is that the FCC is not in the business of regulating the technical standards of the industry anymore, and to ask it to invoke the all-channel act against Sanyo is hypocritical in light of strides which have been made in deregulating other technical areas.

If there is to be a marketplace, then it must be one in which each vendor can operate without fear of government crackdowns, particularly those called for by other manufacturers or industry groups. While we urge Sanyo to reconsider its receiver design, we also urge the rest of the industry to leave the FCC alone when it comes to asking for more technical regulation.

Worth Its Wait In Gold.

For Harrison Reliability

Sure, Harrison has waited to enter the U.S. broadcast market. When you're a stickler for precise engineering and a perfectionist when it comes to quality performance – you've got to take your time to get it right. *Get it just right for you.*

No Compromises

It can be tough getting the right console to match your specifications. About as easy as fitting a square peg in a round hole, right? Harrison Systems has anticipated your need for versatility. A good deal of time and research goes into our consoles in order to bring you the smartest, most efficient technology and service. We've got the system that fits the size and scope of your needs, whether it be:

- Teleproduction
- Video Sweetening and Post-Production
- Video Edit Suite
- Film Sound Post-Production
- On-Air Broadcasting
- Broadcast Production
- Live Sound Reinforcement
- Music Recording and Scoring

At Harrison Systems, we give you choices – not excuses or unnecessary fluff. Our systems are designed to bring you long-lasting, clean performance and reliability.

Harrison Puts You In Good Company

Organizations like Swiss Broadcasting and Belgian Radio and Television have believed in the superior quality of Harrison Stereo Broadcast Audio Consoles for years and have chosen Harrison for multiple broadcast installations. Swedish Television has selected 8 TV-3 consoles and has committed to several more. This year's Winter Olympics in Yugoslavia received the main audio feed from a TV-3.

At Last

At Harrison, we take the time to listen to your needs. We design our consoles with the flexibility to fit your operation. And although our standards may be high for our consoles – our prices are very, very reasonable. We think you'll find it's been worth the wait – in golden, Harrison-true performance. Call us for a demonstration and see for yourself.

For Harrison Innovation

Introducing Harrison's TV-3, PRO-7 and TV-4, the broadcast consoles you've been waiting for:

TV-3 For large scale TV audio, remote production, studio production, post-production and sweetening ■ Adapts to wide range of tasks ■ Available in a variety of configurations for customization ■ Plus many options.

PRO-7 Designed for comprehensive use in broadcast, live sound, motion picture teleproduction ■ Two major configurations ■ Simple to operate ■ Cost-effective ■ Independent mix decision capability ■ Long-term performance achieved through thick-film laser-trimmed resistor networks ■ Plus many options.

TV-4 For medium scale on-air production, remote production, studio production, sweetening and post-production ■ Three major, simplified configurations ■ Easy to install ■ High-speed, low noise, low distortion amplifiers allow for best possible electronic performance ■ Plus many options.

Harrison's new VSI Fader Section, which allows for simultaneous interface with automation and video editor/switcher, is available for TV-4 and PRO-7 consoles.

Why wait any longer? Call or write Harrison Systems, Inc., P.O. Box 22964, Nashville, TN 37202; (615) 834-1184, Telex 555133.

Harrison

Circle 106 on Reader Service Card

LETTERS

SATELLITE MIXUP

To the Editor:
I read with interest a headline in your July issue stating that GTE put in orbit the "first" dual-band satellite.

Telestat Canada, the owner and operator of Canada's Anik satellites, has had the honor of claiming this distinction since December 1978 when we launched Anik B. This satellite, which is still in operation, has 12 transponders operating in the 6/4 GHz frequency bands and six in the 14/12 GHz frequency bands. It provided the world's first commercial 14/12 GHz services in 1980.

Telestat Canada has been making history since we launched the world's first domestic geostationary communications satellite in 1972. Please don't overlook us as you record the milestones in satellite communications.

Eldon D. Thompson
President
Telestat Canada
Ottawa, Ontario

UP WITH LO!

To the Editor:
Continental Cablevision, featured in the July issue, should be commended for their commitment to local programming. They are proving that LO can be a valuable public relations tool if utilized properly. However, too often LO is relegated to bottom rung status and handled as an unavoidable expense.

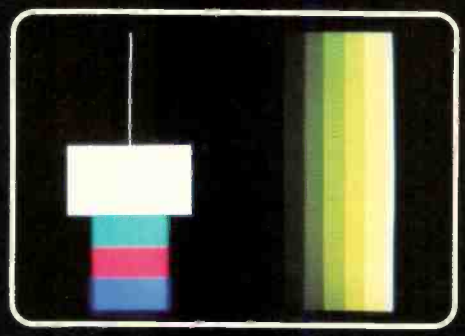
Local origination, as exemplified by Continental Cablevision, enables a cable operator to create a distinct local identity and provides an excellent vehicle for special promotions. LO increases visibility within the franchise area and promotes good will throughout the communities served. It tells subscribers that the operator cares about the social fabric that knits a community together. The question that must be asked is how important are the previously mentioned factors to successful marketing and how should a dollar value be attached?

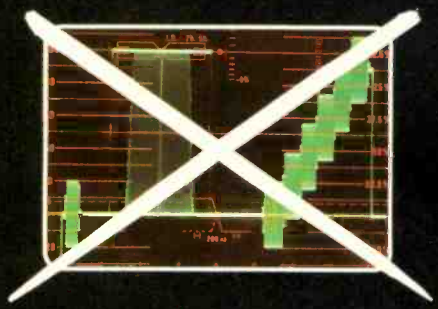
LO must be approached with a clear understanding of its advantages and disadvantages. It must be implemented with vision, imagination, and professionalism. Facilities must be well designed for flexibility and tailored to meet planned requirements. Equipment purchases must be carefully made to ensure the best value for the dollar. Cheap doesn't always equal inexpensive in the long run. Last but not least, personnel must be selected who are skilled in video production.

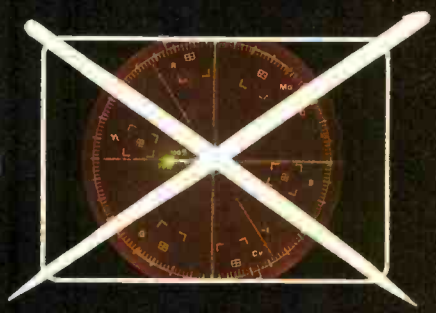
Finally, as we move further away from broadcasting towards the narrowcasting concept, it becomes obvious that LO can play a very important role in meeting the demands of a very special audience: the local subscribers who pay the fees that keep a cable system in the black. Thanks for printing the article.

Doug Gaston
Director of Local Programming
Dimension Cable Services
Glenolden, PA

Here's a Transmission Test Signal You've Never Seen Before!







The TTS-100, a Perfect Choice for NTC 7!

Providing transmission tests is a simple chore for the new TTS-100 Transmission Test Signal generator from ROH. The TTS-100 provides an effective method of testing transmission paths and video equipment by utilizing a signal output consisting of the following components: Field Bar, T-Step Bar, 2T Pulse, MOD 12.5T Bar and MOD Stairsteps with varying APL.

In addition to satisfying the recommendations of the NTC 7 report of The Network Transmission Committee, the TTS-100 also generates the necessary test signal components for EIA Recommendation RS-250A and IEEE Std. 511-1979.

The TTS-100 is designed for use by broadcast engineers and maintenance technicians alike, in fixed as well as mobile applications. Its unique overlay of signal components permits straightforward accurate tests and/or measurements for ENG operations, permanent system installations, general maintenance requirements and the demanding exactness of laboratory applications.

APPLICATIONS

- Field Bar, T-Step Line Bar, 2T Pulse—For precise analysis of Field Time, Line Time and Short Time waveform distortion.
- MOD 12.5T Bar, consisting of 3 (or 4) chroma cardinals—For relative chroma level, relative chroma time and quadrature.
- MOD Stairsteps with varying APL—For analyzing non-linear distortions, differential phase and differential gain.

Discover the versatility of the TTS-100...The portable you can't afford to leave the station without!

To find out more about the new TTS-100, please call or write:

ROH™

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404-455-7940

Circle 108 on Reader Service Card

Netcom will provide satellite services in the new Netcom-Compact Video venture.

Netcom, Compact Video Combine Services

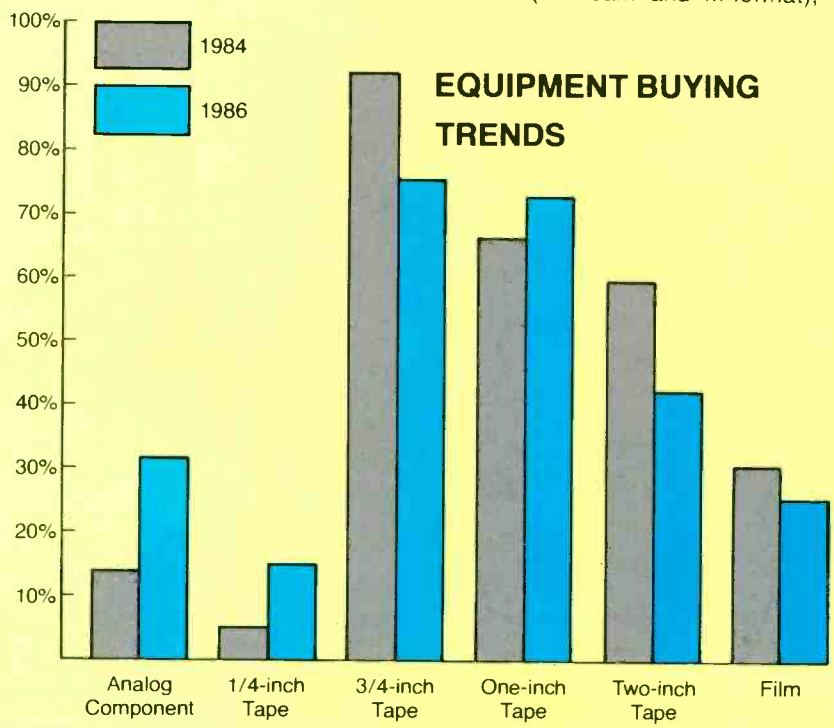
Netcom, the California-based satellite transmission company, and Compact Video, the Burbank, CA, post-production facility, have joined forces to offer an unprecedented range of services to the production community. This new setup provides syndicators and producers with the first single source for complete video post-production, sound sweetening, standards conversions, satellite distribution, and tape trafficking.

The two companies have not merged, nor have they formed a joint venture. Rather, they have agreed to jointly handle projects such as syndicated television shows that require both post-production and distribution services.

According to Ron Silviera, sales manager of Compact Video Services, the first programs the two companies will handle jointly are *America's Top Ten* and *America's Choice*, for Scotti

Survey Shows Swing to Analog Component by '86

A survey conducted among *BM/E* readers by Tektronix indicates that although only 13.5 percent are now using component half-inch recording formats (Betacam and M-format), 31.7 percent predict they will be producing on half-inch component two years from now. Nearly 15 percent also predict they will be using 1/4-inch videotape.

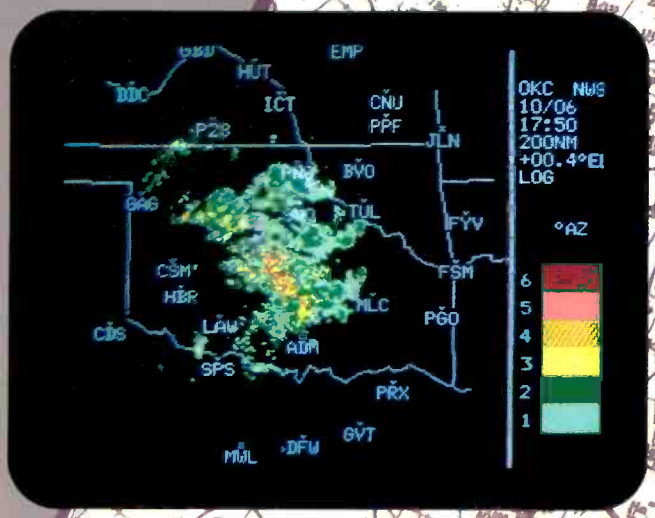


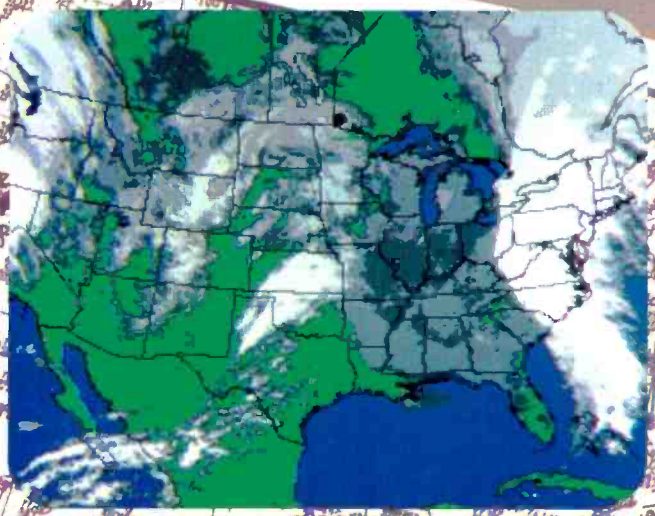
Several other findings were reported among the stations and production facilities responding to the questionnaire. Most significant is the expected decline in 3/4-inch tape use: 93.3 percent of the respondents say they use it now, whereas only 75.6 percent see themselves using it two years from now. Also declining will be the use of two-inch tape, currently being used by 59.6 percent of respondents but dropping to 41.5 percent by 1986. Film, too, is expected to drop—from 30.8 percent currently to 25.6 percent.

On the other hand, one-inch tape production will continue to rise, climbing from 66.3 percent now to 73.2 percent in two years.

The same study also revealed the impact of new media on how programs are distributed. Over 50 percent of the respondents obviously distribute their programming by broadcasts. But a full 32.7 percent use satellites, 24 percent use microwave, and 26 percent use cable.

FROM THE PEOPLE WHO BRING YOU THE CHARTS...





LIVE RRWDS COLOR WEATHER RADAR

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 live weather radar information via a new network of National Weather Service radar transmitters, called RRWDS. The C2000R accesses these radar sites easily and cost-effectively using standard voice-grade telephone lines on either a direct line or dial-up basis.

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, 118B Washington Street, Westborough, MA 01581. Telephone 617/366-8851.

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ALDEN ELECTRONICS

The First Name in Weather

Circle 109 on Reader Service Card

Vacuum chamber used to produce thin film coatings is readied by a 3M physicist.

Brothers-SYD Vinnedge TV. The executive in charge of production for both shows, Greg Sills, says, "This arrangement simplifies the post-production and distribution process. Rather than working through several vendors, we now have one contact who can handle our needs. Billing and administration are centralized, and this is reflected in improved service and a better rate per service."

Netcom is new to syndication and program distribution. Over the past three years, the company has established itself as a satellite transmission service for commercial broadcast, subscription, and cable programming, as well as videoconferencing. Recently, Netcom handled all transmission of the Democratic National Convention for the CBS Network and its affiliates. The company also broadcast more than 3000 hours of the Los Angeles Olympics to 40 countries.

NASA Shuttle Carries 3M Space Experiments

3M has begun a long term space research program to discover new materials and processes that will contribute to product development into the twenty-first century. The first experiments, studies of thin film coating and organic crystal growth, flew on the NASA Space Shuttle at the end of August. The experiments are expected to benefit many divisions within 3M, especially the Memory Technologies Group, which has a large number of coated magnetic and optical media products.

According to George Hegg, group VP of the Memory Technologies Group, the Space Shuttle program will be divided into two phases. Phase one, which took place in August, was comprised of three experiments. The first two, conducted in the shuttle's middeck, were aimed at "telling us things we don't know about specific organic crystalline formations," Hegg says, "particularly, if and how it might be possible to grow unflawed crystals in space." The third experiment, which took place in the shuttle bay, "will be a unique investigation into the fundamental behavior of thin film coatings," according to Hegg. Half of what the company learns in phase one will be published; the other half will remain as proprietary process technology.

Phase two is scheduled to begin in 1985. These experiments will "deal with the most basic questions of organic chemistry and organic crystal growth," Hegg explains. "We're going up there to look for applications in the fields of electronics, imaging science, memory technologies, adhesives, coatings, and so forth. These are applications with far-reaching consequences for all facets of memory technology, clear across our industry."

Ad Executives Bullish On Radio, Torbet Finds

Advertisers will be spending significantly more in radio over the next five to 10 years, according to a majority of agency account executives polled in a recent survey conducted by Torbet Radio. These new advertising dollars will come primarily from network television, followed by newspapers, spot television and magazines, and to a lesser extent, cable television.

Torbet Radio's survey is the second in a series of four nationwide agency/client surveys the radio representatives firm is conducting through 1984. This survey focused on the account executives' experiences using radio, and their role and the criteria used in the buying process of all media.

Ninety-eight percent of the polled account executives said that they do get involved with media planning. Eighty percent said this is done at strategic


How new broadcast technology
will improve your broadcast quality.

Panasonic® presents the technology

NTSC. YIQ. Now you can make the most out of both. Because now Panasonic lets you do what you couldn't do before: Enhance your existing NTSC equipment with the higher performance and lower operating costs of the Panasonic YIQ M-Format. The result: 1-inch performance from ½-inch equipment.

Recam.™ We've got your configuration.

ENG, EFP, and Studio. The three key Recam configurations. In either three-tube Plumbicon* or Saticon† versions. And now you can use all Recam cameras and VCRs with all your existing equipment because they're all YIQ/NTSC compatible.

The Recam B-100B camcorder. It gives a single operator total control of both video and audio. With video playback and two-channel audio monitoring in the viewfinder. In the field, Recam gives you up to two hours from its on-board battery compared to just 20 minutes from some other camcorders.

In the studio, Recam cameras can be fitted with an optional 5-inch viewfinder and camera control unit for total broadcast versatility.

*Plumbicon is a registered trademark of N.V. Philips.
†Saticon is a registered trademark of Hitachi, Ltd.

ENG Camcorder

Studio Configuration

EFP Configuration

The AK-30 stands head-to-head with the bestselling broadcast camera in the world.

Digital registration. Image-enhancing circuitry. Dual white balance with memory. Three high-focus-field Plumbicon tubes. It's the Panasonic AK-30. And it will challenge even the bestselling broadcast camera in the world. With the industry's highest S/N ratio: 62dB. And a razor-sharp 650 lines horizontal resolution. ENG, EFP and Studio configurations. It works with triax and has a negative film switch for telecine use.

Only Panasonic gives you 1-inch color playback quality in the field from a ½-inch portable.

Up to now, if you wanted the quality of 1-inch color playback in the field, you had the hassle and expense of 1-inch equipment. Now all you need is the Panasonic AU-220 portable VCR.

It's YIQ compatible. So you get 1-inch color performance from ½-inch equipment. The AU-220 also records and plays standard NTSC.

In the studio or van, the AU-220 doubles as an ideal source VCR when you add the AU-S220 adapter. It provides power, a drop-out compensator, and a fully corrected broadcast signal when you add a TBC, vectorscope and WFM.

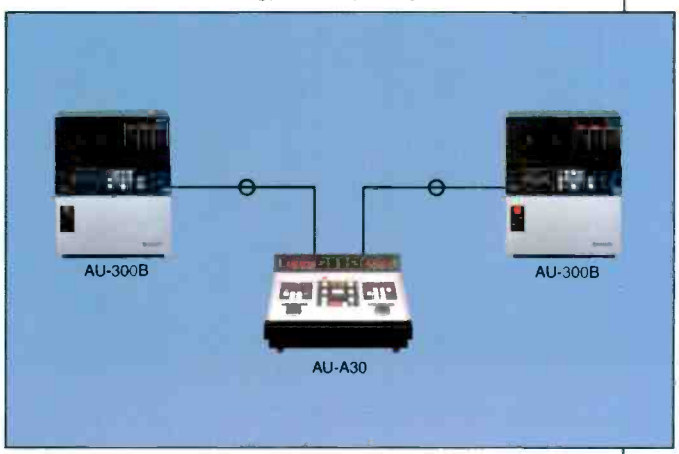
For field playback on a budget, choose the AU-100KB and get black and white video confidence in the viewfinder.

behind component compatibility.

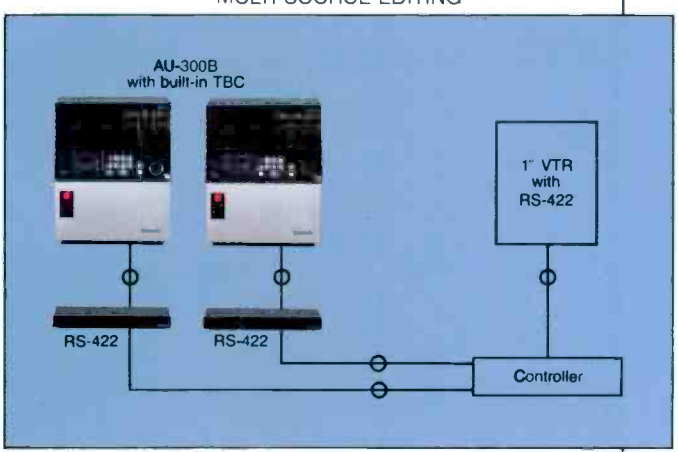
When it comes to post-production, Panasonic speaks the language.

The Panasonic RS-422 Serial Interface can improve VCR systems control. Because it lets you control high performance YIQ M-Format VTRs from your existing VTRs and editing systems. The Panasonic AU-300B editing recorder, the AU-TB30 internal TBC, the AU-A30 full-function editing controller and AT-Series color monitors. Complete compatibility for total control.

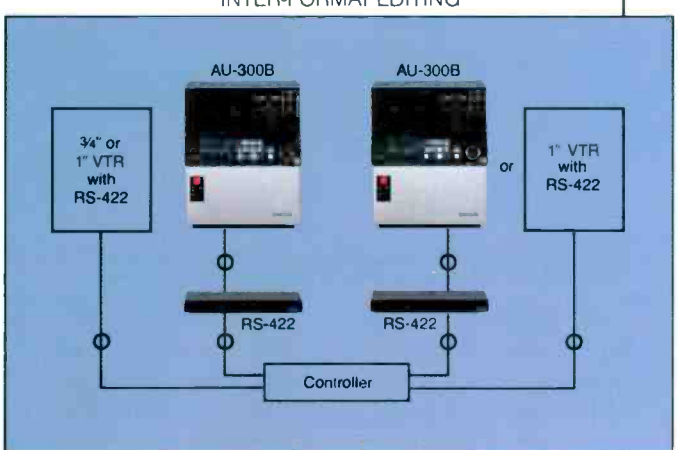
SIMPLE EDITING



MULTI-SOURCE EDITING



INTER-FORMAT EDITING



Only from Panasonic. Automatic, continuous, reliable broadcasting.

It's the MVP-100 and it will revolutionize your station. Because it lets you program in advance, and automatically air, everything from news spots to commercials to station IDs. Even complete program-length material. All with YIQ quality, time-code accuracy and computer-controlled reliability. At a lower operating cost than conventional cart machines. Its recorders, spot players, and up to 24 modular transports operate independently. So the MVP-100 can even be programmed to override a breakdown the moment broadcast continuity has been interrupted to virtually eliminate dead air.

Panasonic Broadcast Systems.

Panasonic broadcast components can enhance any broadcast system. Not only will we make your images look better with advanced M-Format technology, we'll make it easier for you to originate, produce and broadcast them.

Panasonic Broadcast Systems. Watch us improve your broadcast quality.

Call your nearest Panasonic regional office:

Northeast:	(201) 348-7336
Southeast:	(404) 925-6835
Central:	(214) 256-2222
West:	(714) 895-7200
Canada:	(416) 624-5010

Panasonic
Industrial Company

SEE US AT SMPTE BOOTH 97

planning sessions. Eighty-eight percent participate in approving different types of media categories, and 62 percent reported they approve the actual media choices within a medium.

The media department at an ad agency emerged as the leading choice and source for radio information on rates, audience figures, and geographic reach. This was followed by radio reps (seven percent) and Standard Rate and Data Service (two percent).

When asked to evaluate criteria used when considering buying radio time, efficiency in reaching target demographics was the leading response by a wide margin. This was followed by audience size delivered and ability to provide desired time positions. Only eight percent rated listener involvement with a station as very important, and just two percent consider a close relationship with the rep as a very important buying criteria.

Survey participants were also asked to rate radio's various attributes. Cost efficiency was number one, followed by minimal waste reaching specific target audiences, reliable audience figures provided, low production cost, and the way the programming environment relates to the advertiser's message.

George Bubrick, president, left, and Jim Ariana, vice president, inspect the first tower bearing the Transmission Specialists Ltd. name before it leaves company headquarters in Vinita, OK. TSL merged with Atlas Tower Corp. of Vinita in June.

CBS Promotes Teletext During L.A. Olympics

While the Los Angeles Summer Olympics afforded ABC the opportunity to cover southern California like an electronic blanket, CBS used the occasion for a less effusive display of technology. At 50 kiosks in public places throughout the L.A. area, CBS/Broadcast Group displayed a version of Extravision, its 100-page teletext service.

Extravision has been available as a national service since April, 1983. About 85 percent of CBS's affiliates offer the advertiser-supported service free—through the station's vertical blanking interval—to anyone who owns a decoder. But recently, CBS has moved to localize the service. In partnership with an affiliate, the network provides 50 pages of national teletext, and the affiliate generates 50 pages of its own. This material is of local interest: information about travel, airlines, and community events, for example.

The locally configured Extravision has already been rolled out in Charlotte, NC, and Buffalo, NY. The Los Angeles version was, in a sense, the third rollout. In partnership with KCBS-TV, the network offered an "Olympic" Extravision in kiosks and in the home as well. Of the 100 pages, 30 has information about the Olympics.

Now that the Olymipcs are over, the kiosks have been removed. But the KCBS service remains—for now. At press time the network and affiliate were undecided as to whether to keep Extravision in Los Angles. Regardless, the network will continue to expand the localized service into other cities. By the beginning of 1985, CBS plans to have Extravision in Seattle, WA, and Salt Lake City, UT.

RTNDA Study Finds Employment Trends

In radio news, the major job growth in the next 10 years will be at the outside program supplier level rather than at the local level; in television news, the amount of local news produced and the number of jobs at the local level will increase.

These are some of the findings of a recent national study conducted by the Radio-Television News Directors Association on future job opportunities in radio and television news. The study included interviews with 200 radio and television station managers, 200 news directors, 17 top-level broadcast executives, 21 professors, and 600 members of the general public.

A majority of the respondents anticipated substantial growth in specialty radio networks and their use at the local level. Specialty reporters and producers will be in demand as a result, RTNDA predicts. In television news, news promotion specialists will be particularly needed.

FCC Sounds Caution on AM Stereo Modifications

The FCC's Mass Media Bureau has received informal reports concerning unauthorized broadcast licensee modifications of type-accepted AM stereophonic exciters that may subject the licencees to forfeiture sanctions. The modifications include the removal or alteration of certain audio frequency filters incorporated in the original equipment by the manufacturer.

To obtain type acceptance, manufacturers of AM stereo transmitting equipment must submit the data to the Commission showing that the transmitted signal will not exceed the bandwidth limitations for AM stations under all conditions of program modulation. The Commission warns that any modification of type-accepted transmitting equipment that changes the bandwidth

characteristics, power rating, modulation, or frequency stability of the transmitted signal will void the type acceptance, and is in violation of the Commission's rules. Removal or modification of audio filters may cause the station using the altered equipment to have excessive sideband signals in the adjacent channels. This can be observed and measured by off-air monitoring.

According to the Commission, licensees contemplating any modifications of any type-accepted or notified AM, FM, or TV transmitting equipment should review sections 2.977, 2.1001, and 73.1690 of the Commissions's rules and consult with the equipment manufacturer to determine if those changes can be made without voiding the type acceptance.

LPTV Operators Form New Trade Association

LPTV operators may have more clout in Washington with the formation of Community Broadcasters of America, a new trade association designed to provide a forum of exchange for the low-power television industry and government at all levels. Articles of incorporation for the CBA were filed in Washington, DC, this past July.

The CBA has defined six "goals and purposes": to promote the exchange of ideas and experiences within the LPTV industry; to increase the general public's knowledge and understanding of LPTV; to use management, research, and marketing techniques in order to promote growth among individual community television stations and the LPTV industry as a whole; to promote legislation favorable to the community television industry, and to represent the industry before the FCC and other governmental bodies; to conduct seminars, conventions, and trade shows, and to publish materials of interest to members; and to encourage the entry into the LPTV industry of minorities, women, and other groups which are underrepresented in the ownership of stations.

The first annual meeting of the CBA will be held January 15 in San Francisco. The CBA will be headquartered at 1830 Jefferson Place, NW, Washington, DC, 20036.

Source Update

Please make the following additions and corrections to your copy of The Source Buyer's Guide, BM/E, August 1984:

SCHNEIDER CORP. OF AMERICA
400 Crossways Park Dr., Woodbury, NY 11797
516 496-8500
ENG/EFP/studio/CCTV camera lenses & attachments.

In the listing for Canon USA, Inc., please delete the Norcross, GA, field office and add:

TX 2035 Royal Lane #290, Dallas 75229 ..... 214 620-2641

Confusion may have resulted from the incorrect crossreferencing of Audio Technology of Schaumburg, IL, to the ad run by ATI-Audio Technologies, Inc., of Horsham, PA. The two companies are not related. ATI-Audio Technologies' ad reappears in this issue on p. 126.

In our Broadcast Equipment section for September, we incorrectly reported that the Ampex VPR-6 is priced at $12,500. The correct price is $72,500.

Discover a high-performance mixer with a personality all your own.

The Ramsa WR-8616.

Inside every recording engineer is the desire for more creative control at the board.

Now there's a post-production/recording mixer designed to make your sessions sound more like you. And less like everybody else's. The Ramsa WR-8616. And its modular design is as ambitious as your needs.

You can have 16 channels of either full stereo or mono modules. Or a combination of the two.

The WR-8616 will also save you valuable time. By letting you simultaneously monitor as many as 16 channels on a multi-track machine while recording.

What's more, this high-performance mixer gives you two discrete mixes. This allows for full monitoring capability, which can be independent from the control room's mix.

And in the mixdown, you'll have access to all 16 inputs without having to repatch or reset the board.

You'll also find the 3-band continuously variable input EQ will give you more precise control over the highs, midrange and lows. And the six-channel remote start/stop capability lets you program materials using turntables, or tape and cart machines.

To make the WR-8616 even more compatible, we've given it a dual set of meters. Eight LED bar graphs will monitor the 16 input signals. While the six VU meters handle the Master, Group, Send, Echo outputs and Solo level.

And the balanced Mic and Line inputs and Main outputs won't let any unwanted noise come between you and your sound.

The Ramsa WR-8616. A post-production/recording mixer designed to treat you like an individual.

SPECIFICATIONS:

- +4dBM, 600-Ohm Line Input and Output Signal Levels
- Frequency Response: 20-20,000Hz; $^{+0.5}_{-2.0}$dB
- Noise: −128dB (IHF "A" WTD, 150 Ohm)
- THD: 0.05% typical at 1kHz, +20dBM
- CMRR: Greater than 80dB typical

RAMSA

Please send me more information about the Ramsa WR-8616.

Name_____
PLEASE PRINT

Address_____

City_____ State_____ Zip_____

Phone ( )_____

Return Coupon To: Panasonic Industrial Company, Professional Audio Systems, One Panasonic Way, Secaucus, N.J. 07094.

BM/E

Panasonic®
PROFESSIONAL AUDIO SYSTEMS

Supplier of Sound Systems for the 1984 Olympic Games

Circle 112 on Reader Service Card

NEWS BRIEFS

Broadcasters can now program **horse races and betting ads,** says the FCC. Rescinding its 20 year-old regulations, the Commission said it would let the Justice Department deal with any behavior that aids illegal gambling . . . . The NRBA has formed a task force to fight Congress' proposed **regulations on beer and wine ads.** . . . Radio advertising accounts for 30 percent of independent **shoe stores' media budgets,** 29 percent of chains' spending, and 22 percent of department stores' footwear promotions, reports the Radio Advertising Bureau. The rate of expenditure is growing at an annual rate of 10 percent.

The broadcast division of Data Communications Corp. of Memphis has bought the Briner-Chase Group. DCC plans to market the company's software, formerly known as the Phoenix System, under the name **BIAS PC Radio**. The IBM PC-based system is aimed at medium- and small-market radio stations and has applications packages for most station departments.

John Blair & Co. has purchased a partnership position in **Conus Communications**, the satellite news network based in Minneapolis. Blair described Conus as "a framework for new advertising opportunities." . . . The Council For Cable Information is testing radio and TV **spots promoting "cable's benefits."** The $6 million flight is scheduled to start in mid-February. . . . The NAB has issued a report on the past and possible future directions of the **SMATV market**. Call (800) 368-5644 to order; $10 to members, $30 to non-members.

Toshiba and NHK have developed a prototype **40-inch high-definition monitor** using a new 1125-line standard and 12 mm gun. . . . CBS used **four Matthews Cam-Remote heads** to pick up ceiling shots at the GOP convention. . . . Show Light '85, an **international lighting symposium** on television, film, and the theater, will be held in New York City on March 17-20 of next year. The annual event is sponsored by the Illuminating Engineering Society.

The Communications Law 1984 seminar, designed for media counsel by the Practicing Law Institute, will take place November 8-9 in New York City. The 12th annual program will pay special attention to the impact of FCC deregulation. Fee is $360. For more information, call (212) 765-5700, ×286 . . . . The NAB has revised its **Legal Guide to FCC Broadcast Regulations**, giving "practical advice" written in layman's language on dealing with FCC regulations. The price is $95 for members and $200 for others; call (800) 368-5644.

The **Minority Telecommunications Development Program** has put together material to help minority entrepreneurs get into commercial and noncommercial broadcasting. Call (202) 261-8240. . . . Harris Broadcast has begun its second year of **UHF start-up seminars** held in various cities around the country. If interested, contact Gary Wright at (217) 222-8200. . . . *Broadcast Lending*, a new NAB booklet for educating investors and lenders about radio properties, can be obtained by calling (800) 368-5644. . . . Capitol Broadcasting of Raleigh, NC has sold **WDRV(AM) and WLVV(FM)** of Statesville, NC to Capitol Broadcasting, a separate company located in Mobile, AL.

TV test equipment from the inventors of the Plumbicon® tube.

At long last a new, reliable source of TV test equipment. One that offers fast, predictable delivery. One with a name all the world trusts—Philips. Four quick examples:

PM5565 Waveform Monitor

Enjoy the luxury of examining one line and one field at a time. On top of this, there's a convenient front probe input so you can use the monitor as a troubleshooting oscilloscope.

PM5567 Vectorscope

If you want more accurate decoding and the ability to have an external reference from composite video signals, choose our vectorscope.

Both waveform monitor and vectorscope mount side by side, fit all existing hardware and use less power than the competition.

PM5539 Color Analyzer

Take it on a quick trip through your studio or control room and adjust all monitors to the same color temperature in a matter of minutes.

With four different memories, there's no problem in quickly calibrating four different phosphors.

Variable full-scale, from less than set up to more than reference white, allows measurement of color tracking as a function of APL.

PM5534 Color Pattern Generator

Our universal pattern contains all the signals needed to verify overall system operation—directly from the picture. No wonder virtually every set manufacturer uses our pattern for their TV set alignment.

Of course our TV test equipment line doesn't end here. Today Phllips offers a wide range of equipment including sync and pattern generators, VITS generators and analyzers, and TV modulators and demodulators.

For nationwide sales and service information call 800-631-7172, except in Hawaii, Alaska and New Jersey. In New Jersey call collect (201) 529-3800, or contact Philips Test and Measuring Instruments, Inc., 85 McKee Drive, Mahwah, New Jersey 07430.

Philips, of course.

PHILIPS Test & Measuring Instruments

PHILIPS

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1,500,000 feet of audio cable, 600,000 feet of video cable

200 sheets of system engineering documentation

2,000 broadcasting personnel, 110,000 square feet of technical facilities

65 one inch videotape recorders, 350 color monitors

$20,000,000.00 worth of technical equipment

65 international broadcasting nations, broadcasting worldwide 24 hours per day

We made it happen

for the abc International Broadcast Center, L.A. Summer Games

on time, on budget

In close cooperation with the ABC International Broadcasting Center Engineering Department, CBX was selected to assist in the design, engineering, installation, testing and ongoing maintenance of the IBC's radio and television facilities.

Our proven track record of implementing international turnkey facilities enabled us to successfully coordinate and manage the diverse requirements of this major undertaking.

We are proud to have had the honor to participate in such a monumental broadcasting event. Congratulations to ABC for their unprecedented coverage of the 1984 Los Angeles Summer Games.

CBX

CBX INCORPORATED
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Monrovia, CA 91016 USA
(818) 357-8878 TWX 910 585 3237

CBX provides "turnkey" implementation of fixed and mobile telecommunication facilities.

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"3D Radio" Comes to NPR

The ZBS studio. Featured is a Philips board.

By Michael Greenhouse,
Associate Editor

Nearly ever American has seen images of black magic and horror on television or at the movies. Aural scares, however have been hard to come by, especially on radio. And until October 2, no one in the U.S. had yet experienced a three-dimensional aural scare on radio.

But beginning October 2 (and continuing for three weeks thereafter), National Public Radio's drama series *NPR Playhouse* aired just such a scare: the first three episodes of a 13-part series called *The Cabinet of Doctor Fritz*. Listeners were advised (but not required) to wear headphones for this production—a dramatization of Stephen King's "The Mist"—because this was a "binaural" radio drama; it was recorded, digitally, with a Neumann-developed microphone device called a Kunstkopf—German for "art head." When you listen to this Kunstkopf-recorded material with headphones, the sound seems to surround you. You not only hear left-right stereo sound, but you hear sound in front and behind, and above and below as well.

The device responsible for this sound is actually a hard rubber object shaped like a human head with a microphone in the "auditory canal" of each ear. The idea of Kunstkopf is to duplicate human hearing: The head "hears" the way a person hears. So not only does it pick up left and right, it captures depth and height. And when you listen to the recorded material on headphones, you hear what Kunstkopf heard.

German development

Binaural recording—with headphone playback—has been in use for about 12 years in Germany. It had never been used in this country until ZBS Media, a non-profit arts organization in Ft. Edward, NY, was brought in to produce "The Mist" and the entire *Fritz* series. Fritz is also the name given to the Kunstkopf by Tom Lopez, executive producer at ZBS and the executive producer of the series.

The production

"The Mist" is a horror story about a small town that is beseiged by a storm, then encased in a dense mist which conceals a coterie of powerful—and very unfriendly—monsters. The creatures terrorize the town, and trap many of the townspeople in a supermarket.

The scenes take place outdoors, in a supermarket, and in a house. Lopez had to choose between studio and on-location recording to enact these scenes. He chose the more realistic approach, and

Canon in Action at the 1984 Olympics

The world saw the Games through Canon Lenses.

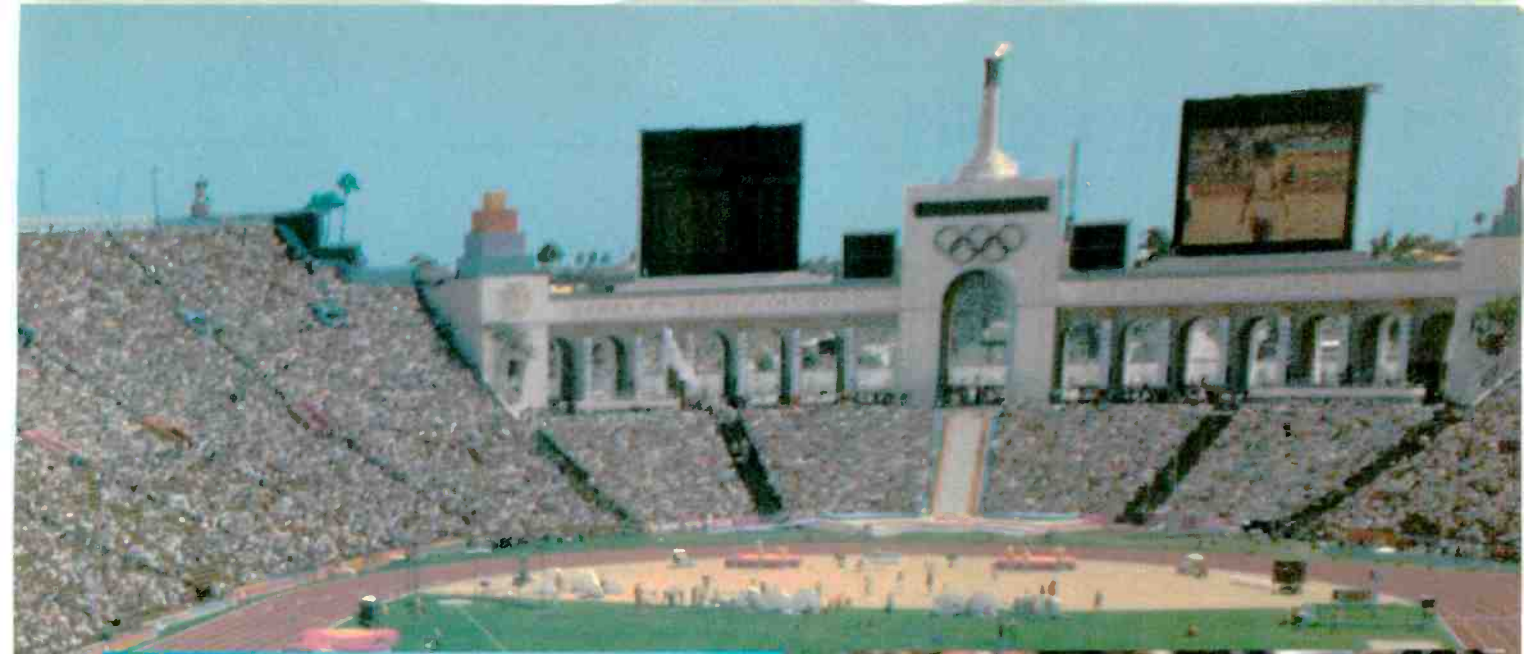
For 16 days during the summer of 1984, the world saw the Games of the XXIIIrd Olympiad through Canon TV lenses.

From a crane high above the Los Angeles Coliseum, a Canon PV 40 x 13.5 was able to show the spectacle of the Games unfolding, and with its awesome 40X reach, isolate a single athlete on the field.

At venues throughout Southern California, a total of 135 Canon lenses captured every aspect of those rare moments that are now sports history. ABC cameras were equipped with Canon PV 40 x 13.5, PV 25 x 20 and PV 18 x 12 lenses. A Canon J20 x 8.5 was used on ABC's Super Slo-Mo camera, while a Canon J25 x 11.5 was shooting aerial pictures from the Goodyear® blimp. ENG camera operators used the Canon J13 x 9BIE and the incredible new J18 x 9BIE for the extra reach that brought us face-to-face with the competitors.

Canon broadcast lenses were also the choice of many independents on the scene in Los Angeles, because Canon's proven performance and reliability assured them of getting the shots they needed at this once-in-a-lifetime event.

If you watched the 1984 Olympics, you've already seen the most spectacular demonstration of Canon TV lenses we could possibly arrange. But we'll be happy to do another just for you.



PV40 x 13.5BIE

PV40 x 13.5BIE and PV25 x 20BIE

J13 x 9BIE

PV40 x 13.5BIE and PV25 x 20BIE

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West Coast Office: 123 Paularino Avenue East, Costa Mesa, Ca. 92626 (714) 979-6000
Canon Canada, Inc., 6390 Dixie Road, Mississauga, Ontario L5T1P7, Canada (416) 678-2730

Circle 116 on Reader Service Card.

taped most of the show on location. The ZBS facility was used primarily for post-production: An Otari eight-track recorder, with dbx noise reduction, was used for "multitracking" the material which the ZBS crew recorded during production on a Sony PCM F1 digital Beta machine.

The 90-minute show was taped, according to Lopez, like a film. The six-person crew, which consisted of Lopez, associate producer "Phoenix," director Bill Raymond, sound recordist Bobby Bielecki, and two assistants, recorded scenes one at a time, location by location. According to Lopez, Raymond would "block out" the actors (there were about 35 of them), and direct them as they moved around Fritz.

The Kunstkopf head, nicknamed Fritz, has microphones in its "auditory canal."

As Lopez points out, the binaural device captured that movement and frequently changing spacial relationships better than a conventional studio setup, "where you create spacial effects with digital delay or something else."

It was Bielecki's job to position Fritz. He was also responsible for placing Fritz on a boom and moving with the actors.

Sound effects

Most of "The Mist's" effects were created on location—by the two assistants—as the scenes were taking place. In fact, nearly all the sound was recorded this way, because, says Lopez, "Spacially it's different if you try to do it later in the studio in stereo. Stereo comes out very flat-sounding."

Often, the dialogue (most of which was recorded in a huge basement chosen for its acoustic similarities to a supermarket), and effects such as breaking glass, were recorded simultaneously on location. Actors might be talking "downstairs" while a window shatters "upstairs," for instance.

Ambience such as the sound of a car, and dialogue, were also recorded together in a couple of instances. A crew member simply got in a car with some actors, Fritz, and the Sony system to do it. Lopez says the portability of the Sony system—which is actually a digital processor and a two-track Beta recorder—made that and several other scenes possible.

Of course, some of the car scenes could not be recorded in one take—there was not enough room in the car

ONE BOX.

The MCX-106 Powered Recording Mixer gives you more functions than any other portable system.

WE STARTED WITH THE BASICS.

That means 6 input channels, each with trim control, LED peak indicator, and 3-band EQ. . .a stereo tape deck with dbx noise reduction. . . compression circuitry with an LED indicator. . .a full-octave graphic equalizer with a bypass switch. . .

. . .and so you can keep track of what's going on, there's a headphone monitoring system and flourescent, assignable bargraph meters.

But that's just for starters.

MORE THAN A MIXER.

Four mixers, in fact. The MCX is an independent on-stage monitor mixer.

It's an effects mixer. Every channel has its own post reverb/effects send.

It's a main house mixer, with an extensive patch bay and an assignable auxiliary input.

And finally, it's a stereo recording mixer. A full-function, microprocessor-controlled cassette deck lets you record live performances, mixdown from multi-track, copy from masters, and do voice-over taping or sound-on-sound with the "pannable" aux input.

YOU CAN TAKE IT WITH YOU.

The MCX isn't another home-recording "ministudio." With its built-in, 300W power amp and tough road enclosure, it's a go-everywhere, do-everything record/mix/playback system.

Take the MCX out on-the-road to record a live performance, then into the studio to create a demo tape. Or use it to *simultaneously* mix pre-recorded material with live singing tracks.

The MCX belongs wherever pro-quality audio is important.

FREEDOM OF CHOICE.

Employ the components of the MCX in one integrated system, or use them as separate and independent tools of production. Or put the MCX to work with other audio gear, using the patch bay for all your re-routing techniques.

The MCX-106 provides a sound foundation for your musical recording project — your live performance — your multi-media presentation — your A/V training film — or your video post-production strategy.

In just one easy-to-use, easy-to-move box.

Find out how much more the MCX-106 can do for you; call or write for our Applications Guide and complete technical data:

TOA Sound & Communications

TOA Electronics, Inc., 480 Carlton Court
South San Francisco, California 94080
(415) 588-2538

In Canada: **TOA Electronics, Inc.**
10712-181 Street
Edmonton, Alberta T5S 1K8 (403) 489-5511

for more than a couple of actors. So different elements had to be pieced together in post-production. Also, there were a number of effects that could not be produced on location; they had to be either created with or processed through a Synclavier (operated by Tim Clark), and then recorded, in a studio, with Fritz.

The Synclavier was used, for example, for a particularly complicated sequence in which spiders the size of dogs come out of the mist to attack the townspeople. For that, Clark manipulated, with the Synclavier, a mono recording of a Siamese cat. He did several different versions of the manipulation to create several "spiders."

The spider sounds were layed into the program later, in the ZBS studio. Actors were assembled around Fritz and blocked out, and the spiders were piped in through speakers.

The recording session wasn't as simple as that, however, because Raymond wanted to create a particular kind of pan effect, and that required experimentation. According to Lopez, Raymond wanted the spiders to surround the actors on all sides, and then leap on them. To get the effect, the crew spun Fritz around as the spider sounds were piped in.

Clark created a number of other effects with the Synclavier including giant insects, and a dinosaur bird-like creature. To produce the bird creature effect, Clark used a recording of a chicken flapping its wings.

In the story, the dinosaur bird flies directly—and very closely—over a car in which a number of characters are fleeing. When the effect was recorded with Fritz, Clark's Synclavier tape was played above Fritz, and it was slowed to half speed. As Lopez explains, "By slowing it down we were able to make it much larger as it passed over the heads of the people."

Clark also composed and recorded an original score for "The Mist" on the Synclavier.

Digital transmission

The eight-track post-produced master was transferred back to the Beta two-track digital format by way of the F1 digital processor to create the final master tape, a two-track digital recording. For the October 2 broadcast (which was actually just day one of a three-week broadcast, one 30-minute episode at a time), this tape was transferred to analog reel-to-reel. But on Halloween night, October 31, NPR will uplink the entire 90-minute digital recording of "The Mist" to its member stations at four different times, allowing the stations to rebroadcast it directly off the satellite without the need for additional analog recording.

According to Lopez, NPR will probably not use the digital master technique for the remaining segments of *The Cabinet of Dr. Fritz* but will go with the analog reel-to-reel tape instead. Other programs include Carlos Fuentes' "Aura," and Ishmael Reed's "Mumbo Jumbo." Lopez says he and Raymond will split the directorial duties for the remaining shows in the series. **BM/E**

Please note: September's Radio Programming & Production photo captions on pages 31 and 32 were inadvertently switched.

Ampex Listened When You Described Your Ideal VTR.

VTR SYSTEM DESCRIPTION

AMPE

TRANSPORT

- The VTR shall hav
- The VTR shall p
unthreading.
- The VTR shall
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CONTRO

- All con
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- The VTR
- The VTR shall be
- The audio electronics shall
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- The audio head stacks shall be constructed
stiction.

DIAGNOSTIC SYSTEM

- The VTR microprocessors shall perform continuous self-checks of system
warning LED if a non-standard or fault condition exists. The operator will be able
system code in the numeric readout to trace the fault to a particular assembly in the
- A logic probe shall be used in conjunction with the microprocessors in the VTR to troubleshoot all of
the integrated circuits which are in communication with the microprocessors.

VIDEO SYSTEM

- The VTR shall include Automatic Scan Tracking as a standard feature.
- The VTR shall be capable of disturbance-free variable play speeds from −1 to 3X.
- The VTR shall include video confidence head and circuitry to allow monitoring of the video during
record.

PACKAGING

- The VTR shall be modular in design to facilitate ease of servicing and to insure higher reliability.
- The VTR shall be offered in a variety of configurations to meet many space and budget criterion.

TIME BASE CORRECTOR

- State-of-the-art time base corrector design shall be utilized to attain a TBC performance matched to
the VTR.
- The TBC shall include integral dropout compensation, velocity compensation and color processing.
- The TBC shall be capable of supplying pictures at shuttle ranges of up to 500 ips, forward or reverse
- The TBC shall be capable of smooth, disturbance-free video in variable play ranges of −1 to 3X
normal tape speed.
- The TBC shall be capable of being time-shared between a ¾" VTR and a Type C 1" VTR.

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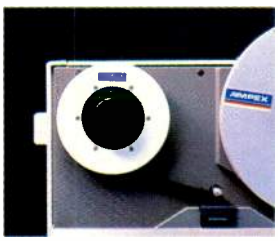

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Because you wanted play speeds from −1 to 3X normal and picture in shuttle, we also developed the new TBC-6 digital time base corrector, performance-matched to the VPR-6. Its 32-line memory and 28-line correction window are the largest in any TBC appropriate for a VTR of this type.

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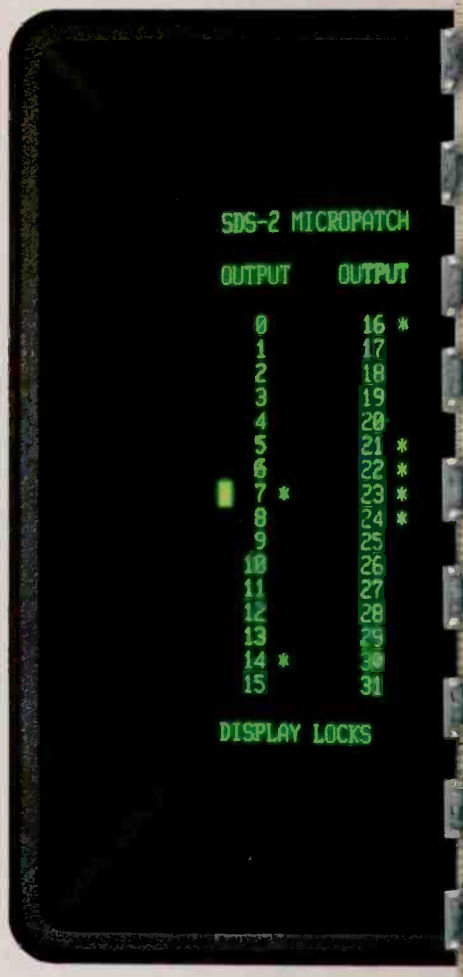

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Televising the Republican Convention

By Eva J. Blinder, Senior Editor

One of the biggest considerations for modern-day political conventions—as with so many other national events—is how they will appear on television. To insure a good appearance and the best coverage possible for its 1984 convention, the Republican National Committee (RNC) took two separate but related tacks: commissioning the design of an innovative podium, and setting up its own television network for gavel-to-gavel coverage of the proceedings.

During tests of the Eidophor projector, cameramen test their equipment. Assistant convention manager, Mark Goode, appears on the Eidophor screen. Photo credit: Peter Crawford/IFA.

Podium design

At first thought, designing a podium for a political convention sounds like it might be similar to building a very large news set. In fact, scale is the least of the differences. Hidden underneath the podium is a network of makeup rooms, waiting rooms, hallways, security areas, and other facilities. The speaker's position must be visible to everyone in an enormous convention hall, and the entire rostrum must be accessible to television cameras, which themselves must have unobstructed vantage points while remaining unobtrusive.

In addition, the Republicans wanted to break away from the traditional red, white, and blue convention decor while at the same time achieving a clean, modern look for the rostrum.

Early this year, after sending out a call for proposals that was answered by eight companies, the Republicans selected Imero Fiorentino Associates to design the convention podium. The choice of IFA was not surprising since the company has designed the lighting for the Republican and/or Democratic presidential convention every election year since 1960, and has designed stages and sets for numerous concerts, exhibitions, and television productions. The company had acted as consultants for many podium designs, and had designed the podium for the 1980 Democratic political convention at Madison Square Garden.

The Dallas Convention Center, about 900 feet across and 350 feet deep, with many supporting columns, created numerous sightline problems for designers Peter Crawford and David M. Clark, especially since the relatively low 30-foot ceiling dictated a fairly flat seating arrangement. The giant podium measured approximately 70 feet across and 40 feet deep (30 feet deep in the speaker area). The speaker platform was raised 16 feet in the air to allow the 17,000 spectators who crowded the hall to see. To avoid the feeling of a looming battleship, the upper areas of the podium were highlighted by broad bands of lighter colors, separated from the ground by darker bases. This served two functions: it lightened up the mass of the podium and simplified the lighting director's job, since light colors work better on television. The center area, containing the speaker platform, was emphasized with "cutout" areas on either side, making it appear to project forward.

The designers also chose what they termed "corporate warm tones"—i.e., browns and beiges—for both the rostrum itself and the hall. As Crawford noted, the flag-waving, banner-toting delegates were expected to add plenty of color.

Adding more color was a major feature of the podium: an Eidophor projector directly above the speaker's position, flanked on each side by three multimedia screens with Xenon projectors. The Eidophors and the six screens projected a variety of images throughout the convention: slogans, various elements of the RNC logo, maps of the U.S. and of the world. The light patterns started out in warm tones, with red, white, and blue increasing as the convention progressed. The actual patterns were designed by IFA's Crawford after IFA and RNC identified the themes in a series of meetings.

To be visible, the projectors required very high intensity illumination, approximately 150 fc from a pair of 5 kW lamps. These lamps also served to balance the 10K lamp lighting the speaker. A total of 1,300,000 W of light were needed to cover the floor.

IFA lighting designers for the RNC project were Carl Vitelli and Jim Tetlow.

Beneath the visible part of the podium, the various areas were color-coded to avoid confusion. For example, the highly secured areas were carpeted in red, with blue carpets used in the guest areas.

Televised proceedings

The physical setup of the convention rostrum, designed as it was with television in mind, afforded visibility not only to the delegates and spectators, but to the television cameras as well. Ten of those cameras carried the signal of the RNC Network, making coverage of the entire convention proceedings available to anyone willing to pay the $282.06 hookup fee (the feed itself was free).

Mark Goode of the RNC, who served in Dallas as assistant convention manager for program planning, states that this party-sponsored TV feed was a first for either party. "We wanted to make the proceedings of the convention as accessible to everyone as possible," he explains. The Republicans first came up with the idea for their own network sometime last summer or early fall, Goode recalls. After extensive discussion and planning, implementation began early in this year, with the official announcement coming in the spring.

Director of engineering for the RNC, John Leay of Imero Fiorentino Associates, checks details on the podium area. Photo credit: Peter Crawford/IFA.

Goode was responsible for all production aspects of the network; IFA's John Leay was director of technical services, and Donna Roseman was production coordinator. Facilities, including Ikegami cameras, and technical personnel were provided by Clearwater Productions of Dallas and YES Productions of New Orleans, whose trucks were linked together for the convention.

According to Goode, 37 organizations subscribed to the RNC Network. They included INN, Group W, Metromedia, Storer, Gannett, Taft, Times-

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Lighting directors Jim Tetlow (left) and Carl Vitelli, Jr. watch lighting cues. Photo credit: Peter Crawford/IFA.

Mirror, SIN, C-SPAN, and a variety of other alternative networks, group owners, and cable MSOs. Radio subscribers included AP Radio and Mutual, among others. The subscribers, in turn, fed a plethora of others; for example, MacNeil-Lehrer took the INN feed and PBS took the C-SPAN feed. In all, approximately 1000 TV stations, 13,000 radio stations, and 2500 to 4000 cable systems had access to the RNC Network feed. The networks also had access to the RNC feed in addition to their own pool coverage, but they used it little, if at all.

The RNC Network differed from the networks' coverage in that it was entirely free of commentary or reporting. Nothing was edited out of the proceedings, and the only voices heard were those of the speakers themselves. This gave local stations the opportunity to use items of purely local interest—for example, a speech by a state official—that were not available from other sources, such as the networks. Stations could add narration by their own reporters for completely localized coverage. They could go live with the feed or tape it for later use.

The cameras were placed strategically throughout the convention hall to provide the broadest coverage. One camera was positioned on the center camera platform directly in front of the podium, where the networks also had cameras. A pair of cameras were positioned high above the podium next to the Eidophor projectors for audience shots, and a hidden camera in back of the podium provided a view over the speaker's shoulder. A camera in back of the house provided a wide shot, and three cameras on the floor rounded out the coverage. In addition to these eight cameras, another one or two were deployed at various points outside the arena for specific events, such as coverage of the President's suite or of his arrival outside the convention hall.

In addition to the video, the RNC Network also provided the audio feed for all broadcasters, including the networks. The sound system for the convention was designed by Stan Miller of Stanal Sound of Los Angeles, and all miking (Shure mics were used throughout) in the operational part of the broadcast feed was done by Best Audio, also of Los Angeles.

"We were very gratified by the response" to the RNC Network, Goode states. While he has no figures on how much of the RNC feed actually made it on the air, he believes that providing the feed increased the on-air coverage of the proceedings. The RNC Network, combined with the efforts of IFA (who Goode says "did a sensational job"), helped insure the most possible viewers for the Republican's powwow. **BM/E**

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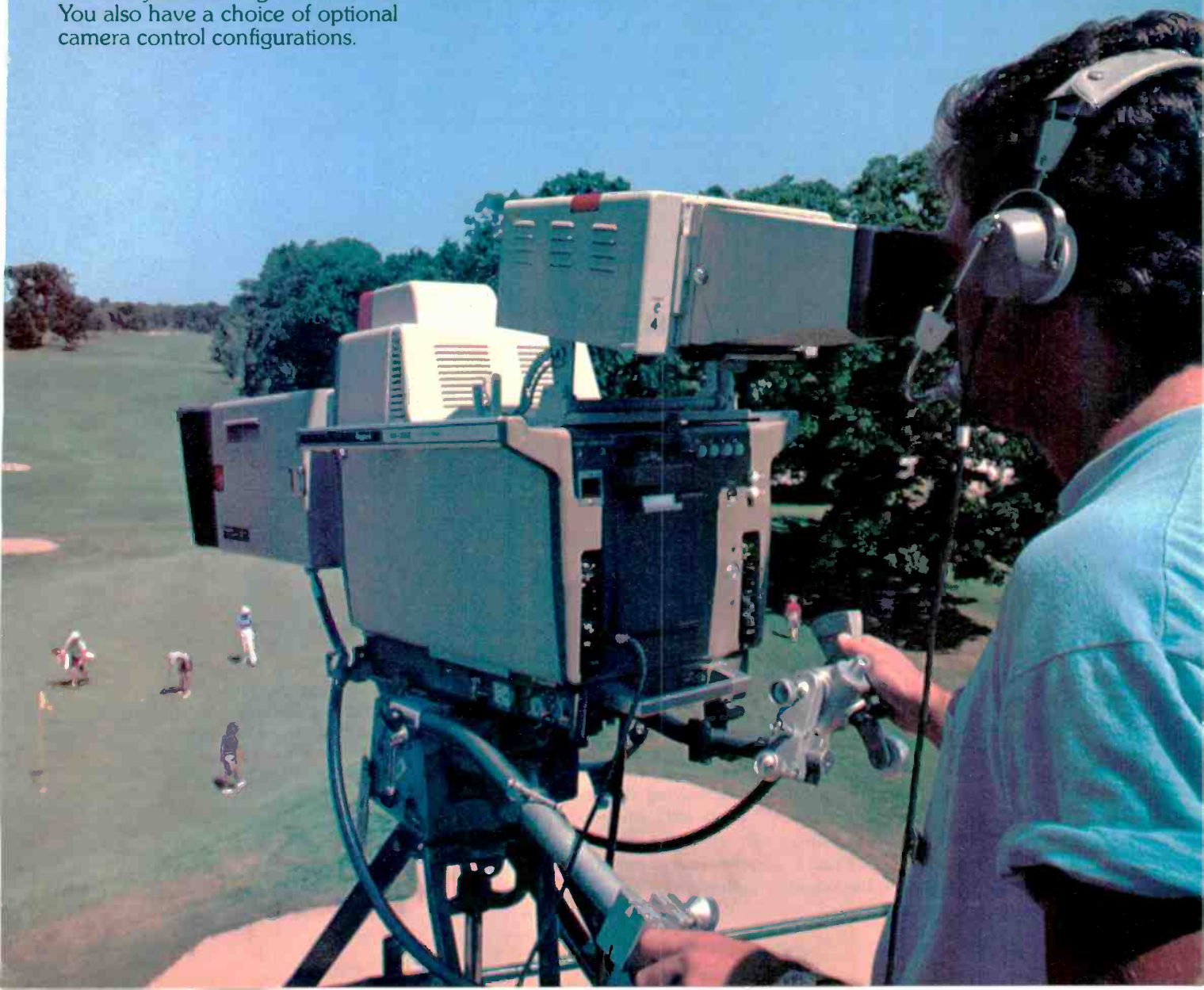


Convention Coverage

1984 may well go down in broadcast history as the Year of the Newsroom Computer. After four years of tireless knocking at the door, the newsroom computer is at last being invited into the broadcast newsroom, and no longer just at a handful of adventurous stations.

At least partly responsible for this upsurge in interest has been the political activity of this election year. The conventions, especially, demand that a news organization collect and collate huge masses of detail, a job for which computers are particulary suited. It is no wonder, then, that the Democratic and Republican political conventions saw a boom in newsroom computer usage, with various users trying everything from massive installations to tiny portables with modems.

Massive testing

The most extensive user of newsroom computers at the political conventions was NBC, which computerized its entire newsroom operation in both San Francisco and Dallas. According to Tom Wolzien, vice president of news production for NBC News, the network leased "close to 100 video display terminals and 20 to 30 printers" from Basys just for the conventions. These were tied to a similar leased system in New York via a two-way link that allowed the network to move files back and forth. Both the radio and television operations tapped the computer's power; according to Wolzien, NBC Radio operated completely off the computer, entirely eliminating paper scripts and reading copy off the Basys monitor.

"The convention served as sort of a Beta test site for us," Wolzien comments. NBC is firmly committed to computerizing its entire news operation, he says, although no final decision has been reached on what computer company to go with. The Basys system passed its test with flying colors, however.

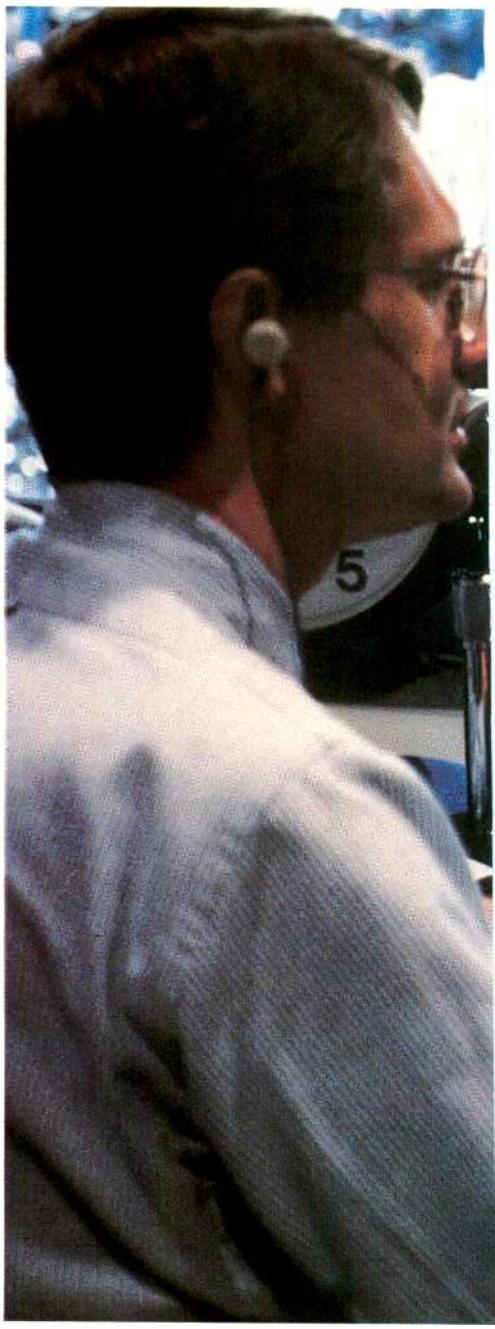
"It was successful beyond what we'd ever expected," Wolzien states. "It gave us a tremendous capability that we otherwise wouldn't have had." Among the computer's contributions to NBC's convention coverage:

- A full, instantaneously updated list of all daily affiliate feeds and their substance.
- An electronic mail system. ("People love it," Wolzien comments. "They send messages to people 20 feet away.")
- An updated daily activities log.
- Updated, to-the-minute information on candidate itineraries and convention schedules.
- A detailed data file on *all* convention delegates: their backgrounds, political leanings, affiliations, major issues. This file was in communication with NBC's election unit in New York City.
- All wire copy, including AP, UPI, Reuters, the German and French news agencies, the New York *Times* and Washington *Post* news services, and the internal NBC news wire that tied together the network's reporters, correspondents, and producers in the various hotels and other locations, all categorized as needed.
- Handling of all assignments, with any producer or crew member able to check on feeds and assignments at any time. According to Wolzien, this capability greatly cut down on the number of meetings needed and the number of mistakes made.
- A file on the convention cities, with hotel, restaurant, automobile, and emergency information for the staffs.
- Electronic versions of the "green sheets" from New York, editorial planning "lookahead" sheets for the next two weeks.
- A telephone book with up-to-the-minute information on every staff member and contact person.
- Last but not least, an updated log of what the other networks were doing.

"It reduced the chaos level substantially," Wolzien says. "Everyone had instant access to all information put into the computer."

He adds, "Most importantly, we 'mentally computerized' a total news organization almost overnight—people were leaving the conventions saying, 'When am I going to get one?' We cut through the fear and acceptability problems right away. Everyone is enthusiastic."

Whether that enthusiasm will trans-



The Basys newsroom computer system was a key element in NBC's coverage of both the Republican and Democratic conventions. The anchor booth, complete with terminal, overlooked the convention floor.

by Computer

By Eva J. Blinder, Senior Editor

The 1984 political conventions were a watershed event for broadcast newsroom computers. With resistance melting away at last, the newsroom computer finally may have its foot in the station door.

What you see above is yet another installment of TV's longest-running horror series: "The Lost Commercial."

The villain is the antiquated 2-inch cart machine—notorious for making valuable commercial air time vanish into thin air. And its appetite for destruction seems endless. Statistics show it's not unusual for a station to squander upwards of $15 million yearly on makegoods alone.

But the nightmare is ending. Because Sony announces the first real advance in cart machine technology in over a decade. The new Betacart™ multicassette system.

THE CART MACHINE VS. THE SMART MACHINE.

What the old cart machine tried to do by mechanical means, the Sony Betacart achieves through superior intelligence.

Microprocessors keep constant track of 40 cassettes. They maintain the alignment of the system's four BVW-11 decks and its elevator. They run self-check diagnostic routines.

And, in the belief that an ounce of prevention is worth many times its weight in makegoods, they solve problems before they occur—such as warning a technician that he's about to remove a cassette that's due to air shortly.

The Betacart is communicative in other ways, too. It's smart enough to guide your technicians through its operation, and will even interface directly with your station's main computer.

MAINTAINING MACHINERY VS. MAINTAINING PROFITS.

The end result of all this electronic

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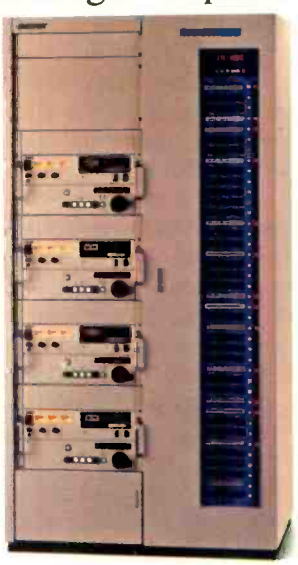
sophistication is the kind of mechanical simplicity that virtually eliminates breakdowns—not to mention the makegoods, excessive downtime and high maintenance costs that are generally part of the package.

And, as its name implies, the Sony Betacart uses Betacam cassettes—which cost less than a third of what 2-inch cartridges cost. Its format also makes the system ideal for ENG use during newscasts—thanks to its compatibility with the Betacam™ camera/recorder, along with its multiple video and audio outputs and freeze/instant-start capabilities.

All these advantages, plus its low initial cost make the Sony Betacart multicassette an investment that will pay for itself quickly. And it will keep paying off in new ways. Its stereo capability, for example, will allow you to capitalize on the coming introduction of stereo TV broadcasting.



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After all, to err may be human. But there's nothing divine about having to forgive a machine.

SONY Broadcast

NBC's convention newsroom was almost totally computerized, giving reporters access to a mass of information.

late into a major purchase order for Basys was not settled at press time, however. Wolzien makes it clear that NBC "has no formal commitment to any vendor at this time." He continues, "We are committed to computerization as rapidly as we possibly can." The enormous scale of the NBC project, however, which will require approximately 500 terminals to serve NBC Television, NBC Radio, and the owned and operated stations, is presently beyond the scope of Basys to provide. The final configuration is still under discussion, with one possible scenario being separate but compatible systems for the three divisions. As *BM/E* reported in the June NAB report, NBC has purchased and installed a Quantanews system with 22 terminals from Quanta Corp. What the final configuration of the NBC system will be, and who will get the contract, is yet to be decided.

"The Basys system has tremendous potential," Wolzien states, "but we need more talks with them. It's proven to be an incredibly easy system to use."

Cross-country link

The communications capabilities of computers allowed long-distance linkups that speeded news processing for several organizations. The convention-based operations of CBS Radio, News and CBS RadioRadio interfaced with the network's 20-terminal, leased Colorgraphics Newstar system back in New York, allowing the convention crews to function almost as if they were in the New York studios.

According to Larry Cooper, news director/executive producer for RadioRadio/CBS News, the network took seven printers to San Francisco and nine to Dallas, with three printers at each city. A satellite link with 14 7kHz circuits carried all convention sound to New York, where the staff would make the cuts and place them on a tape reel. The New York crew then entered all lengths, in cues, and out cues on a "tape sheet" in the Newstar computer, which was then instantly available at any Newstar terminal in New York or at the convention.

These tape lists allowed the script writers to request any piece of sound they desired and work it into their scripts. All scripts were written on Newstar at the convention sites, where many of the broadcasts originated (all taped sound originated from New York). RadioRadio, in fact, did all of its newscasts from the convention floor, while CBS News, Radio did its special reports from the floor. This setup—with reporters and anchors airing live from the conventions and sound bites originating in New York—obviated the need (and expense) for CBS to set up several tape editing rooms at the conventions.

The data link between the computers—a 16-channel, multiplexed high-speed line, backed up by conventional audio channels—allowed Cooper to maintain control of the operation from New York, talking to staff members via their computer terminals and maintaining instant access to all material, schedules, and scripts as they came into the system.

The CBS news staff has reacted well to the system, Cooper says. Anchor Charles Osgood "is a big fan of the computer," according to Cooper, and read his convention scripts directly from the Newstar screen. Scripts are generally printed out, however. Cooper's staff is required to use the Newstar terminals for script writing, and Cooper says that the computer lets the staff time newscasts accurately, including inserts of recorded material. Newstar automatically flags urgent wire service bulletins as they are received with both a visual message and a beep. (CBS takes the AP, UPI, and Reuters wire services through Newstar.)

In addition, the news department performs all assignment logging functions and stringer payments through the computer. The network's news bureaus have recently installed IBM PCs that can talk to the main computer, but the conversion at the bureaus is not yet complete.

"We don't have big rolls of teletype paper sitting around anymore," Cooper boasts. "People read in on the computer, select stories to retain and rewrite, write the scripts, and then print them out for airing."

Cooper, whose background in newsroom computers extends back to his days at KCBS in San Francisco several years ago, suggests that the reason CBS Radio was able to beat the television side in computerization was the smaller scale of the radio operation.

"First we got a small system just for the editors," he explains. "We gradually expanded it to include the producers, anchors, and writers, and then we added terminals for all the tape rooms." By bringing in the system in stages, they were able to avoid asking for an outsize capital expenditure at any one time. "TV is looking to get a system with 45 terminals in New York and 15 in Washington, with a satellite or dedicated telco link between Washington and New York," Cooper adds. "They're starting big, so they'll have to go to the board for approval."

Computer advantage

Two of the Bonneville stations, KIRO in Seattle and KSL in Salt Lake City, recently computerized their newsrooms with the Newstar system. Both found that the computer aided them in their convention coverage.

Mark Gardner, managing editor at KIRO-TV, says his station took two terminals to San Francisco and one to Dallas, each equipped with a modem

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CBS News correspondent Christopher Glenn reads a script from the Newstar monitor at the Republican National Convention. Glenn used the system as a floor reporter at both conventions, and also uses it in New York.

and a printer. "I would have taken two terminals to Dallas," he explains, "but I didn't have enough modems in the shop. I would have taken as many terminals and printers as possible."

Gardner adds, "My shop is probably one of the most computerized in the country." The station uses the computer for scanning all wire services and for virtually all word processing functions, along with electronic mail, data management, and some assignment functions. "We use it up to the point of show production," Gardner explains. "We print out the scripts, then stack and number then. We do not compose the show rundown electronically, but we do file it electronically." The station also has a terminal at its bureau at the state capitol of Olympia, as well as one at its DC bureau. Both can call up the Seattle computer to look at the local wire.

Gardner also credits the computer for "greatly" improving the quality of writing at the station. "It's so much easier to go in and change a phrase," he explains.

In addition, the computer may be giving the station a distinct competitive edge in its market. "I'm definitely getting bulletins at least five minutes ahead of my competition," he claims. "Combined with satellite retrieval over the UPI bird, the average national or state story is coming in 45 minutes earlier."

At the conventions, the KIRO news staff wrote and filed all scripts on the terminals. Gardner claims the computer aided them in producing thorough, professional coverage with a local angle.

"In Dallas, we concentrated on our local delegation. We roomed with them, ate with them, and stuck with them like flies on horses," he says. "Because of that, we had to rely on our network [CBS] to cover the national story. Through the computer, we could monitor the CBS Radio computer system and they could monitor us. I could also run what was going on back in Seattle from Dallas, talking to the staff by telephone and reading scripts on the terminal screen." He adds, "It would have been impossible for me as managing editor to take in the whole thing from the convention without the computer. I was much more effective, and the news team seemed more informed and intelligent."

The KIRO news team went live from the conventions for all 4:00, 5:00, and 11:00 newscasts, and even coanchored the hour-long 4:00 p.m. newscast from the convention. "You wouldn't know the talent wasn't in Seattle from the point of logistics," boasts Gardner.

Another advantage of the computer was the electronic mail capability, which allowed the crew to receive messages while they were out chasing stories, and the ability to call up the station's AP and UPI wires. "We got a lot of color and tidbits that otherwise we wouldn't have gotten," says Gardner. "Without the computer, we wouldn't have had wire access."

Sister station KSL, which installed a Newstar system with more than 20 terminals when it moved to its new facilities in April, also took a terminal to the conventions, although its use was less extensive than that of KIRO. According to assignment editor Kerry Larsen, the news crew filed stories by computer almost every day from Dallas via a modem, and the system operated "without a hitch." The station did not insist that reporters write their scripts on the computer until shortly before the Republican convention, to let people get used to the system gradually and in part because of some minor glitches in the main printer. According to Larsen, the station has encountered very little resistance to the computer among the news staff, who quickly learned to access the news wires.

Digital data links

Cable News Network, which has been computerized since its inception in June 1980, is obviously long past the experimental stage. Its system, consisting of 120 printers, wire service devices, and terminals nationwide, is "as far as we know, the largest one in the world," according to Rob Barnes, director of data resources for TBS/CNN. The system is used for wire scanning, satellite schedules and feeds, electronic mail, and word processing.

CNN took eight terminals to each convention, linking them to the main system in Atlanta via AT&T's DDS (digital data service) lines. The digital lines offered two advantages, Barnes says: they avoided the noise introduced by amplifiers in analog systems, and they kept out hackers, whose modems are analog. Each line had five drops, allowing two lines to serve the entire convention installation while providing two spare ports "just in case."

Two terminals in the editorial trailer kept track of all assignment rundowns and "troop movements"; a terminal in the tape operations trailer organized the huge amount of tape used for the coverage. Other terminals were located in the correspondents trailer, the "sky booth" at the convention site (one terminal on the first floor for the reporters and another on the second floor for the producer and writer), and in the anchor booth, where two terminals were built into the anchor desk on spring-loaded shelves so they could be stored during newscasts.

This last location mirrors the setup in Atlanta, where the main anchor desk is equipped with its own terminal, allowing the anchor not only to read

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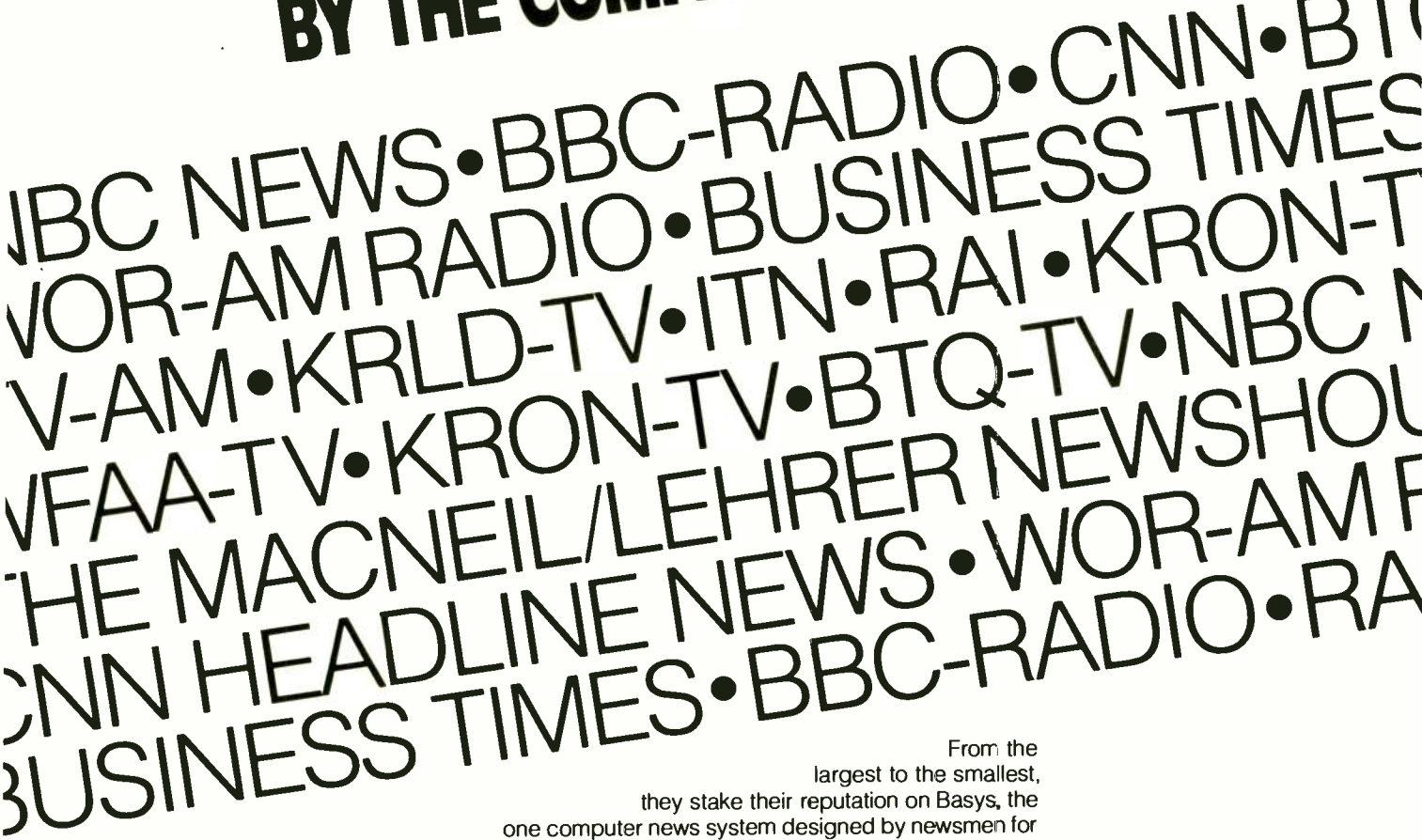

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WTLV's reporter, Gary Nelson, used a Radio Shack TRS-80 Model 100 portable computer to aid his coverage of the Democratic Convention. The battery-operated computer let him download scripts directly into the station's Quanta newsroom system.

scripts, but also to check bulletins, schedules, and rundowns. Barnes recalls a moment of doubt a few years back that turned into a triumph: Returning from a commercial break, the anchor on duty sat looking into the monitor for a good 30 seconds before turning to face the camera. (Barnes remembers thinking with a shudder, "Oh no, we'll have to rip the thing out!") Then the anchor looked at the audience and announced, "Ladies and gentlement, Mount St. Helens is erupting." The report had been aired almost as soon as CNN received it.

Barnes is very pleased with the user-friendliness of the Basys system ("I can teach anyone to use the system in 20 minutes," he boasts), although he shares some of Wolzien's concerns over its expandability. "I am urging Basys to go to a DEC VAX computer," he says; the bigger mainframe would allow CNN to expand to 300 to 400 terminals, which Barnes hopes to do by the end of next year.

"With the cost of labor going up dramatically every year, my whole mission is to help people accomplish more without having to work harder, and without having to hire more people to get it done," Barnes adds. He notes that the regular maintenance on the computer is scheduled for the "least impact" hours, usually early in the morning. Even so, "Whenever we do that, people come in an hour earlier because they know it's going to take longer to do their work" with the computer down.

Portable communications

With or without large installations at the conventions themselves, a number of broadcasters made particular use of portable computers, both for scripting and for communication with the station. An excellent example is WTLV, Ch. 12 in Jacksonville, FL, and an ABC affiliate. The station has had a six-terminal Quantanews system for the past year and a half, and uses the computer for all producer and assignment desk functions, along with archiving and messaging. The newsroom has not gone entirely electronic yet, however; at this time only about half of the news scripts are produced on the Quantanews.

"We felt we were psychologically better doing it in stages," explains station vice president and general manager Howard Kelley. "We hope that within the next year the newsroom will be totally computerized."

Kelley, who was news director at WTLV when the Quantanews system was first brought on board, sent reporter Gary Nelson to both the Democratic and Republican conventions with a Radio Shack TRS-80 Model 100 "lap computer," entirely unmodified. The battery-powered portable computer has built-in word processing software and, just as important, a built-in modem. Its small size makes it as portable as an electric typewriter.

Nelson wrote all his scripts on the Model 100. When a script was ready, he found a convenient telephone and dialed the station's computer, which automatically received his script. Once the script had been transmitted, he could also check his own electronic mailbox back at the station for any messages. At WTLV, the producer periodically checked the computer's convention file to see if the script had been received, after which it would be reviewed, have leads added, and be printed out for the newscaster. The system saved telephone costs and labor since it was unnecessary to tie up phone lines or personnel to dictate scripts.

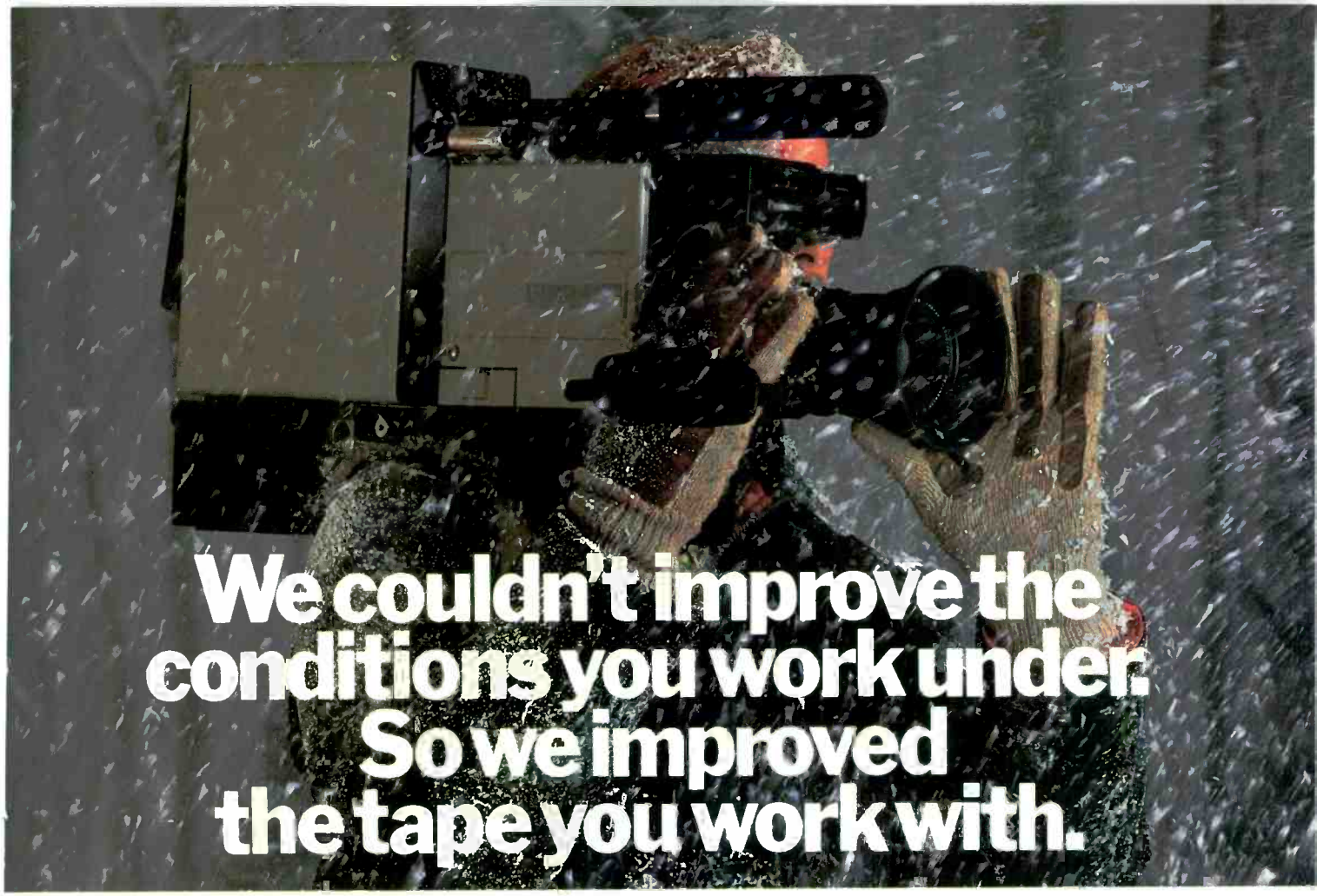
"Especially in San Francisco, with the timeshift problems, the computer made communications much simpler," Kelley adds. The Model 100's 24K memory proved adequate for the reporter's needs, Kelley says, and the computer was simple to learn.

"The reporter got one hour of instruction on the Model 100 before he left for San Francisco," Kelley says, although he notes that Nelson was already conversant with the Quantanews system. "I think he went out with a lot of doubt in his mind about the system," Kelley continues, "but he was sold on it within the first 24 hours."

Another station that has made use of portable terminals is WBTV in Charlotte, NC, which has had the Jefferson Data newsroom computer system for the past four years. WBTV managing editor Graham Wilson says the station has 15 terminals, plus terminals in each of its three remote news terminals. (He notes that WBTV reporters haven't used typewriters for the last two and a half years.) The system also handles assignment functions and feeds the teleprompters.

For the political conventions, the station took along a Teleram Communications Co. Portabubble/81 portable computer, which has a built-in modem. The station had already successfully used this portable for other remote stories, such as the Knoxville World's Fair and the opening of Epcot Center.

"I've used the computer on both ends, both out on a story and here in the newsroom, and it's by far the best way to handle a remote story," asserts



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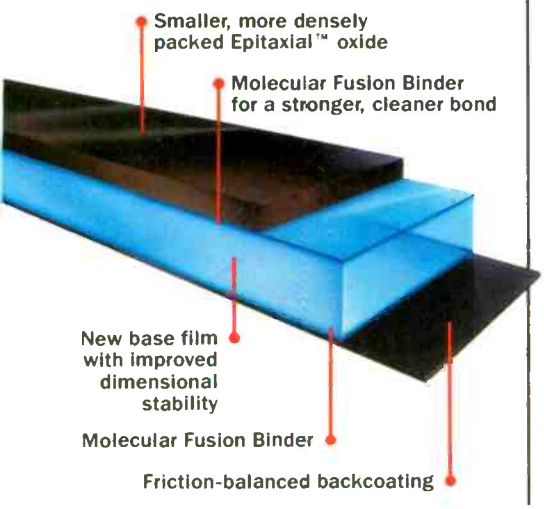

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Wilson. For him, the bottom line is that his reporters weren't spending time reading their scripts over the telephone. The station's procedure was to have the reporter transmit a script directly to the station's computer via a modem, then telephone the station to check that the script was received. Wilson says the station has rarely experienced problems with transmission, either with the Portabubble or with the IBM PCs at the bureaus. One limitation of WBTV's setup at this time is that the remote terminals are capable of only one-way transmission, sending material to the station's computer but not retrieving it. According to Wilson, plans to remedy that situation are in the works. "I'd love my bureaus to have the wire services," he says.

That limitation may account for Wilson's feeling that the computer gave the station only a slight competitive edge at the conventions. The convention crew was "able to feed us last-minute changes or advance lineups," keeping the station staff up-to-date, but they did not have access to material in the station mainframe.

Other users have also experimented with the Radio Shacks and other portable computers. According to NBC's Wolzien, "a couple of correspond-

More Newsroom Systems Enter Market

Along with the increase in sales and usage, another sign that newsroom computers are coming into their own is the recent introduction of several new systems. Some of these systems will be briefly described here.

Telesource Communications Services, Inc., of Phoenix, AZ, first introduced a limited version of its BUZ Series 200 newsroom computer system at NAB last June. The full system is expected to be on view at RTNDA later this fall. Unlike many of its counterparts, the BUZ system is based on a local area network concept that allows it to do away with a central processor. Each terminal serves as its own processor, armed with a Motorola 68000 microprocessor. All functions are located within each terminal. They include: wire service capturing; assignments; show rundowns; story writing and editing; scripting (a split-screen display shows text on one side and instructions on the other); indexing; story library; automatic feeds to a digital teleprompter; and a "talk" function that allows interactive communication between any two terminals, with a split-screen display of the "conversation."

Besides terminals and printers, the other major piece of hardware is the "file server," essentially a storage processor with an eight-inch Winchester hard disk. Users file their stories in the file server to make them accessible to the rest of the system. Up to 254 devices may be attached to the system, with all connections by coax. Workstations may also be set up at remote sites, with full two-way communications capability.

Telesource is presently in the final negotiation stage with a Phoenix radio and television station for the installation of a pair of BUZ systems, each probably serving eight users.

Originally developed for U.S. overseas radio services Radio Liberty and Radio Free Europe, the Newswire 2000 system from ANT Telecommunications of Hollywood, FL, is now being offered to other broadcasters. This newsroom computer system was primarily designed for radio, but is being redesigned for television users. Its origins perhaps show most clearly in its multi-language capability: it can be programmed to handle about 40 different languages (two per terminal), and a user can perform simultaneous translations on a split-screen basis, displaying text and translating on-line.

The Newswire system, as its name implies, can capture incoming wire service feeds and do keyword searches, and has full word processing and text editing capabilities, including the split-screen translation feature. It also has electronic mail and interterminal communication features, with urgent, normal, and private mailboxes assigned to each user. Newswire is based on a dual DEC VAX computer system for reliability, easy maintenance, and expandability. According to the company, as many as 1000 terminals may be connected into the system. All of the hardware, including the operating systems, is standard, off-the-shelf equipment for ease of service.

The Megadata Corp. terminals used are designed for newsroom functions, with high-resolution, easy-to-read displays and a keyboard well suited to editing functions. Many of the functions may be performed by punching a single key.

Radio Free Europe and Radio Liberty have been using Newswire 2000 since June 1983 at their Munich, West Germany, headquarters. The stations' bureaus in Washington, DC, are expected to be computerized soon and to be linked via satellite with the Munich facilities.

Another new player in the newsroom computer arena is an apparent natural, United Press International. The agency is offering to its subscribers a complete news and business system based on the Zenith Z-150 personal computer, with proprietary software designed by UPI.

The software for the UPI 1 computer system is available for lease at a very low monthly fee when a station signs a new five-year contract for UPI's news service.

The system, of course, will receive wire service transmissions from UPI and others and will categorize them according to keywords. Two stories may be edited simultaneously with a split-screen display. Stories may be automatically updated with the latest version, and local copy can be merged with wire copy. In addition to full editing functions, the system corrects spelling automatically. It will also estimate the length of a news program and feed a teleprompter, and it can receive transmissions from portable computers. In addition to the newsroom functions, the UPI 1 system has full business and traffic software.

Apparently expecting success with the system, UPI early this year announced plans to buy 6000 of the Zenith PCs.

Station managers wary of the cost of computerizing the newsroom might want to consider the software packages offered by Media Computing of Phoenix, AZ, designed to run on Apple, IBM, and IBM-compatible personal computers. According to the company, a station can have the foundation for an automated newsroom for less than $5000.

Three software packages are offered. The first, Producer's Rundown, calculates backtimes and allows changing of content, with special highlighting of lines and status line display. The Assignment/Archives program, in addition to its obvious functions, features electronic messaging. Four levels of password security limit access to files as necessary. The Large Print Script Writer program creates prompter scripts in extra-large, easy-to-read characters and includes full word processing capabilities.

Media Computing also offers a hard disk option for users tired of loading and unloading floppy disks.

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ents," including Atlanta-based David Hazinsky, have tried the Model 100 computers, with "mixed success": the computer has functioned well, but its memory is a little small by NBC standards. Cooper says that some CBS Radio correspondents use the Model 100 to check into their electronic mail addresses, but that the portable computers are not yet used to ship copy.

At CNN, too, Barnes confidently predicts that the network will be using portables regularly within a year. "You can use any lap size computer with the Basys system," Barnes comments, "but we're waiting for the next generation of lap computers." Exactly which portable computer CNN will go with has not been determined; Barnes has some interest in the Apple IIc, which he says will probably weigh about 10 pounds in its soon-to-be-introduced flat-screen version with full-size 80-column display.

One problem that concerns Barnes is security. "If you can call into the system from any phone booth, it means hackers can get into your system too," he warns. (One of the advantages of the DDS telephone lines CNN used for convention coverage is their imperviousness to hackers, who have analog modems.) He is looking at a sophisticated protection scheme that would require a reporter to call the computer, type in his or her own identification number, and then hang up the phone. The computer would then check if the call was from a valid user and call back at a prearranged number for the transmission. This system will be tested on a small scale later this year by a reporter assigned to the White House, who will communicate with CNN's Washington, DC, bureau via a Macintosh personal computer.

Managing editor Mark Gardner prepares a script for KIRO-TV's Eyewitness News at the station's Newstar system.

Why now?

Newsroom computers have been on the broadcast market for about four years now, and the first systems have been in place almost that long. Why, then, has it taken until now for acceptance to increase? Why have broadcast journalists, unlike their print counterparts, resisted this technology so vehemently?

Several users offered opinions on why progress has been so slow. "In television broadcasting, we were preoccupied with the changeover from tape at the time newsroom computers were introduced," Wolzien suggests. "That was the same time the newspapers were changing over to computers. Now that the switch to tape is basically complete, and the level of capital being sopped up by that conversion is reduced, people's minds are turning to computers." Wolzien adds that as more individual employees buy home computers, internal pressure to computerize increases.

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WBTV's Wilson agrees. "People aren't as afraid of computers anymore," he points out. "With all the home computers around, people are more familiar with them." He adds, "Stations are starting to budget for computers. The question now is not, 'Should we get one?' but 'Which one should we get?' "

Gardner of KIRO thinks some of the industry skepticism was the direct result of a disastrous accident with an experimental newsroom computer system installed at KSL-TV several years ago. "It scared the industry," he states. Since then, positive experiences at other news organizations, notably the pioneering CNN, have tempered the hostility of many news directors towards electronic news systems. "As news directors and station managers become more familiar with computers personally they're more likely to go into it," he adds. Another factor that may have slowed the growth of broadcast newsroom computers was the recession, he suggests.

"Nobody wants to be a pioneer," adds CNN's Barnes. "They all want to wait for the bugs to be worked out." While he certainly isn't speaking about CNN or the other early users of newsroom computers, his words have validity in a cautious and strangely conservative industry. The trail has been broken, however, and the success of stations who dared to computerize is beginning to be felt in the industry at large.

The movement toward the electronic newsroom may be gradual, but it is picking up momentum as station managers and news directors lose some of their fear and gain an understanding of the computer's competitive advantages. With budgets loosening up at many radio and television stations, computers are looking more and more attractive. **BM/E**

Colorgraphics Newstar system in use at KSL Radio, Salt Lake City. KSL-TV and sister station KIRO, Seattle, also use Newstar.

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"We've had nothing but the greatest success. Our FM-25K ran four years non-stop on one tube. Sound quality is critical to us, and the Harris MX-15 exciter is remarkable. If we bought another transmitter tomorrow, this is the one we'd buy."

Ask Warren Shulz,
Chief Engineer,
WFYR-FM, Chicago, Illinois

"Our FM-25Ks have logged over 12,000 hours in alternate/main service at our Sears Tower site since December of 1982. When I am conducting an audio proof, it's encouraging to know that the FM-25K and the MX-15 are always performing better than spec. And any time help was needed, Harris service people were accommodating and pleasant."

Ask Tom Jones,
Chief Engineer,
WBAM-FM, Montgomery,
Alabama

"We're quite pleased with our FM-20K. Down time has been minimal. And I can count on immediate parts availability—not like the runaround you get from some manufacturers. I've been dealing with Harris for years; Harris is the best overall choice."

Ask Steve Lampen,
Chief Engineer,
KJAZ-FM, Alameda,
California

"After talking with other engineers, there was little question I wanted the Harris FM-2.5K right from the start. The transmitter worked perfectly after a difficult installation in a very tight location. It's very easy to tune. The exciter sounds clean and gorgeous on the air. Even non-technical listeners have noticed the difference."

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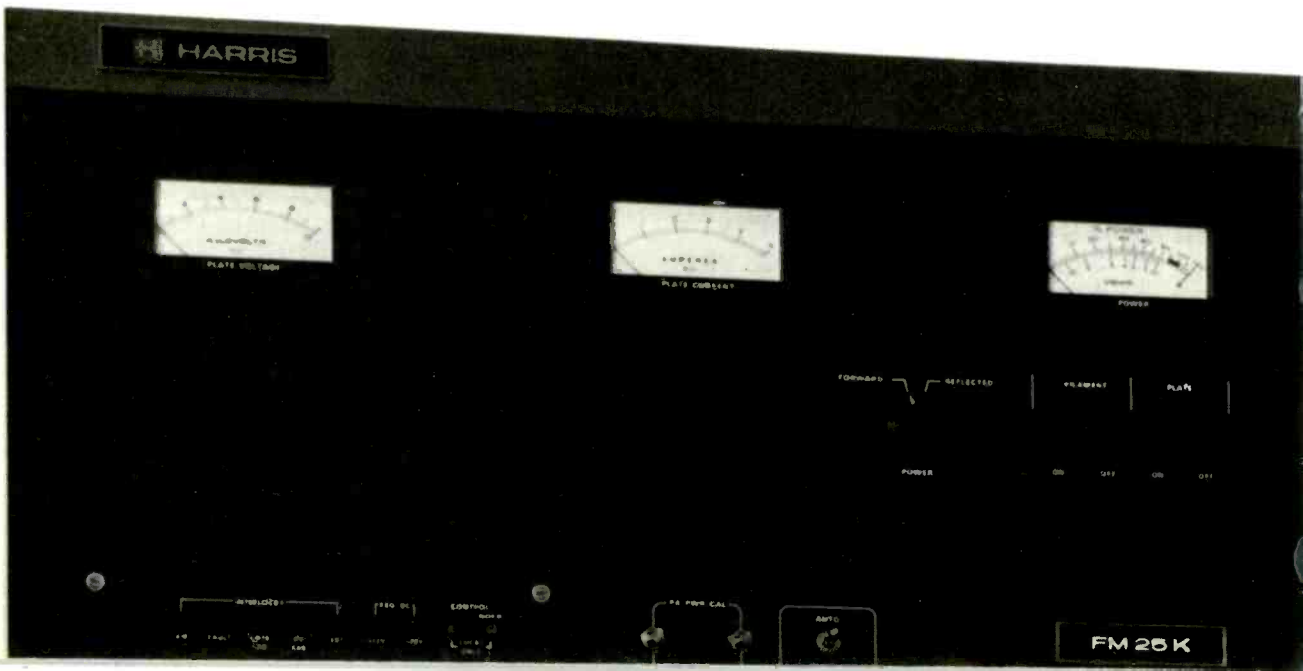


Automated Control Rooms Advance Satellite Networks

By Ivan Powers

As the traffic on the birds increases, computerized control rooms are taking shape to accommodate the density and sophistication of burgeoning satellite time demands.

Broadcasters have discovered that, thanks to the AT&T divestiture and an inflationary economy, doing business by land lines has become a very costly way to distribute and originate programs. Many in the industry have discovered that the satellite alternative pays off in more ways than one—with advantages in cost-effectiveness, versatility of programming availability, and signal quality. As a result, more and more radio and television stations are installing receive and transmit capabilities and, in turn, find themselves examining the broadcast program marketplace.

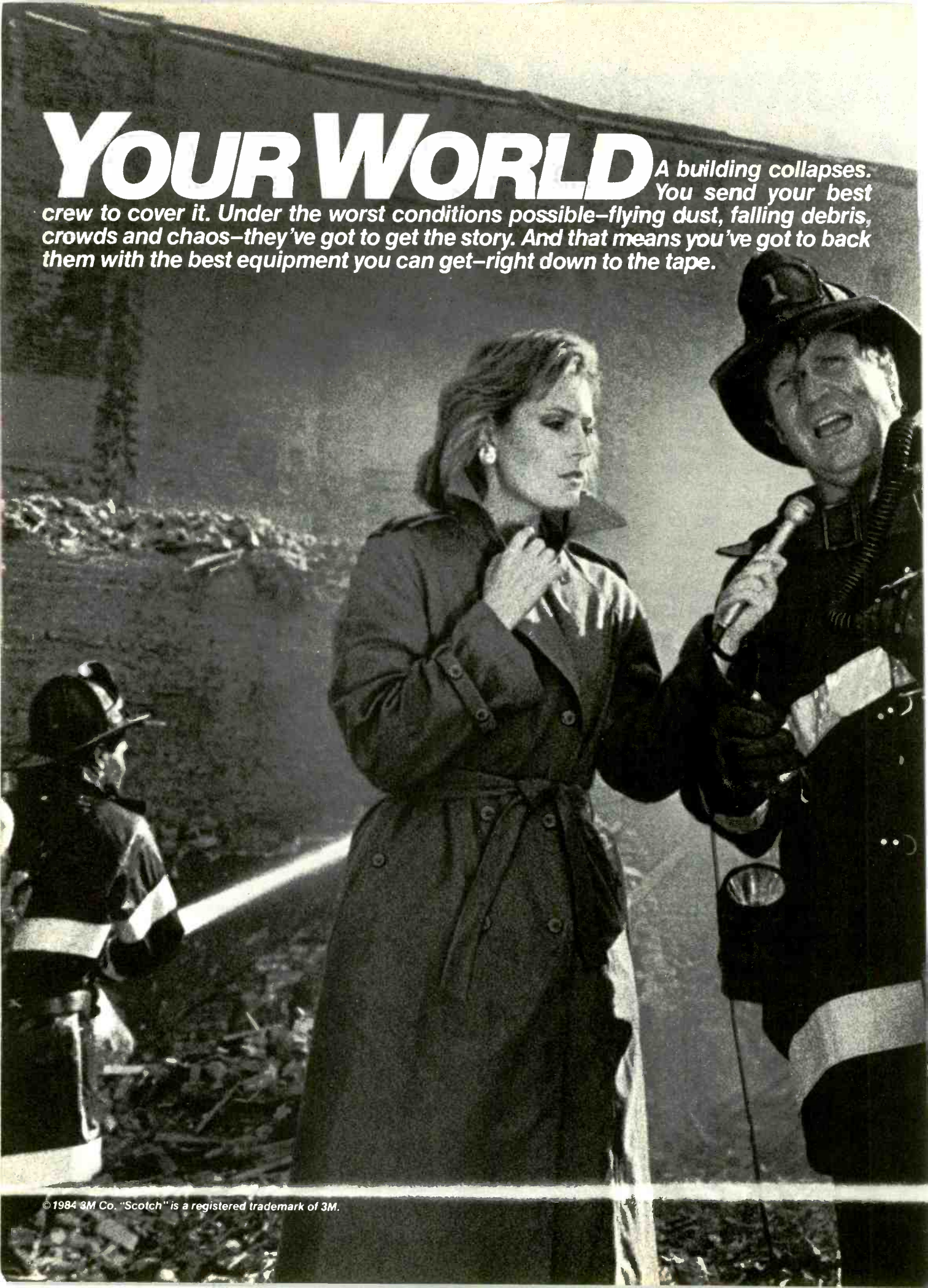
With this increasing volume of satellite traffic comes a need for satellite service vendors to maintain a more sophisticated control over their network of uplinks and downlinks, and to keep track of inventory on the transponders. Several vendors have developed a few basic types of control rooms designed to meet the currently expanding demands for time and space. Some automated control systems are configured to handle only local or single location uplink/downlink centers. Others are designed to interface two or more local centers, and a very few are intended to control multi-center, national uplink/downlink integrated facilities.

Local center automation

Local transmission centers are designed to handle a limited flow of traffic, as the first step in a large scale plan, or to enhance the existing operation of a teleproduction facility. The latter most aptly describes the thinking behind the Metromedia Satellite/Broadcast production complex in Hollywood, CA. In addition to housing production facilities for major television shows and commercial productions, the complex is home to three Metromedia broadcast stations and three satellite antennas.

At Metromedia's satellite complex in Hollywood, a Harris 9165 earth station facilities controller runs three separate earth station antennas that serve outside customers as well as Metromedia radio and television stations.

Ivan Powers, *a freelance writer, is employed at a major satellite service company.*



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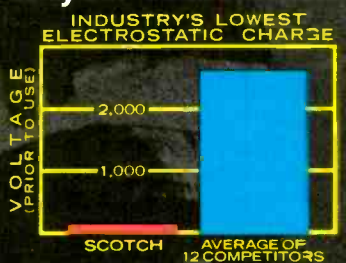

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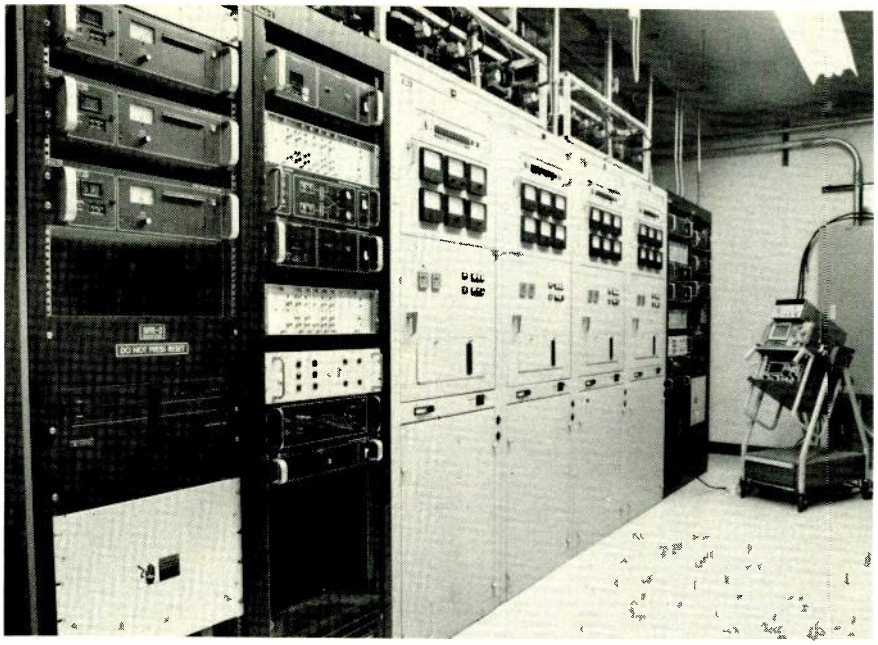


The Metromedia facility is capable of offering clients full service from program inception to satellite reception.

Harris Corp.'s Broadcast and Satellite Communications divisions combined to accomplish the turnkey package that not only provides uplinking and downlinking capabilities, but also proves advantageous to Metromedia's KTTV-TV, KLAC-TV, and Radio 570 along with KMET-FM, 94.7.

The antenna system consists of two nine-meter uplinks and a 6.1 m TVRO (receive-only). The three antennas are controlled from a satellite master control center contained within the Metromedia complex. Recently, a 4.5 m downlink has been installed to service the radio stations with network feeds, because the radio networks have recently gone to satellite distribution of all programming.

Mark Fehlig, sales manager for Harris's Satellite Communications division, explains the central component of the control system. "A three-site Harris 9165 Advanced Earth Station Facilities Controller provides the master control operator with a computer-type control terminal which displays all functions and provides access to commands for the earth station system," Fehlig states.

Three antennas, with three separate control sites, are run by the 9165 controller. Each site is capable of operating eight satellite video receivers, four satellite video exciters, and four klystron high power amplifiers (HPAs). The controller is organized at each site to offer 25 preprogrammed satellite antenna positions. The terminal also provides 64 time functions and up to 112 status inputs, 112 control outputs, and 56 analog inputs with complete dual tolerance alarming.

An important component in the system is the use of floppy disks for hard memory storage. The preprogrammed dish positions and various other control factors can be completely redescribed for all three sites with the simple change of disks. An automatic logging system offers a printout verification of all operations and alarms within the system.

The real value for Metromedia has been the ability to offer to clients a satellite transmission and reception facility equal in quality to its production capabilities. Metromedia can offer a producer or syndicator completion of a show from program inception to satellite reception. Currently the system is not fully booked, nor is it paying for itself. Still, the purpose of completing a fully outfitted teleproduction facility with everything from triax cable to transmission facilities has been accomplished and gives the company a necessary advantage in a competitive marketplace.

Large automated networks evolve

As the established national broadcast program networks develop with the use of satellite distribution, and syndicated programs become more desirable for both affiliates and independents, a system of geograhically diverse uplinks are desirable for broadcast clients. Along with such a system comes the necessity for a totally automated, remotely controlled system to manipulate each component while keeping traffic inventory for billing, maintenance, and operations. A good example of such a system is being implemented right now by Bonneville Satellite Communications.

Bonneville, based in Salt Lake City, UT, has perhaps the largest of the automated control rooms currently operating an uplink system in conjunction with transponder capacity, downlinking availability, and local origination production capabilities. Serving as the "mind" of such an expansive system is the newly designed satellite network control center.

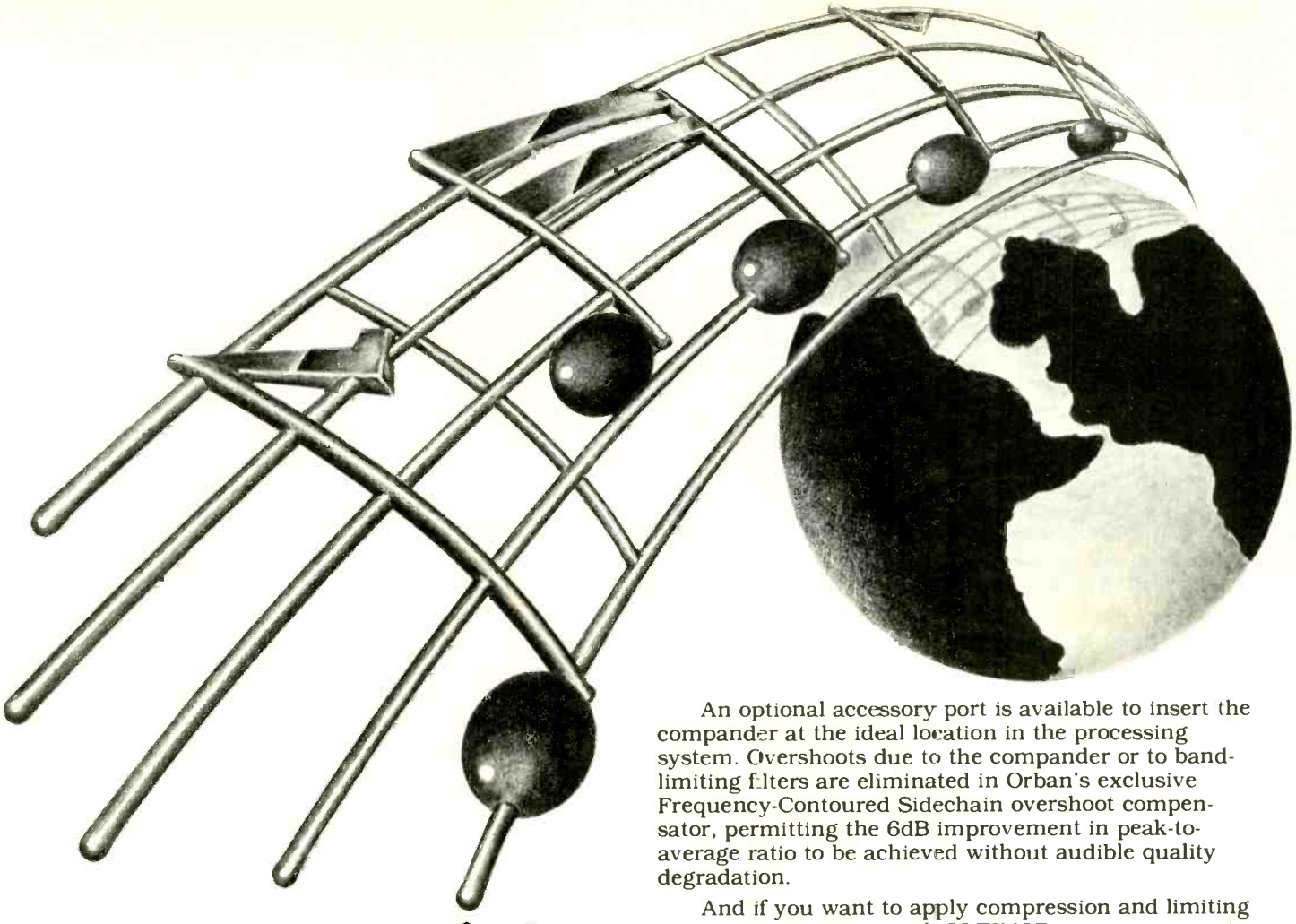
Two Bonneville uplinks are equipped identically, using 10 Scientific-Atlanta dishes and remote control SA busses to operate the facilities in both the Salt Lake and Washington, DC, areas. A computer terminal with software developed by Scientific-Atlanta is the center of the control system, while the bookings and satellite inventory are kept on an HP 3000. The uplink in Salt Lake is three or four miles from the TOC (Television Operating Center) with the control channel for the equipment located on a dedicated hard line to the uplink site.

The remote control allows the control room to switch the HPAs and receivers at any time and also permits a status check of all switches and components in addition to the power being used to uplink video. All information is displayed on the terminal's CRT with no hard copy printout currently planned. In addition to the remote control bus, the TOC includes a 30 x 30 Utah Scientific routing switcher that controls signal inputs from the Triad Center in downtown Salt Lake City. The input from Triad is on a direct fiber optic link to the control room. There is also a 23 GHz microwave to handle other feeds from around town to the control area, with an 11 GHz system connecting with the uplink itself.

Along with the Utah Scientific routing switcher go two separate control pads, one with an LED readout for status and monitoring and an additional one next to the control console itself for entering the routing of incoming signals to the TOC. All functions pass through and are controlled by the TOC, which contains the control room.

Nationwide control system arrives

Though many companies have had automated satellite uplink center control



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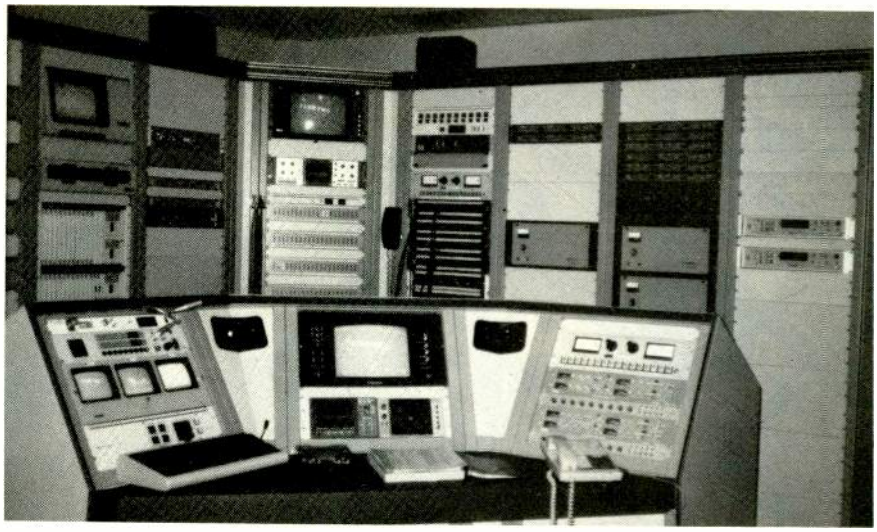

Scientific-Atlanta developed the software for the Bonneville satellite control system, which may be the most advanced one in current operation.

rooms, none has had a truly national system of automation control from a single point until now. Meadowlands Communications, currently operating five separately located but identically equipped earth stations, has developed a computerized control system that incorporates everything from billing to booking, and from status to security. Since the nationwide system was seen as a necessity to maintain quality control over its many sites, a heart and a brain had to be devised that would allow constant and accurate control over a system that would see very heavy use and that needed constant monitoring (none of the sites, other than the one at the Rutherford, NJ, headquarters, was going to be staffed).

The heart of the control system is a unit developed by AT&T called the ESR, or earth station remote. With this in mind, and with AT&T's vast resources, Meadowlands decided to have AT&T execute the turnkey package for all planned uplink centers, each to include the ESR, Varian HPAs, M/A Com DPTs (digital modulator/demodulators for the digital audio system), and a Tektronix Answer system along with a host of other state-of-the-art equipment. The Answer system helps the ESR run diagnostic checks any time a component in the shelter is fired up. If, for example, a difficulty arises during the transmission of an event, the Tektronix can detail, in hard copy printout, how the signal entered the earth station and how it left the shelter, aiding in determining the source of the problem.

Still, it is the ESR which is the base of the system and which communicates, through the satellite as well as through a backup dial-up system, with the ESRs contained within each shelter. Yet, the heart needs a brain to control it. Enter the HP 1000, with software being written by Computer Concepts. It is the HP, with several terminals scattered through the headquarters, that allows

No Frequency Checks.
Avoids the high cost of C-band frequency coordination checks. Saves lots of time, too.

Compact KU-Band Van.
Only 8' wide by 22' long. 2.3 meter antenna.

Easy-To-Operate.
Technicians can be trained to operate the KU-Band van in one day's time.

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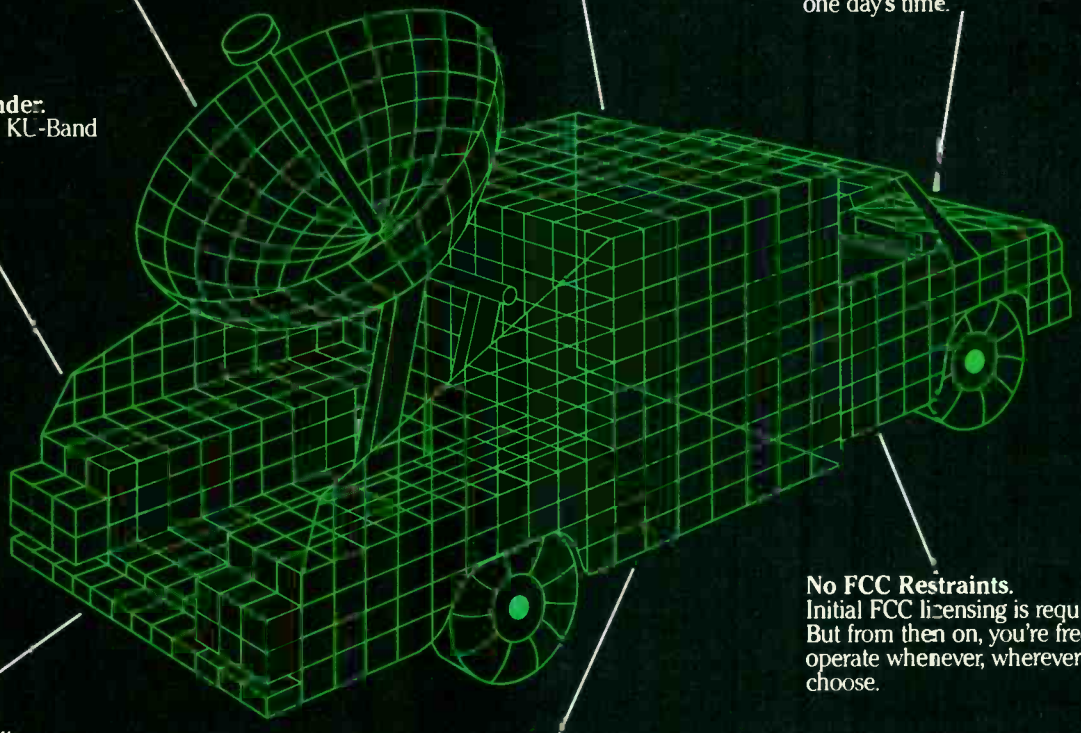

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Initial FCC licensing is required. But from then on, you're free to operate whenever, wherever you choose.

Downlink Dish.
Only 5 meters in diameter. And because it's KU-Band, it can be located right at your own station.

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"Now we can go live from anywhere at anytime." *Jim Smith, General Manager, KRON-TV, Channel 4, San Francisco.*

"A few years from now, the rest of the television industry will follow the lead of the Conus stations." *Harold C. Crump, President and General Manager, KPRC-TV, Channel 2, Houston.*

"A quantum leap forward in television news gathering." *S. James Coppersmith, Vice President and General Manager, WCVB-TV, Channel 5, Boston.*

"Conus is the wave of the future." *Jack W. Fritz, President, John Blair & Company, New York.*

This is what partners in the Conus Satellite News Gathering System (SNG) have to say about making use of the Conus-owned transponder on SBS-3 and sharing their SNG power with an ever growing number of affiliated stations.

The highly sophisticated Conus Master Control and Communications System will handle up to 16 five-minute news feeds per hour and provide instant IFB and communications channels to any Conus SNG van anytime, anywhere in the continental United States.

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The control center at Meadowlands Communications' Rutherford, NJ, headquarters coordinates all earth station operations through the AT&T-developed ESR.

the control room operators access to the ESR in each earth station. This allows the operator to determine status, alarms, or scheduling for each site.

Explaining the advantages of a nationally integrated system of control, marketing coordinator Tim Wetmore states, "The benefits start with the booking stage and go right through scheduling, operations, billing, maintenance, and equipment updates. Let's say someone wants to book our Chicago uplink six months down the road for a certain time block during the day. We enter that into the HP 1000. On the day the booking occurs, the HP 1000 searches it memory to make sure there is no scheduling conflict, sends a signal via an SCPS satellite control channel, and turns the antenna in Chicago to the appropriate satellite and tunes the HPAs into the proper frequencies and other parameters required to illuminate the particular transponder on that satellite. A half hour before this occurs, the computer asks the operator if he still wants to do the operation, and continues to ask him until he says no or until five minutes before illumination time, at which point the information stays up on the screen. If, in the beginning, a scheduling conflict arises, the computer provides a window of time on either side of the scheduled event as an alternative booking. If this is not desired, a cancellation is entered."

The computerized system goes beyond scheduling and operations, however. The system keeps status on security in each earth station. If someone enters the Dallas earth station, an alarm is present on a monitor screen in Rutherford stating the entrance. Fire alarms and other maintenance and security considerations are also operated by the system at each identical location. Most importantly, technical operations can be executed through the control system. Patching, switching, and power control of the upconverters can be controlled for each site from headquar-

The heart of the 632 Series image processing system, a 4:1:1, Component-coded Frame Synchronizer.

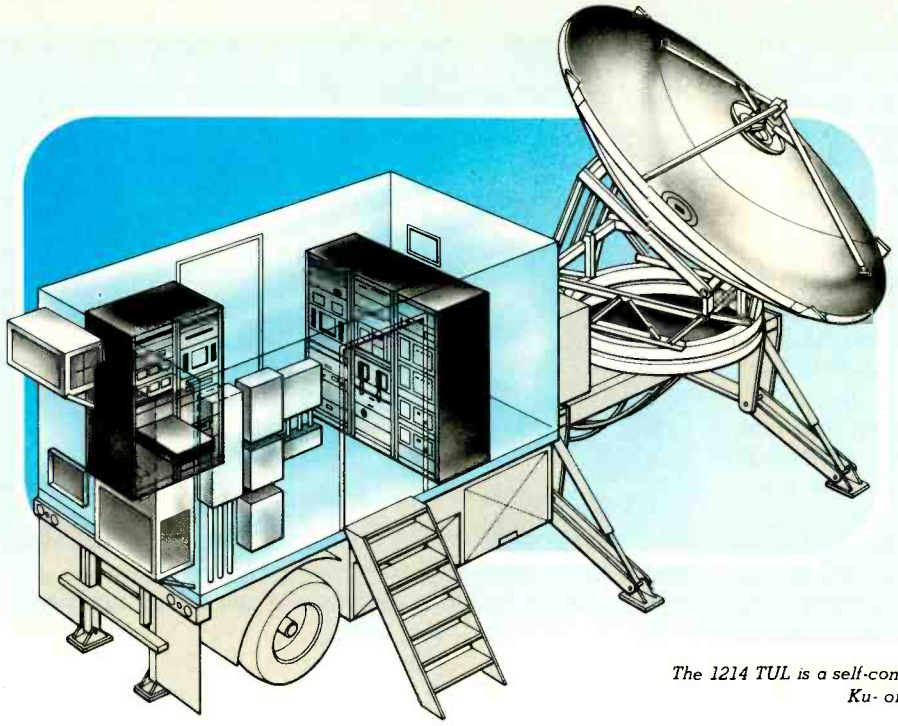
ters. In addition, equipment fault alarms from every site are reported back on a large screen display in Rutherford, with a graphic depiction of the faulty part and its associated components appearing in front of the on-duty operator.

The digital audio system is also remotely controlled through the HP 1000 and the ESR. For example, a concert may be scheduled in Washington, DC, for backhaul to one of the New York stations. The operator in Rutherford can configure the uplink for activation of two 15 kHz digital audio channels in Washington for a certain time on a given day, and configure the DPTs in Rutherford to downlink the two 15 kHz channels during the same time period. A patch to AT&T's Program Operating Center in New York is also entered, permitting the New York station to pick up the program at its local POC, into which it has established lines. The automated system also allows instant channels and switches in case of difficulty. If one of the 15 kHz channels went down in this case, the redundant channel would automatically switch in. It would be possible, however, to switch out the redundant channel,

Control room operators at Meadowlands communicate with the ESR through the HP 1000, which has powerful status and control capabilities.

reducing protection, but doubling program channel capacity. This would be done only in special cases, or if requested by the customer.

A nationally integrated system, a local monitoring station, or a local automation control system, all are indicative of the way satellite broadcasting and the control of that ever more important function are evolving. As broadcasters increase their volume of satellite traffic, and as the ad hoc networks blossom with increased receive capabilities, satellite system vendors are under pressure to keep pace and match the sophistication with which broadcasters approach their business. So far, automated satellite control systems have managed to keep a step, or two, ahead. **BM/E**



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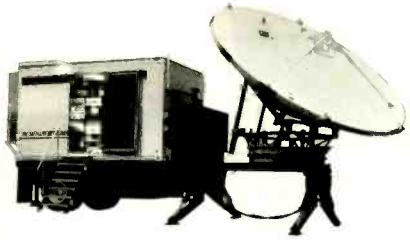

The 1214 TUL can be towed at highway speeds and is only one of many transportable uplinks available from Microdyne.

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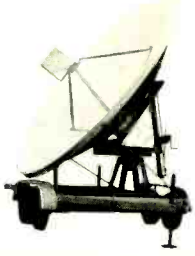

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New England News Exchange: Bold Experiment in Cooperation

By C. Robert Paulson
Special Projects Editor

Taking a cue from Willie Keeler's secret of winning baseball—"Hit 'em where they ain't"— WNEV-TV, Boston, is trying a team approach to winning ratings points for its news operation. It has located news bureaus five leading daily papers' newsrooms in suburban Boston's ADI "outfield," loaded the lineup with local and regional radio and TV station newsgathering affiliates, and is on the way to try to win ratings pennants with its New England News Exchange team.

Boston is the 6th ADI Market, served by four network-affiliated Vs, four aggressive commercial independent Us, a UHF sister of PBS superstation WGBH-TV, and a panoply of excellent radio stations. Cable in the coverage area is mostly a crazy-quilt collection of small, struggling systems with no regional character. Pay cable and subscription television are not significant audience attractors. In short, there's nothing terribly different about this competitive situation from other top 50 markets in the U.S.

Since June 1983, two Boston market veteran executives, president and general manager Sy Yanoff, and VP of news Jeff Rosser, have joined their talents in a new "team" approach to station operations—a team that includes VP of engineering and operations Karl Renwanz. (He had designed the station's facilities as a consultant, using skills developed in production and engineering management positions at Boston's PBS flagship station WGBH-TV.) Because of their years of experience in the Boston market, the new team knew they couldn't move the station upward in the ratings race without being dramatically different in their news and programming services. To look for clues to a successful strategy, they began by analyzing the total audience.

WNEV-TV Boston has set up a network of radio, newspaper, and TV "affiliates" who regularly supply news stories. Can this experiment work in the highly-competitive newsgathering field?

WNEV-TV's West Bureau reporter Mike Lawrence reports from Worcester City Hall.

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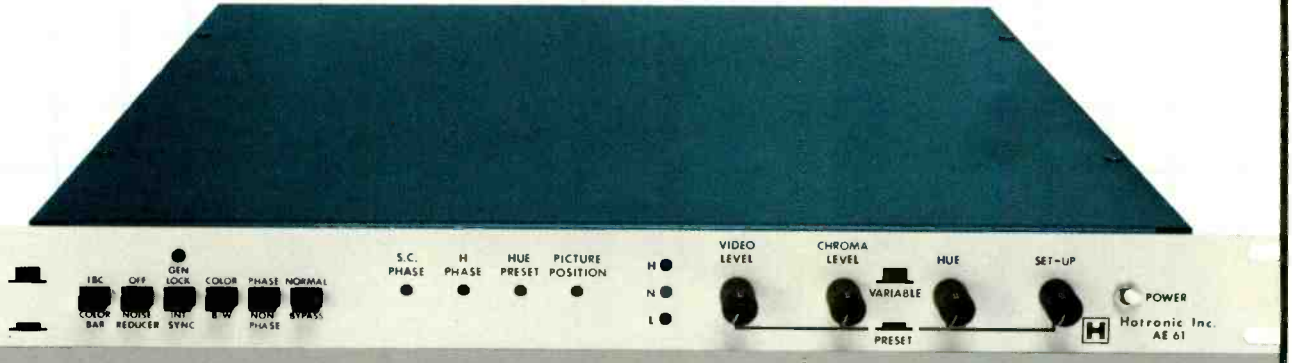

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Boston has the typical ADI population distribution of any seacoast town, three-sided around the downtown area long known as "the Hub." But to the south and north, within 50 miles, are state boundaries which divide and orient audiences toward allegiance with out-of-state stations in Rhode Island, New Hampshire, and Maine. To the west are two circumferential highways, Route 128, the original "Technology Highway," and new high tech industry magnet I-495, which divide the market into several suburban submarkets.

Rosser learned from his four and one half years of experience in the Boston market that "Inside Route 128, we can expect a news crew to cover two stories per shift, and even a third if it's a quick news conference. Outside 128, I've been lucky to get one story a day out of a crew, even if they knew exactly what they were after and worked overtime. I knew that out there we were missing lots of good stories, even with a helicopter to give our crews more mobility."

"Yanoff and I also knew that there was a large market share out there not getting much out of any of our local news shows. About 80 percent of the ADI is outside the metropolitan Boston focus of most news pickups. And 50 percent is outside Route 128, the first circumferential audience divider which is no more than 15 miles from our studios."

Their idea was to set up storefront news bureaus, as many stations in other markets have done. But then they had a better idea: why not set up a team effort with a few leading suburban newspapers who really know the territory?

Radio station involvement

The decision to include selected radio stations in this news gathering network was spurred by the fact that Channels 4 and 5 already had strong affiliations with popular news-oriented radio stations.

Other meetings also established linkups with New England television stations. The affiliations with WFSB (CBS) Hartford, CT, and WLNE (CBS) Providence, RI, were understandably motivated by prospects for synergistic regional coverage benefits extending to CBS News, New York. Follow-on affiliations with WMUR-TV (ABC) Manchester, NH, WCSH-TV and WLBZ-TV (NBC) in Portland and Bangor, ME, are precedent-setting, however.

The newspaper members of the Exchange include:

Seated in one of WNEV-TV's M-Format editing suites is vice president of engineering Karl Renwanz.

- Quincy's "Patriot Ledger" (south); Framingham's "Middlesex News" (near-west);
- Worcester's "Telegram" (morning) and "Evening Gazette" (central Massachusetts);
- Lawrence's "Eagle-Tribune" (north).

Radio stations in the Exchange include CBS affiliate WEEI Boston (all-news), WTAG (Telegram and Gazette) Worcester, which were selected by the Massachusetts Associated Press as Radio News Stations of the Year in 1982 and 1983 respectively, WOKQ Dover, NH, WTSA AM Brattleboro, VT, and WHVN AM & FM Springfield, MA.

Rosser says there will be other television and radio stations added to NENE in the future. But the roster of newspaper affiliates will probably remain at five. "We positively don't want to grow bigger just for bigness' sake," he says. "We're already on top of more stories than we can air in our present schedule. We want now to make our aired stories better, and get more mileage out of them by combining them in other information program formats."

Proof of that contention was the May 1984 New England NATAS "Emmy" award for "Outstanding News Program" to Rosser, who accepted it on behalf of an enthusiastic NEWSE7EN news staff.

Equipment and facilities

The technical aspects of the New England News Exchange are markedly different from most typical news organizations. Some differences are by choice, such as the M-format VCRs used as the primary field shooting and studio editing format. Other differences are of necessity, such as using 23 GHz and even 40 GHz uplinks from the newspaper-located bureaus to tall building tops. A frustrating creative difference is the frequent need to employ technical band aids instead of good engineering practices in delivering stories from interview to air. Needs for video, audio, and command and control circuits have proliferated faster than the technician hours and equipment budgets needed to satisfy them.

Just like many business enterprise fiscal operating budgets, the NENE's systems budgets also have bothersome differences between planned and actual costs. Here is the "shopping list" Renwanz created during NENE planning meetings.

1. Facilities at the four news bureaus:
   - ☐ A sound-isolated room for editing and VO taping.
   - ☐ Desk, chair, typewriter and telephone.
   - ☐ Visually appropriate "sets" for originating standup wraparounds and interviews for local taping or direct airing.
2. Equipment for each news bureau:
   - ☐ Cuts-only picture/sound editing system including audio mixer for live VO mic pickups and dual tape channel playbacks.
   - ☐ Rugged, stable, reliable camera, VCR and accessory equipment that typically will never be maintained until it needs to be repaired.
3. Communications networks:
   - ☐ Radios, radio telephones, beeper paging systems and/or intercom

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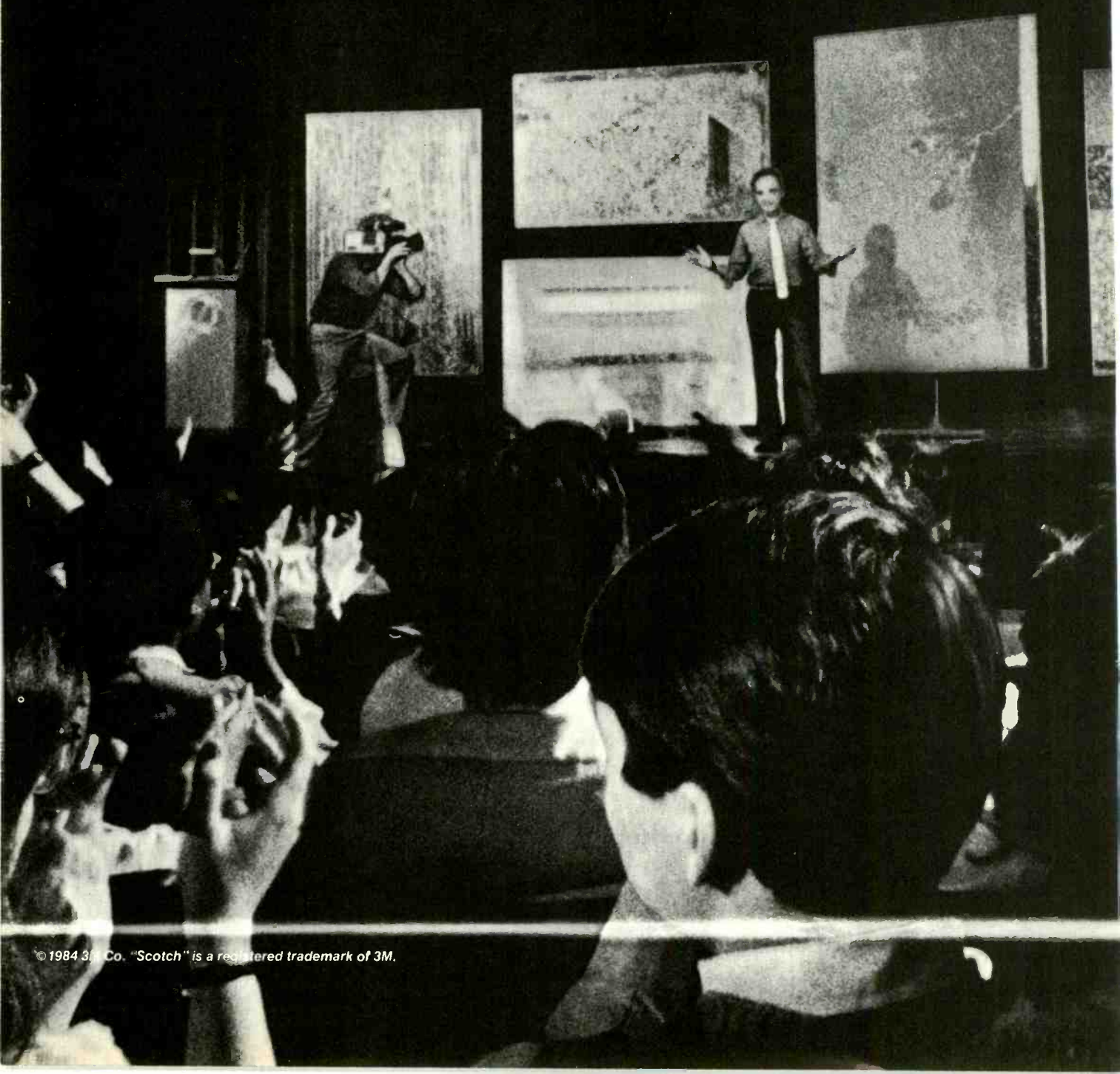

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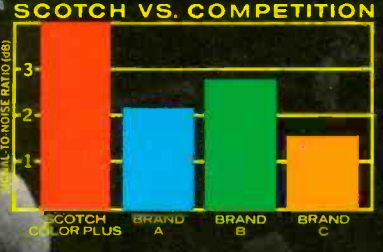

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WNEV-TV's news graphics designer Miguel Muelle formats the evening news graphics on the station's component analog graphics system.

systems to keep all Exchange field teams in touch with their news bureaus, all their base telephones, answering machines, switchboard operators, and/or their assignment editors.

- ☐ A news helicopter to be used as needed as a "presence" substantiating WNEV's wide-ranging activities, a microwave relay station, a flyable camera platform, and/or a delivery service for people, equipment, supplies, and tapes.
- ☐ Fully remote controllable, band switchable microwave transmitter/receiver/steerable antenna systems that can cope with the constantly changing channel availability and terrain coverage problems encountered in each news bureau's year-round daily operations (in New England winters and summers).
- ☐ A customized NENE master control to receive incoming transmissions, and either patch them to air through the news control room, or to tape for unedited delayed playback to air, or to any selected editing suite for further editing, graphics integration, or steals for teasers and archive stills.

That was the plan as defined, costed, approved, and started toward creation in the summer of 1983. Planning spanned about 12 weeks, beginning two weeks after Yanoff and Rosser had their first "What are we going to do?" meeting. NENE began operations on October 17, and the three bureau teams each immediately had stories on almost every newscast.

Six months after startup, more than 540 stories had been originated, shot, edited, and aired by the three bureau teams. This average productivity of 1.5

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stories per reporter/photographer team per working day is well on the way to the two-a-day goal originally envisioned by Rosser. Several major story projects, political primary coverage in all six states, the "unusual" 1983/84 New England weather, and the annual Boston Marathon, etc., had been completed.

Although the staff was pretty much on schedule to complete the communications network installation by its late June target date, changes were required to accommodate both constant new technological developments and changing news department needs.

The technical obstacle making network completion difficult is format incompatibility. WNEV-TV made a major commitment to Y/IQ component analog M-format 1/2-inch cassette recorders when it began operations in 1982. The 40+ VTRs are now the nucleus of the news department's equipment inventory. In the editing suites are Shintron-built component analog switchers designed by the station's engineering staff led by engineering manager Brian Lay. There is also a component analog graphics production center. But there the component analog domain ends, and NTSC intrudes everywhere.

The reason is not of WNEV-TV's making. It's because the 1982 industry movement toward adoption of the component analog format for signal and processing transmission was stalled well over a year ago by the collapse of discussions about establishing a single 1/2-inch cassette recording format. Two years after WNEV-TV startup, Y/IQ component analog routing switchers, slide stores, titling generators, monitors, and microwave transmission systems are just beginning to enter the marketplace. Therefore, each of the M-format system components must have NTSC input/output interfaces as well.

Irrespective of equipment interface and format dilemmas, an equally insoluble problem is microwave band frequency availability. Picking channels for interference-free transmission in New England is like playing Russian roulette. The unattainable solution is a computer-based, automated clear-channel-seeking system that could sample and settle on any unused, non-interfered-with channel in the 2, 7, 13, 23, 30, or 40 GHz bands.

Finally, NENE field operations over a 150-mile radius away from the studio are daily defining new dimensions of communications, command, and control problems, which are only going to worsen as deregulation continues. Two-way radio ties the field teams to the studio assignment desk when they're moving. That channel may not be usable, however, when a team is set up and busy shooting. Several telephones, beepers, and answering machines provide stuttering one-way communications between the teams and newspapers, radio stations, and story subjects—if the callers will leave messages. But there's no direct way for the teams to be in direct touch with their next story contacts while they're on the way to that shoot. The result: communications confusion. Reporters sometimes spend more time than they would like talking about what might go on the air rather than shooting and editing it.

Traveling telephone numbers for each field team, accessed through a New England wide-cellular radio network, will perhaps be the ultimate solution—if that network ever materializes. For the foreseeable future it seems sure that being an Exchange re-

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porter means living a daily schedule that's only firmed up when the day is ended.

These communications obstacles to full-capacity operation are targeted to have been eliminated by early summer. A great leap forward will be the completion of one-way video/audio microwave links from the bureau newsrooms to building tops of Boston skyscrapers and down to the studio. Commuting time to Boston to edit and file stories will then be freed up for additional story setup and production. The helicopter and microwave-equipped news vans can be scheduled for far-out pickups and relays. Increasing station revenues from improving ratings, and increasing productivity through system automation, will free up some administrative people to provide communications and scheduling support to the field teams.

Two other objectives seem to have become moving targets. One is the completion of two-way program transmission channels between Boston and the Exchange's regional broadcast affiliates—video/audio to the affiliates, audio only to the radio affiliates. Each new further-out affiliate is a new challenge to find frequencies and originating and relay locations to create channels that won't be periodically tromped on by stray signals or noise.

The other objective is to provide remote, automated access to the growing database of filed stories and archives of narrative copy, MOS, sound footage, and stills, that are NENE's daily volume-produced product. Since regional news coverage quite frequently focuses on topics of continuing interest, automated remote search and retrieval becomes especially important in the creation of wrapup stories and special programs. Remote access provisions by definition will include all the Exchange newspaper, television, and radio members and their reporters.

This ultimate computer pervasion of the news department's activities is identified in the industry as a special area within "newsroom automation." When it is better defined, Renwanz, Rosser, and their staffs will begin their own definition studies on how to bring newsroom automation to NENE. Although the need for the system is immediate, like everything else its input/output specification must wait at least until the communications network is complete. After that, its implementation in hardware must then be matched to *all* the formats on which NENE information is stored.

"Feel good about that"

This new ID slogan created by VP of marketing services Dick Weisberg sums up the attitudes of everybody in the station about the accomplishments of the team that has put NENE together. "Viewers now know that Channel 7 isn't the old urban WNAC-TV, covering *all* the in-town news but only suburban catastrophes. Our four local bureaus are filing the human interest stories that the 50 percent of the market outside Route 128 wants to see," says Rosser.

"Hit 'em where they ain't" is working for WNEV-TV. For news *and* programming. In the field the team has let the viewers know they came to play in the ratings game. They're now scoring awareness runs at bat, through their pinpoint hitting of award-winning programs by a team of skilled people. And they're finally consistent in performance in all of this broadcast activity, which is what Boston audience traditionalists value most in their stations. **BM/E**

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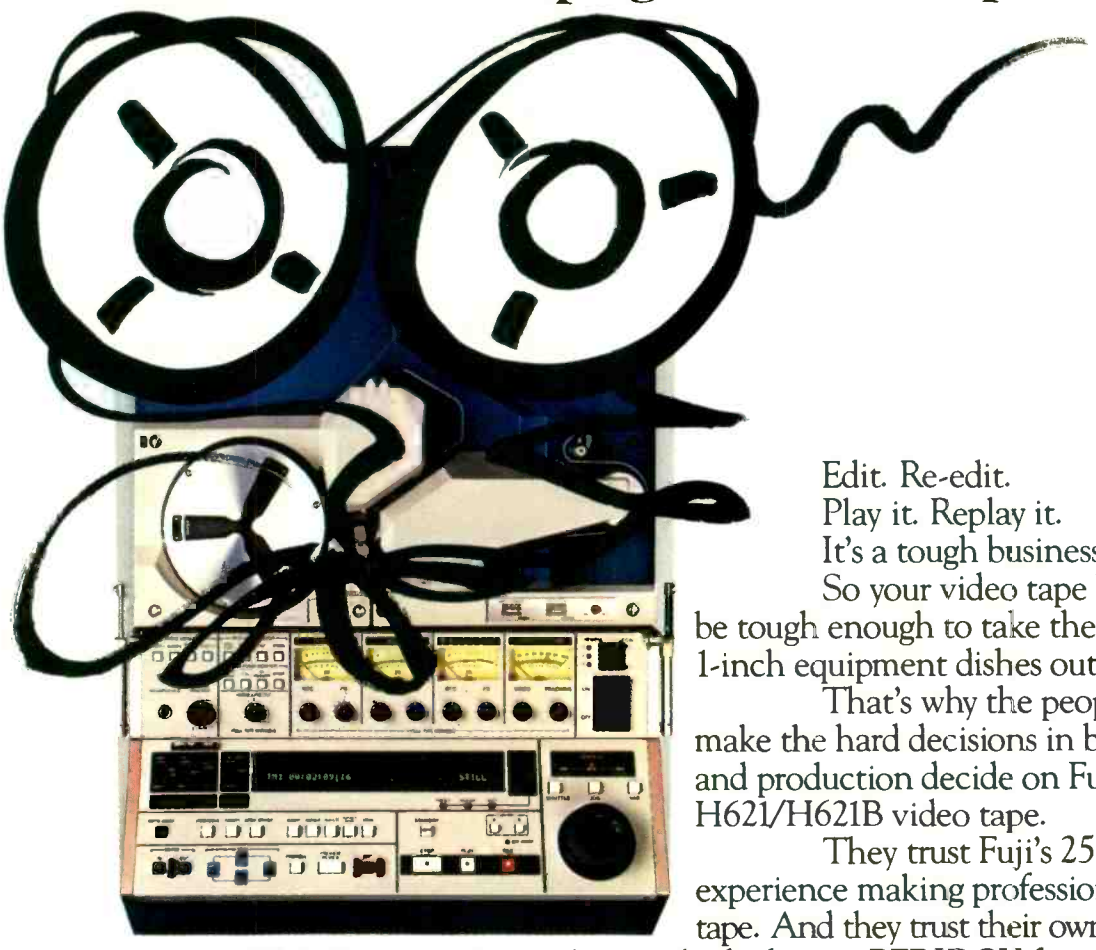

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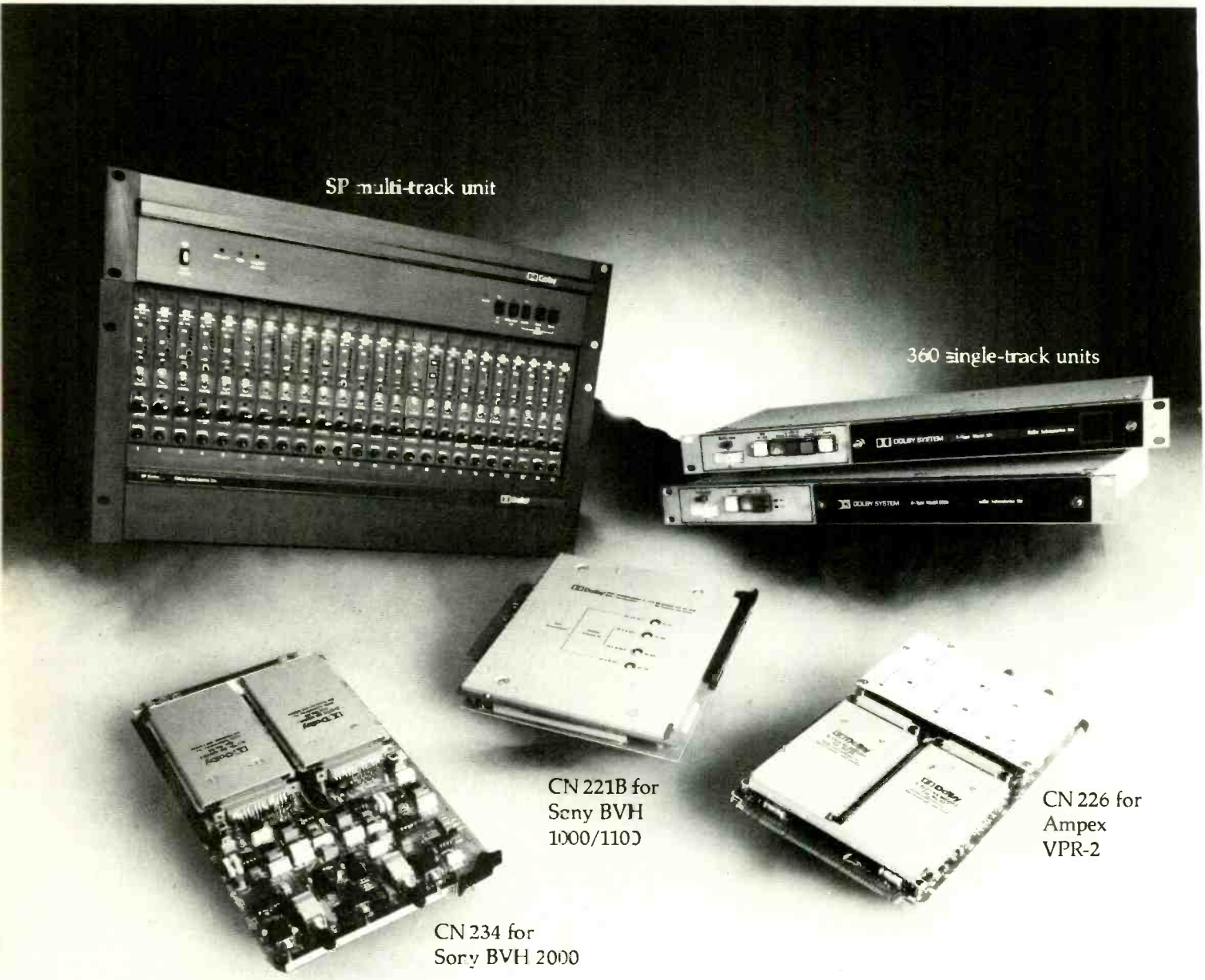

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Getting into Television's Multichannel Sound

By Robin Lanier

It now looks certain: the advance of stereo sound into television is going to be faster than any previous major technical advance in television history.

Several companies are introducing the necessary new units for TV transmitters, with deliveries this fall or early next year. All are riding a wave of interest, with many orders in hand.

The large makers of television receivers, who have been in favor of the advance for a long time, are moving toward full production of stereo-capable sets. Zenith recently introduced 12- and 19-inch sets capable of receiving a second audio channel for multilingual programming in addition to the standard audio signal.

A very brief survey among television broadcasters uncovers several who are getting ready **now** to position themselves as "stereo firsts" in their respective markets. At least two, WTTW in Chicago, and KIRO in Seattle, were aiming to get on the air with stereo in the first or second week of August. This would make them the first in the nation to do so. The urge to have the "first" image, or at least to not be far behind, will give the move to stereo a powerful push. Many broadcasters are not going to wait for large income directly from stereo programming. This won't occur until a considerable part of the audience has the new receivers.

Ken Clybor, engineering technician at WTTW, operates an audio board. The station recently went on-air in stereo with the TZ-30 stereo generator from Broadcast Electronics.

Here's the information you need to set up an MTS (Multichannel Television Sound) operation at your station: the equipment, the setup, and the programming sources.

SAP profit center

But there *is* one promise of a quick profit gain: it comes from the second audio program, or SAP channel, which is part of the multichannel audio package. The SAP, by giving the television broadcaster an entirely separate, extra audio channel, will open a number of new routes to profit. For example, the SAP will allow the use of simultaneous Spanish dialogue on regular TV broadcasts, probably lifting audience figures and station income in many cities. The large networks are reportedly planning to use the SAP at an early date. There will be a variety of other ways to use the SAP, both as an adjunct to regular programming, and for entirely separate programming.

As an extra program channel, the SAP is like the FM SCA in certain respects. But, there is a basic difference. The FM SCA is under the rules, directed to licensed recipients only; subscribers to specific services can receive the programs, and receipt by others is illegal. But the SAP on the television channels is freely available, like any broadcast, to anyone who has a receiver. And SAP receivers are coming on the market in abundance right now, both as sections of new multichannel receivers and in the form of adaptors for older receivers.

FCC decision

What put multichannel audio on the high road, in one piece, was the industry's agreement on the Zenith system. As Len Feldman pointed out in a recent story (*BM/E*, March 1984, p. 119), the industry was determined to go with a single system, whatever the FCC did, to avoid a repeat of the AM stereo fiasco.

As it happened, the FCC, presumably also wanting to avoid the AM stereo syndrome, found a clever way to remain faithful to marketplace doctrine while supporting the industry's one-system impetus. The ruling made *any* multichannel audio system legal, with-

Robin Lanier, *formerly Senior Editor of BM/E, is now an independent writer and consultant living in New York City.*

in necessary limits, but also provided that anyone using a pilot signal at horizontal sync frequency 15,734 Hz must use the rest of the BTSC (Zenith) system. This gave the BTSC a protected position and made the development of rival systems very unattractive.

Of course, the basic push for stereo in television sound, and the factor that started the whole move toward it nearly a decade ago, was the industry's perception that there would be serious and increasing competition in the foreseeable future from rival media with far better sound—the various forms of home video, the compact disc, Dolby stereo in many movies, home hi-fi in general, and especially cable television. The television industry has known for some time that an audio overhaul was essential to its survival.

Carl Eilers, head of Zenith's development effort for the multichannel audio system, expressed it this way:

"As we enter the next couple of decades, the music listener will have competing delivery systems providing high quality sound in the home . . . [The systems] will have extremely low distortion and noise, full audio frequency range, etc. The multichannel sound system for broadcast television will have to compete in this environment. The proposal described in this rationale is intended to be this system." Among the basic characteristics Eilers listed for the proposed and subsequently adopted Broadcast Television Sound Committee (BTSC) system were frequency response from 50 Hz to 15,000 Hz, distortion under one percent, and noise at least 65 dB down.

Thus it is not just stereo sound we are getting, but a basic grade of sound that is far above anything television has had before. Getting this excellent sound does not entail a major upheaval in television technology. The system has the audio bandwidth and modulation technique to accommodate much more and much better audio.

However, the BTSC technology does depend on a number of requirements that are new in television—some of an especially high precision nature. Although it will take several years for television engineering staffs to work out the best operating practices for the BTSC system, there are some essential guidelines to the initial installation and adjustment needed for getting on the air in reasonable shape.

New equipment designs

The broadcaster, of course, has his choice of which of the three multichannel services—stereo, SAP, and the professional communications channel—to choose from. To keep the choices open, the makers of the new transmission units are generally putting the equipment for each service in a separate package; basically each is the new generator needed for that service.

The new stereo generator must obviously produce the new baseband signal, with a pilot at 15,734 Hz to alert the receiver to the presence of a stereo signal and provide a phase reference for stereo decoding. The generator must also produce the subcarrier signal at 2H, and include the dbx compression for the difference signal. Other necessities are means for controlling the baseband level and the injection levels of the sum and difference signals, with means for monitoring those levels.

The generator may include the matrix circuits for producing the sum and difference signals; it may also include audio processing. Both of these may be external, but making them part of the unit design offers the chance for better integration. The audio processing mainly will be like that commonly used in television today, not as the weapon in a loudness war in the manner of FM stereo, but for general smoothness of audio levels and minimizing of operator errors.

It is clear that no radically new technology is involved, but the precision requirements are extremely stringent in several respects. For example, the circuit must include a low-pass filter at the top of the sum signal frequency range to keep the signal from disturbing the pilot at 15,734 Hz. This filter must be free of overshoot, phase distortion, and other

TECHNICAL OVERVIEW

The BTSC multisound system expands the TV audio baseband to include four channels of audio in place of the current single mono channel. The four channels are devoted to three program services: stereo sound (two channels); the second audio program (SAP); and "professional service" for internal communications.

The stereo program service uses the main channel and a channel subcarrier at 2H or 31,468 Hz. This service delivers an L+R and L-R matrix, with the L+R sum signal occupying the 50-15,000 Hz baseband slot. Since this frequency modulated signal containing both channels of the stereo broadcast occupies the same position as the current audio program, it is compatible with current receivers.

The L−R difference signal, used to separate the sound into left and right channels, is broadcast on the 2H subcarrier using amplitude modulation, with a double-sideband-suppressed carrier similar to the difference channel used in FM stereo. The frequency response of this signal is 50-15,000 Hz with a system design goal of less than one percent distortion.

Applied to the difference signal is a dbx companding noise reduction system—compression in the transmitter, expansion in the receiver—which was chosen by the BTSC from among the three systems proposed. Using the dbx system, final stereo transmission S/N is 60-65 dB. Noise reduction is not applied to the sum signal for two main reasons.

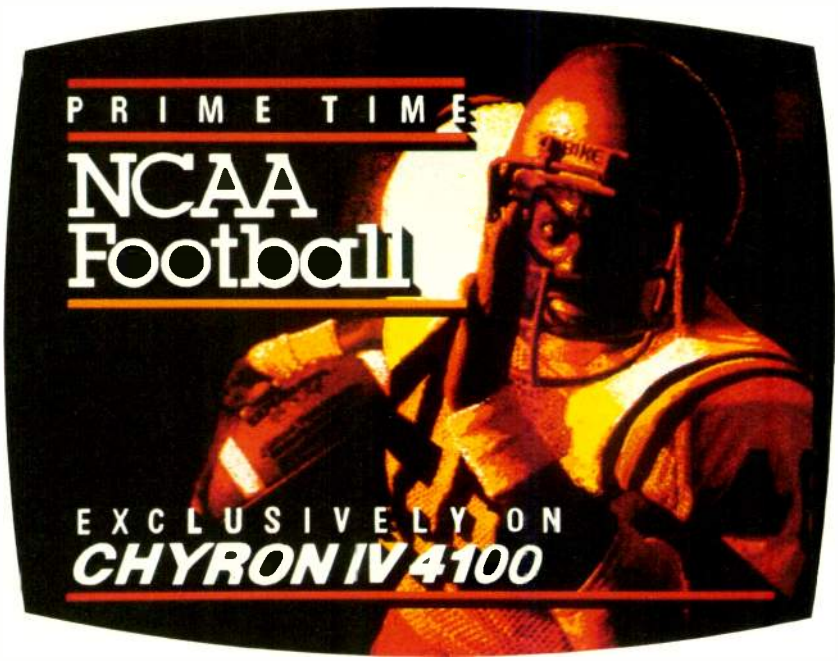
First, compatibility with current receivers would be lost because they lack the dbx decoders. Second, the noise developed in stereo transmission goes up sharply with the frequency of the signal. Since the difference channel is considerably higher in the spectrum than the sum channel, it is the difference channel which requires most quieting.

The SAP is centered on a subcarrier at 5H or 78,670 Hz, using frequency modulation. The dbx companding is also applied here. Members of the panel which selected the Zenith/dbx system report that the SAP sounded like an excellent FM mono station with extremely low noise.

The Pro channel is centered on a subcarrier at 6.5 H or about 102,000 Hz, and is intended for voice-grade jobs such as cueing remote camera crews and controlling transmitters. The frequency response extends to 3 kHz using frequency modulation.

Since the Pro channel has an allowable deviation of 5 kHz, the TV audio baseband now extends to about 107 kHz and circuits handling the baseband must be capable of reaching the top frequency without distortion.

Many of the above points are covered in a free booklet, *Television Multichannel Sound: The BTSC System,* prepared by TFT Inc., 3090 Oakmead Village Dr., Santa Clara, CA 95051; (408) 727-7272. Presented in question-and-answer form, the guide reviews the system specifications and presents important discussions about system rationale.



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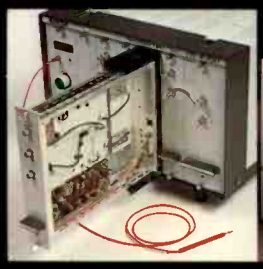

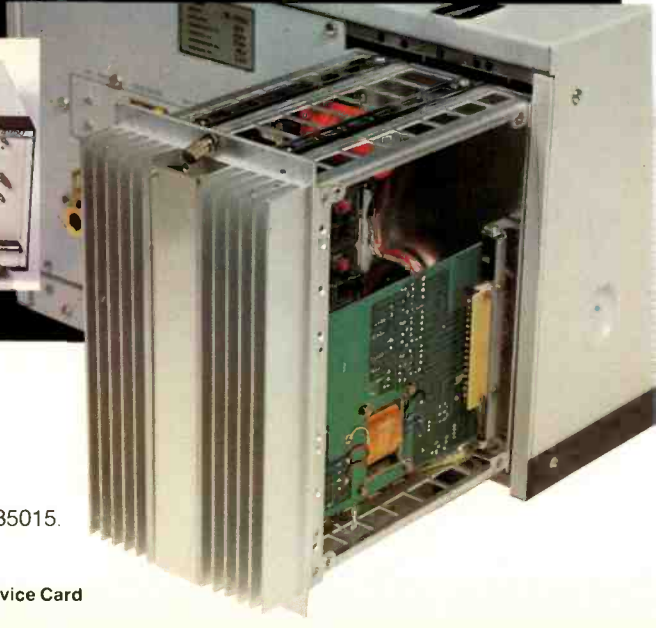

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disturbances of the signal to a degree beyond anything commonly required. Extremely expert design is essential, such as in generators now being offered by Broadcast Electronics, McMartin, Modulation Sciences, and TFT.

The BTSC specification requires that the pilot and the difference signal subcarrier be locked to the station's horizontal sync. This can be done by feeding a sample of the sync directly to the stereo generator. Another method, used by some upcoming stereo generators, is to feed the composite video signal into a loop-through circuit which has a "stripper" to lift the sync for injection into the generator circuits. If the lock to sync is lost, stereo operation will be subjected to "buzz beats." (This unacceptable noise results from several misadjustments of the system.) To avoid the buzz beats from sync loss, the system should have automatic reversion to mono, with some means of alerting the operator to the condition.

Another essential aid to stereo operation is instant monitoring of the phase relation of the two stereo channels; the importance of this is discussed below. The phase monitor should show both the time relation and the existence of total phase reversals. Built-in phase monitoring is clearly a plus for a stereo generator.

SAP generator

The main job of a SAP generator is to develop the frequency modulated subcarrier for the extra audio program. The average frequency of 5H must be locked to the horizontal sync. If this sync is lost, buzz beats will, again, become serious. An automatic reversion to crystal control will minimize the buzz.

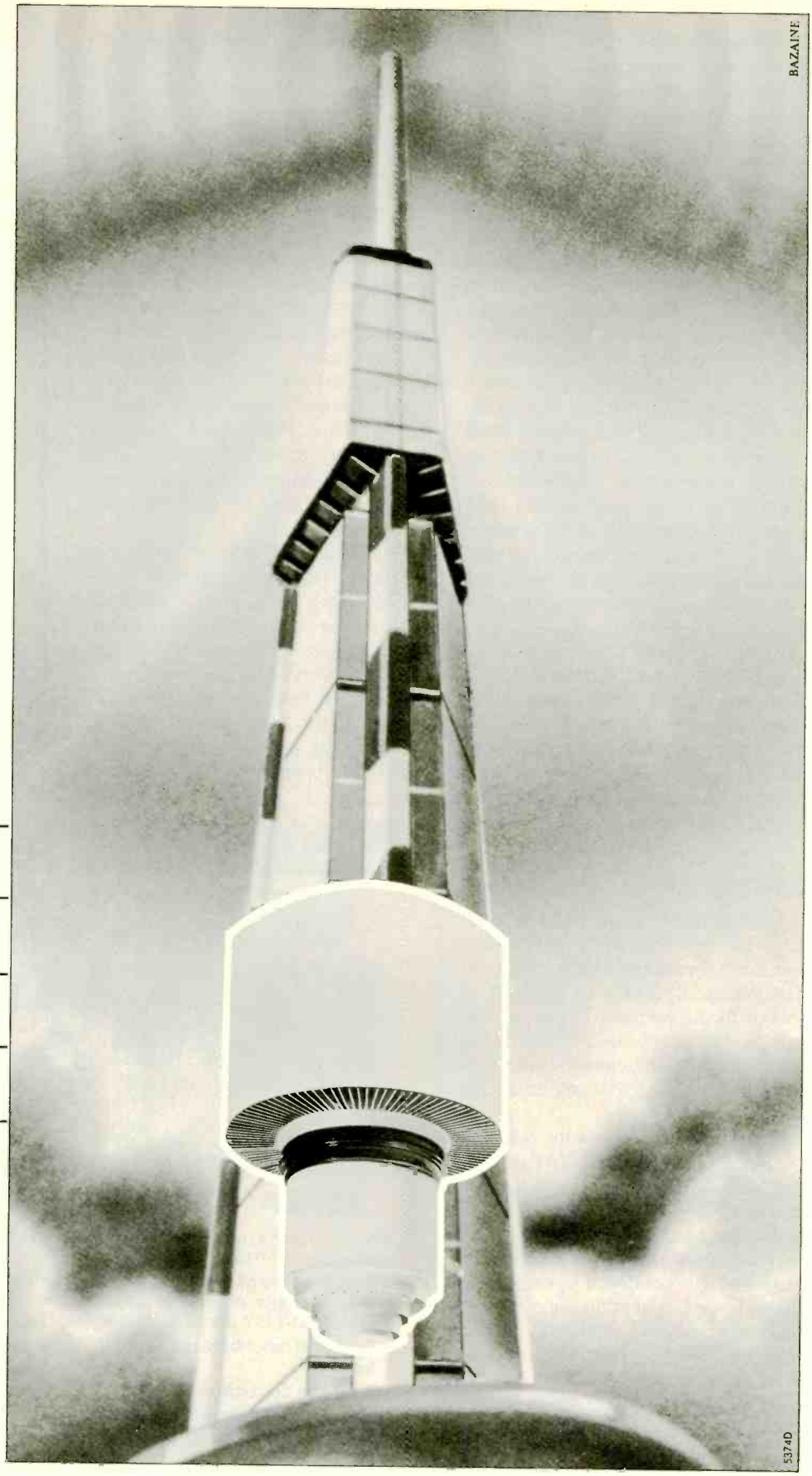
If the broadcaster uses the SAP but not the stereo service, the SAP generator can feed the transmitter in various ways. In one, "loop through," the composite baseband goes through the SAP generator and the 5H subcarrier is mixed in. The combined signal goes to the wideband input of the aural exciter. In another method, a separate signal from the SAP generator can drive the SCA or an auxiliary input on a wideband aural exciter.

If the broadcaster uses both the stereo generator and the SAP generator, the latter can feed an input which is usually on the stereo generator specifically for that purpose. The SAP program goes onto the audio baseband inside the stereo generator.

The SAP generator must also have the encoding for the dbx noise reduction system. An attractive aid to operation is a built-in tuning monitor, with a wideband noise generator, to guide adjustment of the transmitter for minimum synchronous AM.

What about the television transmitter that will put the new audio baseband on the air? A vital requirement is an exciter of modern design, with extremely low noise and harmonic and phase distortion. Eric Small of Modulation Sciences notes that direct FM modulation is a necessity; the older Serrasoid–type exciters won't make it. Luckily there are not too many of the old ones still out there. Harris is one manufacturer to have gone early into the MTS transmitter business, having increased the aural baseband of its stereo-ready transmitters.

On the diplexer, there are some open questions. The diplexer must be capable of being adjusted for wideband aural response. Should this be a two-notch design, which can be stagger-tuned for very wide response, or a single notch that is generally freer of group delay? A television engineer aware of the problem can check his diplexer for satisfactory performance,



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and decide whether or not a replacement must be made.

Studio redesign

The studio that develops and handles the stereo signal for feeding into the stereo generator will be the part of the operation that demands the major investment for the new sound, if the station has an old-grade mono-only studio. The transmission units themselves are inexpensive by television standards; a complete set of the generators costs around $20,000. But the studio may need a complete renovation, with new consoles, switchers, etc., of "hi-fi" quality for audio. Without state-of-the-art audio equipment in the studio, the advance to the new television sound will be blocked before it gets to the transmitter.

The problems of equipment and design in the new studio will be very similar to those for an FM stereo operation aimed for top quality. Jeff Mendenhall of Broadcast Electronics suggests that the television broadcaster facing this renovation should discuss it with FM stereo operators in his market, because they have had up to 15 years of experience in working out the signal-handling problems.

The general rules for the studio operation are obvious: the plant must be designed and adjusted throughout for extremely low noise and distortion. Larry Ocker of WTTW suggests as part of the noise control, that all recording on one-inch videotape or on audio tape for double-system operation, be Dolby A encoded.

At the output end of the operation, the aural STL may cause trouble if it is not capable of handling the expanded audio baseband with extremely low noise and harmonic and phase distortion. In many cases it will be a question of careful adjustment.

Initial adjustment of the transmission system, including the generators, exciter, diplexer, and STL, should be made with an off-the-air monitoring system, which may consist of a precision audio demodulator, a spectrum analyzer, and an oscilloscope. The broadcaster can also use one of the new monitors designed specifically for the multisound job. QEI Inc. is one firm that plans to have one on the market soon. TFT has a retrofit kit for the Model 70V702 aural modulation monitor, making it stereo capable.

With the system adjusted so that the design frequencies and injection levels come through the transmitter intact, the operator, if he wants, can keep track of day-to-day operation using monitoring built in to the generator units. The FCC, of course, no longer requires an off-the-air monitor if the operator can maintain assurance of proper performance otherwise. The stereo generator of Modulation Sciences, for example, has a built-in monitor reading 16 different quantities (including phase relations between the two stereo channels).

The stereo channel phase relation must be set for an absolute minimum of discrepancy. Any phase difference here will cause trouble with the mono version of the stereo signal received on older sets. Since most of the audience will have the old receivers for a considerable time, the state of the mono version of the stereo signal will be crucial to success with listeners.

Virtually any phase difference may degrade the mono signal. A complete reversal of phase is the worst, which may cause the audio to be completely lost on mono-only receivers. As every broadcast engineer knows, a phase reversal can take place at many points in a complex studio. Microphone cables are among the most common offenders, and the operator using live stereo pick-

up needs a simple, instant check of mic phase with every job. Mark Schubin, of the *Live from Lincoln Center* series, suggests "phase poppers" or similar devices that can be used constantly. He also recommends the use of M/S or other coincident mic techniques whenever possible, as a means of reducing phase discrepancy between the two channels.

Keeping constant track of phase in the stereo operation requires monitoring for both the time relation and phase reversal, which can be done with external phase meters or with phase monitoring built in.

One essential transmitter adjustment is for minimum incidental carrier phase modulation (ICPM). A high level of ICPM is another source of unacceptable buzz beats in the stereo transmission. Television operators have been monitoring ICPM for years with care. Multichannel sound puts a sharp emphasis on keeping ICPM very low.

The need for precision adjustment of the system is emphasized by the effects that level errors can have on the separation. The BTSC separation minimum is 26 dB. If the sum and difference signals are more than 1 dB apart, with the difference going into the dbx encoder, the separation can be driven below the specification. Similarly, the total baseband deviation must be within about one-half dB of the design level to maintain the separation. This kind of audio precision is brand new in television. Television operators have to study with great care the recommended operating procedures with each generator, and follow them precisely. This shows, again, why excellent, continuous monitoring is a necessity with the multisound systems.

The problems discussed here are already real for a number of broadcasters. WTTW, the non-profit station in Chicago, went on the air early in August with a stereo generator from Broadcast Electronics, the Model TZ-30. Larry Ocher reports the use of a number of different program sources, including, of course, the PBS satellite net with its DATE audio system, on the air for a number of years with digital stereo sound. Mendenhall says that the TZ-30 will be in regular production at the end of the year or early 1985; a sizeable number of orders are already in hand.

KIRO in Seattle also got an early August start, using the TSG stereo generator from Modulation Sciences. KTLA, in Los Angeles, will start in mid-October with the Modulation Sciences "TV Sidekick," the generator for the SAP, and in the beginning will do the logo and the news at 10 p.m. in simultaneous English and Spanish. This will be expanded in early November to combine the SAP for Spanish dialogue with stereo sound on a number of regular programs, using the Modulation Sciences TSG. Among the programs will be *Laverne and Shirley*, The Rose Bowl Parade, *2001*, and a number of others, with an increasing number of programs using stereo, or Spanish dialogue, or both.

Another early starter is WFSB in Hartford, CT, which uses Modulation Sciences equipment, on a few regular programs. It is certain that a comprehensive survey would turn up more broadcasters now pushing into stereo and SAP. The major networks are known to be experimenting with both services.

Program sources

Where will the stereo and SAP programs come from? There will be many sources of video programs with stereo sound. The networks will make them —in fact, they have been making many for some time, aiming for secondary

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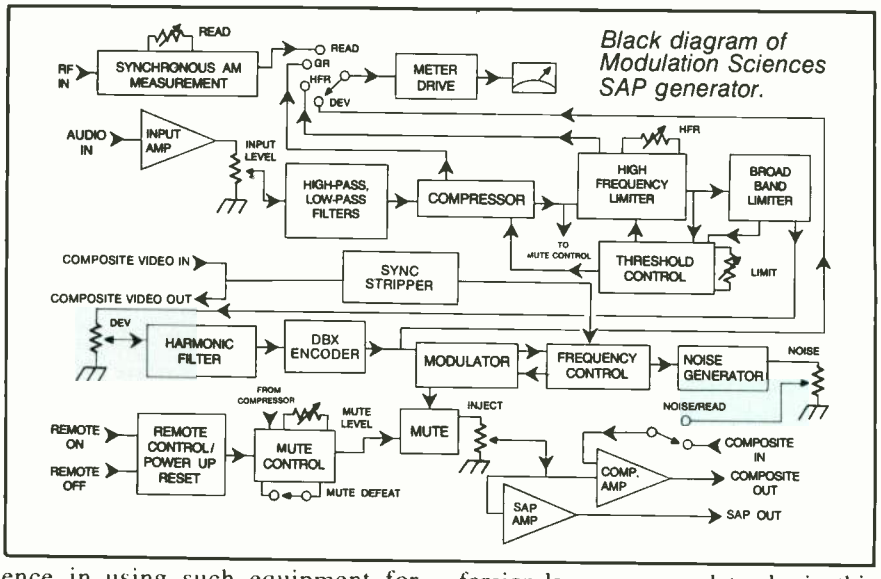
markets in home video, cable, etc., that already use stereo. A large proportion of top line TV commercials are also already being made with stereo sound.

The satellites will take the stereo sound to the local stations, as will the AT&T diplex transmission system. The Wold Satellite Network, for instance, was to begin MTS service on October 1, offering both stereo program and SAP services. Wold will be using the Wegener Series 1600 subcarrier transmission system and the Wegener Panda II noise reduction system. Public stations such as WTTW have had the DATE system for years, carrying stereo in digital form via the PBS satellite net. Stations not ready to rebuild studios for stereo can get or record the stereo sound on separate audio machines, with SMPTE code for synchronization. Then the stereo can be put on the air with "double system" sound.

Putting simultaneous foreign-language dialogue onto television programs will use the highly developed skills of the large post-production houses in many cities, who have the elaborate synchronizing equipment needed for this. The broadcaster with experience in using such equipment for adding material to video programs can do the job himself.



Black diagram of Modulation Sciences SAP generator.

In many cases, however, a special post-production operation for the foreign-language dialogue will not be needed. The big program makers often sell rights to their material to Latin America, for example, where the new dialogue track is already developed. The American program makers customarily retain rights for use of the foreign-language sound tracks in this country.

The events and changes described here are parts of an historic advance. The sound in television, miserably low-fi for decades, is sweeping up to a remarkable level. A large sector of the public, nourished by home hi-fi, the compact disc, home video, and cable, is going to demand that new level in television—and broadcasters will welcome it with open arms.

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SMPTE: STANDARDS AND TECHNOLOGY IN NEW YORK

Component Analog Interfacing Shows Promise

Despite its name, the Study Group on Component Studio Implementation, chaired by Merrill Weiss of Image X, is concentrating on interfacing component analog cameras in the field. "Ideally, we'll come up with something close to a worldwide standard that would allow interconnection of equipment such as half-inch or quarter-inch recorders," says Weiss. "And though it's expected that the new interface would be incorporated in new designs rather than existing systems, anyone is perfectly free to build an adaptor box that would allow the existing equipment to work with the new standard."

At press time, the group was working on a draft document. Says Weiss, "The basic definition of the camera and recorder interface is complete. What we're doing now is making the document reflect the design of the interface.

"We are also coordinating our efforts with the EBU, and will be holding a joint meeting with the parallel EBU group at IBC, so we can coordinate our efforts."

The studio aspect of the group's work has two subsets: the parallel and the serial interconnection of component equipment. Weiss says, "During the week prior to the conference, we will conduct the second test of the serial component analog video waveform. We did a test at the February conference in Montreal, primarily to test video characteristics. It turned out to be a really robust system—very high quality and with the ability to withstand distortions. Now we will be emphasizing more the synchronizing waveform, as well as running the signal through a typical plant to make sure that the kind of compatibility we expect with existing plants really does exist."

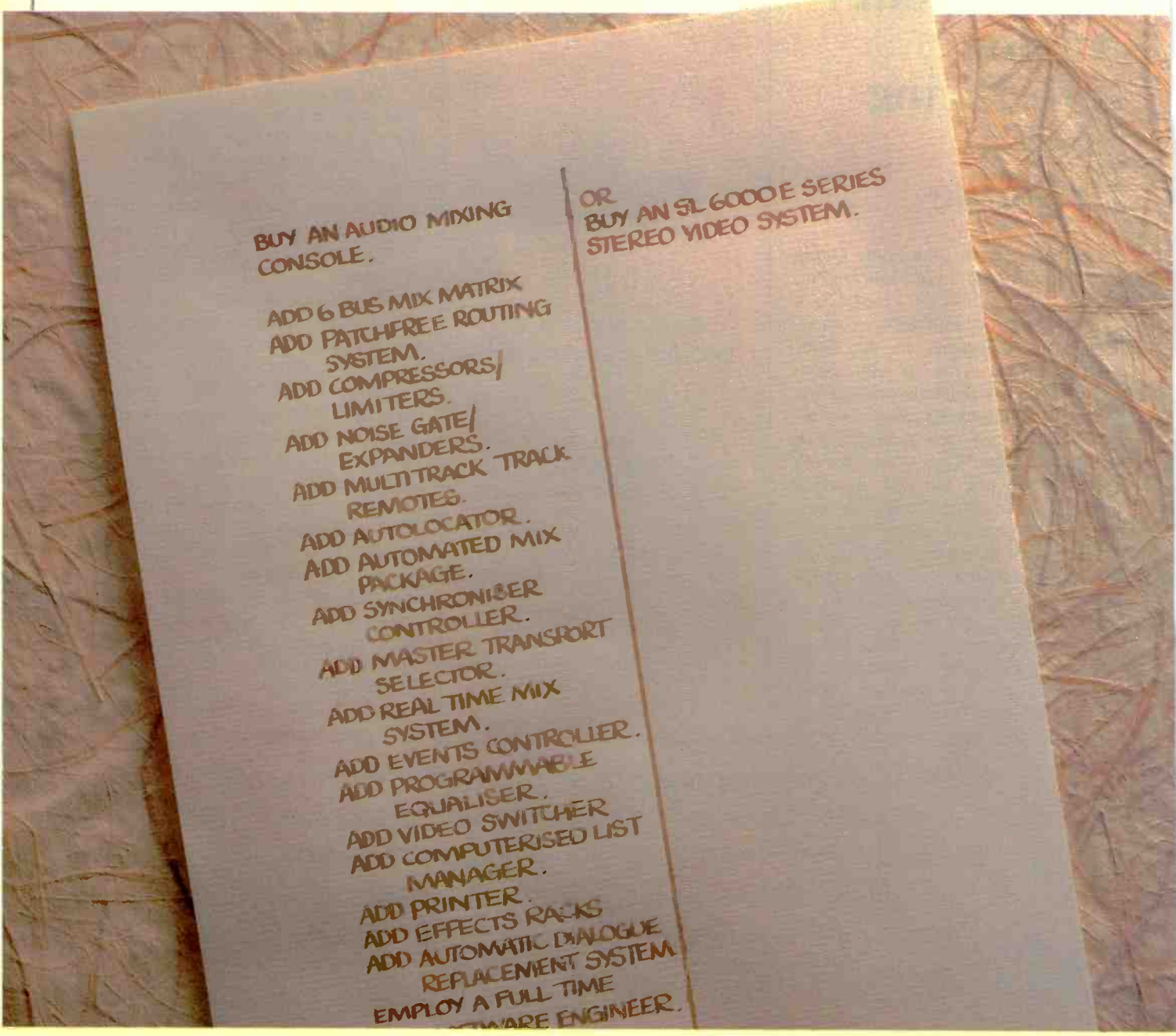
"We're also starting a serial waveform document and hope to have a rough draft very soon—effectively two years after we started."

Weiss says the group is also working on the parallel interconnection of component signals. "And we're doing that to be as compatible as possible with the serial waveform, so you can get back and forth between serial and parallel as easily as possible," he says.

CONTENTS

SMPTE '84 promises to be a showcase for exhibitors, and an active forum for the standards-setting process. In the following pages, BM/E outlines the issues and equipment that engineers will be talking about at the 126th SMPTE Technical Conference and Equipment Exhibit.

Buying an audio post-production system. The long and the short of it.



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Which means a post-production studio, if it is to meet these demands, must not only give first-rate stereo sound, it must be streamlined to give it as quickly and efficiently as possible.

Unfortunately, because the video business is still young, much of the equipment on offer is new and unproven. With different suppliers working to differing standards.

And even if you choose the individual components of your system wisely, they can't work together with maximum efficiency. Because they weren't designed to do so.

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Future perfect. The PR99 MKII also offers a serial data port for direct access to all microprocessor controlled functions.

Much gained, nothing lost. The new MKII version retains all features of its highly regarded predecessor, including a die-cast aluminum chassis and headblock, balanced and floating "+4" inputs and outputs, self-sync, input mode switching, and front panel microphone inputs.

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Coleman Moves to Standardize TV

Leonard Coleman, SMPTE president, has established a game plan for the society, a central priority: television standardization. "For the past two years," he says, "I've been trying to get the television standards committees in line with the way the motion picture committees have been for years. In other words, a motion picture that was shot 60 years ago can be shown today on any motion picture equipment around the world. That's not true of television technology."

Another of Coleman's objectives has been to make the organization's structure more efficient and more directed towards standards-setting procedures. "One of the things I've been doing in conjunction with the board, the engineering VP, and the groups," he explains, "has been to streamline in order to effect more expediency for standards."

Last year, with that goal in mind, he eliminated two of the vice president jobs and combined them under the engineering VP, to "try to expedite and help the various committees set up for the formation of standards," he says.

Leonard Coleman, the SMPTE's president.

Clearly, Coleman is stressing efficiency in the standardization process. "Broadcasting is changing so rapidly that by the time you try to get a standard through it's virtually outmoded," he says. "So to keep up with that pace, we're trying to set ourselves up to expedite these standards."

For the remainder of this term, Coleman says he will "continue to strive to make the committees more efficient." As for new activities the Society has been involved in, Coleman points to a joint project with The Advanced Television Standards Committee "because they're working for high-definition and enhanced TV systems," says Coleman. "We are loaning them some of our committees to do some of the work for them, to help them in their tasks. And that, again, is in the interest of setting these standards faster, for the improvement of the industry."

Coleman has been involved in the Society for many years. He's been a governor, the section VP, and the financial VP as well. He has worked for Eastman Kodak for nearly 30 years. Since 1982, he has been Kodak's director of motion picture and television markets development.

Parallel and Serial Interfaces Receive Intense Scrutiny

The Working Group on Digital Video Standards, chaired by Stan Baron of Thomson-CSF, is at work on two standards: a parallel studio interface for digital equipment, and a serial digital interface. The parallel interface, based on an international agreement (CCIR recommendation 601), is fairly close to being a standard. In March 1984, the group published recommended practice 125, which was for a bit parallel digital interface; it is now out for comment.

According to Baron, "We are in the process of finalizing this recommended practice. This document is in basic agreement with similar documents that are being generated by the EBU. All documents will conform with CCIR 601. There is some final tweaking that has to take place having to do with digital audio, ancillary data—how do we handle it, what is appropriate, where do we put it in the unused portions of the TV raster? And we're in the process of working out international agreements for those."

The next step is to work out a serial digital interface. Again, the SMPTE working group has been meeting with other parties, primarily the appropriate EBU ad hoc group, and has worked out "a set of mutually agreeable assumptions:

1) That whatever system we come up with should be suitable for coaxial cable and optical fiber operation eventually. That implies a binary system.
2) That it should be compatible with CCIR 601.
3) That it should allow the transmission of all the appropriate ancillary signals that might be multiplexed in the datastream parallel format.
4) That the code selected should require a limited overhead to restrict frequency range clocking rate. And
5) that it be simple to implement."

"These assumptions were agreed to in February 1984. We also agreed to try to reach a consensus by December 1984 for a basis of a recommended practice—to at least have the basis for a serial system, with all the parties fairly much in agreement."

Baron also says the serial concept has been tested, and no serious difficulties have been found to date. "We seem to be on track toward a December 1984 goal," he says.

Agreement Nears on International Digital Control Standards

The Subcommittee on Digital Control for Television, under the chairmanship of Thomas Meyer of Dynair, has been working jointly with the EBU's working group on control to draft four documents:

1) electrical-mechanical specifications;
2) supervisory specifications which defines how to move messages, recover from errors, and control a network;
3) tributary interconnect—the process of assigning any two or more people on the network to talk to each other;
4) specification on how to write a control language for a specific machine.

Meyer says that in the U.S., "The first two documents are an accomplished fact. Both Ampex and Sony have been providing machines for close to two years now that have the electrical interface actually on the machines.

Document four is just finishing its balloting process, and we'll be looking at comments in a meeting in Atlanta at the end of August. It is just about ready to become a standard. Document three is right behind; it's in the subcommittee ballot process right now and will be going out to the outside world very shortly, after we see the results from the subcommittee balloting."

On the EBU side, all four of these documents have been approved and are currently going through the translation and editorial process for formal publishing, which is scheduled for just before IBC time.

"Both groups are currently working on the first example of a language for VTRs," says Meyer, "and we're presently fairly close on an agreement here and there on a language built according to document four for specific commands for VTRs. There again we have the important companies working very closely on the document, namely Sony and Ampex. We'll be essentially finishing the SMPTE position on the document in Atlanta, and then following IBC we have one of our joint meetings with the EBU. We expect to come out of that with agreement on both sides of the ocean on the VTR dialect—which would become a fifth document, because it is a specific machine dialect. On the EBU side, it will simply be published as an addendum to the main specification."

"Beyond this there will be dialects prepared for other machines. We have work in progress already on film islands. That will probably be the second one to see the light of day. We also have work in progress on audiotape recorders that very closely parallels the VTR work."

Quarter-inch Standard Faces User Test

Back in April 1984, a tentative compromise agreement was reached between Hitachi and Bosch on a single standard for the quarter-inch camera/recorder. It was agreed that the system would provide 20-minute recordings on a single cassette, and that oxide tape would be used.

But according to Working Group on Quarter-Inch Systems chairman Bob Thomas of ABC, a proviso accompanied that compromise: It said that the system must satisfy the performance requirements of users. Toward that end, the working group scheduled a performance test for the middle of October. "Following that," says Thomas, "we will be in a position to evaluate the compromise format and decide what to do next."

"The principal criterion that we have," he continues, "is that third-generation quarter-inch should produce results comparable to first-generation U-Matic." The evaluation will be conducted by the members of the quarter-inch working group. If the test is successful, Thomas says, "we would proceed with the preparation of the standard."

Streeter Predicts Early Digital Recording

"Substantial progress has been made toward a digital recording standard, and a lot of people are predicting a standard in a relatively short time frame," says Richard Streeter, SMPTE's engineering VP. (In the SMPTE structure, the engineering committee chairmen all report to him.)

Streeter has the responsibility of identifying the future of technology and how it will impact the industry.

Streeter, who is director of advanced development for the CBS Broadcast Group, has spent his first few months in office familiarizing himself with the subcommittees and groups. Now the time has come for action. "Toward the end of this year I will reach some conclusions and make decisions," he says.

What sort of decisions? He will help determine, with committee chairmen, what areas of technology to actively pursue and which to eliminate from the agenda. The latter decisions are based, in part, on lack of interest. He then has to "get the resources allocated to the important areas and reduce the list of groups to something that's manageable."

Without question, Streeter's major concern is "the standardization process," and the question of the timeliness of that. "It's a difficult challenge," he explains. "If you try to standardize something too early, there may not be a technological base with sufficient information to allow one to determine the best parameters. And if you try to standardize too late, manufacturers may have committed large expenditures to develop a product, and the marketplace really decides at that point."

Engineering VP Richard Streeter.

Streeter points to half-inch camera/recorders as an example of the SMPTE attempting to standardize too late. "Sony's Betacam and the M-format manufacturers are too committed to their own formats to try to standardize now," he observes. Streeter does, however, hold out a good deal of hope for a quarter-inch standard. "One of the prerequisites for convening the committee was that the manufacturers that had done work in quarter-inch agreed before the committee was actually formed that they would consider a compromise, or a format which was different than the one they had in fact pursued." Partly as a result of this strategy, a tentative compromise agreement was reached in April 1984.

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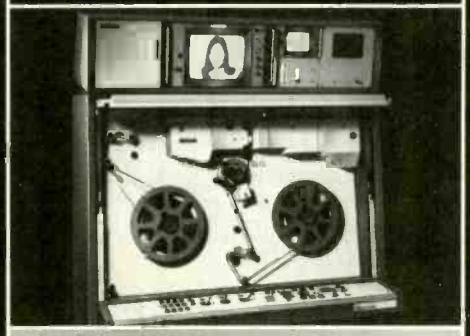

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Abekas will introduce a brand new real-time digital video recorder which lays down either 50 or 100 seconds (two different models) of video on computer disks one frame at a time, then plays them back in real time at rates from still frame through normal playspeed. Sampling is 4 x fsc, and image quality is said to be extremely good. Price for the basic, 50 second model, will be under $100,000. Also on view will be the A-42 still store, and the NAB-introduced digital effects system, shown for the first time at SMPTE in a two-channel version.

ADAMS-SMITH 828

Will introduce a major software package to upgrade the 2600 SY tape synchronizer module. This new feature will be provided to current owners without charge. Production models of the 2600 EE and EEC time code Executive and Controller, introduced at NAB, will be on hand in addition to regular lines of time code and synchronizing products.

ADC MAGNETIC CONTROLS 707

Will show its fiber optic and professional audio connectors, plugs, jacks, panels, and accessories, plus the new Ultra Patch wiring panel.

ADDA CORP. 16

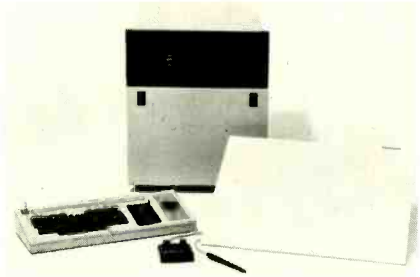
Will show digital production products from its standard line including the ESP-C and ESP-II still stores; the VIP digital video effects processor; the AC-20A digital TBC/synchronizer; and the VW series TBCs.

ADM TECHNOLOGY 745

Premiering a serial interface for its VP series television post-production console, allowing communication between a number of popular editors and the VP console. Standard features will include audio-follow-video, audio breakaway, and self-diagnostics. Also new will be the S/TV stereo audio console for cost-conscious stereo TV handling. Features include 24 stereo mic line inputs each with four or eight preselectable sources, two stereo submasters, and output equalization; priced under $40,000.

A.F. ASSOCIATES 234

Will introduce the AVS 6500 standards converter, a low-cost converter for PAL, SECAM, and NTSC, with RGB and gen-lock. In addition, will introduce Scantex, audio systems for editing. From the regular line, the Marconi B3410 CCD telecine will be highlighted, and A.F. will of course be discussing its turnkey installations and mobile units.



The Ampex AVA-3 graphics system.

AGFA-GEVAERT 254

Will be showing new digital recording tape, and new ½-inch tapes with advanced technology coatings, besides its full line of tape and cassettes.

AMPEREX 218

New products are the XQ 3457, a ⅔-inch diode gun Plumbicon pickup tube, the XQ 3467 ⅔-inch triode tube, and the XQ 4187 ⅔-inch high stability diode gun Plumbicon. This in addition to the complete line of other Plumbicons.

AMPEX, A/V SYSTEMS 187, 245, 268

Highlighted product will be the brand-new VPR-6 Type C VTR, a full-function production machine with many advanced design features falling midway between the VPR-80 and the VPR-3. Also shown will be the ARC recorder/camera; a complete editing system geared around the ACE editor; new software for the ADO effects system; and both the AVA-3 digital graphics system and the ESS-3 digital still store.

AMPEX TAPE 187, 245, 268

Will show a complete line of videotape and cassettes including 196 one-inch tape and 197 ¾-inch cassettes.

AMTEL SYSTEMS 29

Unveiling the 6000 series modular time code system for VITC and longitudinal SMPTE code, which will allow customers to put together their own time code system. Will also present the regular lines of time code, character generator, and switcher equipment.

ANGENIEUX 36

New will be the 14x9 ENG lens, claimed to have the fastest aperture in its category. Also lighter, better center of gravity, and with a rugged rod-and-groove zoom mechanism instead of gear drive. From regular lenses, the 15x9 EFP and 15x7 CCD will get special attention.

ANTON/BAUER 83, 98

Highlighting the MicroLight modular lighting system with a new automated lighting power adaptor. The new LightLink, a fiber optic system for MicroControl camera control system, and a new battery diagnostic system join the line of camera and VTR power supplies.

ANVIL CASES 768

Will exhibit new MACC extra-strength cases, designed originally for military applications. Also showing cinema, lighting, and lighting kit cases, and other equipment cases.

ARRIFLEX 145

Introducing a 200 W HMI fresnel; also ARRISUN 575 and 1200 W tungsten light with Sylvania Brite Beam lamp. ARRILITE tungsten lights debuted at NAB. ARRI VAFE, video assist film editing, and ArriTime Code for film also making first appearance here. Full lines of ARRI lights and 35mm cameras.

ASACA/SHIBASOKU 212

Will introduce a new 26-inch high resolution delta monitor. Other audio and video T&M equipment, portable production systems, cart system, and digital editing display will be on hand.

AUDICO 761

Will announce the 751 VT, which allows its tape loading system to load prerecorded tape automatically. System is interchangeable between all formats, with 1-inch optionally available. Also will be showing loader and reloader lines.

AURORA SYSTEMS 718

Will show the Aurora/100 Videographic and Animation system with new features introduced at NAB such as 3D perspective transformation.

AUTOCUE 717

Will bring Autocue 1000 and 2000 computerized prompting systems, and Wordbox II location prompter.

BELDEN COMMUNICATIONS 94

Introducing new fluorescent lighting correction gels. Also showing Lee resin polyester filters and Lee's Modulight, an 8000 W HMI. Plus standard lines of filters, lights, color and diffusion materials.

ROBERT BOSCH CORP. 25, 48

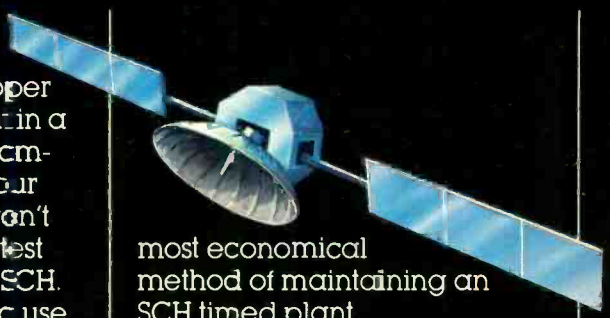
The BCF-10 playback unit for Quartercam will be in operation. Also on view the MCS-2000 master control switcher, FGS-4000 with new software, and the FRP-60 color corrector for the FDL-60 telecine. Cameras, editing systems, routing switchers, and master control will be there in force.

WE'VE DEVELOPED A WAY TO ELIMINATE HORIZONTAL SHIFT. AUTOMATICALLY.

Grumman has solved the problem of horizontal shift caused by improper SCH timing. And solved it in a way that's not only economical, it's automatic. With our SYNC PROC™ unit you won't waste time, people and test equipment establishing SCH. And editors won't have to use trial and error to get the correct matched frame edit between two video signal sources.

SYNC PROC™ solves the problem in a simple way. It generates a color field identification signal that's positioned on the "front porch" of the TV signal. The ambiguity with RS-170A is thereby ended; you get positive identification for one field of the four-color field sequence. With color field identification, the SYNC PROC™ automatically maintains proper SCH timing, eliminating horizontal shift.

SYNC PROC™ provides the most economical method of maintaining an SCH timed plant.



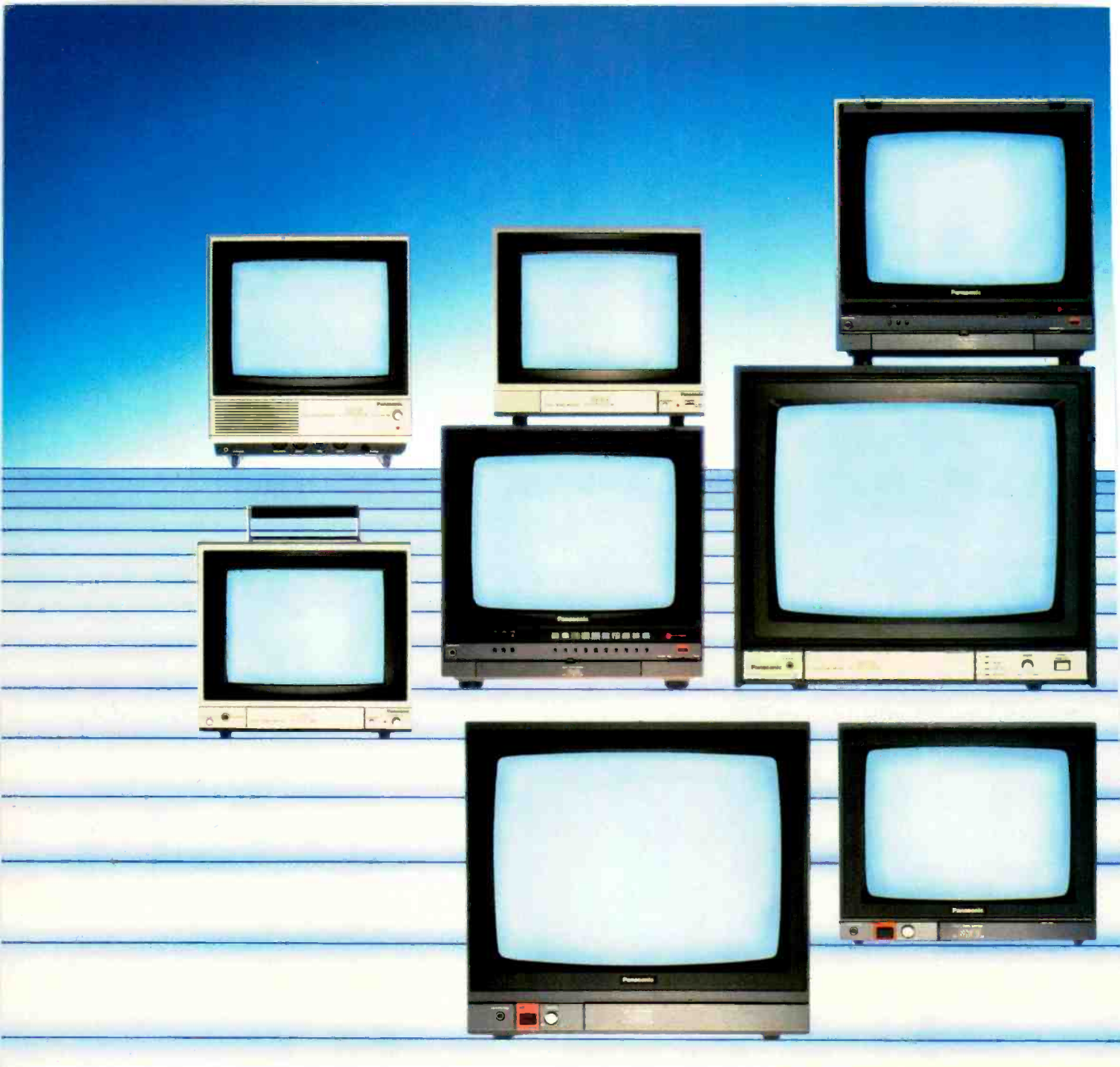
And it comes packaged with normally required features: a processing amplifier and sync generator and other optional features. Our expanding line of unique process and control products for the broadcast industry include color encoding, satellite transmission processing, machine control and many other state-of-the-art developments, and beyond.

For more information, write Business Development, Mail Stop A24-43, Grumman Aerospace Corporation, Great River, NY 11739, or call (516) 435-6001.

GRUMMAN

See us at the NAB Convention Booth #1631, April 29-May 2, Las Vegas, Nevada.

Circle 159 on Reader Service Card



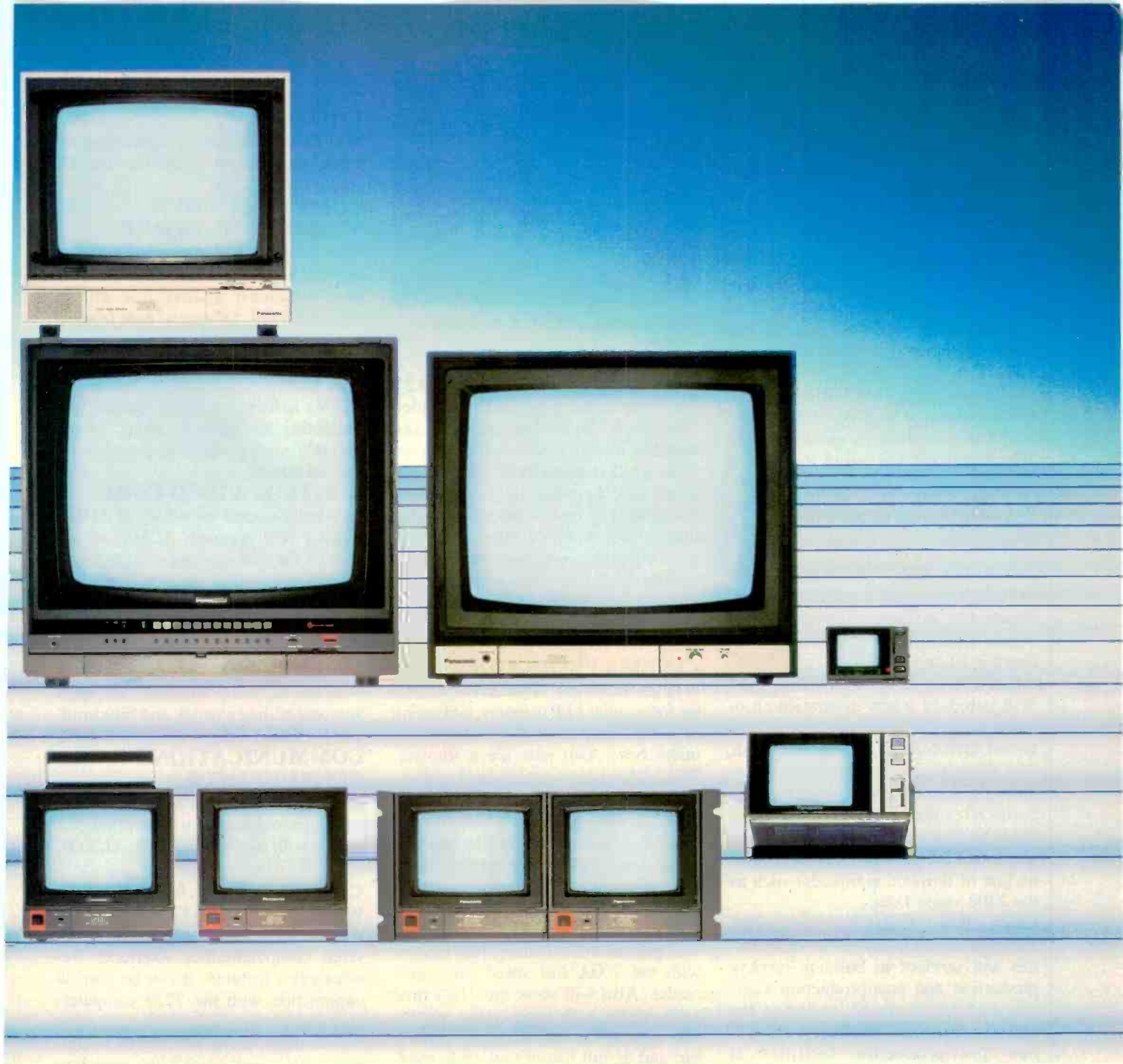
Panasonic® Industrial Monitors. Designed for teleproduction. Priced for any production.

When it comes to industrial monitors, it pays to come to Panasonic. Because Panasonic has just the right monitor for just about any application or specification you can think of. But don't think monitors good enough for teleproduction also have to be expensive. Take a good look at the Panasonic BT and CT series. What you'll see is outstanding picture quality as well as a full complement of features and controls. What you won't see are high prices.

When you look at the BT-S1900N 19" monitor (all screen sizes measured diagonally), you'll see one of our most brilliant and best defined color pictures ever. One reason is our CompuFocus™ picture tube with OverLapping Field Lens gun. Another is a switchable comb filter which increases definition for easy detection of signal flaws. Behind its push-open door lies a full array of operating controls. Like a normal/underscan switch, pulse cross, horizontal/vertical centering controls and blue-only for easy adjustment of chrominance and hue.

The 13" BT-S1300N has the same great picture, controls and inputs. And our 7" BT-S700N is ideal for mobile units and outdoor production because it operates on AC or DC. It also features controls for normal/underscan, pulse cross, blue-only and much more.

The 7" BT-S701N is equipped with switchable line inputs and external sync terminals while the BT-S702 consists of two 701 monitors mounted in



a dual rack adapter.

The Panasonic CT series will also show you a picture that's clear, well-defined and brilliant in color. Because both monitors have either CompuFocus or Quintrix II® picture tubes. And, of course, all models have 8-pin video input and output connectors as well as loop-through capability for easy system adaptation.

When portability and light weight are important, choose from two AC/DC monitor/receivers: the 5" CT-500V, or the CT-300VT with its 2.6" screen—the world's smallest industrial color monitor.

There are also three 10" monitors for educational, industrial, computer, medical, and scientific applications. There's the CT-1330V monitor/receiver, the CT-1330M monitor, and the CT-1350MG with NTSC composite and RGB inputs.

If you're big on 19" monitors, the CT series keeps you covered in a big way. Both our CT-1930V monitor/receiver and our CT-1920M have comb filters for increased picture definition, while the CT-2000M lets you switch from PAL to SECAM to either NTSC 3.58 or NTSC 4.43.

So, no matter what you are looking for, you can't afford to overlook Panasonic Industrial Monitors.

To see the Panasonic BT or CT series call your regional Panasonic office:

Northeast: (201) 348-7620
Midwest: (312) 981-4826
Southeast: (404) 925-6835
Southwest: (214) 257-0763
West: (714) 895-7200

Panasonic®
AUDIO-VIDEO SYSTEMS DIVISION

Circle 160 on Reader Service Card

CALZONE CASE CO. 763
Will introduce a complete line of computer cases as well as double-width floating rack cases, special design video camera cases, and Proline II short-shell audio and video effects cases. Regular lines of cases also.

THE CAMERA MART
Morgan Suite, Hilton
Will introduce Softube, "an alternative to fluorescent lighting." Also will be showing complete lines of audio and video equipment for rental or sale.

CANON 89
Will feature the J18x9 BIE lens for ENG cameras, a long 18 x 9 mm focal length with built-in 2x extender. Will also feature its 40x zoom for ⅔-inch cameras such as the Sony BVP-360, also with 2x extender; maximum aperture is f/1.2 to 190 mm (f/4 at 760 mm). Will also show the J15x9.5 zoom.

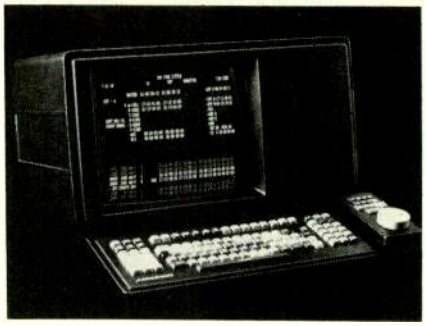
DWIGHT CAVENDISH 764
Will show its videocassette duplicator, which acts as routing switcher, machine control, and video/audio distribution for 10 or more VCRs.

CENTRAL DYNAMICS 734
Will introduce a new generation chroma keyer. Also will show the SDS 2 signal distribution system; the DSK 864 downstream keyer with four inputs; the Model 680 representing the Series 80 production switchers; and the VAS 1010 10x1 switcher with stereo audio and breakaway. Also will have its line of terminal equipment such as the 2300 video DAs.

CENTRO CORP. 705
Will present an overview of its activities and services in building turnkey production and post-production facilities and remote trucks, including the recently delivered One-Pass truck and new post-production facilities at Paramount.

CENTURY PRECISION OPTICS 91
Will introduce a smaller, lighter, and cheaper version of the Periscope lens, designed especially for ⅔-inch video cameras. Will also feature a wide angle attachment set for video zoom lenses, besides its usual assortment of camera lenses and accessories.

CETEC VEGA 176
Will introduce the low-cost, high quality T-36 handheld wireless mic. Also the battery-powered 67-A portable diversity receiver, the 66-A receiver, and R-42 receiver with a GaAsFET front end. The Q-System line will be featured from the regular line of RF mic and intercom products.



CMX's 3400 with voice and touch editing.

CHYRON CORP. 135
Will show the 4100 EX expanded Chyron 4, with doubled font and message memory. Other additions include x,y,z rotation in 3D perspective, automatic kerning (inter-character tightening) of fonts, custom edging of fonts in any width or color, automatic word expansion and compression, and scaling of background graphics. The VP-2, a low-cost standalone character/graphics generator, will be exhibited along with the RGU-2 and VP-1.

CINEMA PRODUCTS 181
Will introduce the "Film Style" studio rig for popular EFP cameras, consisting of a J-6 zoom control and Universal matte box. Also new are a tiltplate, WRC-3A wireless lens control system, Steadicam adjustable load capacity arm, and RDS 4, 6, 8 amp batteries and charger. Standard lines of film and video products will include digital remote control for ENG/EFP cameras, and lighting.

CIPHER DIGITAL 96
Will present a new feature, four keyers, with the 700A full speed time code reader. Also will show the 710A time code reader with regenerated output, 766 vertical interval time code generator, and its full line of time code products, both vertical and longitudinal.

CMX/ORROX 22, 79
Introducing added software, over 50 feature enhancements plus added capacity for the System 3400. Also will show the Multi I2 interface, which groups or clusters interfaces into one chassis, as well as the Edge

COHERENT COMMUNICATIONS 33
Plans to introduce several new products, including a complete SMPTE time code system for film. Also a new RF mic dual receiver, a 4-By case for receivers, a new rack-mount, single space box holding up to six mic receivers, a new hand-held radio mic transmitter that accepts interchangeable mic elements, and the MX-80 mini mic mixer. Lastly, a new mini video transmitter.

COLORTRAN 793
Will feature its line of lighting, dimming, and control equipment for TV studio lighting.

COMPREHENSIVE VIDEO SUPPLY CORP. 203
New products will consist of a line of lighting accessories and supplies, and a new broadcast quality mic mixer, priced at $599. Of special note from its regular lines of audio, lighting, power, diagnostic, and production products will be the Computer Aided Video (CAV) software package for editing, budgeting and programming. Also a portable mini production switcher for special effects.

CONTROL VIDEO CORP. 16
(A wholly-owned subsidiary of **ADDA Corp.**) Will premiere ALMS, an advanced list management system for its Lightfinger 2000 A/B roll editing system.

CONVERGENCE CORP. 778
Will present its Super 90 Plus single source, cuts-only editing system, along with the ECS-204 advanced list management editing system, and Editdroid.

CORPORATE COMMUNICATIONS CONSULTANTS 59
Showing tape-to-tape and film-to-tape computerized scene-to-scene color correction with the System EBM, XL2000, 60C3, XL II, and 60XLB2.

CROSSPOINT LATCH 141
Will introduce the 6112 AK switcher, with full microprocessor control and serial computer/editor interface. Besides extra features, it can be used in conjunction with the 7239 computerized controller. The 7239 Autodrive will be there, along with the 6139 BH, 6112 BH, and 6109/7209 switcher/controller.

DESISTI LIGHTING/ DESMAR 263
Will exhibit lighting equipment for all media, including HMI, CID discharge spot and softlights, quartz studio fresnels, cyc lights, and location kits. Plus accessories and grip equipment.

DIGITAL VIDEO SYSTEMS 263
Introducing the DPS 185 test sync generator, and Fourmatte, which can synchronize and display up to four separate signals. From the regular line, the Phaser 2A TBC, Phaser 5 synchronizers, DPS 103 component digital TBC, and also AMAC and EMAC encription.

DIGIVISION 175
Showing its DRGB-343 high-reso-

900. 950.

The original ProCam™ Video Cameras that combine high-end production quality with JVC value.

ProCam 900, with its LOC diode gun Saticon* tubes, and ProCam 950 with its LOC diode gun Plumbicon** tubes. Significant achievements from the acknowledged leader in the miniaturization of electronic components: JVC. Never before has so much performance been packaged into such compact cameras.

These ProCam Video Cameras have earned a reputation for high quality engineering, rugged construction, and value; a reputation enhanced by operating performance, handling convenience, and on-the-job versatility.

Performance features abound, and include, among others, electromatic focus and deflection yokes, automatic shift registration at the flip of a switch, 8-bit digital auto-white and -black balance circuits, and automatic beam control. No video cameras in their class are *easier to handle*. The 900 and 950 are housed in compact, diecast aluminum bodies that weigh in at only 11½ pounds; so they're easily shouldered and carried.

A broad selection of accessories and attachments impart to the 900 and 950 not only a great flexibility in meeting specific user requirements; but also a job-to-job versatility unmatched in their class.

News coverage, documentaries, commercial production, sales meetings, seminars are but a few of the applications for these cameras. In-house or on-location, you know that with the 900 and 950 you're always assured of the highest quality teleproduct on possible.

For a demonstration of the ProCam 900 or 950 Video Cameras, Spec Sheets, or JVC's complete catalog, call, toll-free:

1-800-JVC-5825

JVC Company of America
Professional Video Division
41 Slater Drive, Elmwood Park, N.J. 07407
JVC CANADA, Scarborough, Ont.

PROCAM

JVC

JVC COMPANY OF AMERICA
Professional Video Division

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lution digital video converter for upping 525 NTSC or RGB to 1049 scan rate. Also may introduce a real time monochrome contrast with RS-170A input and output.

DOLBY LABORATORIES 185
Will have on hand its full line of noise reduction for audio production recorders and VTRs. Featuring the Model 380 two-channel type A noise reduction for Ampex VPR-3 and 80.

DSC (DIGITAL SERVICES CORP.) 180
Will have production models of the Illusion digital video effects generator introduced at NAB. Also will show Flexikey, a digital effects system for manipulating key images and generating wipes.

DUBNER COMPUTER SYSTEMS 711
Is adding anti-aliasing hardware and texture mapping software to its CBG-2 video graphics system. Regular line includes the CCC-12 color corrector computer for automated film-to-tape and tape-to-tape transfers.

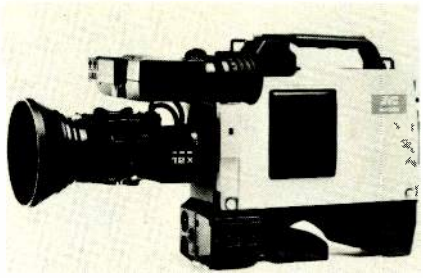
EASTMAN KODAK 794
Will present its complete lines of videotape and film, including half-, ⅔-, and one-inch tape, Eastman Color high speed negative film 5294, LC print film 5380; Eastman 5384, and the Datakode electronic time code system.

ECHOLAB 742
Will show the AFS audio-follow-video switcher, now in production, controlled by the SE/3 special effects generator. The microprocessor-based AFS can also stand alone or be run by a video editor/controller.

EECO 818
Will unveil a new workstation for its EMME multimachine editing system designed forus in film-style editing; invitations for demonstrations at a suite in the Sheraton will be available at the booth. The IVES desk top editing system will also be at the suite, with its A/B option for three machine control, plus special effects capability. The EECO VAC 300 still frame digital audio encoder/decoder using laser discs will be on view at the 3M booth.

EEV 30
Will display its latest generation of one-inch diode gun Leddicons, 8490 and 8496, with a longer life cathode. Also 30 mm diode Leddicons, 8450 and 8452, the 8440 with high resolution for TK 47B2 cameras, and the 8462 ⅔-inch for ENG/EFP cameras.

ELECTRONIC APPLICATIONS 143
Introducing the new Christie CASF1



JVC's KY-320U Procam.

ENG battery care unit; the Christie Reflex 20 burp charging unit; and PEP 800 On-Cam ½-inch VHS-C "Newscassette."

EURO EQUIPMENT SERVICE 732
Will highlight its computer-assisted motion graphics system for producing video and film animation.

FOR-A CORP. 169
Will introduce the VTW-400 character generator with 64 colors available character by character; also the FA-400 and FA-420 TBCs, both with full frame memory and freeze frame; the 420 is heterodyne and direct color and has a DOC. Also the CCS-4300 color corrector (now being shipped), plus other digital processing and production products.

FORTEL 161
Will premier the CCD YC component TBC which uses the dub output from Sony VTRs and is geared primarily for VO-5800 users. Also highlighting the TBC 32, the Y 688 total error corrector, and CCD HP TBC.

FREZZOLINI ELECTRONICS 819
Will show its complete line of premium grade "High-Tech" nickel cadmium battery packs, chargers and ac adaptors. Portable and studio lighting kits, including the 100 W Mini-Fill light with kit.

FUJINON 265
Will display its full line of BCTV and ENG lenses for all color cameras, including the 44x lens for ⅔-inch cameras introduced at NAB, along with a 17x studio zoom.

FUJI PHOTO FILM, USA 76
Will have on hand its 701E two-inch videotape, 621 one-inch tape, 521/521 BR ¾-inch cassettes, 421/321 ½-inch Super HG cassettes, 451/351 ½-inch cassettes, and VHS and Beta Super XG cassettes. Also audio cassettes, floppy discs, and Fuji film.

G&M POWER PRODUCTS 766
Exhibiting battery belts and packs for video and film cameras, along with chargers, monitors, and test equipment for batteries.

ALAN GORDON ENTERPRISES 166
Will take the wraps off its new Image 300, a fully integrated high speed camera system for slow and super slow motion. Features are 24-300 fps, full aperture video assist, rotating mirror shutter with fully reflexed viewfinder. Available for rental only. Regular line of lighting, power and support equipment.

GRASS VALLEY GROUP 252
Will bring the new Model 100 switcher introduced at NAB, along with the Model 300/MkII DVE and 1680 video production switchers, the 1600-CV multiformat component video switcher, the Horizon and 440 audio-video routing switchers, and Ten-X small audio-video routing switcher. Plus 3400 video distribution equipmnet, 3200 sync and video processing equipment and Wavelink fiber optic transmission system, which has an added 1300 nanometer capability.

GRUMMAN AEROSPACE 837
Featuring the distributed remote control and status monitoring system; the 501 Sync Proc for ScH timing; and the Rainbow Sound system offering a second audio channel encoded in the video format.

HARRIS CORP. 227
Will show its full lines of studio and production equipment including the TC-90 ENG/EFP camera; the 2 and 13 GHz microwave transmitters and receivers, plus other microwave equipment; The new HVE digital video effects system; TBCs, synchronizers, and digital processors such as the HVS 540; and the Iris II digital still store system.

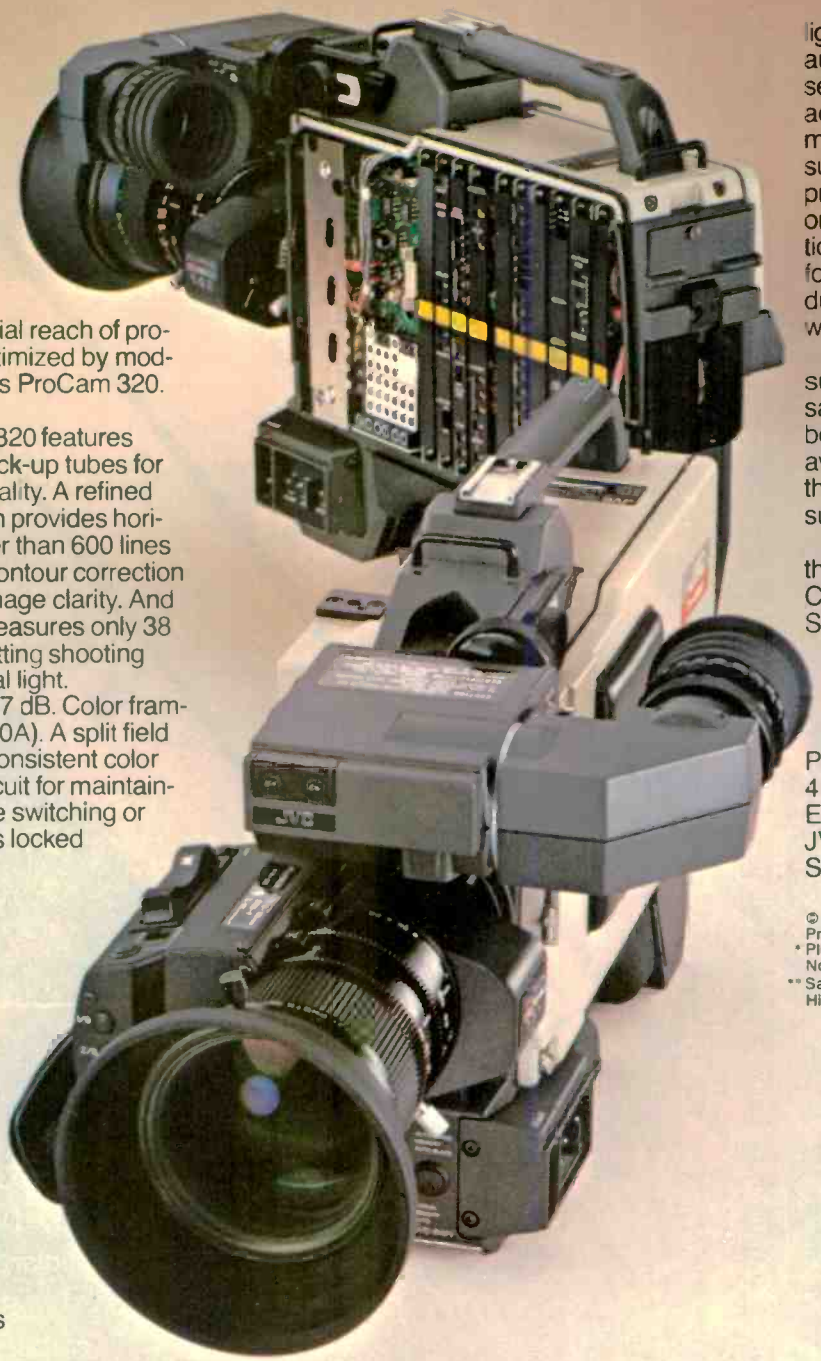
HARRISON SYSTEMS 822
Will spotlight its Pro 7 post-production audio console with the VSI video switching interface for audio-follow-video. Will also bring one of the larger TV 3 post-production consoles from among its full range of mixing consoles for stereo production, pp, and on-air radio and TV production.

HEDCO (HUGHES) 714
Will add a new 4x1 audio or video switcher to its lines of audio and video routing switchers and distribution amps.

KARL HEITZ 713
Setting up its Gitzo tripods with levelling balls, and 100 percent fluid

320.

The ProCam™ Video Camera with Plumbicon* tubes at Saticon** price.



JVC's experience—and success—in designing the highest quality and reliability into compact video production cameras is unmatched. Now, continuing this tradition of high performance at an affordable price, JVC has brought a "high-end" teleproduction camera within the financial reach of production people often victimized by modest budgets. This time, it's ProCam 320.

What a package!

SENSITIVITY. ProCam 320 features three, 2/3" Plumbicon pick-up tubes for incomparable picture quality. A refined f/1.4 prism optics system provides horizontal resolution of better than 600 lines at center. A 2H vertical contour correction circuit further assures image clarity. And minimum illumination measures only 38 lux (3.6 fc) at f/1.7, permitting shooting even in limited or artificial light.

A video S/N ratio of 57 dB. Color framing output signal (RS-170A). A split field color bar generator for consistent color reference. A genlock circuit for maintaining a stable picture while switching or mixing with other signals locked on the same source.

EASY OPERATION. Several 8-bit data memory chips offer operator conveniences for quick set-up and consistent performance. These include: Auto centering, auto-black balance and auto-white balance, auto black level stabilization and auto beam control circuits. Matrix masking for true color reproduction and automatic protection for the pick-up tubes are a few of the many features standard on this new camera.

VERSATILITY. Easy portability. Outstanding performance in low-level lighting. High degree of automation. An extensive selection of options and accessories combine to make the ProCam 320 suitable for both studio production, EFP, or ENG; or, indeed, to any application, anywhere, that calls for top quality video production while staying within a tight budget.

PROCAM TECHNICAL SUPPORT. Your ProCam sales representative will be happy to explain the availability and calibre of the ProCam technical support program.

For a demonstration of the ProCam 320 Video Camera, a 320 Spec Sheet, or JVC's complete catalog, call, toll-free:

1-800-JVC-5825

JVC Company of America
Professional Video Division
41 Slater Drive,
Elmwood Park, N.J. 07407
JVC CANADA,
Scarborough, Ont.

PROCAM

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JVC COMPANY OF AMERICA
Professional Video Division

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TIME BASE CORRECTION RE-DEFINED

Introducing the first totally different approach to time base correction in 10 years.

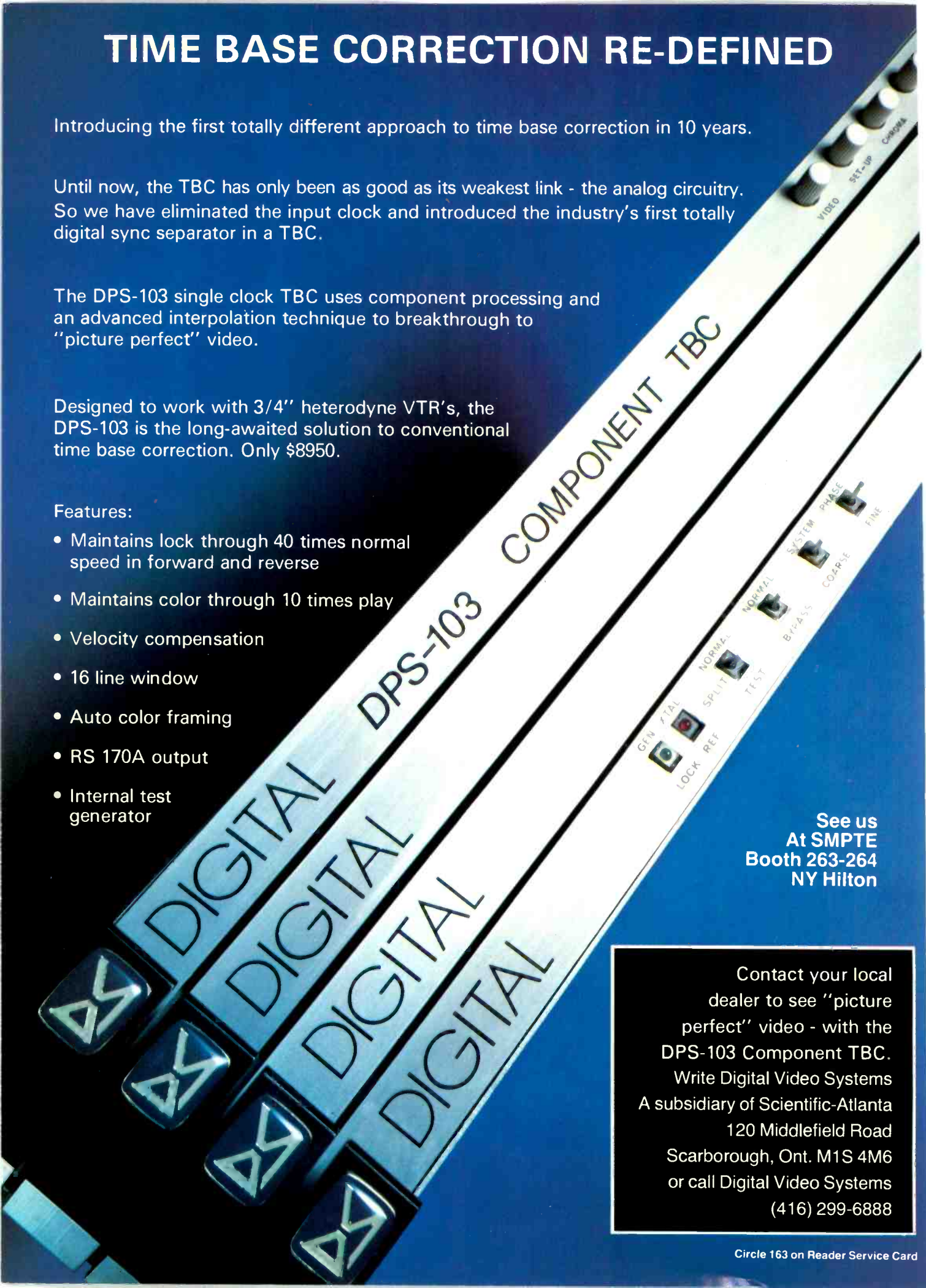
Until now, the TBC has only been as good as its weakest link - the analog circuitry. So we have eliminated the input clock and introduced the industry's first totally digital sync separator in a TBC.

The DPS-103 single clock TBC uses component processing and an advanced interpolation technique to breakthrough to "picture perfect" video.

Designed to work with 3/4" heterodyne VTR's, the DPS-103 is the long-awaited solution to conventional time base correction. Only $8950.

Features:

- Maintains lock through 40 times normal speed in forward and reverse
- Maintains color through 10 times play
- Velocity compensation
- 16 line window
- Auto color framing
- RS 170A output
- Internal test generator



See us At SMPTE Booth 263-264 NY Hilton

Contact your local dealer to see "picture perfect" video - with the DPS-103 Component TBC.

Write Digital Video Systems
A subsidiary of Scientific-Atlanta
120 Middlefield Road
Scarborough, Ont. M1S 4M6
or call Digital Video Systems
(416) 299-6888

Circle 163 on Reader Service Card

heads, for cameras up to 50 and 100 pounds. Also bringing its briefcase-sized fishpoles, and Kinoptik portable mini collinator, along with the full repertoire of columns, dollies, light stands, and lenses.

HITACHI DENSHI 240

Will introduce the Z-31 three-tube camera with fully automatic setup and reportedly excellent horizontal resolution and S/N. Features auto centering, pulse cancellation, and dynamic registration compensation. Also showing the HR-230 Type C VTR, and the SK-97 and 970 ⅔-inch field and studio cameras with automatic setup, along with the rest of its regular lines of cameras and VTRs, including the quarter-inch recorder/camera system.

IKEGAMI ELECTRONCS 87, 116

Will feature the HL-95 Unicam, a front end for all existing half- and quarter-inch recorder/camera VCRs, also available in self-contained ENG and EFP configurations. Also a complete HDTV production system; the new ITC-730 camera; the EC-35HD high definition electronic cinematography camera; the TKC-990 auto setup telecine camera system; a full line of monitors including the TM0-0RH 8.5 V PIL high resolution CRT and the Series 10 13 and 19 V delta gun high resolution CRTs; and a full range of other cameras and monitors.

IMAGE VIDEO 783

Featuring its 8200, 8020, and 8010 master control switchers, plus routing switchers.

JVC 777

Will highlight its Procam camera series, which includes the KY 950 U, 950 U, and the newer KY 320 U Plumbicon camera. Also appearing will be its digital audio mastering system, Super Beam mic, and other higher end products.

K&H PRODUCTS/ PORTA-BRACE 179

Will introduce a new line of large to extra large production cases for video and film equipment. Regular line of carrying cases and carts for portable ATRs, cameras, and production field equipment will also be shown.

LAKE SYSTEMS CORP. 207

On hand will be the La-Kart videocassette automation system, in versions for Type M, Betacam, and the standard ¾-inch U-Matic cassettes.

LEITCH VIDEO 769

May introduce a new frame synchronizer, but definitely will have its lines of video processors, distribution amps, sync and digital test signal generators, ScH phase monitors, and master clock systems.

LENCO 211

Will premier a second generation Videoscope ScH phase adjustor with PAL and NTSC versions. Plus recently introduced PAL sync generator, encoder and changeover unit, NTSC sync generator, and standalone decoder will also be there along with established lines of color and monochrome monitors, and other products.

LEXICON 99

Highlighting the 1200C audio time compressor/expander which controls playback equipment (RS-422 communications) while preserving audio. Model 1300M/1300S audio delay synchronizer compensates for video synchronizer delays and features automatic compensation for a wide variety of equipment and standards. Also showing model 200 stereo programmable digital reverberator for environmental audio correction, and the 224LX digital reveberator/effects processor, a recording studio reverb system, plus other audio effects equipment.

LIPSNER-SMITH 104

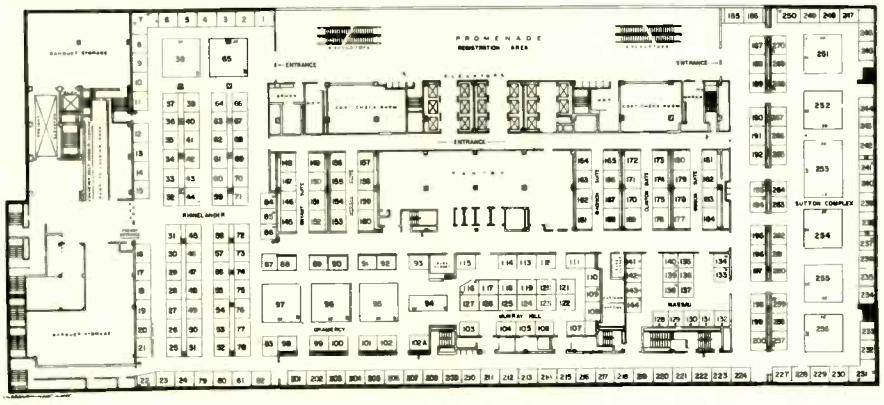
Bringing its Reelwind high speed film rewinder with 3000 foot capacity for 16 and 35 mm film. Also showing the CF200 ultrasonic film cleaner and low-cost CF190 cleaner.

LISTEC TELEVISION EQUIPMENT 32

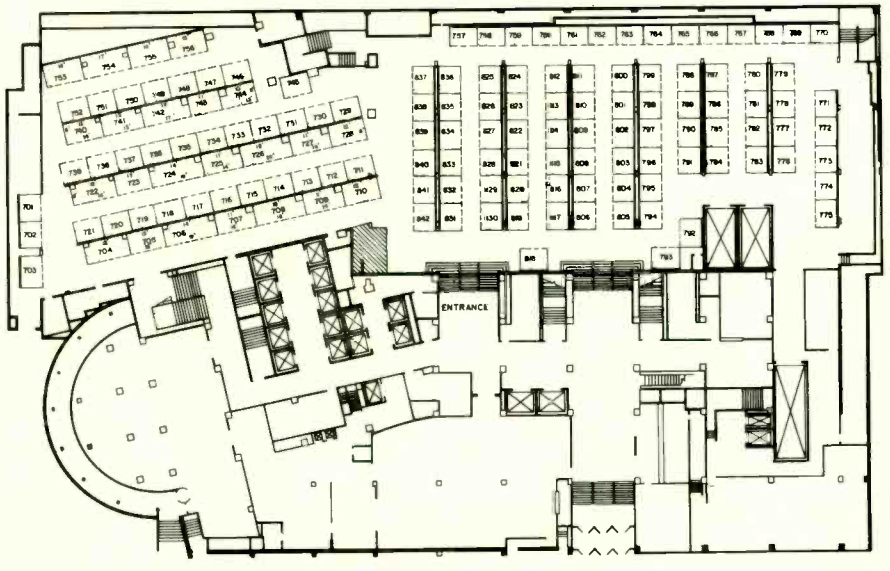
Recently introduced electronic prompting system with A-2100 Electronic Scriptwriter that allows editing at any time, instant pause and backup, printed text, and remote prompter control will be on hand. The A-2000 on-camera display unit mounts below the lens; A-2200 script table acts as backup. Listec will also have Vinten's new Cormorant 90 EFP pan and tilt head which lists for $4350, along with the full line of Vinten camera supports and prompters.

LOWEL-LIGHT 74

Will introduce new molded cases, along with its Frame-Up portable lighting control frame system, and extensive location lighting equipment.



NEW YORK HILTON



SHERATON CENTRE

LTM CORP. 112
Will show its full line of HMIs, including the newest 12 kW Luxarc focusing Fresnel HMI light, and Cinepar 1200, 575, and 2000 W units. Also studio incandescents, such as the newer 1000 W to 10 kW Fresnels, and Pepper miniature quartz-halogen lights.

3M, BROADCAST & RELATED PRODUCTS 39
Highlighting its BFA paint system and the 1000 and 5000 character generators, all introduced at NAB. Will also present its machine control and routing switchers, including the series H hybrid routing switchers.

3M, MAGNETIC A/V PRODUCTS 60
Will bring the professional PV and PB ½-inch videocassettes, Scotch 480 one-inch mastering tape, Cinetrak magnetic film for audio and recording, and will demonstrate the anti-static treatment used on most 3M cassettes.

M/A-COM MVS 730
Will present its 40 GHz ENG camera link and newer multiband portables. Also the 7 MR transmitter and MRC receiver. Among fixed and portable radios, the 23 GHz unit being used by broadcasters.

MAGNA-TECH ELECTRONICS 69
Will present products from its line of 16 and 35 mm magnetic film recorders and reproducers including high-speed models, electronic looping system, projectors, and electronic footage counters.

MATTHEWS STUDIO EQUIPMENT 198
Will have new kit stands, grid hanging monitor brackets, and accessories for the Cam-Remote remote control pan tilt head which was introduced last April. Matthews will also feature its hardware and accessories for TV and film.

MCI/QUANTEL 66
Will display the recently introduced Encore digital effects system. The DPB 7000 Paint Box and Mirage 3D graphics system will be in a separate suite.

MERLIN ENGINEERING WORKS 201
Introducing the ME 888 standards converter, touted as a high performance, broadcast quality, multi-standard machine. Also new will be the ME 238-A-G long play kit for Ampex's new VPR-6. From the regular line, the ME 308 video camera features a radar screen showing speeds for sports.

MICRON AUDIO PRODUCTS 729
Will introduce a new line of companded RF mic systems: the MR-510 mobile receiver, MDR-530 mobile diversity receiver, MDR-540 modular space diversity receiver, the TX-501 pocket transmitter, and the TX-503 modular hand-held transmitter.

The Tektronix 1750 waveform monitor/vectorscope.

MICROTIME 221
Premiering the T220 FIT Format Interchange TBC, a new digital component TBC, available for NTSC and PAL, which will operate with any of the new analog component recording formats, priced at $14,900 with delivery after November 1. Regular lines will include other digital TBCs, frame and RBC frame synchronizers, and effects systems.

MIDWEST CORP. 709
Will be talking about the design and construction of video mobile production units, and its systems design capabilities.

MINOLTA CORP. 103
Will show a recent addition to its line of luminance meters, the TV Color Analyzer II, a low measurement model of special interest to broadcasters since it measures from .2 to 58 foot-lamberts for use in adjusting color and light balance of CRTs/monitors.

MITCHELL CAMERA CORP. 165
Showing its line of universal fluid heads and the Mitchell lightweight geared head.

MOLE-RICHARDSON 260
Will display the 12, 6, and 2.4 kW dc Moleelectronic dimmers, 12 kW ac to dc dimmer, 12 kW HMI Fresnel Solar-arc Solarspot, 6 kW HMI with 14-inch Fresnel Solar-Art Solarspot, 200, 575, and 1200 W HMI Par Molequartz Solarspot, the Baby Solarspot line, Softlites, grip equipment, hangers, and adaptors.

MOTOROLA C&E 737
Will demonstrate its remote pickup broadcast and studio/field radio communications and cueing systems, radio paging systems, base stations, mobile and portable equipment, and CCTV communications systems.

NAGRA MAGNETIC RECORDERS 35
Introducing 4S TC stereo time code, new to its regular line of T-Audio time code. Also the complete line of Nagra field recorders and accessories.

NEC AMERICA 195
Will show its E-Flex digital video effects system with Optiflex 3D and perspective control; SP-3 CCD cameras; FS-18 frame synchronizer; FS-19 frame sync with 10-bit quantization for a transparent signal; the AS-18 audio delay synchronizer; and other broadcast equipment.

RUPERT NEVE 833
Will unveil Necam 96, a new microprocessor-based system for displaying mix information on a color video monitor. This system will be demonstrated on Neve's 8112A, a 32 input, 48-track master recording and mixing console displayed in a video post-production and multi-track recording configuration. An example of the 542 console line will also be there in either an 8 or 12 input version.

N.O.V.A. SYSTEMS 770
Will introduce a new line of digital TBCs for both heterodyne and direct signal processing; specs include wide window, picture quality processing; it works with ¾-inch and half-inch VCRs. Also will expand its 500 series to work with a wider variety of tape recorders.

NURAD 173
Highlighting Superpod airborne microwave antenna with Loran-C, and will show both single- and dual-band central receive antenna systems for ENG operations, transmit antennas for remote operations, STL/ICR systems, and a complete line of portable and rack-mounted radios.

OSRAM SALES CORP. 93
Will feature its Osram HMI Daylight lamps and 3200 degree tungsten-halogen lamps.

OTARI CORP. 722
Will feature the MX-70 multitrack ATR with 8 or 16 tracks for one-inch tape, 8 tracks for ½-inch downconversion, optional serial remote control with RS 232C or 422. Other audio recorders will include the MTR-20 series with various ¼- and ½-inch tape and track combinations and a full auto record alignment circuit with onboard microprocessor; and the MTR-90 one- and two-inch multitrack ATR with a

Stereo TV is the one to watch.

Flash. *Stereo TV is the hot topic at the 1984 Consumer Electronics Show in Chicago.*

Flash. *Every major TV set manufacturer plans to put multichannel units on the street by 1985.*

Flash. *NBC announces The Tonight Show and Friday Night Videos will soon be recorded in stereo.*

Flash. *ABC tests bilingual broadcasts of The Fall Guy in Spanish markets; ratings soar.*

Flash. *NEC introduces VHF and UHF transmitters with full stereo sound.*

In 1977.

We signed on seven years ago.

Stereo TV may be hot, but it's nothing new at NEC.

You see, we prototyped it way back in 1969. And signed on with our first multichannel transmitter in 1977.

And since then, we've installed more than 100 stereo TV transmitters in Japan and Australia. With the same proven technology found in more than 1,400 NEC transmitters around the world.

So now, as America moves into stereo, NEC stands ready to offer you this exciting new technology.

Tested. Tenured. And fine-tuned.

Stereo TV Transmitters. Right now. From NEC.

Stereo TV is just a matter of when. So what can you do now?

Well, you could buy unproven technology. And pray that you don't pay for trial and error. Sooner and later.

Or, you can call NEC toll-free at 1-800-323-6656. We have a full line of multichannel transmitters, with single output powers up to 35 kW, that we'd love to show you.

You see, we're the one to watch in stereo television. Because we already have been for seven years.

NEC

IMAGINE WHAT WE'LL DO FOR YOU

NEC America, Inc., Broadcast Equipment Division, 130 Martin Lane, Elk Grove Village, IL 60007, in Illinois 312-640-3792. 650-8416

Circle 165 on Reader Service Card

SMPTE time code module, introduced at NAB. Some models will appear from Otari's regular line of reel-to-reel recorder/reproducers, and the EC-400 series resolvers and EC-101 synchronizer.

OXBERRY 220
Will show its complete systems for film and video animation.

PALTEX 12
Will unveil an as yet unnamed digital effects unit; a universal switcher interface for the ABR-1A editor; and new interfaces for Edit-Star and Vanguard editings systems. The editing systems will also be there: the ABR-1A with A/B roll editing; Edit-Star with four control and 319 event memory; and Vanguard with five VTR control and 500 event handling.

PANASONIC INDUSTRIAL CO. 253
Will bring the products it introduced at NAB, and is now delivering, which include the MVP-100 ½-inch M-format MERPS player with up to 24 computer-controlled tape transports; the AK-30 three tube portable camera; the AU-220 M-format VCR with Dolby C and color playback for use with the Recam; and the AU-300B ½-inch upgraded VCR with a built-in TBC.

PERROTT ENGINEERING LABS 757
Bringing the Cellmate discharger that automatically analyzes and rejuvenates batteries. Also its nicad and silver zinc battery packs for ENG/EFP, the Minicharger series for silver zinc and nicad packs, and single and sequential multiple nicad fast Minichargers. Also portable, miniaturized lighting systems for ENG.

PHILIPS TV SYSTEMS PHILIPS TEST & MEASUREMENT 255
Will present the LDK 6 camera family, including the portable 614 and medium-sized 26 with ⅔-inch tubes and computer control. Also the enhanced LDK 54 recorder/camera system. A new 20-inch monitor will be there, and the SPG sync pulse generator. T&M will bring its recently added PM5651M studio vertical interval test signal generator, and the PM5565/PM5567 waveform monitor/vectorscope combination.

PLASTIC REEL CORP. 45
Will exhibit one- and two-inch tape reels, ½- and ¾-inch video boxes and reels, audio tape reels, boxes, and editing supplies.

Q-TV 723
Will show its recently added VPS-500 character generator-based teleprompter, plus the VPS-100 console transport, VPS-300 conveyor transport, and Mini-Q prompting system.

QUANTA CORP. 741
Will highlight its dual-channel Q8 Quantafont character generator with camera digitizer and font compose; Quantanews newsroom computer; and Select 7 teleproduction graphic titling generator, a lower-end character gener-

See us at SMPTE
Hilton Booth 180

Two new digital effects systems

FlexiKey

The Key Manipulator designed for any budget... $19,500! and now available with DSC's Optical Perspective option.

FlexiKey™ is the smart solution for your station's first digital effects system, or use it as a 2nd channel special effects system with your present digital effects.

Check all these standard FlexiKey special effects...

- variable image positioning
- split images
- matrix wipes
- horizontal and vertical title squeeze
- flip, spin, tumble, compress, zoom, rotate or any combination of these effects.

Plus the new Key Klean-up mode...a great production tool that eliminates ragged edges from poor key sources.

Illusion

The new hi-tech full optical digital video effects system that puts cost in its proper perspective.

Illusion™ is a full frame effects system using the most advanced digital design techniques to provide a full range of video optical effects plus...

- barrel roll
- posterization
- strobe effects
- tumble
- borders and border clipping
- chroma key manipulation
- adjusts blanking widths...and with DSC's Optical Perspective as a standard optional accessory.

And the cost is as exciting as Illusion's effects.

Ask for FlexiKey and Illusion demo tapes when you call or write for complete details.

DSC

Digital Services Corporation
3622 NE 4th Street
Gainesville, Florida 32601
904-377-8013

Sales Offices and Representatives
New York: 914-738-6764
Mid West: 317-832-3212
Minneapolis: 612-447-4453
West Coast: 619-485-1156
Dallas: 214-894-6303
Canada: 416-475-7575

Circle 168 on Reader Service Card

ator offering high resolution real-time graphics. Also the Microgen titler.

QUANTE CORP. 703
First-time SMPTE exhibitor showing Quante 1000 series fiber optic digital video transmission equipment featuring wavelength division multiplexing, four video and 56 audio signals per fiber, and up to 50 km range.

RANK CINTEL 785
Will introduce the Shot-Change Detector, which facilitates film color grading on the MK IIIC telecine/Amigo programmable color corrector by detecting changes automatically and making changes to keep the scene consistent. Also the ADS 1 CCD telecine with an advanced dirt and scratch concealment system; the Ferritt separate magnetic sound follower; and the Slide File digital still store.

RCA BROADCAST SYSTEMS 190
Will conduct CCD technical presentations at a private suite in the Hilton; registration at the booth.

RESEARCH TECHNOLOGY INC. (RTI) 104
Will show its videotape evaluators for ¾- and ½-inch cassettes; with microprocessor control and 30x speed, these units clean, evaluate, erase, and keep track of the locations of problem spots. Also will display its CineScan film viewer/previewer, and tape handling and care products.

ROHDE & SCHWARZ 115
Will bring its lines of modulators and demodulators, videotext and teletext test equipment, and a video noise meter which is an automated, total test set.

ROSCO LABS 727
Displaying a recently introduced range of chroma key and Ultimatte paints. Plus regular line of color and diffusion filters, patterns, and specialized TV paints and scenic materials.

RTS SYSTEMS 238
Will bring the NAB-introduced series 2500 intercom amplifier system with card cage, plug-in circuitry. Four different amp cards provide a 1x6 DA, stereo 1x6, quad line amp, or quad buffer amp. Also the Series 17 low cost intercom system which uses ordinary modular phone-type interconnects. Standard line will be the T W intercom conference line systems, Series 800 intercom, microprocessor-assisted master station, and Series 4000 IFB.

SACHTLER CORP. 108
Will introduce the Hot Pod, a specialized tripod with center column for very quick setup during news use. Plus the new Video 14 fluid head which can be used with a tripod or the Pedestal, a pneumatic pedestal/tripod combination. Sachtler will also have on hand its complete line of camera support equipment for video and film, including the Video 20 and 25 with dynamic counterbalance, and the Video 14 lightweight fluid head pedestal for sophisticated single-tube cameras.

SCHNEIDER CORP. 101
Displaying its 14x ENG/EFP lens and 14.5X wide angle studio lens, plus its full line of ENG/EFP, studio, and field zoom lenses for all cameras.

SENNHEISER 107
Will introduce a new line of wireless microphones consisting of eight transmitters and six receivers for UHF and VHF. Also new SL headphones. Will present its full line of broadcast and film mics and headphones.

SESCOM 177
Presenting its audio interfacing products which include equipment for telco interfacing, intercom systems, audio DAs, audio modules, and transformers.

SHINTRON 775
Showing its line of microprocessor-

One of the world's smallest digital still stores is also one of the largest.

Introducing "Snapshot" from MCI/Quantel. Only 12¼ inches high by 19 inches—including removable cartridge Winchester disk drive!

Snapshot is not only the smallest of MCI/Quantel's DLS 6000 series units—it's one of the smallest digital still stores in the world.

Snapshot lets you capture pictures from live asynchronous feeds, store up to 400 of them with titles, and replay them on demand. You can prepare and edit sequences or stacks of sequences. And you can search by title.

Need more? You can increase Snapshot's storage to 1,600 pictures. Or you can upgrade it to a DLS 6020 with on-air cuts and dissolves. Or upgrade it further to a DLS 6030, the most powerful still store available with production effects that bring an exciting look to your stills.

If that's not enough, you can integrate up to seven Snapshots—or other DLS 6000 series units—as workstations into our Central Lending Library (CLL). Now you can store over 10,000 stills at each workstation and have simultaneous access to 100,000 more from the CLL. Plus unlimited off-line storage on disc cartridges or videotape.

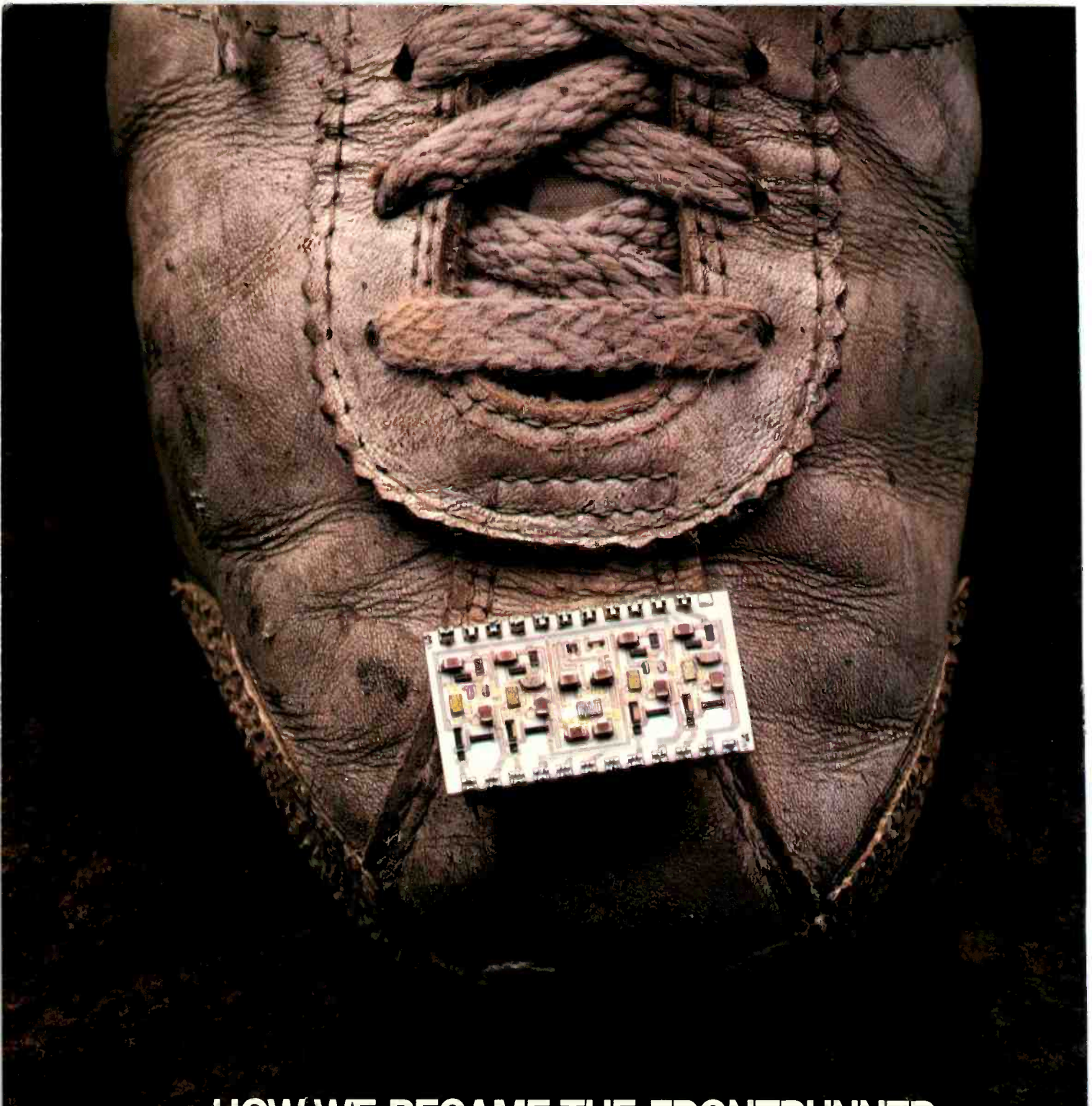
You can even include MCI/Quantel's Paint Box as one of the workstations. So you can create the finest electronic graphics ever seen in television and have them instantly available for on-air use as well as library storage.

So whether you want a small system or a big system, Snapshot is the place to start.

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

MCI/QUANTEL

The digital video people.



HOW WE BECAME THE FRONTRUNNER IN THE ROUTING SWITCHER BUSINESS.

While everyone else was mak ng minor refinements, we went back to the drawing boards. We took the best that modern hybrid technology had to offer and designed it into our Series H Switching Systems.

The result is a new state-of-the-art in every respect. We offer the best performance specs available. Reliability is unquestioned. Maintenance is reduced. And expansion is easier than ever.

There's a 300% increase in crosspoints-per-rack-unit. So what used to fill an entire room can now fit inside a closet.

And The Series H is available in the configuration you need to make the system practical.

Best of all, we can offer these advantages at a price that's actually less than the price of conventional switching systems.

If you'd like us to prove how far out in front we are, call us toll-free at 1-800-328-1684. In Minnesota, call toll-free 1-800-792-1072. Outside the continental U.S., call International Operators collect at 1-612-736-2549.

We'll give you the best run for your money.

Professional Audio/Video Equipment

3M hears you...

3M

Circle 172 on Reader Service Card

controlled switchers, which includes EMPRESS effects automation, and the 374X with double reentry and eight inputs under Z80 microprocessor control. Also its time code equipment, microprocessor–controlled audio mixers, and A/V DAs.

SIGMA ELECTRONICS 821
Will introduce special effects software for the GLC-100 genlocking computer graphic systems, plus various RS-170A sync generators, processing amps, distribution equipment, and video accessories.

SKOTEL CORP. 724
Will show products from its full line of time code generators and readers, portable and rack mount, for VITC and longitudinal formats, and with RS-232 interfaces. Also the DM-1000 digital metronome, and the VTR/ATR synchronizer which works with longitudinal code, VITC, or tach pulse inputs.

SOLID STATE LOGIC 753
Will have the SL 6000 E stereo video console and audio system, with an accessory programmable equalizer, master sync/controller for up to five-machine control, and master transport selector.

SONY BROADCAST PRODUCTS 1-11, 38, 65
Will make the first public demonstrations of its Super Slow-Motion system developed initially for use by ABC, an adaptation of its HDTV recorder which lays down twice as much frame information as NTSC. Will also show its HDTV production system; the Betacam, including the BVW-2 Newsmaker version introduced at NAB weighing less than 10 lbs; the Betacart MERPS deck; and the BVP-360 and 150 cameras introduced at NAB.

SOUNDCRAFT ELECTRONICS 767
From its audio mixing console and ATR line, will highlight the Series 1600 video post-production consoles, and the smallest of the series, an 8x4 rackmountable version.

SOUND TECHNOLOGY 748
Will show selections from the full line of audio and video T&M equipment including the 1700 Series distortion measurement systems, and 1500 Series tape recorder test systems.

STAGE LIGHTING DISTRIBUTORS 759
Will present its digital dimming systems ranging from 1200 to 6000 W; the Autocolor automatic color changer for studio fixtures; and lighting control and studio lighting equipment.

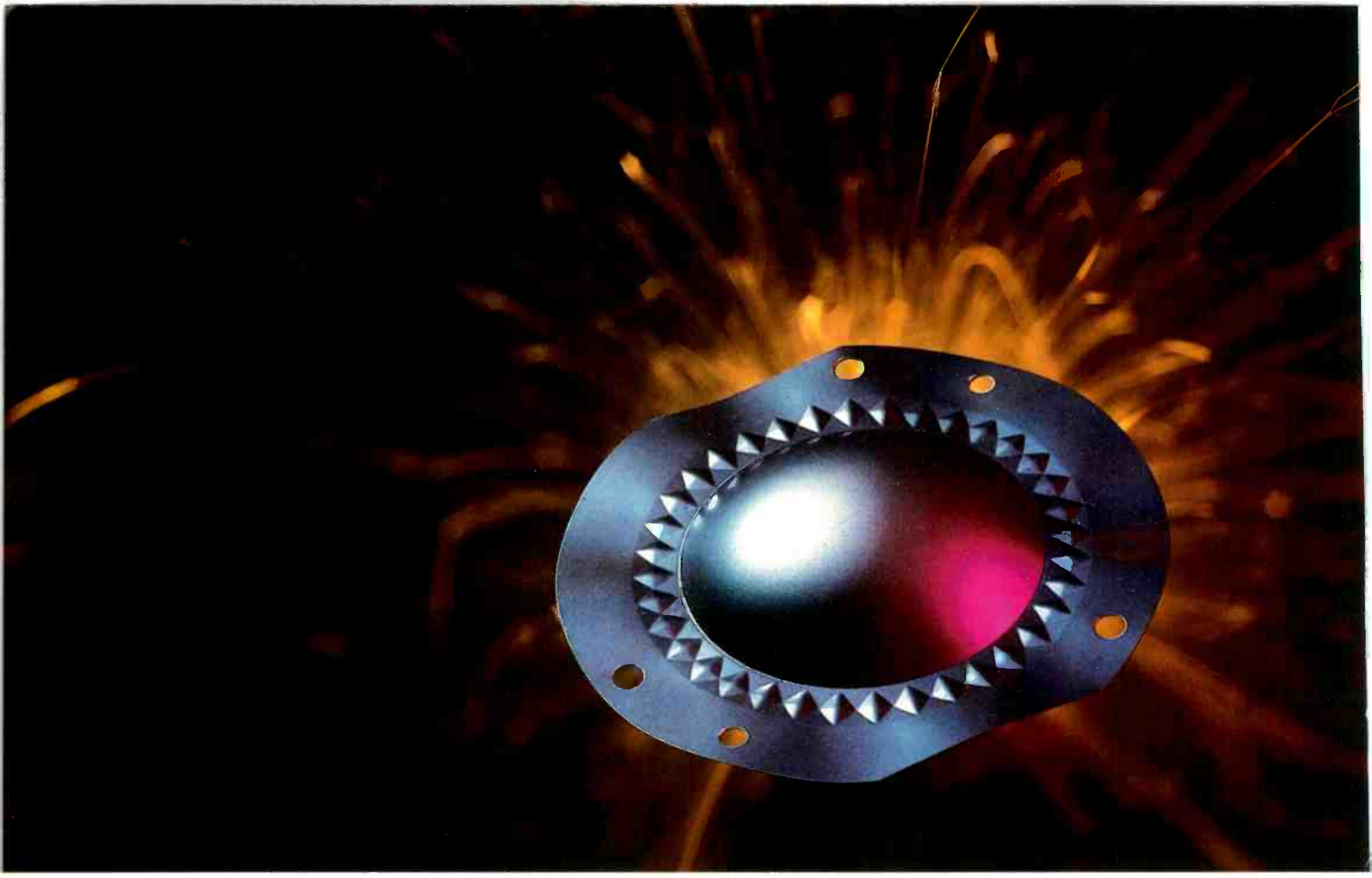
STEENBECK 128
Showing its film editing consoles, film-to-video transfer units, and film recorder with interlock, and time code readout.

STRAND CENTURY 747
Will bring selections from its full line of studio and location lighting fixtures, and dimming and control systems.

STUDER REVOX AMERICA 710
Introducing a video layback version of the A80 VU, as well as new modules for the 900 Series mixing consoles. From its regular lines of recorders, consoles, and other audio equipment, the A810A audio recorder will be highlighted, with its center track SMPTE time code, for use in conjunction with the TLS4000 modular audio/video/film synchronizing system.

SYLVANIA LIGHTING 81
Will show its metal halide, fluorescent, and tungsten-halogen lamps for studio, television, and video camera applications.

TEKTRONIX 95
Will present its recently introduced



JBL's unique titanium diaphragm and "Diamond Surround" bring new purity and consistency to high frequency response.

IT TOOK JBL SCIENCE, A NITROGEN EXPLOSION, AND PURE TITANIUM TO GIVE YOU PERFECTED HIGH FREQUENCY SOUND.

High frequency sound has always fought with the technology that brings it to the ear. The driver diaphragm has been most vulnerable, pushed to the breaking point, unable to hold uniform frequency response.

JBL scientists decided to fight back. They exploded nitrogen into a remarkable metal, pure titanium, encircling their unique diaphragm with a vibration-absorbing "Diamond Surround," so revolutionary it warranted its own patent.

The result? A diaphragm that delivers and sustains a power and purity to high frequency response never before approached in the industry.

Perfecting titanium technology is just one of innumerable ways in which JBL science is re-shaping the quality of sound. From driving your studio monitors in a demanding final production mix, to critically evaluating in detail actual on-air signal quality, JBL audio systems are focused on the most exacting demands of the broadcast professional. To find out which system is designed to meet your specific requirements, contact your authorized JBL professional products dealer today.

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8500 Balboa Boulevard
P.O. Box 2200,
Northridge, CA 91329
U.S.A.

JBL

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Circle 175 on Reader Service Card

1750 waveform/vector monitors with ScH phase capability, available for NTSC and PAL. Will also exhibit the 118-AS audio synchronizer for use with the 110-S video synchronizer line, and the 110S (Option 20) TBC for heterodyne color VCRs. Plus Answer microprocessor–controlled video monitoring system, portable oscilloscopes, and other Tektronix T&M equipment.

TELESCRIPT 715
Premiering Commodore 64 and probably IBM PC-based computer teleprompting programs for use with its Digis system. Also its MPS-100 monitor prompting system with 1000 line resolution, and Telecue and Telescriptor transports.

TELEVISION EQUIPMENT ASSOCIATES 255
Will show Matthey delay lines and filters for fine adjustment of video delays in editing suites. Also showing intercom and sportscaster headsets, A/V distribution amps, videotape cleaner/profilers, color monitor comaritors, and Racal's Matel multiplex automatic telephone, and instant field phone.

TENTEL 210
Will bring its tension gauges for Type C recorders, Sony and Ampex approved, along with the new universal head protrusion and drum eccentricity gauges. Plus its line of Tentelometer tape tension gauges and VCR spindle height elevator latch gauges.

THOMSON-CSF BROADCAST 831
Will highlight the new automatic setup feature for its Betacam recorder/camera. Also a new Model 5700 NTSC color processor for applications such as telecine color correction. Already introduced products include the Thom C.A.T. computer-aided testing system; the Vidifont Graphics V character generator/graphics system with full framestore capable of capturing and manipulating live video; extensive election reporting packages; the Vidifex 3D graphics package; and the TTV 1525C field camera.

TIFFEN 219
Will introduce the MCS system of magnetic adaptors for mounting lens filters. Plus new Resinar filters in addition to its regular line of special effects and color corrector filters for cine and video cameras.

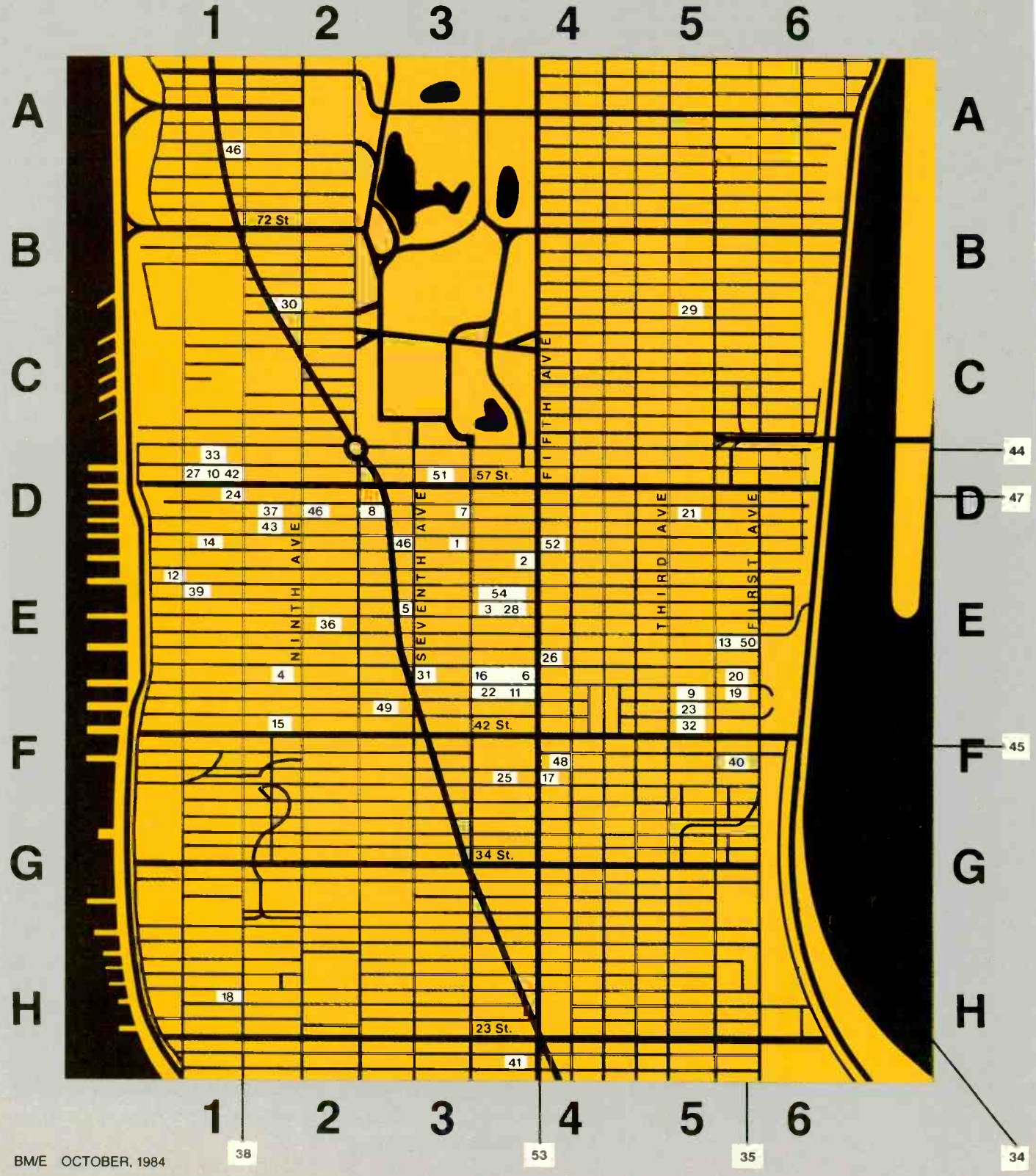
UNION CONNECTOR 142
Will present its modular remote controlled dimming system with hand-held controller for supervision of up to 256 dimmers—an ac system with dimmers rated at 2400 and 5000 W each.

VIDEOTEK 171
Will bring the following brand-new products: the HR-130 high resolution color monitor; the RS-183A, an 18x1 audio-follow-video routing switcher with three audio inputs per channel; the VIS-1200 12x1 vertical interval routing switcher; the PVS-6, 6x1 passive video switcher; and the VM-13PR 13-inch professional color monitor. These in addition to its other lines of color monitors, waveform monitors, vectorscopes, DAs, audio program monitors, routing switchers, and demodulators.

URSA MAJOR 725
Unveiling the 8X32 Mark II, a new version of the 8X32 digital reverberator, with four more programs. Augments its usual line which includes the StarGate 323 special effects processor and the SST-282 Space Station.

WINSTED CORP. 708
Will add a new mobile equipment cart and bring its modular editing consoles for all VTR/VCR formats, production consoles, tape/film storage systems, dubbing racks, and equipment racks.

BROADCAST & PRODUCTION



GUIDE TO NEW YORK

KEY **LOCATOR**

TV NETWORKS

1 ABC A1
1330 Ave. of the Americas
887-7777
(BO&E: 887-3675)

2 CBS E3
51 W. 52 St.
975-4321
(Broadcast Center: 530 W. 57 St.)

3 NBC E3
30 Rockefeller Plaza
664-4444

TELEPRODUCTION/ POST-PRODUCTION FACILITIES

4 All Mobile Video F2
630 Ninth Ave.
757-8919

5 Broadway Video E3
1619 Broadway
265-7600

6 Charlex F3
2 W. 45 St.
719-4600

7 Devlin Productions D3
150 W. 55 St.
582-5572

8 Duart Video D2
245 W. 55 St.
757-3681

9 Editel/New York F5
222 E. 44 St.
867-4600

10 International Production Center D1
514 W. 57 St.
586-3690

11 J.S.L. Video Services F3
25 W. 45 St.
944-9494

12 Matrix Studios E1
727 11 Ave.
265-8500

13 Modern Telecommunications, Inc. E5
1 Dag Hammarskjold Plaza
759-8840

14 Movielab Video E1
619 W. 54 St.
586-0360

15 National Video Center F1
460 W. 42 St.
279-2000

16 NEP F3
56 W. 45 St.
382-1100

17 Nexus Productions F4
10 E. 40 St.
679-2180

18 Rebo Associates H1
530 W. 25 St.
989-9466

19 Reeves Teletape F5
304 E. 44 St.
573-8600

20 Tapepower F5
304 E. 45th St.
370-9191

21 Teletronics/VCA D5
231 E. 55 St.
355-1600

22 Today Video F3
45 W. 45 St.
391-1020

23 TVC Video F5
225 E. 43 St.
599-1616

24 Unitel Video D1
510 W. 57 St.
265-3600

25 Videoworks F3
24 W. 40 St.
869-2500

26 Windsor Total Video E4
565 Fifth Ave.
725-8080

TELEVISION STATIONS

27 (2) WCBS D1
524 W. 57 St.
975-4321

28 (4) WNBC E3
30 Rockefeller Plaza
644-4444

29 (5) WNEW (Metromedia) C5
205 E. 67 St.
535-1000

30 (7) WABC C2
7 Lincoln Sq.
887-7777

31 (9) WOR (RKO) F3
1440 Broadway
NYC 10018
764-7000

32 (11) WPIX (Tribune) F5
11 WPIX Plaza
949-1100

33 (13) WNET (PBS) D2
356 W. 58 St.
560-2000

34 (25) WNYC (NYC educational)
112 Tillary St.
Brooklyn
596-5064

35 (31) WNYC (municipal) H6
2500 Municipal Bldg.
669-7800

EQUIPMENT RENTAL

36 Audio Services Co. E2
322 W. 48 St.
977-5151

37 The Camera Mart D1
456 W. 55 St.
757-6977

38 F&B/CECO H1
440 W. 15 St.
206-8280

39 Ferco E1
707 Eleventh Ave.
245-4800

40 Laumic G6
306 E. 39 St.
889-3300

41 L. Matthew Miller H3
48 W. 21 St.
741-8011

42 MPCS D1
514 W. 57 St.
586-3690

STAGES AND STUDIOS

43 Camera Mart E1
460 W. 54 St.
757-6977

44 Empire Stages of New York
50-20 25 St.
Long Island City, Queens
392-4747

45 Kaufman Astoria Studios
34-31 35 St.
Astoria, Queens
392-5600

46 Reeves Teletape/ Ed Sullivan Theatre E5
219 W. 53 St.
573-8888

Reeves Teletape/ Studio 81 A1
234 W. 81 St.
580-6956

Reeves Teletape/RT3 D2
841 Ninth Ave.
307-4885

47 Silvercup Studios
42-25 21 St.
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UPDATE

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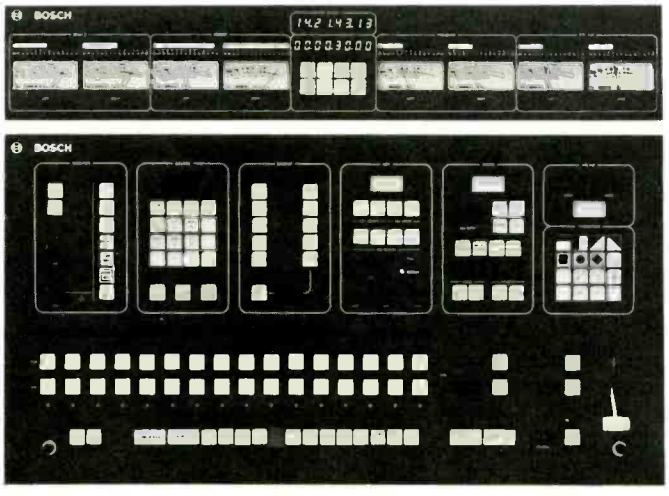

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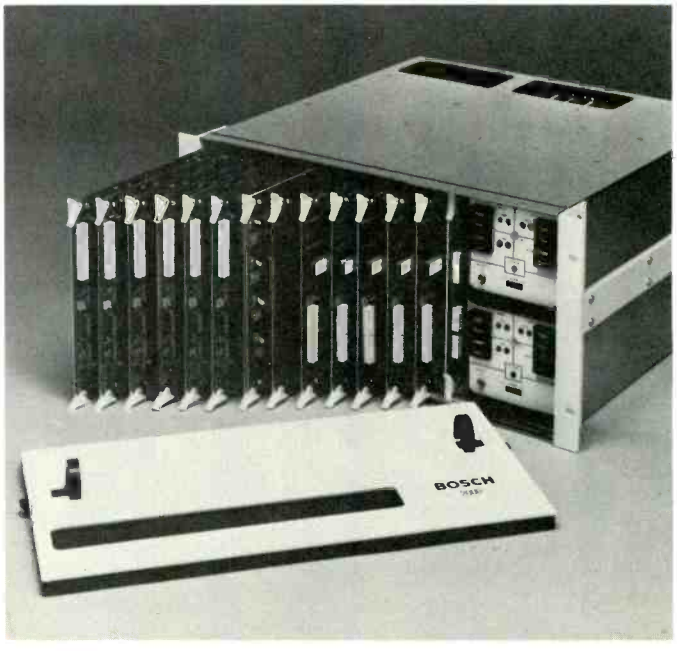
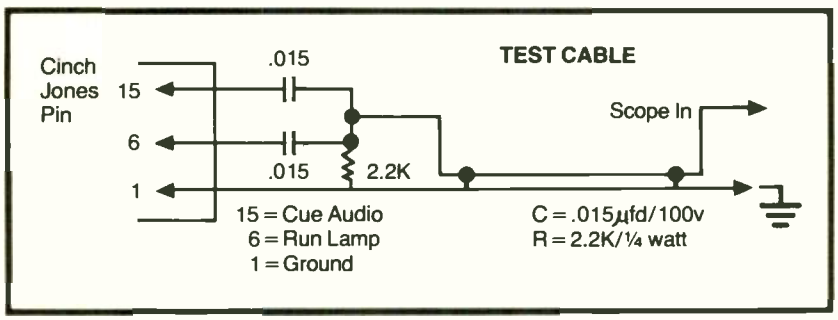


BOSCH

Measuring Cart Machine Pull-In Time

By Michael Callaghan, CE, KIIS/KPRZ, Los Angeles, CA



In a large broadcast facility using many cart machines, quite a lot of time is spent in insuring that the operating parameters of the various machines are all consistent. One variable often overlooked, however, because it seems more difficult to measure than others, is the actual pull-in time, or the period that elapses between the time the start command is sent to the cart machine and the time the audio starts.

This interval is affected by two parameters: the tightness of the audio recorded on the cart, and the time it takes the pressure roller to engage after the machine is started.

Different machines of different ages using different solenoid designs are all likely to develop varying pull-in times. Adjusting a number of different machines to the same time is appreciably difficult. At KIIS, we faced the problem of having over 30 cart machines to be standardized. Obviously, we had a problem—a cart that was tight in the air studio seemed loose in the production studio. Newsroom carts were loose when played in the air studio.

I developed a hardware solution to the problem. It uses a standard oscilloscope with a triggered sweep. The cue track output of the cart deck is combined with a start pulse from the machine's control circuitry to feed the vertical input of the oscilloscope. When the deck is started, the control pulse starts the sweep. After the trace has started across the face of the screen, the audio from the cue track will appear as the tape engages the play head.

By using the calibrated sweep to indicate the elapsed interval between the start pulse and the beginning of audio, a very accurate indication of the pull-in time is shown.

Implementing the idea is simple. It involves preparing two items: the cable that connects the scope to the cart machine, and a special test cart with a tone recorded on the cue track. (The cue track was used to keep the cable simple. Most cart machines have cue audio available on the remote connector. Using that output and the control pulse appearing on the same plug avoids the need for two connectors going into the cart machine.)

The schematic shows the pin connections for the ITC premium series machines. For other models, the service manual should reveal where the samples are to be taken.

A short length of cable with a BNC plug is all you'll need to go into the oscilloscope.

The cartridge may be recorded in a variety of ways. A simple and easy method is to record a cart with the secondary cue button held in. A better way is to connect an oscillator to the cue record amplifier input, and record some non-standard tone, such as 3,000 Hz., along the entire length of the cue track. (This will avoid triggering the tone sensors when the cart is used.)

In either case, using the test cart is simple:

1) Plug the cable into the machine remote socket and the oscilloscope vertical input.
2) Set the scope sweep to NORMAL mode, and the speed to 20 ms./div.
3) Turn the trigger threshold control towards "+" until the sweep stops triggering.
4) Insert the custom test cart, and push the start button.
5) The scope should trigger, and the audio will appear on the trace after the pressure roller pulls in.

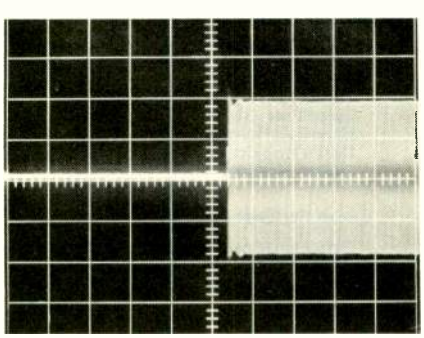


Fig. 1 Cue output with air dashpot set for 105 ms. start delay (Sweep = 20 ms./div.)

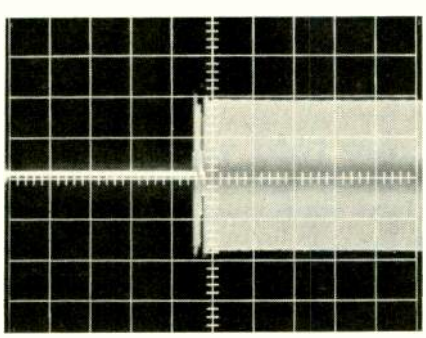


Fig. 2 Cue output with air dashpot set for 90 ms. start delay (Sweep = 20 ms./div.)

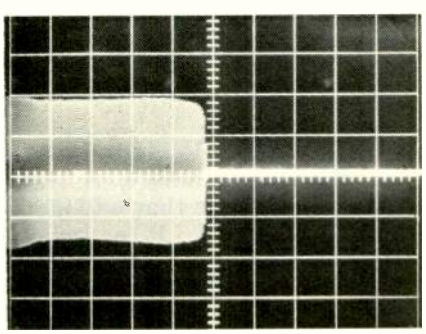


Fig. 3 Cue Output when machine stops. (Sweep = 10 ms./div.)

GREAT IDEAS

6) By counting the number of divisions between the trigger pulse and the audio, you will have a graphic representation of the elapsed time. This time may be varied by adjusting the air dashpot on the rear of the solenoid.

After you are familiar with the way the idea works, you can evaluate a number of your machines and select a standard time to use on them all.

I found an interesting result when I made the starting time too short. The pressure roller would swing up and then actually bounce off the capstan shaft before pulling in again. This produced a loud mechanical thump and a break in the audio after the cart had started.

The solution to this was to slow down the pull-in time to a longer value. I finally decided on 105 ms as the best compromise between mechanical noise and rapid machine response.

It's interesting to note that the scope triggers on the STOP pulse. This shows the time it takes for the pressure roller to disengage, and is helpful in checking for sticking or tight solenoids. **BM/E**

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The Commission Braces For New FM Applications

by Harry Cole, FCC Counsel

That muffled roar you hear in the distance, the one that sounds like an approaching tidal wave, is the impending arrival of the new FM channels made possible by the adoption of Docket No. 80-90 last year. While authorization and construction of stations on those channels may still be as much as a couple of years away, the Commission is already concerned about the flood of applications likely to be generated by the changes. With more than 680 potential new FM channels, many in highly desirable communities, it is possible that tens of thousands of applications will be filed in the next year or two. Apparently motivated, if not haunted, by that vision, the Commission has begun to overhaul its applications process in order to streamline and simplify both its own work and the work of broadcast applicants.

Major and minor

Probably the most significant of the changes adopted by the Commission involves its treatment of efforts by existing FM and TV licensees to modify their facilities. First, the FCC has redefined the concepts of "major" and "minor" changes for FM, television, and FM translator stations. Second, the Commission has adopted a new policy which could facilitate channel changes by FM and TV licensees.

As you are aware if you have been involved in a change in facilities recently, the Commission has historically treated major change proposals differently from minor ones. If you apply for a major change, you have to publish local notice of your application, wait for the staff to list your application on a cut-off list, wait to see if any mutually exclusive applications or petitions to deny are filed by the cut-off date—in short, you have a good deal of waiting to do. Minor change applications, by contrast, can be processed without the procedural delays or the necessity of inviting petitions to deny with a public notice. Thus, for a licensee anxious to improve its facilities sooner rather than later, and anxious to avoid bureaucratic fuss as much as possible, it is advisable to specify a minor rather than a major change.

With these factors in mind, and in an effort to encourage licensees to improve their facilities to the maximum extent possible (in order to improve service to the public), the Commission has chosen to redefine some of the standards applicable to FM and TV facilities changes. The revisions include the following:

- Previously, any modification of an existing FM or TV service which would result in an aggregate change of 50 percent or more in the station's service area was treated as a major change. This included changes in power, antenna height, transmitter location, or any combination of the three. Now, however, any change in power, antenna height, or transmitter location will be treated as a minor change.
- Previously, changes in ownership by an applicant, if major, could result in the application's being pulled from the processing line, given a new file number, and placed at the end of the line (thus possibly jeopardizing whatever "cut-off" protection it might have received). The FCC has now simplified this restriction so that ownership interests can shift in a wide variety of ways; the only requirement now is that an original party or parties to the application retain more than a 50 percent ownership interest in the application.
- It used to be that a change in the primary station of an FM translator station was considered a major change requiring the full public notice/cut-off date procedure. The Commission has rethought that approach, and has decided that such changes should be permissible without prior FCC approval (although the translator licensee must still have the prior approval of the licensee of the primary station).

Despite its obvious interest in streamlining as many of its applications processes as possible, the Commission—in the same proceeding described above—declined to amend its definition of major changes relative to proposed changes in the service areas of noncommercial educational FM stations. As the FCC noted, the system of noncommercial FM channel allocations is different from that applied to commercial allocations. Further, the proximity of the noncommercial FM channels to VHF TV Channel 6 increases the possibility of interference, particularly in view of the general lack of standards relative to FM-TV interference. Accordingly, primarily out of concern for Channel 6 licensees, the Commission declined to alter its treatment of noncommercial FM modifications.

Changing channels

The second set of changes aimed at helping out existing FM and TV licensees involves the procedures for changing channels. As I discussed in this column in January 1984, because of the channel allocation system for FM and TV channels, an existing licensee who wishes to change channels must first initiate a rule-making proceeding, to amend the table of allotments to reflect the allocation of the desired channel to the community in question. While traditionally the Commission would, in the course of the rule-making proceeding, allow the licensee to spec-

FCC RULES & REGULATIONS

ify the new channel once it was allocated, the propriety of that approach was called into question in the late 1970s. Since then, the Commission has taken the approach that, when an existing licensee proposes allocation of a new upgraded channel, and where others express an interest in applying for that channel, the Commission will not automatically modify the existing license. In such instances, though, the Commission would permit 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 channels to accommodate all expressed interests and has, as part of that action, modified the existing station's license.

The problem with this last approach arose when the number of parties expressing interest in the new channels exceeded the number of new channels available. Since in such situations not everyone could be accommodated, it was argued that the Commission could not legally grant the incumbent licensee an upgraded channel without allowing other interested parties a comparative hearing in which to challenge the incumbent. Those of you familiar with the Supreme Court's landmark decision in *Ashbacker v. FCC* will understand that this argument was not without merit—the Court has held that the Communications Act clearly requires the Commission to hold comparative hearings where more than one party wishes to obtain a license to utilize a particular frequency. Because of that, the Commission has been considering alternative approaches to this problem.

In late July it came up with a solution. The FCC adopted new procedures which will permit it to grant an incumbent FM or TV licensee an upgrade in channels without comparative hearing as long as at least one additional equivalent upgraded channel is also allocated for other interested parties. In other words, the incumbent licensee will be permitted to propose the allocation of an upgraded channel. And if, in response to the proposal, other parties indicate interest in such an upgraded channel, the incumbent could avoid the necessity of a comparative hearing by proposing the allocation of an equivalent upgraded channel for the other interested parties. If such a proposal can be made, the Commission would then allocate both upgraded channels to the community in question, specify one of the upgraded channels for use by the incumbent, and make the other available for applications by the other interested parties. For the purposes of this procedure, an "upgrade" in channels involves, for FM stations, a change to a higher class and, for TV stations, a change from UHF to VHF channels (but *not* a change from one UHF channel to a lower-numbered UHF channel).

This procedure does not appear to address certain fundamental questions arising from the *Ashbacker* decision. As a result, it is not absolutely certain that the procedure would survive any appeal which might be filed. Nevertheless, the FCC's action clearly demonstrates the Commission's concern for existing licensees, and its eagerness to help them improve their operations as much as possible. And even if the procedure runs amok of *Ashbacker*, it is possible that the FCC's efforts in this regard will prod Congress and/or the Courts to a new appreciation of—and possibly new standards relative to—the upgrade process.

Over and above the procedural revisions already adopted by the Commission, the FCC also proposed in late July a sweeping overhaul in the process governing the filing of new FM and TV applications. Presently, applications are accepted for any allocated but unused channels whenever an applicant chooses to file. If the application is accepted, it is placed on a cut-off list and given a cut-off date by which any competing applications must be filed. The trouble with this approach is that the cut-off list acts as an invitation to any and all parties who might not otherwise have known or cared about the availability of the channel in question. And, in view of the relative simplicity and low cost of preparing and filing new FM and TV applications, it is not unusual to find competing applications put together at the very last minute, often in response to a cut-off list, even where no prior interest in the channel had existed at all.

The filing window

To counteract that phenomenon, the Commission has proposed adoption of a "window" approach. Under this approach the FCC would provide potential applicants a filing window of 45 days within which to file for any vacant channel on the FM and/or TV Tables of Allotments. If a party thinks it might be interested in such a channel, it would have to act within that 45-day period or risk losing any right to consideration. Once the filing window closes, the Commission would then consider and dispose of the applications filed. Any channel for which no applications were received during the open-window period would be available—*without* a comparative hearing—to the first party to file an application for it. A similar process would apply to channels added later: as a channel is assigned to the Table of Allotments, the Commission would designate a date by which applications would have to be filed. If any applications were filed by that date, all further applications would be foreclosed; if no applications were filed by that date, the channel would be available to the first to file thereafter.

In addition to the various procedural changes adopted or under consideration, the Commission has also issued a public notice warning applicants for AM and FM construction permits that incomplete or patently defective applications will be treated harshly. The notice points out several application defects which crop up all too often, including such things as the lack of an original signature, failure to take care of local public notice, and the lack of certain required information. All applicants would do well to take the Commission's admonition to heart—as the numbers of applications increase (as a result, for instance, of the changes in Docket No. 80-90), the FCC is likely to tighten up considerably on such careless and clearly unnecessary problems, and is likely to be less than tolerant of applications which waste valuable processing time.

The message the Commission is clearly sending out is that it wants to make sure its processes are as streamlined as possible, and consistent with the rights of applicants, in order to assure the fastest possible processing of all applications. It also wants to help existing broadcasters to upgrade their operations as simply as possible. The FCC is to be applauded for its concerns and its efforts in this regard. **BM/E**

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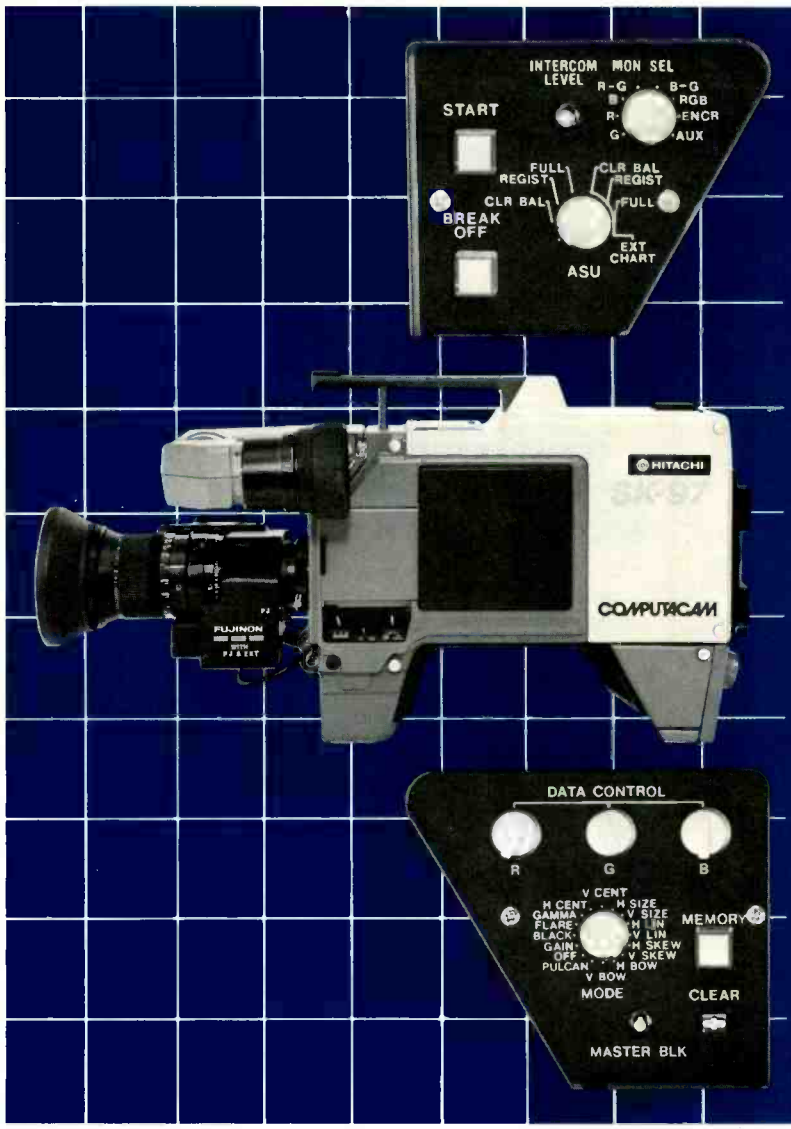

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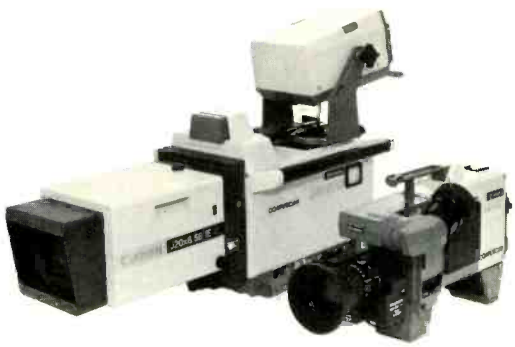

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broadcast EQUIPMENT

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The WR-8616 mixing console is designed for eight-track and 16-track recording, as well as post-production and sound manipulation. Two input modules are offered, a mono mic/line module (WU-8101), and a stereo line module (WU-8106). Depending on which modules are used, the WR-8616 can accommodate up to 16 mic-in or 32 line-in signals, or a combination of the two.

Two group output modules are offered. The basic group output module (WU-8107) is comprised of a fader, L-R send, and pan, solo, and group on switches. The tape monitor group module (WU-8102) has all the features of the basic group module except for the channel on switch, and also incorporates four channels of tape monitoring with both monitor (L-R busses) and send (L-R busses) level and pan controls.

The WR-8616 provides a total of 10 mixing buss lines, which include four group, two master, two send, and two echo. Additional flexibility is featured through 16 insertion jacks on the input modules, which provide ample capacity for connecting external equipment. In addition, four return jacks are provided to connect a second mixing console, or to return a four-track recorder or effects to the group modules. Groups and masters can be monitored in stereo, allowing audition and program modes.

Ramsa has also introduced a new wireless microphone/receiver system, the WX-8050, that uses a space diversity system to ensure a reception stability at least two times greater than comparable single-station reception systems. The system resolves the problems of dead points on stage—points where sound transmission would be otherwise disrupted. Two reception antennas on stage receive the transmitted sound from the microphone, and the control section of the WX-8350 receive unit automatically selects and receives the stronger transmission only. Consequently, transmission is as good as with any wired microphone.

The receive circuit uses a crystal controller oscillator, fixed-frequency design which selects and receives up to three wavelengths designated in the UHF 400 MHz band. This ensures clear reception despite such environmental factors as vibration, temperature, and moisture.

The receive unit features a reception level meter with LED display for easier adjustment in dimly lit places or from relatively distant points. Each of the twin receivers in the space diversity system has a green LED to show when it is active, and a red LED to show when it is inactive. Up to three output levels can be specified on the WX-8350: 4 dBM, −20 dBm, or −60 dBm.

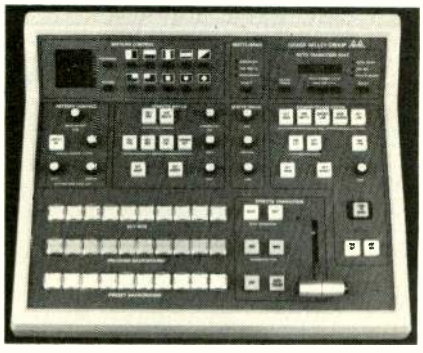
The WX-8050 microphone derives continuous power for at least four hours from a single SUM-5 battery.

For More Information
Circle 225 on Reader Service Card

New Switcher from Grass Valley

The Model 100 is a small, cost-effective switcher with a number of concepts that had been available only on larger, more expensive studio switchers before. The heart of the 100 is a three-buss, multilevel mix-effects system with Look Ahead Preview. The program and preset busses provide mix or wipe background transitions and operate in the same manner as a traditional flip-flop mixer.

The key buss allows a key or preset pattern to be inserted over the background transition. Background and key transitions can be selected independently or simultaneously, allowing the following effects possibilities: mix or wipe between backgrounds; mix or wipe to or from a key or preset pattern; mix or wipe backgrounds behind a key; a change of backgrounds while simultaneously adding or deleting a key. The



effects system structure in the 100 eliminates much of the button pushing and operator logic required to create the same effects on the current generation of small two mix/effects switchers.

The mix/effects system has eight looping video inputs plus internally generated black and color background; ten wipe patterns with rate-controlled positioner; hard, soft, and bordered (hard or soft) wipe transitions; pattern aspect, reverse, and preset size controls; an independent matte generator for matte keys and wipe borders; external key input; optional RGB chroma keyer; soft keying with variable gain; key invert; key masking using the pattern generator; and frame-rate auto-transitions.

The 100 also includes a full-featured

downstream keyer, and it has been designed to work with any videotape editing system.

For More Information
Circle 226 on Reader Service Card

JBL/UREI Introduces CallCount

CallCount allows radio and television broadcasters to instantly measure telephoned audience responses to issues of public concern raised during programming. The CallCount system consists of two or more line concentrators (depending on station need), a digital recording device, and a CallCount tabulation/transcription device. CallCount hooks into any basic phone system up to 200 lines, and can handle 15 calls per telephone line, per minute.

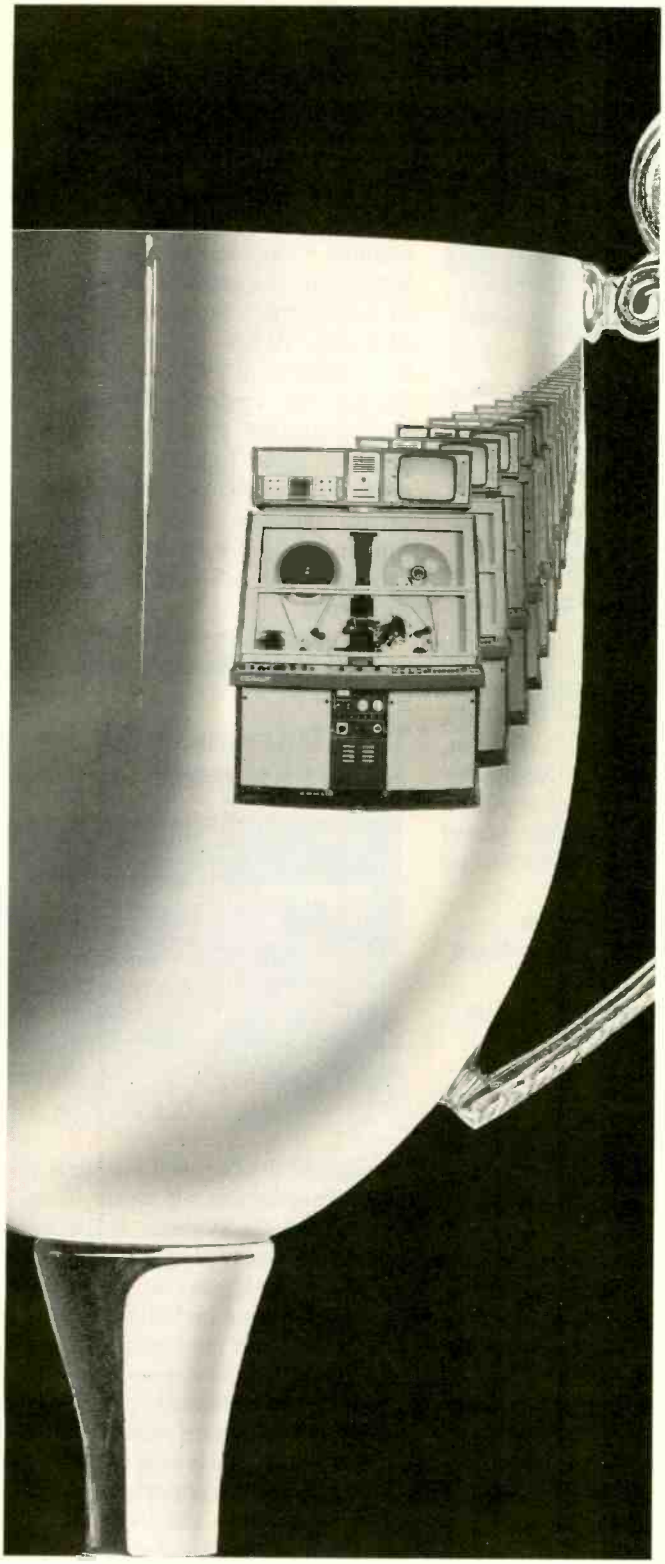
As a question is posed during a broadcast, two phone numbers are provided for callers to cast their ballots. Through an RS-232 interface, tallies are immediately displayed and continuously updated on-screen, or can be read from the readouts on the CallCount unit.

For stations providing more than two voting options, CallCount can be expanded to handle multiple-choice questions. The data derived from audience response with the system can also be utilized as a supportive tool for sales and marketing efforts, and functions as another revenue-producing advertising medium. The cost is $45,000, which includes installation and a one-year warranty.

For More Information
Circle 228 on Reader Service Card

New FM Transmitters from Thomson-LGT

A new line of solid-state transmitters with power outputs ranging from 10 watts to 2500 watts are now available from Thomson-LGT, a division of Thomson-CSF. Each transmitter has the same basic components which include a 10.7 MHz IF generated by a crystal-controlled FET VCO; a stereo generator mounted inside the IF modulator; a plug-in module phase-locked loop frequency synthesizer, which is interchangeable with Thomson's crys-



The Rank Cintel Mk IIIC still takes the accolade as the world's finest post-production telecine.

In reality, there's still nothing to beat it when it comes to transferring excellence from film. From the word go, the Mk IIIC's X-Y Zoom gives it a flying start with optical zooms and moves at full tv resolution.

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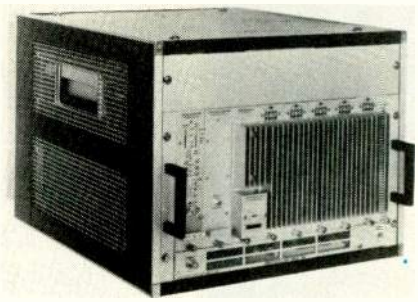
A TRUE REFLECTION OF ACHIEVEMENT

Circle 188 on Reader Service Card



tal oscillators; and a 100-watt driver amplifier, which serves as an output amplifier in the miniature transmitter and as a driver in the 200W to 2.5 kW models. Also featured are two standard and two optional SCA inputs; low-noise/high performance modulators; and built-in modulation monitor circuitry.

The 1000-watt model is 16 inches high, 21 inches wide, and 25 inches deep, and weighs less than 200 pounds. Frontpanel LEDs monitor SCA, pilot, and mono or stereo peak audio; carrier frequency deviation; RF output power; DC power supply voltages; power transistor fuse; and standby modulation and stereo generators.

For More Information
Circle 229 on Reader Service Card

AM Enhancements from Orban Associates

Orban has made available two enhancements for its Optimod-AM Model 9100A/2, primarily for the benefit of AM stereo broadcasters. One enhancement provides equalization curves to better match the processing to the new AM stereo receivers. The other enhancement provides additional stereo processing which can more effectively adapt the 9100A/2 to the needs of any of the four stereo systems.

The first enhancement consists of a set of three "personality modules," which permit the high-frequency equalization curve which best matches a broadcaster's goals and target audience. The first module is used to get the brightest, crispest sound from typical existing mono radios. The second results in the smoothest sound on the new wider-band AM stereo radios at the expense of a certain amount of loudness and presence on typical mono radios. The third module splits the difference. A retrofit kit of three Alternate Equalizer Modules and necessary hardware is available for $50. Two are required for stereo.

The other enhancement is the 1-S multifunction stereo processing card. This card contains three strappable subsystems: a set of remote-switchable 5 kHz low-pass filters; a 200 Hz L-R high-pass filter and phase-matching L+R all-pass filter; and a single-channel modulation limiter which limits L or R negative peak modulation to −75 percent to meet the needs of Motorola stereo. It can also improve the loudness of Harris stations by reducing the tendency of the Harris "compatibility controller" circuit to produce gain reduction. A "stereo enhance" circuit can substantially increase apparent stereo separation and loudness in any of the four stereo systems. The 1-S card is available at $295 list.

For More Information
Circle 227 on Reader Service Card

IMS Introduces Its Smart Switcher

The Model 200 Smart Switcher is a new audio routing/mixing system from Integrated Media Systems. It is configurable in matrixes of eight, such as 32×8, 8×32, 16×16, and so forth, in one 5.25-inch frame including power supply. The matrix configuration can contain up to 256 crosspoints per frame, and it can be expanded up to 128×128, with up to 32 control stations.

The Model 200 is available with both local and remote-control panels to access the matrix. The switcher can be structured in multi-levels (e.g., stereo audio and time code), and is easily field upgradable.

Features include: four on-board memories for preset matrixes; control via SMPTE RS-422 serial; RS-232 computer control; external contact closure; vetical interval switching; party-line control; multiple-source summing capabilities; and optional VCA level control.

For More Information
Circle 230 on Reader Service Card

THE WHEATSTONE SP-5 STEREO PRODUCTION CONSOLE

WHEATSTONE BROADCAST GROUP announces the SP-5 Stereo Production Console, the latest in a long line of high performance audio mixing systems from AUDIOARTS ENGINEERING, a company with an established reputation for technical excellence, quality production and product reliability.

Modular, and specifically designed for stereo broadcast production, the SP-5 offers true stereo subgrouping for mix-minus and stereo program work. Optional configurations allow mono subgroups and outputs, dual stereo line or mono mic/line inputs, and a wide variety of mainframe sizes accomodating 8 to 52 input modules.

Wheatstone Broadcast Group

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Circle 190 on Reader Service Card

BUSINESS BRIEFS

Charisma Productions creative director Jim Grau, rear, points to work done recently for the Masters' Golf Tournament while associate producer Larry Kamerman looks on.

Beginning October 1, **Wold Communications** will introduce stereo sound and multilingual channel capacity on the Wold Communications Satellite TV Network. Wold's October premier also coincides with the fall debut of new **stereo TV sets** by major manufacturers and the roll-out of stereo broadcasting services by stations across the country. Wold has selected the Wegener Communications Series 1600 subcarrier transmission system and the Wegener Panda II noise reduction system for its MTS transmissions. . . . Satellite program distributor Netcom, and National Video Center/Recording Studios, a New York video and audio production and post-production facility, have combined to form the first **totally integrated** independent television transmission facility in the New York area. The two companies will offer full satellite services including production, post-production, and transmission. For Netcom, the move will be a major step in moving into syndication and program distribution. National Video will be able to offer broadcast services that will utilize Netcom's transponders leased from AT&T, RCA, and Western Union as well as its access to Anik, the Canadian satellite system. . . . In a related item, **PubSat** and **Washington Broadcast News** (WBN) have joined forces in the production and distribution of satellite radio and television news and features.

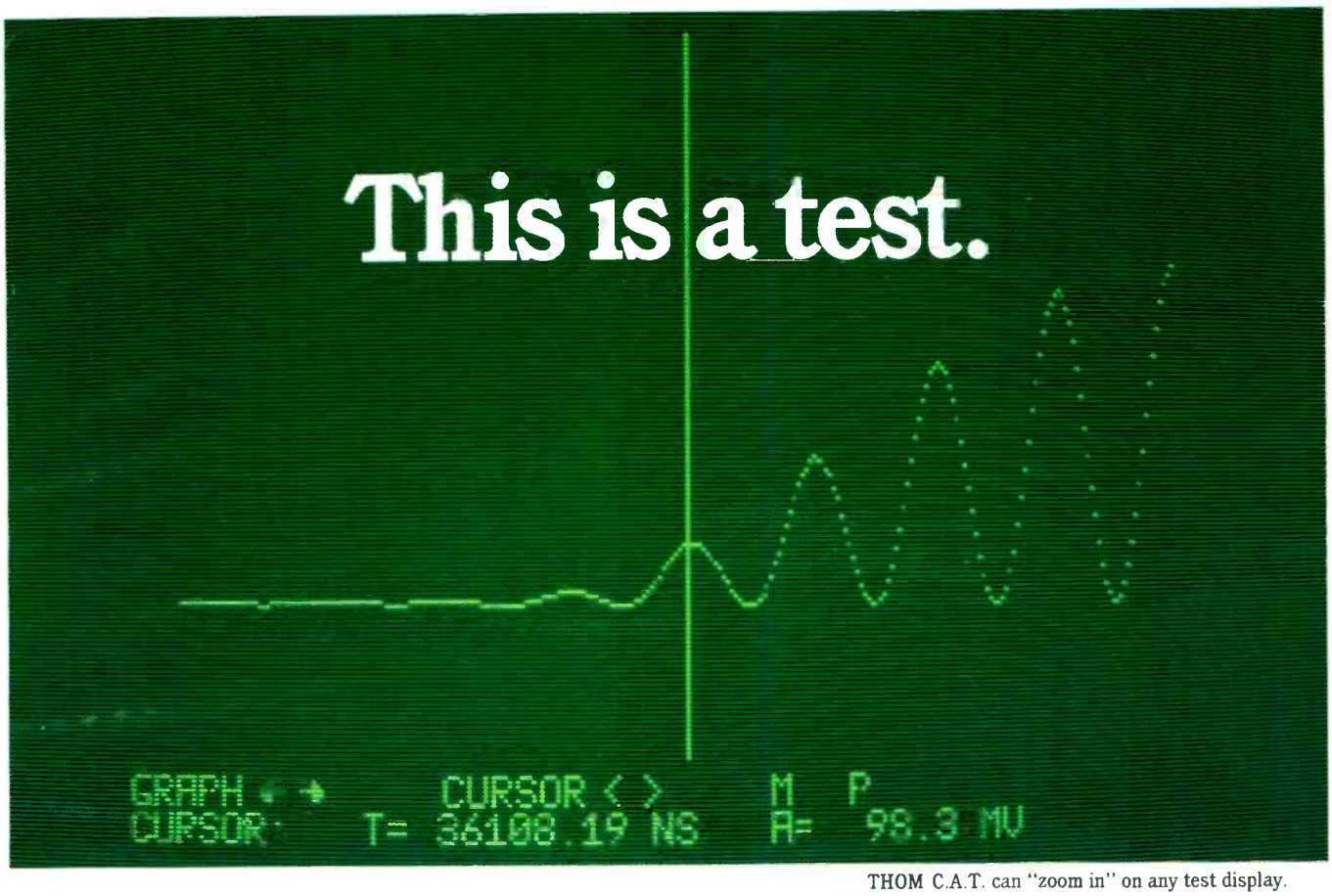
TMC is marketing *GoldPicks*, a collection of contemporary music's top 1000 hits spanning the period from 1954 to 1977. The songs selected for the anthology were tape mastered on Ampex 457 Grand Master Tape in dbx . . . . NBC's San Francisco affiliate, KRON, has signed an exclusive subscription agreement with **Conus Communications** to become a partner station in the first cooperative satellite newsgathering network. The station received a portable uplink van at the end of September. . . . **Positive Video** has announced the addition of a Quantel Mirage to its post-production facilities at Orinda, CA. The Mirage is one of 10 units in the country.

New York special effects house **Charisma Productions** has purchased two Sony VCRs for use in its efx library. Charisma recently used the units to prepare the opening sequence for the Masters' Golf Tournament. . . . The first **Mitsubishi X-800** 32-channel multitrack recorder available to the New York market was recently installed by Clinton Recording. Also included in the system was an **X-80A** Digital Master Recorder. . . . **Via Video** has announced the opening of nationwide workshops which specialize in teaching students the most advanced electronic post-production systems available. . . . 3M has selected **RCA Broadcast Systems** to supply equipment and turnkey construction services for its new facility, the Metropolitan Transmission Center. The Center, which will begin operation later this year, will simplify and automate the insertion of television commercials into local cable TV programming.

The Yunnan Radio/TV Services Company of the Peoples Republic of China has ordered its fourth **Harrison MR-3** console this year. The MR-3, which has a 36 position frame with 36 input modules that route to 24 multitrack busses, has been in use in China since 1978. Yunnan Radio/TV is scheduled to receive three more by November. . . . **Allied Film & Video** has purchased 12 Ampex VPR-3 videotape recorders, valued at over $1 million, for installation in its various post-production facilities across the U.S. The company also recently took delivery of 10 Ampex VPR-80 one-inch VTRs. . . . Teletext and videotext manufacturer **Videographic Systems of America** has opened its first research and development facility in Stamford, CT. The facility will be used for creating, testing, and developing VSA's teletext products. . . . Control Data Corporation, a subsidiary of the Arbitron Ratings Company, has signed a letter of intent to acquire a significant minority interest in Burke Marketing Services, Inc. Once the two companies merge in five years, they will become the **second largest** research firm in the U.S. . . . The **American Television Network** (ATN) has signed its first full-power station, Channel 32 in Toccoa, GA. The station, which went on-air in mid-August, will produce its own local news and sports programs. Other programming will be beamed to the station via ATN's Comstar D-4 satellite.

Modulation Associates has received a million dollar-plus contract from the Mutual Broadcasting System, Arlington, VA, to provide the nationwide satellite downlink network for Texaco's Metropolitan Opera Saturday afternoon radio broadcasts. Installation of 150 MC-SAT terminals began in August. . . . **Centro Corporation** has completed work on the new video production and post-production facilities at the Paramount studios in Hollywood. The facilities consist of a master control tape machine area, camera control room, two identical production/post-production suites, and two audio production suites. . . . In a major expansion move, Matthews Studio Equipment has acquired 12,000 additional square feet near its Burbank, CA headquarters. . . . George Massenburg Labs has completed installation of the first of three new moving-fader automation systems at Conway Recorders in Hollywood. The custom-built Conway system includes automated operation of 40 input faders, eight echo returns, six groups, and a stereo fader, all with automated muting. The system was installed on a Neve 8108 console.

Video production and system design house **Image Resources** recently completed a new production facility in Winter Park, Florida. The facility includes three one-inch and two ¾-inch machines for post-production, a Convergence 204 editor, E-Flex digital effects, and a Laird 7200 character generator. Image Resources is the only studio in the Southeast that offers videodisk mastering utilizing the Optical Memory Disc Recording (OMDR) system from Panasonic.



THOM C.A.T. can "zoom in" on any test display.

This is THOM C.A.T.—a computer-aided test system that monitors video signals by comparing them to pre-set norms. It automatically and continuously checks performance against user-established references and gives warning when a deviation occurs.

The heart of THOM C.A.T. is the Sampling Analyzer (Model 8420), which is used with a standard microcomputer to measure and quantify specific signals. It achieves the following accuracy:

Y amplitude	±0.2%
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Timing	±5 nanoseconds
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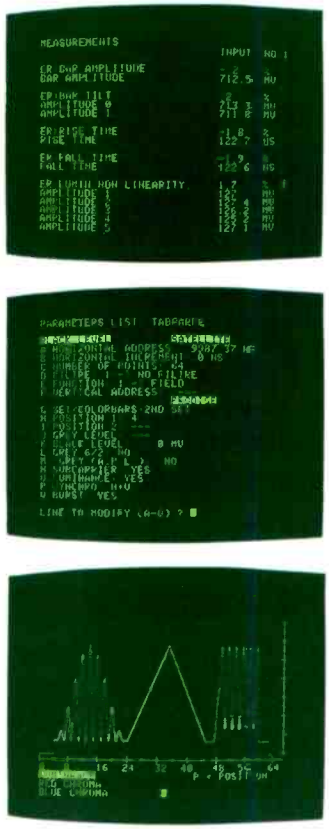
The Sampling Analyzer can be used **with or without** its companion Programmable Digital Signal Generator (Model 8410). You can choose from 12 test signals or create you own, and then store them on flexible disk or permanently on PROMS.



THOM C.A.T. gives you a vast menu of test modes, flags potential trouble areas, and can double as a video waveform monitor.

Put THOM C.A.T. on the prowl in your facility and get twice the accuracy of other test systems at less than half the price. For more information, call the regional office nearest you. Or contact:

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