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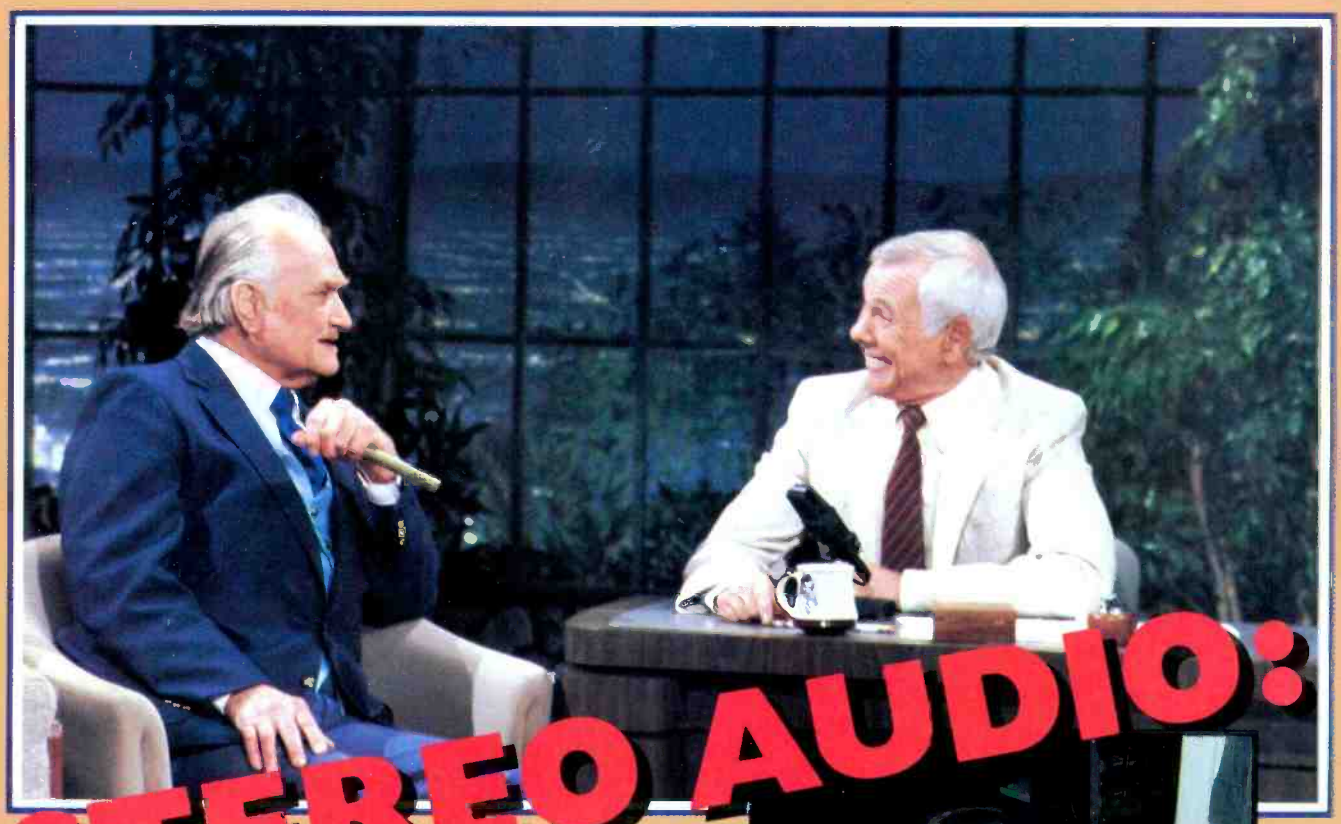

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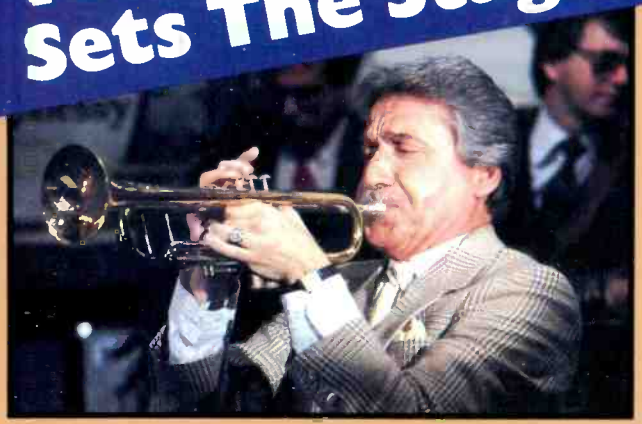

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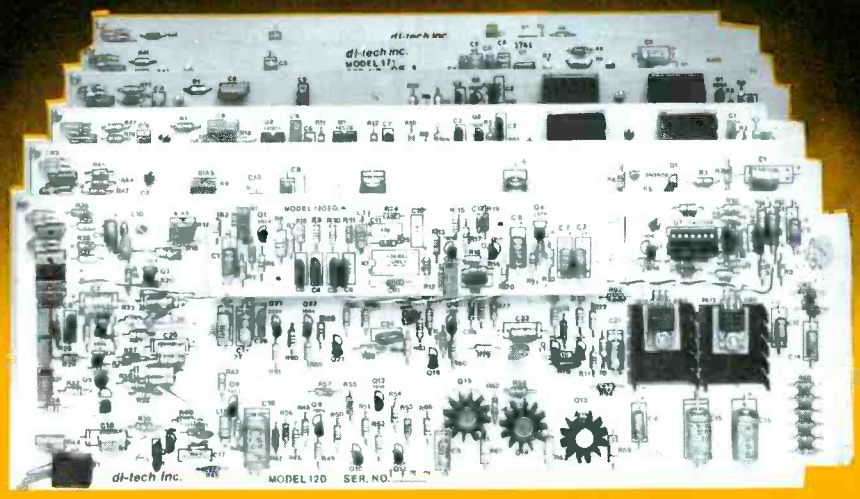

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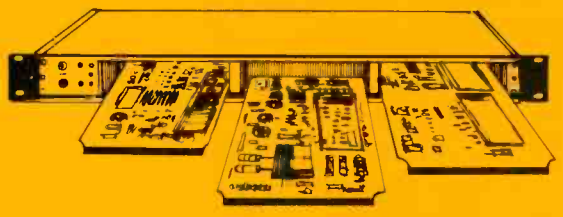

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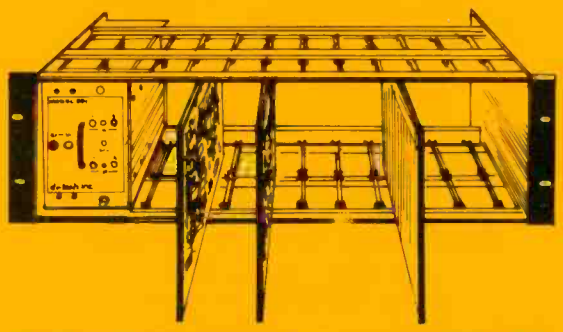

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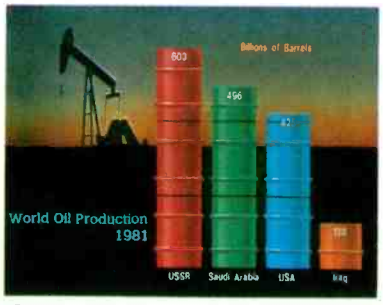

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"But even better, the mobility Betacam offers is a real incentive to our photographers to go for that really dramatic, unusual shot. The kind you won't see on every channel at 6 and 11. Because at least for the time being every station doesn't have Betacam."

"THE ABILITY TO SEND OUT MORE CREWS ON MORE STORIES IS WHAT I CALL GOOD NEWS."

–Tom Kirby, VP/News WTCN-TV, Minneapolis

"Before coming here, I was with Gannett's Denver station, KUSA, which was the winner of the NPPA's 1983 'Station of the Year' award. And frankly, my goal here is to get to the finals again. A not unrealistic objective when you consider the talent we have, and the fact that we recently purchased 23 Betacams.

"After all, it seems obvious, the more people you have on the street, the better your chances are of coming up with a winner. Providing, of course, you give those people equipment that's as performance-minded as they are."

"WITH SO MUCH LESS EQUIPMENT TO LUG AROUND, WE'RE SEEING A LOT MORE EXCITING TAPE."

–James Delmonico, President/General Manager WRGB-TV, Schenectady

"I don't care how inspired or dedicated a photographer is, eight hours of hauling sixty-plus pounds of camera, recorder, lights, and cable all over hell and gone is bound to have a stifling effect on someone's creativity.

"That's what initially got us interested in Betacam, and ultimately, why we made the decision to invest in it. The simple fact that you don't have to be a gorilla to use it. The maneuverability of this system is tremendous. So naturally we're seeing shots you just couldn't get before. And, of course, the image quality itself is magnificent.

"In fact, I'd have to say from the looks of things, we'll be adding more Betacam systems

HOW THE PEOPLE WHO LIVE AND DIE BY THE RATINGS RATE THE SONY BETACAM.™

before long. If for no other reason than to stop our crews from fighting over who gets to use the ones we currently have."

"THIS IS CLEARLY A SYSTEM BUILT FOR THE REAL WORLD."

–Allan Howard, VP/General Manager KXTV-TV, Sacramento

"You rarely find news under ideal conditions. More likely you're getting jostled around by a huge crowd, buffeted by gale winds or caught in a very tense, fast-moving situation. All of which tend to play havoc with equipment life spans.

"Betacam, however, seems to have been designed especially for this environment. It's an extremely well-built, exceptionally rugged system, particularly for its weight. And the net result is that in the year we've had them, downtime has been virtually nil.

"Equally important, because Betacam is totally compatible with ¾" systems, you can move into this technology at your own pace. Which is another part of adapting to the real world, the world of equipment budgets."

These are just a few examples of the reports we're getting from stations that have made the move to Betacam. To hear more, or, better yet, to get a look at the system behind them, just give us a call. In the New York/New Jersey area (201) 833-5350; in the Northeast/Mid-Atlantic (201) 833-5375; in the Midwest (312) 773-6045; in the Southeast (404) 451-7671; in the Southwest (214) 659-3600; in the West (213) 841-8711.

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DBS takes a detour

BY RON MERRELL

The reality of wheeling and dealing in the communications marketplace can be a stark reminder that despite how highly something is touted, the players might have to make a strategic withdrawal.

I once asked an Army division commander in Korea how he would define his orders for a "strategic withdrawal." "Well," he said as he tucked his maps under his arm and headed for his jeep, "we hope it's an orderly pullback so we can reorganize. It amounts to retreating before it becomes a rout."

Today, the stakes in the Fifth Estate are so high that you can't even toe the line without investing millions. Trouble is, we all get caught up in straight-line technology thinking. In this line of thinking, technologies or applications lead straight to the next technology or application. But we know there are blind alleys and dead-end roads.

When helicopters first became practical, the projection was that everyone would own one. For the last several years, helicopters have been flying into a dead end. Satellites are another matter.

For the last three years, talk has been that we need more satellites to get more transponders so we can move more data and programming. And Direct Broadcast Satellites (DBS) would be the wave of the near future. Everyone would have a dish on their roof, and DBS would be a gold mine.

"I think they've taken this 'high-tech/high-touch' stuff a step too far."

No one disputed the practicality and cost-effectiveness of satellite delivery, at least not until DBS became the way to do it. As it stands now, DBS looks like a technology that is on a detour leading to reorganization.

All along, the CBS position has been that DBS should be used for high-definition television (HDTV) transmissions. Recently, however, the network has altered its position and withdrawn from the starting line. Other major DBS investors have pulled back as well.

From the beginning, DBS had all the earmarks of high tech/low touch. After all, it would bring national programming right to your rooftop. But until some highly sophisticated switching system could be devised, it couldn't bring local origination programming with it.

Major-market adult, R-rated programming is now setting its sight on DBS. That's a far cry from the original promise of DBS technology.

We can recall the days when DBS was being touted as a way to serve isolated areas of the country. Canada was cited as another application example. Yet it was during this same period the FCC opened the way for low-power television and relaxed some of its translator rules.

Back when cable TV was making its way into the communications marketplace, the party line was that "it would be used to bring programming to those viewers who couldn't receive a quality signal directly." It turns out that the big bucks are in the big cities where there were already several quality signals available. DBS sounded as worthy as the cable story, but when you're gambling with mega bucks, you'll go where the odds are good.

Hopefully, the recent strategic withdrawals of DBS players will allow the industry time to rethink and reorganize how we will use DBS.

Ownership limits

The FCC no sooner issued its ruling on station ownership limits, dropping the Rule of Seven, than it was compelled to put the issue on hold. The move came as a result of congressional pressure in the form of attaching an amendment to the Emergency Supplemental Appropriations Bill (HR 6040) that will place a moratorium on the issue (see further comments in *Industry Update*).

If the FCC had not held up on implementing the new ruling, it's likely that the issue of broadcast ownership might have become one that Congress would settle, setting a dangerous precedent. It's possible that this could still happen.

Meanwhile, the FCC has said it will back off until 60 days after it reconsiders the decision, or until April 1, 1985, whichever comes later, to implement the ruling. That means nothing will happen until after April 1, and that it will be some time before the FCC officially starts its reconsideration proceedings.

A buying spree

Speculation is that the networks and group owners will want to jump into the maximum numbers of 12-12-12. But that certainly isn't reflected in current ownership numbers. None of the networks owns 7 AMs, 7 FMs, and 7 TVs. In fact, none of the networks owns more than five TV stations.

Fifteen independent groups own seven stations, with only one group up to the 7-7-7 limit. So it would seem that if anyone were going to move on to the 12 limit, it would be these groups, not the networks. After all, network profits are in ad sales, not station ownership.

Moving too fast

One of the red flags on Capitol Hill is that FCC chairman Mark Fowler is moving too fast on television deregulation. In this case, the perception of movement is highly subjective. Why would ownership deregulation be more appropriate in 1985 or 1990?

The issue more aptly falls somewhere between restraint of trade and concentration of power. The motion picture industry, which has led the opposition, will need to explain why the networks own no more than five stations, when the limit is seven. And Congressional opposition should be asked to explain the value of slow-motion relief from restraint of trade. □

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INDUSTRY UPDATE

Proposal to lift ownership limits hits roadblock

An attempt by the Federal Communications Commission (FCC) to ease station ownership regulations has hit a Congressional roadblock.

In late July, the FCC announced a plan that would have allowed individuals and groups to increase the number of broadcast facilities they held. The new proposal would have made it possible for an owner to hold 12 television, 12 AM, and 12 FM stations. The previous regulation, known as the Rule of Seven, allowed owners to hold only seven stations in each category. In addition, the new FCC plan would have eliminated all numerical restrictions on broadcasters in 1990.

But in mid-August, the FCC proposal hit a snag in Congress. A Senate amendment to a fiscal 1984 supplemental appropriations bill, HR 6040, placed a moratorium on the measure. Bowing to Congressional pressure, the FCC delayed implementation of the rule until 60 days after it reconsiders its decision or until April 1, 1985, whichever is later.

The commission's action in effect nullifies the need for the Senate amendment. When House and Senate conferees meet, the rider will likely be removed from the original appropriations bill. As a result, the ownership question will be taken out of the hands of Congress and given back to the FCC.

William Russell, director of the FCC's Office of Public Affairs, told *TV/BC* that the FCC's decision angered several members of Congress as well as representatives of Hollywood studios.

"(Congress) felt there was too much concentration of power within the media," Russell said. "Right now the Congressional fight is really over money. It has nothing to do with principle or diversity of broadcast outlets. It has to do with the relative power of networks vs. the producers."

The primary lobbying effort against the FCC proposal came from the Motion Picture Association of America. Jack Valenti, association president, placed what has been termed "heavy" pressure on the Senate to review the FCC measure. Shaun Sheehan, senior vice president of public affairs for the NAB, told *TV/BC* that movie interests don't want the networks to acquire additional influence by owning and controlling more stations.

"It seems there are two red flags on Capitol Hill," Sheehan said. "One is the commercial networks and the other is a perception that Mark Fowler has moved too swiftly in various areas of deregulation."

In the meantime, a proposal by FCC commissioner Mimi Wayworth Dawson appears to be gaining bipartisan support on Capitol Hill. The new measure would replace the current numerical ownership rule with a regulation limiting holdings based on the coverage of the stations. The proposal would allow a broadcast company to reach up to 25 percent of all American viewers through its VHF holdings.

Some TV dereg measures stand

Even though Congress delayed implementation of the FCC's proposed changes in ownership limitations (see previous article), a number of other deregulatory measures approved by the commission still stand.

In a unanimous decision, commissioners have eliminated guidelines on local news, public affairs, and non-entertainment programming. In addition, regulations pertaining to formal ascertainment requirements also have been dropped.

NAB president Edward Fritts said the FCC action "is a welcome and logical next step down the road to broadcast deregulation."

The commission made similar modifications for radio broadcasters three years ago. According to Fritts, "Since then, we have seen increased diversity, maintenance of substantial levels of non-entertainment and informational programming...and a continued commitment by radio stations to serving their communities. We are confident that television broadcasters will follow this impressive precedent."

More women are news directors

Even though the number of women working in broadcast news has leveled off, a nationwide survey indicates more females are being selected to fill executive news positions.

The study, conducted last year for the RTNDA, found that 11 percent of all news directors in the country are women. That figure is up from 8 percent in 1982. However, women still continued to account for only 31 percent of the total work force in both radio and television news.

According to the survey, 94 percent of the responding stations reported having at least one woman on their news staff. In addition, women continue to represent roughly a third of the number of television news anchors in the country. The typical station reported having five to six women among a news staff of 17 persons.

CBS to abandon plans for DBS

The CBS Broadcast Group has announced it will abandon plans to enter the direct broadcast satellite business.

George Schweitzer, vice president of communications for CBS, told *TV/BC*, "There were too many open questions about the market that precluded CBS from making the investment at this time."

In 1982, the network was granted a permit by the FCC to begin construction of a DBS system. Last December, CBS announced it had begun to explore the formation of a DBS venture with Comsat's Satellite Television Corporation. The CBS announcement to discontinue further planning came approximately two weeks before the FCC's due diligence deadline.

Master-degree program offered via satellite

A new university designed to bring technical courses to graduate students nationwide will distribute classroom lectures by satellite.

National Technological University, located in Fort Collins, Colorado, will take existing curricula from universities across the country and feed the videotaped courses to students via satellite. The school will offer working engineers a method to complete their master's degrees without interrupting their careers.

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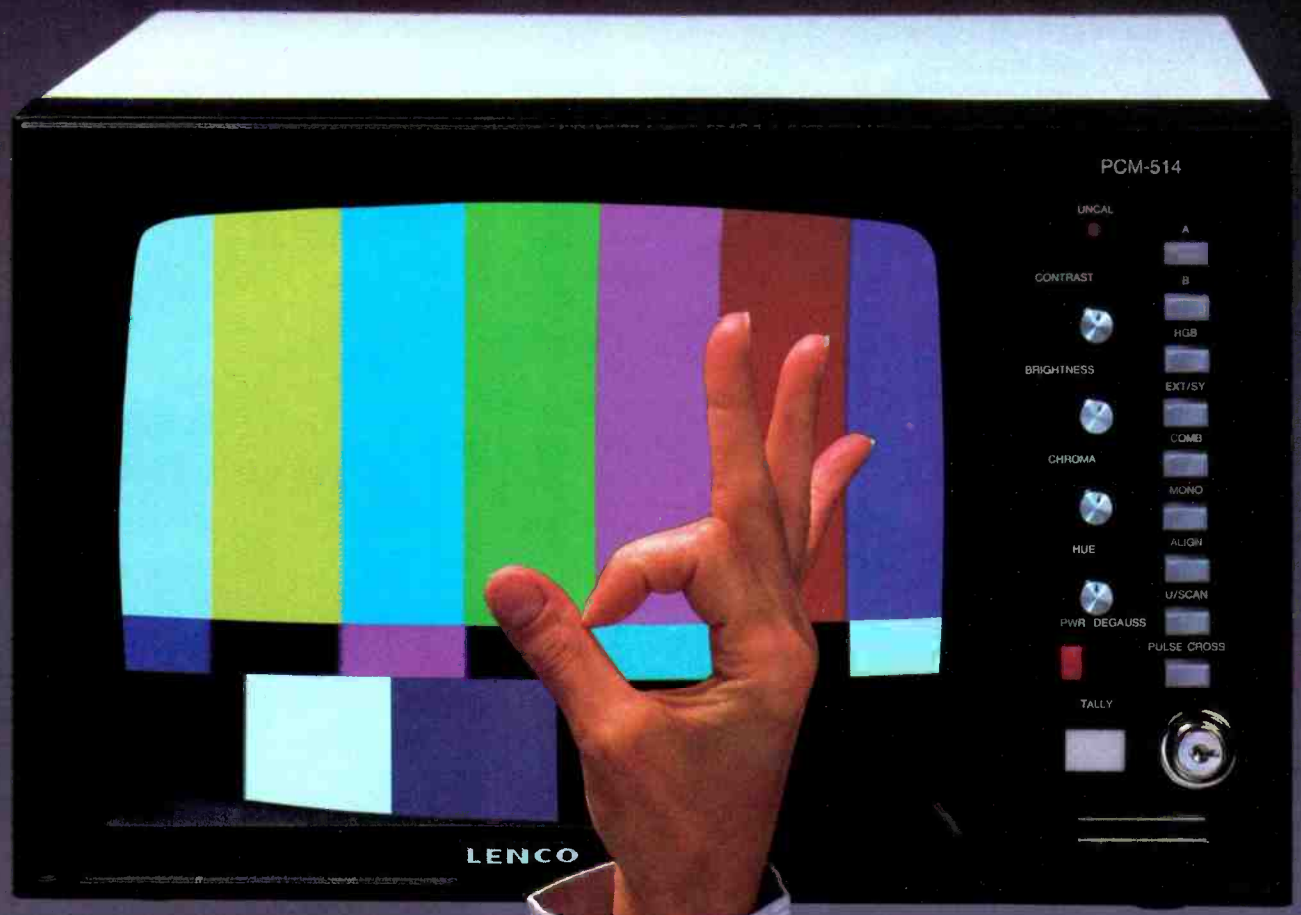

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Features that are optional at extra cost on many other units you get standard with Lenco. Including RGB and two NTSC inputs, Comb filter, Pulse cross, Underscan, Chroma align, Int-Ext sync and degauss—all selectable from the front panel.

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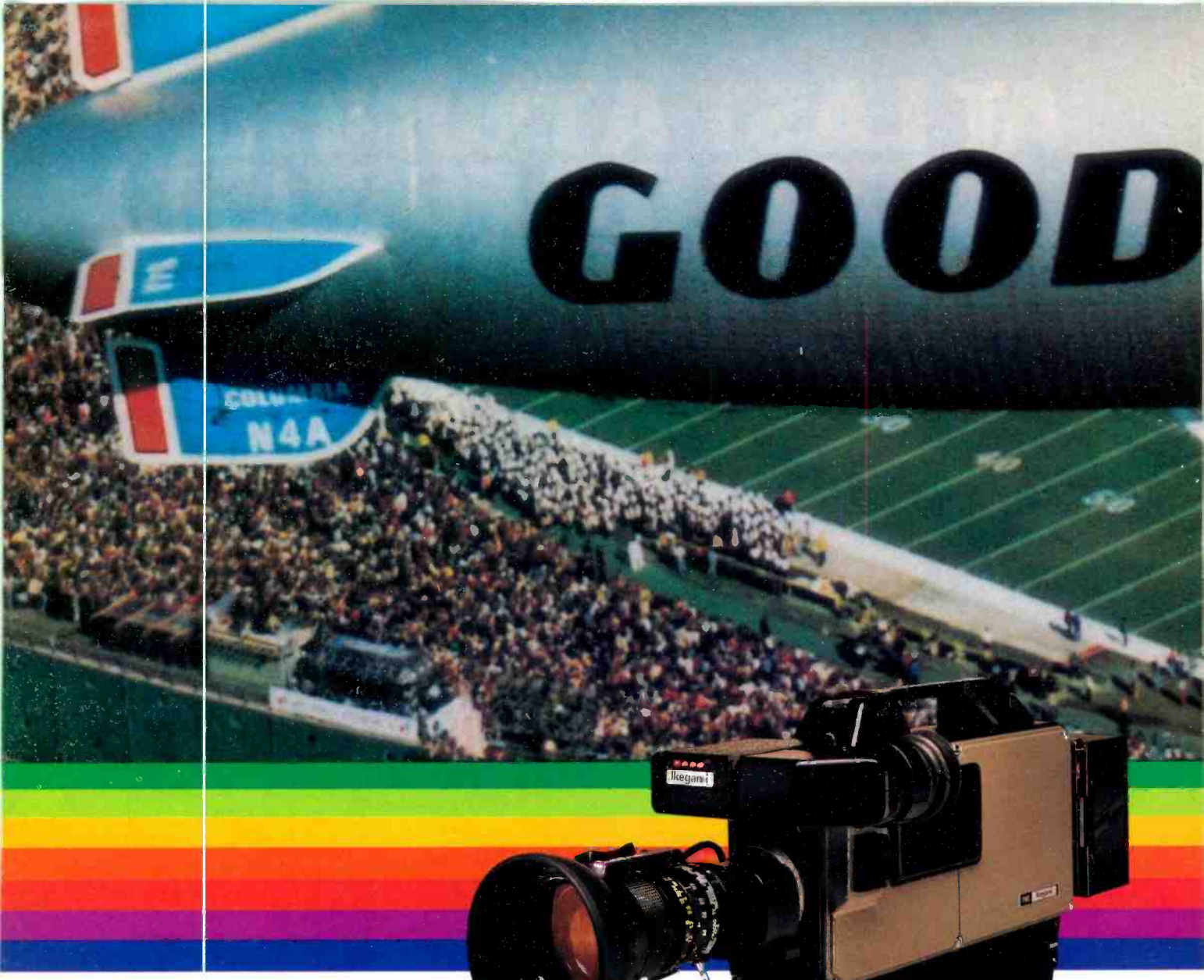
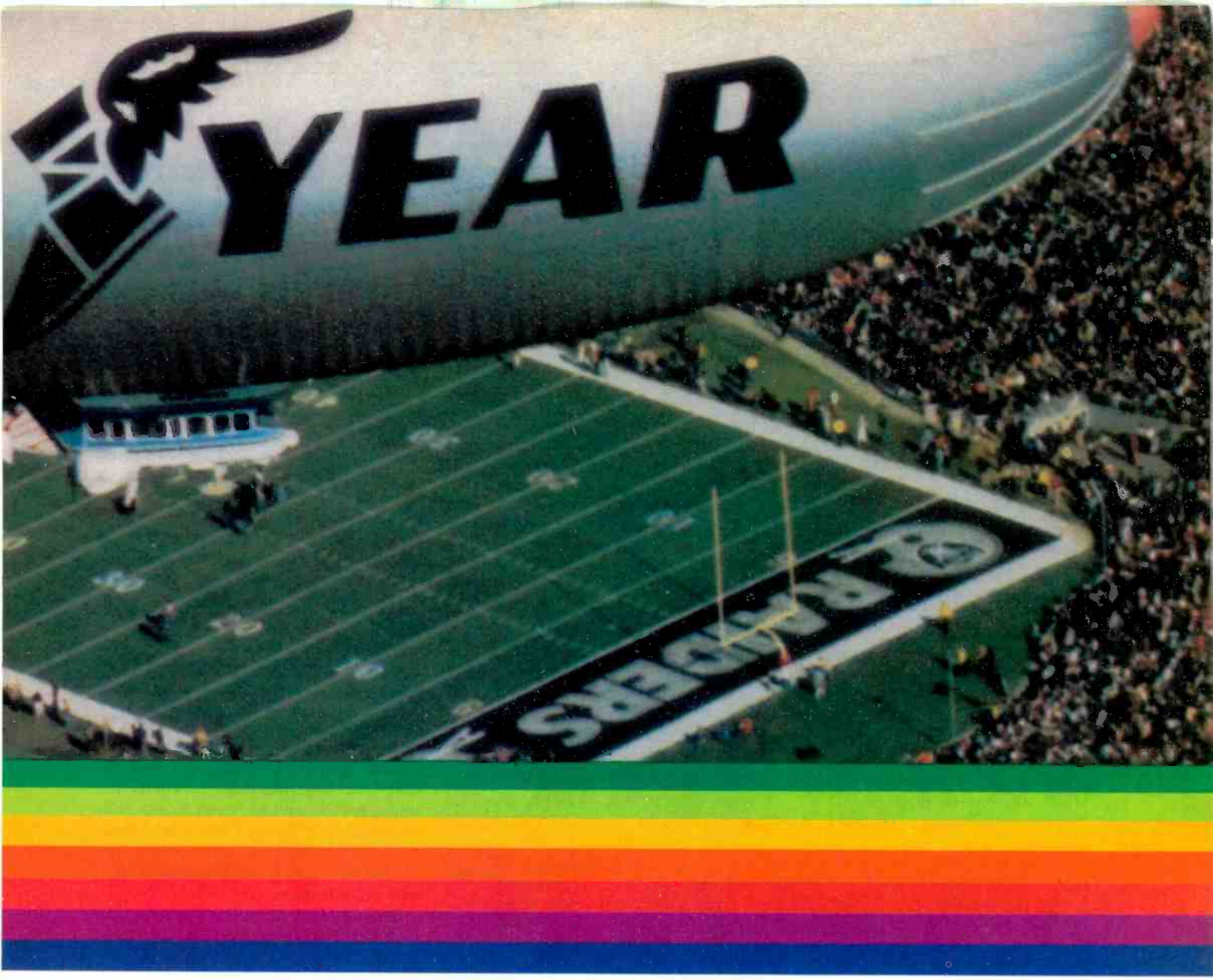


Midwest and Ikegami put Goodyear on top of the action

When Goodyear needed new cameras for their fleet of airships, they contacted the company with over 20 years experience in meeting the needs of the communications industry . . . Midwest Corporation. To keep Goodyear on top of the action, the obvious choice was Ikegami's HL-79.

The HL-79 was designed to meet – and surpass – the most rigorous standards of performance. Although small and light enough to be used as a handheld camera, the HL-79 produces a higher quality image than many other manufacturers' top-of-the-line studio cameras. By using the



Ikegami HL-79, Midwest ensured that Goodyear would continue to rise to the occasion. The next time you see a sporting event covered by a Goodyear Blimp, chances are that you are seeing Ikegami performance first hand.

With our unique systems approach we at Midwest can custom design and supply anything from mobile units to teleproduction systems with Ikegami cameras as the basic ingredient. And with Ikegami, you can depend on our systems to produce top quality results under the most adverse conditions.

Contact Midwest and we can help keep you on top of the action, like Goodyear Aerospace.

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Call Toll Free
800-543-1584
(In Kentucky 606-331-8990)

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RTNDA NEWSLINE

Conference expanding

This year's RTNDA conference and exposition, to be held December 5-7 in San Antonio, is the first one being staged in a convention center. The convention has outgrown all but a handful of hotels because of continued expansion of the exhibition and increased attendance.

Sam Donaldson, chief White House correspondent for ABC News, will address the convention following the opening-day luncheon. Larry Grossman, president of NBC News, also is scheduled to speak.

Two major topics have been scheduled for Wednesday by RTNDA president-elect and convention producer Lou Adler, of WOR Radio in New York. "Broadcasting and Marriage: Can They Co-Exist?" will be moderated by Chuck Wolf, news director for KIKK Radio in Houston. Dr. Joyce Brothers, Dr. Harry Hoewischer, and Merrilee Cox of ABC News are panelists. The coverage of the New Bedford rape trial will be discussed Wednesday by a panel headed by Ed Fouhy, ABC News Washington bureau chief.

Radio topics scheduled for Thursday include radio news services in small and medium markets, and large-market opportunities for women and minorities. Two concurrent television sesions also are scheduled for Thursday. The RTNDA annual business meeting and elections will be held Thursday afternoon.

A Friday day-long "Media and Society" seminar in journalism ethics and news gathering will focus on three areas of concern. The morning session will cover libel and slander, and the afternoon session will look at criminal justice and privacy.

Arthur Miller, professor of Law at Harvard Law School and host of the syndicated television program *Miller's Court*, will moderate the program. The seminar is being produced by Media and Society Seminars, a program of the Columbia University Graduate School of Journalism. The director of Media and Society Seminars is Fred Friendly, former president of CBS News. RKO General is supporting the seminar with a grant of $1,000.

The convention ends Friday evening following Ralph Renick's acceptance of the Paul White Award. Renick is vice president for news operations for Wometco Enterprises and is news director of WTVJ-TV in Miami. His nightly newscast, *News 4 with Ralph Renick*, is the nation's longest continuously running news report, now in its 35th year. Renick served as president of the RTNDA in 1959.

The major networks schedule meetings with their affiliate stations' news directors each year during the convention. This year, CBS and NBC will meet on Tuesday, Dec. 4. ABC tentatively plans to meet Thursday evening, Dec. 6.

San Antonio offers several unique attractions in December. It is the month of Las Luminarias, and the river that wends its way through the hotel district is lighted brilliantly. Also, carolers crowd the river boats each evening to welcome the season and set the stage for Fiesta Navidena.

According to an article in *Satellite Orbit*, funding for the new university will be provided by more than two dozen engineering schools, several major corporations, and the Department of Defense. Students will pay approximately $1,000 per course.

Editorial ban on non-commercial stations lifted

The Supreme Court has determined that a statutory ban on editorializing by non-commercial stations violates the First Amendment.

The court's decision, specifically directed to stations receiving grants from the Corporation for Public Broadcasting, gives added impetus to efforts to obtain full First Amendment rights for broadcasters.

In a footnote to the decision, the court also indicated a willingness to reconsider its decision in Red Lion Broadcasting vs. FCC, 395 U.S. 367 (1969), which upheld the FCC's Fairness Doctrine. According to the court, the doctrine is shown to have "the effect of reducing rather than enhancing speech."

AES convention set for NYC

The 76th convention of the Audio Engineering Society will be held October 8-11 at the New York Hilton in New York City.

According to Donald Plunkett, executive director of the society, 68 papers will be presented at the four-day event. Topics to be discussed include digital audio recording; broadcasting and transmission techniques; signal processing in digital and analog; and acoustics and sound reinforcement. In addition, a series of seminars will be held on computers in audio.

Representatives from approximately 260 firms also will be on hand to display their products.

For registration information, call (212) 661-8528.

Business Hotline

MIDWEST—Midwest has sold a teleproduction van to the Korean Broadcasting System. The sale represent the first time any American company has sold a mobile unit in South Korea. The customized version of Midwest's basic M1 model featured several modifications to meet the demands of the Asian broadcast organization.

MCI/QUANTEL—Six production facilities, two networks, and one local station have recently purchased the MCI/Quantel Paint Box digital art/animation system. According to company president George A. Grasso, the company also "received a substantial number of commitments at NAB."

ROSS VIDEO—Ross Video has received an order from PYE TVT in England for 14 Ross 508 production switchers. The units will be part of a package that PYE TVT is supplying to Televisa in Mexico for initial use in covering the World Cup Soccer finals in 1986.

ANGENIEUX—Angenieux has signed an agreement to deliver 150 lenses to Philips for use in coverage of the 1986 World Cup Soccer finals. All lenses will be fitted to a full complement of Philips cameras.

McMARTIN INDUSTRIES—McMartin will soon be offering a family of monitors and generators for use with multichannel TV sound systems. The new products will include subchannel and stereo generators as well as baseband and stereo monitors.

TELECOM BROADCASTING—Telecom has announced the purchase of two

Continued on page 16

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200 EDITORS CALL IT THE BEST MOVE THEY EVER MADE.

Last year, over 200 video editors flipped over the E-FLEX® Digital Video Effects system from NEC.

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transportable uplink trucks. One of the units is being used at the Penn National Raceway in Harrisburg, Pennsylvania. The second, a Dalsat 42, is being used in Maryland on the Laural, Bowie, and Pimlico racing circuit. (619-260-1308 or 805-584-3367)

SONY—Sony has announced plans to construct a laser videodisc manufacturing facility at a site to be selected in Indiana. The 40,000-square-foot plant, designed to meet the needs of the growing market for laser disc technology, is expected to be operative in 1985. The plant will be used mainly to provide replication services for customers in government, industry, and education.

EASTMAN KODAK—Kodak plans to renovate a historical Hollywood building to house a new film and videotape technical center for its Motion Picture and Audiovisual Markets Division. The new facility, which Kodak originally occupied in 1927, is designed to meet the changing needs of the film and broadcasting industries.

AMPEX—Ampex has delivered its 1,000th VPR-80 VTR to Warner Amex Satellite Entertainment Company (WASEC). The unit was part of an order for 12 VPR-80s for use by WASEC at its Smithtown, Long Island, facility. The VPR-80 was introduced by Ampex at the 1982 NAB convention.

APHEX SYSTEMS—Aphex Systems, a manufacturer of signal processing equipment, has appointed three rep firms in the United States. They are Peter M. Schmidtt & Company, for metro New York; Secom, for Tennessee, Georgia, Mississippi, and Alabama; and Mike Chafee Enterprises, for Florida. Also, AKG Acoustics (Canada) has been appointed the Canadian distributor.

THOMSON-LGT—Thomson-LGT supplied six 10-watt UHF transmitters for use within various Olympic sports complexes. The units were used to transmit signals to 350 off-air receivers for world press corps viewing.

TENTEL—Tentel has received the ITVA Golden Reel Technical Achievement Award for the company's Tentelometer® tape tension gauge series. The award was presented at the annual International Television Association awards ceremony held in Las Vegas.

SHOOK ELECTRONIC ENTERPRISES—Shook has delivered a new ENG mobile unit to KSLA-TV in Shreveport, Louisiana. The vehicle, constructed on a Dodge Maxi-Van frame, will be used for live news and special events. The unit features inputs for three cameras, an eight-input audio mixer, and a Nurad microwave antenna.

ROBERT BOSCH—CBS has purchased a Bosch FDL-60 CCD telecine for film-to-tape transfers of the network's prime-time material. The system handles 35mm and 16mm positive and negative formats and all the usual types of sound tracks. CBS plans to use the telecine for transfer of made-for-TV movies, situation comedies, and other shows produced on film.

IMERO FIORENTINO ASSOCIATES/ ACADEMY LIGHTING—Representatives from Imero Fiorentino Associates and Academy Lighting have announced that the companies have agreed to a merger. Carl Gibson, president of Academy Lighting, will join Imero Fiorentino Associates as vice president in charge of West Coast lighting operations.

TRANSMISSION STRUCTURES LTD.—Richard Bell and George Bubrick, former principals of Atlas Tower, along with James Ariana, former director of radio sales at Harris, have announced the formation of Transmission Structures Ltd. The company is prepared to provide a complete line of radio, television, and microwave towers. (918-256-7883)□

Rx for SFX

At $14,750, the totally new Chromafex 766 brings special effects within reach of every budget.

Posterize. Compress. Invert. Position. Slide. These microcomputer controlled special effects, and many more performed by the expensive image processors, can be yours in the Chromafex 766. That's right. Outstanding special effects. And for only $14,750.

There's more. The 766 also includes time base correction and frame store capabilities with infinite window performance along with freeze frame and two full fields of memory. Drop out compensation will clean up the noisiest of tapes. Perfect for remotes, it consumes only 85 watts of power.

Chroma Digital Systems has the engineering, manufacturing, marketing and service expertise, drawn from years of experience in the television equipment industry, to provide you with the support you need now and in the future.

And the Chromafex starts you with the most attractive SFX price/performance package anywhere.

If you have a problem with the high cost of SFX, we've got the solution. Chromafex 766. High priced effects. Affordably priced.

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TECHNOLOGY HOTLINE

First 40-inch CRT is developed

Mitsubishi Electric Corporation has developed the world's first 40-inch (digital) high-resolution color CRT for high definition. Featuring an aspect ratio of 5:3 and a phosphor dot pitch of 0.45mm, the tube can provide true-to-life images of 1,125 scanning lines.

The strength and weight of picture-tube glass had limited tube sizes to 32 inches. Mitsubishi overcame this problem with the cooperation of Japan Broadcasting Corporation (NHK), Asahi Glass Company, and Dia Nippon Printing Company.

Mitsubishi also has developed a wide-range, high-output video circuit for flat characteristics up to 30 MHz and a high-speed deflecting circuit that ensures excellent linearity on the 40-inch screen. It also has developed a digital circuit to compensate for convergence, achieving a convergence precision to within 0.1 percent of the screen width over the entire screen. (800-421-1132)

Sweet-smelling disc

Environmental Fragrance Technologies Ltd. is offering the revolutionary technology of the Aroma Disc system. The technology on which the system is based allows a scent to permeate a large area within a few minutes. The selected level of fragrance can be maintained over long periods of time, or it can be changed immediately by changing the fragrance infused record.

With the fragrances currently available, imaginative promotional possibilities include a Christmas (pine) scent or food aromas such as coffee, chocolate, and even (if you're not allergic) pepper. (Madelyn Fudeman, 212-247-2159)

Digital stereo for BBC broadcast

Two months before NBC broadcast *The Tonight Show* in stereo over WNBC in New York City, British Broadcasting Corporation (BBC) engineers carried out what is believed to be the first all-digital transmission of stereo television sound, using the Crystal Palace transmitter after closedown.

The BBC is confident that a digital system will best fulfill the requirement for stereo for television from terrestrial transmitters.

The program consisted of a conventional video recording of a pop concert that had been featured earlier as a simulcast over BBC television and BBC radio. But for the over-the-air test, the digital recording of the sound signals was replayed into the digital stereo transmission without conversion to analog.

The equipment included a sampling-rate changer unit provided by Studer for converting from 44.1 to 32 kHz, and a BBC-designed, software-controlled processor for altering the pre-emphasis characteristic from that used in the recorder to one required for transmission.

While these tests were completed successfully, they were not done under normal program conditions. The concern was that there would be compatibility problems with audio and video at the TV set. Since no problems were detected during the tests, the BBC is planning further tests during normal program hours.

Interactive disc

EECO has a new interactive videodisc with a patented still-frame audio technology for compressing 10 seconds of audio into a single frame of video.

EECO's demo disc blends voice, music, and sound effects with still-frame and full-motion video images, demonstrating the ability of the new technology to replace slides, filmstrips, and text screens.

"As an example, one 30-minute videodisc can now store up to 18,000 still-frame images and 100 hours of audio captions," says EECO's George Treneer. "This opens the door to new still-frame applications wherever interactive videodiscs combine audio with still-frame images." (George Treneer, 714-835-6000)

Full-color radar

Radar displays have come a long way in only a few years, and now Si-Tex has a compact, full-color weather radar system that displays six different colors. The colors displayed are based on the intensity of returning echoes and are shown on a TV-type screen.

To assist the station meteorologist, the model CR-1101 can discriminate and display the varying intensity of frontal systems, severe weather, or just plain rain. Variable bearing and range markers, with digital readouts, simplify sector and distance readings. The user can select eight different range scales up to 74 miles away.

A unique plotting feature can establish the history of a weather system and assist in the determination of its direction and speed. Also, an audible proximity alarm warns station personnel of a strong system entering any guard zone that the operator has chosen. (Dave Church, 813-535-4681)

True digital audio

According to Compusonics, the age of true digital audio began this summer. That's when Compusonics introduced what it calls "the world's first series of microcomputer-based recorder/mixers to make true digital microphone-to-master recordings."

The company also has announced plans to deliver the world's first floppy disc-based home digital recording playback system.

Compusonics explained that by supplying both studio and home equipment, the company is making digital recording and playback capabilities available to both sectors for the first time. The equipment can be used to make future generations of compact digital discs and to put prerecorded music on high-density floppy discs.

The DSP-2000 series is available now in 4-track modules. It's a supermicro, multiprocessor computer, configured as a single-user workstation for the audio mixing and recording of live music in a variety of digital formats. (212-255-8491)

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

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

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

THE CART MACHINE VS. THE SMART MACHINE.

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

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

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

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

MAINTAINING MACHINERY VS. MAINTAINING PROFITS.

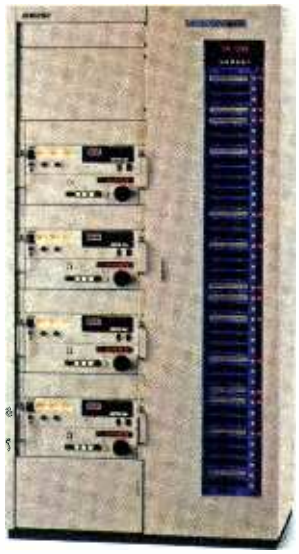
The end result of all this electronic

THE MACHINE INSPIRED BY BILLIONS OF DOLLARS WORTH OF COMMERCIAL FAILURES.

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

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

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



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

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

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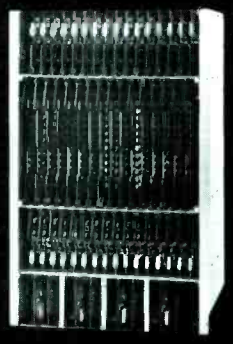
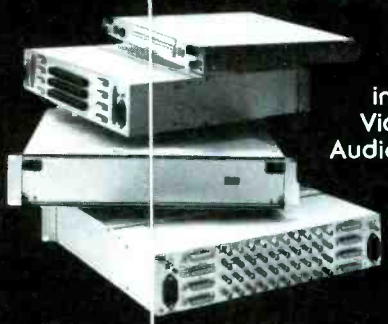
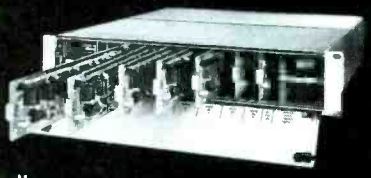


The IRS Routing System—Available from 24 inputs by 24 outputs Video and up to three channels of Audio to 96 inputs by 96 outputs with serial and computer control. Broadcast quality performance and reliability at an affordable price.



Smaller Routing Switchers—Single and Multi-bus from 8 inputs by 1 output to 48 inputs by 8 outputs. Video, Audio, Stereo Audio, and Time Code. Parallel and serial control systems simplify interface with other devices.



The widest range of quality distribution amplifiers in the industry. Video—Equalizing, Clamping, Subcarrier, Linear, and Pulse. Audio—Line level and remote gain, both balanced and unbalanced. Available in several types of mounting frames and including self powered, stand alone units. The best amplifiers for specifications and reliability available anywhere.

Monitoring Switchers—From the AVM-100 with 16 Video inputs, 16 Stereo Audio inputs, dual Video and Audio outputs, Stereo Audio line and 8 ohm outputs, to the SRG/H series with 256 inputs by 2 outputs and computer control. HEDCO does it all!

HEDCO

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P.O. Box 1985, Grass Valley, CA 95945
916/273-9524 Telex: 364412

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NEWSMAKERS

Teleproduction

Kenneth Nicholls has been named president of Video Midwest in Minneapolis. He previously was director of sales for ADC Magnetic Controls.

Claudia McGuire has been appointed general manager of FairWest in Richardson, Texas. She has been office manager of the firm's Dallas branch for the past four years.

Tony Martin has been named vice president of program development and production for Viacom Enterprises in New York City. In his new position, Martin will be responsible for developing programming for first-run syndication.

Ed Sarmento has been appointed vice president and general manager of the Editel Group's Los Angeles facility. Also, **Tom Jones** has been named vice president of sales and marketing for the center. Both men were employed by Vidtronics.

John Freschi, John Rook, and **Vincenzo Cilurzo** have joined the staff of Imero Fiorentino Associates in New York City. All three are Emmy Award-winning lighting directors.

Mike Hoffman has joined the staff of Florida Vidcom. The audio engineer and music director will work in the company's Pompano facility.

Television

James King has been appointed president of Backe Communications. He formerly was president and chief executive officer of the Corinthian Broadcasting Corporation.

Sherman Wildman has been named president of SFN Communications of Puerto Rico. The company is a new subsidiary of SFN Companies.

Dave Patterson has been named a co-anchor at KTSP-TV in Phoenix. He formerly was an anchor for KYW-TV in Philadelphia.

Fred Heumann and **John Rhadigan** have been named to the sports staff at WJRT-TV in Flint, Michigan. Also, **Phil Schwarz** has been appointed to the station's weather team.

Mark Thompson has been promoted to weekday weather anchor by KRON-TV in San Francisco. Prior to joining the station's staff in 1982, Thompson was a weathercaster and science reporter for KMGH-TV in Denver.

Ted Textor has joined WJBK-TV in Detroit as a weekend weather anchor. He formerly was a weekend meteorologist and reporter for KMBC-TV in Kansas City.

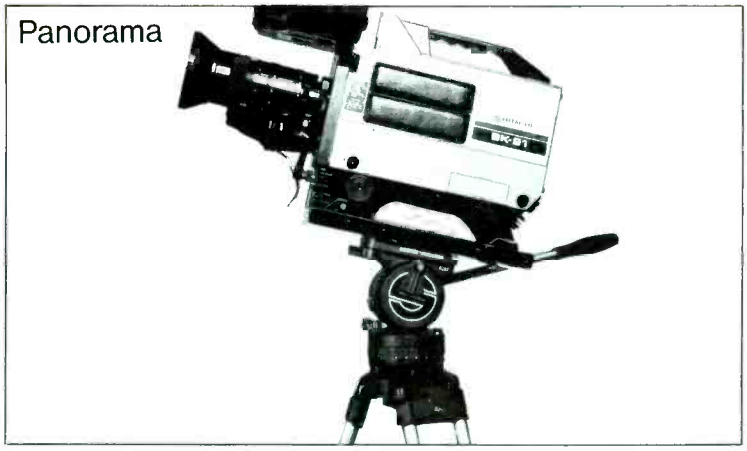
John Huddy has been named executive producer of *CBS News Nightwatch*. He previously was senior executive producer at WCBS-TV in New York City.

Cable

John Doyle and **Carey Coleman** have been appointed on-camera meteorologists for the Weather Channel. Doyle most

Continued on page 24

sachtler



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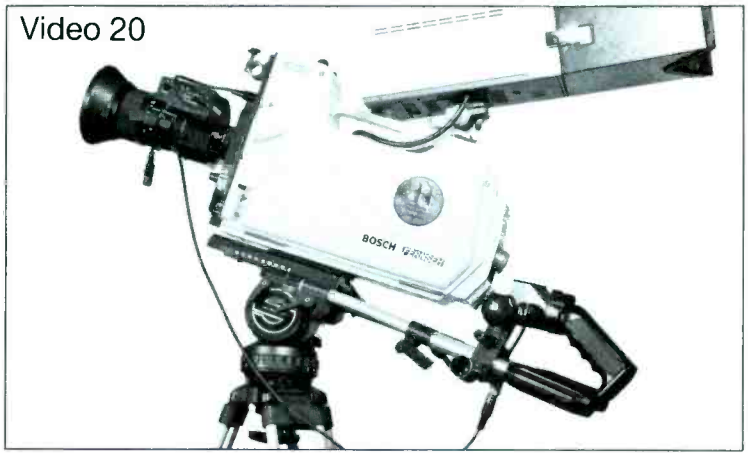

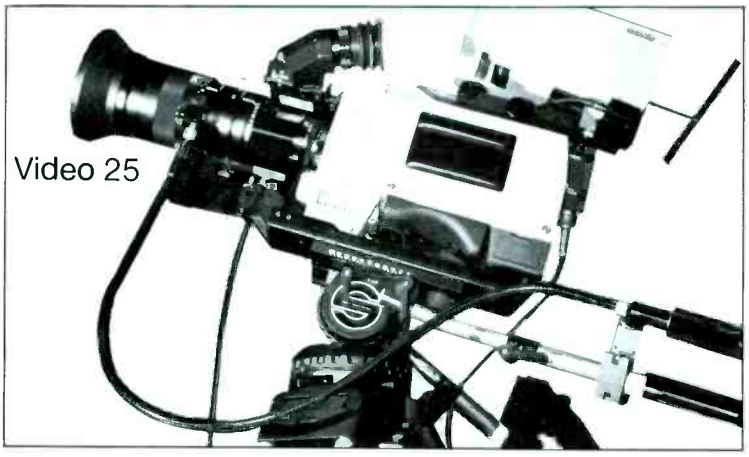

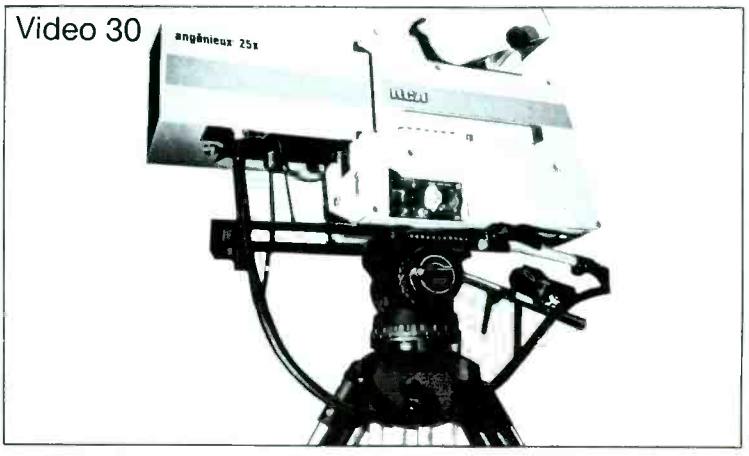

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Welcome to the Ampex

Anyone who has ever integrated a complete post-production editing system knows that it's a complex, difficult and often confusing job. Products from different manufacturers don't always interface easily.

Ampex stands above the confusion by offering all the key elements of a sophisticated post-production system from one manufacturer, complete with fully integrated hardware and software. We call this the *Ampex Creative Command Center.*

This system consists of an Ampex ACE edit controller, Ampex switcher and VTRs and our Emmy-award-winning ADO digital special effects system. Since all these use SMPTE RS-422 serial communications, they are easily interfaced with each other and the peripheral equipment you need to fill out your system. No hidden costs for interface devices. Ampex products are designed from the ground up to work with each other in a fully compatible system.

This isn't exactly a new idea. Post-production facilities all over the world are discovering the business advantages of Ampex Creative Command Centers. A few of them are pictured above, and more are being installed every day.

Care-free Creative Control

More creative power and control is the name of the game with an Ampex Creative Command Center. With a system based on a sound technical groundwork, editors are free to put their full creative energy into every job, confident that they are free of technical constraints.

At the heart of the Center is the remarkable ACE editing system, fast enough and smart enough to satisfy the most creative editors in the business. Depending on individual preferences, you may choose the Touchscreen option, or either the dedicated or ASCII-style keyboards. Using the ACE joystick control, you're in command of all the other products in the system. With the optional General Purpose Interface (GPI) you can command any product activated by an electronic "trigger."

And there's more flexibility. ACE disks are interchangeable with any other ACE system of any configuration. ACE can even read and write CMX-format disks. You can schedule system time much more effectively and conveniently.

That's only part of the story. There's more creative power, control and flexibility inherent in all the Ampex products.

System Flexibility

Product quality and reliability have long been associated with the Ampex name. In our Creative Command Center, you have a wide choice of Ampex products, each unsurpassed in its price/performance category. Complementing ACE, with its various options, you have a choice of Ampex production switchers, either 4100 Series, or the microprocessor-based AVC Series. AVC switchers offer awesome creative power, yet are simple and logical to operate.

You also can choose any of the Ampex VTRs: the VPR-2B, the VPR-80, or the VPR-3 (the mainstay of Olympic Games broadcasts) with unequalled speed and tape handling ability, or our ARC-40 M-format VTRs.

The very popular ADO has become the standard in the world of creative image manipulation, with over 250 in use around the world. Its abilities are constantly being expanded by the imaginations of its many users.

Your needs and budget determine the configuration of your own Ampex Creative Command Center. No matter what shape it takes, Ampex products will perform to support your business goals.

Creative Command Center

Can Management Love a Creative Command Center?

Editors who use these systems every day find that their solid technical foundation allows more efficient use of time for creative experimentation, or to meet tight client budgets and deadlines.

All this helps keep clients happy. Not only is the Creative Command Center an impressive system to see, but its performance can help you build the kind of goodwill that pays off on the bottom line.

Captive facilities find that Creative Command Centers can be equally effective for their needs, turning out a variety of software. One interesting application can be found at the coin-operated games division of Atari, where a complete Center has been installed to produce the very latest in laser video arcade games.

So don't be intimidated by the sophistication of these systems. They're practical first and foremost, and designed to make management smile, even the controller.

Support That Keeps You Going

Exceptional dedication to the smooth working of your Ampex Creative Command Center is a characteristic of our service and support force.

It starts with the Ampex Sales Engineer you may call to explain how a Creative Command Center can fill your individual needs. He and your Ampex Service Engineer will work with you as your system is installed and checked out. They and all the other support people at Ampex will be there when you need them, wherever you are.

Obviously, there's much more that you need to know about an Ampex Creative Command Center than we can tell you here. Your Ampex Sales Engineer is just the person to give you that information. Ask him to tell you everything you want to know.

What Our Customers Are Saying About Us and the Creative Command Center.

- "With ACE, I can put more creative energy in my work with peace of mind. I don't have to worry about technical problems."
- "ACE is really an awesome editor. And the *system* is even more awesome than ACE alone."
- "The thing I'm most impressed with is the Ampex software and how user-friendly it is."
- "We purchased the Ampex equipment as a system, rather than stand-alone products, because we believed Ampex's innovative power can be most effectively demonstrated in the total system."
- "Interface on all equipment was a key factor in our decision to purchase a full ACE system. We wanted a single source."
- "In 20 working hours, we went from an empty room to an ACE system in full operation. That's due to the basic quality of the Ampex equipment and the use of the RS-422 buss."
- "We've gotten good support from both Ampex sales and service. They seem to be interested in what we're doing and what we think."
- "We've been with Ampex for 11 years. We're a small company; we need the support of a large manufacturer."

AMPEX

Ampex Corporation · One of The Signal Companies

San Francisco 415/367-2296 • Los Angeles 818/240-5000 • Atlanta 404/491-7112 • Chicago 312/593-6000 • Louisville, KY 502/239-6111 • Washington, D.C. 301/530-8800 • New York/New Jersey 201/825-9600, 212/947-8633 • Dayton, OH 513/254-6101 • Dallas 214/960-1162 • Salt Lake City 801/487-8181 • Seattle 206/575-0156

Circle (13) on Action Card

You'll meet your match with our

EDITING CONSOLES

No matter what VTR equipment you use, Winsted offers Editing Consoles to **match your requirements!** Our designs are based on consultations with professional users like yourself.

You've chosen your VTR equipment carefully, to meet your specific needs. Now choose the Editing Consoles that fit your equipment - quality consoles from Winsted.

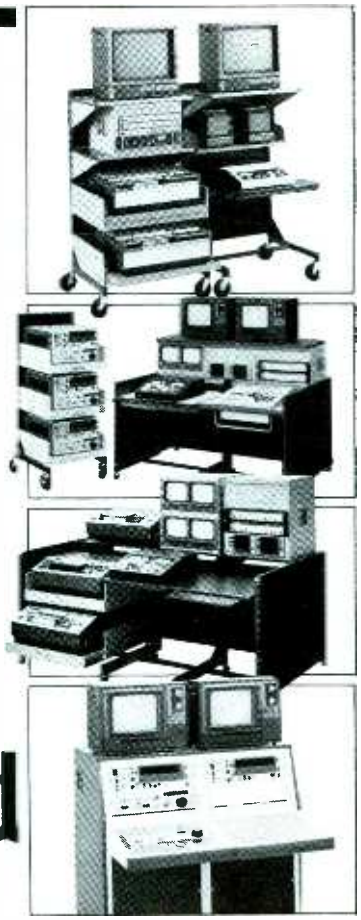
For our free full-color FULL-LINE CATALOG call us toll free:

800-328-2962
TELEX: 910-576-2740

Winsted

9801 James Circle
Minneapolis, MN 55431

TELEX: 910-576-2740



Circle (14) on Action Card

recently served as a weathercaster for WSB-TV in Atlanta. Coleman has worked part time for the Weather Channel for the past year.

Marty Brooks has been promoted to director of sports programming at the USA Network. He formerly was manager of sports programming for the service.

Charles Bierbauer has been named chief White House correspondent for the Cable News Network (CNN). Bierbauer has been with CNN since 1981, serving most recently as a defense correspondent and political reporter.

Jack Norman has been named director of creative services for the CBN Cable Network. He formerly was senior promotion producer for the service.

Business Moves

Robert Dalton has been named sales manager for the computer products group at Quanta. Dalton's new duties will include the sale of the QUANTANEWS™ newsroom computer system. Also, Quanta has named **Christie Mueller** west coast sales representative of the computer system.

W. Hunter Low, director of advertising and promotion for Eastman Kodak's Motion Picture and Audiovisual Markets Division, has received an award for distinguished service to the Broadcasters Promotion Association (BPA).

Patrick Birch has been promoted to regional sales representative for the New York metropolitan area by Comprehensive Video Supply. He was previously the company's sales service supervisor.

Leo Lazarus has been appointed customer service manager for Telemet. He has more than 20 years of experience in applications and test engineering.

Andre Macaluso, former general manager of plant and facilities at A.F. Associates, has been named general manager of Audio Plus Video International.

Tom Shearer has been appointed midwest regional manager for Sony Video Communications. He previously was the company's western sales coordinator and market development manager. Also, Sony Video has named **Andrew Stucker** district manager for the company's western region.

Brian Kelly and **James Hamilton** have been appointed technical sales representatives for Agfa-Gevaerts's Magnetic Tape Division. Hamilton will serve customers in the Midwest, with Kelly working in the Atlantic region.

Michael Uhl has been appointed national sales manager for Auditronics. He formerly was employed by Pacific Recorders & Engineering.

Joseph Dillon has been elected president of the Matsushita Engineering and Service Corporation of America. He previously was vice president of Panasonic Industrial Company's Audio-Video Systems Division.

Harry Larkin has been appointed vice president and director of marketing for Belar Electronics Laboratory. Larkin has had extensive experience in the electronics field since 1963. □

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

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

© 1984 Sharp Electronics Corp.

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

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

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

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

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

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

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

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

SHARP

FROM SHARP MINDS COME SHARP PRODUCTS

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

Circle (15) on Action Card

IN PRODUCTION

Baseball show is catching on

Pennant Chase, a weekly look at activities in major league baseball, is in its second season of production.

The program is co-produced by the SportsChannel and Major League Baseball and airs on regional or network pay TV services. NEP Productions of New York City shoots and edits material for the show.

The half-hour program features highlights of both American and National League games plus intriguing stories related to the world of baseball. Former New York Yankee catcher Fran Healy is the on- and off-camera spokesman for the SportsChannel.

Producer Peter Bartley and director Jerry Passaro combine Healy's taped features with footage taped by Major League Baseball to complete the program.

Twenty-seven episodes will be produced to cover the 1984 baseball season. (212-382-1100)

New soap angle cleans up

Special production techniques and remote-location videotaping are attributed to attracting a larger audience share for one of television's longest-running daytime dramas.

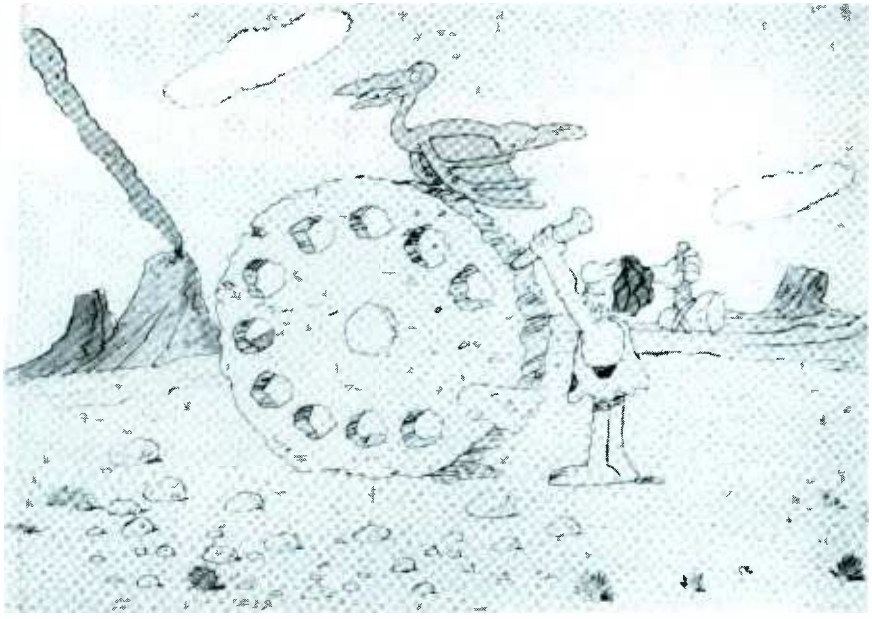
The producers of *Search for Tomorrow*, now in its 33rd year of production, have turned to more non-traditional effects in order to improve the quality of the program. The soap is produced at New York City's Reeves Teletape.

In one recent episode, the studio's basement was utilized as a set for a dramatic kidnapping. The abduction scene prompted an explosion and fire that resulted in the death of one character and injury to another. (212-573-8888)

Animated spot connects for Bell

A comical cartoon spot, featuring a caveman chiseling a rotary phone dial from a block of stone, has been produced for South Central Bell.

The commercial was completed by the Harold Friedman Consortium as part of a Touch Tone service promotion. The company's Fred Crippen provided the whimsical cel animation. Luckie & Forney of Birmingham, Alabama, was the agency.



The Harold Friedman Consortium created this cartoon spot for a South Central Bell promotion.

In the spot, the Neanderthal is first seen chipping the block into the shape of a dial. Upon completion, his masterpiece crumbles, inspiring him to begin shaping a Touch Tone pad. The ad's musical bed complements the caveman's activities.

Dave Balius was the commercial's producer, Roy Trimble was art director, and Leo Wright was Luckie & Forney's creative director. (212-777-4711)

Film techniques help spots to gel

Film elements and tape expertise have been combined to produce a series of spots for Sugar Free Jell-O® Brand gelatin.

The staff at New York City's Charlex used special video optics to produce differing perceptions and effects in the commercials. Young & Rubicam was the company's agency.

In one of the spots, a hand is first seen removing a glass of gelatin from the extreme foreground as graphic fragments fly into the background forming a Jell-O box. A group of dancers then crosses the surface of the container as the viewer's perception is suddenly altered to reveal the package in a large overhead shot. As the box becomes smaller, a surfer rides across the now rippling package.

According to Charlex's Charlie Levi, the use of video allowed the art director and producer to view the action as it happened, assisting them in the creative process. (212-777-4711)

Orange lovers put rush on Rush

When the manufacturers of Rush, an orange-flavored soft drink made in India, named their product, they had no idea the name would also describe one of their company's commercial productions.

A representative of the company recently flew to New York City from Bombay to produce a commercial for Rush at Darino Films. Arriving on a Thursday night, the client had to be back in India with the completed spot for a weekend premiere.

The commercial, which was completed in time to allow the client to catch his plane, features 3-D effects and special artwork. The bottle of soda appears to fly through a universe of blinking stars as lasers flash through the container to illuminate the liquid's orange color. The

Continued on page 28

The more you see, the more we hear

Look who's talking about Dubner now.

While we claim no responsibility for the famous line, "Build a better mousetrap and they'll beat a path to your door," we'd like to think it might have been said about the Dubner CBG-2 video graphics/animation system. In any case, we thought you might like to hear what your colleagues are saying about us:

"The CBG-2 is undeniably the most novel and flexible state-of-the-art real-time animation graphics device currently available.

—Mark Bernardo, Chief Graphics Design Engineer, Olympics
ABC Television

"We needed a machine that would allow us to compete effectively in an already competitive market. The CBG-2 gave us the capability to create weather maps and news graphics quickly, it could be operated by department personnel, and it was the best buy on the market."

—Bob Plummer, Director of Engineering, Fisher Broadcasting
KOMO (Radio & Television, Seattle)

"It's a digital computer and animation tool that allows artists to create quality animations independently. The CBG-2 is relatively inexpensive, it works fast and enhances the creative process with real-time imagery."

—Elaine Schwartz, Computer Animator
Atlantic Image (New York animation house)

"The CBG-2 is much faster and less expensive than standard film animation. The real-time animation, clean key capability, expandability and great software support make it one of the best computers around."

—Corinne Sousoulas, Art Director
Motion Picture Laboratories (Memphis post production house)

"The CBG-2 is a valuable tool due to its ability to create effective graphics quickly. It offers three dimensional animation, graphic enhancement, and character generation all in one unit. And these features are difficult to find in any one machine."

—Victoria Henigman, Electronic Graphic Designer
WPBT-TV (Miami PBS Affiliate)

"The Dubner was purchased for its advanced animation capabilities, its ability to be upgraded via software, and its cost effectiveness. We love it!"

—Dan Sokol, Vice President, Engineering
Video Post & Transfer (Dallas post production house)

With all the nice things being said about Dubner, all we can say is thank you. We plan to keep up the good work. You'll keep seeing it and we'll keep hearing about it.

For a free demonstration of the Dubner CBG-2, call (201) 592-6500, or write.

DUBNER

Dubner Computer Systems, Inc. 158 Linwood Plaza Fort Lee, New Jersey 07024

Circle (16) on Action Card

segment required more than 70 passes to complete.

Ed Darino was the director for the production. J. Scagnelly provided artwork, and S. Estellano headed production. (212-228-4024)

'Rock Influences' felt in Passaic

Rock Influences, a new monthly MTV series, recently traveled to Passaic, New Jersey, to tape concert footage for the show's first episode. The program, which is hosted by recording artist Karla DeVito, will trace the musical influences of modern bands.

For the first episode, the staff of New York City's Unitel Mobile taped performances by the band REM, John Sebastian of The Lovin' Spoonful, and Roger McGuinn of The Byrds. Segments also were produced featuring Levon Helm, Rick Danko, and Richard Emanuel of The Band, as well as Jesse Colin Young of the Youngbloods.

Jonathan Stathakis was the show's producer, and Clark Santee directed. Ronald Tanet and John Scher served as executive producers. (212-247-2159)

Short Takes

MARK LEE PRODUCTIONS—Mark Lee Productions now offers multitrack production services for both audio and video. The Minneapolis firm, which is under new management, features newly remodeled and fully equipped sound studios.

FLORIDA VIDCOM—Florida Vidcom has moved to a new location. The production house's new address is 3685 N. Federal Highway, Pompano Beach, FL 33064.

IMERO FIORENTINO ASSOCIATES—John Rook of Imero Fiorentino Associates has been selected as lighting designer/consultant for the new prime-access soap opera *Rituals*. The program is a Metromedia/Telepictures production and is slated to air weekdays on Metromedia, Gannett, and Multi-Media stations across the country.

VTR PRODUCTIONS—VTR Productions has constructed a state-of-the-art editing suite in the company's Toronto facility. The EDIT SUITE features a two channel Ampex ADO, an Ampex AVC-23 switcher, and the new ACE editing system with joystick and touch screen. (416-968-1822)

OPTIMEDIA SYSTEMS—Optimedia has moved to Fairfield, New Jersey, and expanded its post-production facilities. The company has installed a CEL P151 digital effects unit, a Chyron VP2, and a Microtime E-120. (201-277-8822)

ADM VIDEO PRODUCTIONS—ADM Video has moved its headquarters. The commercial video production firm is now located at 366 Broadway, Jericho, NY 11753.

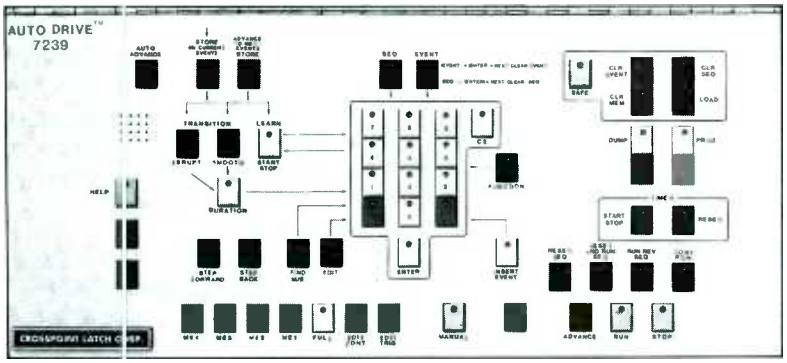
IMAGE COMMUNICATIONS—Image Communications of Tampa, Florida, has purchased an RCA interformat video editing system. The ½-inch to 1-inch system is centered around the company's CMX computer editor and ADDA digital effects unit. (813-885-7793)

LASER EDIT—Laser Edit has opened its new Burbank post-production center, which features a Spectra Image Edit system, a Grass Valley 300 switcher, a Vidifont 5, an ADO, and a DVE. (213-659-0380)

ISLAND VIDEO—Island Video has moved to larger facilities. The company, which provides all types of services, including digital standards conversion, is now located at 182 Fairchild Avenue, Plainview, NY 11803. □

AUTO DRIVE™ 7239

THE SWITCHER CONTROLLER OF THE FUTURE



- SIMPLE OPERATION
- 255 EVENTS
- "LEARN" FADER AND POSITIONERS
- FOWARD AND REVERSE RUN
- INSERT AND DELETE EVENTS
- EDIT STORED EVENTS
- FIND M.E. MODE
- CRT STATUS DISPLAY
- AUTO ADVANCE MODE
- PRINTER DRIVER
- EDITOR INTERFACES
- BATTERY BACK-UP

The 7239 is extremely easy to use. That is one of its most important features. Just set up the switcher the way you want it and depress the STORE button. The 7239 stores the entire control panel (EVENTS) or only selected ME systems. The entire control panel status can be stored 255 times, and these may be grouped into SEQUENCES, which can run either forwards or backwards. Recalling and changing selected portions of a stored EVENT is very simple - a unique feature of AUTO DRIVE™. The INSERT EVENT feature allows events to be inserted into a sequence, without the complexity of having to reproduce the settings of all the controls on the switcher panel — another feature no other controller has. The 7239 learns up to 90 seconds of fader arm or positioner movements. A battery back-up option retains data in memory in the event of a power failure.

The 7239 operates with all 6139 "K" switchers or with the 6112AK. It can be controlled from most editors and external computers.

CROSSPOINT LATCH CORP.

Basic 7239 $12,500.

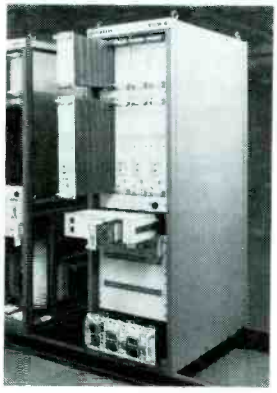
95 Progress St., Union, N.J. 07083
(201) 688-1510 Telex 181160

Circle (17) on Action Card

Improving transmission quality is the strongest signal on our band.

VHF-FM transmitters from AEG-TELEFUNKEN radiate progress.

At the end of the twenties, the VHF waves were new territory for broadcasting. In 1929 TELEFUNKEN began initial experimenting with transmissions in greater metropolitan Berlin. Then television arrived, and its development dominated VHF frequencies throughout the thirties. Finally, in 1949, came the breakthrough: broadcasting stations are reestablished, VHF-FM rediscovered.



Fully transistorized.
5 kW VHF-FM broadcast transmitter

AEG-TELEFUNKEN has been decisively influencing and setting the pace in overall VHF transmission development. Today, over 1700 transmitters from AEG-TELEFUNKEN are operational worldwide in the VHF-FM broadcasting band. Transmitters with the most advanced broadcast technology are available. The AEG-TELEFUNKEN program includes highly efficient transmitters for power outputs between 50 W and 10 kW. Transmitters up to 5 kW are fully transistorized, modularly designed and completely maintenance-free.
Our 10 kW transmitters incorporate only one tube. Thanks to a minimum of heat emission, convection cooling alone is all that is needed for transmitters up to 3 kW. Automatic back-up systems ensure continuous program operation. Rounding out the VHF-FM transmission product line from AEG-TELEFUNKEN is an array of ancillaries: stereo encoders, VHF-FM relay receivers and traffic broadcast encoders.
High-performance VHF-FM broadcast transmitters are only one example of the production capability and innovation capacity of AEG-TELEFUNKEN. Other areas of concentration include LF, MF and HF transmitters with up to the highest outputs yet produced, communications transmitters, stationary ground/air radiotelephone transmitters and receivers, mobile radio systems, television transmitters, antennas and antenna systems.
We will be glad to provide you with detailed information on the many opportunities and decisive advantages offered by AEG-TELEFUNKEN. Write to us today.

TELEFUNKEN

AEG-TELEFUNKEN

Radio and Radar Systems Group

Circle (12) on Action Card

I would like more information on VHF-FM broadcast transmitters from AEG-TELEFUNKEN.

Name: _____

Company: _____

Department: _____

Address: _____

TBC

Send to: AEG-TELEFUNKEN
Attn: Mr. J. Graaff, A 11 V, Sickingenstrasse 20-28, D-1000 Berlin 21,
Federal Republic of Germany

A11.WAK 1907 E

CABLE CONNECTION

Disney president seeks revisions in cable packaging

Disney Channel president Jim Jimirro has singled out program packaging practices as a major source of subscriber dissatisfaction and disconnects.

Speaking before the Southern California Cable Association, Jimirro said that cable operators need to consider consumer desires and preferences in designing their services.

"If we're going to design packages of pay services," Jimirro said, "we had better be sure that the packages reflect consumer preferences." According to Jimirro, paying more attention to customers will help eliminate "churn," and result in a higher degree of system satisfaction.

Cable is seen as campaign tool

Research recently conducted by the CableTelevision Advertising Bureau indicates cable subscribers are politically active.

According to the study, persons in households served by cable are 17 percent more likely to vote, 25 percent more likely to work for a political candidate, and 39 percent more likely to be involved in political fund raising.

The implications of these findings appear to make cable television an ideal medium for the effective delivery of political messages to voters.

Share for WTBS jumps in July

The number of persons viewing Atlanta SuperStation WTBS in July was up 80 percent over the number viewing in the same period a year ago.

According to the Nielsen Television Index for the first eight days in July, WTBS recorded average viewing of 1,395,000 households during evening prime time. For the same period in 1983, audience totals were 773,000 households. Viewership was also up in the late fringe time periods, topping the previous year's mark by 113 percent.

The station's performance in prime time reflects an increase in ratings from 2.9 to 4.5. The SuperStation's audience share also climbed, moving from 5.7 to 8.2. WTBS is now available in 37 percent of all television households.

California passes pirating measure

The California State Legislature has passed a bill that provides the nation's toughest penalties for making and selling illegal decoder boxes.

The measure permits the courts to impose up to a $10,000 fine on first-time offenders. Subsequent convictions can result in a $20,000 fine and a jail sentence. Persons found using illegal decoders in their homes can be fined up to $1,000 or imprisoned in the county jail for up to 90 days, or both.

In addition, the California bill permits the court to award statutory damages to companies victimized by pirates. The operators may be granted damages up to three times the amount of their actual losses.

The anti-piracy bill affects only those devices used to intercept and unscramble over-the-air pay TV signals. A similar measure covering cable television transmissions is already on the books in California.

Western cable show scheduled

Plans are being finalized for the 16th annual Western Cable Television Convention and Exposition to be held December 5-7 at the Anaheim Convention Center in Anaheim, California.

The event, sponsored by the California and Arizona Cable Television Associations, will feature sessions discussing current cable topics. Many manufacturers and related cable companies will be on hand to display products and explain their services.

To reserve exhibit space, interested parties should contact Trade Associates at (301) 656-5794.

A&E supports local origination

The Arts & Entertainment Network (A&E) is organizing and participating in local-origination programming as part of its community marketing project.

According to Andrew Orgel, a network vice president, "A&E has participated in three local-origination programs, which heightened awareness of community arts resources and explained how A&E's lineup of Broadway plays, movies, comedy and dramatic series, and arts programs could add to those local resources."

The programs aired in Cincinnati; Dallas; and Newport Beach, California; and were sponsored by local cable television systems. Each show was 30 minutes long.

Cable Briefs

ESSEX GROUP—The Essex Group has purchased Santa Rosa Cablevision. The acquisition brings the number of systems the Connecticut-based MSO operates in Florida to nine.

SATELLITE GATEWAY COMMUNICATIONS—Satellite Gateway Communications has announced it will begin transmitting a daily feed of Wall Street reports for the Financial News Network (FNN). The transmission from New York will be sent to FNN's distribution headquarters in Santa Monica, California.

WEATHER CHANNEL—The Weather Channel has received an award from the Broadcast Designer's Association for outstanding broadcast illustration. The award was presented at the association's annual awards presentation in Los Vegas.

USA NETWORK—The USA Network has reached an agreement with Paramount Pictures for the acquisition of 15 film titles. USA plans to broadcast the movies as part of *The USA Movie* which will begin airing this fall.

SELECTV—SelecTV will take over responsibility for programming for WOMETCO Home Theatre. WOMETCO is an STV service with more than 80,000 subscribers in New York City and New Jersey.

DISNEY CHANNEL—The number of persons subscribing to the Disney Channel jumped 12.4 percent during May, making the service available to more than 1.1 million customers. The channel can be viewed in all 50 states and in 46 of the top 50 MSOs.

CNN—NBC affiliate WDIV-TV in Detroit has signed on with Ted Turner's CNN Television. The station plans to rely on the service to supplement the national and international scope of its local news. □

EIMAC 1934–1984 Supporting Broadcasting for 50 years

50 years of quality and dependability from Varian EIMAC.

EIMAC's tradition of high quality and dependability was firmly established in 1934 and continues on in 1984. Stringent manufacturing standards and controls, plus EIMAC's exclusive, long-term warranty reduces transmitter downtime and eliminates excessive operating overhead.

EIMAC backs its quality products with the industry's most comprehensive warranty program:

Warranty time for each EIMAC tube type is specified in writing and runs from the industry standard of 1,000 hours or 12 months to as high as 10,000 hours and 24 months.

Specific warranties for some popular tube types are:

4CX5000A	10,000 hours/24 months
4CX10,000D	10,000 hours/24 months
4CX15,000A	10,000 hours/24 months
4CX35,000C	10,000 hours/24 months
3CX2500A3	5,000 hours/12 months
4CX1500A	5,000 hours/12 months
5CX3000A	5,000 hours/12 months

Fourteen other EIMAC types have these extended use-time warranties. Specific warranties for each tube type are available from the Varian EIMAC worldwide sales organizations.

In all cases, EIMAC tubes are 100% warranted to be free of manufacturing defects. And, don't forget, EIMAC has a "carcass credit" return program for real savings on replacement tubes.

Compare EIMAC's 50-year record of outstanding performance. We guarantee EIMAC products will be here tomorrow for today's applications.

More information is available on EIMAC tubes and warranty program from Varian EIMAC, or any Electron Device Group worldwide sales organization. See your distributor or contact Varian EIMAC today.

Varian EIMAC
301 Industrial Way
San Carlos, California 94070
Telephone: 415•592-1221

Varian EIMAC
1678 S. Pioneer Road
Salt Lake City, Utah 84104
Telephone: 801•972-5000

varian

Circle (19) on Action Card

Finally, meaningful resea

BY PHILLIP KEIRSTEAD

I've fussed and grumbled for years, accusing the academic community of producing research that didn't seem to filter down to the newsroom. Now I've found a piece of academic writing that sheds some light on a subject of growing importance.

It's a thesis written by Mary Cox when she was a master's degree candidate at Iowa State University. She is now the assistant news director at WSB-TV in Atlanta.

Cox's study focused on the impact the computerized newsroom was having on newsroom operations. She also wanted to look at how stations were using their systems.

The survey results, compiled about a year ago, are based on a mailing to 22 radio and television operations in the United States and overseas. Nineteen domestic, one Canadian, and two foreign operations were queried. One factor that could affect the total picture is that several systems have been sold since this research was completed.

Fifteen of the domestic users responded to the survey. A representative of the Voice of America (VOA) also answered the inquiry, but no foreign users returned their questionnaires.

Respondents indicated that the leading factor for computerization was the better quality the system would afford. Next in line was time savings. The need for an archiving system came in third.

Oddly enough, "decision by the parent company," "competition," and "wanted it first" were insignificant factors behind the purchases.

The selection process

Cox asked questions about the actual selection of the system. Most reporting stations made three vendor contacts before choosing their systems. Thirteen percent of the respondents didn't confer with any vendors, and 25 percent made five or more contacts.

The most common number of on-site demonstrations was one. Cox attributed this low figure, in part, to a limited choice of vendors at the time the systems were purchased. Of course, sometimes these on-site demonstrations are not practical.

System results

As for the impact of the system, Cox found that time savings was the most mentioned result. Next was the better communications the system afforded within the newsroom. Ironically, no one mentioned archiving among the areas of greatest impact.

Many responding news executives said that copy was better written as a result of the increased editing capabilities of the system. They also said the computer saved time and allowed last-minute changes to be made more easily. There was general agreement that the system made the newsroom more responsive to breaking news, with 13 percent of the respondents neutral and 6 percent disagreeing on that point.

"The leading factor for computerization was the better quality the system would afford. Next in line was time savings. The need for an archiving system came in third."

Generally, the respondents felt the system made text preparation either somewhat or much more expedient. The news executives gave high marks to the computer's ability to speed editing, placing editing speed ahead of increased text preparation speed as preferred features. A significant number said the computer system had increased the amount of editing done on copy.

More than a third of the respondents indicated that the assignment desk was able to handle more stor system installation.

System uses

Cox investigated the act some of the functions offered computer systems. In general, s that users were employing almo the basic functions.

In measuring use of text pre tion/editing, wire service, informa retrieval/archiving, producer, and signment-desk functions, she found t majority of stations with informatio retrieval and archiving capability were storing news scripts and had set up phone number and address files. Half the respondents were indexing their tapes, and 36 percent were keeping track of employee output.

Forty-three percent of the stations had links to outside data services. The summary of the survey did not mention how frequently stations used the system to access outside data banks.

Computer anxiety

Some 44 percent of the respondents said computer anxiety created "somewhat of a problem" at their stations. Six percent found anxiety to be a "serious problem."

The majority of employees in the organizations surveyed grew accustomed to the system in less than two weeks, with no one reporting that it took longer than six weeks to become comfortable with the system.

As for initial employee reaction, 82 percent of the respondents said employees reacted positively, while the remainder had a mildly negative response. Two news executives mentioned power failures and system "bugs" as reason employees lacked confidence in the system.

The main deterrent to system adoption was its price. Next was the difficulty experienced by news executives in demonstrating the benefits to management. Fear of change and of committing the entire broadcast to a piece of equipment were other deterrents.

Manuals a problem

Turning to user manuals, Cox found vendors were getting poor marks for their instructions. No respondent felt the

Continued on page 34

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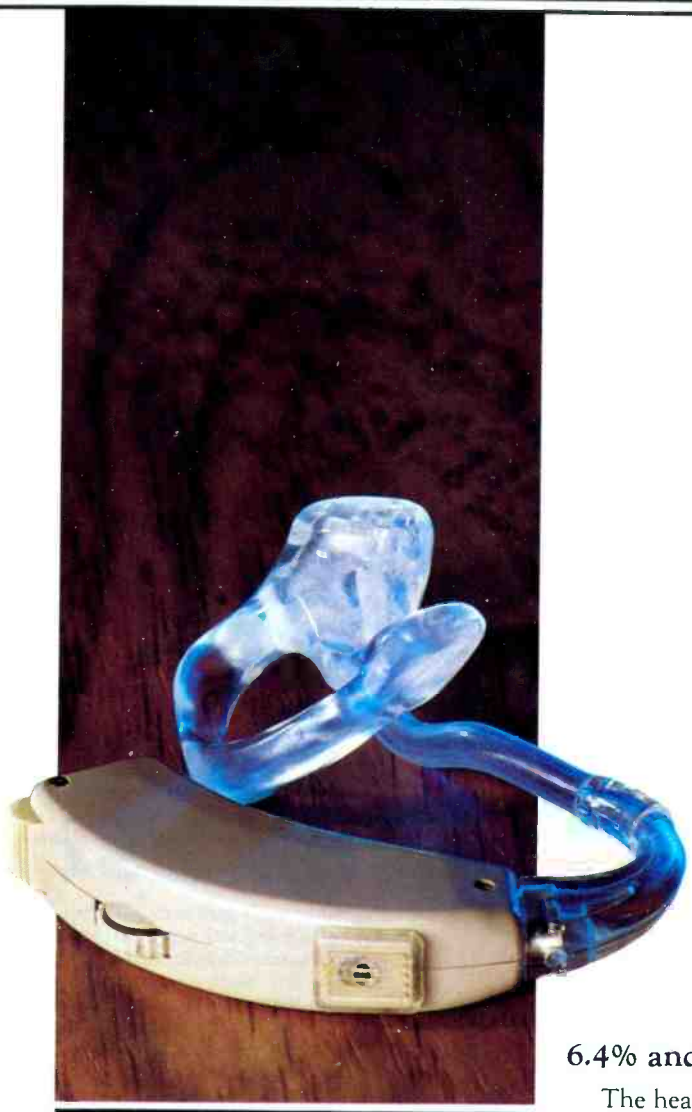

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user manuals were excellent. More than half said the manuals were good, but 45 percent rated the instructions so-so, poor, or terrible. More than 80 percent of the users said the training programs were excellent or good, and 20 percent gave them substandard ratings.

Respondents said the average system cost was between $100,000 and $150,000. A survey done today probably would yield a lower average because the number of systems installed in medium-sized stations is climbing. At least eight respondents had plans to expand their systems.

Transition difficulties

Cox sought detailed responses to questions relating to difficulties encountered in making the switch to a computerized newsroom. Problem areas included attitude adjustment; curbing personnel fears before installation; making the staff realize the computer was designed to help, not take over; and adjustments by producers.

A West Coast news executive said it was important to presell the system to employees. A Midwest news director said the toughest part of the installation was "letting go of paper and shutting off the wires." Another respondent said the hardest part was "getting the bugs out of the software." Someone else said the big problem was "modifying the system to the specific needs of *this* newsroom."

Cox then asked the respondents for advice for future buyers. Several station representatives said potential buyers should be well-informed about the process. One news director said, "Determine very early how the system can be used in your newsroom." Another said, "Computer companies didn't really understand the operation," and frequently tried to impress buyers with "bells and whistles" instead of with the basic operation and the system's dependability.

Other advice included a warning to buyers to find out how flexible the system is and how easily it can be updated or modified. Another respondent said buyers should "spend a generous amount of time studying your specific needs before ordering."

In addition to warning stations to brief the staff, one news director said, "At a given point, change to the computer system all at once, not piecemeal."

Other suggestions included standardizing forms before the system is on-line, having an uninterrupted power supply, and demanding 20 megabytes of removable memory.

One large-market executive advised potential system purchasers to order their system quickly because "vendors will be swamped within 12 months. Large systems (those for networks) will take priority."

In retrospect

Finally, Cox asked the respondents what they would do differently if they had to start the project over. Two executives mentioned they had started too small. Another said he would not install a system for radio and television at the same time in a joint operation. Other comments included hiring a computer manager, so the news director need not be the resident expert; designating more time for training; training producers more thoroughly before the rest of the staff; and doing a better job of researching options and effective use of space.

Finally, one respondent said that if he had to do it all over, he "would have gone to computerization sooner." □

Phillip O. Keirstead, news technology editor, is a professor of broadcast journalism at Florida A&M University in Tallahassee.

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Circle (21) on Action Card

A logo to call your own

BY ROBERT WATKINS

Is your station identified with an anchor personality or reruns of *Leave It to Beaver*? Can the 30 percent of Americans who are illiterate distinguish one computerized ID from another?

One of the primary elements in communicating a station's market differentiation is its logo. The relationship of the channel number to programming is as basic to broadcasting as the FCC rule that made IDs necessary.

The depth to which a station develops a logo is limited only by the amount of capital it wants to spend. In the science of marketing, a complete logo treatment begins with marketing research to define the station's identity. From there, 20 to 30 design variations are proposed. A selection of comprehensive drawings then are test-marketed in the region. Eventually, a final version is rendered, usually with the aid of computers.

If the logo is a completely new design, costs do not end with the on-air tag. New designs of stationery, outdoor signs, and vehicles all cost money. The total cost, with full-service design, market tests, animation, and incidentals can easily run $150,000 to $300,000.

Philosophy of change

Broadcasters at the NAB convention touted the value of a station's community involvement, which generates community-oriented programming and, in turn, produces larger local advertising revenues. How does this common-sense formula relate to ID treatments?

Most IDs reflect high-tech looks. The question is, does high tech represent the desired image of all regions? Do viewers like the high-tech look on everything? Today, most stations want to be identified with a state-of-the-technology appearance so that they will be seen as up-to-date. Also, they rely on broadcasting trends to determine what works. The result is that, basically, stations coast to coast have interchangeable IDs. An Atlanta channel's ID could be transposed with one in Montana, and few would notice.

Claude Alverson of Landor and Associates, an international strategic design consulting firm, doubts the wisdom of this approach. He says that when broadcasters use the same technology in similar ways, the product becomes homogeneous. This method mimics the competition rather than showing the differences.

Alverson, on the other hand, relies on the supremacy of the consumer. Through market research, based on how management wants to be identified, he discovers the likes and dislikes of the consumer and bases his designs on these findings. His unique brand identities include Wells Fargo, Marlboro, and 20th Century-Fox.

If it's correct that a return to the community as a source of programming makes good business sense, then we will be seeing more regional looks in IDs and logos. Stations will reflect and identify their target markets in a community-oriented logo.

Symbolic messages

A good logo says, "We're entertaining; this is the channel to watch and remember; this company has pride; we're the best." That's a lot to say in six seconds. but even more can be suggested by adding a regional interface in the form of local symbols, artifacts, icons, and landmarks.

Localizing may be more effective than the current trend of adult computer animation. I'm not knocking high tech, but I believe the computer can be used for generating a wider range of styles than those now being pursued. Examples include painted renderings or a colloquial theme, such as the Amish hexagons common in central Pennsylvania.

Computer animation grabs the viewer's attention, but now it's time to bring it from outer space back to earth. The high-tech look of computer animation can be toned down without losing its attention-getting impact.

A good example of this modification applies to ENG-intensive stations. The question is, what kind of news is being gathered? Can your station's style of reporting be interpolated into a local symbol? Logo execution can still be electronic and surprising in its moves and textures, but it will have more meaning because of the local angle.

Treatment techniques

Once the look of the logo has been established, incorporating it in local scenes can be as easy as establishing shots around the city and countryside. You may not need animation. If you do, in-station techniques described in the July *TV/BC* article "Using Computer Graphics for Election Results" are applicable for logo treatments. Again, station artists are capable of executing much within the station and in conjunction with outside services and production facilities.

One animation trick is to paint a continuous background, such as a cityscape or landscape, on a roll of paper 40 feet wide by 8½ inches high. Put this roll on a teleprompter conveyer table with a good camera mounted where the usual teleprompter camera is. The result is a continuous scenic animation roll that never passes by the same place twice. Keying the logo with simple color-cycle animation over the background will create depth. When planned well, this type of animation would strain a mainframe and is impossible as an aerial effect on paint systems.

Costs for top-end computer animation are now $2,000 to $6,000 per second. Smaller animation services produce effective spots for about $30,000 to $50,000. Usually, the independent producer will provide extras, such as several timings and some theme variations. Six, 10, and even 20 seconds might be negotiated for one price.

Do it yourself

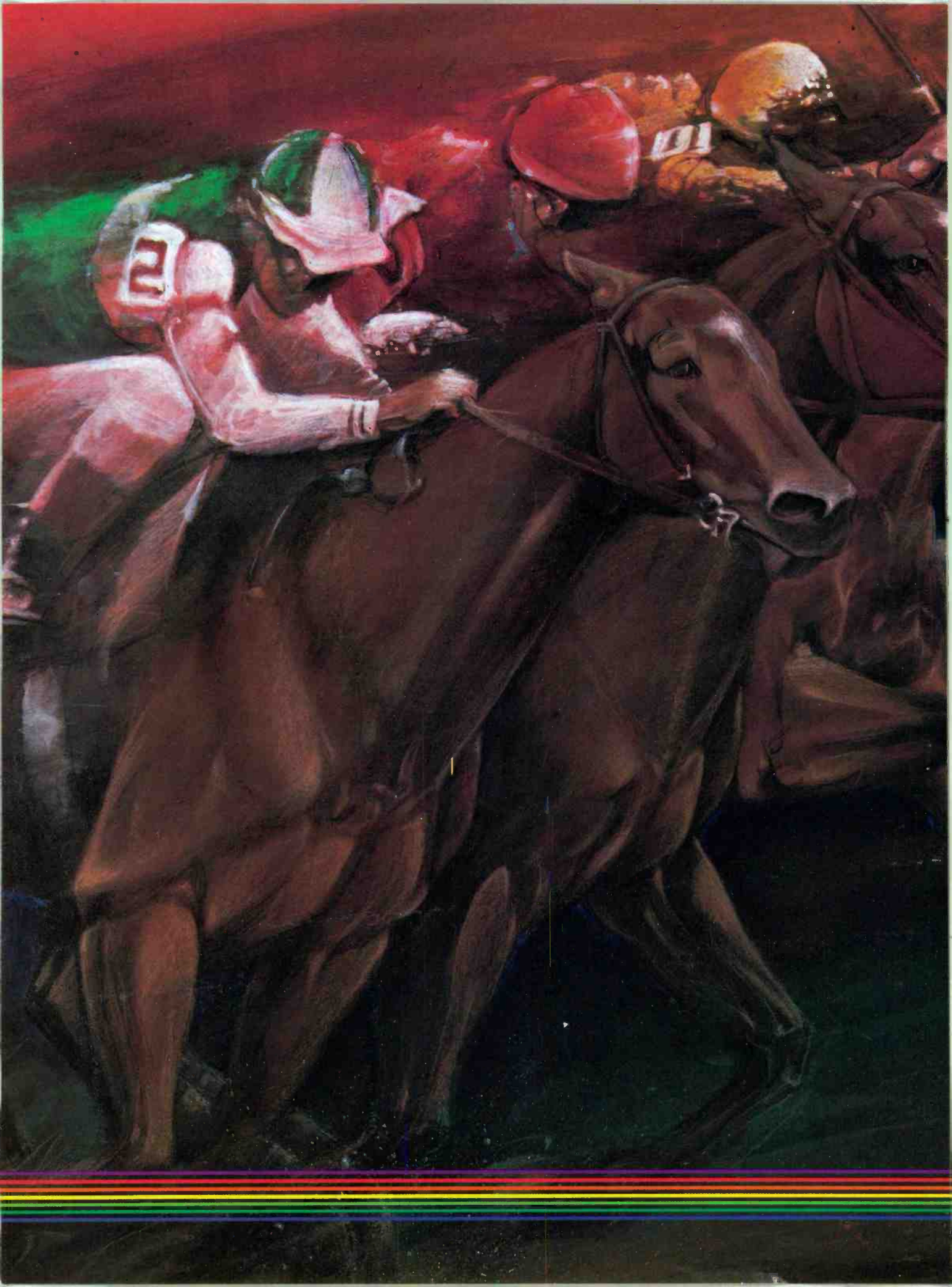
Assuming you do not intend to fully revamp your logo in all its uses, here are a few techniques—produced in-house—that can produce effects competitive with those of some facility or animation houses.

Variations on any design with digital paint systems are especially expedient and usually more inventive when the system is flexible. Station artists who have access to a paint system can make an on-going project of logo design.

The first step is to digitize the logo in a solid color with a one-color background. Clean up any pixel garbage that may occur in the process and store the image as a master. Proceed through all the variations that are system inherent: edging, gridding, drop-shadowing, tonation, reflecting, etc. Store each variation of the picture.

Most artists plan out a look on paper,

Continued on page 38



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Manhattan Video Prod.	(Circle 153 on Action Card)	VTR Productions	(Circle 207 on Action Card)
Mark Video Enterprises	(Circle 154 on Action Card)	Windsor Total Video	(Circle 208 on Action Card)

and then go to the design station. If you have time for experimenting, try the opposite. Go to the design station first, and then pencil out modifications of the results. Then go back to the computer.

Experiment with unusual computer commands. A simple way to use a paint system as a design tool is to position five or six logo variations on top of each other by retrieving the files on the same frame. It might look like a mishmash, but you might get a usable design from it.

Changing your logo is best done when the product is also undergoing change. Companies use the new look as a promotional campaign in itself. California's Jack in the Box, a fast-food chain, wanted to make the point that it had improved the quality of its food. Part of the promotional campaign included dynamiting the old logo and replacing it with a new one.

Creating the new ID with promotion is easier with computer graphics. All media advertising can be designed digitally, which lends itself to greater control of continuity. □

Robert Watkins is a writer and computer artist in San Francisco. (415-824-0214)

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Circle (23) on Action Card

On the road to profitability

BY JAMES A. LARSON

When examining the teleproduction industry, it's easy to be overwhelmed by impressive equipment and long, shiny trailers. But these are only a part of what makes mobile production possible. The myriad of men and women who work in this field are every bit as important as the equipment they operate.

They ride across the country like characters from a Zane Grey novel. But instead of trying to keep their guns holstered, this new breed of drifter is just looking to shoot.

The people who work with the multitude of teleproduction trailers traversing this nation are, in many ways, similar to the wranglers who toiled on our ranges in earlier times. Even though their lariats are made of coax and their guns of glass and filament wire, they must still work long hours in all types of weather conditions to earn their daily wage.

The fact is, broadcasters have come to expect teleproduction units and their crews to perform under virtually any circumstance. Whether at a November collegiate football game in northern Minnesota or at an August political convention in Dallas, the final production is expected to come off without a half-hitch.

With these increasing demands, the owners of trailers have been forced to prepare their units and employees for any situation. Being unable to meet a client's requirements for a production could result in a lost contract. Unfortunately, this preparation can be costly and time-consuming.

Flexibility in design

John Crowe Productions, a Houston-based teleproduction company, recently purchased a 45-foot production trailer from Shook Electronic Enterprises in San Antonio, Texas. Through careful design and preparation, the unit is capable of providing a wide variety of services in virtually any environment.

According to Rusty Jones, manager of the company's Dallas branch, the theory behind the vehicle is fairly simple. "One word sums up the entire concept or philosophy of this unit: flexibility," Jones said. "In a vendor situation, such as ours, we have to be able to cost-effectively work for the networks on one day and on a point-to-point teleconference the next."

To provide these diversified services, John Crowe personnel spent considerable time working with the staff at Shook to develop a trailer design that would meet their specific needs. The vehicle ultimately was constructed around the equipment it was to house.

"Don Wilson, our technical supervisor, had a lot of little things he wanted to incorporate in the truck to save him time in the future," Jones said. "The Shooks understood this and were most hospitable."

Fast setup

With literally hundreds of teleproduction units on the road, Wilson's concern with the nuances of trailer construction has allowed John Crowe Productions to compete effectively with other production services. What's more important, at least to the broadcaster retaining the vehicle for a remote or special program, is the vehicle's ability to be operational shortly after arriving at the site.

"All the wiring in the vehicle is already in place, so it's just a matter of plugging in and operating," Jones said. "Another feature of the truck is its extremely organized design. This eases setup and teardown.

"Don has this truck put together so that when we arrive on location, within 20 minutes we're powered and the Chyron and tape machines can be up and operating. The same goes for teardown."

According to Wilson, the ability to set up and strike a production quickly is important to a profitable operation. Whether the crew is doing a network or local program, time is money.

"The network shows are nice," Wilson said. "They're big dollars. They're multiple days. But that's not what pays the bills every month. It's the let's go in at one o'clock in the afternoon, do a ball game at 7:30, and pull out. You've got to be able to go in and basically have everything set in an hour or two."

The John Crowe van features a special belly-box design that facilitates the loading and unloading of the cameras and cables stored in these compartments. Thanks to an outside frame design, the boxes extend all the way across the bottom of the trailer.

Continued on page 42

John Crowe Productions' mobile production van was designed by Shook Electronic Enterprises for easy setup and the ability to adapt to virtually any shooting environment.

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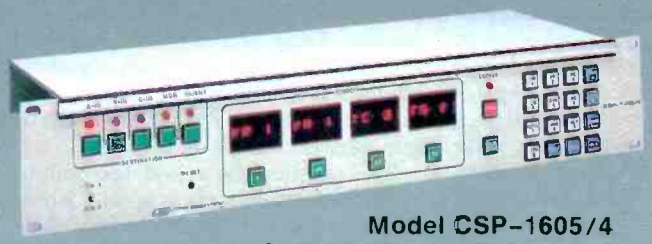

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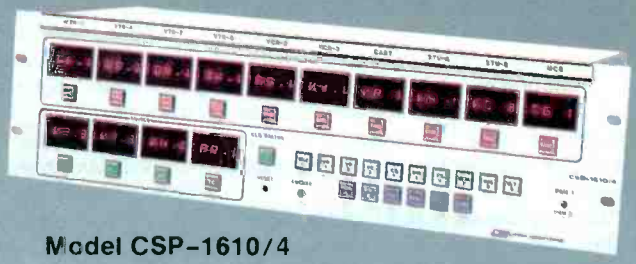

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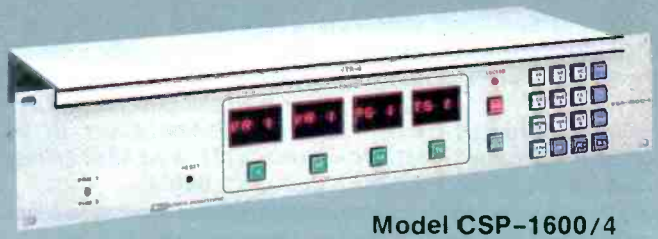

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Model CSP-16160/4
Full Matrix Controller and Diagnostic Panel

This new series of microprocessor-based panels has been designed by Utah Scientific to meet the needs of the broadcast and tele-production industries for individual control of source selection on multiple switching matrices (levels).

Each panel includes four alphanumeric displays to indicate either current *Status* (steady display) or a *Preset* source selection (flashing display) on each switching level. An alternate-action *Clear* button associated with each display plus an *All Clear* button permits toggling the displays between *Preset* and *Status* modes.

The touchpad features sixteen *group name* selections (beware of panels allowing for only ten) which, with either one or two *numeral* keystrokes, accommodates up to 1600 possible source names. Each panel can be provided with a *Program Select* switch that doubles the number of controlled busses at no extra charge.

Multi-bus panels provide instantaneous statusing of all four levels each time a new destination is identified. Instantaneous confirmation of changed status is also provided each time a new Take Command is entered.

The model CSP-16160/4 panel is specially programmed for maintenance/diagnostic duties as well as for full matrix control. It operates in either *alphanumeric* (source and destination names) or *numeric* (matrix input and output numbers) modes and can perform various diagnostic routines to permit rapid isolation of system faults.

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Circle (18) on Action Card

"Each of our belly boxes is a self-contained unit that is bolted on," Wilson said. "This gives us additional flexibility. The individual bay can be removed if it is damaged. By unbolting the subframe assembly and the bay, I can put the truck in the cargo bay of any of your larger commercial aircraft."

Environmental considerations

Operating in various geographic locations puts high demands on the heating and cooling systems of a teleproduction trailer. According to Wilson, sensitive equipment must be operated in fairly consistent temperature and humidity ranges.

"Environmental control is important," Wilson said. "To be able to operate year-round, in temperature and humidity extremes, the unit's heating and cooling system had to be up to snuff. The majority of the cooling goes into the equipment. Each rack has its own vent from the cooling system."

The staff at John Crowe has put its vehicle's heating and cooling system to the task during the unit's eight months of operation. From a Nebraska basketball game produced in a blizzard to a USFL football contest held on a hot summer afternoon, the unit has met all its meteorological challenges.

Just as important as the trailer's ability to operate in varying weather conditions, is the unit's ability to meet production demands from its clients. When outfitting the truck, buyers must weigh carefully the temptation to purchase sophisticated and costly equipment against the equipment's real value.

While impressive, some advanced production equipment has no real place in a teleproduction trailer. The cost of these state-of-the-art devices simply negates the value of their installation. The trick to outfitting the unit is knowing what equipment is *really* necessary. In addition, selecting the right basic equipment can be tricky.

"We've got a switcher that a guy from ABC can sit down with Monday night and know what he's doing," Wilson said. "And then the guy from Des Moines, Iowa, can sit down with it the next night and handle what's in front of him. So there again, it's the flexibility to handle the wide range of clients that's important."

The John Crowe staff has outfitted its van with many sophisticated machines. However, clients on occasion request equipment that is not on-board. In these circumstances, the company will rent the additional equipment it needs. By doing so, the cost of unused inventory is kept to a minimum, but the needs of the customer are still served.

The prime commodity

Having the right equipment for a particular production is of little use if qualified people are not present to operate the devices. According to Jones, the staff of the teleproduction unit is what makes it competitive. "Anybody can go out and buy the hardware. The bottom line is the guy who is running the truck."

The people who travel the country with these trailers are a special breed. Sometimes spending months away from their homes, they are the talented few who ensure every loose end is tied off, and they go the extra mile to make the production profitable. □

Editor's note: If you have any other examples of how to make mobile production operations easier and more profitable, please send them to James Larson, TELEVISION/BROADCAST COMMUNICATIONS, 4121 West 83rd Street, Prairie Village, KS 66208.

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Circle (25) on Action Card

Making sense on stereo remotes

BY EUGENE LYSINGER

With stereo television now on our side of the horizon, microphone techniques for stereo and mono are going to become important considerations.

Are we going to want to record everything in stereo? Some events may not lend themselves to stereo coverage, especially when we consider how they will sound when reproduced by the home TV set. With stereo TV receivers in the marketplace, the problem won't be the old 3-inch speaker. Instead, we'll need to be prepared for how the viewer will react.

One immediate problem is reconciling audio and video points of view. Obviously, we don't change the audio levels or microphone directions for every shot changed in the video. In musical event coverage, the mike positioning and the stereo perspective remain essentially the same throughout the production. Sports are another matter, but the answer to both types of productions depends on miking techniques.

What about sports?

Sports in stereo will require some real restraints. Fast-action switching among the cameras, with audio reacting simultaneously, could be distracting. The learning experience will probably tell us that crowd noise should be left and right with commentator dialogue in the center.

Hockey might have an exciting potential, except for the rapid shot changing and the perennial problem of the verbal exchanges between the players on the ice. Hockey could be miked with both ends of the ice set up separately. The center line could almost be disregarded, because most of the action takes place closer to the goalies.

Tennis, if viewed from the sidelines, would be great in stereo. Unfortunately, the many long shots from either end of the court would then call for an implied change of stereo depth perspective.

Microphone techniques

Let's look at microphone techniques and the options each one might offer in a stereo recording. We will look at three in our initial consideration. They are spaced-omni, coincident-pair, and mid-side.

In classical recording circles, spaced-omni is beginning to re-emerge as the technique of choice. In the beginning of the stereo era, omni microphones were generally more accurate than other patterns, and positioning them about 20 feet apart and 20 to 50 feet away produced some spectacular stereo recordings. Recently, the Telarc Company, with Jack Renner engineering, has produced very convincing stereo recordings using microphoning based on careful acoustical consideration and what appears to be stereo perception based on arrival time differential.

Spaced-omni is an excellent choice for use in sports coverage.

Coincident-pair, as illustrated here, is essentially the use of unidirectional microphones (nominally unidirectional—cardioid, hyper-cardioid, etc.) placed head-to-head at included angles of about 45 to 90 degrees or more, depending on the "width" of the source sounds or the

Continued on page 44

Figure 1 Spaced-Omni

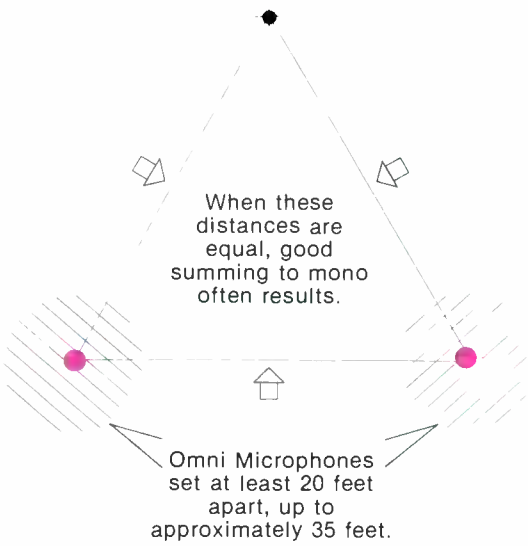
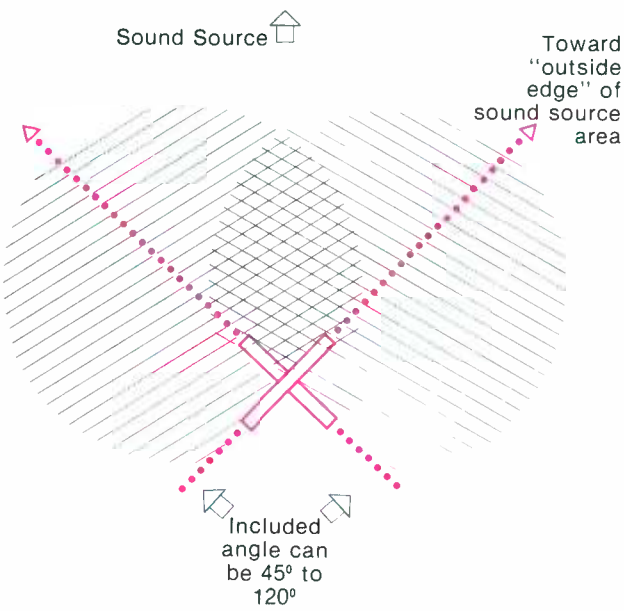


Figure 2 Coincident-Pair



Cardioid Capsules, one crossed over the other (two microphones, of "steered cardioid"single "chassis" microphone)

"sound stage."

The mid-side microphone offers some interesting possibilities for television because of its "view of the sound world." The mid-side principle combines two kinds of patterns with a mixing matrix to allow a variable width of sound pickup from mono (cardioid only) all the way out to wide-stage stereo.

Another consideration is the sheer logistical load put on audio technicians in recording a wide variety of events in stereo. Multiple microphones multiply problems for audio and video people alike. Now there are two elements to either camouflage or hide from the camera.

Third, the question asked of location recording engineers is appropriate here: "Do we record as if 'you are there' or as if 'they (the recorded source) are here'?" In other words, is the audio point of perception that of being *in* the event or *at* the event?

Now let's return to microphone techniques.

Miking music

For music, in the "at the event" type of coverage, the spaced-omni is my favorite. It gives the listener a sense of space or ambience as well as good left and right imaging. When done well, it gives a fair sense of height to the image.

There are problems. The spaced-omni technique, when summed to mono, does not reliably produce good mono. The resulting effect reflects the very phase-related information that makes the stereo so pleasing. The mono often sounds as though it is at the other end of a long pipe. It is possible, as was pointed out in Audio Engineering Society papers several years ago, to get good mono from spaced-omni stereo. It requires very careful placement of the microphones and a good working knowledge of the specific acoustics of the room or area in which you are recording.

So, for music in a moderately live auditorium where you have enough time to place, check, and replace your microphones, the spaced-omni technique can give very satisfying results. This assumes the "sound stage" is not overly wide and no bizarre placement of soloists. The idea is to use spaced-omni in a "master shot" kind of application.

Coincident-pair

Coincident-pair, as a technique, offers an immediate dividend. You need only one microphone stand or you can pair the cables together to form one hanging strand. The coincident-pair delivers stereo from the frequency response variations along the various axes of its polar response patterns.

One case made for the idea is based on the theory that human hearing works similarly. As a sound appears farther to your left, for example, your right ear receives less and less high-frequency information. You may ask, "Why not aim the microphones away from each other at a distance of about 6 to 8 inches, the distance between our ears?" In Europe, the ORTF, a French broadcasting company, uses a special microphone bar that holds them about 7 inches apart with their longitudinal axes at an included angle of 110 degrees and their capsules aimed away from each other.

There is at least one reason why the ORTF technique hasn't gained wider use. Some find the phase relationship of a signal from one point arriving at two different places at two different times to be less than pleasingly coherent. The spaced-omni technique has the same characteristic working for it, so why not the ORTF? One reason, according to

Continued on page 46

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"Football, with the cheerleaders in stereo, the references in mono, and a sense of sounds approaching or receding, would seem a likely game on which to experiment."

some critics, is that the usual speaker placement is several feet (6 to 8 feet minimum) apart. They see the spaced-omni technique as an analog to the speaker-to-speaker relationship. Also, the implied wavelengths resulting from the distance between microphones convert into frequencies below those on which we depend to identify stereo.

The ORTF idea, on the other hand, puts the microphones very short wavelengths apart. They translate into highly directional frequencies which, after addition, attenuation, and outright cancellation, make for a comb-filtering effect that can produce a ragged audio curve and tiring high-frequency reproduction.

This brings us to the idea of having the capsules close together. The implied frequencies are presumed to be higher than is disturbing to either imaging or smooth response. The coincident-pair technique produces better mono than the spaced-omni does, but some feel that the stereo coincident-pair product isn't as spacious. One point favoring coincident-pair is that the stereo on earphones is nearly perfect, with no "canyon in the middle" effect as is heard from spaced-omni.

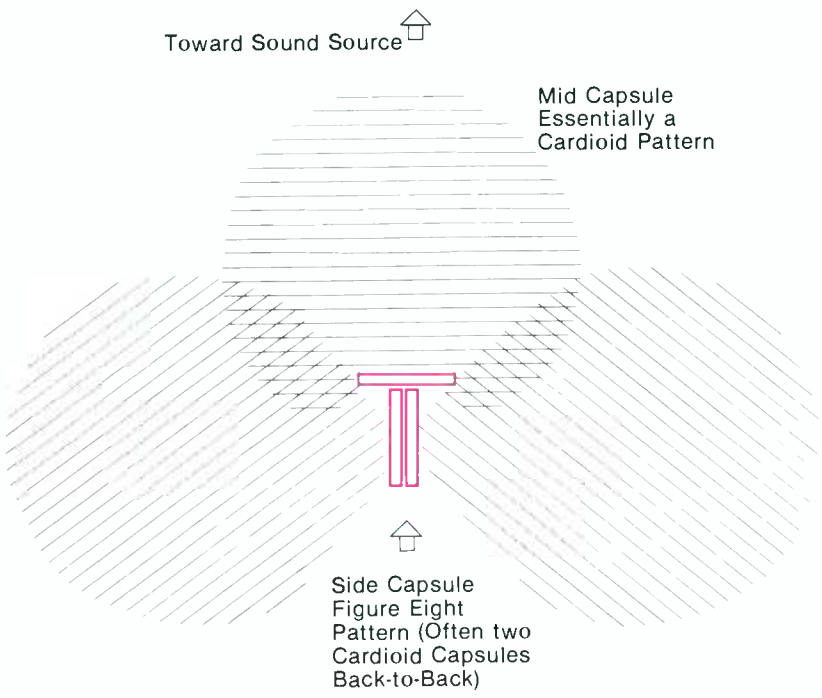
Mid-side technique

The mid-side technique offers some intriguing possibilities for television audio in stereo. Most mid-side setups are essentially one microphone "chassis" with three cardioid elements used to produce the patterns. So only one stand would be necessary to hold it or one stand to hang it.

There are a couple of ways to handle mid-side. You can use the matrix to assign the left/right separation and stage width as you record (i.e., matrix ahead), or you can use a line level matrix to perform these functions during the first edit. That allows you to record the mid microphone on channel A or 1. The side microphones go onto channel B or 2. Now you can transfer channel 1 as the mono you've always had and use channel 2 audio as wild sound—all in mono.

Alternatively, you can employ the matrix during the transfer to make whatever width of stereo you choose, and it is done in the post-recording phase where you can change your mind based on trial and error at your leisure. Time is money, but editing time is a lot cheaper than shooting time! The mid microphone is a cardioid aimed straight ahead, so its product is essentially what you get with any other cardioid.

Figure 3 Mid-Side



Mid-Side Microphones usually include all the above capsule complement in one "chassis". The matrix may be included and/or may be separate.

Sports techniques

Back to sports. Any sport where there is a way to correlate the audio and video perspectives on a continuous basis (where the camera angle remains the same from the left/right aspect) is an easy case for spaced-omni stereo. Microphone placement could be simple, and nearly everybody has 635As or other, flatter omni microphones.

Over the last few years, the viewpoint has been more a case of "you are there" or being *in* the event. With rapid changes of shot and camera panning common practice, stereo audio could be distracting. One way to approach sports such as tennis would be to center the announcer's comments and the sound of the hitting of the ball, and use the crowd sounds in the left and right channels.

Instant replays would not be a difficult problem. Most replays are video over continuing real-time audio. Football, with the cheerleaders in stereo, the references in mono, and a sense of sounds approaching or receding, would seem a likely game on which to experiment. What's more, the point of view is fairly consistent.

Stereophonic sound as we've come to know it depends on a stable point of view. It probably derives much of its apparent multidirectional sound sourcing from very small movements of the listener's head while picking up sound directly from the loudspeakers as well as reflections from the walls and other surfaces in the viewing/listening area.

For all problem sports, perhaps we can get the crowd noise in stereo. Then you can assign commentators to some position in the audio panorama. Anything else will probably be right where it is now—in the middle. □

Eugene Lysinger, audio technology editor, is an audio engineer in Portland. (503-760-2749)

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THE TONIGHT SHOW sets the stage for stereo

An exclusive interview with NBC audio engineer Ron Estes

BY RON MERRELL

When Joan Rivers asks, "Can we talk?" people listen. Although we can't be sure how many were listening to *The Tonight Show* on July 26, those who heard her open the program as the guest host could have asked, "Is this in stereo?" Her answer would have been, "You've got it!"

The July 26 show marked the first time stereo audio was broadcast on a regularly scheduled commercial show in the United States. It was a historic occasion for the broadcast industry, even though it was transmitted in stereo only in New York and only a small number of sets were equipped to hear it in stereo. It was significant because it was the first step into a new dimension for television broadcasting.

It was three years ago that NBC Burbank audio engineer Ron Estes started taping *The Tonight Show* in stereo. In recognition of the work Estes and John Strain put into their sum and difference stereo recording techniques, they have been nominated for an Emmy award.

The nomination reads, "Achievement: sum and difference stereo recording. An encoder takes the left and right stereo signal from the audio console, converts it into a sum and difference signal recorded on two tracks of the videotape. Track 1 is composite, or sum (which is the mono track); and track 2 is the left minus right difference. When 1 is matrixed with 2, a true high-quality stereo signal is produced. **The system has been used on over 300 Tonight shows and promises to become a standard for television stereo recording.**"

Behind the scenes

Other aspects of *The Tonight Show's* stereo experience are more important than the Emmy nomination. The show's

Johnny Carson interviews Bette Davis on the set of The Tonight Show. (Photo by Frank Carroll, courtesy of NBC)

format includes an opening monologue, guest interviews, talent on stage, and the orchestra. Each element has given Estes a variety of challenges that translates easily into applications for all broadcasters.

To get the answers to what Estes has learned from taping more than 300 shows in stereo, *TV/BC* talked with him in mid-August. In this exclusive interview, Estes describes how stereo got started in Burbank, how the technical crew handles it, and what implications it has for the near future.

TV/BC: *What prompted you to do* The Tonight Show *in stereo?*

Estes: It seemed like a natural for stereo. The show is done live. We go straight through it. And it doesn't have to go through post-production. So whatever happens on the show happens.

I started mixing it while we were still on 2-inch tape three years ago. The sound wasn't going anywhere, except onto ¼-inch audio tape, allowing me to build a small library. We monitored it that way in the control room until two years ago this October. That's when we started recording and playing back the show on 1-inch tape with two audio tracks.

TV/BC: The Tonight Show *has several format elements: monologue, interviews, talent on stage, and the orchestra. How do you handle the challenge of these elements in stereo?*

Estes: Right now all dialogue is in the center channel, so we're taking care of the mono listener at that point. The one exception is during the monologue at the top of the show. When Ed (McMahon) says, "Here's Johnny," he is center channel at that point. Then he's flipped over to the left channel, and Doc Severensen (commenting from the orchestra) is on the right speaker. That makes Johnny center. He often refers to them, but they aren't often picked up on camera shots. That makes for a very good stereo situation.

The home-base mike (the one on Carson's desk) and the boom mike (that picks up the guests) are both assigned to the center. And any performers who use a hand mike are on center. In a case like this, we build the music in stereo around them. Of course, some of our guest singers bring a band with them. For example, we had Lionel Richey on stage with his band, so we had to mike that in addition to the house band. We wound up with another 30 or 40 inputs.

TV/BC: *Do you use wireless mikes?*

Estes: We don't do that very often because we've had so much trouble with multipath in this studio. They may be used more in the future, but right now I can't afford to have anything fail.

TV/BC: *How do you mike the orchestra?*

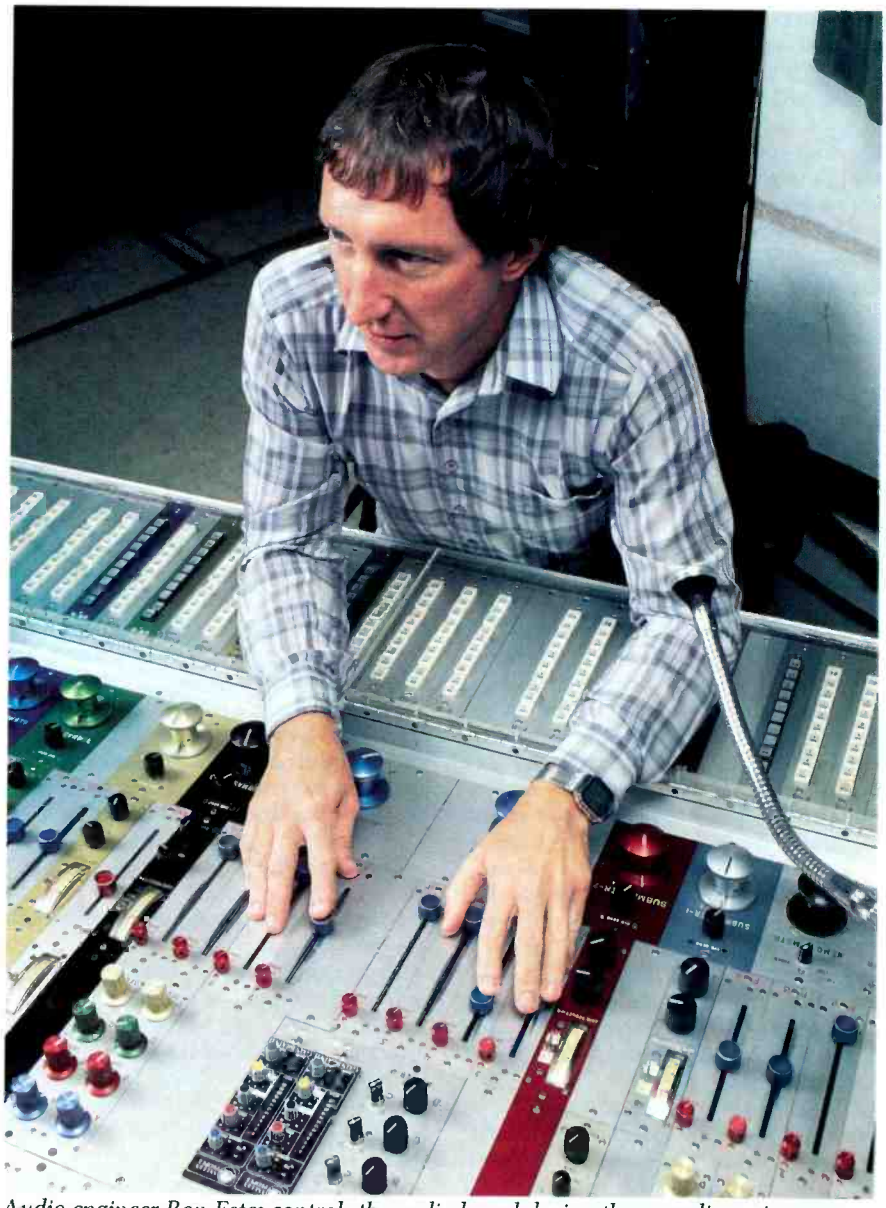
Estes: We use 25 mikes for the orchestra, and we use several different brands. We do that because we've found that some mikes are very good on a particular instrument. For example, we use four different mikes for the rhythm section. There are two Schoepps on the overhead drums, an AKG on the top and bottom snare drum, an Altec on the floor tom, and an Electro-Voice on the kick drum.

TV/BC: *Some audio experts have complained about shots that don't coordinate with the audio. An example is a tight shot of a bassoon player without any distinctive audio coming from the bassoon. What's your approach to a shot like this?*

Estes: You may be referring to the Boston Pops. I've seen shots like that, and that's also one of my criticisms. That's not a good miking technique.

TV/BC: *Could this be solved by having the board engineer working with the director, so he knows when this kind of shot is coming up? Then maybe he could push the mike on the bassoon.*

Continued on page 50



Audio engineer Ron Estes controls the audio board during the recording—in stereo—of The Tonight Show. (Photo by Joseph del Valle, courtesy of NBC)

Estes: You can do that, but you don't want to ruin the mix. On something like the Boston Pops, they are using only a few mikes for the overall orchestra mix. In that case, they might not have a mike close enough to the bassoon to do that.

Classical recordings are not miked the way we would mike for the big bands or rock. Rock is very tightly miked. Every instrument has up to three mikes on it. In fact, the drums may use as many as 10 or 15 mikes, easily. A symphony orchestra may be using only four or five mikes total, so it's a whole different ball game.

TV/BC: *Based on your* Tonight Show *experience, explain how you would handle this situation: the news set seats four people. The co-anchors are miked for the center, and the weathercaster and sports director are miked left and right. But the weathercaster goes from the full left position and walks to the chromakeyed map where he is now in the center channel.*

Estes: That's a prominent problem, and we had a problem at KNBC exactly like that. I would suggest the judicious use of the pan pots on the board. Anyone who is being featured would be centered when they were delivering their portion of the news. If you want to pan them off slightly to the left or right when they are on the set together, I think that's acceptable.

Years ago the film industry tried using techniques that put the sound in position with the actor on the screen. The sound came from all kinds of places on the screen. They finally decided that this approach was disconcerting to the viewer. Now, any dialogue that doesn't come from the center is usually an offscreen voice. That's the way we do it during Johnny's monologue.

TV/BC: *Is there an alternative?*

Estes: There is talk, and this is down the road, of using a separate channel as a dialogue-only channel. I did a test recording of *The Tonight Show* on three tracks. The dialogue was on track 3 of the 1-inch tape. Time code was excluded. The music and the audience were on tracks 1 and 2 in a left and right format.

There are a lot of people who feel that, from a viewer's perspective, if the dialogue came from the center only and everything else was left and right, it would enhance the stereo effect. This way, if you're sitting 45 degrees from the front of the TV set, you wouldn't be as affected by hearing less from one speaker than the other.

There are some strong advocates of the three-track system. That's way down the road, and to me it represents monumental problems. Right now, there are only three tracks available for audio on the tape, and the third track is commonly used for time code. The question is: Where do we go from here?

TV/BC: *Could post-production houses handle it?*

Estes: Most post-production houses are set up for two tracks, but they could probably accommodate three tracks. The satellite systems are basically two channel for transmitting from a network to local affiliates. Most of the receive-only satellite terminals are set up for two channels. So while some thought has been given to this, there are tremendous problems to answer from the mike to the speaker of the TV set.

"The board I've been using...is a mono board which is flexible enough, through patch panels and submasters, to develop a stereo signal."

Even using the SAP channel for a second language will require a third studio-to-transmitter link. It's a problem that will have to be addressed one of these days.

TV/BC: *Back to two channel, how do you mix those 25 mikes on the orchestra?*

Estes: The board I've been using was made by NBC several years ago. It's a mono board which is flexible enough, through patch panels and submasters, to develop a stereo signal.

When we have a large group on stage, other than the house band, I augment it with an auxiliary board. The main board can handle 53 simultaneous inputs, and the jack panel has over 1,000 holes in it. That makes it quite flexible.

TV/BC: *That's not exactly state-of-the-art.*

Estes: That's true, but we just finished our new studio in July. It's equipped with a state-of-the-art board that will represent the wave of the future for us. It has pan pots and facilities that weren't even thought of when the old board was built. The new board was made exclusively for stereo. It also has most of the features found on the best recording studio boards.

That's the main mixer. There are two others we use. One mixes a split out of what I have, and that goes to the audience. There's a second mixer on the floor that feeds the foldback system. This lets performers hear themselves and certain portions of the orchestra.

When we get a very large group on stage, we bring in our transformer splitting system. It's a Jensen 27 × 3 mike splitting system. One channel goes to the foldback mixer on stage, and I get the direct feed and bring it to the audio board upstairs for use on the air.

TV/BC: *An Audio Engineering Society (AES) panel last winter suggested that stereo audio wouldn't work in broadcast television. They said that broadcast audio engineers hadn't yet learned how to handle mono. How would you have responded?*

Estes: I understand the put-down. I've been with NBC for 15 years, and I've run into it many times. It all comes back to the 3-inch-speaker syndrome. A lot of complaints were justified until about five years ago when most of the audio was being delivered by the network via 5 kHz telephone lines. There really wasn't much audio to work with. What's more, the quality of the lines was really poor. Now we're able to get 15 kHz.

Many of those who make statements like those on the AES panel have never dealt with the pressures of a live situation. We do *The Tonight Show* live, so whatever happens just happens. In a recording studio situation, life is much different. Those people are able to go back and overdub or get all the parts down on tape, and then they go back and spend weeks or months mixing it down.

TV/BC: *Are there other differences that will affect the way we handle stereo?*

Estes: You can't use the miking techniques that you would use in a recording studio. We have a picture to contend with, so we can't have mikes all over the set.

TV/BC: *Do you have any suggestions for improving the emphasis stereo will get at the station?*

Estes: When an art director comes in with a beautiful set, it may be awful for miking techniques or acoustics. Hopefully, more consideration will be given to audio when the set is being designed. And that's another problem recording studios don't have to worry about.

TV/BC: *How would you assess broadcast TV audio as we enter the stereo era?*

Estes: Basically, we're already using the same mikes, reverb devices, and processing gear that recording studios use.

I've had my television set connected to my stereo for about five years now. It's incredible how much you can get through the system right now.

I've been involved in proof-of-perfor-

mance tests here at KNBC and for the network. I know the signal that's reaching the antenna has the same characteristics as that of an FM signal. We're down about 1 dB at 15 kHz and .5 dB at 50 Hz. And we have an incredible signal-to-noise ratio.

Most people would be surprised at how good the audio is even before we move into stereo, but you've got to receive it properly.

TV/BC: *Although TV receiver manufacturers are now building sets with stereo audio capabilities, it will be some time before they penetrate the market. Is there any advantage for stations or networks recording their shows in stereo today?*

Estes: Of course you will benefit from the experience of working in stereo before it becomes a command performance. That's important, but there's an equally compelling reason.

We have over 300 shows in the can already. And having any show on the shelf in stereo now will be an advantage later. When the show is offered later for replay in a stereo market, it will have a dollar advantage over shows being replayed in mono.

As you know, *The Tonight Show* is usually a repeat show on Mondays. We also repeat shows during the year when Johnny takes a vacation. That's when we drag out "The Best of Carson" shows. These shows are usually a year old. Right now we could air shows in stereo that were made a year ago. It's definitely an advantage.

Many of the large production shows that are done here in town are also recorded in stereo, or at least with stereo music on 24-track that could be laid back in at some future time.

Moving ahead

The message Estes leaves for all broadcasters is that it's not too early to start recording in stereo, because it will pay off later. And if broadcasters use stereo judiciously, it will enhance the video experience with a new dimension.

The upcoming conventions will set the stage for a variety of product introductions that will take the signal in stereo from input to output. Already, TV sets are entering the marketplace with stereo compatibility. So, unlike AM stereo, all players are entering the scene at about the same time. And there is a standard.

If stations, networks, and production houses shift to stereo now, they will have an adequate supply of stereo programming and experienced engineers on board once stereo TV sets finally penetrate the marketplace. The historic efforts of *The Tonight Show's* engineers have set the stage for stereo today. □

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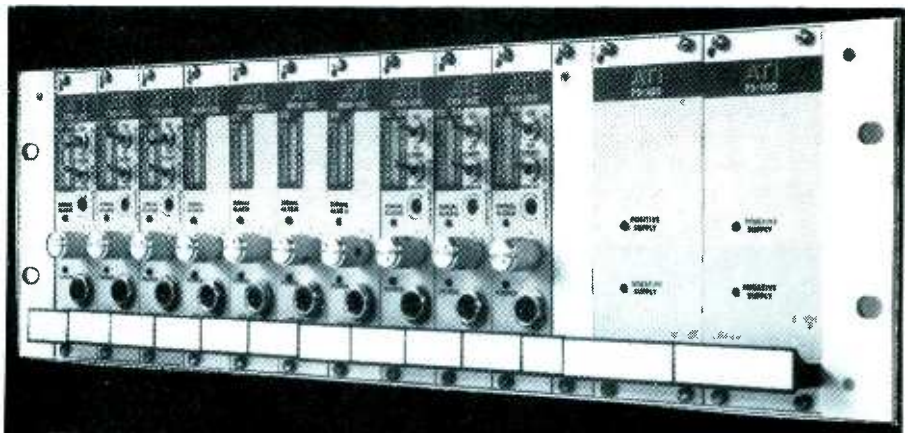

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THE NEW EDITORS won't need calisthenics

BY GLEN PENSINGER

1984 may be a benchmark year for video editing in the way that 1961, 1969, and 1977 were. 1961 saw the introduction of electronic editing; 1969 brought us SMPTE time code; and 1977 was the year of the Type C, 1-inch VTR. The significance of 1984 will hinge, not on a single innovation, but on a combination of events.

Efforts toward more universal machine control, a shift in the design of operator controls, and even changes in the users themselves are important factors. All of these are moving video editing into a more generic phase, one that is less specifically television.

Computer literacy

Deborah Harter, Convergence's project manager on the Lucas Editdroid, thinks that computer literacy on the part of film editors, producers, and other creative people has brought us out of the "whiz bang mode"—in which the box with the little lights was impressive in and for itself—and "back to basics." The company's concern now is not "which box do we have to have, but what, functionally, do we really need to do?"

Christin Hardman at CMX agrees with Harter and sees a "general realization of the power of computers and the fact that the technology for word processing can be applied to editing."

The proliferation of small computers; the ease with which they perform tasks such as word processing; and the familiarity with track balls, mice, and programs like MacPaint, all make creative people not only more comfortable, but also less tolerant of machines that are difficult to operate. Manufacturers have been quick to respond to the need for simpler and easier list management. Bosch, CMX, Control Video, Paltex, United Media, and Videomedia were among those showing improvements in this area at this year's NAB convention.

For example, on Videomedia's disc management system, it's now possible to have 255 files open at one time, each with 250 events. According to Bill Stickney, "You can merge those files and have a total map, as it were, of what events are tagged to what events. The unripple control, like an undo button in computers, allows you to undo the last command.

"Probably the most important feature is the ability to append and merge external files to a current list. That goes beyond normal block manipulation."

Videomedia has developed a disc *operating* system as opposed to a disc *storage* system. This allows the company to update its equipment simply by shipping users a new disc. At the NAB show, Videomedia introduced its Version 2 software, which included the expanded list-management capabilities.

According to Stickney, there are event

Continued on page 54

The Lucasfilm/Convergence Editdroid.

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Ken Berry
Coordinator, Media Services
Santa Barbara Community College
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functions, block functions, and more. That means whole file manipulations. You can be in any one file or edit decision list and still access information from another file or portions of another file.

Machine control

Universal machine control has been a long-sought goal. This year saw the first SMPTE standards documents for machine interface based on RS-422 serial interconnections. The RS-422 provides the channel, and the SMPTE work establishes the language that will be used and the protocols as to who speaks when.

A lifetime of work remains on the many different dialects for switchers, special effects, audio consoles, and other peripherals an edit system needs to access. The presence of a common channel, however, and the basics of a common language make edit control systems much easier to build. Sony's Tom Mehrens predicts that "over the next two to three years, all VTRs are going to work the same way through the 422 interface."

Efficient auto assembly depends on sophisticated control of more than just VTRs. Ampex's Bill Justice thinks, "The day of auto assembly with look-ahead has certainly arrived." Using the SMPTE buss, the edit control system can talk to multiple levels in the switcher and can call preprogrammed events directly off an ADO disc.

Although dialects may be different, the SMPTE buss makes it more practical for one manufacturer's edit control system to talk to another's peripheral equipment. That requires cooperation and the disclosure of protocols, timing relationships, and the like. Justice says, "Most of the manufacturers have been exceedingly cooperative in doing that."

The video disc

1984 is also the year in which the video disc began to look practical as an instant-access storage medium for off-line editing systems. CMX has demonstrated disc capability for more than a year. Convergence, Ampex, and Montage Computer showed disc capability at NAB this year. Panasonic has brought its 8-inch direct-read-after-write, the DRAW Disc, from the lab to the marketplace. Pioneer and Sony are offering 24-hour mastering services. 3M can provide discs on a same-day basis with prior arrangement.

A conventional laser disc replicating master runs a little more than $2,000 a side, with pressed discs costing about $10 each. That can be absorbed in a big project, such as a feature film, but new technology promises to bring the off-line editing disc into a price range compatible with everyday projects. Spectra Image in Burbank has announced overnight availability of laser discs for $300 each. Spectra's service is based on DRAW technology from the Optical Disc Corporation. The process produces a single, directly written disc, not a duplicating master, so multiples cost about the same as the original.

New operating controls

The new direction in operator control can be seen not only in the striking new systems that have adopted a "film" approach, but also in a host of innovations in otherwise conventional editing systems. This year's crop includes a large number of user-definable features: labels for "scratch pads"; individually tailored edit decision list parameters; and "soft keys" that permit an editor to assign a string of frequently used key strokes to a single, user-definable key. Much of what editor and writer Art Schneider calls "keyboard calisthenics," such as 23 key strokes to do a fade out, can be assigned to a soft key and executed with a single stroke.

Control Video, a pioneer of touch control, now augments touch control with a keyboard option. Ampex has provided touch screen, ASCII keyboard, or dedicated keyboard formats for quite a while.

EECO has introduced three controls for its new EMME system. One is a dedicated keyboard; another is integrated into a video production switcher; and the third, directed to film editors, is picture oriented with no numbers to crunch and a minimum of keys and controls. CMX is shipping both touch- and voice-control options for its systems.

Film school

Most striking of all are the dramatic departures in operator control systems: Montage Computer's multi-screen work station; the Lucasfilm/Convergence Editdroid; CMX's voice control and developmental "picture strips"; and Asaca's strip type edit viewer. All these could trace their roots to 1971 and the CMX 600.

At the SMPTE Technical Conference in Los Angeles that year, Joe Flaherty and Ken Taylor described a "film like," off-line video editing console with the ability to view action in either direction at normal, fast, still-frame, or slow speeds. It could jog frame by frame. Edit decisions could be rehearsed, made with single-frame accuracy, changed at random, and played back immediately in real time—all this at a time when 2-inch Quadriplex was the video recording format and SMPTE time code had just been standardized.

The concept was elegant. It permitted rapid and precise massaging of pictures and sound elements. Scenes were called by names. It was menu driven with a light pen as the only control. A computer kept track of all the decisions and cranked out an edit decision list for auto assembly. CBS formed a joint venture with Memorex (CMX) to develop the idea. They had to rely on the large computer disc packs of the time as a fast access storage medium. The off-line images were black and white and a bit on the shaky side. The technology was not yet ready.

The idea, however, had staying power. In 1979, Flaherty was back before the SMPTE Technical Conference, this time in New York, describing essentially the same approach. This time, however, the hardware was improved. Off-line video storage for the CBS Single Camera Video Tape Editing System consisted of six special Beta I format, ½-inch videocassette machines developed for the project by Sony. The unique way in which "good takes" were stored permitted fast real-time manipulation of picture and sound. A couple units were built by CBS, but the system was never marketed. Now, four years later, technology is ready for this idea once more.

The Lucas/Convergence Editdroid mimics a film editor's flatbed editing

Continued on page 56

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Quality Pictures.

Our engineering staff worked with video engineeers and video users measuring the acceptance level of various digital word sizes and sampling rates. 6, 7, and 8 bit word sizes, as well as, 3 times and 4 times subcarrier sampling systems were considered. Although it was found that 7 bit, 3 times subcarrier was acceptable for ¾" and ½" helical scan VTR's, the staff opted for a higher order of magnitude in performance by choosing the **8 bit, 4 times subcarrier** design for the *nova 500.*

The same careful effort went into choosing the correction window size. 2, 4, 8, 16 and 32 lines of correction were investigated. Again, the higher order, **32 lines,** was chosen.

¾" and ½" video tape recorders work with a technique called heterodyning. This is a method by which the frequency spectrum of video signals can be reduced during the tape recording process. During tape playback, the process is reversed in order to recover the full video frequency spectrum. The process causes a number of unwanted effects including loss of high frequency information, viewed as a lack of picture sharpness, and increased picture noise. Heterodyne's effects are additive in nature. "Single wire" time base correctors also use the heterodyne process, thereby adding to the overall picture degradation. The *nova 500* was designed for **full bandwidth picture correction.** By providing a subcarrier feedback output to the VTR, the user keeps the unwanted effects of heterodyning to a minimum.

Editor's Delight.

Extra effort was taken to include features videotape editors have come to expect in sophisticated freeze-frame/time base correctors. When searching for material on tape, editors can see **pictures in shuttle** rather than seeing the picture monitor lose horizontal lock. **Still frame picture editing** allows the editor to pause the recorder for a stable color picture that can be recorded without resorting to more expensive frame store devices. Furthermore, the *nova 500* is one-rack unit high (1.75"), **a space saver** in the edit suite where the unit can be positioned for easy access to the proc amp controls.

Reliable.

So, we purchase only **pre-tested** components that are temperature cycled, **burned-in** and tested prior to assembly. Then, each *nova 500* is thoroughly burned-in after **assembly and testing;** and finally, it goes through our **quality control** process. Furthermore, we use power supplies which operate at no more than 55% of their rated capacity, thereby prolonging power supply and component life.

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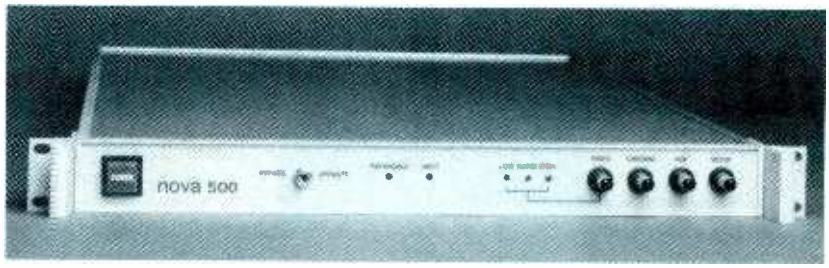

The 32-line *nova 500* digital time base corrector is only one rack unit high.

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table. Two monitors display pictures. A third gives control-menu and shot-log information. Video discs provide instant access for real-time preview. Controls are at a minimum, consisting of a shuttle knob to scroll the pictures back and forth; a track ball to move the cursor and call new shots; a few dedicated and soft keys; and a separate alpha keyboard for logging and note taking.

Extensive information on scene, take description, sound roll, lab roll, and the like can be stored for each shot. Editors can tailor the specific information they want and the way it will be displayed during normal editing.

The Montage Picture Processor mimics a film editor's clip bin. As raw material is loaded into the system, the computer organizes it into clips either automatically every so many frames or at the editor's command. Controls are a pair of large knobs with a few associated keys and levers. Display consists of an array of 14 small monitors that show digitized images representing the heads and tails of clips and the relationship of various clips side by side. Color monitors display selected takes and real-time preview.

A show is built by manipulating clips without regard to numbers or shot lists. Clips can be scrolled through frame by frame, spliced together to form new clips, and stored in various work bins.

According to Mike Lowe, Montage's vice president of marketing and research development, the system's speed is accomplished by computer management of seven to 14 modified Beta hi-fi decks each holding identical material. The computer will store extensive information related to the clips, including the text from the script.

A "grease pencil" option lets the editor write directly on a video frame to note effects and the like. Output is in the form of videotape workprints; paper storyboards with pictures, shot data, and text (including grease pencil notes) produced on a laser printer; and, of course, auto assembly lists.

CMX has demonstrated a developmental control with a color monitor that displays two strips of small color images together with commands such as play, stop, preview, etc. Strips can be scrolled to their edit points. A touch of the finger puts the screens together, and another gives an instant, full-screen preview of the decision. Asaca and ISC have showed a system based on Asaca's AEV 300 editing viewer that displays four strips of images at once.

Video editor suppliers

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United Media	(Circle 357 on Action Card)
Videomedia	(Circle 358 on Action Card)

What's significant?

Where is the significance in this flood of development? Convergence's Harter notes, "The idea has always been to make editing easier." For most of the last 10 years we've been dealing with the "back end" of the editing process: making the machines work. Now hardware is catching up, and attention is being put to the "front end," the creative process itself, making a machine for people to use.

CMX's Hardman, herself an editor, says, "In the past we've concentrated on editing systems for videotape, not for editing in general. Now we're making it a more direct process." She points out that an editor's brain "races through the creative process." Current research is aimed at removing the number crunching, command typing, and other housework that interrupts that race.

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Art Schneider reinforces this view when he describes his experience working with the Convergence/Lucas Editdroid. "There's no need for list management," he says. The speed of the disc system lets them simulate an assembled sequence without ever having to record it. The system is always in a real-time preview mode. There are no overlap recordings; only valid numbers exist. The list is always clean.

Harter describes the task of editing as "organizing a mass and reorganizing it into a smaller mass." Control Video's Larry Seehorn adds to that description in what he sees as the goal. The ideal system, he says, moves away from the concept of list management to the concept of database management. Once information is logged into the database it won't change. What changes is the way it's organized at a particular instant for a particular purpose. If all the pertinent information about a shot or series of shots is held in a database, it can be accessed from a variety of angles.

Images themselves can be called up, massaged, and rearranged. They can be searched for and found by their relationships. Were they shot at the same time? Do they contain a particular actor? With what other shots have they been associated during the editing process? The system would remember the decisions and could give them back in a form appropriate to the task at hand. That could be a real-time preview of the picture and sound decisions. It could be a CMX, ISC, or Paltex auto assembly list. It could be edge numbers and frames for a negative cutter. For an inquisitive agent, it could also be a listing of the scenes featuring a particular actor.

Simpler tools

Al Paz at Paltex sees film style from a different perspective. "Film can literally be edited with a pair of scissors," he says. He thinks that, while the industry has done a good job of mimicking the mechanics of the film editors' tools, it has done it at a cost of hundreds of thousands of dollars. "This is contradictory to what computers are telling us in our everyday life when you can buy a computer for a couple hundred dollars," Paz says. He sees a need for tools that use computer technology to make the job easier, but not necessarily by duplicating the mechanics of film.

A series of tools could each address a particular stage of editing: logging, edit decision-making, EDL generation, and auto-assembly. "Even an Apple or Commodore or IBM has enough capacity to do a lot of housekeeping," Paz says. A simple control panel can tell it where scenes begin and end, and where and how the transitions occur. I/O devices can control VTRs, switchers, and the like. According to Paz, a simple system for organizing the raw material "should not cost more than $10,000."

Some of those tools are already in the marketplace. Comprehensive Video is selling software for list management, script preparation, and budgeting. Calaway Engineering has add-on software and hardware to convert the IBM-PC into a computer-assisted editing system compatible with CMX interfaces.

Sony is offering a time code reader with accessories that let you generate a standard printed or punched list from in and out decisions you make as you're viewing material off-line. If you've cut pictures together and have carried through the vertical interval time code from the original sources, it will read that information and give you a list on a single play through.

The audio side

Audio is receiving more attention. Graham Patten Systems has a purpose-built audio post-production mixer, the 612, that was used extensively at the 1984 Winter and Summer Olympics. Its microprocessor control lets an edit system match audio sources and perform automatic transitions between any combination of 12 inputs.

ADM, Harrison, MCI, Scantex, and Sound Workshop have the ability to interface with editing systems. Neve gives access to its own sophisticated mix-down computer. ATRs are readily controllable, as is the Lexicon time compression device.

The availability of controllable audio equipment begs the question of how much audio post can be practically accomplished in a video editing suite. Hardman thinks that when it gets above two or three tracks, it becomes a separate process. Frame accuracy often isn't enough for audio, which can require accuracy to 1/100th of a frame. Tom Mehrens cites the sheer volume of data necessary to accurately track a complex mix-down. He also notes the physical unsuitability of the edit suite for audio mixing because of all the glass, CRTs, and hard surfaces. Editor Art Schneider raises a point that may be even more important: "It slows up the editing process. At up to $1,500 an hour for an editing room with all the digital effects, you should not be messing around with audio."

There is bound to be a shakeout from all these developments. Many ideas that looked promising when introduced, sank like stones, never to be seen again. Promising concepts, that didn't work on the first try, like the CMX 600, resurface each time the technology improves.

It isn't clear which of 1984's developments will survive in general use, but the concepts of database management and operating controls that let "the editor's mind race" are here to stay. □

Glen Pensinger, video production editor, is a television engineer for San Jose State University and a television systems consultant.

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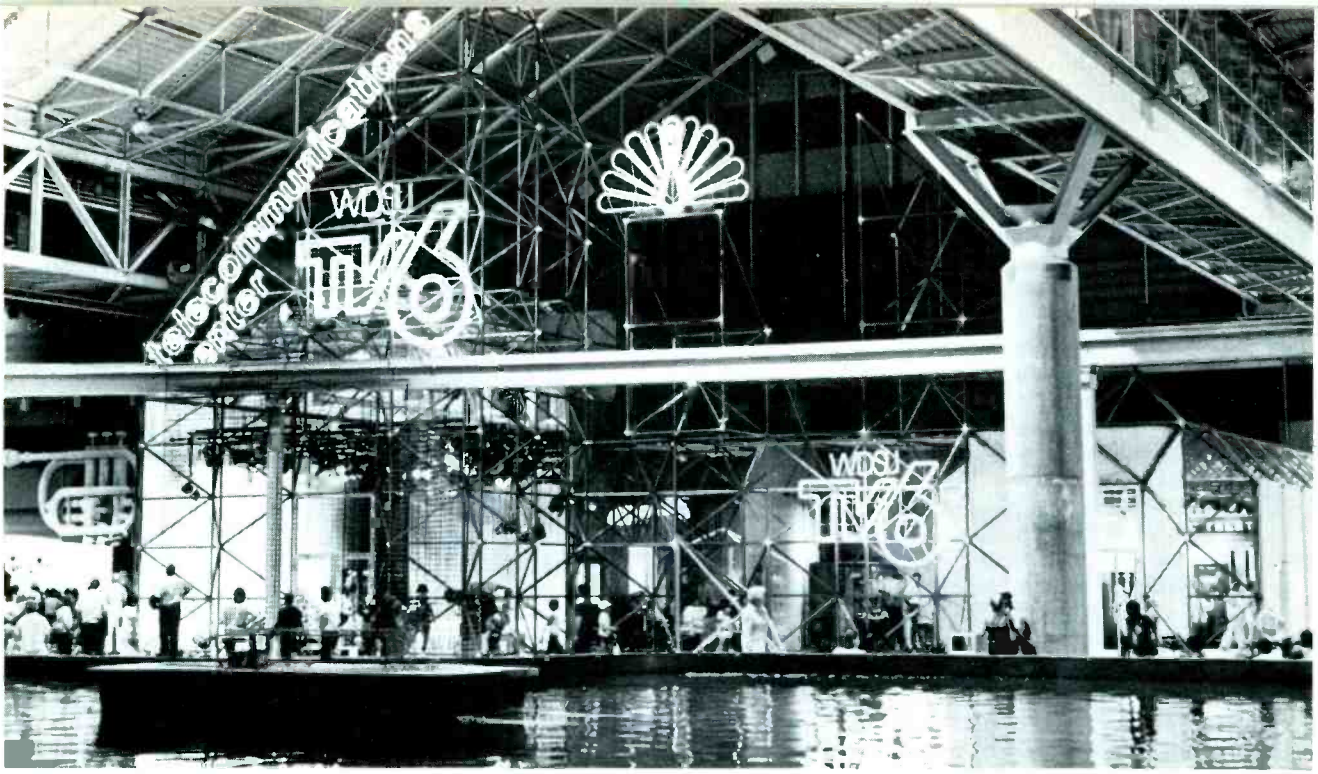


WDSU's Telecommunications Center was constructed of glass to provide high visibility.

WDSU takes advantage of LOCAL ORIGINATION

BY MELANIE MITZNER

In broadcasting, as in any commercial venture, it is the public's perception of the company that ultimately determines its success.

When WDSU-TV began broadcasting in 1948, it was New Orleans' first television station. Pioneered by Edgar Stern, the NBC affiliate fast became one of the city's finest institutions. Despite competition from WVUE-TV and WWL-TV, the station managed to maintain its leadership position until it was sold in 1972.

Suddenly, the station no longer belonged to New Orleans. Its new owner was Cosmos Broadcasting, a division of a *South Carolina* insurance company, which also owned five other stations. When the new proprietors began to trim the budgets and cut many of the station's formidable personalities, ratings plummeted.

Forced to deal with declining shares, a major reorganization of Cosmos ensued. Jim Sefert, chief executive officer of Peters, Griffin, Woodward, was eventually named president of the company. Under his guidance, a major rebuilding of WDSU began. Additional funding was allocated to the station. Perhaps most important, Michael Corken, former vice president of Albany's WNYT-TV, was hired as the station's general manager.

A new image

In order to drag the station out of a dismal fourth-place finish in the market, WDSU's management set out to prove to viewers the station was properly geared to the locale. More local programming was generated and the audience responded. WDSU quickly captured third place in the market. But the station's efforts didn't stop there.

Sefert and Corken hit upon an innovative concept to better position the station within the industry as a whole. They would construct the first Telecommunications Center ever built on the grounds of a World's Fair.

According to Vincent Shortt, who was hired as director of the center, "Sefert and Corken had the vision to see what kind of competitive advantage this dominance would have. I entered the picture in September when the plans, as to the scope and function, had not been clearly delineated.

"We pinpointed the objectives to include designing an exhibit on the history of television for fair goers and developing a leadership posture among our competitors. We also wanted to supply stations nationwide with programming,

production, and delivery services with the aim to retain as much exclusivity as possible."

Since the project was very capital intensive, WDSU hoped to break even or, at worst, keep its losses to $500,000. Equipment purchases were spread among the six Cosmos stations. Each would receive part of the facility after the the fair ended.

According to Charlie Cadwell, the center's producer, "The aim was not so much to increase revenues in the short run. If we made money, fine. But the main objective was to build a new image for the station."

Although the center was conceived in February 1982, actual planning did not begin until the spring of 1983 when the lease for the facility was negotiated. It soon became apparent that while obtaining equipment and facilities would not be a problem, hiring the people to construct and operate the center would.

"We pulled in independent contractors from the outside in their areas of expertise, then meshed them with the old guard from the station to maintain our sense of identity," Corken said. "Including the crew associated with the WYES mobile production unit, a total of 200 employees were actively involved in the launch and operation of the center."

Construction

Design meetings were scheduled biweekly with subcontractors to determine space allotments. The foremost objective was visibility. So WDSU opted to construct a studio of glass in Ron Blitch's style of modern space-frame architecture.

The 5,000 square feet was divided into three equal areas: an exhibit space for teletexts; a studio; and an area for editing suites and the control room. The fear of vibrations and acoustical interference from the monorail and bands playing near the site were, Shortt said, "tempered by the fact that that's what a World's Fair is all about: chaos and excitement."

Last-minute revisions in adjacent exhibit space meant the design of the studio had to be changed. So construction fell behind schedule, leaving very little time for equipment installation and operator training. In addition, procedural problems became more numerous as opening day grew closer.

"It was an obstacle course," Shortt said. "For instance, you might have one security guard to deal with a year before the fair opens. Six months later, you'll find them all over. By the time the fair opens, security is tight, so just getting the authority to move things on and off the site can be a real hassle."

Promotion

While construction was under way, WDSU promotion manager Shelley Hobson was busy promoting the Telecommunications Center. In addition to releases sent to the press, a nationwide advertising campaign advised the television industry of WDSU's production and live feed services.

To motivate advertisers to purchase commercial time in fair updates, ads ran in local and national publications. A radio campaign and special station IDs also attracted the attention of sponsors. As a result, the sales department sold all availabilities for the first two-and-a-half months of updates.

Meanwhile, WDSU advertised its forthcoming coverage in a regional edition of *Time* magazine and on local billboards. The effort was designed not only to promote the coverage and facility, but also to reposition the station in the eyes of the public.

The completed exhibit

After months of preparation and construction, the new center was completed. The response from the public made the lengthy process worthwhile.

"The response from tourists has been phenomenal," Shortt said. "They're enthralled by video production. It's a mystery to them. Many people showed up the first day just to see how WDSU would cover the event."

Those visiting the center weren't disappointed. A third of the studio housed NBC-supplied interactive teletext systems. The units displayed information about the fair and exhibits. Windows into the control room and editing suites allowed visitors to view the production process. To further augment exposure, six monitors and speakers were later mounted so attendees could watch programming on TV as well.

While having a studio and control room at the fair did give WDSU greater exposure, it did not guarantee the station easy access to all events on the 84-acre fairgrounds. In order to meet virtually any production order, WDSU entered into an agreement with YES Productions. The company, which is a subsidiary of New Orleans public television station WYES, supplied WDSU with a mobile production unit.

"We struck an aggressive agreement to represent WYES," Shortt said. "That way we could funnel all the work through our station to maintain our image as a one-stop source for production of any kind."

The mobile unit, constructed for WYES by Gray Communications Consultants, was used to produce musical programs featuring entertainers Glen Campbell, Pete Fountain, and Al Jarreau. WDSU also had three ENG units on hand to cover other events.

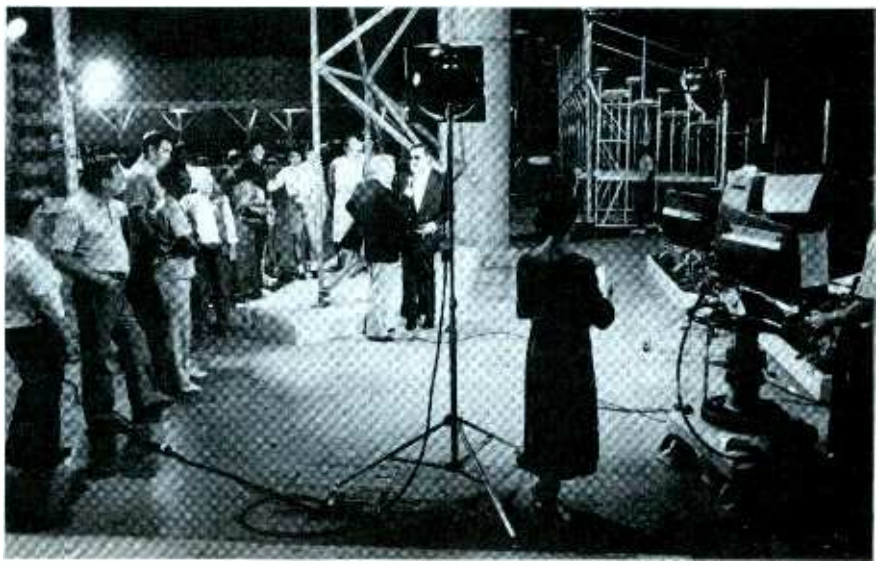
All signals originating from the fair were transmitted to WDSU's studios by telco fiber-optic loops.

Opening day

WDSU's coverage of opening-day activities at the fair was extensive. According to Phil Grossman, WDSU assistant news director and producer of the programming, seven hours of coverage was broadcast that day.

"My primary concern, beyond capturing the festivities, was to inform viewers of the fair's geographic location," Grossman said. "The fair was built in a formerly blighted area of abandoned warehouses which people were hardly familiar with."

Continued on page 60



Alec Gifford interviews musician Al Hirt in front of the Telecommunications Center.

The public wasn't the only group not familiar with the area. WDSU's engineering team spent considerable time inspecting the grounds and coordinating the opening-day coverage. Since there were several unknown factors, a number of contingencies had to be worked out in the event of a remote failure.

A primary concern was electrical service. Power had not been turned on prior to opening day, so WDSU's staff was not certain whether equipment would be subject to surges or possible drops. Generators in the station's ENG units were readied for possible use.

Multiple microwave links were established for virtually every remote location. In the event of a total failure, two hours of taped features were produced to be rolled directly from the station.

The show begins

Opening-day activities began at the fair's amphitheater. The station positioned one camera eight rows up from center stage to provide a pool feed for the Telecommunications Center. A second camera was used for crowd and cutaway shots.

The YES production unit served as a control center for several remote sites. International reports, filed from the ornate Japan Pavilion, were relayed by the YES truck to the Telecommunications Center. The unit also sent back crowd shots from the Centennial Plaza and panoramic views from the top of the Petroleum Pavilion.

WDSU's three ENG units also were used for opening-day coverage. One was assigned to cover Festival Park, where the Italian Village and American Showcase tent were located. A second unit was stationed at the Chrysler Pavilion to provide coverage of the Aquacade, the Union Pacific train, and the restaurants and shops in the area.

A final ENG van was positioned to cover the U.S. and International Pavilions, as well as the space shuttle and the Mississippi River where barges launched fireworks celebrating the opening of the fair.

At the southwest corner of the Convention Center roof, a camera was positioned to capture an aerial view of the Bayou Plaza. Overhead, two Goodyear blimps provided aerial coverage. One served as a pool camera for WDSU on opening day. Both flashed the station's call letters at night.

The Telecommunications Center, in addition to serving as WDSU's central feed point from the fair, also provided coverage for the other Cosmos stations.

The secondary control room in WDSU's main studios was used primarily to handle transitions to commercial breaks. Master control actually rolled the positions in order to ensure no other station carrying the coverage would inadvertently air the spots.

NBC network stars who made opening-day appearances were scheduled to go on the air with their impressions of the fair. Tapes shot for playback at a later time were picked up by staff members traveling the grounds in golf carts so that the material could be viewed, timed, and catalogued.

According to Grossman, the one thing that made the entire day's coverage a success was the control over timing that the station was given by the fair's administrators.

"We were able to have absolute control over variables that could have impacted enormously on the outcome of the shoot," Grossman said. "The results were very gratifying."

News technicians prepare an ENG unit for opening-day coverage.

As a service to broadcasters, WDSU fed 33 ad hoc networks on opening day, the cost dependent on market size. The station also made editing facilities, studio sets, uplinks, and loops available to broadcasters.

According to Shortt, stations that participated "found this package appealing not only because the Telecommunications Center is physically housed on the fairgrounds, but also because WDSU really did their homework on delivery systems to expedite transmission of prerecorded and live news drops."

While WDSU's coverage throughout the rest of the fair was not as extensive as its opening-day production, it was nonetheless ambitious. Each day, in addition to five reports during local news programs, WDSU aired six fair updates and a special half-hour report.

Special projects

One of WDSU's foremost objectives was to develop new programming concepts based on activities at the fair. Assigned to this job was veteran producer/director Charlie Cadwell.

"Programming for television is a constant source of problems," Cadwell said. "Stations are always looking for new outlets. So the projects slated during the fair should serve as a good foundation from which to launch more local origination."

Cadwell's first production was to shoot Glen Campbell live at the International Amphitheatre. The signal was uplinked and inserted as part of the *19th Annual American Academy of Country Music Awards*. Additional cuts were recorded and used in the 21-hour Children's Hospital Telethon, which aired nationally in 85 markets.

Other projects in the planning stages, which Cadwell hopes to syndicate, include a weekly half-hour cooking show hosted by Cajun chef Paul Prudhomme, and a 90-minute pilot of jazz acts indigenous to the New Orleans area.

Commercial production

Sensing their surroundings, WDSU's principals thought, "What better backdrop than the illustrious exhibits and the frenetic excitement of a World's Fair for producing spots and corporate promos?"

The fair charged no fee for use of the site, and the "sets" rivaled any Hollywood back lot.

"You could have a child burning a model of a spacecraft distributed by a toy retailer," said operations manager Clifford Braverman, "and then cut away to the space shuttle.

"There are two key ways one can shoot a spot here. If it's a shampoo commercial, you may not want all the tourists

Equipment in WDSU's Telecommunications Center

1 Ampex AVC 33 programmable production switcher
1 ADM audio console
3 Ampro stereo cart machines
1 Sony 110B audio tape recorder
1 Sony BVH-500 portable 1-inch VTR
2 Ampex VPR-80 1-inch VTRs
2 Sony BVU-820 ¾-inch VTRs
7 Sony BVU-800 ¾-inch VTRs
1 Sony BVT-200 time base corrector
1 ADDA ESP II still-frame store
3 RCA TK47 computer-setup cameras
3 Sony BVP-330 cameras
2 Sony BVP-300A cameras
4 Sony BVP-250 cameras
6 Thomson 501 cameras
1 Thomson 601 camera
2 Sony BVP-250 cameras
4 Ikegami HK-357 cameras
A complement of Sony BVU-50 and BVU-110 field recorders
A Strand Century lighting package

Equipment in the WYES mobile production unit

5 Ikegami 357 cameras
2 Ikegami HL-79 cameras
3 Ampex VPR-2B 1-inch VTRs
1 Ampex VPR-20 1-inch VTR
1 Grass Valley 1600 switcher
1 Chyron IVB character generator
1 Auditronics 26 audio console
1 RTS custom-built intercom system
2 Ikegami 20-inch color monitors
1 Quantel 5000 DPE digital effects unit

around. So, a production can be mounted and a spot shot in the few hours of daylight before the fair opens at 10 a.m. On the other hand, if you're looking for the fair as a backdrop, the exhibits and tourists are a natural setting that can be used 12 hours a day."

D.H. Holmes, New Orleans' largest and oldest department store chain, was the first to engage the commercial production services of WDSU's Telecommunications Center. Spots and promos have also been produced for the Kentucky Department of Travel Development, the News Travel Network, the Entertainment and Sports Programming Network (ESPN), *Entertainment Tonight*, McDonald's restaurants, and Trailways bus lines.

However, the strongest response to WDSU's facilities has come from the corporate sponsors of pavilions at the fair itself.

According to Shortt, exhibitors are the first to notice other exhibitors. Texaco, part of the Petroleum Pavilion, had Benton & Bowles use the center to produce a corporate image spot that promoted a Bob Hope program. The U.S. Pavilion had WDSU produce an acknowledgement that thanked sponsors for their contributions to the exhibit area.

Revenues

Live feeds and advertising sales during the first week of the fair generated $300,000 in revenue for WDSU. According to Corken, that level of business probably wouldn't continue.

"Everyone expects to do the largest portion of business in the first few weeks," Corken said. "The rest remains to be seen.

"In Knoxville (Tennessee, site of last year's World's Fair), it went dry. But Knoxville and New Orleans are vastly different since tourism here is the second largest industry. The fair is just icing on the cake."

Residual effects

The results of WDSU's commitment to coverage of the World's Fair are not yet conclusive. A report in early summer placed WDSU's 6 p.m. news in the number-two slot.

Without question, visibility has been excellent. By taking a prominent position at one of the most important events in the city's history, WDSU has reassociated itself with the community.

"People who have come to the fair expressly stated that they came because WDSU has been talking about it on the air," Cadwell said. "With the investment in programming, presence in the form of an exhibitor, and the wonderful graphics that were generated to associate ourselves with this international event, we've really been identified with a major happening, which could change viewers' allegiance well into the future."

There are other benefits as well. "The fair has been a terrific morale booster for station personnel," Corken said.

It appears that WDSU's gamble will have nothing short of a big payoff. The ratings are shifting in their favor, visibility is at an all-time high, and the morale of the staff has never been better. The venture *has* paid off handsomely.

Editor's note: The WDSU-TV experience shows that to change your image in the community, your station must have an aggressive strategy and the commitment of a creative staff. In the end, WDSU did change its image. But the station also converted a great idea into profits.

You many not have a World's Fair in your backyard, but you can use other local events to improve your image, ratings, and profits. You may be surprised by the changes local programming can bring to your station. □

Melanie Mitzner lives in New York City and writes free-lance articles on film and video production.

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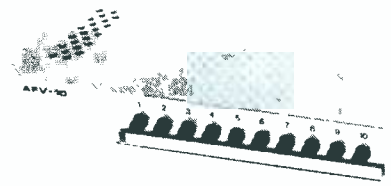

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It's time to consider audio NOISE REDUCTION

BY RICK SHAW

Stereo audio for television is forcing the issue of audio quality across the industry. The effect is that TV audio in general will benefit from the influence of stereo audio.

Broadcasters are becoming more interested in finding ways to make improvements in their signal quality, and there is a growing interest in more sophisticated approaches to building creative audio beds for a true high-fidelity product.

When you compare television sound with other forms of professional audio recordings, television noise levels surface as a problem. It is time to do something about it, because stereo audio will accentuate the problem.

Noise reduction (NR) devices have been used in the record and film industries for years, but their use has never gained much momentum in television sound. For example, when was the last time you loaded a 1-inch videotape labeled "Dolby A encoded"? Most broadcasters rarely deal with videotapes that are encoded for noise reduction benefits. On the other hand, many would not have the proper decoding equipment available to deal with Dolby or dbx encoded tape.

Unfortunately, until recently there hasn't been much incentive for broadcasters to do anything about the audio noise problem. After all, home set receiver sections have not featured good noise specs. But since all audio problems are additive, it is to the advantage of broadcasters for the sound to be the best it can be before it goes through processing and the TV receiver's electronics.

Even as broadcasters are busy upgrading their signal-to-noise ratio, the consumers are doing some upgrading of their own—with television component systems that amplify the TV audio signal through two- and three-way high-fidelity loudspeakers. Many of these typical home stereo systems are turning out specs that are significantly quieter from a signal-to-noise standpoint than the current videotaping equipment used for broadcast.

While comparing the noise specs of audio channels 1 and 2 from five different 1-inch videotape machine manufacturers, I focused on the differences in audio noise levels. The results were revealing. All the machines had similar noise specs. Their published noise levels were within 1 dB of each other, giving a typical SNR of 56 dB unweighted without noise reduction. It would seem that all these machines suffer from the same problem: they are recording signals on *videotape* where particle orientation is designed more for making good *pictures* than good sound.

Audio was in worse trouble when the 2-inch quad was the video standard. In the early '70s, a workhorse machine might produce a typical noise level of −45 dB. This was further aggravated when a video-only edit was made on the recorder. Because of the compromises made in the audio quality, partially due to the particle orientation of 2-inch videotape, a few attempts were made as early as 1972 to add noise reduction to these machines.

Jerry Foreman, the chief engineer at WPCB-TV in Pittsburgh, recalls one example of this reaction. In the early '70s, Foreman was involved in videotape recordings at the Rex Humbard television production facilities near Akron, Ohio. "We wanted to improve our audio quality to a level that was better than machines were able to deliver at that time," Foreman said. "Because of this, we invested in dbx. All of our master tapes were dbx encoded, and it greatly improved our audio standards. The dbx NR system really cleaned up a lot of the 2-inch noise."

The different systems

Noise reduction devices do make a difference that can be measured in dBs. Measured benefits of the different systems range from 10 to 40 dB in the reduction of tape noise. The main feature promoted by all manufacturers is that their system produces the least possible audible side effects.

There are two distinct groups of devices. The first involves some compression and expansion in the process of *encoding* the signal to be laid on magnetic tape, and then *decoding* it upon playback. This returns the sound to its original dynamic and frequency balance, thereby reducing noise. The second group deals with *gating* an unwanted sound or noise created by either acoustic or electronic means. Group 1 devices (or *encode/decode* processors), are called *double-ended*. They also are used sometimes to reduce noise from landline transmissions. Group 2 devices are called *single-ended* because no encode/decode process is involved. Such a gating device is adjusted by a *threshold* control that you set to the desired sensitivity level.

Double-ended Dolby

Dolby was the first double-ended noise reduction system to be widely used by professionals. Today, there are three types of Dolby formats: type A (professional), type B (audio cassette/consumer), and type C (semi-professional). Dolby type A is found in recording studios, film recordings, and in broadcast use.

Incidentally, Ray Dolby was a mem-

Continued on page 64

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ber of the engineering team at Ampex that introduced the first VTR to the industry.

Dolby offers systems designed for each professional arm of the audio industry. For several years, the company has manufactured replacement modules for the audio electronics of Ampex and Sony 1-inch VTRs. Two of these modules are the CN 226 for the Ampex VPR-2 series and the CN 221B for the Sony BVH 1000/1100. These modules completely replace the audio electronics for channels 1 and 2 on the recorder. The modules offer improved audio circuitry as well as two discrete channels of type A Dolby noise reduction. All the original level controls are still available on the cards, as well as an internally generated Dolby setup tone.

By replacing the standard electronics with Dolby's module, you can expect an improvement in the machine's SNR, even with the Dolby switched out. With the Dolby NR activated, Dolby claims its system gives a benefit of 10 dB of noise reduction from 30 Hz to 5 kHz, rising to 15 dB at 15 kHz. The system becomes more effective at the higher frequencies. The measurements were made on Scotch 479 tape.

How it works

A simplified explanation of how Dolby type A works reveals that two signal paths are taken in both encode and decode modes. In encode, the high-level (amplitude) signals are left unaltered. Lower amplitude signals pass through a four-band processor that separates the 20 Hz to 20 kHz spectrum into these divisions: 20 to 80 Hz, 80 Hz to 3 kHz, 3 to 20 kHz, and 9 to 20 kHz. Notice the last two bands are overlapping, hence the 15 dB rise in NR effectiveness at the high end. Each division has its own compressor (working on a non-linear compression ratio), which generates an NR signal after which all four divisions are summed back together and added to the main signal path in phase. This is the *encode* process.

When *decoding*, this NR signal is added out of phase so that it is subtracted from the signal. Only the low-amplitude signals are processed. Dolby claims that since the high-level signals are left virtually undisturbed, the system has the least amount of side effects. The compressor's attack and release times were carefully chosen and do not fluctuate during the process.

Dolby B only works at the higher fre-

quencies and thereby delivers an average 10 dB of noise reduction in the high-frequency band. Dolby C is now being used on some moderately priced consumer cassette decks as an improvement over the conventional Dolby B system. Fostex is licensed by Dolby to produce type C units for its compact multitrack series of recorders.

Type C provides dual-level noise reduction. Low-level signals in the mid- to high-frequency bands are boosted in the encode process and then brought back to normal in the decode mode. Type C also tries to leave the high-end level signals alone to prevent side effects. An anti-saturation network prevents the boosted high-frequency signals from saturating the tape. Because of this technique, Fostex claims a 15 dB increase in recorded headroom, with a benefit of 20 dB in actual noise reduction.

The dbx system

The dbx noise reduction system has been selected as the industry standard for stereo television broadcasting. This noise reduction system is said to give a noise loss of 30 dB when used correctly. Like Dolby C, dbx also improves the tape's recorded headroom.

When encoding with dbx, the signal is compressed by a 2:1 ratio. This compressed signal is recorded on the tape. However, before the signal is compressed, it is sent through a pre-emphasis network. The action of the compressor, which I will refer to as a VCA, is controlled by an RMS level sensor. The output of the VCA is fed into a weighting network, which is simultaneously looped back into the RMS level sensor. The purpose of the weighting network is to cause the RMS level sensor to adjust the VCA to protect the tape from high-frequency saturation.

During decoding, dbx's weighting network takes on a completely opposite response curve, which causes the VCA to return the highs to their original level. It's a direct compression/expansion system and, therefore, does not need any special adjustments or pilot tones. It is generally accepted that audio tape becomes saturated at about + 10 dB. Actual tape noise falls into an area between − 50 dB to − 60 dB. This yields a working dynamic range of 60 to 70 dB. The dbx engineers think it is beneficial to record well within the usable dynamic range of the tape so that a wider dynamic range than the tape would otherwise be able to deliver can be realized after the decoding process. The same theory applies to recording audio on videotape.

Even today's inexpensive consumer stereo cassette decks are capable of quite good SNRs, even without noise reduction. With dbx noise reduction, Teac's V707-RX cassette deck (under $500) can turn in a 91 dB SNR. That's impressive.

Audio cassette recordings used to be far from good sounding. Through the years, improvements were made to the electronics and the transports, as well as to the heads and the tape itself. With these improvements, and the addition of an effective NR system, some excellent recordings are now being made.

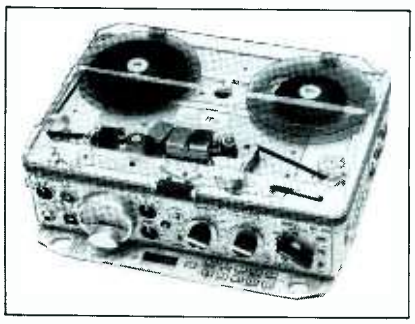
Compatibility

In the recording studio or audio sweetening room, 24 or more channels of automatic noise reduction are usually needed. Dolby and dbx offer 24-track versions of their systems for this use.

In Europe, there is another NR system known as Telecom, manufactured by Telefunken. It uses a four-band system and a 1:1.5 compression slope. Sometimes tapes are recorded and assembled from one studio to another, so having a

Continued on page 66

Film and Video Time Code Versatility With Digital Display



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compatible NR system is imperative. A universal "TTM" frame can be purchased that will accept either Dolby A, dbx, or Telecom modules. In this way, the larger facility can be equipped to handle any format by simply unplugging the preferred system modules and reconfiguring for a tape encoded in a different format.

"Many manufacturers offer various types of noise gates that simply allow audio signals to pass through them, or fully attenuate them at a level you adjust."

Single-ended systems

Micmix manufactures a single-ended noise reduction system known as the Dynafex. According to Bill Allen, president of Micmix, it's a useful gating device that rides the program material with a filter set to a user-adjustable threshold. The Dynafex removes unwanted noise from tapes that were previously recorded without noise reduction. This device would be useful for cleaning up videotapes and old films with noisy audio tracks.

The Dynafex operates on two basic principles of noise reduction: downward expansion and dynamic filtering. The downward expansion maintains the dynamic-range integrity between the input and output for all signal levels above the user-adjustable threshold setting. As the input level decreases below this threshold setting, gain reduction begins to occur at an increasing rate.

The dynamically viable low-pass sliding filter opens and closes to extend or reduce the bandwidth required by the input signal (and its harmonics). The filter constantly works to remove noise, but the downward expander section only works when the signal drops below the threshold setting. Together, these two circuits combine to make an effective single-ended noise reduction system.

A limiter manufactured by Audio + Design/Calrec, known as the Express Limiter, includes an expander that closes off the output if no signal is present. This unit is sometimes used in the high-frequency section of a multiband processor system to control the dynamic range of the main line feed to the transmitter. With the Express set for the amount of desired expansion, hiss in the high-frequency band can be attenuated.

Many manufacturers offer various types of noise gates that simply allow audio signals to pass through them, or fully attenuate them at a level you adjust. These are useful in automatic attenuation of signals coming from electronic instruments that produce noise or hum between the times they are used during a performance.

Newer audio consoles, such as the Neve 51 series, provide noise gating and a compressor/limiter on every input channel on the console. By taking this approach, microphones or electronic instruments that are only used periodically can be gated to prevent added noise from these inputs to clutter a mix. For example, the floor tom mike on a drum set is not in constant use. However, it is continuously picking up bleed from the snare, kick, and perhaps other instruments nearby being played at high volume levels. This mike could be gated to prevent this problem. Other inputs also could benefit from this treatment.

During a multitrack mix-down session, there are usually times when tracks 9, 10, and 11 are being used for brass "punches" and, therefore, are just being used at random. Leaving the faders up allows the noise between punches to be recorded, putting more tape hiss on the master. Manually working the faders up and down is unrealistic. You'd be so busy that it would be easy to overlook other faders that also are important. If you don't have console automation, why not let the built-in gates do the job for you? Having these dynamic sections built into the console saves time you'd spend finding a patch cord and the correct insertion point under a pile of cables. Solid State Logic also offers this automation feature on its SSL 6000E console.

Summary

Television noise levels need to be considered as we venture into the consumer's home stereo system. In the future, as the consumer is switching from an FM tuner to a compact disc player to a cassette recorder to a favorite TV program, it won't be the noise that distinguishes television sound from all the rest. □

Rick Shaw, audio production editor, owns Audio for Video, an audio consulting company outside Pittsburgh. (412-856-8430)

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HOW TO TURN BAD MOVIES INTO A GOOD SHOW

BY ED GORDON

What can be more startling than a Saturday night horror show? For one Los Angeles independent, finding its low-budget horror show in 40-market syndication was almost as big a jolt as any provided by a weekend creature feature.

In mid-1981, Walt Baker, vice president of programming for KHJ-TV, was looking for a show to fill a Saturday evening and Sunday afternoon time slot. He decided, rather than purchase additional programming from syndicators, to add a local production to the tried-and-true horror show that surfaces on independent stations every few years.

While the format of the new show would be the same as many earlier programs, several new twists would be added.

Format variations

The titles of the programs are familiar: *Zacherly; Jeepers Creepers; Ghoulita;* and *Shrimperstein*. Horror shows like these first appeared in the early '60s and were popular until the late '70s.

This time, however, Baker decided to try something different. The program, titled *Movie Macabre*, would feature a vampy female hostess known as Elviria, The Mistress of the Dark.

Larry Thomas, writer and producer of *Seymour*, a horror program airing in the late '60s, was hired to put the show together. Thomas wanted a funny woman to play the hostess. After interviewing about three dozen candidates and auditioning six of them, he cast Cassandra Peterson for the role.

Peterson was born in Manhattan, Kansas, and grew up in Colorado Springs. She began her career at age 17 as a show girl in Las Vegas. Then she moved to Europe, New York, and finally California. In Los Angeles, she found a home at the Groundling's Theater, where she performed improvisational comedy. This background, combined with her admiration and emulation of Carolyn Jones' portrayal of Morticia on TV's *The Addams Family*, made her perfect for the part.

The formula

The format for the program is simple. Low-budget horror movies are shown. The program opens with a fade up on the expected: a creaking door, flashes of lightning, and a misty hallway. Elviria, Mistress of the Dark, then enters. She sits down on a red velvet couch and introduces the movie.

Just before each commercial break, Elviria appears and satirizes the movie's poor plot, acting, and overall quality.

"You know the movie is bad. We know the movie is bad," Peterson said. "Nobody is fooling anybody here. We deliberately try to outdo the movie for 'badness.' "

In the 10 to 20 spots that run during the movie, Elviria criticizes the show by bringing life to the scripts that Thomas conjures up for her. The movies she interrupts often deserve more criticism than they get.

Continued on page 68

Cassandra Peterson as Elviria

Occasionally, Elviria interrupts the middle of a segment to comment on the scene or answer a question posed by an actor. In a recent show, she commented on a social worker driving a Porsche purchased with tax dollars and on a guy tunneling under sand in a three-piece suit.

Depending on time, at the end of the movie, Elviria says how she thinks the movie should have ended. Many consider these vignettes to be as good as or better than the movie itself.

According to Baker, Elviria's editorial freedom is another reason the program is successful. "Part of what makes the program work is that Elviria plays off the action of the movie," Baker said. "There's a relationship between her and the picture that ties it all together."

That's the key. Most horror shows bring in the host at the opening, closing, and during commercial breaks, but never in the middle of the action. And most horror-show hosts point humor at themselves rather than the movie. That's what makes this show different.

As Baker said, "Every time someone has tried to syndicate just a wrap for a horror show, it hasn't worked. You just don't have a marriage between the two elements."

Obtaining the movies

Originally, obtaining movies, especially bad ones, was not a real problem. Hollywood had made an abundance of these horror features, and since the show is produced locally, they were easy to obtain. With syndication, however, obtaining the movies was not as simple.

Films had to be found that were not already sold in a large number of markets. This required extensive research. Approximately 200 films were viewed to find 26 that could be used for the first syndicated productions. Why go to all this trouble when the vignettes could simply be generically produced to fit into a local station's own horror movie? According to Baker, the program had to be presented as a package in order to be a success.

Promotion

Promotion is extremely important if a program is to be successful both locally and in syndication. Unfortunately, stations purchasing the rights to a show might not always promote it sufficiently to make it a winner among local viewers. It is in the best interest of the syndicating station to ensure the program does well in every market where it is aired.

"All you can do is give the stations all the support you are able to give them," Baker said. "That would include tailor-made promos to kick the show off and media kits. You're providing them with the material to use. If they use it, it's going to work for them."

Promotional efforts in Los Angeles have helped make Elviria a local celebrity. According to the promotion department at KHJ, the explosive press interest in Elviria has been one of the most impressive in local TV history. In her first year, she received more press coverage than most network television stars.

In May 1982, KHJ did a 3-D presentation that took southern California by storm. Elviria presented *The Mad Magician*, a 1954 3-D movie starring Vincent Price. Elviria's segments were produced by 3-D TV Systems of North Hollywood. Elviria in 3-D. Talk about press coverage! Ratings for the show tripled.

Elviria also has done promotional work of her own. For a show like this, the tie to the format is important. For example, she helped kick off a moonlight madness sale at a local fashion plaza. The appearance helped boost recognition in Los Angeles.

All the press coverage and local ap-

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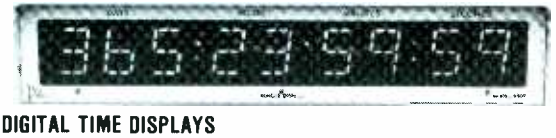

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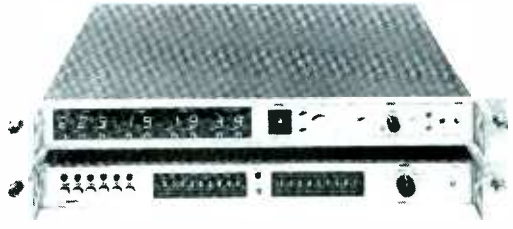

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pearances resulted in invitations for Peterson to appear on *The Tonight Show*, *Today*, *Entertainment Tonight*, and *Merv Griffin*.

Syndication

The success of the program in Los Angeles was apparent. And with all the publicity, Baker found other stations from across the nation inquiring about purchasing the program for their markets. Still, the decision to put the show in syndication took some consideration.

Baker made a number of contacts with companies offering syndication services. Finally, Con Harsock agreed to distribute the program. According to Baker, stations can either buy a set of prints of all 26 episodes or book the programs individually.

With the program now appearing in markets as far away as Philadelphia, Baker's confidence in the program was well-founded.

Key to success

What's the key to making a successful local show that can be syndicated? According to Baker, it's a combination of a number of factors.

"Putting a show into syndication is not something you can just do," Baker said. "I think you have to get awfully lucky. In a lifetime, you're not going to come up with that many ideas that are going to be successful outside your market.

"Every show that I've ever put into syndication has started out as a local show built for a local market."

"When you put a show on the air originally, you really have no plans to go into syndication. You're trying to do a show that will work for you locally. Once you've done that, if the show looks like it might work in syndication, you look into it. Every show that I've ever put into syndication has started out as a local show built for a local market."

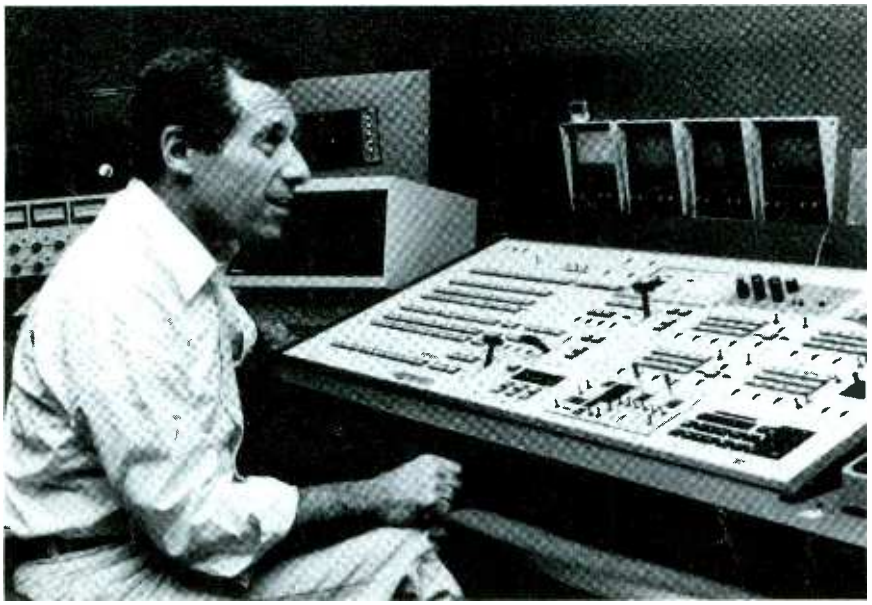
Baker said that having a marketable show is only half the battle. Another hurdle is finding someone to distribute the program for you.

"If I had a show to syndicate," Baker said, "I would go to the next NATPE and go from distributor to distributor with a pilot under my arm and a stack of papers showing what it's doing in my town."

But, as Baker said, marketable ideas are rare. Perhaps the biggest factor in any syndication attempt is a conviction that the program will work. Once the commitment to distributing the program has been made, promotion and marketing skills are an absolute must.

But horror-show spoofs are not the only ticket to syndication. Many stations produce clever programs but never consider the profitability of syndication. Without a realistic vision for distribution, you won't have a ghost of a chance at success. □

Ed Gordon, satellite technology editor, is president of Satellite and Television Systems, a consulting group in Simi Valley, California.



Lee Rothberg at the CDL switcher in LRP Video's Edit Room A. (Photo by Howard Sherman)

COMMERCIALS:
The more you shoot, the better you get

BY LEE ROTHBERG

TV stations have been augmenting their income for years by offering local advertisers the option of producing their commercials locally for a "minimal" cost. These spots traditionally have been produced with varying degrees of success.

Local advertisers, not to mention local audiences, are fully aware of the technological and creative leaps being introduced in national spots on an almost daily basis. The million-dollar budgets allotted to these individual ambitious productions are, for the most part, put to good use. The effect of these blockbuster spots is felt not only at the point of purchase, but at the point of reception, where consumers view with wide-eyed wonder.

It may be both counterproductive and frustrating for a television station to try to compete with major commercial production shops and advertising agencies in producing effective and creative regional commercials. It is possible, however, for stations to produce solid, entertaining, and budget-conscious spots that deliver and move goods.

The key factor a local station needs to consider is its limitations. This doesn't necessarily refer to creativity. The boundaries on creativity are wide open. The limitation a station does face is in the production of special effects. As the director of thousands of TV commercials over the past 18 years, and as head of a full-scale video production/post-production facility in New York City, I'd like to offer station executives looking to cash in on commercial production a few realistic observations.

Today's tools

Two of the most powerful tools available to any film or video producer are creativity and imagination. But the realities of today's commercial production world have taken those tools and enhanced them with a considerable (and costly) arsenal of special effects generators. Equipment such as ADO, Aurora, DVE, Chyron, Quantel, Grass Valley switchers, and the Mirage are space-age wonders. All this fancy hardware has lifted commercial producers out of the horse-and-buggy days of mattes, filters, and scrims into a very sophisticated new world.

A sales rep offering production services to a new client may be doing both the station and the customer a disservice. Unless the station is outfitted with an assortment of special effects goodies, or an on-air personality with an Orson Welles voice, John Housman presence, or Linda Evans delivery, someone may be getting fooled.

Even if the station *is* outfitted with an assortment of state-of-the-art finery, the people on the boards may not be able to use this hardware to maximum effect. Our team of editors and engineers works with this equipment every day. They are constantly developing new ways of stretching the technology to new creative ends. For a station to invest $150,000 to $200,000 on hardware that isn't used on a regular basis is totally unrealistic.

Looking for profits

Most local stations are already intimately familiar with the fact that the markup on a local commercial is simply not very high. It's certainly not high enough to generate enough profit to warrant sending a spot to a New York, Los Angeles, or Chicago post-production house for special effects. It's hard to imagine a local sponsor who is making a $10,000 air buy agreeing to spend $15,000 to $35,000 for an average "low-budget" spot.

Stations must be aware that the ability to produce effective commercials is a full-time job. It's not fair to assume that a competent camera operator, producer, program director, and news editor can

be expected to pull together professional commercials on a part-time basis. That's especially true if the station must wait for a studio to open up and must work the shoot and edit sessions around personnel availabilities.

There are situations in which a spot may be shot "film style," with one or two cameras, and sent to a major-market facility for more special effects. But again, we're talking about an editing session that may end up costing $2,000 to $5,000.

On the sidelines

The station and advertiser must take overall budget into consideration. Does the income or goodwill generated from the projected spot justify the cash investment? Will the spot air long enough to warrrant projected costs? With the rate of commercial burnout at an all-time high, it's unlikely that a spot produced on a tight budget can reach the "classic" status that would justify an extended run.

The value of specialization may be illustrated by a look at South Carolina-based Jefferson Productions. Starting out as a local TV station, Jefferson began providing commercial production services to local clients on an ever-increasing basis. The more spots the station did, the clearer it became that this was a source of real revenue. Eventually, the station formed a company specifically geared to spot production. The parent station became a separate entity.

Not every station can do this. Today, with the level of production sophistication (and cost) at an all-time high, it is almost impossible to expect to create a viable production entity as a "sideline."

Practical solutions

There are, of course, an assortment of reasonably priced special effects generators already on-line at many local stations. The best way to take full advantage of this hardware is to allow editors to practice with it during off-hours. The more proficient they become, the more creative and valuable they will be. Creativity is the key to any successful commercial.

Another way to enhance creativity is to study award-winning work. The CLIO and Monitor awards have cassettes of top commercials available for viewing or purchase. It might be a good idea for stations to build their own libraries of top spot samples for staff members to use as reference points and idea stimulators.

The value of creativity can't be emphasized enough. And creativity doesn't have to be expensive to look and sound that way. An imaginative use of graphics from a station's art department, the use of color, the selection of powerful music, the location of shoots, and attention to the dozens of little details that work together to make a real difference in the way a commercial plays, are important parts of the process.

The potential is unlimited. It is possible to produce marvelous results with basic tools and outstanding concepts. The bottom line may be: the more you do, the better you get. □

Lee Rothberg is president of LRP Video and Lee Rothberg Productions, both located in New York City.

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FILM TECHNIQUES for video productions

BY BILL DILL

On the continuum of visual-image media, videography remains a stepchild of father film. As an underling, video has a lot to learn from the older technology.

Many of the techniques pioneered by early film photographers are directly applicable to video. More important, however, is that the basic perceptual framework necessary to create a desired look is as applicable to video photography as it is to cinematography.

Several years ago I had an experience that answered a number of questions for me, yet simultaneously posed others. I was shooting a video piece at a New York-area nightclub. At the request of the sponsors, a film crew was shooting the same event.

Understanding that the film crew was to provide lighting, I arrived early to discuss the setup with their director of photography. I discovered he was planning to use Kodak's high-speed 7294 negative stock and would be lighting for a key level well below what I needed for my video camera. I knew my effective ASA speed was 100, so I would need a minimum of 50 footcandles to work at T2. (The T-factor is an exposure figure that takes into consideration all losses of light in the lens itself.) Together, we were able to work out a compromise lighting plan.

This was a fairly straightforward encounter, but a number of things occurred to me that evening. First, it was important that I be able to see my camera in a larger photographic context. Second, in order to communicate my needs, I had to be able to express myself in a language that other cameramen understood. Finally, I began to see the relationship between film and video as distinct, but similar, photographic media forms.

Visualizing the subject

One of the reasons I found myself looking into film techniques was that I wanted to be better able to visualize the final image without having to rely so heavily on video monitors. Under ENG conditions, there has to be a better way to control exposure than to rely on a small black-and-white monitor with a single level indicator.

Under production conditions, having a color monitor is much like using video as an assist on a film shoot. It's a nice addition. But even though using a monitor does make electronic coloring of the picture possible, the technique has its drawbacks.

Relying on a particular color monitor, instead of critically looking at the scene, is a bad idea. The same is true for waveform monitors. While these units are helpful in determining exact shadow and highlight densities, there is more to making effective pictures than these two composition considerations.

Anything in the production process that comes between the photographer and the subject detracts from making effective pictures. The film approach to videography represents a more organic approach.

Film exposure techniques

Film shooting requires an understanding of the differences and similarities between the human and camera view of the subject. The high-tech nature of video tends to encourage videographers to rely on the mechanics of the process and ignore its obvious advantage of immediate feedback. As such, it becomes a less spontaneous medium than film.

The most important thing videographers can learn from film techniques is the use of incident and spot light meters.

I've adopted a set of exposure techniques identical to the one I use while shooting still or motion-picture film. I begin by relying on my incident and spot meters to evaluate the illumination and luminance values of the subject. Then I use the level indicator in the viewfinder as a check to determine whether my filter factors and gain switches are properly set. The camera has to be a standard and not a monitor. I have come to use the viewfinder only for focusing.

The use of a separate light meter opens the electronic medium to the vast body of photographic literature. Instead of being restricted to IEEE or IRE units, videographers can now relate to T-stops. A common ground has been struck.

Determining an exposure index

It's a simple matter to determine an exposure index for a video camera. I use the term "exposure index" rather than "ASA speed" because, by definition, an ISO/ASA speed refers to a specific set of standard emulsion exposure and development conditions. So, strictly speaking, a video camera can't have an ISO/ASA rating.

In order to determine an exposure index for a video camera, you must first focus the unit on an evenly illuminated standard chip chart. Be sure to check the pattern's expiration date. White and black balance the camera. Then set the iris so that the whitest chip measures 100 IEEE or IRE units on a properly calibrated waveform monitor.

Next, take a reading at the surface of the chip chart with a recently calibrated light meter. You can use any shutter speed you like; however, 1/50th of a second allows you to make direct comparisons with a film camera running at typi-

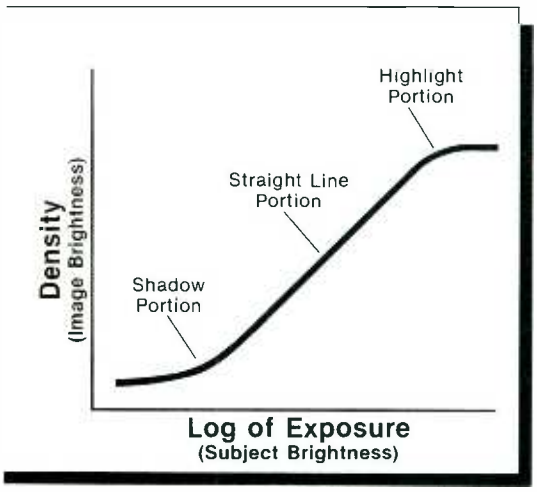
cal sync speed. Now look at the T-stop indicator on the aperature ring of your lens. Adjust the ASA speed of the meter until the aperature reading matches that of the camera's.

As long as the camera's gamma is adjusted to 45 units, the camera's aperature should track with the incident meter as light levels change. This same process can be done for all of the camera's various filter and gain settings.

Proper video exposure

As someone once said, "Anything that can be quantified, can be controlled." The saying applies to exposure levels for video cameras.

Some videographers simply point their cameras and shoot. What they fail to consider is the impact different light and exposure levels can have on the images they are electronically recording. As has been recognized in film for years, and is considered a fundamental film technique, varying exposure levels can have a dramatic impact on the recorded product.



What is considered the "proper" exposure by many video experts is the proper placement of the visual image on a curve plotting the density of the image versus the log of the exposure factor. The density, in this case, is the measurement of how bright or dark the subject appears. As a result, the chart gives a graphic representation of the possible contrast ranges.

Notice that the center portion of the graph appears straight. Along this portion of the line, every given increase in the brightness of the subject will correspond to an equal increase in the density of the image.

The bottom portion of the curve represents the shadows. At this point, further reductions in light levels will result in no further darkening of the subject.

Finally, the top portion of the graph depicts highlights. Here, further additions to light levels will result in no noticeable increase in the brightness of the image. This highlight area is where I believe the major visual differences between film and video occur.

As an example, if an image is recorded that appears near the top of the graph, shadows in the picture will tend to be rich and any highlights will be flattened out. On the other hand, an image that falls near the bottom will have rich highlights and flattened shadows.

This chart is helpful because it allows you to visualize the way film and video handle the differences in the range of subject brightness. Without resorting to "number crunching," the curve gives the photographer something to interpret intuitively.

Implications and applications

My encounter at the New York nightclub was a simple example of the importance of visualization in video work. However, the implications are still important.

Video photographers isolate themselves from the rest of the photographic world by not taking advantage of the perspective of the film community. By using film techniques, our work would improve. I also think we should expect video equipment manufacturers to approach us in the same manner that film equipment manufacturers approach their customers. The response would likely include more attention to the demands for creative control by video photographers.

As an example, a standard feature on many film cameras is a quarter-wave quartz filter, which allows the photographer to later utilize a polarizing filter. By turning this attachment, you effectively change the colorimetry of the camera. As polarized light leaves the lens, each color bounces off the facets of the prism in a manner corresponding to the angle of the polarized light entering the optical system.

The option has not been included on many video cameras because it was a costly addition that most video photographers simply were not interested in using. It's not that the manufacturers are at fault. They are simply responding to the call from the marketplace. An increased interest in video as an art form could result in the addition of these helpful controls to future cameras.

Video equipment manufacturers must now perceive video as a different market from film. Why would manufacturers, some of whom sell to both the film and video markets, offer zoom lenses for video cameras that have motor speed controls rather than real servos when they wouldn't do that in the film market? The manufacturers will continue to perceive video as a different market until we express the desire for them to incorporate the best of film technology into our video equipment.

The video artist

I read a quote once that said: "When you begin to think of yourself as an artist, you have begun to take your own talent seriously." Video is undergoing a general re-education. We're realizing that video is as potent an expressive medium as any other. Our maturation from technician to craftsman to artist will take some time. We who work in this new medium know that video's artistic possibilities are limited only by the mind and eye of the artist willing to take the medium seriously. □

Bill Dill is an Emmy-award-winning photographer and president of Bill Dill Pictures, a New York City production company.

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VIDEO NOISE evolves to meet

STAFF REPORT

When you stop and think of it, video noise is everywhere. It's not as much of a problem as it was in the 1970s, but it's still a cause for concern. In 1977, the video noise reduction system introduced by Thomson-CSF was so impressive it earned an Emmy award for the company. But time and noise handling are changing.

In recent times, the two main video noise culprits, cameras and VTRs, have been undergoing product design changes that have had a direct affect on video noise reduction system applications. Yves Faroudja, president of Faroudja Laboratories, has some harsh comments on the directions VTRs have taken.

"The magnetic recording specialists, video designers, and unfortunately, the users are incapable of enforcing a standard," Faroudja said. "You've got a world in which videotape width and thickness, and the way the tracks are recording, are changing essentially every six months.

"What happens is that if someone designs a better tape, someone else is going to design a smaller recorder. They'll stop designing a smaller recorder when the signal-to-noise is just marginal." If that's the case, video noise reduction circuits and systems will continue to play an important role in the video system.

The Faroudja system

According to Faroudja, most of his company's design efforts have been in the area of chroma, "because that is the weakest link." Essentially, the way Faroudja Laboratories reduces noise is through chroma processing.

"The structure of the processing," Faroudja explained, "is changing the function of the structure of the picture. We use the luminance as a basis for decision-making for the chroma area. We take the chroma pixels one at a time, and we decide how to manipulate them as a function of what is going on in the luminance. So if something changes in the chroma pass, there is a 99 percent probability that something changes in the luminance pass, and we take advantage of that.

"What any noise reduction system tries to do is to simulate what your brain has been doing for quite some time. The noise reducer doesn't make the information coming back to you any better in the final analysis, but it will get there in a more comfortable way."

More black boxes

The way Phil Edwards of Knox Video Products looks at video noise, anything that produces or handles video can introduce noise. As for VTRs, Edwards told *TV/BC*, "Videotape machines are a source of several different types of video noise. And noise can be defined in many different ways. Usually, when someone talks about noise coming from a VCR, he's talking about white noise or random noise. But in the broadest spectrum of noise, and treating noise from a theoretical point of view, you can even consider the time base error to be a noise factor."

Edwards agreed with Faroudja when he added, "You will increase noise automatically by going to smaller formats. A fundamental part of developing and introducing those smaller formats is to demonstrate that you're not increasing the noise. The concern for minimizing noise is much greater in the smaller formats than it ever was with 1-inch or 2-inch formats."

Knox offers a series of rack-mountable devices that either generate or process the video signal, particularly with respect to color. A natural extension of the Knox lineup includes a color corrector and a processing amplifier.

Explaining his basic system, Edwards said, "In the case of chrominance filtering, the assumption is that there is a pure 3.579 MHz signal associated with every scan line. To the extent that it has noise on it, that noise can be reduced by 3 dB by inverting it and combining with the chrominance in the next line. On the luminance side, our boxes offer variable filtering. The assumption is that the information is random high-frequency pulses, and we filter them out, with the degree of filtering determined by the operator."

Design evolution

It was in 1977 that Thomson-CSF and CBS were awarded an Emmy for the development of a video noise reduction system called the 9000. This was followed by the development of the 9100, a synchronizer, time base corrector, and noise reducer. In the meantime, these Thomson-CSF products have run their course, and any new system that might be introduced will not be a modification of the older designs. Still, there was a change in the design for many future systems that was prompted by the Thomson-CSF 9100: integration into a larger system.

Harris is marketing a model 632 full-frame synchronizer with built-in video noise reduction. Terry Edwards of Harris Video told *TV/BC* that some noise reduction systems have some negative side effects.

"Video noise reduction systems that just operate on luminance and chrominance combined, instead of handling them independently, can cause motion artifacts such as smearing," Edwards said. "The trick is to reduce the level of the noise without affecting the video. In our opinion, that means working with chroma and luminance independently.

"What we have to do in order to achieve our level of noise reduction is to digitize and separate the signal. That's essentially what we're doing in the synchronizer section of the 632. You really don't have to combine a noise reducer with a synchronizer, but if we were able to take out all the circuitry that is in-

REDUCTION equipment demands

volved in doing the synchronization, we really wouldn't have the quality input we need for fine noise reduction. In our case, noise reduction is a logical addition to what we already have.

"As technology improves, as far as high-definition television (HDTV) and the like go, the ability to separate noise from the signal will become more and more important."

Bruce Pharr, advertising manager for Fortel, explained that HDTV will place different demands on noise reduction systems. "I'm sure that when you widen the bandwidth, you're going to alleviate some of the problems that you run into with noise right now," Pharr said. "There will still be problems with noise though."

The Fortel Color EX works with any NTSC composite video signal to reduce chroma noise. The system uses a processing technique, developed by Faroudja Laboratories, that fails to affect picture luminance.

"Our unit utilizes an analog rather than a digital approach," Pharr said. "That means the process is completed without the line-to-line and field-to-field averaging. That means you don't have any motion artifacts."

But how far can noise reduction go? As Harris Video's Ron Frillman put it, "If I played a videotape through a box that gave 40 dB of noise reduction, the displayed video would look worse than no noise reduction. After you get to a certain level of noise reduction, additional noise reduction will make the picture look grainy."

Noise reduction levels aside, more systems, including cameras, are using noise reduction systems as part of larger circuits. It's a trend that will continue, but for certain applications the stand-alone noise reduction system will survive.

Noise reduction plus

Pye TVT has a noise reduction system available that is automatic and fully adaptive, with built-in diagnostics. This system provides very effective automatic control of input noise reduction. Optimum noise reduction is achieved by assessing input noise, picture content, and picture movement to determine maximum reduction.

The LDM 3001 operates at a clock frequency of 851 times line frequency, which is close to three times the PAL subcarrier frequency and four times the NTSC subcarrier frequency. The design uses 16K dynamic RAM, based on NMOS technology for the picture store, and Schottky TTL and low-power Schottky TTL integrated circuits to complement this technology.

In order to aid in fault location, certain diagnostics have been built into the equipment. These include a digital sawtooth signal to enable checks to be made at specific test points. To aid fault location in the main picture store, a flashing cursor can be superimposed at each store and viewed on the output picture monitor. This test capability allows the operator to identify faulty storage locations.

Signal averaging is a well-known technique used to extract repetitive waveforms from noisy backgrounds. By averaging the signals point by point from successive television pictures, the wanted information is reinforced relative to the noise components. They may be considered random and substantially uncorrelated from picture to picture.

The LDM 3001 uses a recursive low-pass filter in which the output signal is returned to the input. The filter need contain only one picture delay, the amount of noise reduction being controlled by the division between the input signal and the recirculated signal of the previous pictures.

This division is controlled by two multipliers called K and 1 – K. If the value of K equals 1, then 1 – K equals 0, and the signal is fed directly to the output with no recirculated signal. In this case, no noise reduction takes place.

If K is much less than 1, most of the output consists of previous pictures and the output contributes very little. In this case, a high degree of averaging takes place. By simply varying the value of K, the characteristics of the filter can be changed.

Control of the value of K is obtained from a movement detector which compares the delayed signal with the undelayed signal. If a large difference is detected, movement is assumed and a K of 1 is selected. When this happens, the picture store instantly refreshes itself for

Continued on page 76

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ESI

Circle (42) on Action Card

Video noise reduction system suppliers

Faroudja Laboratories	(Circle 210 on Action Card)
Fortel	(Circle 211 on Action Card)
Harris Studio Systems Operation	(Circle 212 on Action Card)
Harris Video Systems	(Circle 213 on Action Card)
Industrial Acoustics Company	(Circle 214 on Action Card)
Knox Video Products	(Circle 215 on Action Card)
Lang Video Systems Corp.	(Circle 216 on Action Card)
Merlin Engineering Works	(Circle 217 on Action Card)
Microtime	(Circle 218 on Action Card)
North Hills Electronics	(Circle 219 on Action Card)
Philips Broadcast Group	(Circle 220 on Action Card)
Philips Television Systems	(Circle 221 on Action Card)
Pye TVT Ltd.	(Circle 222 on Action Card)
Siegel-Electronics	(Circle 223 on Action Card)
Thomson-CSF Broadcast	(Circle 224 on Action Card)
Tweed Audio USA	(Circle 225 on Action Card)
Video Aids of Colorado	(Circle 226 on Action Card)

that element with new information from the input signal. However, if a small difference is detected, a lack of movement is assumed, and a small coefficient is selected.

The automatic aspects of the LDM 3001 design make it practical for applications on remote equipment or sites.

Going digital

As Faroudja told *TV/BC*, "For the future, I see more and more use of the time domain. I can see more and more complex manipulation. We'll see a more intelligent way to look at the picture and to decide what noise is and what is signal. The systems will get more complicated, but not necessarily more expensive. The more sophisticated you are in the detection of noise, the more efficient the noise reduction is."

Part of the sophistication of the video system will become more obvious in the near future. Already, cameras are including noise reduction circuitry. The CCD camera may offer additional promise in that respect. In the meantime, the digital VTR is not so far away. It's likely we'll have a standard within a year, and the following year should see the introduction of the first viable digital VTRs. Together, they will no longer be seen as the two leading culprits of noise generation.

As technology changes, we can look forward to more equipment that includes noise reduction as a standard feature. But because of the nature of the complicated video system and the pieces that are continually being added, the standalone system will survive. □

Editor's note: The next time video noise becomes a problem in your plant, you'll want to refer to the noise reduction system suppliers listed on this page. Circle the appropriate numbers on the Reader Action Card and drop it in the mail.

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Circle (43) on Action Card

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PRODUCT PREMIERE

Computerized editing system (Circle 300)

PALTEX—The Paltex EDIT-STAR is a state-of-the-art videotape editing system. The device presents sophisticated editing techniques in an understandable and easy-to-use format.

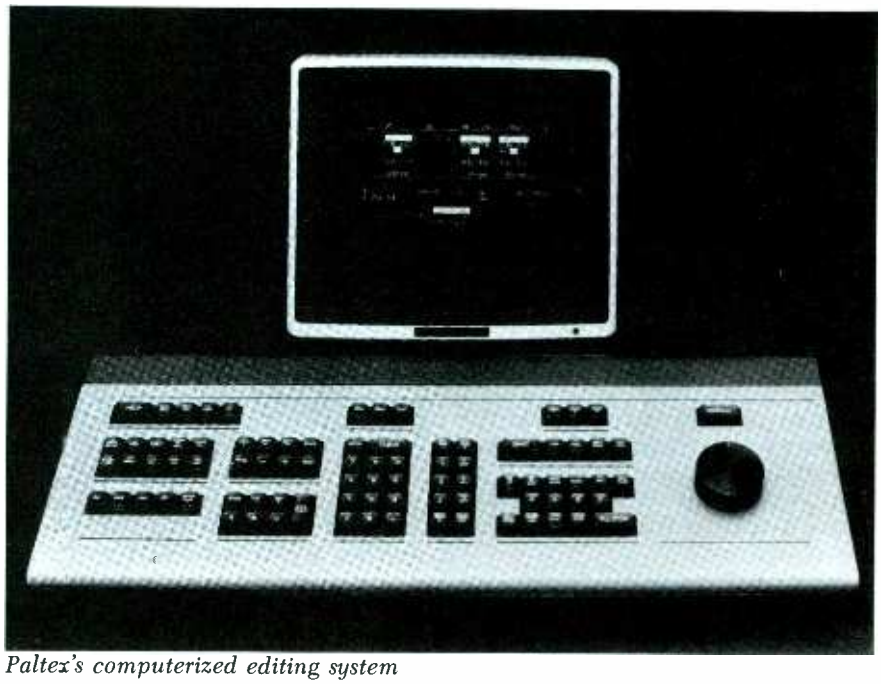
Through a special function, users can query the machine about system operation. By simply pushing HELP followed by the specific key in question, EDIT-STAR's screen will instantly display a menu of all the functions of that key along with the keystrokes required to perform the given operation.

In addition, EDIT-STAR features three user-definable keys that can store a sequence of up to 20 keystrokes. By eliminating unnecessary entries, the user-definable keys significantly increase the speed of the editing process.

EDIT-STAR interfaces with all current 1-, ¾-, and ½-inch VTRs. Also, the system is compatible with the new serial-controlled production switchers.

Through a general-purpose interface, the system is capable of controlling any external device, such as a character generator, DVE, or audio cart. EDIT-STAR will roll as many as three source and one record VTRs.

The EDIT-STAR system can operate in either time code or control track modes. Both offer frame-accurate editing designed to satisfy the most critical editing situation.



Paltex's computerized editing system

Color bar generator/source identifier (Circle 301)

QSI SYSTEMS—QSI Systems has introduced the CB 1680, a color bar generator/video source identifier.

The unit combines a genlocking SMPTE bar and black burst generator with a multifaceted character identifier. Programming is completed with front-panel pushbuttons. The ID will store up to 80 separate 16-character messages.

The source identifier has built-in vertical interval switching between the color bar and external video source, with on-board options of deleting the ID or placing it in the vertical interval of the external source. A tone generator also is included.

Space-saving receptacle (Circle 302)

LEMO—LEMO has introduced a series of connectors for applications where space is at a premium.

The EHG plugs and receptacles are designed for use behind a patch panel or inside an instrument box. Like all LEMO products, the EHG connectors are precision-machined of brass and plated copper, nickel, and chrome. Special aluminum or stainless-steel fittings also are available. All LEMO connectors feature the quick connect-disconnect system.

Computer text/graphics overlay (Circle 303)

VIDEO ASSOCIATES LABS—Video Associates is offering a plug-in circuit board for the IBM PC which permits the processor to place computer-generated text or graphics over any incoming video source.

Dubbed the PC-MicroKey system, the modification is offered in two configurations. The first, designed for use with videodisc players equipped with external sync, is an RGB-only system. The second offers broadcast-quality NTSC composite video output, allowing graphics to be placed over video from any camera or videotape player.

Both systems allow the IBM PC to utilize off-the-shelf software.

VCR cleaner (Circle 305)

ALLSOP—Allsop has introduced a non-abrasive, wet cleaning system for ¾-inch VTRs.

The Allsop 3 cleaning system combines the unique non-abrasive "Lam-tech" cleaning ribbon with a specially formulated cleaning solution to safely and thoroughly remove oxides and other damaging particles from audio and video heads. The product also will clean capstans and pinch rollers.

Seamless curtain (Circle 304)

WALTER S. BREWER—Cyclorama curtains from Walter S. Brewer are durable, yet attractive backdrops for a variety of theatrical and television applications.

Inspected for fabric flaws before fabrication, the curtains are seamless in lengths up to 125 feet. Three color options are available: white, gray, and powder blue/green.

Camera tubes (Circle 306)

AMPEREX ELECTRONIC—Amperex has introduced three ⅔-inch Plumbicon® camera tubes for ENG and EFP applications. All offer high resolution, low lag, good spectral response, and short image retention.

The first, the XQ4187, is a ⅔-inch version of the compact ½-inch XQ4087. The lightweight tube features Amperex HS (high-stability) Diode Gun™ technology. Low power consumption, a result of electrostatic focusing, makes the tube especially attractive for EFP and ENG uses.

The new Amperex XQ3457 features dynamic beam control to minimize comet-tailing and highlight blooming. Electrostatic deflection and magnetic focusing produce a tube only 85mm long.

Continued on page 78

Finally, the new XQ3467 was designed to offer the advantages of Plumbicon design to industrial and ENG customers. The tube features electrostatic focusing for low power consumption.

VHS/Beta videocassettes (Circle 307)

3M—The Magnetic Audio/Video Products Division of 3M is offering a new series of professional ½-inch VHS and Beta videocassettes.

The Scotch brand Professional PB (professional Beta) and PV (professional VHS) Super High Grade tapes offer improved dropout performance and excellent signal-to-noise ratio figures. Color-coded red doors and hubs ease identification.

The new cassettes also have 3M's new Anti-Stat protection. The proprietary treatment reduces static charges on cassette parts and relieves the problem of static dust attraction. In addition, the new system helps eliminate random dropouts and improves long-term reproduction quality.

Both the PV and PB cassettes are available in 10- and 20-minute lengths.

Digital processor (Circle 308)

AUDIO + DESIGN—Audio + Design has introduced the PRO 701 ES, a "professionalized" version of the Sony 701 16-bit digital audio processor.

The PRO 701 ES incorporates the Audio + Design Coincident Time Correction™ system, which provides a coincident output when recordings are accessed digitally. Electronically balanced XLR inputs/outputs feature operating levels of + 22 dBm.

In addition, the processor allows switching for PAL/NTSC recording. Digital input and output allow digital-to-digital connections.

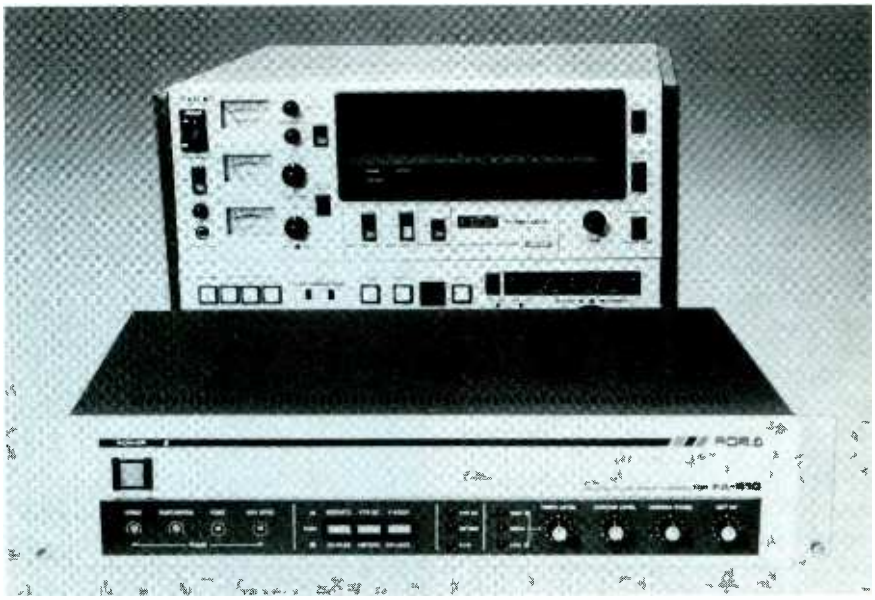
The product is available as a retrofit for existing systems. The entire processor also can be rack-mounted with the optional cradle.

VHF cavity (Circle 309)

VARIAN ASSOCIATES—Varian EIMAC has developed a new high-band VHF cavity.

The EIMAC CV-2252A cavity, which operates in the 170 to 228 MHz band (channels 7 to 13), offers excellent linearity and performance. The device utilizes the EIMAC 3CX12,000U7 high-mu power triode. In this configuration, the tube and cavity are capable of delivering up to 15 kW peak-of-sync in video service with typical power gain of 14 dB.

In combined visual/aural service, the cavity can be operated at 3.75 kW peak-of-sync output with intermodulation distortion products of − 52 dB or better.



For-A's TBC dynamic tracking option

The cavity, available for 90-day delivery, is rack-mountable.

Character generator (Circle 310)

MYCRO-TEK—Mycro-Tek has introduced the Mycro-Vision™ Supra, a dual-output character generator.

Standard features include real-time sequencing and high-quality display. In addition, the character generator boasts superior character and color resolution; highly readable fonts; and simple, easy-to-use editing commands.

The dual-channel configuration allows off-line editing through the Supra-Edit Video Terminal. This option comes with up to two 70K mini disc drives for non-volatile storage.

The Supra features 250 pages of memory, all of which are accessible from both channels. Memory expansion of up to 1,000 pages is possible.

The unit also is capable of network operations through the use of modems. Multiple units can be addressed through a single keyboard, eliminating the need for a controller or other central processing unit. With the addition of a Mycro-Comp™ front-end system, the Supra's capabilities expand to include additional off-line storage, off-line editing functions, and file management for news, advertising, and billing information.

Enhancements to the genlock function allow the Supra to mix with other external video sources.

TBC dynamic tracking option (Circle 313)

FOR-A—For-A has introduced a modified version of the model FA-410 time base corrector. The new option allows the device to operate in conjunction with the dynamic tracking capabilities of the Sony BVU-820.

Modifications have been made that allow the TBC to accept the vertical signal from the BVU-820. By doing so, the FA-410 can follow the speed of the VTR.

Operating in a heterodyne mode, the TBC is capable of accurately processing video in reverse speeds and forward speeds up to three times the normal playback rate. Frame-by-frame and still-frame processing are possible.

Audio level monitor (Circle 311)

INOVONICS—The new Inovonics TVU allows stereo audio levels to be monitored on a television screen.

The TVU inserts a black box with a pair of vertical bars into a monitor screen. The vertical lines, representing stereo audio levels, can be switched between VU and PPM response modes. The inserted box, which can be reduced to a mono display or eliminated entirely, can be positioned anywhere on the screen.

The TVU is self-contained and can be easily mounted to the side of a monitor or inside an equipment rack. Featuring 8-bit digital conversion, the unit is transparent to composite video and has separate inputs for both balanced studio lines and single-ended equipment.

The Inovonics TVU is suited for applications in television broadcast facilities; cable distribution centers; educational and industrial TV studios; post-production houses; and mobile production units.

Monochrome CRT data display (Circle 312)

AUDIOTRONICS—Audiotonics' new 15-inch high-performance CRT data display offers resolution suitable for the

most critical application.

The raster-scan monochrome display includes 1,000 lines of horizontal resolution, 30 MHz video bandwidth, and an optional horizontal scanning frequency of up to 31.5 MHz. The monitor is available with composite or TTL inputs.

The model 15DD977 offers reliability and superior contrast at a low cost, making it an ideal monitor for engineering and office applications.

Cardioid condenser microphone (Circle 314)

SHURE BROTHERS—Shure has introduced the SM87 supercardioid condenser microphone.

Known as the Crowd Pleaser™, the model is specially designed to provide vocalists with a tailored frequency response and maximum gain before feedback. The microphone is especially suited for performers with high-volume accompaniment, since the SM87 provides more than adequate gain.

The mike features a smooth frequency response from 50 to 15,000 Hz. Its supercardioid pattern provides a high degree of random incidence rejection, and an optimized response eliminates the need for extensive equalization.

The SM87 can be powered from an external power supply or directly from sound reinforcement, broadcast, or recording equipment. Another feature is a built-in wind and pop filter.

Electro-Voice's studio monitor

Studio monitor (Circle 317)

ELECTRO-VOICE—Electro-Voice has announced a fourth addition to its family of Sentry audio monitors.

The model 100EL combines the sound reproduction features of the popular Sentry 100A with a self-contained, high-performance power amplifier. The combination weighs only 33 pounds and is constructed in a compact cabinet, making the speaker an ideal choice for applications where space is at a premium.

The 100EL features an 8-inch woofer installed in an optimally vented enclosure. A Super-Dome™ tweeter provides accurate high-frequency reproduction. Frequency response ranges from 45 to 18,000 Hz with only a 3 dB variation.

The Sentry 100EL can be driven by any line level source. Both the XLR and ¼-inch phone jack connectors allow input from balanced and unbalanced lines.

Comtech's satellite antenna system

Satellite antenna system (Circle 316)

COMTECH ANTENNA—Comtech Antenna of St. Cloud, Florida, has introduced the OFFSAT™ satellite antenna system.

The antenna's unique one-piece design and offset feed are suited for reception from two-degree spacing. The reflector is 5.5 meters in the plane of the orbital arc and is only 8 feet high.

OFFSAT is available in both C- and Ku-band receive or transmit configurations. The licensable OFFSAT is offered in transportable, polar, or El/Az versions.

Pattern optimization reprint (Circle 318)

BOGNER BROADCAST EQUIPMENT—Bogner Broadcast Equipment is offering free reprints of its publication, *Optimize Vertical Pattern for More Efficient Coverage.*

The reprint illustrates that nulls in an antenna pattern can mean losses in transmission coverage. Remedies to this problem include antenna tilting and designing antennas that can fill areas of signal loss.

Drawings in the Bogner publication demonstrate the need to compensate for variations in elevation as well as the effective use of antenna patterns that do not waste energy on unpopulated areas within a station's coverage area.

VHS/Beta videocassettes (Circle 315)

FUJI PHOTO FILM USA—Fuji's highest grade, highest density, ½-inch videotape is now available. The videocassettes are offered in both Beta and VHS formats.

The tape, called Super XG H451 in the VHS format and Super XG H351 in the Beta format, offers improved signal-to-noise figures. By using Fuji's ultrafine Beridox particles and a stronger binder system, the tapes can be used repeatedly without fear of dropout. The new Duroback coating process prevents buildup of dust-attracting static on the surface of the tape.

Color monitor (Circle 319)

VIDEOTEK—Videotek has added a new 13-inch color monitor to its line of broadcast equipment.

The STUDIO-13 features 380 lines of horizontal resolution for critical signal evaluation or basic line monitoring. The unit offers high voltage regulation for raster stability at varying APL levels, as well as switchable comb and notch filters.

Other standard features include a blue gun switch; selectable horizontal time constant; pulse cross with individual horizontal and vertical delay; switchable underscan and internal/external sync; and automatic chroma control. □

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