BME's

NEW SERIES: INSIDE THE NATION'S TOP FACILITIES
PLUS: VIDEO TEST AND MEASUREMENT; AES PREVIEW

Television Engineering

AN ACT III PUBLICATION $3.00 SEPTEMBER 1990

NEW DIRECTIONS FOR SNG

HOW SATELLITE TRUCKS BOOST NEWS DEPARTMENTS

When you need extra hands mixing audio, Shure's AMS can help.

Until recently, you needed outstanding hand-ear-eye coordination to mix audio in multiple-microphone broadcast situations.

Now there's a system that gives you broadcast-quality audio when you can't cover all the faders at once. It's the Shure Automatic Microphone System (AMS), featuring patented direction-sensitive gating.

The Shure AMS continuously compares audio signal levels from two matched unidirectional condenser microphone cartridges located back-to-back in each AMS microphone. The rear-facing cartridge monitors ambient sound, while the front-facing cartridge handles sound from the desired source. When the front cartridge output exceeds the rear cartridge output by 9 dB, the AMS mic channel gates on automatically in .004 seconds.

Because of this unique gating concept, an AMS microphone channel will *only* gate on when addressed from within a 120-degree "window of acceptance" centered at the front of the microphone. AMS mics *not* addressed from within this angle remain off. So the number of open microphones is kept to a minimum automatically, with no need for manual control.

Since the Shure AMS automatically keeps track of the number of open microphones and adjusts the overall gain to compensate, your broadcast level stays constant as mics open and close, without troublesome gain-riding.

Direction-sensitive gating makes the Shure AMS the best system to use in multiple-mic situations, from panel talk shows to game shows to hearings on Capitol Hill. More and more broadcast engineers are discovering the advantages of having broadcast-quality multiple-microphone audio without the headaches of manual mixing or the time-consuming setup of so-called automatic mixers.

With AMS you not only get all the advantages of a truly automatic microphone system, you also get the broadcast-quality audio and reliability of Shure microphones.

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Unfortunately, our Porsche Targa Carerra is in for a pit stop. Seems there's an annoying noise in the front end. *Pity.*

Meanwhile, the incredible Schmid SIAT is still going strong. In fact, this fully automated marvel is fast enough to conduct complete audio tests in under 5 seconds. Which means you can now measure audio network quality *in-service*. Without the noise and intrusion of lengthy tone tests. Without interrupting programming. And without annoying your audience. *Amazing.*

Even more amazing, SIAT lets you measure noise, distortion and crosstalk during peak broadcast periods, when quality is critical and the transmission environment is noisiest.

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All of which proves: In the race for satisfied viewers and listeners, SIAT leaves the competition in the dust. For a free copy of our SIAT video or more information, race to the phone and call 1-800-955-9570.

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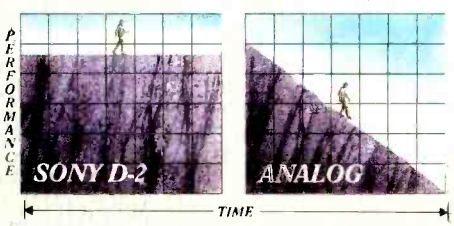
While your video tape reco you can only go as far as

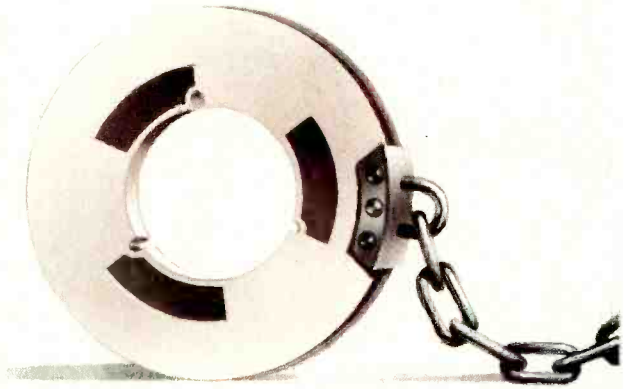
Most broadcasters have become attached to their analog video tape recorders. Which makes perfect sense. After all, they've never had any other choice. Not to mention the fact that analog VTRs do seem to get the job done.

But while those machines may still be working quite well, their technology isn't. Fact is, analog VTRs are full of limitations. And those limitations can really hold you back.



Over time, analog's performance tends to go downhill. D-2's doesn't.

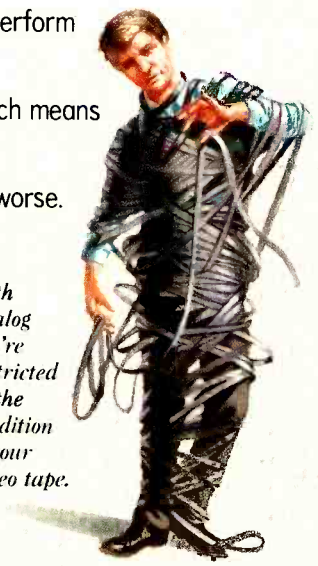
To begin with, an analog VTR's performance will always deteriorate over time. A fact that results in two troublesome limitations:



First, you have to continually adjust and tweak an analog VTR just to maintain an acceptable level of performance.

Second, depending on how old your VTRs are and how well they've been maintained, some will undoubtedly perform better than others. Which means some will also perform worse.

With Sony D-2 Composite Digital™ VTRs, none of this is true. Because a D-2



With analog you're restricted by the condition of your video tape.

VTR performs consistently over time and minimizes the need for adjustments.

quality of your video consistently high.

Furthermore, the sound quality of an analog VTR could never be as advanced as D-2's. Because an analog machine could never give you D-2's CD-quality digital audio. With accurate and consistent stereo phasing. No wow and flutter. An expanded frequency response.

:der may be quite advanced, its technology will let you.

Another limitation of analog video is something called tape dependency. Which means that the quality of your video can only be as good as the condition of your video tape.

Compared to D-2, the sound quality of analog seems rather archaic.

But in D-2, this limitation doesn't exist. D-2's powerful error correction and Sony's unique error concealment systems keep the

And a wide dynamic range of more than 90db.

These are just some of the ways D-2 has expanded the limits of video technology. To learn more, call 800-635-SONY.

Because even if your analog video tape recorder has been engineered with the highest technology, some technologies are simply higher than others.

SONY

BROADCAST PRODUCTS

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WDVM RAI WAKA WSLS WATL WCET WAVY
WTOL KBC KSTS WHME WHO WSYX WXEX
WEHT BTQ-7 WJCL WJZY WGN WCAU WOWI
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These stations had to pay *us* to get on this list.

What we mean, of course, is that they all have purchased Ampex switchers, and we don't exactly give those things away. But what's more important is what the TDs and directors at stations like these are saying about our switchers...

"We can configure the switcher any way we choose, fast! Between live news and some spot breaks we have only 30 seconds to change TDs, directors, everything! With Century we can do it, with time for a sip of coffee to spare."

"Key clip level, gain level, etc., are all stored *per source* in the Century's key memory—we *never* have to adjust a key on-air."

"We store all of our switcher setups on the same disk where we store our program options. Then we can pop the disk in and have our entire switcher ready, bingo, for the whole program...with all the panel memory setups...in 3 or 4 seconds!"

So if you're considering a switcher for your broadcast facility, get the full story before making a decision. Call **1-800-25AMPEX** for a poster and an information kit.

AMPEX

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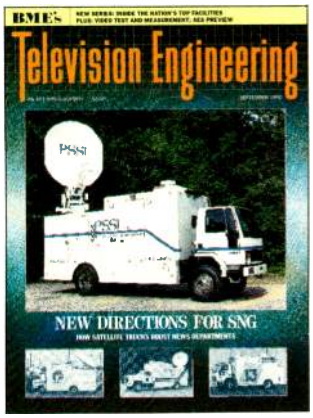

On the Cover:
At RTNDA the big truck will be delivered by Wolf Coach to Production & Satellite Services. Photo by Stanley W. Trzoniec. Background by John Labbé.

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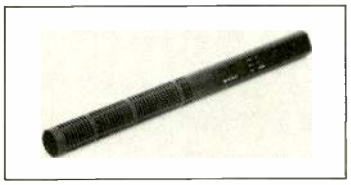

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50 *New York City's VSC Post is chock-full of high-end production gear.*

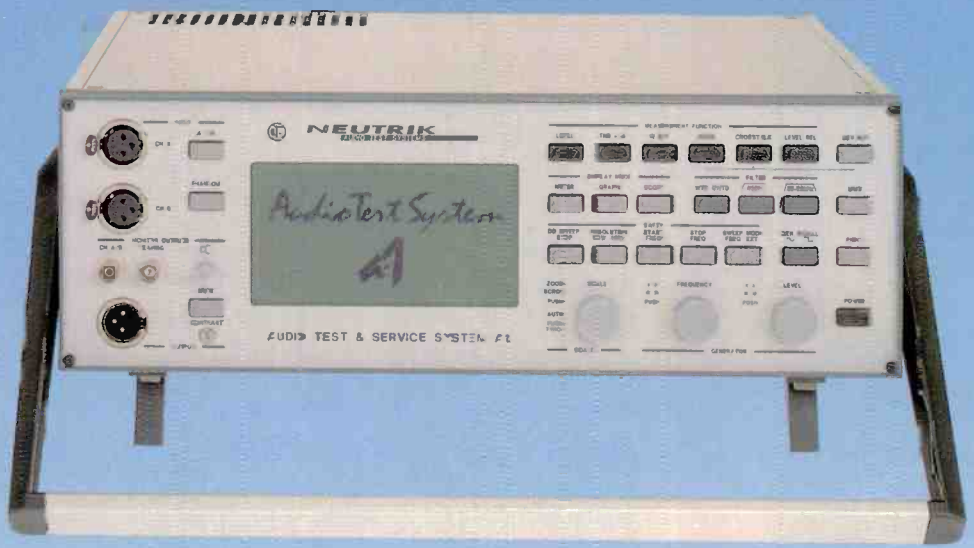
Swiss Family NEUTRIK

Europe's most innovative audio test equipment is the newest in the U.S.A.

The value packed 3000 Audiograph Modular System.
Capable of a wide variety of audio measurement tests for broadcast, manufacturing or studio applications. Hard copy results are provided by the 3000 Audiograph's precision chart recorder. Over 2500 units in use world-wide, everyday.

The Neutrik TT402A Audio and Transmission Test System.
A standard among European broadcasters. Capable of delivering a vast array of audio test data via finger tip front panel buttons or through user-friendly computer software. Options available put this instrument at the top of the class.

Introducing the new A1 Audio Test System.



The A1 audio test system is the only instrument providing the capabilities of 7 separate pieces of equipment: sweep generator, level frequency, cross talk, noise, distortion, wow and flutter, curve tracer and an audio measurement oscilloscope. Communication and hard copy available through RS232 interface or centronics port. Accuracy and reliability that is portable for the audio lab, broadcast, manufacturing, service and studio user.

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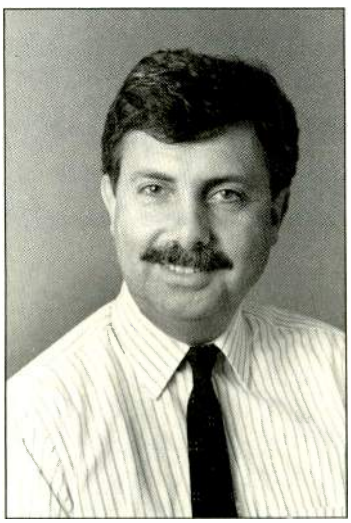
VIEWPOINT

Increased spending by TV advertisers should help bolster networks, stations and facilities in the years ahead.



Even as economic storm clouds gather this fall, there are some bright spots on the dark horizon. One such spot is TV advertising. We all know that advertising is the lifeblood of television. Commercials generate all the revenue of the networks and local stations. And the production and post-production of those commercials is a foundation of the teleproduction industry.

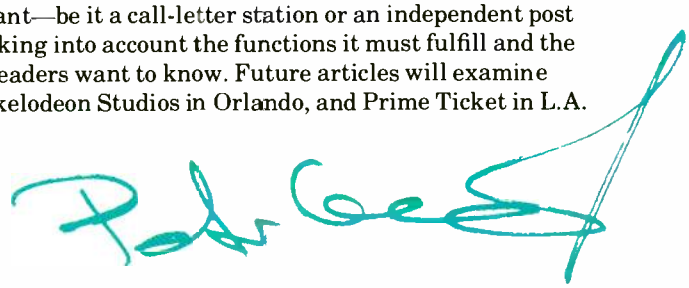
Now comes the latest economic forecast from investment bankers Veronis, Suhler & Associates. The New York-based firm, which publishes its Communications Industry Forecast every fall, has established a solid reputation for tracking advertiser and consumer spending patterns in all print, filmed, recorded and electronic media, basing its projections on economic, demographic and other forces. VS&A predicts that spending for broadcast TV network and station advertising will grow at a 6.8 percent compound annual rate over the next five years, rising nearly $9.5 billion to $33.9 billion by 1994.

Breaking these numbers down, the report predicts that network advertising will rise at a 6.6 percent annual rate, and that station advertising—which encompasses both local ads and national spots—will grow slightly faster, rising at a 6.9 percent annual rate. The projected network growth is significantly faster than the 2.2 percent annual growth of the past five years. The report points out that even though the networks' *share* of national advertising will continue to trend downward, the national networks will thrive as the only medium available to advertisers wishing to reach a "critical mass" of consumers.

Additional good news emanates from the Television Bureau of Advertising. According to that association's midyear projections, TV's share of total advertising in 1990 is 22.1 percent, up from 21.7 percent in 1989. Moreover, television is expected to end this year with an increase in the 6–8 percent range, while magazines and newspapers should register gains of only 3–4 percent.

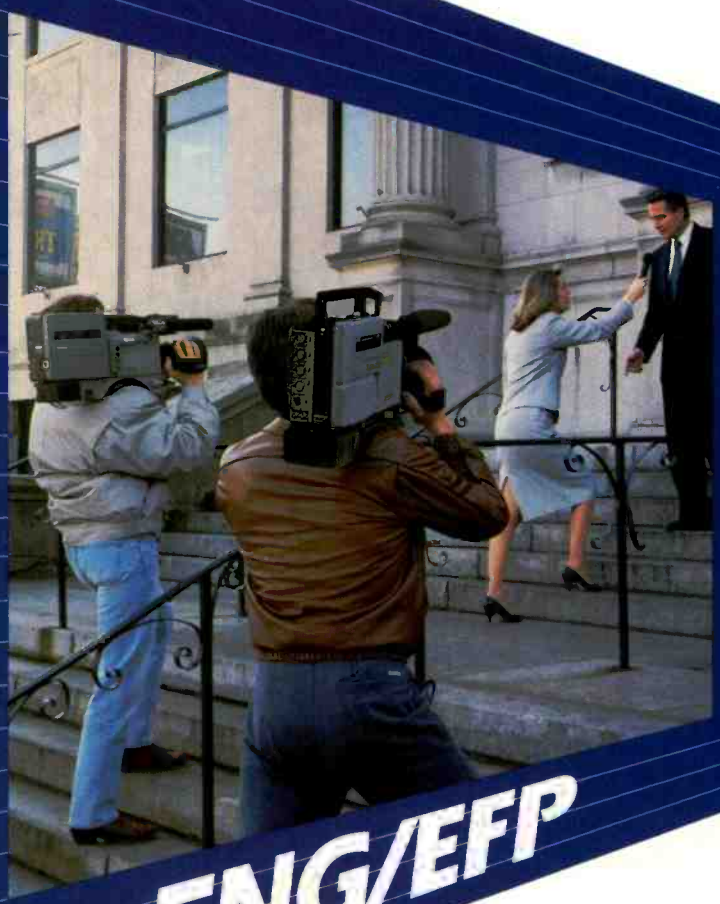
Networks, stations and teleproduction facilities can all take heart from these forecasts. So long as ad spending rises, revenues will flow to them. Stations need those revenues to produce the local programming and purchase the syndicated shows necessary to hold viewers. Both stations and facilities need them to be able to afford the equipment necessary to stay competitive.

Speaking of facilities, this month *BME's Television Engineering* launches a new series of articles on facility design with a comprehensive look at the inner workings of VSC Post in New York. This monthly series will approach equipment from a systems point of view: How does it all fit together? How do you design a teleproduction plant—be it a call-letter station or an independent post house—from scratch, taking into account the functions it must fulfill and the budget available? Our readers want to know. Future articles will examine Editel/Chicago, the Nickelodeon Studios in Orlando, and Prime Ticket in L.A.



Peter Caranicas
Editor in Chief

Panasonic Has Down To



ENG/EFP

STUDIO

Selecting the most comprehensive video production system has never been easier. The Panasonic® Professional Video Production System is designed for total systems operation in the field, studio, editing suite and for virtually any playback operation.

The SVHS recording format is at the heart of Panasonic's comprehensive video production system. It provides a new level of high performance and cost efficiency across the spectrum of video recording and playback. One look at the numbers tells it all. Five generations of signal integrity, 400 lines of resolution and two-hour operation on a single cassette.

It is Panasonic performance you'll benefit from in the field. Panasonic's compact SVHS camcorders feature component signal technology and the efficiency of half inch cassettes. Including both dockable and fully integrated one-piece units. And only Panasonic has SVHS camcorders available with three, two and single CCD image sensors. So you can specify the configuration that best satisfies your requirements. Panasonic lets you decide what's best for you.

Panasonic also captures all the details in the studio. With CCD cameras that feature component outputs to take full advantage of the SVHS recording format. And to make sure all the action you're recording looks its absolute best, Panasonic monitors allow you to easily analyze any video signal from any video source. A safeguard you'll appreciate during postproduction and final playback.

You can complement the performance of SVHS with the sophistication of Panasonic's MII recording format. The MII format delivers the operational characteristics you need for demanding broadcast

Video Production A System.

EDITING

PLAYBACK

and postproduction applications. Like a luminance bandwidth of 4.5MHz, a K factor of 2% and a signal-to-noise ratio in excess of 50dB. It provides images that equal one inch VTRs with signal integrity that exceeds five generations of recording.

The integration of SVHS and MII video production components adds a new dimension to video system specialization. Because you can select the Panasonic components you need for the highest degree of performance and flexibility for specific system applications.

Panasonic SVHS and MII editing components provide a host of sophisticated features designed for virtually any application. From programmable 128 event A/B roll systems with time base correction to highly accurate insert and assembly systems. In addition, Panasonic speaks the industry's language with RS-422 VCR control interface components and video signal transcoders for inter-format editing.

And for highly efficient playback operation, there's Panasonic's line of professional SVHS, MII and VHS VCRs, monitors and projection systems.

Make Panasonic your choice. After all, Panasonic has video production down to a system.

For more information and your local dealer, call your nearest regional office.
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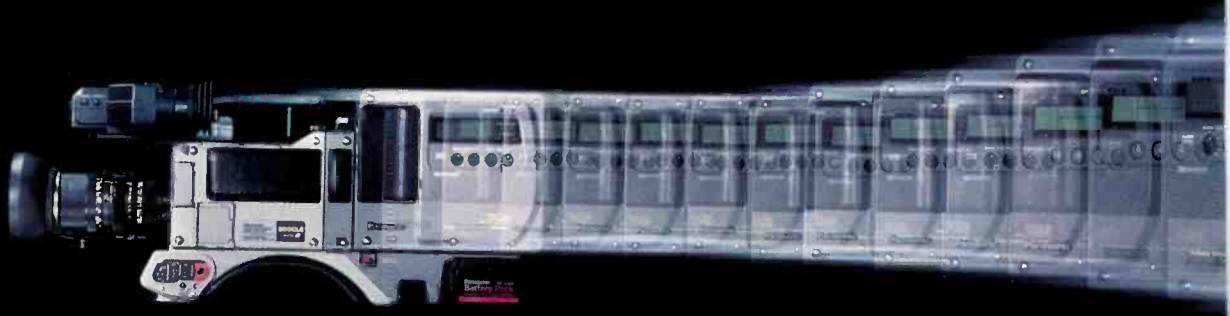
Panasonic Field Recording



Panasonic® makes it easier than ever to carry away the performance of SVHS. By offering you the smallest, lightest and most versatile SVHS dockable VCR available. The Panasonic AG-7450. It delivers field recording with no strings attached.

Now you can combine the high performance of Panasonic's 300CLE, 200CLE and F70 CCD Cameras with the AG-7450. To create a one-piece SVHS camcorder system designed for one-person operation. Because everything you need for high performance field recording sits right on your shoulder. Which means greater mobility and flexibility when shooting. The AG-7450 can also be used as a stand-alone field recorder with an optional 14-pin VCR adaptor.

And even though the AG-7450 weighs in at a mere 7.5 pounds, it delivers heavyweight performance. Because it provides you with all the exceptional recording and playback characteristics you demand. Like the economy of two-hour recording on a single cassette, Y/C signal separation with over 400 lines of resolution and a signal-to-noise ratio in

With No Strings Attached.

excess of 47dB. So there's no need to "bump" your original footage for post production.

In addition, the AG-7450 provides street smart features. Like an antirolling system to compensate for gyro error on the video head. Four channel audio (two hi-fi and two linear) with independent level controls. And an optional vertical interval/ longitudinal time code (VITC/LTC) generator/reader that docks directly to the back of the unit.

So if you're looking for a lightweight dockable VCR that performs like a heavyweight, take a good look at the AG-7450. You won't have to look any further. It's Panasonic field recording. With no strings attached.

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UPDATE

Cable TV Engineers Meet in Nashville . . . . AGFA Selling Tape-Manufacturing Capability to BASF . . . . Direct Satellite Link to Europe—With Signal Conversion . . . . RadiusTV Puts Broadcast Signal on Apple Macintosh . . . . Scientists Use Sony BVP-7 Three-Chip Camera for Underwater Search

Tense Mood Gripped Cable-Tec Expo '90

Amid the history and music that is Nashville, the Society of Cable Television Engineers held their Cable-Tec Expo '90—a combination training session and trade show—during the month of June.

The mood of the meeting was mostly festive, with many attendees renewing old friendships, but a clear tension hung over the group, as they seemed to be waiting for the other shoe to drop. With talk in Washington focusing on industry re-regulation, engineers privately voiced concern over the potential effects of pending legislation on their companies—and their jobs.

Technical sessions were well-attended, but the heaviest action on the floor appeared to be the line for free tickets to the Grand Ole Opry. On the balcony overlooking the exhibit hall and in the corridors outside the session rooms, groups of engineers gathered to trade scuttlebutt.

Perhaps the group's greatest concern is the part of the proposed bill by Illinois Senator Danforth that would limit MSO growth by restricting the percentage of the market that any one MSO could cover. The thinking seems to be that restricted growth would mean the elimination of many jobs in construction and in system maintenance.

The technical talks were interesting and well-presented, with the hot tickets being sessions on OSHA regulations and the FCC "Basic Signal Leakage Performance Report" (Form 320).

A large contingent of vendors made touring the exhibit hall a day-long affair, with enough satellite equipment, cable and connectors to keep even the most jaded techno-junkie satisfied.

One area of the cable business almost totally absent from the technical exhibits was program production equipment. The only exhibitor showing any type of video production equipment was Panasonic, with a Ford van equipped as an S-VHS production vehicle, including two cameras, video and audio mixers, and an S-VHS editing system. With a price tag just under $150,000, the vehicle represents an attractive, cost-effective, ready-to-roll package for the operator looking to get into video program production.

Perhaps the lack of production gear is the result of deregulation, with cable operators no longer interested in local production. More likely, however, it represents the vendors' response to an industry which appears to be taking a wait-and-see attitude—waiting to see how government intervention will affect their business before making any more large dollar commitments.

As always, Southern hospitality was clearly evident, but for the cable folks, a friendly regulatory environment would be even more welcome. —*William A. Owens*

Last-Ditch Marketing Effort Fails To Save AGFA

AGFA is in the process of finalizing the sale of its tape-manufacturing capability to BASF, pending approval of the deal by the German government. The first victim of a flat market, German professional audiotape maker AGFA tried to stave off such an event

TOM CUSHWA

through creative target marketing ploys.

One effort was aimed at the burgeoning home recordist market. Just before the BASF takeover, AGFA teamed up with JRF Magnetic Sciences, a New Jersey-based technical house that specializes in selling and reconditioning audio heads. As a promotional offer, when a client sends their quarter-inch or half-inch audio heads in to JRF for relapping, the heads can be calibrated and aligned for AGFA PEM 469 tape, and a free reel of that tape will be supplied to the client.

That setup marked the first time that a tape manufacturer specifically targeted the community of home recordists, which reflects the influence that this market is having on the audio industry. Before the BASF action, Heinz Mauser, AGFA's worldwide director of marketing for professional magnetic products, told *Television Engineering* that AGFA expects to continue to aggressively pursue the semi-pro and personal recording market in the future.

AGFA's recognition of this market could be seen as a last-ditch attempt to increase revenues in a flat market; audio tape prices have been stagnant for nearly two years. It will be interesting to see if, when and how other tape makers follow this lead.

Meanwhile, as AGFA finalizes its agreement with BASF, AGFA spokesperson Teri Sosa told *Television Engineering* that until such time as the sale is finalized (which could take several months), AGFA will continue to support the venture with JRF, and other similar arrangements.

—Dan Daley

One Step to Europe

Atlantic Satellite Communications Inc. (ASCI) is offering a "one-step kind of thing" to those who want to exchange television programming with Europe, according to ASCI president Bruce M. Allen. Gaining FCC approval earlier this year, the service includes conversion of PAL, SECAM and NTSC signals, in addition to transmission and reception.

The one-stop service is possible because ASCI is part of Video Services Corp. (VSC), which is made up of 11 independent companies, including A.F. Associates, VSC Post Productions and Audio Plus Video International. "Audio Plus Video International is the largest standards-converter company in the industry," Allen says. For other satellite service companies to offer conversion of signals, "they would have to make a deal with someone who does conversions," he explains. ASCI has the Audio Plus Video facilities at its disposal, enabling ASCI to save on company costs, and thereby lower client prices. In addition, other VSC companies can simultaneously record or play back a signal in any of the videotape formats.

For its first two customers, ASCI supplied the service for a video conference

Company News

Zaxcom Video and **Grass Valley Group** will receive Special Monitor Awards for Excellence in Engineering this month from the **International Teleproduction Society**. Zaxcom's award is for its TBC/D-2 digital control system, while GVG is being cited for its well-known Kaleidoscope digital video effects device. Last year, **Accom** received the same award for its Digital Image Enhancer 125. Prior to '89, winners included **New England Digital, Ultimatte, Faroudja, Abekas, Ampex** (twice), **Quantel, Rank Cintel, Studer Revox** and **Lexicon** . . . . In case you haven't heard yet, since June, **Ampex** has been offering six-, 12- and 20-minute sizes for its 219 D-1 format. The Redwood City, CA, firm is also offering a one-year service program beyond warranty for owners of Ampex Betacam SPs . . . . **Tektronix** has pumped up memory capacity in its XN10 and XN11 color X terminals from 5 Mb to 11 Mb. In addition, Tektronix is teaming up with **Gemini Technology**, Irvine, CA, to make Gemini's Generic Visual Systems software available on Tektronix XD88 series graphics superworkstations . . . . **CEL Electronics Ltd.**, based in the UK, has started a U.S. subsidiary at 4450 West 109th St., #140, in Overland Park, KS 66211 . . . . **Avid Technology** and **Panasonic** have both opened offices in "beautiful downtown Burbank," CA . . . . **The NAB**, in a statement to the National Telecommunications and Information Administration, advised the federal government to adopt policies that will open foreign markets for U.S. program producers . . . . **Chris Bearde Entertainment**, with offices in London and Los Angeles, is working on U.S. projects with HBO, Fox, Lifetime and Saban/NBC . . . . **HDC Communications Group**, with U.S. offices in New York City, has opened Canada's first film and high-definition TV facility in Vancouver, BC . . . . In May, **The Arts & Entertainment Network** and **Modern Telecommunications, Inc.** celebrated the sixth year of their teamwork on post-production of on-air and telecast of live-to-tape shows . . . . Also in May, **ACTV**, New York, NY, completed its initial public offering of 850,000 shares of common stock and 850,000 redeemable warrants, traded on NADAQ and the Boston Stock Exchange . . . . **Neve Electronics**, Melbourn, England, has received The Queen's Award for Export Achievement based on its last three years of performance . . . . In case you missed the news at NAB '90, **Aurora**, a **Chyron** group member, cut the base price on its 280 videographic system from $135,000 to $79,000 . . . . Also at NAB, the **Grass Valley Group, Telecom Systems** and **Motorola Microwave** announced a joint marketing agreement to focus on new opportunities in digitized video, voice and data. ■

between New York and Portugal, and a computer training seminar between Salt Lake City and Turin, Italy. In the future, "news is probably going to be a major user," Allen says. "We're pretty far down the line with a number of companies, including VISNews, Bright Star and each of the three major networks." ASCI can transmit signals received from Europe through New York City via fiberoptic cable.

ASCI uses Ku-band dishes for this service rather than the larger C-band ones. "More Ku sats are going up all the time, and high-power signals can be received by smaller dishes all over Europe," says Allen. ASCI sends signals up to the Pan Am Sat PAS-1 satellite via its nine-meter Ku-band dish. These signals can then be picked up in Europe on an eight-foot dish.

Expecting much business from this service, ASCI recently doubled the size of its satellite transmission control facility to 1,100 square feet. ASCI's main building has 10,000 square feet.

—John F. King

Put It on the Mac

Users of Apple Macintosh II personal computers can now capture live broadcast television signals on their computer screens. RadiusTV from Radius Inc., San Jose, CA, combines a television tuner, video processing engine, and external A/V input processor. The system digitizes sound and picture, and has a display rate of 30 fps for NTSC and 25 fps for PAL.

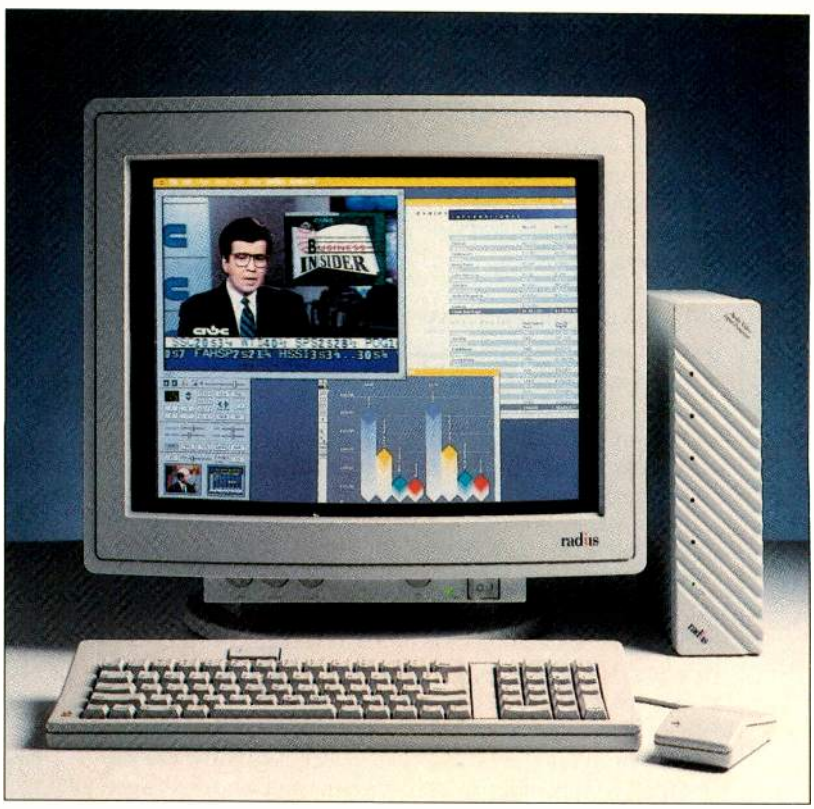
Radius, a well-known maker and supplier of high-resolution display systems, dug deep into its research and development talent to come up with the RadiusTV subsystem, which retails for about $3,000 and provides access to the entire video signal, including the vertical interval. For another $700, calibration hardware and software automatically calibrates to the vertical interval reference signal. That allows television engineers who are using Apple Macintosh computers to "make sure people 3,000 miles apart are seeing exactly the same signal," according to Andrew Singer, Radius VP of engineering.

"RadiusTV represents the broadest, most complete integration of television into the computer environment," Singer says, adding that the product is "designed to go across a lot of different markets." Already, ABC News InterActive, an ABC news unit that produces educational videodiscs, has announced that its future products will support RadiusTV. And software applications for RadiusTV are being developed in tandem with Edudisc, Macromind and Digidesign. The Digidesign/Radius product will offer audio editing for video post-production.

Now used for calibration settings and closed captioning, the vertical interval, according to Singer, can also be used for other teletext applications. And Singer believes "people will find a lot of uses for the vertical interval" because RadiusTV will provide easy access to the interval information.

Designed primarily for image capture and manipulation, RadiusTV is packaged with two software programs. One provides control of the television image: The user controls audio volume, channel selection, image freeze and other functions by working with icons and the Mac's mouse. The other program is an application called Theatrics, which lets the user do effects with images captured on RadiusTV. Effects include mirrors, mosaics, posterizations and rotations.

The television window, which can be as large as 640 by 480 pixels, can also be fed by external video sources such as VTRs, cameras and laserdisc players. Any graphics program that can be run alongside the TV window would have ready access to many kinds



RadiusTV uses a Macintosh platform to bring live TV pictures into the computer world.

of images that can be pulled into the graphics application.

Singer revealed to *Television Engineering* that Radius is also developing an IBM-compatible version of RadiusTV. Singer sees the RadiusTV product as the crest of a wave that will sweep the nascent desktop video field to a prominence in video production equal to that of desktop publishing in the publishing field.

—*John F. King*

Sony BVP-7 Goes Deep-Sea Diving

"Science has become a very competitive field," notes Bill Lange, research assistant at the Woods Hole Oceanographic Institution (WHOI), one of eight members of the Jason Foundation, a partnership that includes private industry, scientific research facilities, museums and educational organizations. "In terms of attracting research funding, the one with the best pictures wins."

When WHOI began its underwater exploration of three Lake Ontario shipwrecks from the War of 1812, researchers decided it was time to upgrade from the one-chip cameras in use since the late 1970s to higher-resolution models. A variety of products were evaluated (including two-chip and three-chip industrial video cameras) before WHOI settled on the Sony BVP-7. Lange says he was impressed with the camera's small circuit boards, low power consumption, and high resolution/sensitivity in low-light conditions. The imager incorporates 380,000 pixels, with 768 horizontal elements.

Underwater camera vehicle "Jason" with pilot Martin Bowen.

People On The Move

Jack E. Banister is now executive VP and CEO of **Dynair Electronics, Inc.**, San Diego, CA . . . . Joe Scheuer, one of the founders of **Chyron Corp.**, joins **Vertigo/Cubicomp Corp.**, Hayward, CA, as a member of the board of directors, president and CEO . . . . **Chris Bearde Entertainment**, Los Angeles, CA, has a new president and CEO: Rob Whitehouse. The international TV and production company also adds producer Peter Hackes, previously co-executive producer of **PBS**'s "Celebrating A Jazz Master: Thelonious Sphere Monk"; Hackes will produce "Greetings From The Unknown," a strip series pilot for CBE in conjunction with **Lifetime** cable network . . . . Dave Powell now serves as eastern regional sales engineer at **Solid State Logic, Inc.**, New York City, concentrating on eastern sales of the ScreenSound editing system . . . . Michael C. Moore goes from **Flite III Recordings** in Baltimore, MD, to **Powerhouse Studios, Inc.**, Washington, DC, as a on-line editor . . . . **Broadway Video**, New York City, recently promoted Jonathan Applebaum to VP of engineering/editorial services . . . . **Neve North America** expands its support staff by adding three technical service engineers: Peter Lewis and Stephen Morris will handle field services for both Neve consoles and the **Mitsubishi** product line in the New York City office, and Vincent Pietrorazio, based in the Bethel, CT, office, will specialize initially in the Mitsubishi product line . . . . George E. Harte is now product engineer at **Wieland Inc.**, New Rochelle, NY. Harte will provide product engineering and technical support for a number of Wieland products, including the new Wieland Multiplex System . . . . **Ediflex Systems Inc.**, Glendale, CA, names John Patrick Warrington as a digital audio engineer in its **Audiflex** division. Warrington was formerly a project engineer with **AMS Industries** in England . . . . Ken Baehr is manager of OEM/VAR sales at **Management Graphics Inc.**, Minneapolis . . . . **Digital F/X Inc.**, Mountain View, CA, appoints Bland McCartha sales VP . . . . John Greene is district sales representative for **JVC Professional Products Company**, covering Virginia, south Jersey, eastern PA, DC, Delaware and Maryland . . . . Formerly OEM sales manager at **Celwave Inc.**, Oscar Harris is now cellular sales director; Gerald E. Anderson is corporate account sales director. ■

For the BVP-7, Sony uses its Hole Accumulated Diode sensor (⅔-inch chip) to reduce sensor dark noise to a level that is 10 times less than the level achieved by conventional diode sensors, resulting in a CCD imager with a dynamic range greater than 80 dB. The system also features an electronic shutter.

The goal during this expedition was to mount the BVP-7 on the Jason—an unmanned remote submersible vessel—and return with high-resolution underwater pictures. Before installing a camera on the vehicle, however, mechanical and optical design alterations needed to be made. Besides choosing one of the standard six-inch pressure housings made of either steel, aluminum or titanium, the scientists had to design the viewport through which the camera would record images. The glass portal had to be strong enough to support the surrounding water pressure, which can reach 10,000 pounds per square inch.

"The images the three-chip BVP-7 camera sent back to the surface far surpassed the quality of anything we've retrieved before," reports Lange. "We were able to make out a lot of detail on the schooner wrecks, including gun turrets and cutlasses. The mast appeared to be intact, as were some of the ropes on board. Each day, we focused on imaging a different perspective of the vessels, and we would see different aspects of the remains, including cannons and various other warship memorabilia."

Besides the BVP-7, the scientists also used a Sony DXC-325 camera. Although not as sophisticated as the BVP-7, the DXC-325 reportedly worked well. "Everyone is convinced that the tandem use of the DXC-325 and the BVP-7 is the way to go on Jason," Lange observes. "The BVP-7's pictures are sharper, even with the f2.8 lens on it. We might reconfigure Jason to hold two DXC-325s and one BVP-7—each offering us different capabilities. We could, for example, mount the BVP-7 on a pan and tilt, and use the DXC-325 to provide us with port and starboard views. The three cameras, taken together, would give us some excellent panoramic views."

Lange estimates that by the end of the year, Woods Hole scientists who use imaging devices will step up from the one-chip composite world to the three-chip component world, and camera equipment will become more standardized. "High-resolution image development at Woods Hole is contingent upon getting this broadcast technology into the everyday science community," he says. "That's going to take some work because a single-chip camera is a lot easier to operate than a three-chip camera. Nonetheless, we're looking to standardize on the BVP-7 camera family."

Future image development at Woods Hole has some interesting possibilities. An animation facility is already in the works, and Lange would like to see D-1 component and D-2 composite digital formats incorporated there in the future. Potentially, it could be used to recreate three-dimensional wire-frame models now constructed with computers. Lange is also keen on the implementation of HDTV.

"The extra bit of resolution offered by HDTV could help on a robotic system like Jason," he remarks. "Think of what HDTV could accomplish. It's only a matter of time before someone starts trying to put an HDTV camera system on a robotic vehicle. I'd like to see that work done at Woods Hole."

—Tom Soter

Equipment Sales

The Weather Channel still frequently uses **Quantel's** Paintbox, which it purchased as the first unit sold in the U.S. eight years ago. Now there are more than 300 Paintbox systems operating in U.S. TV facilities . . . . The oldest regional cable sports network in the country, Madison Square Garden (MSG) Network, New York City, is renovating its facilities with $1.6-million of **Broadcast Television Systems (BTS)** equipment, including a 200-input x 250-output TVS-3000 three-stage routing switcher. MSG also bought a BCS-3000 integrated control system, BTA-2300 television automated system, two MCS-2000 master control switchers, and BVA-350 video DAs. The TVS-3000 will give MSG enough bandwidth to handle HDTV projection . . . . Greater Dayton Public Television (WPTD, Channel 16, Dayton, OH) completes its upgrading efforts with a 70 kw TX-Series transmitter from **Midwest Communications** . . . . WCBB Television in Hartford, CT, has installed three **Canon** J20 X 8.5 lenses, to be used with their new **Ikegami** HK 355 CCD cameras . . . . Ken Koepka, VP and chief engineer of KATV, Little Rock, AK, is impressed with the **Sony** DVC-500S Library Management System on-line at his station since February. Koepka says the system was installed and running in three days . . . . KRON-TV, San Francisco, an NBC affiliate in the nation's fifth-largest market, is replacing the station's two Betacarts with two **Odetics** products: a TCS2000 Cart Machine and an XR-800 External VTR Controller . . . . Flying Foto Factory, an animation and graphic arts studio in Durham, NC, expands into 3-D animation with its purchase of the Explore system from **Thomson Digital Image America** . . . . **Contel ASC** in Rockville, MD, will provide IBM with satellite transmission service, satellite network monitoring and control, and maintenance for IBM's Corporate Education Network (CENET) . . . . NBC affiliate WECT-TV, Wilmington, NC, has gone MII with $600,000 worth of **Panasonic Broadcast Systems Company** MII equipment for news, production and on-air operations. ■

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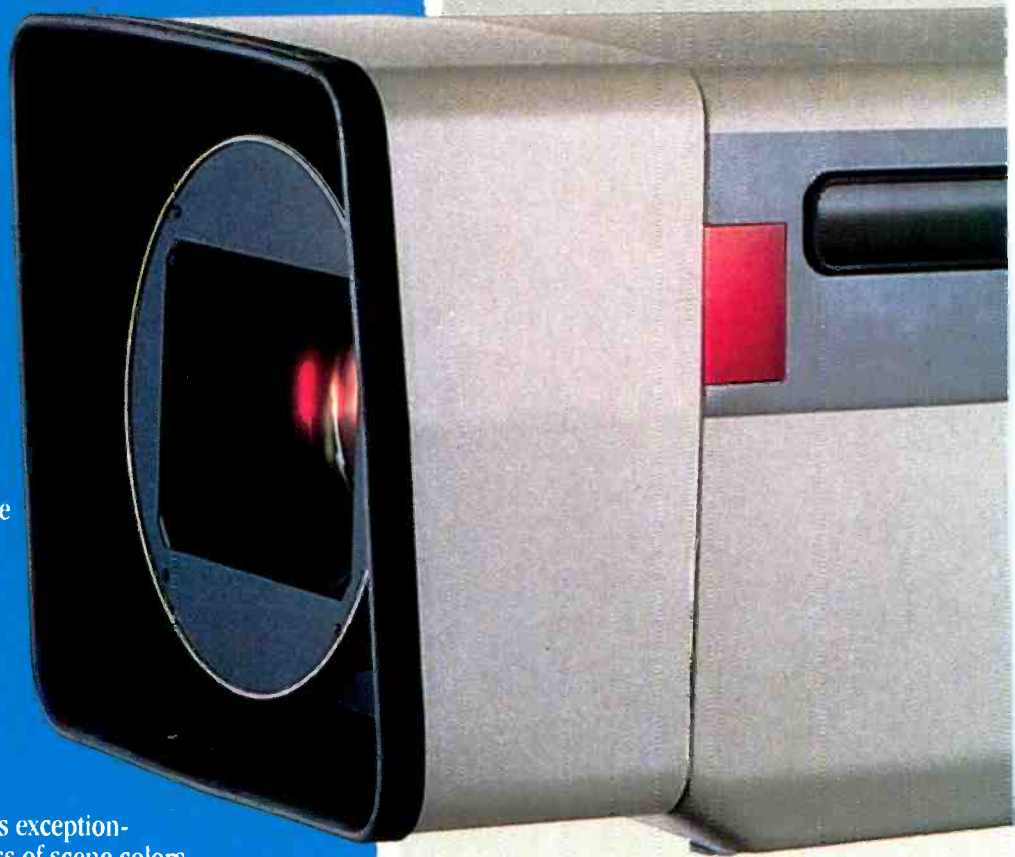

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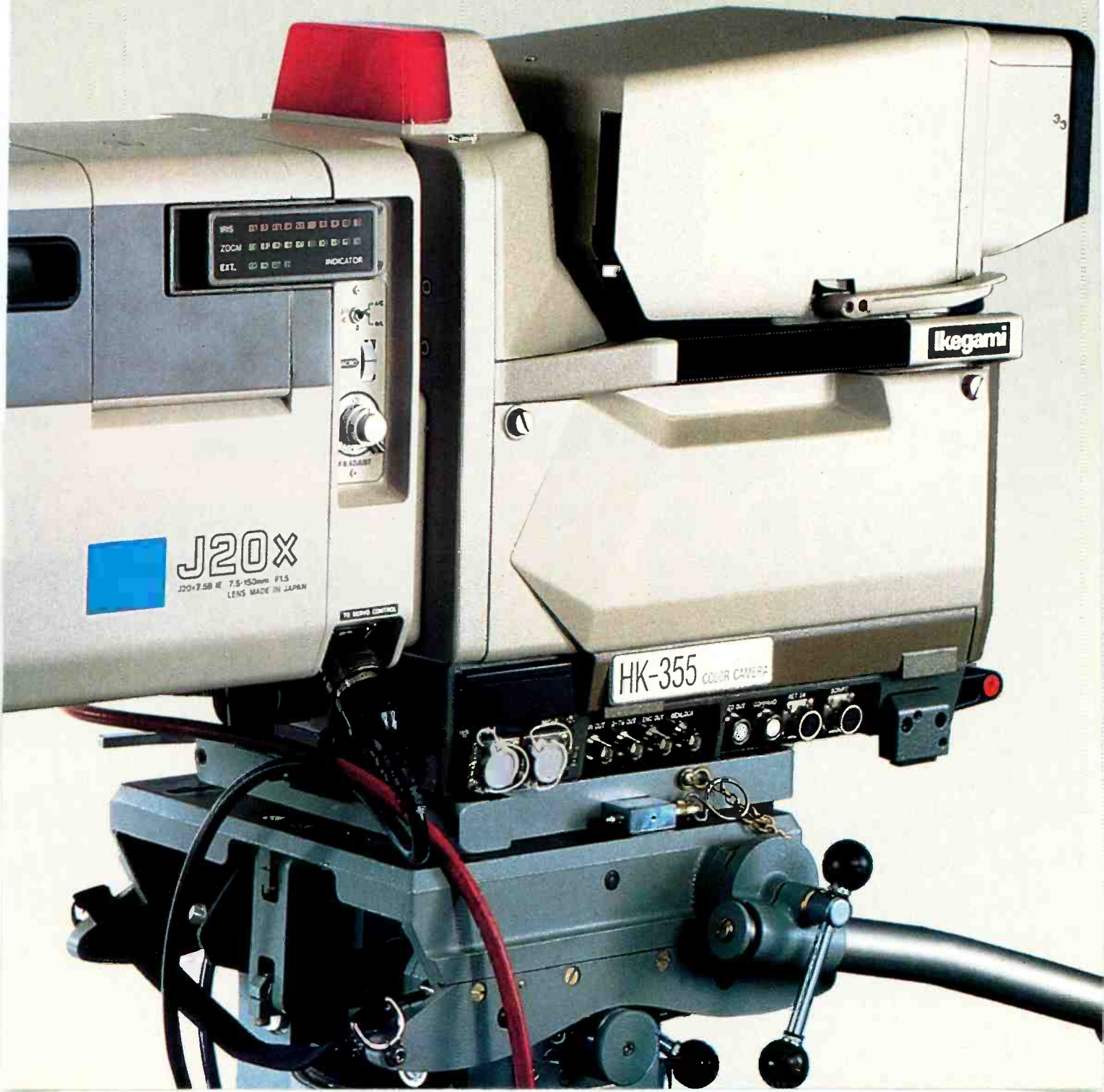
HK-355 Studio Chip eye on the future."

–George Wensel, V.P. Operations, NEP



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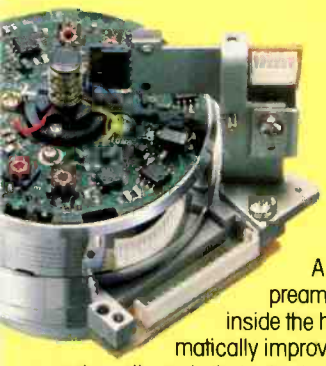

A new low-noise preamplifier mounted inside the head drum dramatically improves the signal to noise ratio and eliminates transmission loss.

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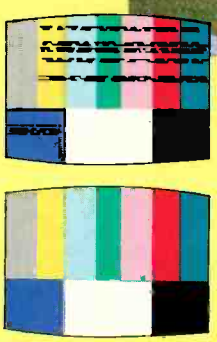

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This is the only portable S-VHS recorder with a built-in Digital Time Base Corrector.

SMART SOLUTIONS

Colorado Broadcasters Boost Expanded EBS Technology

By William A. Owens

"This is a test. For the next 60 seconds, this station will conduct a test of the Emergency Broadcast System. This is only a test."

As broadcasters, we've heard that intro thousands of times. But for many stations, the EBS obligation has presented serious problems. How does a fully automated station deal with EBS? How do you balance the need for cost-effective operation against your mandate to serve the public?

There is another important question concerning EBS: How can broadcasters located far from the main EBS control points ensure immediate response to local emergency situations? Broadcasters in Colorado, working with the FCC and their local Disaster Emergency Service may have found the smart solution for all of these problems.

In the good old days, radio stations were manned 'round the clock by real engineers who watched power levels, directional patterns and "ran the board" for all types of live shows. When an alert was transmitted on what is today called the EBS system, there was somebody around at each station to hear it and take whatever action the alert required. But the entire concept depended on the presence of a live body at the station to react to an emergency action notification.

Today, many radio stations, along with a small but growing number of television stations, broadcast all or part of their day with no operator on duty. Satellite networks, automation, remote transmitter monitoring and relaxed FCC requirements have reduced or eliminated the need for live operators. Yet the broadcaster's EBS obligation remains, even if the only required action is to sign off the air after instructing the listeners to tune in to the area's primary EBS station.

Broadcasters are not the only ones facing problems with the EBS. The daisy-chain configuration of national and statewide EBS systems can actually inhibit those charged with emergency management from using the system.

If the local Office of Emergency Management needs to declare an emergency, the entire daisy chain must be activated, even though the emergency may be confined only to a small local area. It may take considerable time for the alert message to be relayed by the many stations in a chain, until it reaches those in the area actually affected. If the chain is broken because one station fails to relay the alert (due to unmanned operation), or if the local station is unable to receive the message due to its inability to pick up the distant transmitting station, the affected area may never actually receive the alert.

Stations could have a variety of recorded messages ready to air, effectively eliminating the need for any type of human intervention.

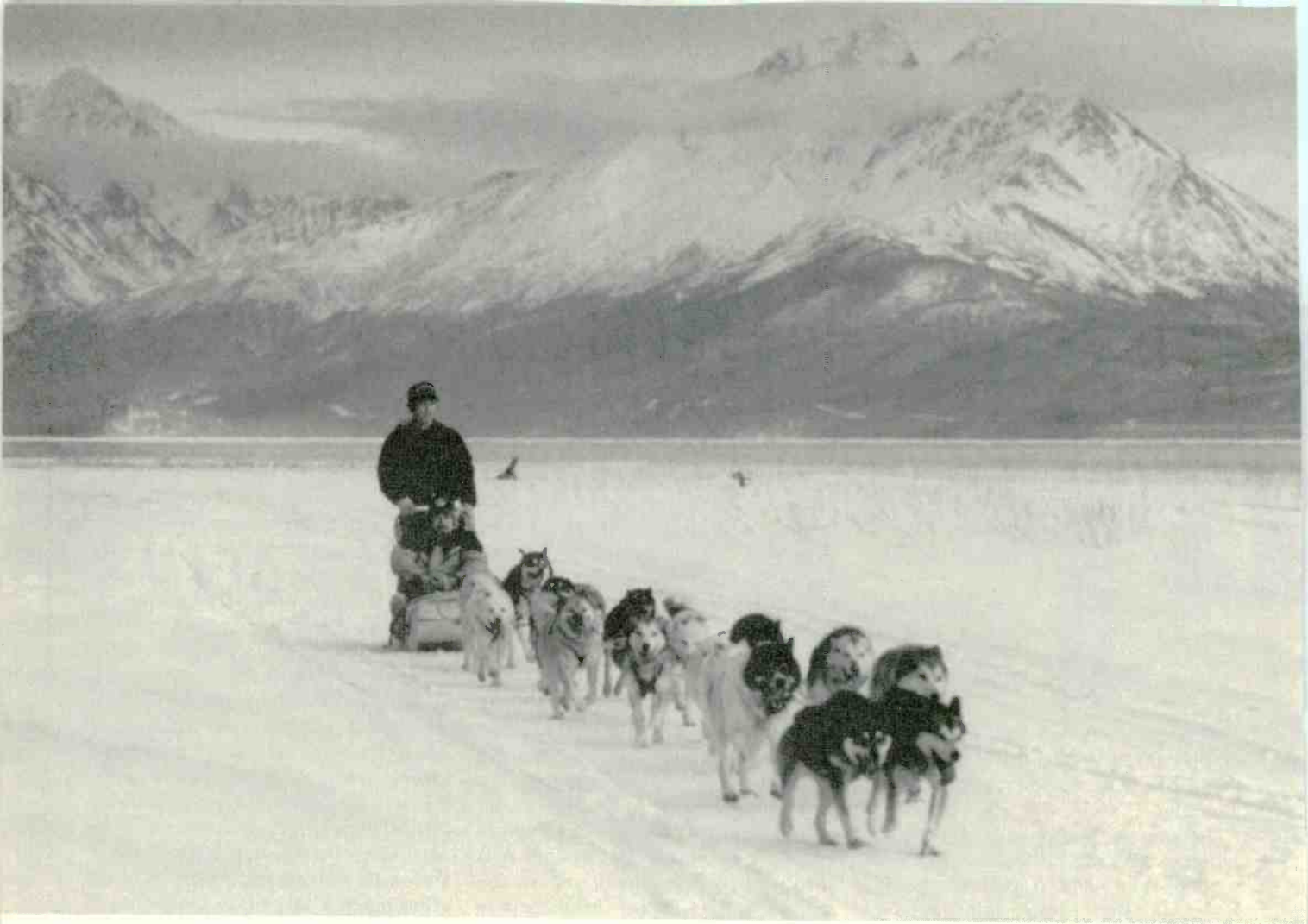
The Colorado Broadcasters Association, working with the FCC and the Colorado Disaster Emergency Service, has developed what they believe may be the solution to these problems. Their approach has been to create a new system of transmitting the EBS alerts, along with a specially designed receiver which will not only receive the EBS broadcast, but provide electronic triggers to air prerecorded emergency messages.

According to Paul Montoya, chief engineer of KOOL-FM, Denver, CO, and one of the engineers involved in the project, the proposed Emergency Alert System will "transmit EBS alerts using NOAA weather radio and a wide variety of nontraditional media, including a subcarrier of Denver-based superstation KWGN-TV, a statewide microwave system, and an emergency UHF radio frequency." Stations would be provided with a custom-built scanning receiver that would receive transmissions from all possible sources.

The scanner/receiver would be capable of reading a digital tone code, which would be transmitted just prior to an alert message. This would contain a number sequence identifying the agency that originated the alert and the area involved, along with the type of alert and the action to be taken.

A station could program its automation system to react to the codes, playing an EBS alert cart and then switching to the live alert broadcast, or triggering other actions. Since the code would identify the type of alert, stations could have a variety of recorded messages ready to air, eliminating the need for any human intervention.

The coded transmissions are the key to the system's operation. We spoke to David Holm, the communications warning manager for the Colorado Division of Disaster Emergency Services, who told us that "with Colorado's terrain, broadcasters can't rely on just one signal to punch through with alert messages. The proposed



"At first we considered digital too costly and exotic for our needs. In reality, it was neither."

– Bill Dowd, Operations Manager, KTUU-TV, Anchorage

We all know that perception can differ from reality. Just mention Alaska and it conjours up images like the one above. Cold and remote. But can you imagine temperatures reaching 90 degrees, a rain forest, or even a desert in the arctic?

To truly appreciate the beauty and diversity of Alaska, you need to talk to an expert. Like Bill Dowd of KTUU-TV in Anchorage. Who, as a broadcast professional, also has some surprising things to say about D-2.

"Our initial response to digital was – do we really need it and why? We're comfortable with our 1" equipment and it does the job. But like most stations, the customer is our first priority. Which means we need to offer the highest quality services available.

The Sony DVR-10's primary application is with Syntax, our commercial production group. Aside from the superior quality that digital offers, the DVR-10 opens a whole new world of creative options. With features that enable us to offer an expanded selection of in-house services to our clients.

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But there was still something else we didn't expect. That the cost of upgrading to digital was comparable to that of analog equipment. Which means we didn't have to raise our commercial production rates. So that was it. The decision was made"

...Bill Dowd

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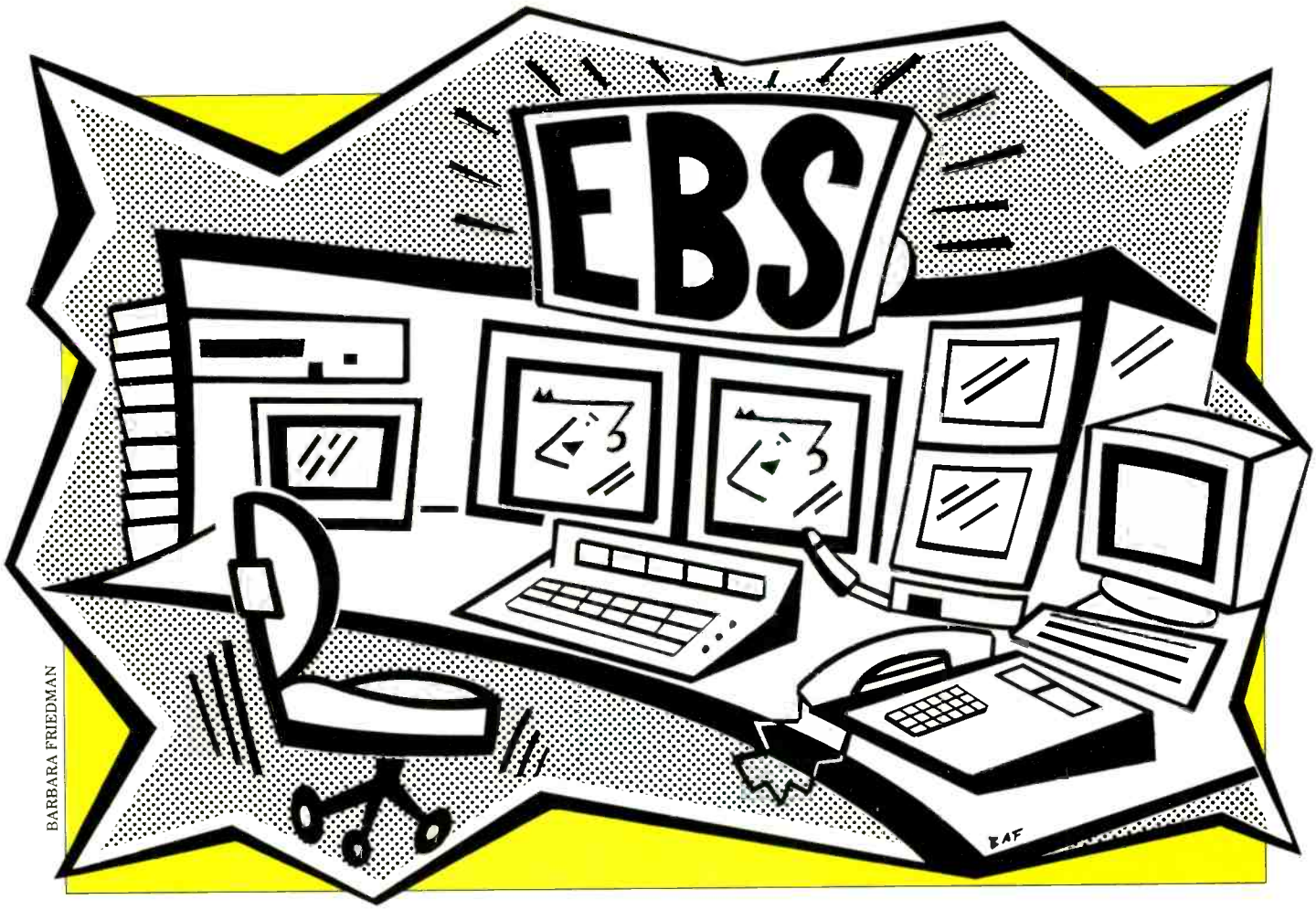

BARBARA FRIEDMAN

system will provide each broadcaster with a minimum of three sources of EBS alerts, ensuring good reception.

"Activation consoles will be provided to local agencies," Holm explained. "This will permit local authorities to originate EBS alerts without going through state EBS authorities." A local chemical spill may not be important enough to cause a statewide alert, yet may require local action. Using the dedicated UHF radio frequency, a community's disaster unit may transmit its own EBS alert, with the digital code triggering reception only at those stations within the local area affected.

According to Jon Sprague, a staff electronics engineer with the FCC field office in Denver, the Emergency Alert System is a large-scale implementation of technology first tested in Madison, WI. Sprague told *Television Engineering*, "We have seen voids in the existing EBS system, with some broadcasters not able at times to receive their prime EBS transmitting station due to environmental or technical reasons. This project is an attempt to provide an alternative means of disseminating the EBS transmissions."

Sprague emphasized that the Emergency Alert System would be operated in parallel with the existing EBS system until its operation and effectiveness can be evaluated. He also pointed out that while this was not an "official" test by the FCC, its involvement has been to encourage broadcasters in seeking solutions to their problems, so that the experience may be applied on a national level.

As we went to press, Colorado broadcasters expected to shortly begin production of the custom scanner-receivers for distribution to the 75 participating stations later this fall. According to Holm, the broadcasters themselves are funding the project, with an estimated cost of $100 per receiving station and from $75 to $300 per activation station. This represents the cost of parts for the scanner/receivers, with the actual assembly done by the broadcasters on a volunteer basis.

"We have seen voids in the existing EBS system . . . . This project attempts to provide an alternate means of disseminating EBS transmissions." —Jon Sprague, FCC

With a federally mandated obligation to serve the public, and the need to balance service with today's financial realities, it seems that the folks in Colorado have found what could be a very smart solution. ■

Consumer Vendors Play a Waiting Game on ATV

By John F. King

Emerging technologies need leadership in order to realize full market potential. For advanced TV, will the leadership come from the broadcast end or the consumer market? A review of views expressed and products exhibited at June's Consumer Electronics Show (CES) in Chicago's McCormick Place may provide some clues to the future of ATV.

"Leading-edge technology is originating more and more in consumer electronics and spilling over into industrial and professional electronics," contends Pierre Garcin, retiring chairman and CEO of Thomson Consumer Electronics. Garcin, who steps aside October 1 for Bernard Isautier, gave an optimistic prognosis for advanced TV at the CES Video Overview Session. "ATV will drive the industry by the end of the century," says Garcin, who sees "a firm time frame" of mid-1993 for FCC selection of ATV systems, now that testing of EDTV and HDTV systems is scheduled to begin this fall.

A 1993 date may be frustrating to some consumer manufacturers, however, who see little impetus coming from the broadcast side and who, secretly, at least, may want to throw up their hands at the regulatory hoops. In fact, panel discussions on HDTV originally scheduled for CES were canceled in favor of panels on regulatory matters. Susan Wade, spokesperson for CES, says conference organizers "decided to go with more current things."

Reluctance surrounding ATV technology is probably rooted in cost-versus-return arguments. Broadcasters are understandably reluctant to shell out the big bucks for EDTV or HDTV equipment and programming until they are sure people want such programming. After all, conversion to HDTV format could cost the average TV station several million dollars. Consumer manufacturers have the same reluctance to invest in technology that may not pay off very quickly. If the experience with improved-definition TV is any indication, there is cause for concern among manufacturers as to customer acceptance.

Representatives from Matsushita, Philips, Hitachi and Zenith grappled with the question, "Why hasn't IDTV taken hold?" during a CES panel discussion on digital video.

Jerry Surprise, national product manager of Matsushita, named cost as the barrier, pointing out that most IDTV receivers carry a price tag of at least $2,000. For consumers, he says, IDTV is "a very expensive way to get a rather small improvement in picture."

"The cost premium is higher than what the customer expects the value to be," agrees Bruce Schoenegge, VP, product management, Hitachi, and Mark Stevenson, senior director of color TV marketing for Philips, admits the market for IDTV is a small one.

However, Schoenegge and Stevenson, whose companies offer IDTV receivers, see value in IDTV technology. Though IDTV is "not the place to move in volume" for Stevenson, he sees its value as giving Philips the opportunity "to develop hi-tech filters" and "to prepare for advances to come" as "part of a total learning curve." Schoenegge is more optimistic about the ID format itself, seeing greater sales when the price comes down. The Hitachi rep describes IDTV as "halfway between EDTV and HDTV."

Zenith, which, as is their tradition, did not have a booth at CES—opting instead for exhibiting space at a nearby hotel—also demurred when it came to development of ID technology. Zenith marketing VP Bruce Huber explained that his company "was not convinced the improvement was significant enough for the price tag we'd have to add."

Price is an important consideration for Zenith. At their exhibit in the

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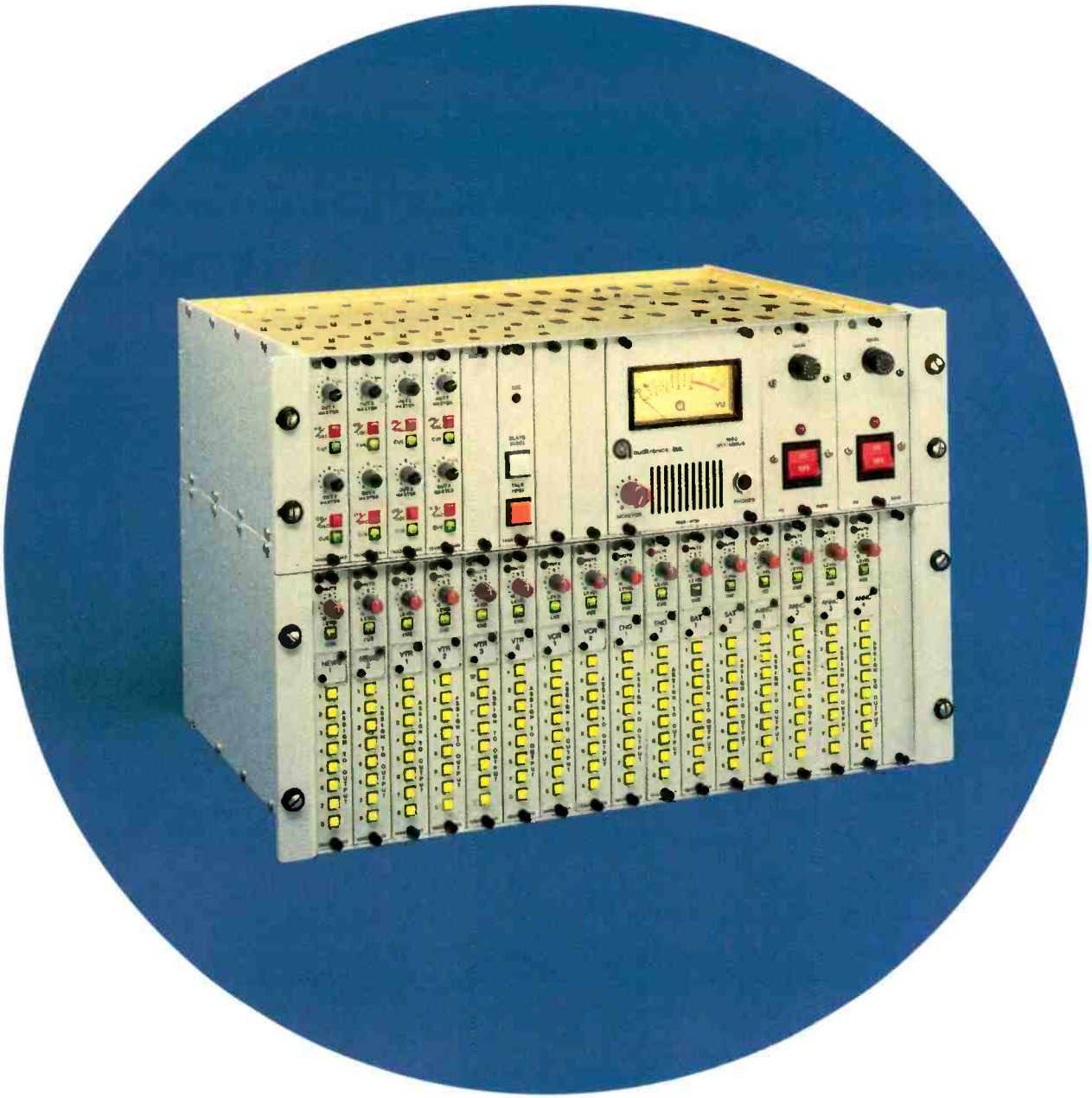

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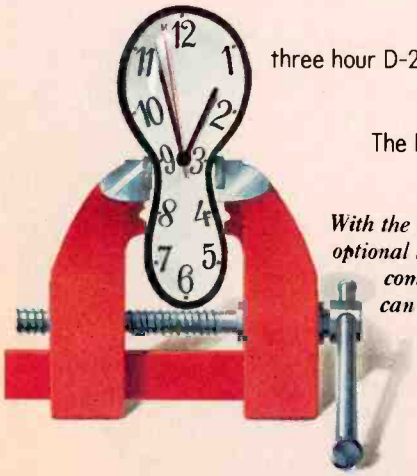

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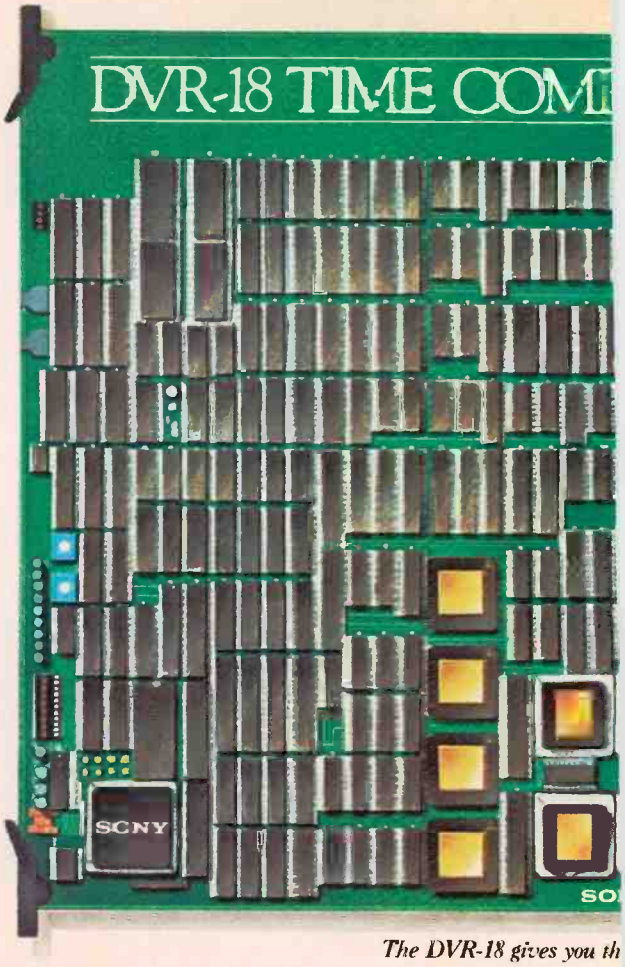

The DVR-18 gives you th

compressed program without losing a generation.

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The DVR-18's pitch correction makes it easy to keep your audio in tune, without the need for external equipment.

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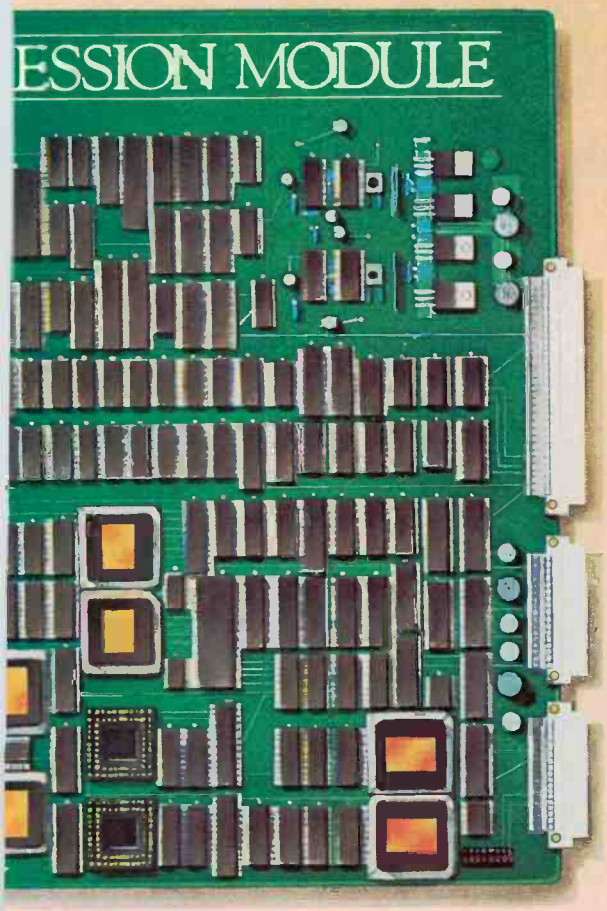

ption of time compression.

casters should consider D-2. The DVR-18 offers recognizable color pictures at shuttle speeds up to 100X play speed. It can also accommodate all three D-2 cassette sizes. So it can give you a full three hour capacity. And it can pre-stripe tape stock at three times normal speed for insert editing.

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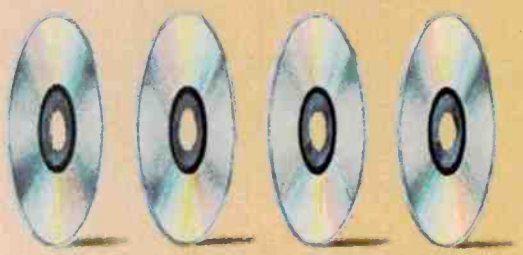

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Nominations must be received no later than October 15, 1990. Award winners will be announced in the January, 1991 issue.

ritzy midtown Drake Hotel, receivers with Zenith's SEQ TV sound system were given more emphasis than those with the higher-priced Bose systems. Also played up was Zenith's new flat CRT technology, which is now being used for high-end computer monitors. Donald Mitchell, senior VP of sales and operations for Zenith, told *Television Engineering* that the flat CRT technology is likely to be used in Zenith's HDTV development plans. Comparing a flat CRT side by side with a regular convex one, the flat screen's image at first looks concave, but corners are noticeably brighter and clearer.

Another example of Zenith's concern about pricing comes from their attitude about ghost canceling. "Research shows that consumer demand is broad, but not deep," says Zenith's Huber. "Consumers only want to pay tens of dollars [for ghost canceling], not hundreds." Pointing out that "whatever broadcast does requires FCC standards," Huber prefers that the FCC wait and issue one ghost-canceling standard for both NTSC and HDTV.

"ATV will drive the industry by the end of the century." —Pierre Garcin, outgoing Thomson CEO

Matsushita's Surprise says, "Ghost canceling can be realized soon, but impetus has to come from the broadcast and cable end." Surprise adds that a ghost-canceling standard is really an issue for the NAB.

The size and shape of ATV receivers may also be an issue for some, but not for Thomson's Garcin. Because of advances in miniaturization, "three years from today," he predicted at CES, "the most advanced EDTV will fit into the standard TV set cabinet."

Garcin also put in a vote for the FCC to recommend an advanced TV system that includes both EDTV and HDTV standards: "Advanced compatible television is the fastest, most practical way for both manufacturers and broadcasters to bring American consumers the new viewing experience of 16:9 widescreen television."

As technologies and standards issues converge, it is an open question whether ATV formats will gain mass market support or will simply be high-priced options for videophiles, much the way home theater systems from companies such as Panasonic and the exotic WallVision system from Philips—which were big attractions at CES—now are. Perhaps the key lies in consumer education, as it may with the S-VHS format.

"We're having a hard time selling S-VHS [VCRs], even though there is a tremendous improvement in picture over VHS," reports Matsushita's Surprise. A lack of consumer awareness is the cause, according to Hitachi's Schoenegge, who says, "I don't know if two percent of the population knows about S-VHS tape."

Joe Fusco, VP, Consumer Tape Products, Sony Magnetic Products Company, agrees that there is a lack of consumer knowledge about the S-VHS format. Fusco told *Television Engineering*, "Consumer dealers have not educated the salespeople, and so the consumer is not educated. Most people don't realize there's a whole new system [with S-VHS]." Consumers need S-VHS tape, an S-VHS VCR and an S-VHS-compatible monitor to get full technology benefits.

To promote its late entry into the S-VHS arena, Sony plans "a program to educate dealers jointly with consumers," says Fusco, adding, "As customers become more savvy, we'll see more use of S-VHS."

S-VHS, by the way, is getting a boost from Toshiba, which announced the TRX-2000 satellite receiver at the show. (Meanwhile, Jeff Mularkey, VP of marketing and merchandising for Toshiba says the proposed Sky Cable service [see *Television Engineering*, "Update," April] will push sales of the TRX-2000.) The new integrated receiver/descrambler provides an S-Video output with separate luminance and chrominance signals that can be fed into S-VHS VCRs or monitors with S-Video inputs. This gives broadcasters a new reason for putting programming into an S-VHS format.

Another clue to how pervasive ATV systems will become may be taken from the changes in consumer demand regarding audio for video. After all, several years ago, who would have thought that stereo sound would be a feature in 32 percent of all color sets sold? (That percentage is projected for 1991 by the Electronic Industries Association of the Consumer Electronics Group.) Driving forces behind this recent demand are the awareness of quality sound brought about by the compact disc, and by VCR viewing of movies.

Flat CRT technology is likely to be used in Zenith's HDTV plans. —Donald Mitchell, Zenith

That brings us back to "software," which Sony's Akio Morita emphasized in the CES keynote address. As Morita attributed Sony's Betamax failure to lack of software, so does Garcin see S-VHS problems as due to "a lack of prerecorded software." Quality programs and live broadcasts that can take full advantage of ATV's capabilities must be ready to roll with the new hardware. "Software is indeed the key to growth," asserts Garcin. ■

SNG TRUCKS:

PICTURES FROM THE EDGE OF DISASTER

By Claudia Kienzle

"Local television news is very competitive, and there's nothing more fun than beating the competition," says Randy Covington, news director for KYW-TV in Philadelphia. "Usually, you win because of the caliber of people working for your station—the reporters, the cameramen and the editors. However, technology is the tool that helps you achieve that win. We felt that a satellite truck would give us a competitive advantage in our market because neither of our principal competitors had trucks."

For KYW-TV, the decision to invest in a Hubcom SNG truck (manufactured by Hubbard Communications) meant greater freedom to do live broadcasts from anywhere, without having to depend upon an extensive microwave network. The truck has been sent outside the coverage area to cover Governor Casey's key appearances, to follow the abortion rights debate in Harrisburg and to cover Nelson Mandela's arrival in New York City. "During a recent outbreak of hepatitis, there were hundreds of people lined up to be inoculated in neighboring Chester County," Covington says. "Using the satellite truck, we were able to go live on our newscast and lead in with that story. Our competitors were not able to get the story out live via microwave because of the geography."

KCAL's SNG truck prepares for live coverage of the Pope's Mexican visit.

In Denver, because the large coverage area and mountainous terrain make microwave hops difficult or impossible to establish, all the major stations in the market operate SNG trucks. In fact, Denver-based KCNC-TV recently acquired a second SNG

Satellite news gathering gives stations from L.A. to Pittsburgh the freedom to broadcast live—from anywhere.

truck to help cover events around Colorado and in western Kansas, western Nebraska, southern Wyoming and northern New Mexico. News director Marv Rockford says, "Having a second SNG truck gives us a critical advantage in covering news in the western part of our coverage area—we are literally hours and hours ahead of our competition."

To aid in news coverage, KCNC-TV has ICR links in place between nearby Boulder and Ft. Collins. When the town of Limon, 60 miles east of Denver and just outside of microwave range, was recently devastated by a tornado, KCNC dispatched its SNG truck to the site. "When you're covering that kind of disaster, when you know you're going to be there for days and days, to be shuttling back and forth between Denver and Limon has obvious logistic problems," Rockford notes. "We put the truck in one place, used it as an editing base and transmitted all our shots live. What you have with an SNG truck is a mobile, self-contained newsroom you can roll out to the site of the calamities."

'COPTER, MICROWAVE OR SNG?

At WBNS-TV, in Columbus, OH, news director Bill Vance evaluates each breaking story to determine the best means of covering it. "If the story is within microwave range, it's cost-effective for us to send the microwave truck," he says. "Our helicopter, with full-live capability, can deliver a brief live report if it's within radio range [about 120 miles]. But if we are building a whole show around one live remote location, we'll send the Ku truck.

"It's dangerous for the helicopter to hover in one spot for too long," he continues. "We sent our Ku truck to Shadyside, OH, which was hit by a devastating flood. We built a whole news show around that story. We switched it and broadcast it live from our truck."

Marvin Born, director of engineering at WBNS-TV, says, "When you're sitting in the middle of a flooded-out area, you don't have commercial power, so we had to rely on the diesel generator at the back of the truck. With a full tank [40 gallons] of diesel, the truck was good for 20 hours continuous running." When commercial power is available, shore lines can be run from the truck to any 240-volt AC power source.

Top: Midwest S23 satellite truck sports uplink and production area with edit system. Note power control panel on right. Bottom: Located in Minneapolis, the Conus master control switches news stories around the country to member stations via its dedicated satellite system.

SNG TRUCKS

The basic SNG truck design includes an up-converter and exciter, along with a high-power amplifier, which amplifies the signal for transmission. Many trucks are built with an extra exciter and amplifier for backup, in case either unit should fail. "If stations are going to be using their trucks to broadcast programming for which they've sold advertising time, they may want to be guaranteed that programming will arrive safely," says Mike Perry, sales manager for Midwest Communications Corp. "Then it's worthwhile to run the SNG truck in 'redundant' mode."

In addition to power outages, telephone lines in a stricken area may be down. Many SNG trucks are equipped with voice communications equipment, enabling them to access public telephone lines via any satellite with Skyswitch, or a comparable voice communications service. Using the uplink, it's possible to access a subcarrier on the satellite, and the transmission is received at an earth terminal which gives you a dial tone for your call. "We can have a total power failure; the phone lines can be down; but as long as our diesel starts, our truck is working," WBNS-TV's Born says.

TRAFFIC JAMS IN SPACE

Conus Satellite Services owns and controls transponder 7 on SBS-3, and transponders 6 and 8 on GE K2. Each transponder is considered to be two half-transponders, each of which carries one video signal. Therefore, Conus master control can accommodate the transmissions of six different SNG trucks simultaneously on their six half-transponders.

When a seventh truck requests access, Conus utilizes transponders subleased on K2 from GE Americom. Traffic jams are most likely to occur at critical times of the day, like 6 PM Eastern, when everyone wants to go live for their newscasts.

According to Steve Blum, director of information services at Conus Communications, when the San Francisco earthquake hit last fall, "the Sacramento member, KTXL-TV, just happened to have their uplink truck parked outside of Candlestick Park for the World Series. You can have all the transponder space in the world available, but if you only have one truck, you can only use that one video path. KTXL started doing live custom reports for Conus member stations, even for one in Japan." Conus is comprised of one member station per Arbitron ADI, plus a dozen around the world, all of which make their major news stories available to the other 140 stations in the cooperative.

Last May, Conus member Akita Television sent a five-minute live satellite news report to KSTP-TV in Minneapolis, covering the opening of a Minnesota State University campus in Akita, Japan. The local Akita station supplied the camera crew and the SNG truck, and the Fuji-TV Network supplied an English-speaking reporter, Chris Field, for the broadcast.

SNG TRUCKS: THE ANATOMY OF THE SALE

"The Hearst Corporation made arrangements for all the Hearst stations to go on board with Conus at the same time, and we all got trucks," says Joe Rovitto, news director at WTAE-TV in Pittsburgh. News department management consulted with engineering to determine how the truck should be equipped, and the decision was made to get a Hubcom truck. (While Hubbard Communications is no longer manufacturing SNG trucks, they continue to service their product.)

"We talked to people who already had trucks to get their experience and to find out what problems they had," says Randy Covington, news director for KYW-TV in Philadelphia. Representatives from KYW's news, engineering and operations departments all went to an RTNDA convention and looked extensively at all of the trucks. "We narrowed it down to a couple of different trucks and started talking price. In the end, we felt that Hubcom offered the best deal in terms of design, features and price. The decision was reached at the convention and negotiated there. The details were worked out afterwards," Covington says.

"If I wanted to upgrade our SNG truck, I would have to convince the chief engineer that it was a good thing to do, and he would draw up the cost estimates and figure out whether it could be done technically. Then I would have to go to the general manager and get him to buy the idea," says Bill Vance, news director for WBNS-TV in Columbus, OH. The chief makes up a general plan of how the truck should look, what it should be able to do and then contacts the vendors to get a ballpark figure of the cost. "The vendors give you a more detailed plan with a formal bid. Once you've agreed on all the points, you issue a purchase order and the truck is built to your specifications," says Marvin Born, director of engineering at WBNS-TV.

"Our truck was bought at the NAB Convention in 1989," says Bob Campi, director of SNG operations at KCAL-TV in Los Angeles. "It was a demo model just sitting there on display." Managers from KCAL's news and engineering departments decided to acquire the Midwest S-23 truck to do satellite news gathering and expanded live news coverage.

Many of today's SNG trucks are heavily outfitted for video production, frequently including a Beta editing station, monitors, an audio board, cameras and a small switcher for multi-camera capability. However, the Wolf Coach SNG Truck #B-104, designed for WCBS-TV in New York City, will serve merely as a mobile satellite uplink. Joe Fedele, director of operations for WCBS-TV, says, "Our satellite truck is intended to get our signal up and out, and nothing else."

—*C.K.*

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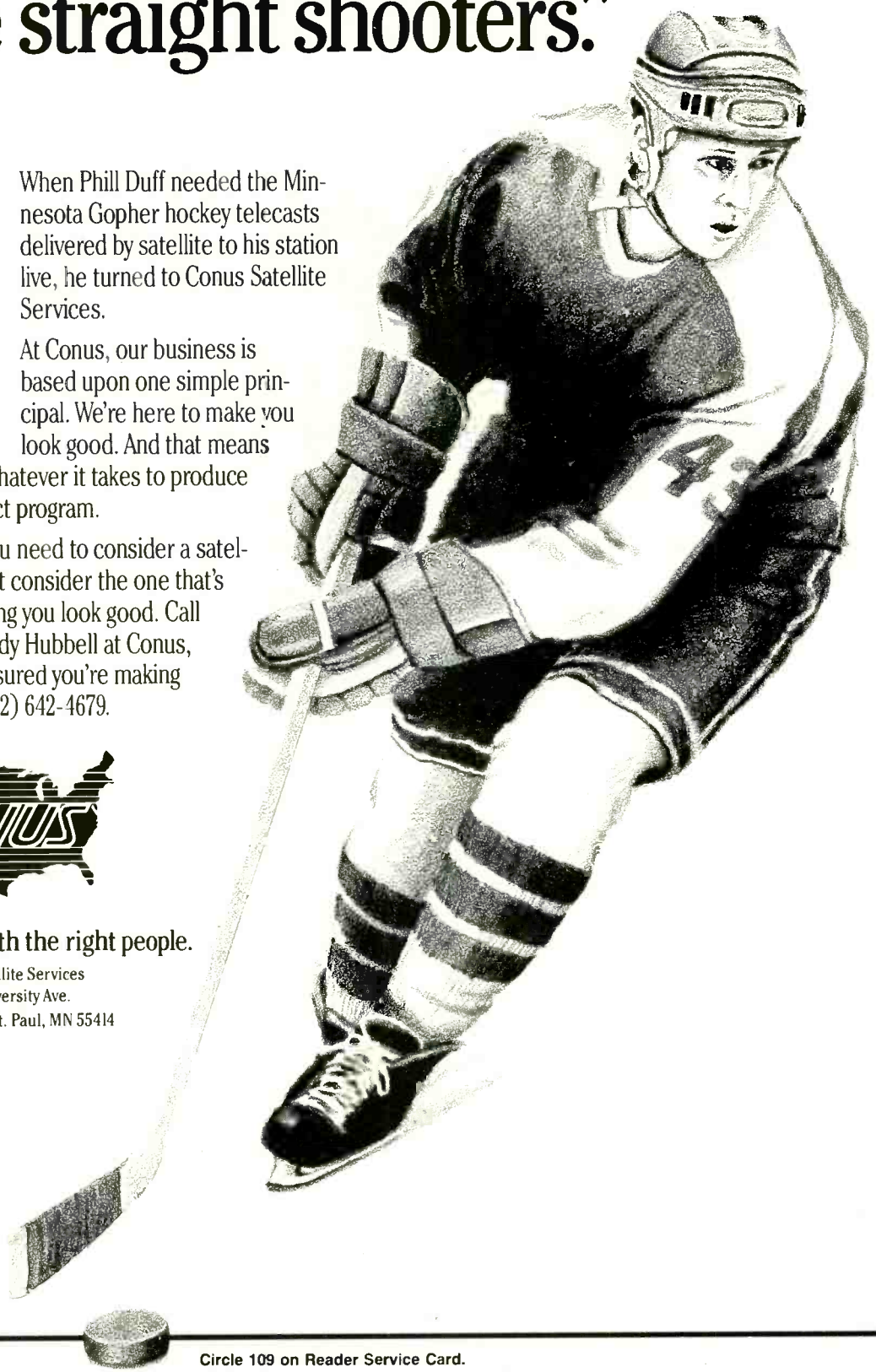

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Mendes Napoli, VP of news for KSTP, says, "There was a lot of local interest in this story, so we really wanted to cover it live. We asked Conus to help us arrange it." Fuji-TV's Field spoke directly with KSTP anchors Randall Carlisle and Angela Astore as he interviewed the lieutenant governor of Minnesota and spoke with some of the students in Japan about the University's goals. Conus arranged the two satellite hops necessary to carry the signal from Japan to Minneapolis for the two-way-audio, one-way-video transmission. "Technically, the shot was great. From our end, it was just as easy as doing a live shot from our own SNG truck," Napoli observes.

Another broadcaster to make aggressive use of the SNG truck is KCAL-TV, Los Angeles, an independent station owned by Walt Disney Co. Bob Henry, the station's VP for news, says, "Since getting the truck, we've been able to cover major news events, like the recent Papal visit to Mexico City, from a southern California point of view." The Pope's visit to Mexico was of great interest to KCAL's viewers, many of whom are Hispanic, so the station sent its Midwest S-23 SNG truck into Mexico to cover it. Bob Campi, director of SNG operations, relates, "I had packed the truck from floor to ceiling with all the support equipment and spare parts I could think of. Our documents, granting us permission to transmit programming out of Mexico, had been issued by the highest level of the Mexican government."

AT THE FOOTPRINT'S EDGE

Campi told *Television Engineering* that his goal was to target satellite SBS-3 because it contained the required angle, along with IFB communications capability to link the truck with the KCAL studios. After running tests in Mexico City, he determined that the truck's antenna characteristics and transmit power were not enough to reach SBS-3 with a usable broadcast signal since he was on the edge of the footprint.

In danger of missing the first live broadcast, Campi approached S.C.T. (the telecommunications branch of the Mexican government) for permission to illuminate video on the upper Ku transponders of Morelos 2, a satellite covering Mexico and part of the western U.S. "Morelos 2 was just activated 'out of storage' and had never had a video carrier on it before. After extensive negotiations, the government officials reluctantly granted me permission to go ahead," Campi says.

There were mechanical problems and metal fatigue because of the bad roads. The high altitude created a lot

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of heat-related problems with the equipment, and thunderstorms every night caused rain fade. To make matters worse, the low-noise amplifiers, instrumental to locating the satellite, were lost due to lightning. "To solve this problem, I parked the truck on the approximate coordinates of Morelos 2, phoned the Ixtapalapa Earth Station and panned that area of the arc with a low-power carrier," Campi says. "It worked beautifully, and within a few passes, they found me.

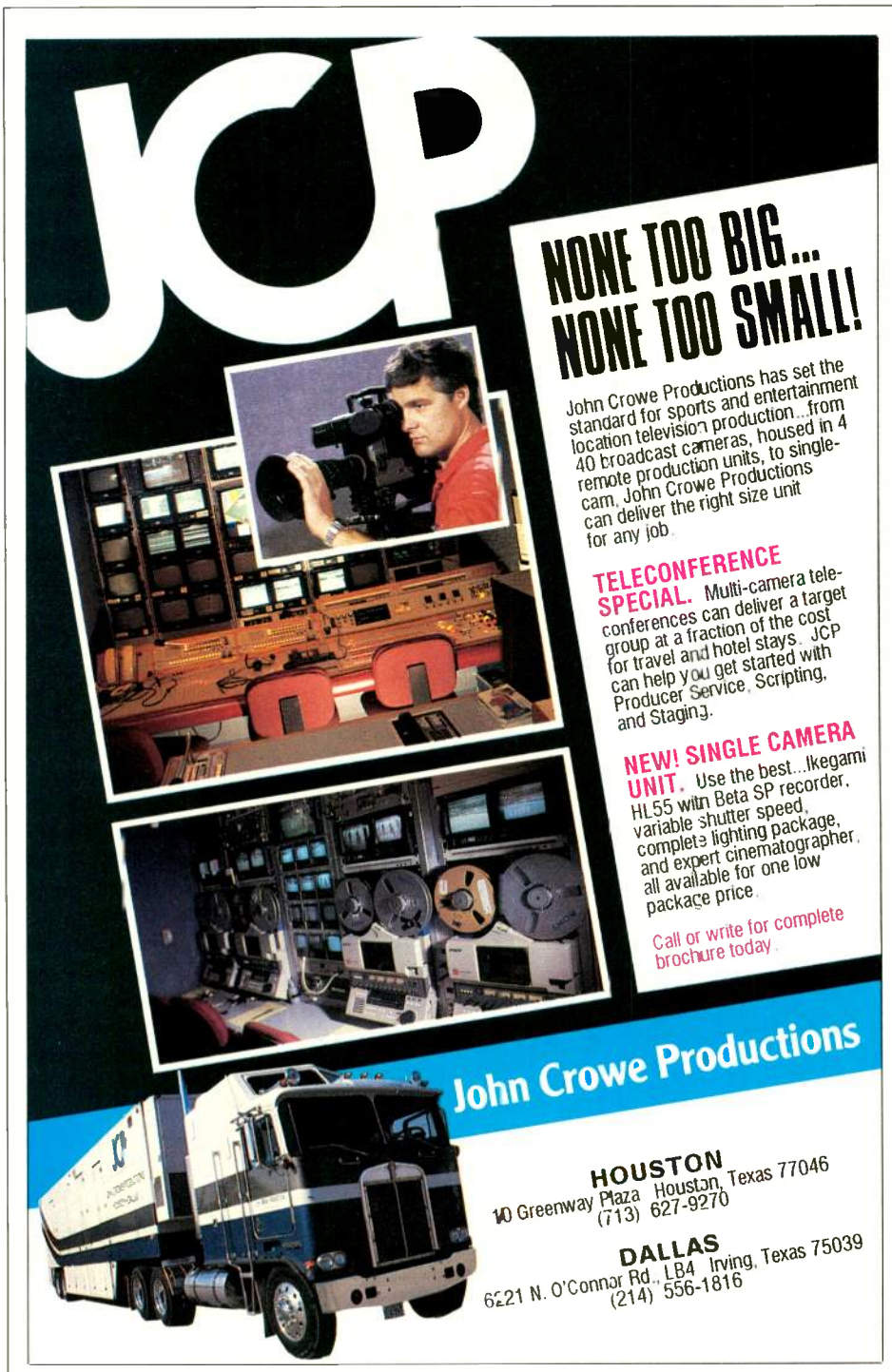
The SNG crew successfully broadcast three five-minute live reports each evening for KCAL's three-hour-long prime-time news program. "In one shot, we wanted the talent standing in front of one of Mexico City's spectacular monuments, but we could not run coax from that site because it was surrounded by a busy eight-lane traffic circle," says Alex Epstein, producer of the live broadcasts. "So we had to microwave the camera's signal up to a receiver on the 11th floor of the Hotel Sheraton Maria Isabel, then drop a cable out the window, and down 11 floors to the truck." On another occasion, the truck was parked in front of a basilica where three million people came to hear the Pope speak. After the cameras were all set up, the rain began to pour. When the Pope appeared, the rain miraculously stopped. The rain started pouring again as soon as he left!

MONSTER IN THE TERRAIN

Meanwhile, back in Pittsburgh, WTAE-TV gets promotional mileage, in addition to news-gathering benefits, from its Hubcom SNG truck by producing a weekly feature called "Our Town." News director Joe Rovitto says, "We visit a different community every Tuesday and go live on our noon newscast. It's a salute to that town, its history and character. The mayor and all the people come out. We get written up in the newspapers, and local radio stations cover us. For those towns, on those days, it's an event."

WTAE-TV, which serves portions of Pennsylvania, West Virginia, Maryland and Ohio, could never go live dependably without a satellite truck, even close to home, because of Pittsburgh's hilly terrain. "You don't have to think, 'Gee whiz, I wonder if we can go live from this place?' " says Rovitto. "Part of the attraction for us is that we bring up this monster truck that the people have heard so much about, and when they finally get to see it, they're real impressed." ■

Claudia Kienzle is a New Jersey-based freelance writer and former television producer.



Circle 111 on Reader Service Card.

VIDEO TEST & MEASUREMENT:

QUALITY VIDEO FOR A NATION OF TWEAKERS

By William A. Owens

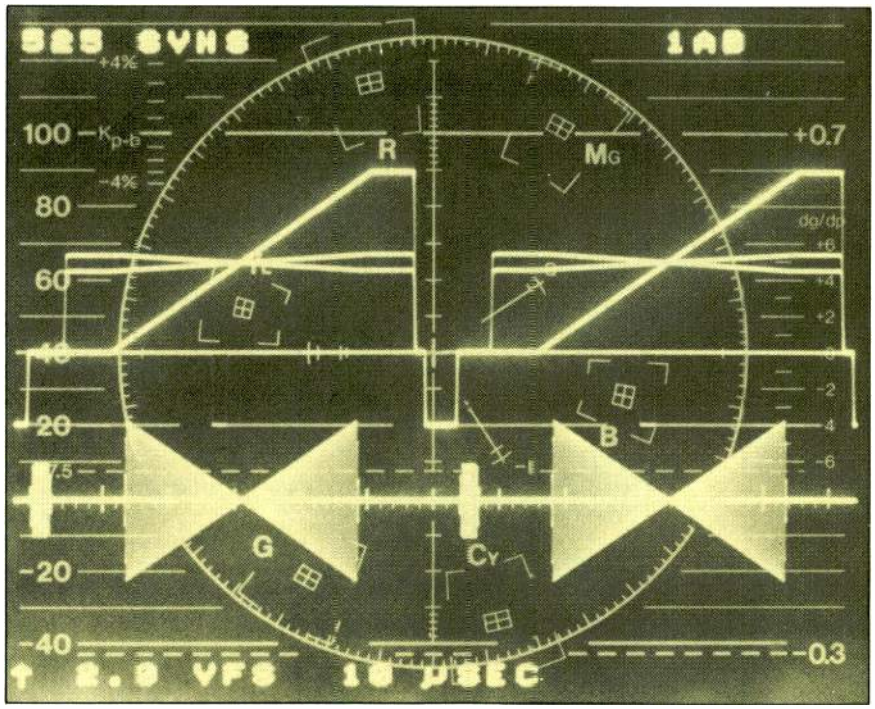
NTSC. Not the smart choice. Never the same color. You can take your pick from a dozen or so really great phrases of disparagement. Many younger members of this industry, with visions of HDTV in their heads, think of the NTSC television system as a bad joke, the work of a bunch of white-haired old engineering geezers who decided long ago to saddle us with a less-than-perfect color system.

There's an old saying that a camel is a horse designed by a committee: It may not be perfect, but it does the job. The same could be said about 525-line NTSC. It does the job. The National Television Systems Committee was made up of the best engineering minds from the manufacturers, research laboratories and broadcasters

Diligent monitoring of the video signal is what keeps it clean and legal.

throughout the country. Their mission was to create a color television system compatible with the existing monochrome broadcast system. Given that limitation and the state of technology at the time, they created a workable standard, the NTSC color transmission standard that was adopted by the FCC in 1953 and still serves us today.

The key word in that last paragraph is "standard." TV transmitters can throw a signal out into the air, to be captured by millions of television receivers throughout the country, because they all operate on the same NTSC standard. And it's up to the engineers to ensure that the signals sent out conform to that standard. Which brings us to our point: The way you ensure a proper signal is with constant video testing and measurement.



Magni WV560 combination waveform monitor/vectorscope.

A NATION OF "TWEAKERS"

We are a nation of "tweakers." Everyone has their own idea of what a color television signal should look like. Go into a video store, and you'll see 30 receivers on display, all tuned to the same program, with 30 different flesh tones, 30 different shades of red, green and blue.

While it's technically possible to eliminate the color controls from a modern television receiver, they exist because the public demands that they be there. Gerry Kampo, a New Jersey-based television technician, told us that one customer even insisted he restore her just-repaired TV receiver to its former maladjusted condition, because she "liked the green color."

We can't control what folks do with their home receivers, but at least we can start by sending out the best possible NTSC signal.

That point of view is confirmed by the engineers in our industry. Robin Schwartz, product marketing engineer at Leader Instruments Corp., says, "Until things change at the receiving end, with a change in home TV set technology, broadcasters will still need to output a high-quality NTSC signal." She also notes, "Many production and broadcast facilities are holding back on the move to component analog or digital, waiting for a firm direction as to where the end-user [consumer] market will be going."

Leader recently introduced a combination test generator which can provide composite or component signals in Betacam, MII or Y/C formats. Schwartz told us the device represents a "perfect intermediate step, allowing the user to upgrade today and be ready for whatever format is the standard tomorrow."

THE SIGNAL PATH

"People would love to see at home what we see on a monitor in the studio. For them, that would be high-definition television." The words are from Roy Trumbull, assistant chief engineer of KRON-TV, San Francisco, speaking at *Television Engineering*'s NAB roundtable on broadcast transmission. The fact is that in order to stay competitive with other media, broadcasters need to give their viewers the highest possible quality signal within the existing NTSC transmission standard.

Most television studio production systems follow the same basic design. Cameras are controlled from a central location, with waveform monitor, vectorscope and color monitor for setup and balance. These devices ensure the proper adjustment of the cameras, plus timing to the house system.

Tape playbacks are handled much the same way as cameras, usually in a central location with waveform monitor, vectorscope and color monitor used for setup and system timing.

Production control rooms will almost always have a waveform monitor and vectorscope close by the technical director's position, for system setup, plus source and output monitoring.

In the typical production facility, an additional monitor package would be located at the recording videotape machine. In a broadcast facility, the signal path would travel on to master control, where the operator would have the capability of monitoring incoming sources, master switcher output, transmitter input and off-air demod. If the transmitter is at a remote

VIDEO TEST & MEASUREMENT:

Magni Systems' WV500 series combo waveform monitor/vectorscopes provide composite/component capability, along with time and voltage cursors and on-screen readouts. The company's Signal Creator provides multiformat test signals for NTSC 525, 525 component, 525 D-1 and D-2, along with comparable PAL signals. The Signal Creator's memory card unit allows creation of custom test signals for later playback.

Leader Instruments' 5864A is the ultimate portable waveform monitor, with a 1.5-inch display. Model 425 provides component test signals.

location, another monitoring package will be found there, to allow input/output monitoring and testing on site.

For the typical camera or videotape output, there may be as many as four or five points in the signal path where a waveform monitor and vectorscope are available to a watchful eye. But is anyone watching?

IT'S NOT LIKE THE GOOD OLD DAYS

In the early days of television, equipment was cantankerous, needing constant monitoring and adjustment. The typical studio production crew included an engineer who "shaded" the cameras, continually adjusting them for iris and gain, and later on, for color balance as well. In addition, there was a technical director, the crew chief who not only "switched" the show, based on the director's commands, but also maintained a watchful eye on the quality of the video signal.

Today's computerized cameras with automatic setup and auto-iris controls have for the most part eliminated video operators, and in all but the largest facilities, the directors do their own switching. That's two sets of engineering eyes no longer watching video signal quality.

On the broadcast side, many stations today operate with only one person on duty. It's quite difficult to monitor quality when you're loading tapes, taking transmitter readings, answering the phone, switching air and wolfing down a sandwich all at the same time. It's no wonder that many times less-than-perfect video hits the airwaves.

RELYING ON TECHNOLOGY

With a smaller engineering crew, stations today rely more than ever on hardware to do the monitoring job. Video test and measurement devices have become far more sophisticated, much as television facilities have themselves become more complicated.

Ari Presler, product manager for test and measurement products at Hitachi Denshi America, Ltd., says, "The market for test and measure-

ment products is divided into two areas, one that requires just basic measurement functions, and the other that needs considerably more. The more sophisticated television systems now coming on-line require a wider range of testing capabilities with greater accuracy."

Presler points to his company's vectorscope and waveform monitor series, as well as the VC-6000 series oscilloscopes as an example of advanced T&M technology. The VC-6000 series scopes, available in both analog or digital versions, feature sweep-time auto ranging using a touch-sensitive probe, permitting fast, user-friendly operation. Presler told us that customers are looking for T&M devices "that are cost-effective, with high precision and accuracy."

"Cost-effective" has become a major buzzword in today's economy. The cost of keeping up with rapid advances in technology is one that every facility must face. According to Eileen Tuuri, marketing communications manager for Magni Systems Inc., "wherever possible, a video test and measurement device should perform more than one function." She told us her company's philosophy is to create "building-block equipment, designed to grow with the user's needs." In addition, she stressed the importance of "field-upgradable capability, allowing the user to upgrade without the usual down time needed to send something back to a factory."

One example of that approach is Magni Systems' WV-560, a combination waveform monitor and vectorscope capable of working in component, composite, D-1 or D-2. Another is the company's Signal Creator, a test generator programmable for virtually any video format, from analog NTSC to HDTV. RAM cards and user-installed boards allow upward growth, permitting users to add capability on their own schedule.

A WORKABLE STANDARD

While NTSC may not be perfect, it is, for now at least, the only FCC-recognized standard. "The thing I've been telling people for years is that any video production has to be made to the standard," says Eric Wahlberg, marketing manager for Videotek, Inc. "It doesn't matter what the project is for—broadcast, cable, corporate video or in-house taped distribution—producers should adhere to the standard."

Wahlberg also observes, "You never know when your video might find its way to broadcast." Many buyers of his company's test equipment are small to medium-sized producers who are becoming quality-conscious. According to Wahlberg, Videotek's TSM and VSM series offer top-notch features and solid value. He told us the TVM-620, Videotek's combination waveform monitor/vectorscope, offers a unique array of features, including A,B,C input; parade/overlay display; overlay vector display, along with differential gain; and phase display. As for the "new" technology, Wahlberg reminded us that all current Videotek T&M products can handle component Betacam and Y/C formats.

LOOKING AHEAD

With station management at all levels seeking to cut costs, perhaps the greatest challenge facing manufacturers is the integration of test and measurement devices into the computer-controlled world. Station automation is a major issue, with "firewatch" engineers assigned to other station jobs while staying within running distance, should an automation system crash. But how do you monitor signal quality?

One potential answer to this problem comes from Tektronix Inc., where the latest generation of testing gear is designed for computer interface. Jeff Noah, Tektronix's marketing communications supervisor, told us the company's VM-700A Digital Automated Measurement Set "combines waveform and vectorscope functions with extensive remote control and access capability."

The unit is "capable of making over 60 different measurements within 30 seconds," according to Noah. The VM-700A permits remote-control access via serial interface, allowing monitoring of transmitter performance via telephone lines or computer networks. It is clear that this is the next-generation testing device. Dan Castles, the Tektronix TV division general manager, told us, "The VM-700A is a platform from which numerous products will be developed in the future."

"People would love to see at home what we see on a monitor in the studio. For them, that would be high-definition television." —Roy Trumbull, assistant chief engineer, KRON-TV, San Francisco

Even analog devices are looking towards the future. Tektronix's 1780R waveform monitor/vectorscope combo has been designed to permit digital remote control.

GREEN WIGGLY LINES TELL IT ALL

No matter where you are in the video chain, good engineering practice means adhering to the standard. And essential to that is diligent monitoring of the video signal, the constant testing to ensure that it meets specs.

Computerization will make test and measurement in the HDTV world a simple, more accurate process.

For the near term, the NTSC spec is law, and those little boxes with the green wiggly lines are what help make our video signals legal. But beyond pure "legality" is an obligation to deliver the best possible video signal to the viewers. It's an obligation that makes those funny green wiggly lines serious business. ■

AES PREVIEW: MORE DIGITAL, USER-FRIENDLINESS AND FEATURES

By Dan Daley

Since last year's Audio Engineering Society show in New York, a lot of the dust that once surrounded digital technology has settled. It has been a year in which the level of user education has improved, helping to dispel some of digital's mystery, and a heavy digital presence should be felt at this year's AES show in L.A., Sept. 21–25.

Today, digital technology is less expensive, more accessible and better understood. Many manufacturers are either incorporating it into their products or adding digital slants to

their marketing campaigns.

While tape is by no means a dead issue, digital now looks to be the tail that wags the dog. Of course, the burgeoning home and project studio market will most likely be married to tape for years to come, and the same goes for midsized studios. Even large facilities will continue using a mixture of tape and disk-based systems in the foreseeable future.

In the tape domain, there is good news for users. Prices have been relatively level for some time, due to both heavy competition and an increased offshore presence in the marketplace. There will probably be a shakeout among tape suppliers, with the sale of AGFA's audio tape manufacturing business (pending German government approval) to BASF perhaps just the beginning.

DIGITAL AUDIO

Ted Pine, marketing manager for New England Digital, manufacturer of the PostPro and Synclavier, says the trend is now towards more open architecture in workstation design, facilitating the development of third-party software. "Purchasers will be asking what level of compatibility with other software packages each product offers," he says. Pine further says that users can expect systems to become more versatile and at the same time, easier to operate. "The time when you'll be able to learn a system in a half day is upon us," he says.

The proliferation of systems will continue to encourage a wider price range. NED is continuing to target the high end of the market with central systems that allow satellite stations. The lower end of the market can be expected to continue to concentrate on single-point desktop stations. This year, NED will be premiering its DSP option which adds parametric EQ, automated digital mixing and all-format digital I/Os to existing Synclavier and PostPro systems. It will also showcase its new SoundDroid Audio Editing software package, which provides PostPro users with highly advanced EDL capabilities, cue processing, ADR, Foley and EFX spotting and picture change information.

Solid State Logic's ScreenSound system is the company's entry into the world of digital audio workstations. Company CEO Piers Plaskitt says the variety of available human interfaces is making disk-based digital audio more accessible to users, particularly skilled video operators. "Interfaces—a pen and tablet, for instance, or a console on a video screen—make audio editing more creative and faster to do," he says. "They also let customers work with audio the same way they have been working with video. The studios are beginning to realize these machines are quite profitable."

Tore Nordahl, president of Studer, which manufactures the Dyaxis disk recording system, says disk customers can expect to see an increasing number of features, such as EQ and time scaling. He expects prices to remain steady since subsystems costs in the computer industry have just about bottomed out. "Hard drives can't get a lot cheaper than they are now," he notes. Further down the road, Nordahl expects a new generation of less expensive multitrack units, 24 tracks and more, made possible by more highly evolved data-compression schemes and RAM/tape hybrid combinations.

MICROPHONES

Microphones are becoming a more critical link in the digital chain. As Al Zang, manager of professional products for Sennheiser, notes, the virtual elimination of noise in the digital recording process means that microphones have to become quieter and more transparent in operation. "Microphones also play a more pronounced role in television, now that stereo TV is adding enhanced realism to television audio," he says. "Improved television has brought about the need for better microphones."

Sennheiser will be showing its new MKH-60 short shotgun mic at the show, which uses the RF condenser principle: Two charged plates activate an oscillator, bringing audio to a linear voltage range. This approach, says Zang, provides "ruler-flat" frequency response and diminishes the need for equalization, another source of audio noise. Sennheiser will also be showing its HD-25 recording headphones, designed for field recording or recording studio use.

Adrian Weidmann, product manager at Bruel & Kjaer, confirms the need for improved microphones, particularly in the broadcast domain. He's found that television audio engineers are also looking for better mics. As the volume of television production increases, there's less time for sound checks and audio previews. "The flatter the mic is, the better the place for the mixer to start from," says Weidmann. He also notes that the increasing affordability of digital audio is driving mic sales, to a degree. "For less than $10,000, a lot of studios now have access to the same technology to which only the elite studios did before," he says, "and that impacts on sales of good, quality microphones."

At this year's show, B&K will unveil its compact Portable Digital Recording System, a portable R-DAT deck with a pair of either B&K 4006 or 4011 model mics, as well as other features such as phantom power and cables, all contained in a Haliburton case.

TAPE RECORDERS

The spectrum of multitrack formats has held fairly stable over the last year. Sony's DASH format is apparently emerging as the leading one, with Pro Digi behind it. Sony's Blick says the company will have sold its 200th machine by AES. Sony, like other manufacturers, continues to make both analog and digital tape decks, since the market has been supporting both, and it appears it will for some time to come. Lower-priced 24-track decks from Tascam and Otari continue to feed the personal and project recording, as well as professional markets.

The news in digital tape recorders lies in DAT this year. Sony announced a time code-capable DAT deck, the PCM Series 7000, at NAB, with availability projected by January 1 of next year. The line includes three models ranging in price from $4,000 to $18,000. The time code is placed in a helically scanned subcode location, conforming to the still-to-be-ratified IEC standard (approval is expected around the time of AES).

Mark Cohen at Fostex, which released the industry's first time code-capable DAT deck last year, says that Fostex will make an EPROM available for its D-20 deck to conform it to the IEC standard. The D-20 will then be able to operate in both the original Fostex format and the new IEC one. An IEC-ready DAT deck from Fostex is expected to be available before the end of the year.

Virtual agreement by consumer DAT manufacturers on the SCMS system to prevent digital copying should increase sales in the semi-pro

and lower-end pro market. (In a twist worthy of Dickens, yet another potential DAT format is possible: Phillips's S-DAT, a digital audio cassette working off a stationary head. The Digital Compact Cassette [DCC] could be ready before the end of the year, although Phillips is taking a "no comment" policy on the subject at press time. The system's alleged "downward compatibility" would allow it to also play and record standard analog cassettes.)

Studer's Nordahl says more hybrid digital RAM/tape combinations are on the horizon. Several seconds of RAM-based memory, in conjunction with tape, can be used for track slipping and other disk-type functions. This feature is available as an option on Studer's new digital 48-track deck, the D820-48, which will be ready for delivery in September at about $285,000. "This approach could eventually include hard-drive or optical-disk technology in conjunction with digital tape," Nordahl says. As for analog, he predicts continued strength with even faster transports and more sophisticated control technology.

CONSOLES

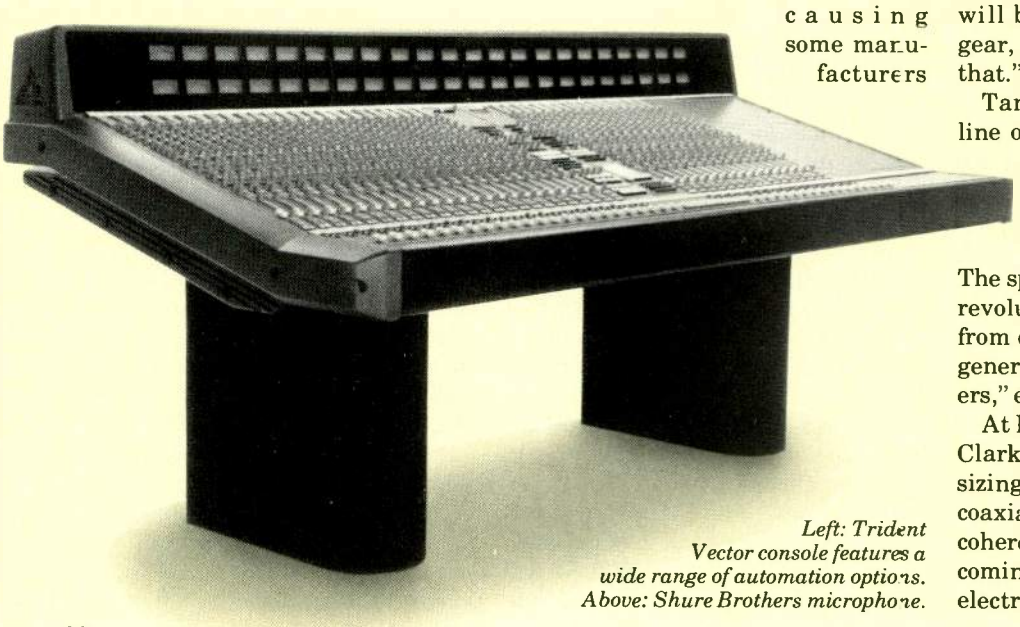
With the increasing numbers of project and personal studios, along with the growing numbers of video post-production facilities adding high-end audio capabilities, manufacturers are responding to the demand with feature-packed, yet cost-efficient consoles.

Trident's manager of Eastern operations, Phil Wagner, says the company has fine-tuned its manufacturing techniques to reduce costs, but maintain quality. The company is offering sophisticated basic consoles with additional features such as in-line electronics as options. Digital audio, he told us, will enhance console design. "The major manufacturers' digital consoles are probably five years away," he explains, "while on the other side, the keyboard and other MIDI-based manufacturers don't necessarily have a vision of pro audio. Thus, they're limited in how they develop a product."

The Trident Vector will be at the show, sporting 32 internally balanced buses and a capacity for up to 72 channels with a wide choice of automation options, including channel switch automation.

Sony's pro audio marketing manager Clayton Blick agrees with the time assessment on digital consoles. "To be truly digital is very complicated and it will be quite expensive," he states. Blick believes that early applications for a digital console will be in either music or video production, particularly video, an area in which Sony is already involved, with its VSP 8000 digital switcher. However, Blick cautions, "There are a lot of philosophical questions regarding the human-interface aspects of digital consoles that are still unresolved. We're a ways off from choosing the color." Sony will show its successful MXP 3000 and MXP 3056 consoles at the show, according to Blick.

The huge number of inputs demanded of production consoles is causing some manufacturers to consider dramatic design changes. Plaskitt of SSL says the company is developing new ergonomic approaches where the console is designed to wrap around the operator. He also notes that the viewer-driven requirement for better-quality sound has resulted in audio improvement at the network level, citing SSL's recent system upgrades at the major networks Turner and Fox. He says reliability will be an increasing network concern, adding, "They expect equipment to last 10 to 15 years."



Left: Trident Vector console features a wide range of automation options. Above: Shure Brothers microphone.

SPEAKERS & MONITORS

This category is undergoing changes as sonic accuracy becomes more critical in the digital environment. Tannoy's sales and marketing director Bill Calma says the company has been following and responding to a trend for smaller, higher-dynamic monitors, which reflect the downsizing of the evolving control room. "In the next three to four years, we'll see a rebirth of studio design," he says. "Instead of [spending] millions of dollars on tape-oriented equipment, we'll be going to smaller digital consoles for closer to a quarter million. Rooms will be more smaller with less big gear, and monitors will have to reflect that."

Tannoy will be releasing its new line of dual concentric monitors, the Tannoy Monitor Series, based around the company's proprietary Differential Material Technology (DMT). The speakers in the line incorporate a revolutionary new range of materials from drivers to cabinetry. "It's a new generation for dual concentric drivers," explains Calma.

At Electro-Voice, PR director Keith Clark concurred with Calma's downsizing estimate and adds that more coaxial designs, which facilitate more coherent wave fronts, should be forthcoming in the future. Active speaker electronics, incorporating some kind

of signal processing, are also becoming more popular, he says.

Westlake's production manager Matt Daigler says his company is also seeing an higher demand for smaller speakers. He attributes increased growth among project-type studios as part of the trend's fuel.

AUTOMATION AND CONTROL SYSTEMS

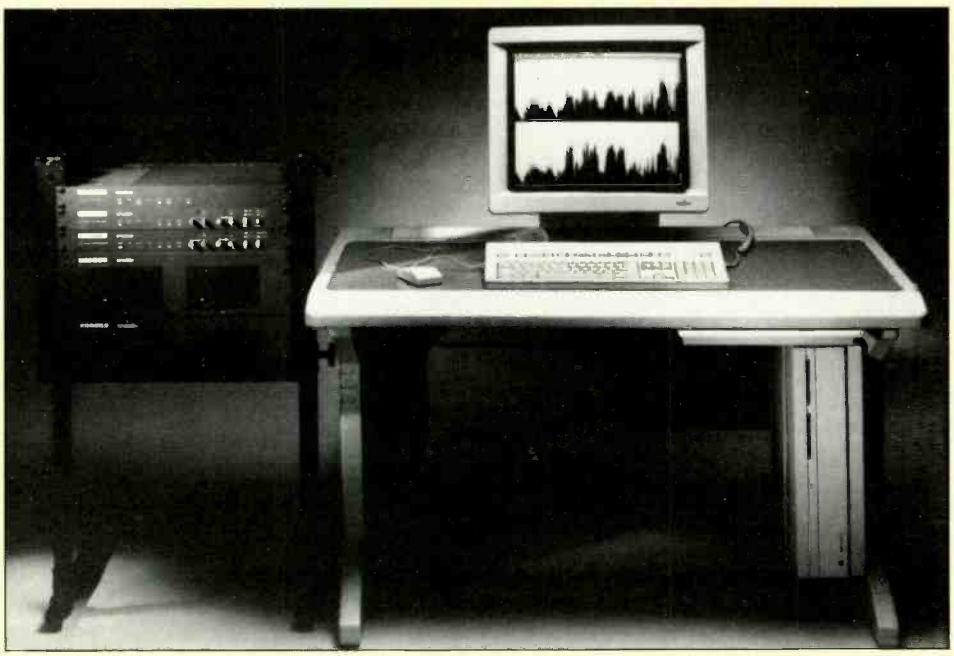
This area has seen tremendous growth recently, due to new, less-expensive products allowing smaller facilities to get into the synchronization game. Last year's introduction of Tascam's very reasonably priced MIDIizer signified a democratization of sync. Look for this trend to continue.

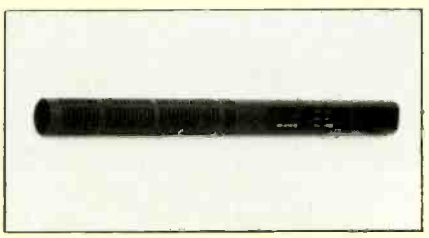
Automation systems seem to be at a similar stage of evolution in terms of interfacing as workstations, with lack of compatibility resulting in loss of accuracy as moves are interpolated rather than reproduced between systems. At GML, company VP Cary Fischer points out that they've been pushing for an exchange format between different systems for some time, with mixed results. "We've had good dialogues with the DiskMix people," he says, "but no one else is willing to jump on that bandwagon. [GML President and owner] George (Massenberg) has made the offer, and we hope some kind of protocol is forthcoming." Fischer says discussions have been ongoing between GML and Otari regarding an interface protocol.

GML will be releasing its new Automated Events Controller at AES. The system can operate up to 128 switches or logic functions simultaneously, at a resolution down to a quarter-frame. This, says Fischer, allows for such functions as grouping in real time.

Plaskitt of SSL points out that consoles have become the controllers for automated audio/video suites. He is a proponent of open architecture as well, noting that third-party suppliers like Timeline and Motionworks have provided interfaces for SSL's G Series system, which incorporates Instant Reset and Total Recall functions. "You have to have a product that can evolve into the future," he says.

"Audio operators shouldn't have to be computer experts," declares Richard Hajdu, VP of sales and marketing for Neve, who feels that audio console automation for the broadcast industry has been somewhat lagging. "The automation system should be transparent to the user," he says. "Serial interface to a routing switcher is critical as stations add more audio sources. Also, the console should interface to a newsroom computer as easily as the newsroom computer interfaces to a production switcher. Then when full station automation arrives, the audio console is ready to take its place as part of that automation system." For the broadcast market, Neve will show its new digitally controlled 66 Series console, whose automation includes an integral microprocessor-controlled reset system for switch status and input gain, with an optional system able to restore other rotary controls and fader settings. The 66 Series will be available in 24- and 32-track recording and post-production configurations.





Top: Studer Dyaxis 2 + 2 Digital Disk Audio Production System. Bottom: Sennheiser MKH-60 microphone.

Josann Block, sales administrator at Timeline, makers of the Lynx synchronization system, says that sales have been steady domestically and are increasing internationally. The trend here is increased sales to post-production facilities, not a surprise, but another indication of growth in that industry segment. Further, says Block, Timeline has tentative plans to devise and market a lower-priced system designed for the home recording market.

SIGNAL PROCESSING

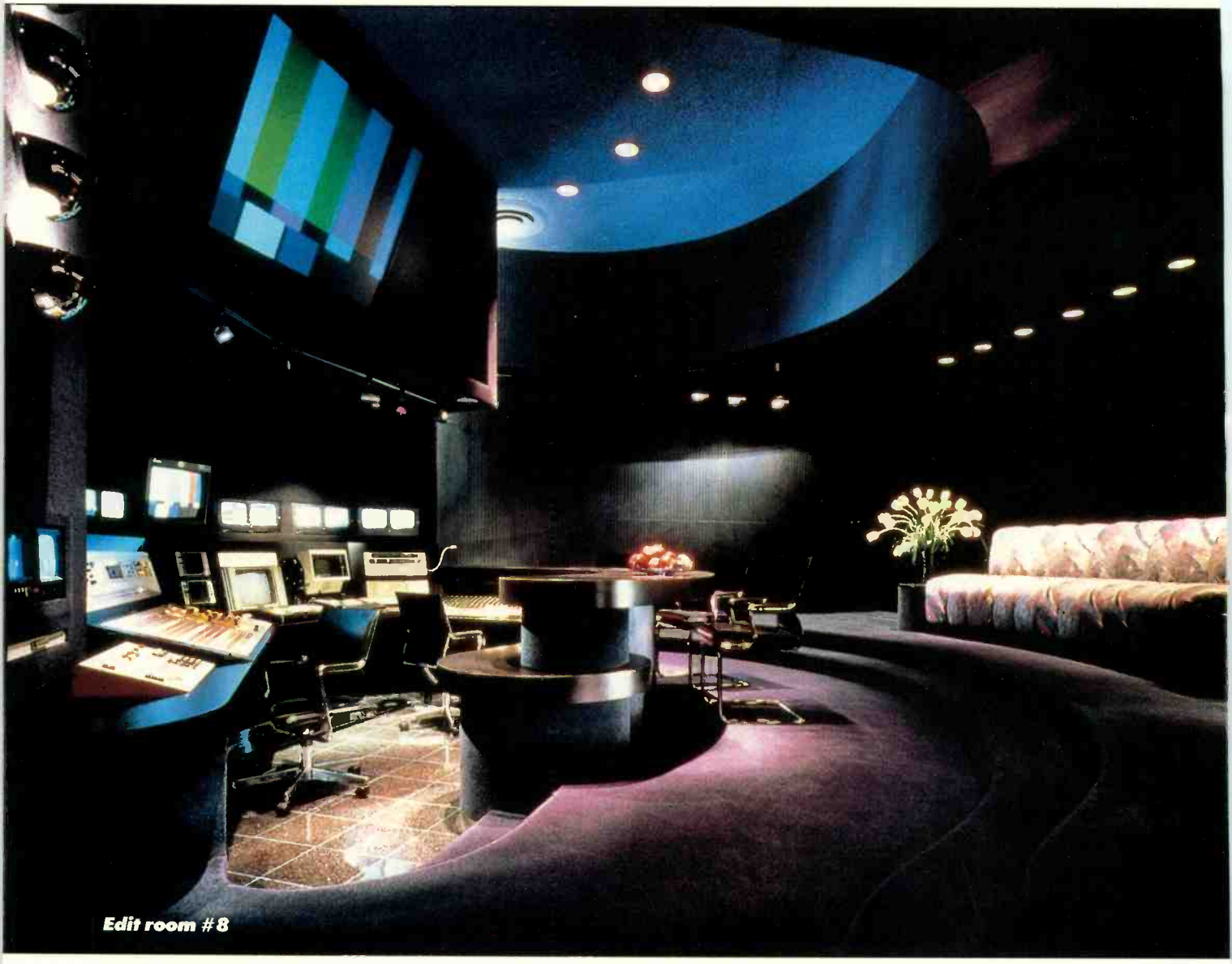
Digital has been the modus operadi of this area for some time now. The trend is to more sophisticated multiple-effects units and increased user-friendliness. As Joel Silverman, marketing sales director of Lexicon notes, "You're going to be able more and more to simply walk up to the box and make it do tricks without going through manuals and obscure operating codes." Further, he adds, additional interfaces are coming down the line, especially ones that address SMPTE as well as MIDI automation. Lexicon will preview its 300 Digital Effects System at the show; the unit has digital I/O ports in AES/EBU format, as well as consumer and optical ports and time-code program change capability, and is menu-driven for $4,795. The LXP-15 digital effects processor is a single-space unit with multiple effects, also menu-driven.

All in all, it should be an interesting AES. It looks more and more like the digital world is here to stay. The challenge of the future is mastering the technology.■

Dan Daley is a New York City-based freelance writer specializing in audio technology.

FACILITY

PROFILE



Edit room #8

at VSC Post I (East) sports a high-tech equipment package in a comfortable working environment.

EAST METS

This New York post house proves that two facilities are better than one.

WEST AT VSC POST

By William A. Owens

The clash of distinctly different cultures has been the basis of popular literature since the beginning of time. Television, since its early days, has exploited these cultural differences and the way people adjust to them. Witness Lucy and Ricky, Archie Bunker and son-in-law "Meathead," and the Tanner family and their out-of-this-world guest, ALF.

For Manhattan-based VSC Post, the marriage is between the "blue-jeans" crowd, which makes broadcast programs and commercials, and the "suit" crowd, which makes corporate communications programs. According to Shelly Riss, VSC Post's VP of marketing and sales, it's a happy combination brought about by the joining of two post-production facilities under one management.

THE CORPORATE UMBRELLA

VSC Post is part of Video Services Corp., the owner of 11 technology-based companies serving various areas of the communications industry. Other VSC companies include: A.F. Associates, Atlantic Satellite Communications, Audio Plus Video International, Martin Audio/Video, Videotape Distributors and Waterfront Communications. In addition, VSC owns Compton Capital Corp., which provides financing for both production facilities and equipment vendors.

VSC Post operates two New York City post-production facilities, logically dubbed "East" and "West," based on their Manhattan location. Each facility began life under different owners. East, the older operation, was previously known as TVC Video. VSC ownership came gradually, with an increase of equity over several years. West, the former Cinevid, came on board in late 1989, and today also serves as home of Associated Images Limited, the VSC-owned digital graphics studio.

A VARIED MENU

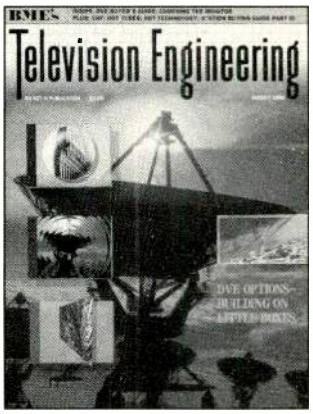
One of the major benefits of the VSC corporate ownership, says Riss, is the "synergy created by the combination of two unique facilities, each one with its own personality." He noted, "While some clients gravitate toward a particular location [East or West], and some gravitate toward specific editors or graphic artists, it is the overall level of service, combined with the technical capability available at either location, that keeps them coming back."

VSC Post clients come from the entire spectrum of the production community. Broadcast and cable television commercial producers make up almost 40 percent of the client roster, with the balance a mix of broadcast, cable and corporate program producers.

East is more the "blue-jeans" facility, with the bulk of its clients from the broadcast side. More "suits" are evident on the West side, with corporate a major market there.

The East facility recently provided film-to-tape transfers and off-line for Grosso/Jacobson Productions' "True Blue" series for NBC, and serves as the editorial home of the syndicated "National Geographic Explorer" series.

The West facility provides an edit room for The Discovery Channel, and serves many high-end graphics clients. The August *Television Engineering* cover was produced by



Last month's cover was created by Micha Riss of M Square Design in conjunction with Associated Images and Video Servies Post II. Images were digitally linked to and from Post II's GVG Kaleidoscope for digital video effects. Individual video-effected frames and the final comp were "C"-linked back to GBP XL, where the image was rendered in high resolution. Total magnification of the video files was 175 percent. The image was then transferred to AI's L VT film recorder and output at 40 lines/mm to the actual image size of 157mm x 118mm. Output material is Ektachrome 64T, processed on-site.

A GVG 300 switcher is standard equipment at VSC Post I, here seen with editor Barry Spitzer manning the controls.

"There are certain pieces of equipment that clients need to have in order to work. It's the nature of the business to try to surpass what's been done before." —Fred Wilson, director of engineering, VSC Post.

graphic artist Micha of Associated Images, at the VSC Post West facility, using the Quantel Graphic Paintbox.

Between them, East and West employ a staff of almost 50 creative, technical and support people.

TEAMWORK PAYS

The combination of the facilities made perfect sense, from both the operator's point of view and the customer's point of view, according to Riss. He explained, "The combined facility benefits from the ability to obtain support services that a single facility could not afford." Riss noted that the combined facility is represented by four salespeople, each a production specialist in a particular area. "A small facility could not afford that kind of representation." Back-office functions have been combined as well.

But the true beneficiary of the combined operation is the client, according to Riss. "The combined operation can purchase hardware more efficiently, obtaining quantity discounts unavailable to a smaller facility," he said. This gives the client access to a wide range of equipment at competitive rates.

A common theme runs through both East and West facilities. Each was built by VSC-owned A.F. Associates, long before VSC entered into the facility ownership position. The hardware compliment is a good match, with editors and operators comfortable at either facility.

Like its clientele, the West facility is much more formal, more businesslike. Sister company A.F. Associates is known for its special technical touch, an attention to detail which flows down to each individual cable and connector. Their design input shows clearly in every corner of the West plant, and the entire facility functions smoothly, moving quietly and efficiently from one task to another.

On the other side of town, the East facility is like a comfortable old cardigan that one slips into, kicks back with some old friends, and makes television. While solidly based in today's technology, the plant's owners have avoided the sterile high-tech look found in many newly built operations. Even the newest edit suite, an A.F.A. showplace built just last year, has a warm and friendly feeling. Perhaps it's just the "blue-jeans" crowd at work.

ALL THE TOYS IN THE EAST

VSC Post director of engineering Fred Wilson describes his facility with a gleam in his eye. No wonder. He presides over an ever-growing, two-part techno toy box chock full of goodies.

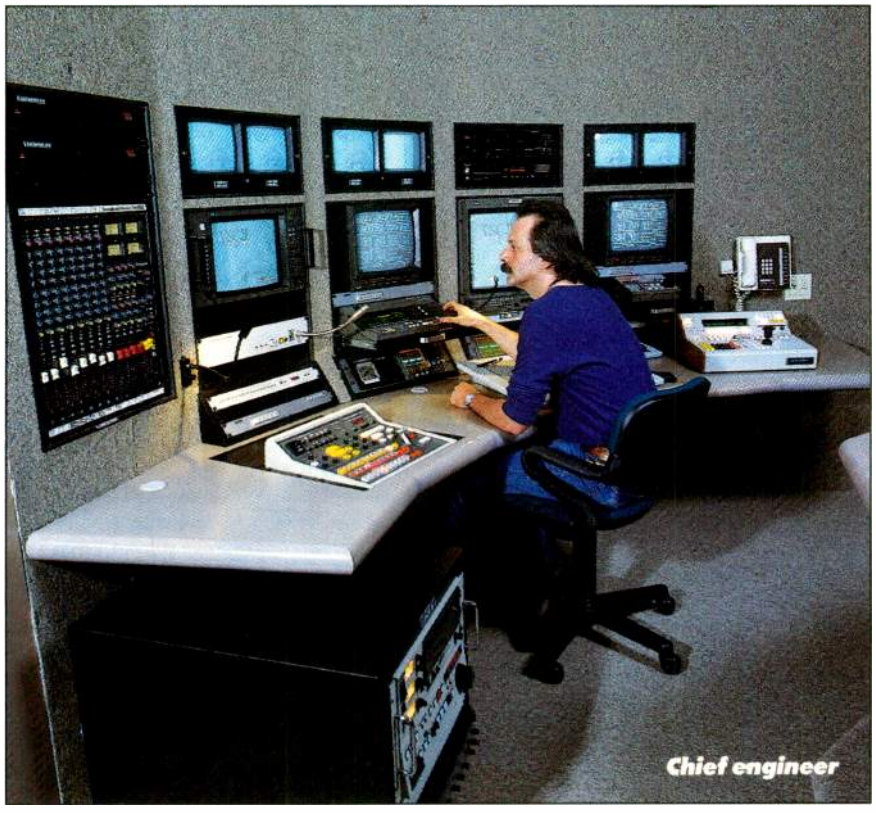
Wilson's world is one populated by familiar names, a "Who's Who" of major video vendors. The East facility is home to four edit bays, each equipped with Grass Valley Group 300 switchers. Three rooms have CMX 3400A editors, and the fourth has a CMX 3600. Each room sports an Ampex ADO 3000 with concentrator, along with an Abekas A62 still store and a Chyron IV character generator,

"The combined facility benefits from the ability to obtain support services that a single facility could not afford." —Shelly Riss, VP, marketing & sales, VSC Post

while a digital graphics room is close at hand for clients who need additional graphics capability.

A central machine room supports video recording and playback needs, so that each edit room may function as an interformat bay, configured to the exact needs of the assigned project. Tape formats available include D-2, Betacam, one-inch and three-quarter-inch, with a heavy showing of Sony and Ampex badges.

The East facility is also home to VSC Post's film-to-tape transfer operation, with two Rank Mark III systems with digiscan and Accom 122 encoders for D1 to NTSC conversion. Color-correction rooms have their own Grass Valley Group 100 switchers and Chyron character generators, along with audio sweetening capability.



Chief engineer **Phil Paully** in the **Harry room at VSC Post II (West).**

WEST SIDE STORY

On the other side of town, VSC Post West also sports a full compliment of "state-of-the-art" firepower. The two edit rooms feature GVG switchers with two-channel Kaleidoscope, and Abekas A62s. Chyron IVs provide basic titling. A central machine room supports editing operations, with Ampex and Sony one-inch VTRs handling playback and recording chores.

Two distinctly different graphics rooms are housed in the West facility, which also serves as home for sister company Associated Images. Quantel is the big name here, with one room sporting a Harry, and the other a Graphic Paintbox.

The Harry room is a soup-to-nuts facility, with GVG switcher, audio capability, and a capture camera copy stand, all tied to a D-1 recorder. The Graphic Paintbox has the capability of outputting to tape or the "film" used to make printing masters. The room has been the source of a large variety of printed material, including this magazine's August cover and some well-known record jackets.

THE NEXT PHASE

Every production facility is a living creature, growing and expanding to meet the needs of its clients. While touring the facility, Wilson spoke about the future of VSC Post, and the future of the industry in general.

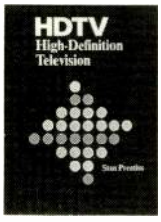
"There are certain pieces of equipment that clients need to have in order to work," Wilson told us. "It's the nature of the business to match what's been done before, and to try to surpass it. We're going to provide the tools to ensure our clients a better end-product." Wilson expects D-1 to gradually replace his existing formats as the preferred recording media. "The clients are asking for it," he commented, and for both East and West, client service comes first.

All of which brings us back to what Shelly Riss told us at the beginning of this article about the philosophy of service. In his thinking, VSC Post is a service business, one providing both creative and technical services. In their own way, Riss and his staff are matchmakers . . . matching their clients with the people and hardware they need to complete their production projects. Like Lucy and Ricky, like Archie and "Meathead," and like the Tanners and ALF, it's a match that works well. ■

BOOKSHELF

ADVANCING TECHNOLOGY

➤2008C) HDTV: High Definition Television, *Stan Prentiss*. The first book to take a detailed look at the technical and legislative aspects of HDTV. Offers description and analysis of each of the competing delivery and receiving systems, documents the existing and proposed standards, and summarizes FCC and congressional actions on the topic. Discusses the Advanced Television Test Center, major proponents of HDTV and their systems, and anticipated problems. ©1990, 232 pp. (P) $16.95



➤2009C) MARK SCHUBIN'S HDTV GLOSSARY, *Mark Schubin*. Here's a new pocket guide that will bring you up to speed on HDTV. More than 450 entries define the latest in production, electronics and equipment terminology, plus provide a scorecard to the players in the HDTV field. ©1990, 79 pp. (P) $19.95

➤2011E) CABLE TELEVISION TECHNOLOGY & OPERATIONS: HDTV and NTSC Systems, *Eugene R. Bartlett*. Advanced, new technical handbook covers coaxial cables and cable systems, the head-end, system design, test procedures and measurements. Gives you all the math and theory, lots of hands-on operations tips, and documentation of FCC and NCTA standards and practices. Includes data on fiber optic systems for HDTV, illustrations and index. ©1990, 421 pp. (H) $49.50

➤2013C) THE ART OF DIGITAL VIDEO, *John Watkinson*. The serious reference we've been waiting for. Builds from the basic concepts and terminology, goes through all the advanced theory, then shows how it's put into operation in actual systems. Full coverage of D-1 and D-2 formats, magnetic and optical disk applications, and digital audio-for-video. This professional-level book is timely, authoritative and presents all the details in plain language. ©1990, 580 pp. (H) $49.95

VIDEO TECHNOLOGY

2183D) TIME CODE HANDBOOK, *cipher digital, inc.* Defines and illustrates the fundamentals and applications of SMPTE/EBU time code. Excellent bit-by-bit explanation of the information conveyed by time code. Covers uses for production and post-production. Includes appendices and 11 illustrations. ©1987, 128 pp. (P) $12.95

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➤2014C) BEHIND THE TUBE: A History of Broadcasting Technology and Business, *Andrew F. Inglis*. Chronicles the development of radio, TV, videotape, cable and satellite, with straightforward technical background and revealing looks at the personalities and companies that made it happen. Profiles dozens of visionaries, from Edison and Marconi to Sarnoff and Paley. Examines the rivalry between RCA and CBS, the growth of the FCC, format wars and patent disputes. Combines the clarity and detail of the best technical texts with the strong characters and sweeping events of a historical novel. ©1990, 527 pp. (H) $37.95

➤2026D) THE ELECTRIC IMAGE: Examining Basic TV Technology, *M.A. Krupnick*. Describes TV, camera, VCR, switcher, editing and sweetening technology, without getting weighed down by math and electronics. Krupnick's discussion of the history of video system design, which focuses on the problems encountered and solutions applied during broadcasting's evolution, serves as a framework for teaching the fundamental physics and engineering principles behind video equipment. Accessible language and a systematic approach make this a great intro title. Includes glossary and index. ©1990, 145 pp. (H) $45.00

2383D) UNDERSTANDING VIDEO EQUIPMENT: Design, Operation and Maintenance of Videotape Recorders and Cameras, *Neil Heller*. A more advanced course on how video gear works and how to work with it. Includes complete, step-by-step instructions on setting up and adjusting video cameras, plus chapters on VTR adjustment and alignment, maintenance and operations. Assumes familiarity with basic video concepts, includes glossary and index. ©1989, 207 pp. (H) $45.00

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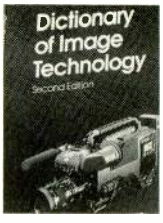
2380D) TELEVISION ENGINEERING HANDBOOK, *K. Blair Benson*. The classic, industrial-strength reference, unparalleled by any other work in the field. From fundamentals to state-of-the-art, it covers signal generation, transmission and distribution, hardware, practices, standards, reference data and much more. This advanced title is highly organized, well-illustrated and incredibly detailed. ©1986, 1,478 pp. (H) $99.95

1555D) STEREO SOUND FOR TELEVISION, *Francis Rumsey*. Get a clear understanding of the technical and aesthetic aspects of this advancing technology with Rumsey's concise, new manual. The discussion of perception and psychoacoustics, mic techniques, broadcast equipment, distribution systems and transmission systems places strong emphasis on digital technology. Includes glossary and index. ©1989, 110 pp. (P) $24.95

2390C) TELEVISION: From Analog to Digital, *Stan Prentiss*. This tech title just went out of print, but we've secured the last few copies! In-depth discussion of transmitters, receivers, picture tubes, power supplies, tuners, video processing and chroma processing, sound, cable, and TVRO. Includes details on digital video and troubleshooting tips. ©1985, 343 pp. (H) $25.00

REFERENCES

➤2034C) ELECTRONIC POST-PRODUCTION TERMS AND CONCEPTS, *Arthur Schneider*. This new professional dictionary covers the crossover zone of video terminology and computer jargon encountered in the post-production environment. From "above the line," "A-B roll" and "access time" to "WORM," "XLR," "Y/C" and "zoom," there's more than 600 current, detailed definitions, plus diagrams and photos, in a slim handbook format. ©1990, 152 pp. (P) $19.95

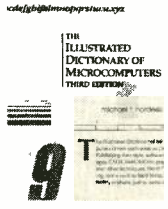


2346D) DICTIONARY OF IMAGE TECHNOLOGY, 2nd Ed., *Bernard Happé, ed.* Recently revised to cover advancing technology, current production jargon, abbreviations and engineering terms. More than 2,800 entries, including British and American definitions, interpreted in lay language. Includes HDTV and digital video terms, and plenty of diagrams. ©1988, 160 pp. (P) $18.00

➤1732C) ENCYCLOPEDIA OF ELECTRONICS, 2nd Ed., *Stan Gibilisco & Neil Sclater, ed.* Vast, authoritative, detailed, yet user-friendly, this reference work has just been updated to include all-new information on

ICs, digital electronics and computers. Nearly a thousand pages of clear, plain-English definitions and descriptions of virtually every electronics concept and component, plus photos, schematics, diagrams and a bare minimum of math. Features new entries on superconductivity, fiber optics, local area networks, surface-mount technology and more; plus a fully cross-referenced index. ©1990, 960 pp. (H) $69.50

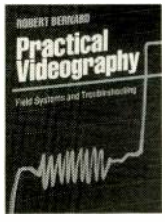
➤1733C) THE ILLUSTRATED DICTIONARY OF MICROCOMPUTERS, 3rd Ed., *Michael F. Hordeski.*



With more than 1,200 new terms, this updated volume can be a lifesaver in the buzzword jungle of personal computing. Defines terms relating to hardware, software, networking, communications, graphics and many other areas, with clear illustrations and more than 9,500 entries. ©1990, 442 pp. (P) $19.95

SERVICE MANUALS

➤2033C) PRACTICAL VIDEOGRAPHY: Field Systems and Troubleshooting, *Robert Bernard.* Learn to spot and fix common problems of cameras, tape decks, cables, light and audio systems while in the field. Teaches a systematic approach to troubleshooting using "logic trees" and provides tons of hands-on tips for getting the best performance out of ENG/EFP gear. Features full chapters on waveform monitors and video aesthetics. ©1990, 192 pp. (P) $22.95



2442C) TROUBLESHOOTING AND REPAIRING SOLID STATE TVs, *Homer L. Davidson.* Practical service tips in plain English, packed with case-study examples, clear photos and schematics. Organized so you can spot the warning symptoms, check likely problem spots, and zero in on the malfunction. More than 500 illustrations, plus index. ©1986, 453 pp. (P) $17.95

2450C) VIDEO CAMERAS: Theory & Servicing, *Gerald McGinty.* An entry-level technical primer on video camera servicing. Provides practical theory in clear, well-illustrated sections, beginning with the image tube and discussing all the electronics and concepts. The final section on troubleshooting is extremely useful. ©1984, 264 pp. (P) $18.95

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➤2444C) TROUBLESHOOTING AND REPAIRING CAMCORDERS, *Homer L. Davidson.* New pro-level repair manual provides in-depth info on camcorder systems, symptoms and solutions. Examines circuits and components found in VHS, VHS-C and 8mm camcorders, with full chapters on mechanical and electrical adjustments, a special troubleshooting section, plus photos, manufacturer's service data and hundreds of schematics. ©1990, 533 pp. (P) $22.95

2446C) VCR TROUBLESHOOTING & REPAIR GUIDE, *Robert C. Brenner & Gregory R. Capelo.* Eases you in with tips on routine preventive maintenance, then provides 34 clear, systematic flow charts for troubleshooting specific malfunctions. Includes quick chapters on basic and advanced repair techniques, and full explanations of magnetic recording and VCR operation theory. Technical topics are covered from a result-oriented angle, for those with minimal electronics or engineering knowledge. ©1987, 245 pp. (P) $19.95

2440C) MAINTAINING AND REPAIRING VIDEOCASSETTE RECORDERS, 2nd Ed., *Robert L. Goodman.* Contains practical, time-saving maintenance and repair data with full coverage of the mechanical systems and electronic circuits found in all popular brands and models of videocassette recorders. Includes advanced chapters on camcorders, test equipment, special effects circuitry and stereo TV. ©1989, 356 pp. (P) $17.95

4703D) THE COMPLETE CAMERA CLINIC: Diagnosing & Maintaining Your Camera for Peak Performance. This pro-level, hands-on tutorial shows how to calibrate and adjust any industrial-grade video camera for optimum color and resolution. Set up a vectorscope, waveform monitor and camera, grab a screwdriver, pop in this tape, and get set for a thorough session of tech tips aimed at achieving maximum performance from your cameras. Although all cameras are different, "The Complete Camera Clinic" addresses controls and adjustments that are common, if not universal, among three-tube and chip cameras. Once you've tweaked along with this video, you'll be paid back with top results from your cameras. Includes 30-page manual. ©1989, 60 min., VHS or Beta $149.00; 3/4-inch $179.00

2019C) TROUBLESHOOTING TECHNIQUES FOR MICROPROCESSOR-CONTROLLED VIDEO EQUIPMENT, *Robert L. Goodman.* Get to the heart of the problem with that color TV, VCR or videodisc player! After an excellent introduction to digital electronics, you'll learn to use digital logic probes, logic monitors and oscilloscopes to diagnose and service the control systems of video gear. Features a full chapter on signature analysis. Profusely illustrated, with index. ©1987, 344 pp. (P) $17.95

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New Products

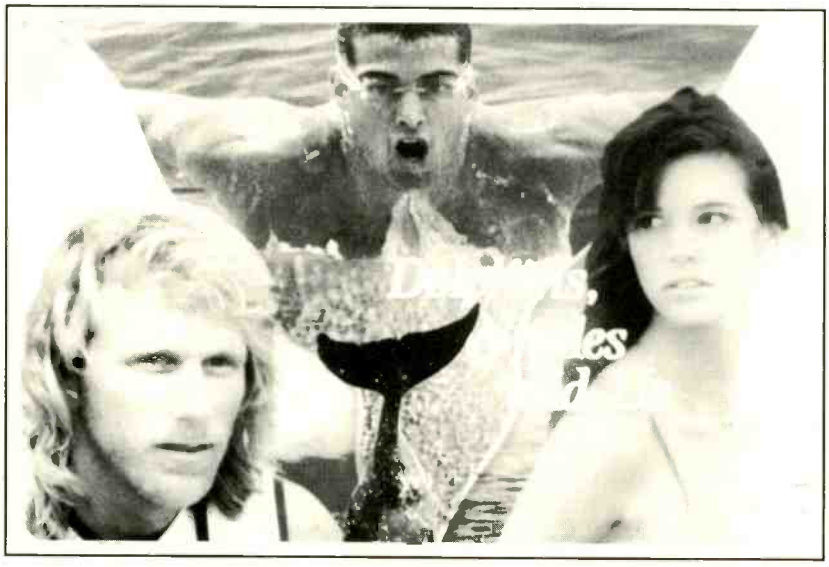
This month, Television Engineering *features coverage of paint systems, including user comments.*

QUANTEL PAINTBOX V SERIES

Quantel likes to say it set the standard against which all paint devices are judged. To keep up with the growing competition, the company has introduced its "V" series, dubbed "The designer's choice for the 1990s." There are four models, each with built-in modularity: the VI (illustration), the VR (retouching), the VA (animation) and the VE (effects). Among the standard features: output key channels; integral key channel input (from the VR models upwards), allowing signals from external keying devices to create ready-made stencils; instantaneous zoom magnification capability; classic Paintbox menus; and CCIR 656 digital output ports to allow 4:2:2 digital quality (all models from the VR up feature CCIR 656 digital input ports). The VA and VE models are equipped with fully integrated control and digital video interfaces. Paintbox V prices range from $79,000 to $136,250.

The VA model is being used by Los Angeles' Art F/X post house to create effects for Hanna/Barbera's syndicated TV series "Wake, Rattle and Roll," as well as storyboards for the "America's Funniest Home Videos" opening. "I can create highly rendered photo boards in the time it used to take me to produce a full set of thumbnail boards," notes Art F/X president Ron Clark, who adds, "[This lets me] show clients what I'm trying to portray with a high degree of accuracy. The ability to design directly has made a major difference to us." He liked it so much, in fact, that he upgraded the VA to a VE—a system also being used by Novocom, a Hollywood-based facility. "The main thing we're interested in is the speed the VEs allow for design," observes John Ridgway, president of Novocom, which has designed logos for "Entertainment Tonight" and the "Phyllis George Show," among others. "Our lead time is very, very short. There is probably other equipment out there for design and production; we prefer the versatility of Paintbox."

Reader Service #200



BY MICHA RISS ON THE QUANTEL VE

DIGITAL F/X PAINT F/X

When California-based post house CCI began building a digital suite, its choice for a paint system was the Paint F/X. "We looked at others, but we thought this was the best," explains Craig Barnes, VP and general manager. "The air brushes are nice: for compositing, there is very good control over layering." And although other systems may be faster in some areas, the Paint F/X has better quality "when you blow it up," he says, "because it's 4:4:4:4. It's a lot more versatile."

The equipment, priced at about $95,000, combines paint, typogra-

phy and library tools with real-time perspective and curved cutout manipulation, and offers machine control of both a playback and a record VTR. It has a real-time digital effects channel with curved surface effects, a 2:1 real-time digital keyer/mixer with linear stencil, and keyframe editing.

"It's real nice to paint a flat background and pump it into the effects channel and give it the curls and swerves, and then throw it back into the paint system and over that do composites," notes Barnes, whose 10-year-old company handles network TV specials, corporate commercials, industrials and home videos. "We use it as a standalone paint system and as a compositor for effects. The interfaces are very user-friendly: it's based on icons, so it's easier to use than an ADO. We're doing a large rotoscoping job right now, and it does that real well. It's a very powerful box."

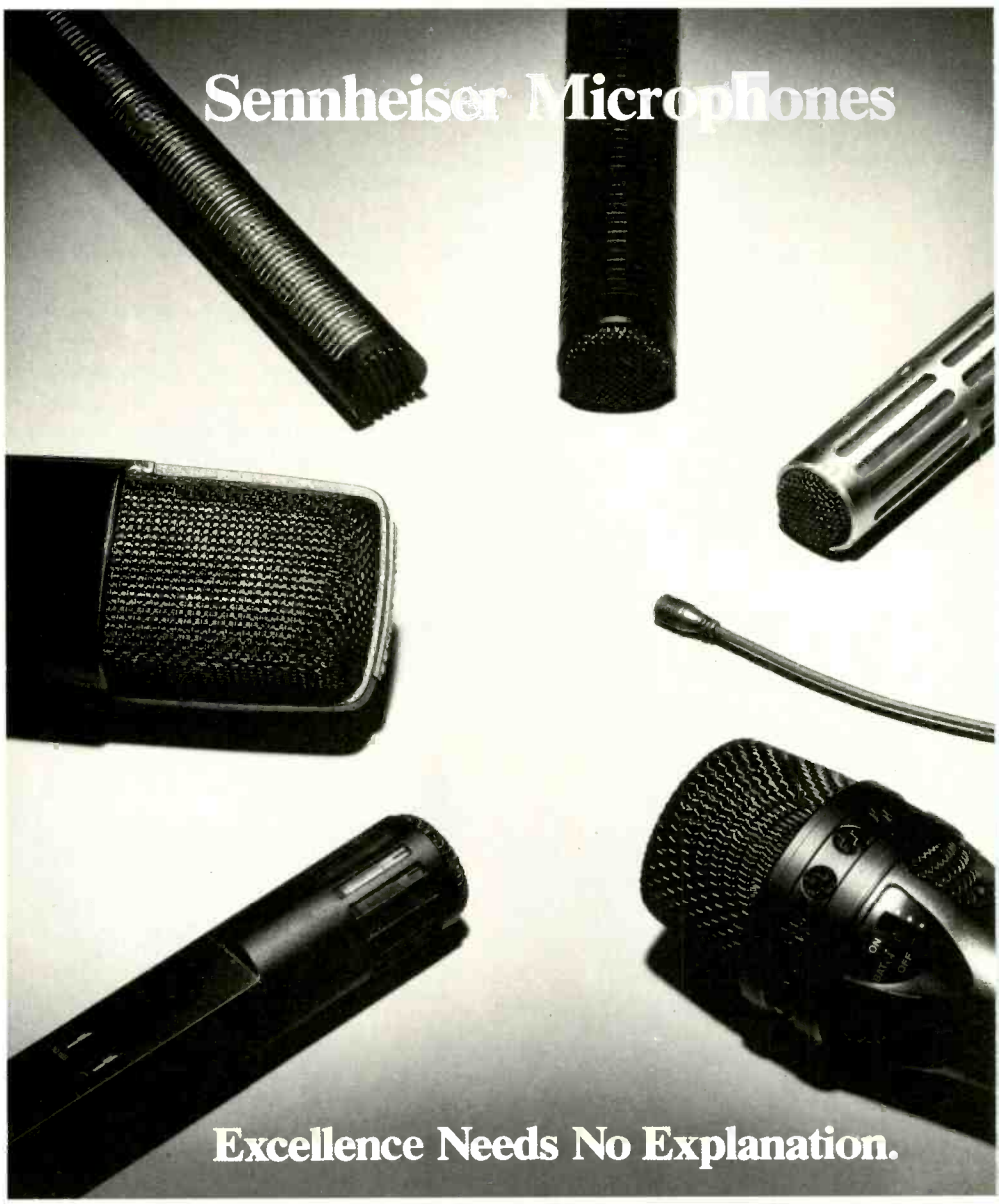
Reader Service #201

BLUE FEATHER

BLUE FEATHER AVALON 3-D

Life without sets—that's Blue Feather's promise for its new $120,000 Avalon 3-D system. "I am a producer, and I'm using it to do a science fiction series," notes Jennifer Jarik, a partner in Blue Feather. The series, dubbed "Future Transmissions," is being produced for cable stations and could not have been made by the small company without the Avalon. "The production values would have been beyond our means," observes Jarik, noting that the Avalon VRM (Virtual Reality Machine) option ($60,000) changes that. "You tape actors in front of a chroma-key blue or Ultimatte background, and as the camera position changes, so does the 3-D perspective. You can zoom in, zoom out, pan, tilt and truck on your talent as if your camera were actually seeing an actor on a real set."

In development for two years, the Avalon is based on the user interface system used in the Apple Macintosh. It has a 16.7-million color palette, 3-D modelling, cut and paste over and under live video, anti-aliasing, 320 typefaces for titling, 16 different 3-D fonts, storyboarding capabilities, and 3-D perspective rotation. It includes one 14-inch NTSC monitor and one 14-inch RGB with a maximum resolution of 1280 by 484 pixels.



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"We are a production-media lab at Blue Feather," Jarik remarks. "We conduct all sorts of video experiments here. That's how we created our first product, a teleprompter. We do a lot of experimentation on actual productions, so it's pretty well-tested by the time it ships out."

Reader Service #202

MIDWEST COMMUNICATIONS PROPAINT 16

John Humphrey, ProPaint's product manager, calls the ProPaint 16 a "promiscuous" paint system. "People have always had this fear of paint systems," he notes. Humphrey hears people tell him: "I could never operate that," or "That's very sophisticated computer stuff." "We've made every effort to make it easy," he claims, "so that it wasn't just user-friendly, it was promiscuous—so that the guy couldn't put it down."

MIDWEST

There are icons for all the functions on the menu. "If you want a rectangle, you just touch a rectangle. It couldn't be easier, or faster." ProPaint 16, at $10,990, uses an 80386SX processor operating at 16 MHz, and outputs both NTSC and RGB video at a pixel resolution of 512 x 492. It has a 5¼-inch high-density floppy, an 80 mb hard drive, a 14-inch amber status monitor, a graphics tablet, a built-in encoder and de-

Maxell has the classics.

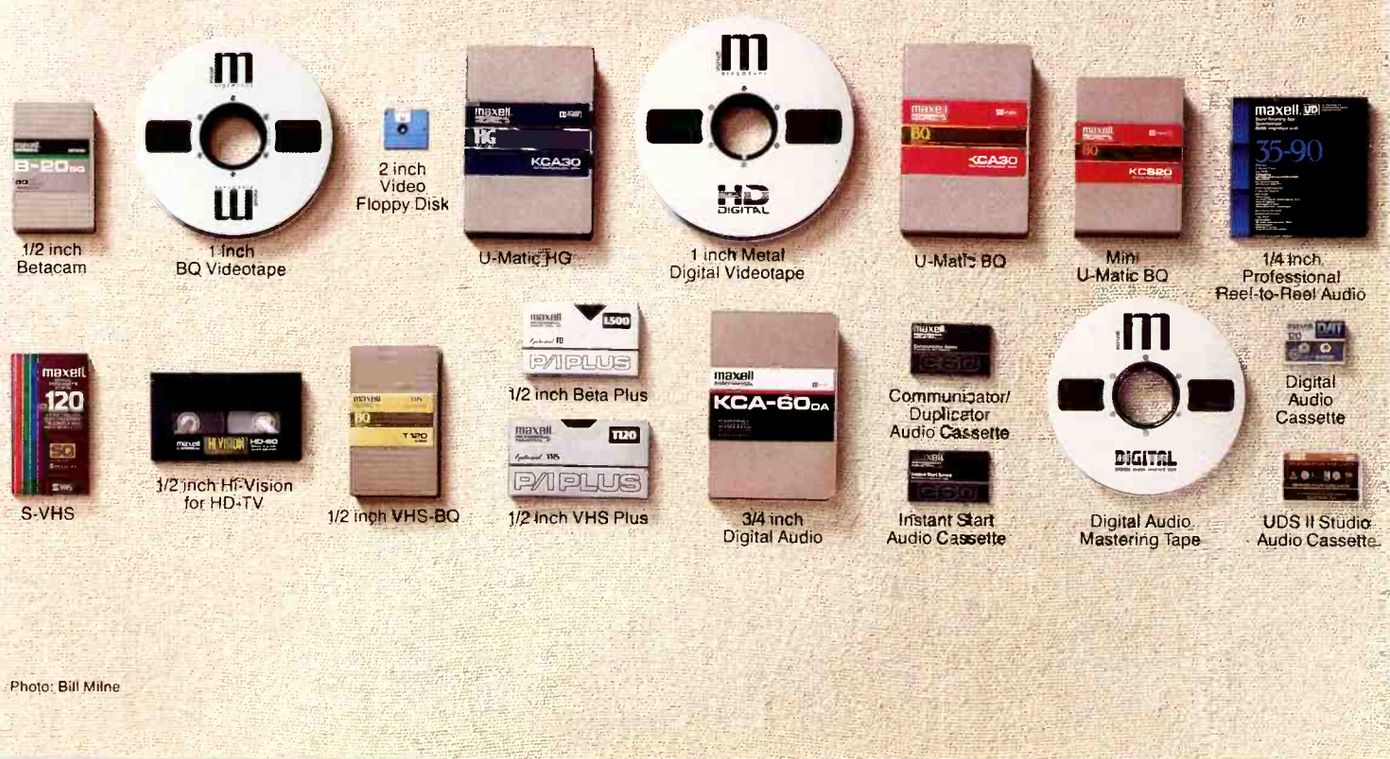

Photo: Bill Milne

coder, and an external key output. Other features: anti-aliased vector fonts, adjustable airbrush with mask, real-time zoom and pan, and still-store system.

"It is a very broad-based system," reports ProPaint user Gunther Meisse, president of WVNO-TV, Mansfield, OH. "We use it as a paint system and a still store, and it is very user-friendly." So user-friendly, says Humphrey, that the 12-year-old daughter of a potential buyer "sat down at the equipment and began poking around, and without any instruction began operating it, doing all sorts of neat stuff. Her father's mouth dropped open. Now that's what I call user-friendly."

Reader Service #203

VIDEO TECHNICS PIXELATOR

Natalie Schnering, producer/director at Florida's Seminole Productions, loves her Pixelator. "We got it about three weeks ago and I'm still experimenting with it, but so far, it works very well. I really like it. It's easy to use and does some really incredible stuff."

There are three rack-mountable Pixelator models. The Pixelator 3D-I ($29,900) has a 386 processor running at 20 MHz. Storage includes 4 Mb RAM, an 80 Mb hard drive, a 5¼-inch floppy drive, and a TARGA 16-frame buffer. A monochrome monitor, 13-inch multisync RGB monitor, tablet or mouse, menu-driven operating shell with paint and grab, and 32,000-color paintbox with Build and Animate function are included.

The Pixelator 3D-II ($49,900)—owned by Schnering—uses a 386 processor operating at 25 MHz. It has 10 Mb RAM, a 4 Mb ATVista frame buffer, 2 Mb of VMX memory, a 157 Mb hard drive, 5¼ and 3½-inch floppy drives, a 19-inch long-persistence, multisync RGB monitor, and a 12 x 12 tablet with cordless pen. Its shell contains similar functions to the 3D-I, and a 16.7-million-color paint box and real-time color cycling animation. The 3D-II's Build and Animate

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function features spline-based modeling, reflection mapping, 15 texture buffers and automatic rotoscoping from videotape or disc. There is also a built-in VTR controller for step-frame animation.

The Pixelator Excel ($89,000), with a 386 33 MHz processor, includes 12 Mb of RAM, a 4 Mb ATVista frame buffer, 10 Mb VMX memory, a 300 Mb hard drive, 5¼- and 3½-inch floppy drives, 14-inch VGA color data monitor, 19-inch long persistence, multi-sync RGB monitor, and pressure-sensitive tablet and pen. Its Super Paint and Grab function features three real-time air brushes, three image buffers, an eight-bit mask buffer, and real-time eight-bit color cycling animation with a 24-bit background. Super Build and Animate includes all the features of the 3D-II series, but at 10 to 12 times the speed. Automatic rotoscoping has watercolor, pencil, metallic and other effects.

"It's geared more towards video than any other system I've used before," says Schnering, who used her 3D-II to create a new production logo and is now working on a new opening for a local sports program. "You can take images from tape or from the camera and go right to the computer, quickly and easily, and the quality is great. And it has a wide range of colors. Overall, I'd say it has some great abilities."

Reader Service #204

AURORA AU/280 CADET

When stations purchase, cost is key, and the high cost of Aurora's 280 paint and animation system has kept many away—at least until now. According to Damon Rarey, Aurora's VP of marketing and sales, the new AU/280 Cadet, priced at $79,000, "gives the same performance for less money. We feel there's no faster video-processing hardware available than the AU/280's real-time animation and switcher effects."

Those who have the original AU/280 seem to agree. "I've had it at least two years and I pretty much loved it from the beginning," notes Marlen Hecht, president of New York-based post facility Teatown Video. "We love its user-friendliness. It also has a lot of real-time animation. We can do effects like wipes and dissolves, things you'd normally have to go on-line to do, right in the system. That makes a big difference."

The Cadet, with a 325 mb fixed disc and a 150 mb streaming tape for backup, has an SCSI interface that allows up to four gigabytes of additional disc storage. Besides the real-time switcher effects, the system has 10 vector-based fonts, full graphics creation tools, and eight-plane animation.

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openings and promos for network shows, a lot of graphics," says Hecht of her AU/280.

"Everything is sort of self-masking," adds Aurora's Rarey. "You don't have to create a mask or stencil for each object, and that makes it very, very fast."

Options for the Cadet include 3-D modeling software, 1,500 additional fonts, ethernet, CCIR 601 interface and menu-driven multiple machine control and automated rotoscoping.

Reader Service #205

ELECTRONICS GRAPHICS PASTICHE

Pastiche has landed in New York. The paint system was recently installed by Manhattan-based Limelite Video because, notes Limelite VP of engineering Marcos Obadia, "it offers superior 4:4:4:4 image quality and airbrushes, plus better cutout and text manipulation."

Priced from $98,900 to $122,000, Pastiche features 2-D paint/animation with fully anti-aliased and pressure-sensitive brushes; four full-frame 32-bit workscreens, each with integrated stencil; real-time 3-D rotation with perspective and corner-pinning of cutouts for speed and complete control in image compositing; full machine control of VTRs and digital disc recorders for rotoscoping, retouching and animation; effects animation of cutouts without the need for a separate digital effects system; vector-based typefaces; dedicated key output; and brushes that allow the artist to "paint with light," i.e., with contrast or highlights, smear/swirl and other paint-to-image mixing modes.

"Some of the brush effects have a very nice oil and smear," observes artist/designer Marilynn Ono of Limelite. "That can be really useful for creating an image you couldn't make on other systems. If you have built-in brushes that do smearing and smushing and oil and all that, you can create a totally new kind of feel."

Reader Service #206

GLOBAL SUPPORT FOR GLOBAL COMMUNICATIONS

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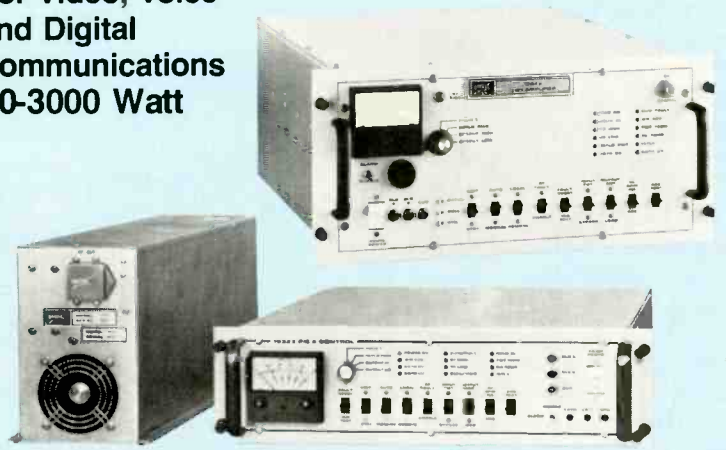

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DUBNER TBS-20 TURBO

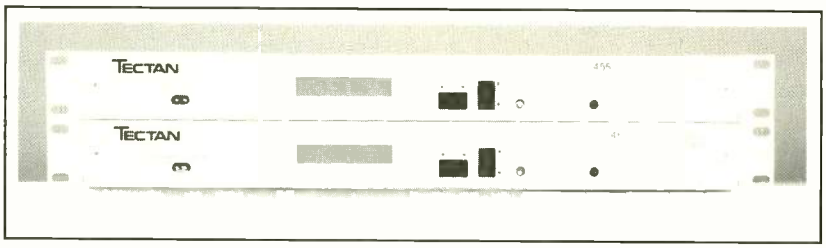
To Keith L. Andoos, assistant VP and chief engineer at Merrill-Lynch Video Network in New York, the TBS-20 is "the most value for the money. It's so good, we bought a second one last year." To Jane Rodd, Merrill-Lynch's electronic graphics artist, "it's real easy to learn. I love the system."

"I'm not a technical person," adds Rodd, who uses the TBS-20 to create in-house material that is beamed to 500 branch offices via satellite. "My background is in art, so I want something that thinks the way an artist thinks. I don't have time to go through six million steps to draw a line. With the Dubner, I don't have to."

The system features D-2 and NTSC inputs and outputs; four-field video capture and storage; full-screen color crawl and motion elimination; magnification up to 32X without degeneration; light source shading; stencil rotation and perspective with shadow and emboss; anti-aliased fonts for text and labels; real-time animation playback from memory; picture directory shown onscreen in miniature; selectable pen sensitivity; and output image over super black.

"Using a paint system is an ideal way to show charts and graphs and present financial information," notes Andoos. "We didn't have $100,000 to spend on an elaborate system—and this one is working real well. At peak production periods, it can be going 10–15 hours a day. It's incredible."

Reader Service #207



TECTANRAM

TECTAN 455 Composite FM Subcarrier System

Designed to transport composite MTS/BTSC encoded signals over video microwave STLs, the 455 features a flat frequency response from 40 Hz to 120 kHz. The system can be programmed for 150 kHz peak deviation from 1 MHz to 9.99 MHz, or programmed to 4.5 MHz with broadcast standard deviation for direct feeds to a cable head end.

Reader Service #208

We didn't invent time, but we helped pioneer the use of time on audio and video tape with time code readers, Shadow synchronizers, and friendly Softouch edit controllers. We wrote the book a few years ago — everything we knew about time — and have distributed thousands of copies to schools and individuals. If you don't have a copy of our *Time Code Handbook*, just ask for one. Free. And we'll even pay for the call.

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HAR-KEN SPECIALTIES HK-104, HK-109 Adapters

The Har-Ken Specialties Model HK-104 adapter has a standard three-pin XLR connector with a three-position terminal strip, and can connect audio input or output circuits to existing Telco pairs or other unterminated audio pairs. The HK-109 Audio Jackfield adapter allows an operator to take a signal from the jackfield and provide the gender XLR connection.

Reader Service #209

CANON J14a X 8.5B Internal Focusing Standard Zoom Lens

According to Canon, chromatic aberration, distortion and flare are all decreased with this lens, which was introduced at NAB. Canon adds that the lens permits the use of graduated neutral density filters that do not have to be reindexed after every move. The lens employs a fixed square shade instead of the tradi-

Circle 114 on Reader Service Card.

tional round shade that moves with the focusing mechanism.
Reader Service #210

THOMSON VIDEO EQUIPEMENT Impuls Mixer

This component digital mixer, unveiled at NAB, is designed for medium-sized post suites, and introduces "Key Compose" technology.
Reader Service #211

CONIFER TELECOMMUNICATIONS QL-1015 Cable Downconverter

A 31-channel wireless system, exhibited at NAB and designed for use in marginal reception areas, the QL-1015 features an internal GaAs FET preamplifier that results in a noise figure of less than 2 dB and over 35 dB of conversion gain.
Reader Service #212

DYNAIR Dyna Mite Upgrade

The upgraded Dyna Mite Routing Switcher, as seen at NAB, can now be operated from any computer or from a VDT with optional serial interface and features full alphanumeric source and destination displays. Prices: $4,495 (video switcher); $3,895 (audio switcher); $6,285 (video/audio switcher).
Reader Service #213

N VISION NV2000 Digital Multiplexer

Unveiled at NAB, the NV200 provides 20-bit encoding and distribution capability for multiple channels of program audio, with 110 dB S/N in a studio environment. All program audio channels and ancillary signals are multiplexed into one data stream. The two-rack modular system, carrying two or four channels of analog interfaces (with optional upgrades to eight channels with analog or digital references), is designed to interface with HDTV, D-1/D-2, and Type C VTRs. Price: $7,000 (Four-Channel).
Reader Service #214

HAR-KEN SPECIALTIES HK-120, HK-106, HK-105 Adapters

The plastic HK-120 modular headset adapter will connect any amplified double-plug headset to a standard carbon headset jack. The HK-106 BNC/XLR adapter, designed especially for temporary audio installations, allows the use of coaxial cable as an audio pair without the danger of the XLR becoming grounded to the shield of the cable. The HK-105 (-M for male; -F for female) adapter is comprised of a standard three-pin XLR connector and the TINI Q-G three-pin connector, providing for the ad-

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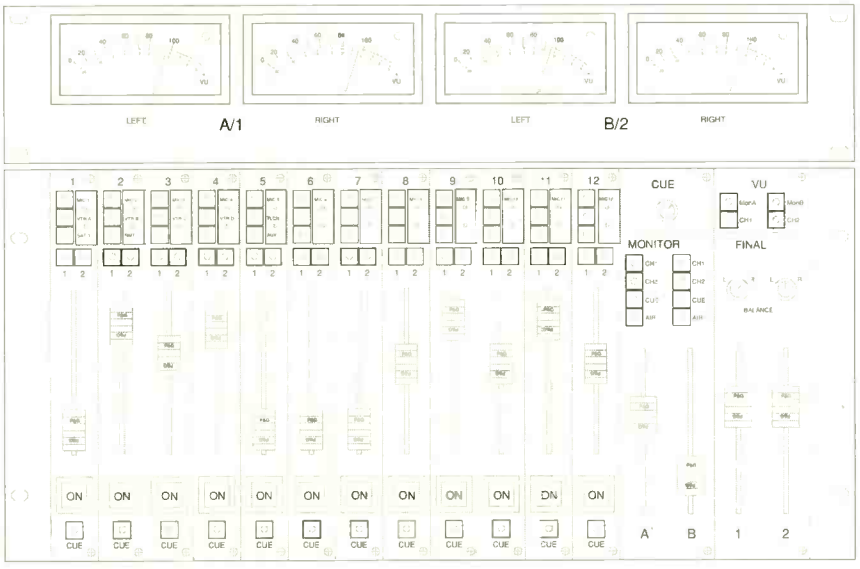

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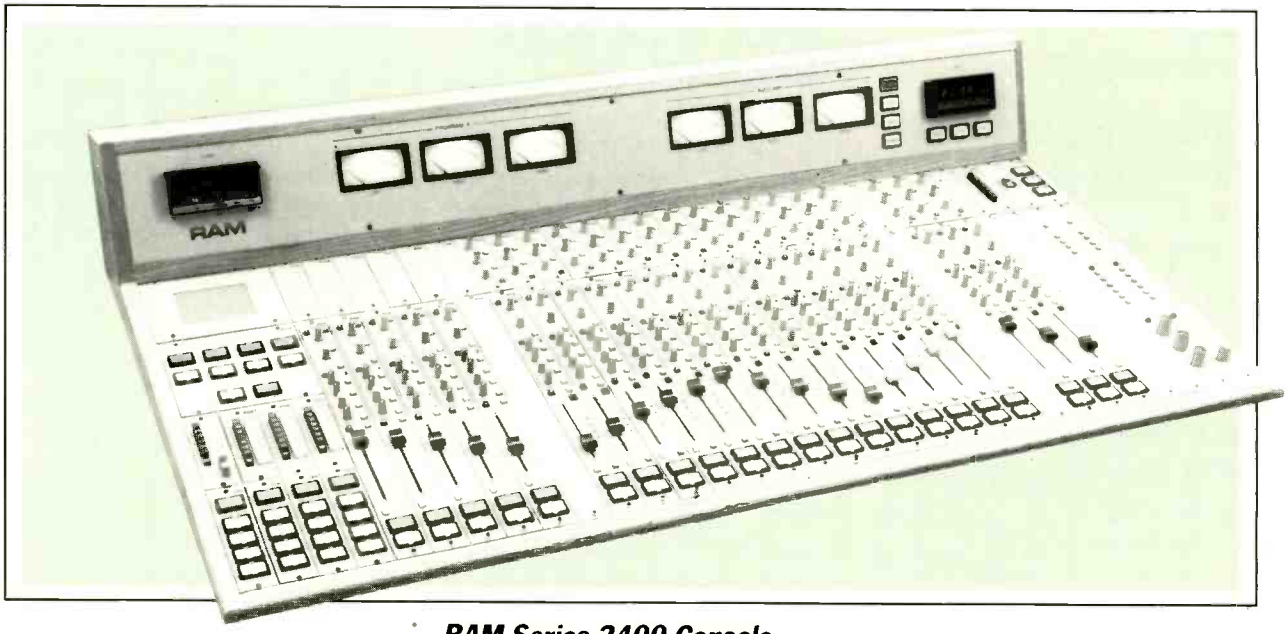

RAM

aptation of the standard XLR connector and cable to the new TINI Q-G connectors.
Reader Service #215

RAM Series 2400 Console

The series 2400 stereo production/on-air audio console will accommodate 24 monaural or stereo line level input modules—with or without equalizers. Other features include four mix minus buses with pre-post select, three-stereo output buses, stereo-balanced switchable processing ports, pan/balance control, sensitivity ports, multi-input select, and solid state switching throughout.
Reader Service #216

HAR-KEN SPECIALTIES HK-117T, HK-117R, KH-116 Phone Adapters

The HK-117T adapter uses the transmit portion of a telephone to interconnect a phone system with an audio system to provide a source for a show in progress or to feed a tape recording back to a station. The HK-117R uses the receive portion of a telephone for the same purpose. The HK-116 (-M for male; -F for female) permits the use of a modular telephone extension to a wall jack to complete a transmission circuit.
Reader Service #217

ELECTRO-VOICE N/DYM1/2MT and DH1A/2MT Compression Drivers

Each system is comprised of two drivers with an MTA-22 adapter offering a standard exit that mates to all EV HP-series horns. They are designed to eliminate comb-filtering interference caused when two horns are aimed at the same coverage area. Electro-Voice says they provide a consistent 3 dB level and power increase at all frequencies across a horn's entire range. Both the N/DYM1 and DH1A have a dome diaphragm and suspension. The N/DYM1 is geared for situations where size and weight are considerations.
Reader Service #218

HEAR and SEE AUDIO PHASE REVERSAL
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AMP-1A shown with optional level meters and phase indicator
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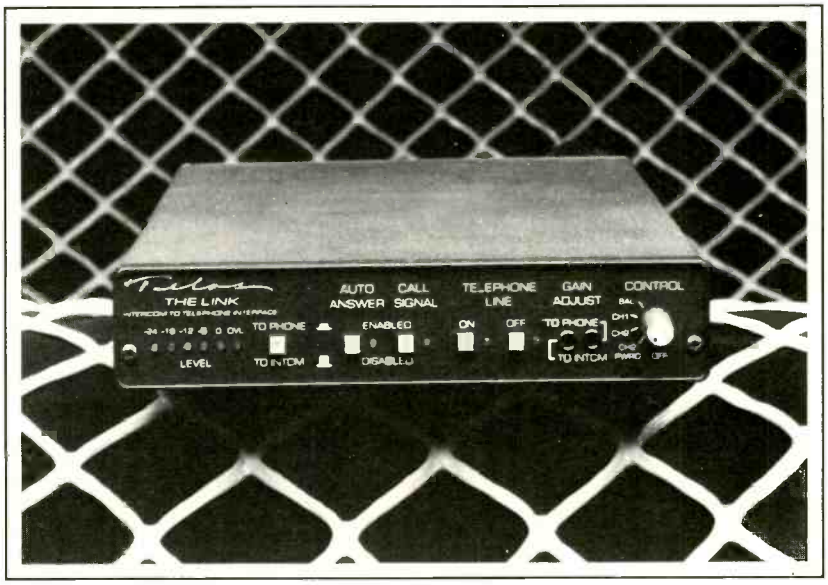
TELOS Link Interface

Designed especially for television ENG and EFP use, the Link uses a digital processor to perform all audio functions, including: digital auto nulling hybrids on both the telco and com paths; automatic gain control on both paths; smart gain switching to enhance hybrid performance; a pitch shifter to further reduce feedback; and call signal generation. The unit is priced at $1,680.

Reader Service #219

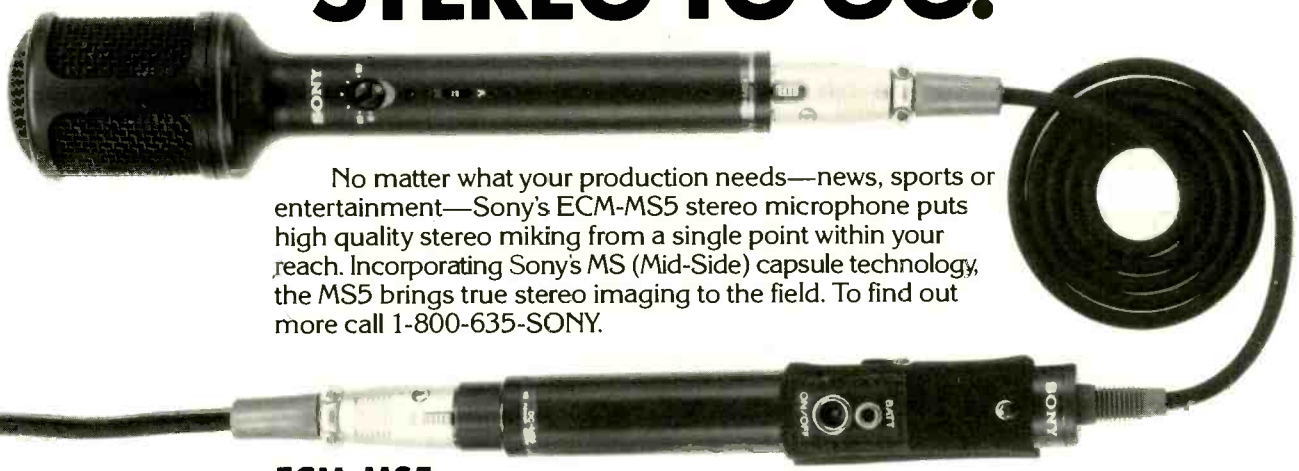


TELOS

TEKTRONIX 2710 Options 03, 04 and 07

Three new options are available for the 2710 Portable VHF/UHF Spectrum Analyzer. Option 04 extends coverage from 100 kHz to 1.8 GHz, with dynamic range above 100 dB. Option 03, the GPIB Interface, allows automated testing, waveform acquisition, and direct plotting without using an external controller. Option 07, the 2704 Inverter/2705 Battery Pack combination, weighs only 18.5 pounds and can be carried in one hand, says Tektronix. The 3.12-pound 2704 comes with a battery charger for up to two 2705 battery packs and an 18-volt DC output for satellite downlinks. The 15.4-pound 2705 has a plug-in interface. Prices:

STEREO TO GO.



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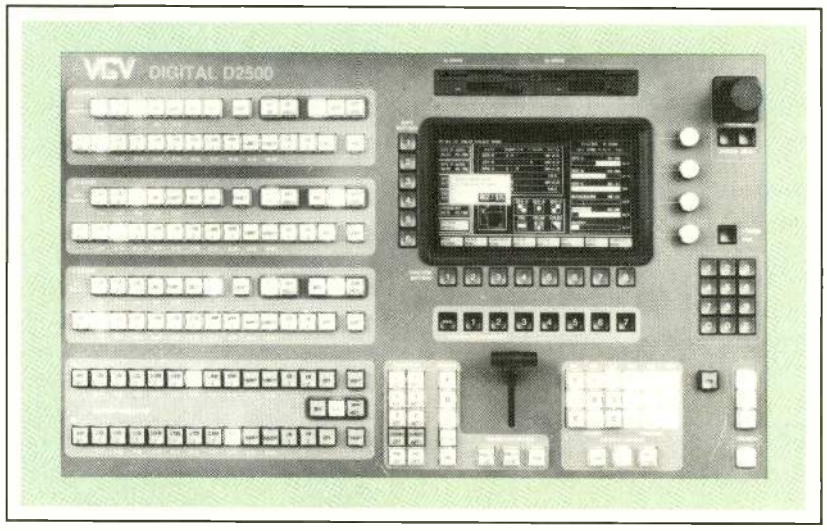
2710, $8,750; Option 04, $3,150; Option 03, $630; Option 07 combined, $1,360; Option 07 purchased separately, 2704, $1,050; 2705, $310.
Reader Service #220

UNITED MEDIA UMI 500/UMI 600 Videotape Editors

United claims these are the only editors that provide SMPTE RS-422 direct serial control of up to four or six VTRs and/or optional parallel interfaces with an alphanumeric keyboard. Standard features on both systems: 3.5-inch MS-DOS-compatible disk drive; time-code generator with jam sync; switcher control for serial RS 232/422 (an option on the 500); color-coded keyboard; full list management; pre-cue sequential or checkerboard auto assemble; and EDL memory. Price: under $7,000.
Reader Service #221

ANRITSU MT9501A Calibration System

Operating at single-mode wavelengths of 850 and 1300 nm, the MT9501A can calibrate optical powers meters with +/-3 percent accuracy (ETL and NIST standards), according to Anritsu. It consists of an optical power meter calibrator; precision-stabilized light source; and a two-channel optical power meter housed in a single instrument mainframe. Price: $65,000.
Reader Service #222



VGV

VGV D2500 Composite Digital Switcher

The D2500, with 10 to 20 inputs and five to 10 external key inputs, has five wipe generators and one assignable advanced wipe generator with hybrid matrix patterns; flying X/Y linear shadow generators for all key and background levels; fully adjustable keyers from linear to 55 db, with built-in mask and safe title generator; built-in digital processing loops; eight Paintbox-style color background generators; and RGB or R-Y/B-Y assignable chromakeyer with built-in mask generator. The system is completely digital with 16-bit internal signal processing.
Reader Service #223

VGS Rack-Mount Monitor Kit

This kit lets you rack-mount monitors, and a Philips 14-inch autoscan color monitor can be purchased with it. The rack unit features access to normal monitor controls through a front opening panel, and allows slide-in/out access to the entire unit's auxiliary controls and connections. It also includes a protective glass shield with anti-radiation and anti-glare coatings. Price: $345.
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Send cover letter, resume, names, addresses and telephone numbers of three references **postmarked by October 15, 1990** to:

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DUBNER DPS-1 Paint System w/ terminal & tablet, $14,000. Sony BVE-600 Edit controller w/ component switcher, $9,750. Panasonic AG-6810 VHS recorders, many available, $550. Sony VPH 1042Q video projector, $5,500. Sony BVH1000 1" VTR w/ BVT 1000 TBC, merlin kit, dolby A, $9,000. Call Ron @ (708) 673-5401.

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Audio Specialists: An Endangered Species?

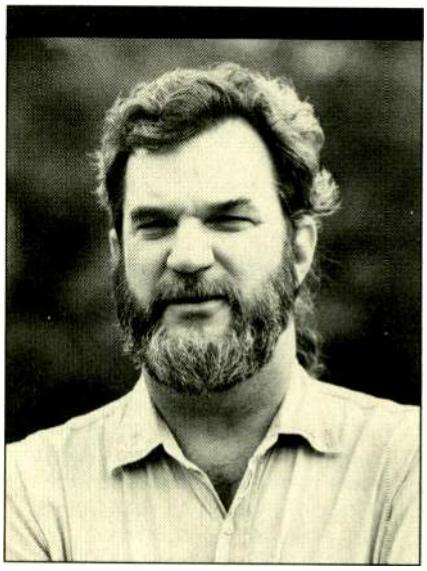
By Pete Caldwell

I keep reading in trade magazines that large audio-for-video post-production houses are an endangered species. At the same time, I read that there is a new emphasis and a new excitement when it comes to audio production on videotape. Hold on! Doesn't this strike you as a little bit strange? I mean, why should veteran audio specialists become extinct just when the world is on the brink of appreciating their fine work?

Well, the "experts" say that it is because of the new technology. They say that the big video post houses are installing elaborate audio mixing consoles in their own audio sweetening rooms. Some "experts" say that many broadcasters are keeping their own audio "in-house" for productions and promotions. They say that many of the small "project studios" are buying a VTR and a synchronizer and are thereby magically becoming audio-for-video post facilities.

All of this is true, but there is more to it. There is indeed a new era of audio-for-video post-production being born. It is an era of digital audio and of stereo television, and it is accelerated by a newfound consumer infatuation with high-quality playback systems in the home. It is also true that at the professional level, the new video technology incorporates, for the first time, some very high-quality audio possibilities. A TV station manager can't help but go through the following little mental exercise: "Well, I've just bought a D-2 machine, and wow! In addition to being a small video recorder, it is possibly the best four-channel digital audio recorder available—ergo, we'll just do all our audio in-house."

As much as we are all in love with our tools, we must be more artists than technicians.



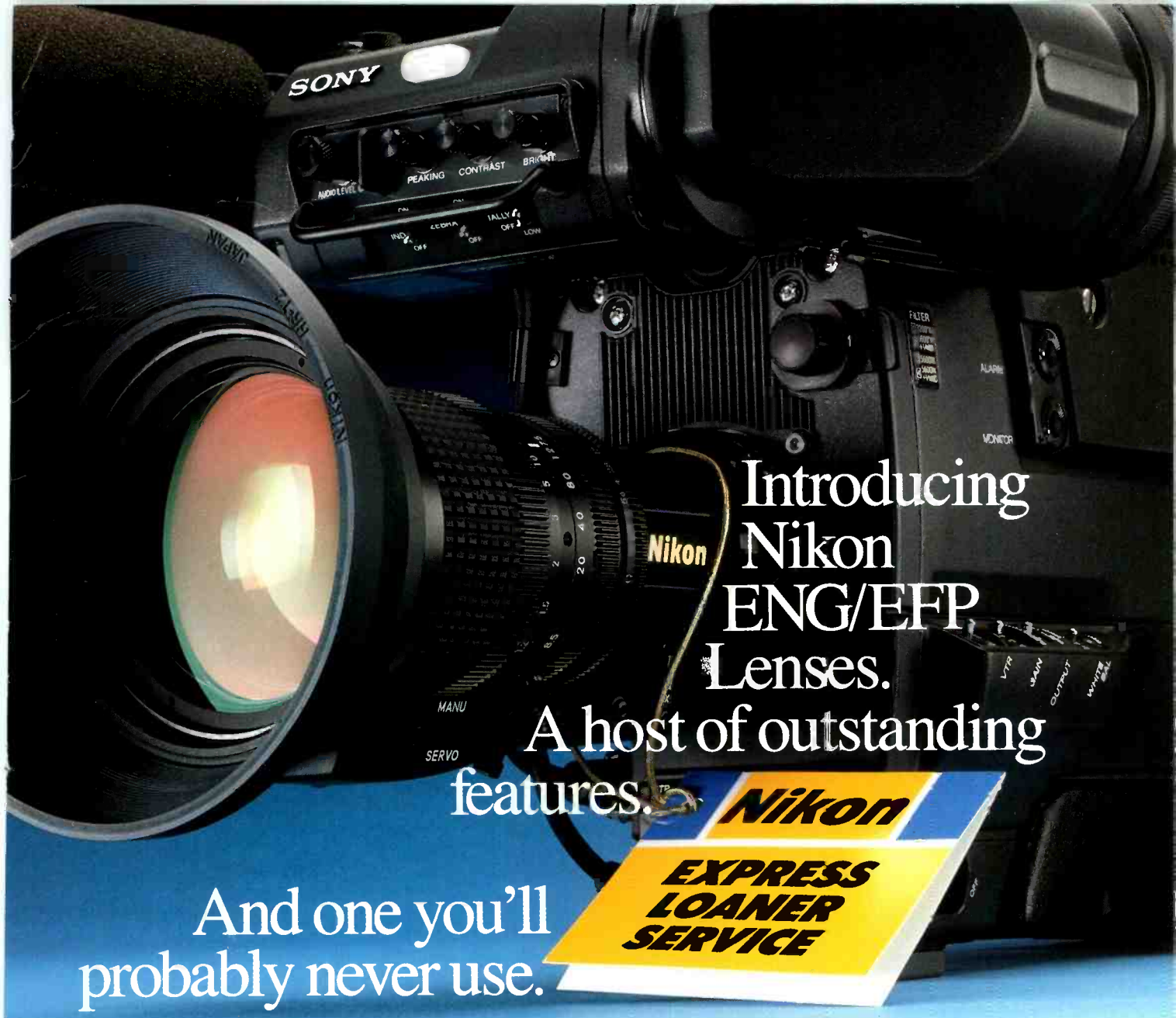
Aye, there's the rub. All of this is equipment-driven. To be blunt, the trade magazines I read are all equipment-driven. As much as we would like to think so, however, our industry is *not* equipment-driven. As much as we are all in love with our tools, we must be more artists than technicians. What we sell are skilled people and valuable time. Nowadays anybody can buy gear.

So we come to the point. If the video post houses and the broadcasters and the project studios are going to do audio-for-video post-production, they must go out and hire "audio guys." (Excuse me. The term "guys" here is in no way intended to imply gender.) In general, there are "audio guys" and there are "video guys." Yeah, there are a few "Renaissance guys" running around here and there, but for the most part audio and video are *very* different endeavors. It is basic. Audio guys listen. Video guys look. Despite the similarity of the technologies, there are two different human senses involved.

I will not attempt to guess the future of my audio-for-video post-production business. Right now, it is healthy and growing. I will, however, risk one observation: It is often difficult for video facilities to fully and properly "focus" on audio.

I am an audio guy, and I surround myself with audio guys. Sure, I have one-inch type C and D-2, but to me, they are just expensive audio recorders. Do you really think that I am part of an endangered species? You know, I've always wondered what all of those little colored stripes at the beginning of the tape are for. ■

Pete Caldwell is the president of Doppler Studios in Atlanta and the incoming president of the Society of Professional Recording Services.



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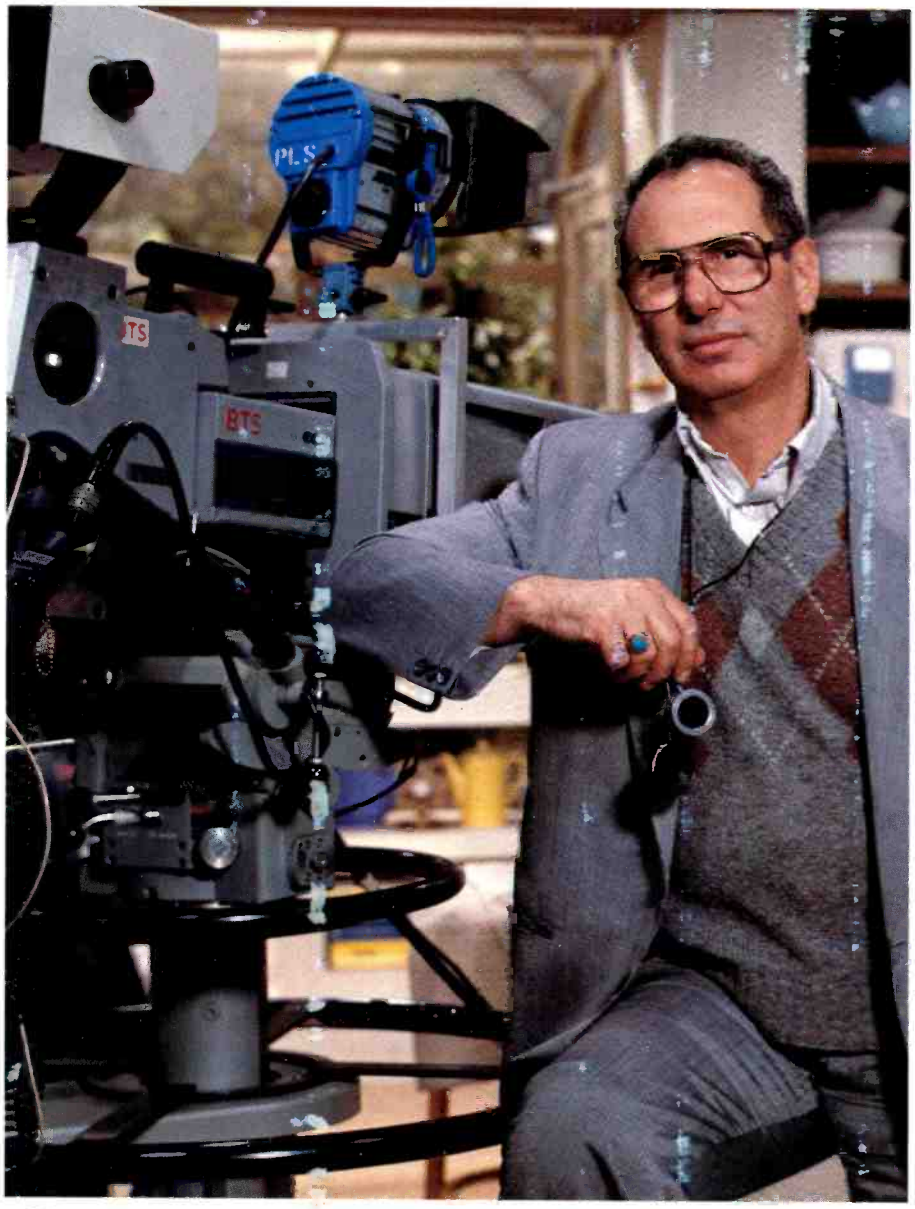

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Profession: Supervising Director of Multicamera Photography for Warner Brothers Television.

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