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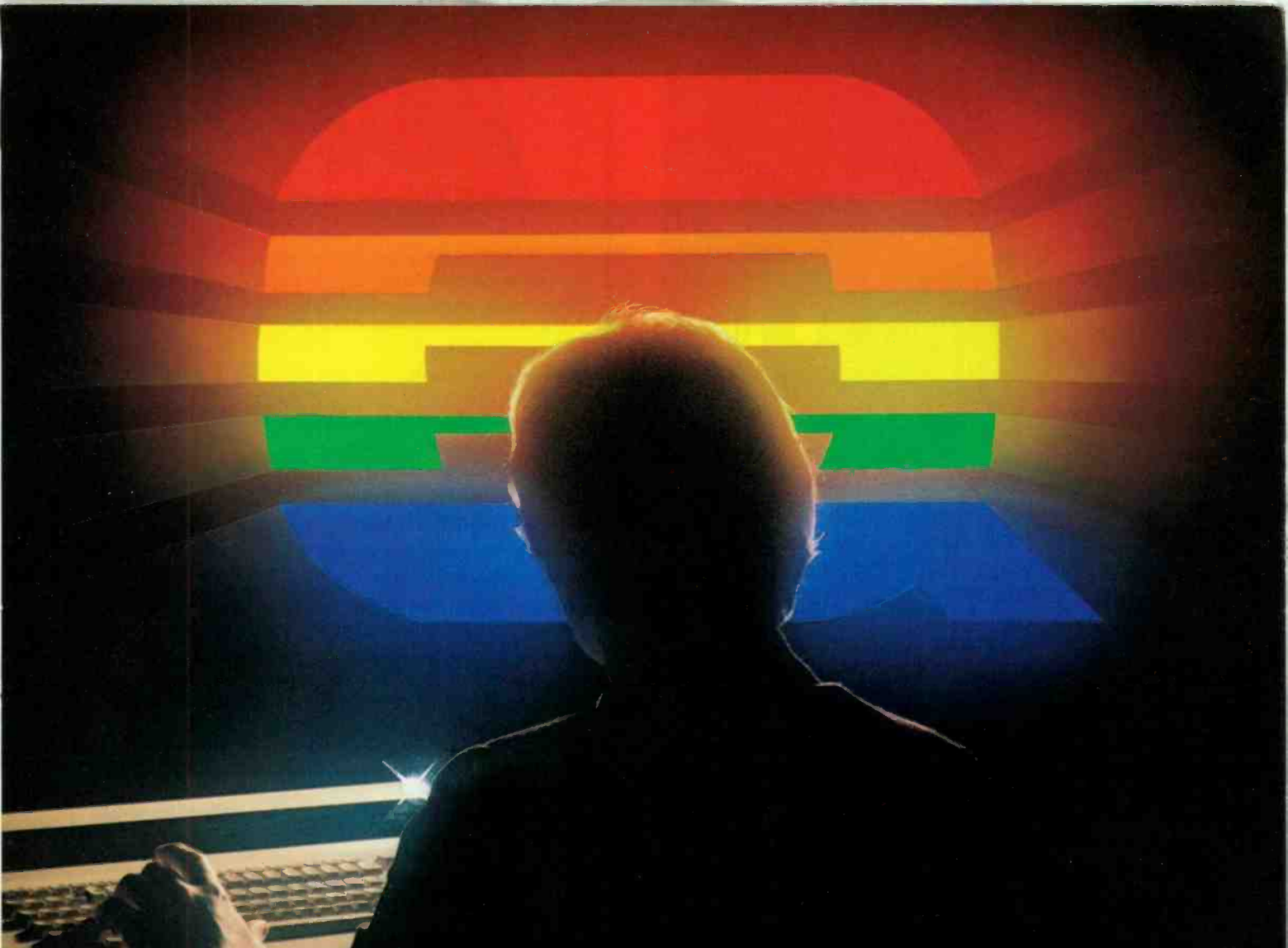
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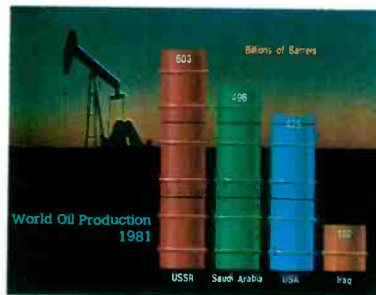
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COMMUNICATIONS



48

Head Bump: Where Does It Hurt?

Eugene Lysinger
Low-frequency buildup, a phenomenon common in videotape recording, doesn't have to "tilt" the audio spectrum.

50

Wireless Mikes Enter the Election

James A. Larson
Refinements in wireless microphone designs make these units sure winners for this year's election coverage.



8 On-the-Air

Editorial director Ron Merrell details the continuing developments in the field of stereo audio for television, including RCA's introduction of 18 television models with stereo capability.

32 News Directions

News technology editor Phillip Keirstead explains how cooperation between television stations and newspapers can aid the news-gathering efforts of both groups.

34 On Location

In the debut of this column, associate editor James A. Larson speaks with the manufacturer of KDKA-TV's microwave van about the truck's receive and transmit capabilities.

38 Cable L.O.

Atlanta's WAGA-TV enters the cable programming marketplace in order to capture lost revenue.

40 Canadian Watch

Correspondent Patrick de Courcy discusses how current economic and political conditions in Canada and the United States will influence broadcast purchases.

44 Teleview

Satellite technology editor Ed Gordon shows how companies specializing in satellite services can assist stations in establishing their own election network.

10 Industry Update

- 20 RTNDA Newslite
- 22 Newsmakers
- 24 Technology Hotline
- 26 In Production
- 30 Cable Connection
- 78 Product Premiere
- 80 Professional Cards
- 80 Advertisers Index

Cover—Photograph of WWL-TV studio by William Casanova. Photograph of election graphics courtesy of Thomson-CSF.

56

Election Coverage: An Investment That Pays Off

New Orleans station WWL-TV proves investing in election-night coverage reaps benefits long after the final votes are reported.

62

Gannett Uses Satellites for Election Coverage

Phillip Keirstead
A consortium of Gannett stations shows how affiliate resources and satellite technology can be used to supplement network election coverage.

65

Using Computer Graphics for Better Election Results

Robert Watkins
The costs of capturing the attention of election-night viewers with computer graphics may not be as high as you think.

68

Character Generators Are Ready for the '84 Elections

Ron Merrell
Character generators, always a workhorse in election coverage, are armed for the latest campaign with an arsenal of technological developments.

74

How To Improve Your Remote Lighting

E. Carlton Winckler
A few simple steps can improve the quality of your lighting in almost any remote situation.

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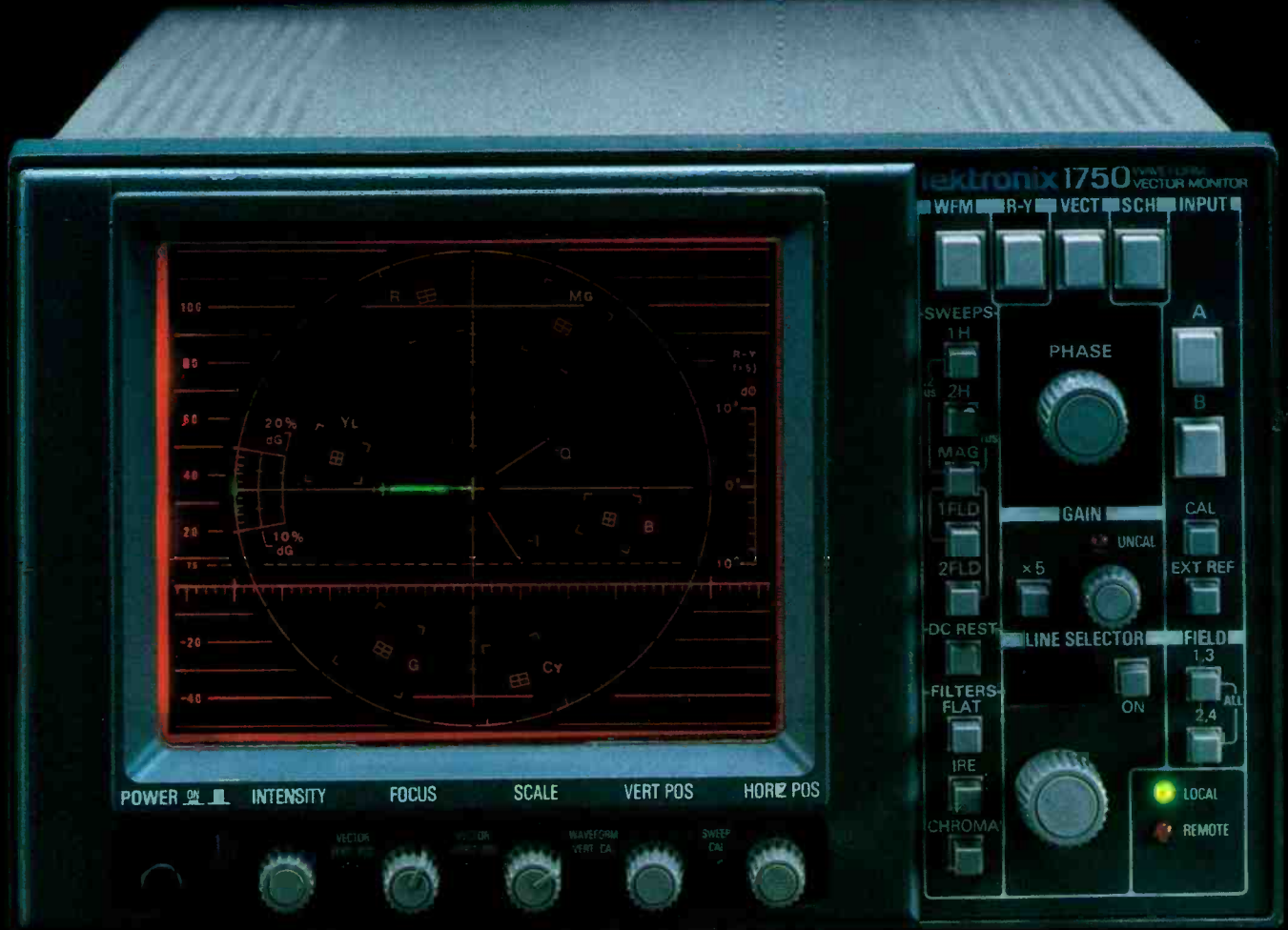
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SCH phase, of course, isn't the only parameter you need to keep on track, and SCH display is only part of the 1750's comprehensive signal monitoring capabilities. At the push of a button it also displays vector mode... or waveform mode, enhanced by digital line selection through the vertical interval... or R-Y/sweep mode for easy interpretation of differential phase distortions.

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Correct SCH phase relationship is clearly displayed on the 1750 when dot on the calibration circle is aligned with the vector on the -x axis.



Dot placement on the +x axis indicates an error in the color frame matching of two signals.



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environments, or for making fast and accurate measurements during equipment maintenance, the 1750 Series is a new benchmark for comprehensive performance in both NTSC (1750) and PAL (1751) standards.

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Circle (7) for literature

RCA gambles on stereo audio

BY RON MERRELL

At the NAB convention this year, RCA attracted a lot of attention with its demonstration of the CCD camera. Now the company has unloaded a bombshell on the consumer marketplace that's sure to have a powerful effect on the television industry.

Gambling on consumer acceptance of stereo audio for television, RCA has introduced 18 new TV sets equipped to receive stereo audio. The gamble was great because RCA made the stereo audio commitment for 1984 long before a standard system was adopted.

The RCA system will accept stereo broadcasts as well as alternate audio channel broadcasts. An LED indicator on the set lights up during stereo programming, alerting the viewer that the audio is being broadcast in stereo. The audio section of the set includes high-compliance speakers with right and left separate amplifiers. The amplifiers even include separate bass, treble, and loudness-compensating volume controls.

James E. Carnes, a division vice president for RCA, introduced the new lineup by saying that RCA's four-year development program will deliver a set that processes 100 percent of the NTSC broadcast signal. Special circuitry, Carnes explained, processes the entire transmitted color signal for up to three times more resolution of certain colors than a conventional color set.

Much could be said for the numerous technical achievements of RCA's new

line of receivers, but the key for television broadcasters is that these sets will bring stereo audio into the real world.

Since television's debut, audio has never been viewed as an asset. Far too often, the audio portion of even highly rated shows has been treated as a liability. The finger pointing could go on forever. Station engineers point to the set manufacturers and their 3-inch speakers. Set manufacturers, meanwhile, respond with, "Why should we be concerned with audio when stations don't process audio anyway?"

Now the ball is in the court of the transmitter manufacturers. And once again, RCA is ready. The company is gearing up to sell retrofit kits for their rigs. Soon we can all settle back and enjoy the full spectacle of our favorite programs.

And here's Johnny!

Stereo audio certainly doesn't fall into the category of "everyone's talking about it, but no one is doing anything." While it isn't obvious to TV viewers, *The Tonight Show* has been taped in stereo for more than a year. By now, audio engineer Ron Estes has worked his way through the problems of stereo perspective, so the viewers won't suffer when the show hits the air in stereo.

In late May, NBC announced that by mid-1985 *The Tonight Show* and *Friday Night Videos* will both be telecast in stereo. The network also plans to convert its O&O stations in New York, Los Angeles, and Washington, D.C., in 1985.

Meanwhile, ABC will get a leg up on Stereo audio with its purchase of the controlling stock of the Entertainment and Sports Programming Network (ESPN). For some time now, ESPN has been taping many of its shows in stereo. Currently, ESPN is adding special announcements during the times shows are being taped in stereo. The sound doesn't come through to

the viewers, but there undoubtedly is a perceived benefit. ABC will take advantage of ESPN's expertise.

Lost in utopia

Ever since *Star Wars* hit the screen, television production has been moving to the outer limits of special effects. With the demand for newer and even more amazing effects, production houses, post-production houses, and even television stations have been in search of the promised land. That's a land where you don't need a creative message to communicate. Instead, you sandwich a few words between "gee whiz" effects and put the viewer into hyperspace.

The trouble with this effects avalanche is that the effect becomes the message. Viewers of more than a few ads go to work the next day and talk about the super effect they saw the night before. The trouble is, they can't recall the product.

There used to be an old saying among ad people: "When you don't have obvious selling points, put the message to music." Now they add effects.

Surely our creative producers and directors will settle into using effects to embellish the message of their ad or show. Until then, viewers will have to settle for marveling over the creative genius of the people who leave us with that burning question, "Let's see now, what was the name of that brand?"

More community TV

The low-power television industry, now known as community TV (CTV) among those who live in that industry, is growing. As this column is being written, 272 community TV stations are on the air. Even more impressive, the latest lotteries include such cities as Houston, Indianapolis, Boston, Minneapolis, and Raleigh, North Carolina. The FCC's Barbara Kreisman expects 500 CPTs to be awarded this year.

Also, *LPTV* magazine, *TV/BC*'s sister publication, has announced that it will sponsor a meeting to organize a new, independent community TV association. The group will be a complement to an industry searching for its identity in the communications marketplace. For more information on this new association, write to The Editor, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208. □



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INDUSTRY UPDATE



Audio for TV was a topic often discussed at the recent AES International Conference. Attendees could hear at several booths the difference stereo makes in television audio.

AES conference on recording

The Art and Technology of Recording was the topic of discussion at the second Audio Engineering Society's International Conference held May 11-14 at the Disneyland Hotel in Anaheim, California.

Sessions at the event covered a wide range of topics involving the art of recording. Special presentations included discussions of ambisonic surround-sound mixing; digital signal processing; and recent techniques for surround sound.

In addition, a number of exhibitors were present to display their products for the audio industry.

Daily children's show required?

Legislation that would require broadcasters to air a minimum of one hour of children's programming each weekday appears to be gaining support in Congress.

The Children's Television Education Act of 1983 (H.R. 4097) would mandate that broadcasters air the educational programs during the period of the day with the greatest children's audience.

The bill, introduced by Rep. Tim Wirth (D-CO), has been primarily supported by House Democrats. However, the measure has received some bipartisan support.

The NAB has announced that they oppose the mandatory approach and would favor, as part of a deregulatory package, a "quantifiable programming scheme that would give incentives to broadcasters for airing of children's programming."

Canadian superstations opposed

The Canadian Association of Broadcasters (CAB) has issued a warning that the proposed lifting of distant-signal regulations for the country's cable operators could result in a loss of programming for Canadian citizens.

Earlier this year, the Canadian Radio-Television and Telecommunications Commission (CRTC) submitted a plan that would allow the creation of broadcasting "superstations" in the country. According to a report issued by the CAB, the move might force viewers to subscribe to cable in order to view programs currently received free of charge.

According to the CAB, the proposal would create conflicts with program copyright provisions and reduce the national advertising revenues that local stations need to fund Canadian content.

Balloon reaches new heights

Broadcasters attending this year's NAB convention in Las Vegas couldn't help noticing Agfa's hot-air balloon floating above the convention-center parking lot.

According to Ruth Hladyk, assistant promotion manager for Agfa-Gevaert, the balloon helped the company reach "new heights" in brand recognition.

Agfa's hot-air balloon made its first appearance at a U.S. trade show at this year's NAB. Presently in Europe, the craft will return to the U.S. later this year.



"We felt we were trying to make the most powerful presence possible at NAB," Hladyk said. "The balloon gave us an edge no one else had. It enabled us to stand out in the crowd."

The balloon, which is part of a fleet of 12, has returned to Europe where it will compete in races later this year. Agfa had originally planned to offer broadcasters rides in the craft, but weather conditions in the Las Vegas area were not favorable for flights at the time of the convention.

Radio/TV news turnover slows

A report from the Radio-Television News Directors Association (RTNDA) reveals that job turnover in the country's newsrooms declined last year.

According to the report, published in the April edition of the *RTNDA Communicator*, approximately 20 percent of the people working in television news had been hired in the preceding 12 months. That figure was down from the previous year's turnover rate of 25 percent.

The survey revealed that turnover rates were lowest in the larger markets. In addition, the report indicated that the number of persons employed in a typical newsroom has not changed in the past year. The average TV news staff in 1983 consisted of 17 full-time and two part-time employees.

FCC subcarrier decision praised

NAB president Edward Fritts has applauded a recent FCC

decision to remove non-federal barriers to FM subcarrier use.

Acting on a petition filed earlier by the NAB, the commission decided to pre-empt state and local laws that had acted to prohibit or inhibit broadcasters' entry into radio paging or other common-carrier-like enterprises.

According to Fritts, the FCC decision "is a very important step toward the fulfillment of

Continued on page 14

Wilk's Video Precision character generators: generate impressive features and reliability.



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- Up to 188 page memory
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Midwest puts



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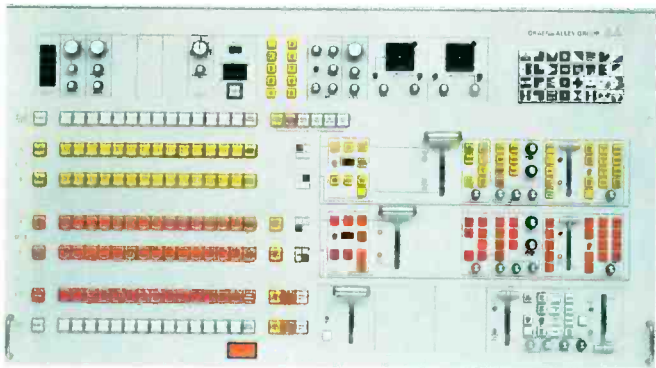
The HK-322 sets the standard for picture resolution, signal-to-noise ratio and registration accuracy. Full computer set-up takes much of the hassle out of preparing for remote telecasts. A Midwest M-40 Series mobile unit equipped with Ikegami color cameras is the current benchmark for quality in the television industry.

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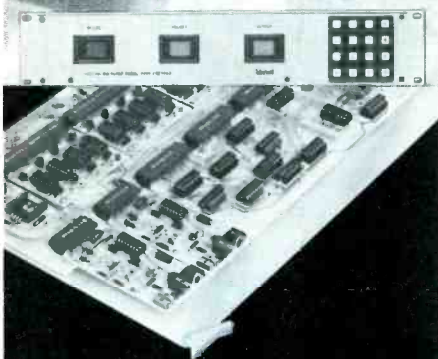
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Industry Update



With the average viewing time up to eight hours, one NCTA exhibitor caught the essence of where television is "heading."

the FCC's policy of maximizing FM sub-carrier use."

LO not a factor at NCTA show

Programmers dominated the Las Vegas meeting of the NCTA in June. A variety of new entries were on the floor for the first time, led by sports shows. One booth even included a pitch timer that allowed booth visitors to predict their speed and then throw the ball into a backstop.

Around the exhibit area it was apparent that local origination continues to wind down in the marketplace. JVC was the only camera manufacturer exhibiting. However, there were still time base corrector manufacturers, such as Microtime, showing their full line. Other production-related companies included Datum, Alamar, Di-Tech, Kavouras, Midwest Corporation, Portac, Wilk Power & Video, and Sony.

While the convention-center parking lot was a showplace for satellite dishes, few van manufacturers exhibited this year.

Plans finalized for fall SMPTE

Plans have been finalized for this fall's SMPTE Conference to be held October 28 through November 2 in New York City.

According to Dorothy Smith, SMPTE marketing manager, booth space for the equipment exhibit is now available. A total of 408 spaces have been allocated in the exhibit area. That figure represents a 25 percent increase over the number available for the 1982 New York conference.

Major manufacturers and suppliers of



The Microtime exhibit at the NCTA, featuring TBCs and frame synchronizers, was a popular stop for convention visitors.

professional video, audio, and film supplies will participate in the exhibit. Running concurrent with the display will be five days of technical sessions. These discussions will cover many aspects of motion-picture and television technology.

The 126th conference is expected to be the second largest in the group's history, with more than 11,000 people anticipated to attend. Lack of space will prohibit this year's SMPTE from matching the 13,000 persons who attended the 1983 conference in Los Angeles.

Other events during the five-day conference include the Awards Luncheon, to be held October 30th at the Sheraton Centre, and the SMPTE Banquet which will be October 31st at the New York Hilton. In addition, the spouses program will offer a full week of activities.

Continued on page 16

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Stereo comes to Canadian cable

Private Canadian broadcasters are applauding a recent Canadian Radio-Television and Telecommunications Commission (CRTC) decision that gives stereo signals from AM, FM, and television stations priority status on cable systems.

The organization intends to eventually require cable systems to carry stereo

television sound transmissions in their FM cable band, if requested to do so by local stations.

Robert Elsdon, vice chairman of television for the Canadian Association of Broadcasters (CAB), said the decision "will speed the implementation of television stereo sound in Canada."

The CRTC decision will also benefit Canadian radio operators.

According to Michel Arpin, radio vice chairman of the CAB, the decision will mean "improved reception in high-rises

and in areas suffering from nighttime interference."

The CAB, which recommended the proposed changes to cable regulations in a brief last July, maintains that cable operators will also benefit by having a valuable and attractive new service to offer their customers.

Business Hotline

RCA—The first of four satellites constructed by RCA for the GTE Spacenet Corporation was launched into orbit May 22 from Kourou, French Guiana. Designated Spacenet I, the new bird features 18 C-band and six Ku-band transponders.

SCIENTIFIC-ATLANTA—Scientific-Atlanta has received a \$15-million order from Falcon Communications of Pasadena, California, for 550 MHz CATV equipment. The expanded bandwidth of the 550 MHz system offers cable operators greater channel capacity.

M/A-COM—M/A-COM has signed a \$20-million contract with the Schlumberger Technology Corporation to provide initial production work for the company's new satellite network. Schlumberger will use the Ku-band system in its oil services business.

VARIAN—Varian Associates has announced a five-year plan that calls for the company to become a producer of integrated circuits, solar cells, and other solid-state devices. The new products will broaden and strengthen the company's existing line of gallium arsenide devices.

MCI QUANTEL/SOLID STATE LOGIC—The Videotape Production Association (VPA) has voted to award MCI Quantel and Solid State Logic the VPA Special Achievement in Engineering Monitor Award. The MCI Quantel Mirage was cited for excellence in the area of special effects. The Solid State Logic SSL6000 console was noted for its merit in automated sound mixing.

PALTEX—Magnetic Media has installed a Paltex editing system at KXTX-TV in Dallas. The computer-based Vanguard editing system is an integral part of the station's new editing suite.

TRIDENT U.S.A.—Trident has moved to a different location. The new address is 280 Mill Street Extension, Lancaster, MA 01523; (617) 368-0508.

DATUM—Datum has appointed Educational Electronics Corporation of Inglewood and Santa Clara, California, as a distributor for its SMPTE/EBU longitudinal and vertical interval time code products.

SOFTWIZ—Softwiz has taken over all

Continued on page 20

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197

PROFESSIONAL BROADCAST

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Impersonations condemned

RTNDA president Ed Godfrey has protested the practice of government officials posing as journalists.

The first protest followed an incident in Morristown, New Jersey, when an assistant county prosecutor and a deputy sheriff posed as a television news crew in order to investigate what was described as a "smoke-in."

In a letter to Morris County sheriff John M. Fox and county prosecutor Lee Trumbell, Godfrey said in part, "Police officers cannot impersonate journalists any more than journalists can impersonate police officers. Such a subterfuge is fatal to the credibility so vital to both law enforcement and journalism. Undercover techniques have been perfected and are in use in jurisdictions from coast to coast which permit successful investigations without such tricks."

The second protest followed disclosure that the Internal Revenue Service had issued guidelines permitting IRS agents to pose as journalists. The IRS guidelines require permission from the highest authorities in Washington before such an impersonation is permitted. But in his letter of protest to IRS commissioner Roscoe Egger, Godfrey wrote:

"I believe the guidelines, while perhaps more restrictive than the previous lack of any guidelines at all, are inherently too permissive. They suggest that such an impersonation is worth consideration. As a journalist, I can conceive of no set of circumstances in which such deception by an IRS agent is justified. I am convinced that the mere possibility of such a practice detracts from the credibility of journalists and IRS agents. The public must be able to trust journalists to be just what they profess to be. News sources must be sure that they are dealing with journalists when they make statements, pass along documents, or provide information. . . in any form. If they can no longer be sure, they will stop dealing with journalists. When that happens, our free press will be a thing of the past."

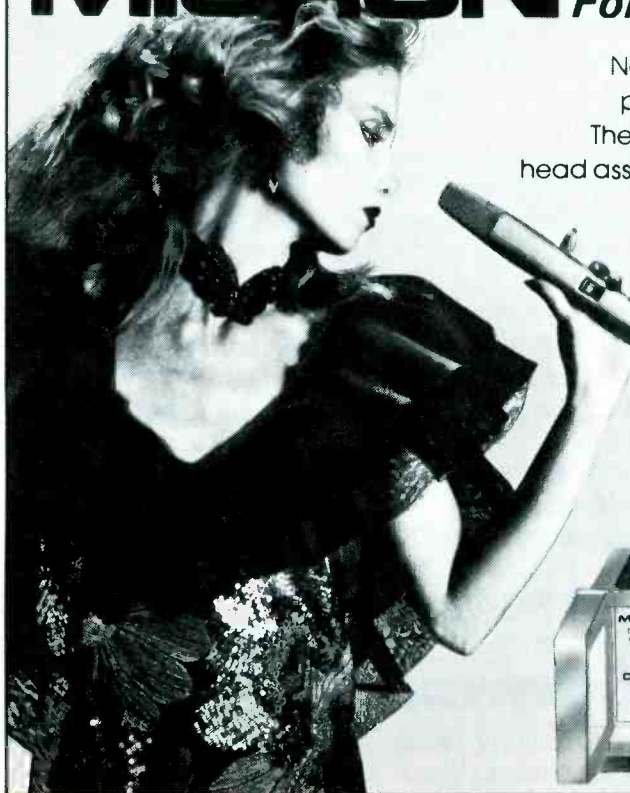
marketing and support of its Broadcast One newsroom management computer system. The product will now be solely distributed by Softwiz from its headquarters at 1186 Folsom Street, second floor, San Francisco, CA 94103; (415) 621-5779.

COMPUCON—Compucon has announced the availability of its CARD™ (Communications Analysis Research Data) reports. The service outlines new opportunities opened through changes in regulation or technology. In addition, the reports also identify new microwave systems and equipment.

PLANNED TECHNOLOGY CORPORATION—Planned Technology announces its services to the satellite industry. The company offers system design and acceptance testing, earth-station site acquisition, adjacent satellite interference analysis, and communications system maintenance management.

MODULATION ASSOCIATES—Modulation Associates has signed a contract with Kavouras of Minneapolis to supply the company with satellite equipment. The agreement calls for the company to provide Kavouras with an SU-10 uplink to transmit data to users who will receive the information with a new Modulation Data-SAT receiver. □

MICRON *For those who hear the difference*



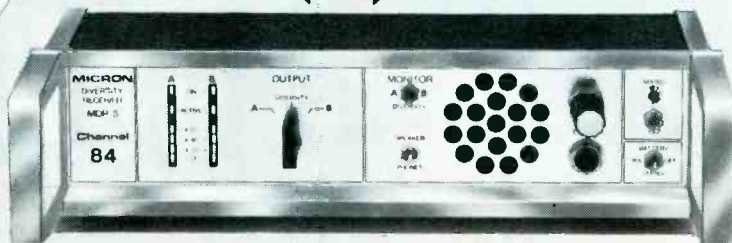
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With the introduction of the new Philips LDH 6220 20" color monitor, there are now two opportunities to buy color television monitors of amazing value and quality.

You already know about the Philips LDH 6200 14" monitor with its super sharp picture quality and true color fidelity – the result of a hi-brightness self-converging picture tube and precision in-line gun. The new 20" monitor retains this benefit along with all the other features of the LDH 6200, such as two video inputs, RGB inputs, external sync, split screen and many more. And this model has comb filter decoding as standard.



The two monitors represent the perfect choice for all monitoring applications in television systems. Together they prove that high quality does not have to mean high cost.

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NEWSMAKERS

Joseph Buerry Jr. has been named general manager of KIHSTV in Ontario, California. He has previously served in management positions at WVGA-TV in Valdosta, Georgia, and at WDHNTV in Dothan, Alabama. Also, KIHSTV has appointed Julio Brito director of engineering.

Charles Impaglia has been promoted to director of broadcasting at KCET-TV in Los Angeles. Impaglia, who has served as manager of broadcast programming, will work in program acquisition, on-air promotion, and audience research.

Bruce Christensen was unanimously elected president of the Public Broadcasting Service (PBS) by the organization's board of directors. He replaces Larry Grossman, who left PBS in February to join NBC.

Robert Yadon has joined the National Association of Broadcasters' Television Department as director of operations. He will plan and supervise publications, workshops, and special projects to serve NAB's television members.

Tim Abhold has been promoted to general manager of King Broadcasting Company's Northwest Mobile Television (NMT). He succeeds Stan Carlson, who will become senior consultant for NMT's mobile operations.

Ed Coghlan has been appointed news director at KCOP-TV in Los Angeles. He formerly served as news director for the Montana TV Network.

David Richardson has been named news director at WTLV-TV in Jacksonville, Florida. Richardson has served as news director and executive producer at WTVM-TV in Columbus, Georgia, for the last six years.

Mike Stutz has been promoted to managing news editor at WTMJ-TV in Milwaukee. Prior to the promotion, Stutz served as an assignment editor for the station. Also, WTMJ has named Patrick Curray assignment editor. He previously was employed by WMAQ-TV in Chicago, where he was morning assignment editor.

Steve Amen has joined the news staff of KGUN-TV in Tucson, Arizona, as executive producer. He formerly was employed by KOAP-TV in Portland.

Roy Malone has joined KSDK-TV in St. Louis as an investigative reporter. Malone comes to the station from the *St. Louis Post-Dispatch*, where he worked for the past ten years as a financial, general assignment, and investigative reporter.

Lou Dobbs has been named managing editor of the Cable News Network (CNN) business news. He has been a business news correspondent and anchor for CNN since its inception. Also, CNN has appointed Mark Dulmage CNN bureau chief in Beirut. He has been an executive producer at CNN's Atlanta headquarters since 1980.

Bob Wormington, general manager of KSHB-TV in Kansas City, has become a vice president of the Scripps-Howard

Broadcasting Company. Wormington helped launch the independent station in 1970.

Business Moves

Tina Mayland has been appointed marketing communications manager for Scientific-Atlanta. She formerly served as advertising manager for the company.

Bob Jones has been promoted to national sales and marketing manager of the Schneider Corporation. For the past seven years, Jones has served in various sales capacities for the company.

Dick Bock has assumed duties as president and chief operating officer of MZB & Associates. Previously vice president and sales manager, Bock succeeds former president **John Zienkosky**, who has been named chairman of the board and CEO.

W.R. "Terry" Sheffield has been appointed manager of U.S. sales for Moseley Associates. With more than 17 years in the broadcast equipment industry, Sheffield will be responsible for the sales of all Moseley-manufactured products through its nationwide distributor network. Also, **Paul McGoldrick** has been named manager of systems engineering for the firm.

Yong Lee has been appointed president of M/A-COM MVS. He most recently served as division vice president for the company's Microwave Defense Subsystems Group.

James Camacho has been promoted to president of Trident U.S.A.

Russell Geiger has been appointed president of Delta Electronics. He has been with the company since 1966, serving most recently as executive vice president.

Donald Bogue has been promoted to general manager of the Magnetic Tape Division at Ampex. He previously served as director of business management for that division.

Kenichi Kano has been appointed senior vice president and general manager of NEC America's Broadcast Equipment Division. A 30-year employee of the company, Kano most recently served as general manager of the division.

Robert Fitting has been promoted from senior vice president to president of Comtech Data Corporation.

Stephen Martin has been promoted to JVC's team of special products managers. **Thomas McCarthy** will replace Martin as East Coast regional sales manager.

David Whitney has been appointed national sales manager for the Dynavid and ViaSat corporations. He most recently served as manager of the video values branch of Dynavid.

N.L. "Nibs" Jochem has retired after serving 43 years with the Gates Radio Company and the Harris Broadcast Group. Jochem served most recently as vice president of special projects. □

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TECHNOLOGY

H O T L I N E

New television bids farewell to CRTs

The world's first flat-screen liquid crystal display (LCD) color television has been demonstrated publicly by Epson America. The introduction marks a breakthrough in LCD technology, and it sets the stage for the eventual end of the cathode ray tube (CRT).

This set is the first LCD product capable of producing a color image. It's the result of five years of research by Epson's Japanese parent company.

The components responsible for this electronic coup are a new type of liquid crystal that permits super fast responses to electronic signals to create a TV image and a revolutionary manufacturing process that enables thin film transistors (TFTs) to be mounted on a glass substrate. The result is a picture comparable to that of a CRT television set. In fact, according to Epson, this new LCD set has better resolution and can be used in bright sunlight. Previously, light had been a major problem for LCD experimenters. (Roberta Nedry, 213-557-1331)

Stereo audio for TV

Stereo audio for television has been a hot topic in the industry for the last year. And now there's hope that it will become a viable feature on TV sets in 1984. Already, RCA has unveiled 18 models with built-in broadcast stereo sound capability.

RCA's consumer electronics vice president recently told RCA distributors that the move "helps position RCA for the beginning of an expected surge in sales of larger screen models that emphasize audio performance as well as advanced television features."

In late May, NBC announced that starting in mid-1985 *The Tonight Show* and *Friday Night Videos* will be the first programs to be telecast in stereo. The network also has announced plans to equip its owned television stations in New York, Los Angeles, and Washington, D.C., for stereo audio capability.

RCA's Broadcast Systems Division recently introduced a stereo-compatible UHF transmitter, as well as kits to retrofit present RCA VHF and UHF transmitters for stereo broadcasts.

RCA's major move into broadcast stereo capability for its ColorTrak 2000 line of "full spectrum" deluxe receivers also marks the successful completion of a product gamble that began more than a year ago. It was about that time that RCA planned to gamble on introducing its stereo audio receivers in mid-1984. Fortunately, RCA engineers went into high gear and designed a new audio system for ColorTrak 2000 receivers that correctly matches the stereo system selected by the industry's Broadcast Television Systems Committee. (Frank McCann, 317-267-6613)

It's simple to talk to a dragon

A small research and development company, Dragon Systems, has developed a system for high-performance, discrete speech recognition using much less computation than has previously been possible.

The Dragon Systems recognizer requires a microphone, a preamp, an 8-bit A/D converter, 16K bytes of ROM, and 8K bytes of RAM. You don't need an analog filter bank or any custom digital-signal processing.

According to a company spokesman, the performance of the system is better than some systems that sell for as much as \$10,000. The performance breakthrough is made possible by a highly efficient combination of dynamic programming and Markov-type stochastic modeling, incorporating proprietary techniques developed by Dragon Systems. (617-965-5200)

It's faster than a speeding bullet

A video technique has been developed that can not only freeze a bullet in flight, but can actually measure how fast it's spinning. This motion-analysis

technique has just been demonstrated by Spin Physics, a division of the Eastman Kodak Company.

This new technique uses high-speed motion analysis combined with laser light. The copper-vapor laser is capable of putting out highly intense bursts of light, much like a strobe, measured in billionths of a second. This light source, when synchronized with the SP2000 system, makes it possible to remove the blurring speed of a .45 caliber bullet traveling at 768 feet per second. The laser used in the demonstration was made by Plasma Kinetics, of Pleasanton, California. It was electronically triggered to pulse at a rate of 4,000 to 6,000 times per second, with a pulse duration of 35 nanoseconds (a nanosecond is a billionth of a second).

Because the laser has such a short and intense burst of light, each picture exhibits a sharpness and clarity that cannot be achieved with a continuous light source. (Charles Smith, 716-724-4664)

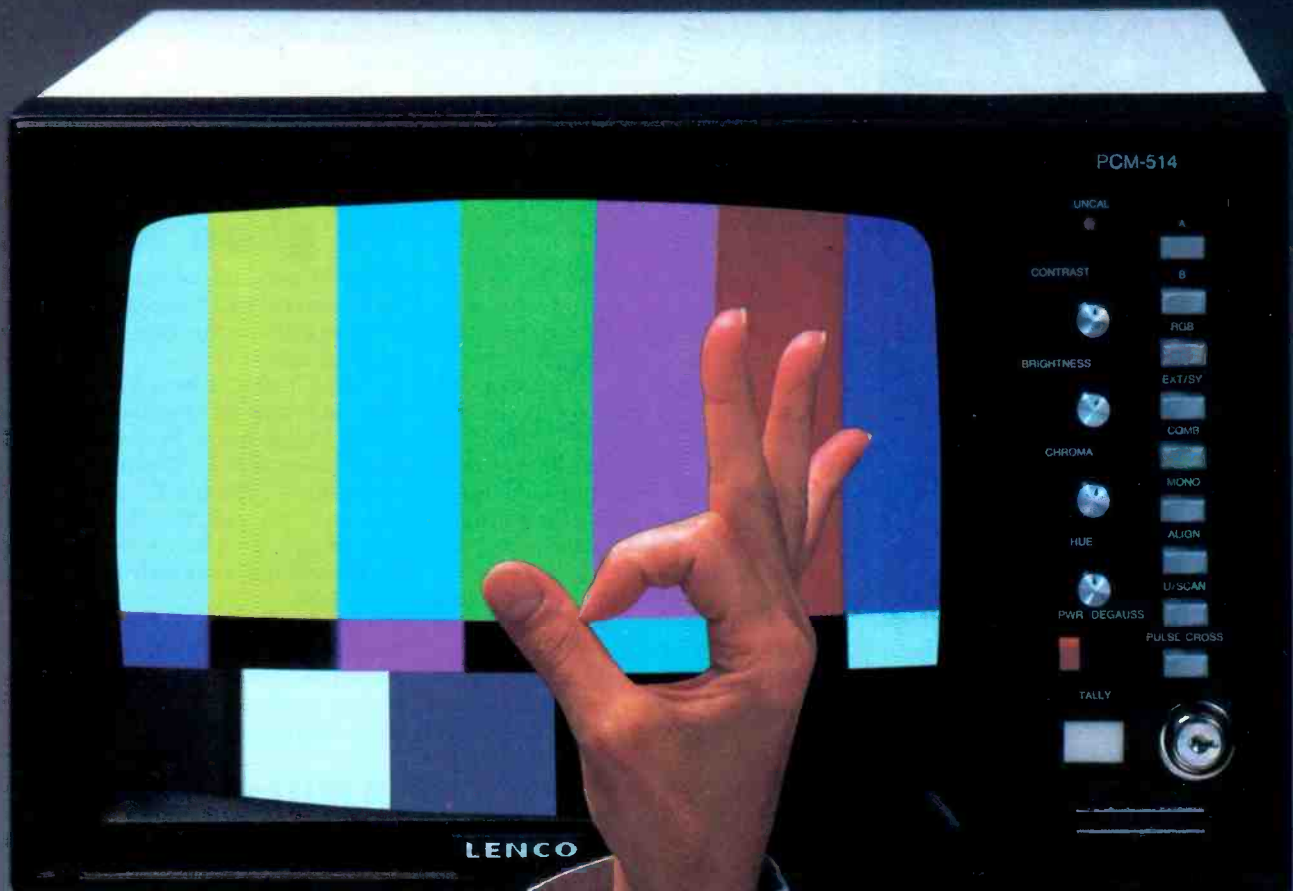
A new way to retrieve your ads

There was a time when the call from above to "pull together everything the agency did" for a client on a reel was enough to drive the creative and library people into a state of frenzy. No one really knew how much was buried in those stacks of carts and cassettes.

Advanced Image Technology has developed a turnkey system that will store, index, and retrieve your ads at the touch of a button. What's more, the system will punch out complete data records, listing everything from the date the ad ran to the name of the traffic manager.

One of the key features of the system is its ability to produce on-line copies of ads on ¼-inch cassettes or color hard copy. A special edit function allows art directors to browse through the ad inventory, select items, and then order the system to put it on a tape in a specific order and time. (Kenneth Hurd, 212-986-2861)

AT LAST A MONITOR WITH ITS FOCUS ON YOUR NEEDS.



At last there's a line of broadcast color monitors that's built the way you'd build them if you built them yourself—the Lenco 514 series.

It's all here—everything you want in a professional monitor. Everything you need to give you maximum performance, easier adjustability, and greater reliability.

All the latest technology is here. Including PIL tube for simplified convergence and an ultra-stable, non-scan-derived high voltage system that really nails down regulation. Lenco monitors mean you get the stable picture you want—with the color accurate every time.

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.

And if service is your concern, you'll really like the modular construction that

makes every printed circuit section easily accessible. Plus the fact that we're building these Lenco monitors with nearly all American parts—parts your distributor knows and carries.

Before you buy, take a look at how much better Lenco monitors fit your needs. Ask us today.

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IN PRODUCTION



James C. Humes portrays Winston Churchill in a David Susskind Production entitled *Winston Churchill: A One-Man Show* for WNET-TV. The 60-minute performance was videotaped at Reeves Teletape's RT3 studio in New York City.

A step ahead in this production?

Sculptor Wallace French took heed when the manufacturers of Desenex told him to "step on it" in his modeling of two 500-pound plaster feet for the company's new 30-second television spot. Working around the clock, it took French two-and-a-half weeks to complete the oversized extremities.

Constructed from wood, wire, burlap, and plaster, each foot was 8 feet wide and measured 14½ feet from toe to mid-arch. French's efforts were hampered by torrential rains in the New York area, which kept the plaster from drying. However, the feet were completed in time to be rolled into The Camera Mart's studios for the shoot.

Photographers from New York City's NBE Productions hoisted their camera 15 feet into the air to capture the massive props on film. The national spot features 10 performers in different occupational dress. The tag line for the campaign is "Desenex does more than just cure ath-

lete's foot. There are 10 good reasons for using Desenex every day!" The agency for the production was DePalma & Hogan Advertising. (212-685-8963)

Just one of those shoots . . .

Superstitious or not, the staff of Video General will probably think twice before scheduling another Friday the 13th remote shoot. The Long Beach, California, production company was recently plagued by the malevolent spirit of the day.

En route to the shoot, the vehicle carrying the producer and actor for the spot suddenly burst into flames. Both managed to escape unscathed. At the location, all seemed to be going well until the model for the commercial cut her hand with the new vegetable slicer she was demonstrating. When the bleeding refused to subside, photographers were forced to shoot at different angles to avoid showing her bandage.

According to the commercial's director, Edward Lapple, the shoot did have a happy ending. "We got all the footage we had on schedule for that day, and the commercial came out very well," Lapple said.

A spokesman at Video General, which at first was reluctant to release the story, said, "We did a good job against all odds. And isn't that what this business is all about?" (213-437-7569)

Beta format used for hotel shows

Rock Solid, a Burbank film and video production company, is producing material for the Hilton Video Network. The system is the first national in-room television service designed for both business travelers and vacationers.

The first stage of programming for the network involved the production of an hour-long, magazine-format program. Rock Solid shot more than 50 hours of footage with Sony Betacam™ ½-inch equipment. The de-

cision to use the smaller format was based primarily on economics and aesthetics. The Beta format was selected because of production quality and the ability to shoot with a smaller crew.

Rock Solid anticipates shooting about 800 tapes for Hilton this year.

New video may be good for you

While it may not be available at local nutrition centers, "Vitamin L" may soon become an important part of the public's musical diet.

Unitel Video, a New York City production company, recently worked with Small Biggie Burns Productions in the preparation of B.E. Taylor's new music video titled "Vitamin L." Shot on location in Pittsburgh, the video follows a rock singer's quest for the elusive vitamin L. The nutrient eventually is determined to be love.

Unitel's Rank Cintel film chain was used to transfer the music video footage. Final production was completed in one of the production company's editing suites. (212-265-3600)

Affiliates help compile program

Four ABC television affiliates are working with the network to prepare a half-hour special featuring profiles of future

Olympic hopefuls. The program will take viewers to four cities for a glimpse of
Continued on page 28



Geoffrey Leighton makes final adjustments on the helicopter mount of a Betacam unit for Rock Solid's Hilton Video shoot.



Five alarm hotel fire, 400 guests,
three competitors and one news editor
who eats cigars for breakfast.

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Get it right.
Get it done.

The pressure in this business
is extraordinary.

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Consider the latest advance in Fuji technology: the $\frac{3}{4}$ inch H521BR U-matic video cassette. It gives you the absolute minimum number of dropouts possible—less than 4 per minute. Its video and color S/N ratio are boosted up to +2dB over the outstanding specs of our H521.

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young athletes who are preparing for the 1988 Summer Olympics in Seoul, Korea.

The special will focus on the youngsters and their motivations for preparing for the Games at such an early age. Stations involved in the production include WJLA-TV in Washington, D.C.; KGTV of San Diego; WXYZ-TV in Detroit; and KEZI-TV of Eugene, Oregon.

According to Jane Paley, ABC's community-relations director, this type of project "reinforces the valuable element of localism in television programming." Following its conclusion, the program will be made available to all ABC affiliates.

Short Takes

ALLIED FILM & VIDEO—Allied has announced the opening of its new on-and off-line editing facilities in Detroit. Featuring CMX, Grass Valley, Sony, and Otari equipment, all elements of the Allied system have been designed so they operate independently.

CINE-VID—Cine-Vid has contracted with A.F. Associates of Northvale, New Jersey, for the design and fabrication of

an all-Ampex, 1-inch editing system. The new suite for the Manhattan-based production company will include four VPR-3s, an ACE computer editing system, and an AVC-33 switcher.

POSITIVE VIDEO—Positive Video has acquired the Eureka Teleproduction Center located in San Carlos, California. The facility features a Centro-designed CMX editing system, a Quantel DPE-5000, a custom-designed stereo audio console, and a Grass Valley triple re-entry switcher. Positive Video's home facility is located in Orinda, California.

PROVIDEO—ProVideo, a mobile video production company, has begun operations in Madison, Wisconsin. The firm offers on-location commercial, industrial, and educational videotape services with state-of-the-art equipment.

IMAGE MIX—Image Mix, a New York post-production facility, has purchased 16 Ampex VPR-3 recorders with TBC-3 time base correctors and two Ampex ADO digital special-effects systems. The new equipment will be used for post-production and color correction work at a new facility.

UNITEL VIDEO—The Metropolitan Opera has again selected New York City's Unitel Video as the production

facility for the *Live from the Met* series. The program is beginning its ninth season with the Public Broadcasting System.

EAST COAST VIDEO SYSTEMS—East Coast Video Systems, located in New York City, recently completed state-of-the-art editing suites for The Tape House, also in New York. The new 1-inch editing suite features an Ampex ADO, Grass Valley 300-3 mix effects switcher, Sony BVH-2000 1-inch videotape machines, and the Sony BVE-5000 editor, along with sophisticated video and audio monitoring gear. The new off-line "interformat" suite also features a Sony BVE-5000 editor.

WILLMING-REAMS ANIMATION STUDIOS—A Cinetron computer system has been installed at Willming-Reams Animation Studios in San Antonio, Texas. The new computer has been interfaced with an Oxberry "Master Series" animation stand.

NORTHWEST TELEPRODUCTIONS—Video Producers Service of Kansas City has been acquired by Northwest Teleproductions. The new company, Northwest Teleproductions/Kansas City, will be a full-service video and film production and post-production house. □



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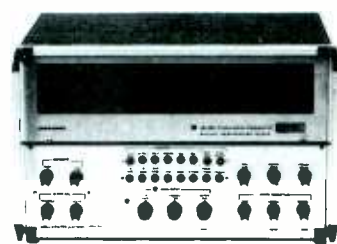
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CABLE CONNECTION

Disney channel favorite in a.m.

A recent A.C. Nielsen Company survey indicates that The Disney Channel has the highest viewership of any pay television service. In addition, during some morning hours, Disney is the most popular of all viewing alternatives in subscribers' homes.

According to the Nielsen report, from 7 to 9 a.m. weekdays, The Disney Channel commands a greater level of viewership than any other pay or commercial television program. During this period, Disney averages a seven rating, compared to a four for the channel's closest competitor.

Findings from the Nielsen survey were tabulated from the viewing diaries of 100,000 households from across the nation.

Scrambler foils ON-TV pirates

A new video jamming device is being used by Chicago's ON-TV to stop piracy of the system's signals. Developed by Oak Industries of Rancho Bernardo, California, the new device interrupts only those signals received through non-authorized decoder boxes.

As part of a new piracy-detection program, ON-TV officials are offering free installation of the pay service to individuals who turn in illegal decoders. Viewers who do so face no fear of legal retribution.

According to Kent Hauver, general manager of ON-TV in Chicago, "Our ultimate goal is not to prosecute the consumer. We're interested in converting him or her."

System used for teleconferences

Media General Cable of Fairfax, a Chantilly, Virginia, cable operator, has joined forces with two other companies to offer two-way teleconferencing services to the Washington, D.C., metropolitan area. It is the first time that a cable television system has been used as the local link for digitized video conferencing.

Media General, along with Satellite Business Systems and its subsidiary SBS

Real Estate Communications, christened the new system in a videoconference established for Aetna Life and Casualty. The company will become a regular user of the system, conducting meetings between its offices in Tyson's Corner, Virginia, and company headquarters in Hartford, Connecticut.

The system sends digitized information over Media General's business network, which is termed Medianet. The signals are received at the SBS uplink and are transmitted to antennas at the reception site.

Cable aids utility in meter reading

American Cablesystems of Rowley, Massachusetts, and the American Public Power Association (APPA) will conduct a one-year test of a special remote utility metering service. Using the cable company's lines, the APPA will be able to take monthly meter readings and provide peak-demand measurements.

The E-Com Products Division of AM Cable TV Industries has developed the TRU-NET 500 interactive products that will be used in the system. The test, which will be used to set future standards for the power industry, will be conducted with the assistance of 100 CATV subscribers in the community.

The TRU-NET 500 also can provide electrical load shedding, water and natural-gas metering, home-security interfacing, and electronic mail services for CATV systems and subscribers.

Baptist network begins operation

The American Christian Television System (ACTS), a Southern Baptist satellite network, recently began operations from its headquarters in Fort Worth, Texas. The service is reportedly the country's first denominational television network.

The new religious system will be carried nationally on an estimated 20 conventional television stations and 1,000 cable services. The network plans to allow local Southern Baptist churches to pre-empt up to 23 hours of network programming each week. The time will give local churches an opportunity to air locally produced programs aimed at specific community needs. Many cable operators, including Warner Amex of Dallas,

feel the local angle is a prime reason for carrying the service.

Currently operating six hours a day, ACTS hopes to expand its broadcast day to 18 hours of programming.

USA Network gains viewers

Viewership of USA Network has more than doubled, according to data from the A.C. Nielsen Company. Both viewership and ratings for the network showed substantial gains between the time USA first went on the meter in April 1983 and now.

Nielsen figures released by USA indicated the network has 14.2 million viewing households weekly, giving it the No. 2 position among ad-supported cable networks. The network, on average, was viewed in 258,000 households throughout the entire day. This figure is more than twice the April 1983 average of 122,000 viewing households.

The network is now received in 28 percent of all U.S. television households and 61 percent of all cabled households.

Cable Briefs

TEXAS CABLE NETWORK—The Texas Cable Network and Group W Cable System in Lewisville, Texas, have announced their new affiliation. Group W serves 6,000 subscribers in Lewisville.

MTV—New York-based MTV and the Sparkomatic Corporation have entered into an agreement to promote the upcoming tour of the rock group YES. The promotion, entitled "MTV and Sparkomatic Car Stereo Present the YES Tour," will begin airing in early August.

DIMENSION CABLE SERVICES—Dimension Cable and the CableTV Guide Network have announced a new advertising promotion in which a national advertiser will use the system's on-air signal and guide to reach viewers. Ads will appear in local commercial positions on the system's satellite channels and will refer viewers to coupons in their cable guide.

LIFETIME—The Lifetime cable network is now available in 18.6-million households on 1,818 cable systems across the country. Programming on the network is directed to the general public as well as medical and health professionals. □

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Belden optical fiber cable is also thinner and up to 30% lighter than conventional cable. That makes it easier to install on transmission towers, or through underground ducts. A recent installation of Belden cable on a 1500 ft. vertical tower was accomplished in less than one day.

For remote applications Belden optical cable is much easier to carry around the golf course, or the metropolitan sports arena. Its toughness has been proven in rapid deployment cables designed by Belden for military applications in desert terrain.

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NEWS DIRECTIONS

High-tech news-gathering

BY PHILLIP KEIRSTEAD

The fourth and fifth estates traditionally have been at odds in providing news coverage. However, cooperation between the two can result in mutually beneficial results.

Last fall, Boston station WNEV-TV set up a print/broadcast cooperative with four area newspapers. Basically, the station assigned reporters to cooperating suburban newspaper offices in an effort to expand the perimeter of its news-gathering area.

The project has now evolved into "The New England News Exchange." WNEV-TV has established a news-sharing agreement with four area newspapers including the *Eagle-Tribune* in Lawrence (45 miles northwest of Boston); *The Patriot-Ledger* in Quincy (8 miles south); *The Middlesex News* in Framingham (serving suburban communities west of Boston); and *The Worcester Telegram* (55 miles west of Boston).

According to a station spokesperson, the strategy was to "create a mechanism that would respond to the needs of people outside the 128 area." The 128 area is a group of Boston metropolitan communities within a semicircle formed by route 128.

WNEV-TV has stationed a reporter and technicians in each newspaper office. Staff from the two news-gathering agencies share information which has been gathered. Field footage is edited at the bureau and then transmitted to the station. It's even possible for a newspaper staffer to appear with the Channel 7 reporter. The papers reap the benefit of on-air promotional plugs.

A technical investment

The station has made an enormous technical investment in this news-gathering network, which now includes means for regular exchanges with television stations in Providence and Hartford. Work also is being done on expanding the cooperative to include other broadcast stations and newspapers in upper New England.

Karl Renwanz, engineering and operations vice president of WNEV-TV, described the facilities installed to make the exchange possible. Initially, the station started out with two ENG receive

sites: a tall downtown building located at 1 Boston Place; and the station's tower in suburban Newton. Even these receive sites were not adequate for all transmissions. So, the network was expanded.

A steerable remote receive site was then installed at Boston Hill in North Andover. Signals from the Lawrence paper are relayed to this receiver via a 2 GHz microwave link. The signal is then retransmitted to the downtown receiver on a 7 GHz channel.

On the south side, another directional receiver was installed in Foxboro. A 7 GHz link carries signals back to the station's tower receiver. In addition, signals from the Quincy bureau are transmitted to the downtown receiver with a 2 GHz microwave link. From Framingham, the signal is carried on a 2 GHz microwave channel to the Newton tower.

In Worcester, a 7 GHz link was installed on the Shawmut Bank building to relay signals to the Newton tower. A 23 GHz link is used to hit the bank building from the newspaper office. The Worcester site can also receive a 2 GHz signal to permit a roving ENG unit to relay its signal to Boston.

To expand ENG coverage, the station put in five 2 GHz receivers. They are located at Boston Hill on the north, Foxboro on the south, Worcester on the west, the transmission tower in the western suburbs, and at the downtown location.

Recently, WNEV-TV installed a tracking receiver on the Newton tower to handle incoming signals from the station's helicopter. Channel 7 is using a M/A-COM receiver and a Nurad antenna for this installation. In addition, tracking dishes are also located at Foxboro and Boston Hill. Renwanz said the station has yet to determine the limit of its helicopter coverage.

Exchange operation

WNEV-TV frequently swaps stories with WFSB-TV in Hartford. The station can supply WNEV-TV with coverage of the Connecticut General Assembly in addition to other spot news stories taking place in the Springfield, Massachusetts, area. In return, WNEV-TV supplies the Hartford station with Massachusetts legislative stories of interest to WFSB-TV viewers in the Springfield area.

To transmit signals from Boston to

Hartford, WNEV-TV contacts the Eastern Educational Network represented locally by public station WGBH-TV in Cambridge, Massachusetts. From this location, a feed can be established to the Hartford station.

Swaps with WLNE-TV in the Providence market also are possible, but are a bit more risky. If WLNE-TV has a breaking story that WNEV-TV wants, the Foxboro antenna can be reoriented to pick up a direct feed from one of WLNE-TV's mobile units. The antenna's location more than 600 feet above sea level makes the reception possible.

If WLNE-TV is broadcasting a story that WNEV-TV wants, an off-air receiver at Foxboro can pick up and relay the Providence signal. Although Renwanz said he isn't too enthusiastic about the quality of the signal, he said it does work in times of need.

WNEV-TV has one other relay possibility available. The station can put its signal on the Eastern Educational Network lines to the public TV station in Hartford, Connecticut, where it can be uplinked.

According to Renwanz, this complex pattern of receivers and relays has helped a great deal with both bureau and ENG unit coverage when difficult double-hop situations are encountered.

An interesting sidelight is that all shooting and editing in the bureaus is being done on Panasonic M-format 1/2-inch equipment.

The price of coverage

Why has WNEV-TV made this significant expenditure? First, microwave problems in the suburbs provide Boston-area broadcasters with constant frustrations. Tall buildings and other forms of interference are creating numerous problems.

Second, WNEV-TV wants to establish an identity as an area station. The use of microwave equipment linking the various news bureaus is a necessity in providing suburban coverage. Driving tapes back to downtown studios is almost useless in the traffic-clogged maze of highways that weave their way through Boston's metro area. □

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

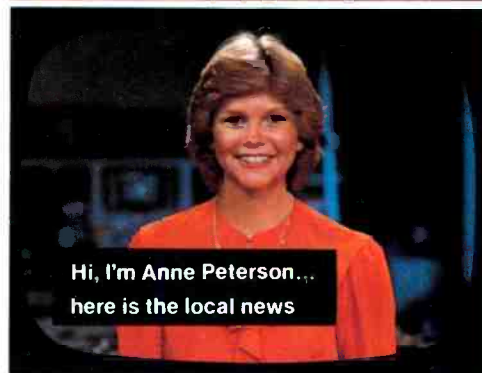
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ON LOCATION

A double hop from van to studio

BY JAMES A. LARSON

Perhaps no area of broadcasting has experienced more growth in recent years than the van and mobile teleproduction industry.

By taking you On Location, we hope to highlight unique and cost-effective mobile operations, as well as to show how typical and not so typical problems encountered in the field can be solved. In addition, this column will seek to discuss topics such as van design and construction that will make purchasing, outfitting, and operating a mobile production unit easier and more profitable.

Your ideas and comments are welcome. As is often the case in this industry, it is you, the broadcaster, who has the solutions to nagging problems.

Live ENG, in its relatively short history, has fast become an integral part of many news operations. It's so important, in fact, that at many stations the news director is left in a quandary if the live van is taken out of operation.

In that same vein, it has also become easy for news personnel to assume the live unit will always be able to "make the shot." But any qualified engineer knows that to assume a decent signal can be received from any given location is a grievous error. RF in the UHF band is weird. It only makes sense, especially with the all-important election remotes

forthcoming, to check every shot prior to the hour it is to be used.

If there's a problem

If a usable signal cannot be obtained, there are a number of alternatives. Simple repositioning of the receive and transmit antennas can result in some signal improvement. Bouncing the signal off reflective surfaces can also eliminate unwanted degradation. But perhaps the most popular method of improving inferior signals is to utilize the "double hop."

Here, signals from the unsuitable news site are microwaved to the repositioned ENG van. After being received, the mobile unit retransmits the signal directly to the station. The two microwave links allow the van to be situated in a position more conducive to proper transmission. The originating signal can either be transmitted by a portable microwave unit or by an ENG van.

In one neat package

In the last several years, a number of van manufacturers have begun producing units ideally suited for this type of application. Called microwave or "repeater" vans, the trucks are constructed with both receivers and transmitters. As such, the units are multifunctional, capable of providing much-needed assistance during peak ENG times often associated with elections and the like.

Pittsburgh station KDKA-TV recently purchased a microwave van from Alpha Video & Electronics. According to Alpha president Henry Lassige, the truck serves two basic purposes.

"The truck can be used to either repeat or originate signals," Lassige said. "This van is more versatile and cheaper to operate than a helicopter equipped with a microwave repeater."

The KDKA van was constructed

on a Ford E351 chassis. A special reinforced floor was installed in order to provide support for the 42- and 26-foot pneumatic masts that carry the receive and transmit antennas. According to Lassige, the two-mast configuration was necessary in order to ensure optimum performance.

"It has been discovered that when you're trying to repeat a signal, you don't always get the best reception and transmission characteristics when the antennas are at the same elevation," Lassige said. "In addition, when you have both antennas on the same mast, it's much easier to swamp the LNA."

M/A-COM equipment was used for both the receive and transmit process. According to Lassige, the wideband LNA required the placement of filters in the receive end in order to "knock out" unwanted frequencies. With two antennas operating in such close proximity, interference could be a problem.

Out of sight, out of mind?

Operating as a "go between" is not always easy. Orienting a microwave van between the originating unit and the station is no simple task. The process can be further complicated if two of the points are physically out of sight of each other.

"One thing that the truck doesn't have that we think it should is an altimeter and compass," Lassige said. "A lot of times you'll have a topographic map and it'll be hard to determine what hill you're on. If you have an altimeter, you can find out where you're at."

Microwave units such as the one constructed for KDKA are especially useful in hilly or mountainous environments. The possibility of reception problems is much greater in such areas. However, that doesn't mean that a repeater truck wouldn't be beneficial in a predominantly flat location.

"If you're out in Iowa, reception is not as much of a problem as if you're in West Virginia or Pittsburgh," Lassige said. "But these units are also decent for long-range communications."

"If you're a station in the middle of some state, and your power is such that your signal covers a very large geographical area, you have a responsibility to provide a service to your viewing

Continued on page 36



KDKA's microwave van has both receivers and transmitters.

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On Location

area. Without a repeater, you may not be able to do a live shot."

Warning features

The KDKA van was outfitted by Alpha Video with an elaborate warning system that is designed to ensure the unit's proper operation. Audio and visual alarms are triggered if doors and latches are ajar. In addition, the van will not move if the antenna and masts are not properly in place.

"Sometimes the operators are a bit frustrated with the precautions," Lassige said. "They're trying to get a story. That's their job. It seems as if we put these roadblocks in front of them to keep them from doing that job. But these precautions are there to keep them from forgetting about their own safety."

In addition to the inside warning indicators, the KDKA van also has an elaborate outside lighting system to provide illumination for work and safety. A set of quartz spotlights are aimed at the top of the masts to show if the antennas are being raised into power lines or overhead obstructions. Two other sets of lights provide illumination of work areas surrounding the vehicle. Finally, two quartz lights are provided for the talent. Power for the vehicle comes from a 4 kW generator and two deep-cycle batteries, which are continuously charged.

Inside the unit, KDKA has installed a Sony BVU-110 for recording and playback. A Lenco sync generator and distribution amplifiers are also in operation. Videotek monitors are used to check signals coming into the truck.

On the road

According to reports from KDKA, the station is happy with the microwave vehicle's operation and plans to equip its two other ENG vehicles for similar operation. The advantages of having "double hop" capabilities are more than apparent when operating in the rugged terrain surrounding Pittsburgh.

Stations facing the upcoming elections should be out surveying remote sites now. Even if a successful link has been made from a given location in past election coverage, don't assume the same shot can be made again this year. Transmission factors change. Relaying signals through another vehicle may become a necessity. However, it's better to discover that today rather than on November 6th.

Editor's note: We welcome your ideas and comments. If you have any topics you would like to see discussed, send them to James A. Larson, TELEVISION/BROADCAST COMMUNICATIONS, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208. □



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CABLE L.O.

TV station moves into cable

A desire to head off some of the outflow of dollars to cable advertising has led WAGA-TV in Atlanta into local cable programming.

On March 1, Channel 5 inaugurated WAGA Cable, a program service fed to 120,000 cable homes in the Atlanta ADI. The locally produced programming goes to Cable Atlanta, an interconnect that includes Cable Dekalb and systems serving two smaller municipalities.

J. Marc Doyle, WAGA director of program operations, explained how WAGA Cable got started: "The original reason for getting into it was that the monthly sales reports showed that more and more money from the marketplace was going into cable programming. People in the advertising community were experimenting with cable. They were putting a certain percentage of their buys into cable, buying things like rotating spots on USA, CNN, and ESPN. We thought that they were local advertisers and that it was a growing pool of money we didn't want to lose.

"We wanted to participate, so we first identified that a marketplace existed. Then, we went through the process of trying to identify what we could supply to that marketplace that could turn into something that would be valuable to local advertisers."

Local programming

WAGA had established a track record as a source of locally produced programming. The station's first major effort in non-news local programming started more than five years ago with production of local sections of *PM Magazine*. This was followed by a series of once-a-month prime-time specials aired under the generic title, *5 Presents*. The specials have brought the station high ratings and added revenue.

Two years ago, WAGA added *Weekend Magazine*, a Saturday night prime-time hour.

Next to be added to the roster of locally produced programming was the *Atlanta Rock Review*. The music video show is shot on location at local nightspots, and is simulcast over the metro's leading FM rock station. Last November, the *Atlanta Rock Review* pulled as much as a 54 share in some time periods. It airs for four hours Friday and Saturday nights.

The move to feeding programming to the metro cable interconnect was a natural outgrowth of the successful local programming seen on Channel 5.

WAGA Cable programs

Today, WAGA Cable provides 11 hours of programming each week on cable channel 26: from 6 p.m. to 8 p.m., Monday through Wednesday; and from 6 p.m. to 11 p.m. on Thursday.

The 6-8 p.m. segment is a special edition of the *Atlanta Rock Review* that is hosted by a local disc jockey. Shot on location in area clubs, the program features music and information about local concerts and other musical performances.

At 8 p.m. Thursday, the local programming continues with *Eyewitness News Close-up*. TV-5 news anchors Pam Martin and Forrest Sawyer cover timely, controversial news items. The format is described by Doyle as being similar to ABC's *Nightline*.

Sports Unlimited follows at 8:30, with extended coverage of a controversial sports story. At 9 p.m., WAGA Cable airs *That's Showbiz*, which mixes reviews, interviews, and clips from current Hollywood films.

At 10 p.m., WAGA Cable replays one of the hour-long *5 Presents* productions. A recent airing was titled *The Georgians*. It profiled some of the interesting people in Georgia.

According to Doyle, all of the programs on WAGA Cable, except the replays of *5 Presents*, are produced specifically for the cable service. The production values are the same as for WAGA on-air offerings. The programs are transferred to 3/4-inch tape for airing, and are delivered on tape to the cable head end.

The station has not added equipment to complete the additional programming, and relies mainly on existing staff and a scattering of contractors to produce the shows. The production, news, sports, and local-programming departments work together in order to produce the 11 hours of cable programming. With the exception of the disc jockey who hosts the music video programs, the talent is taken from the TV station's talent pool.

When asked if the station has any plans to expand the quantity of programming, Doyle said the most likely area for

expansion would be the addition of live special programming. This might include coverage of the city's famed Raft Race or of amateur and participatory sports. Another expansion option available to WAGA Cable is to extend the coverage to systems on the perimeter of the Atlanta metro market.

Making a profit

Doyle reports the service has been a sales success in its early stages. Current plans call for six minutes of commercial time per half-hour. So far, all of the sponsors have been local, drawn both from existing station sponsors and newly developed accounts that advertise only on cable.

Promotion includes listings in a cable guide, on-air promos on Thursdays on WAGA-TV, some radio advertising, and cross-plugs on the *Atlanta Rock Review* when it is airing on WAGA-TV.

Promotional plans for the service include running a number of contests during breaks in the programming. Viewers will be required to phone in a response to a computer phone tabulation service. The station hopes the telephone responses will serve as a rough substitute for ratings.

Tracking the marketplace

What sort of thinking went into the development of WAGA Cable? Besides the major economic concern of capturing ad dollars being directed to cable, WAGA-TV was concerned about maintaining a marketable image. Already, 40 percent of the Atlanta ADI is wired for cable. The station realized that it could become one of up to 50 program sources available to cable viewers. Strong local programming on Channel 5 was a step toward maintaining a good image. Another step was to provide high-quality local programming to the cable service so that the revenue flowed back into WAGA-TV instead of going to Turner Broadcasting or some out-of-town cable programmer.

Management is betting that the network-affiliate relationship will continue in the country for some time. The station has a 35-year record of service, enhancing its credibility and furthering the possibility of making the cable feed an advertising success. □



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The economics of bargains

BY PATRICK DE COURCY

Both Canada and the United States are in the midst of great political activities. Upcoming elections may impinge on our present and future lifestyles. These times are forcing us to be very aware of fiscal and monetary conditions over the short and medium terms. Actions taken or neglected over the course of what remains of 1984 will have a strong bearing on our collective economic futures. These actions will have a positive effect for broadcasters who buy Canadian broadcast equipment.

In Canada, the Liberal Party recently chose John Turner to take over as prime minister from Pierre Trudeau, after his decade-and-a-half term in office. Now that the new leader has been chosen, a general election is expected to be called, which will put both countries into simultaneous major-election modes.

However, that is only the beginning of the similarities in our respective conditions. On the positive side, we are both continuing our recovery from a severe recession. On the negative side, both countries are running huge federal deficits and still suffer from unusually high interest rates on borrowed money. Also, our currencies have strengthened substantially against those of most other world trading nations because of our quicker economic recoveries.

Running at different speeds

It should be realized, however, that even though the course of our fortunes has run fairly parallel, our speeds have not matched. Current growth rates in the United States are estimated at approximately 7 percent, while those across Canada are closer to 3 percent. In addition, the unemployment rate in Canada is still about 50 percent higher per capita; and the Canadian dollar has sagged about 3 percent against the U.S. dollar in the last few months. This condition is likely to persist as long as interest rates stay where they are or move even higher.

Recovery in Canada has been slower than in the United States. This is largely because the Canadian recession was worse than the one in the U.S. Historically, the Bank of Canada has kept interest rates higher in order to attract off-

shore investment and keep the Canadian dollar a little higher in international currency markets than might otherwise have been the case. However, the Bank of Canada did not want to inflate the Canadian currency at a time when the U.S. dollar was exceptionally strong, because it tended to make Canadian goods too expensive on world markets outside of North America. As a result, during the last few months Canadian interest rates have either equaled or even dropped slightly below those in the U.S. The Bank of Canada is trying desperately to keep interest rates down in order to avoid heading into another recession.

Whether it can succeed will obviously depend upon the direction of interest rates in the U.S. during the rest of this year. The hope is that the presidential elections will encourage the Reagan Administration to follow a slightly expansionary policy in order to keep the economy growing and reduce unemployment. This should hold back any further interest rate increases before the end of the year.

Slower recovery in Canada

The reason for the slower recovery in Canada is the widespread fear of interest rates taking off again. Industry was so badly mauled during the surge of 1981-82, when the prime rate got into the 20 percent range, that earnings since then have been directed into debt reduction rather than output expansion. This has cramped demand for capital investment projects, which are still expected to remain sluggish throughout the rest of the year, and has kept many industries running at little more than 70 percent capacity. Under these conditions, there is little reason for corporations to spend money on new plant and equipment when they still have plenty of debt to get rid of. So financial management remains very conservative for the present.

Fortunately for the Canadian economy, the turnaround has made consumers more optimistic about keeping their jobs; they have been buying many consumer goods that needed to be replaced during the last few years, but which were postponed as long as possible while conditions remained shaky.

However, because of a drop in real purchasing power due to lower salary increases, consumers are still not spending

much on soft goods. They are still salting away as much as possible into savings and such things as mortgage reductions, with a resulting strange effect on banking operations.

Saving more, lending less

The banks have been taking in record deposits, but have been having trouble lending money because of reduced demand for loans. Normally this would put downward pressure on lending rates, but the central bank hasn't allowed rates to fall because of what this would do to the value of the dollar in foreign currency transactions. So the banks have been actively searching for new places to lend the money, including mortgages. They have been able to maintain an artificially high spread. There has also been plenty of money to finance government deficits.

Meanwhile, the Canadian economy has continued to improve, in spite of all these problems. This is due largely to improved exports and the growing demands of the burgeoning U.S. economy.

Partners in trade

Canada and the United States are each other's best customers, and their international trade exceeds that of any other two nations in the world.

This is a fact that even seems to elude some U.S. presidents. Both Richard Nixon and Ronald Reagan have made the mistake of identifying Japan as America's largest trading partner, while in fact, Canada's trade with the U.S. is more than double that of Japan's. Perhaps Canada's close proximity may cause it to be overlooked. It is also possible that Japan's trade representatives and lobbyists in Washington are just a lot more vocal than those of Canada.

Canada's exports in 1984 will total approximately \$100 billion, of which about 70 percent will go to the United States. Canada will import almost as much from the United States. The country normally has a modest trade surplus, most of which is used up in other payment transactions, including dividends and interest. As a result, the balance of trade between the two countries is in equilibrium.

Future developments

Within the context of this healthy trading relationship, it is interesting to

Continued on page 42



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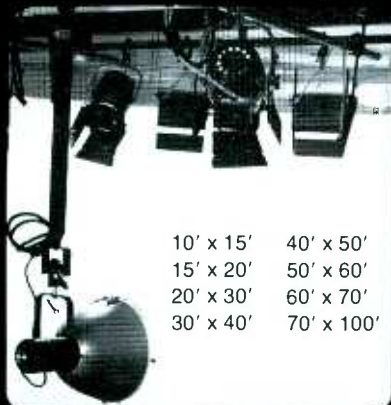
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"...the mistake is identifying Japan as America's largest trading partner, while in fact, Canada's trade with the U.S. is more than double that of Japan."

try looking ahead to future developments. At the present time, talks are in progress between the two governments to initiate a free-trading zone in the long-term, and a limited free-trading zone arrangement covering specific industries in the short-term. As there appears to be a general consensus on the mutual benefits of the shorter-term plan, it would not be surprising to see such an arrangement come to fruition within the next year or so. As for the long-term total free-trading objective, this is already espoused by the U.S., and will no doubt be accepted by Ottawa once it feels it can keep its economic and political sovereignty intact.

In any event, it is very likely that a new Conservative government in Ottawa would initiate a more cordial relationship with Washington than has been the case with the Trudeau administration. And all indications are that the Liberals will be out after the next general election, even though Trudeau himself won't be around after the Liberal leadership convention this summer.

Deficits ahead

The scenario for the coming year or two, therefore, looks quite optimistic, except for the huge federal deficits in both Canada and the United States.

In the U.S., Congress is already putting pressure on the administration to reduce expenditures and raise taxes. Canada has some tax increases slated for later in the year that it can ill afford. The present government shows neither a willingness nor any capability of trimming its excesses.

The citizens of both nations are faced with almost inevitable tax increases and the hope that government expenditures will slow following the upcoming elections. In the meantime, these deficits will have to be financed by the private sec-

tor, and the money that could otherwise go into expanding the economy will be used up paying interest on funds already spent.

In Canada, because of lack of demand from industry, there is not much of a problem finding funds to finance government debt for the rest of 1984. However, in the U.S., where industry is expanding rapidly and needs plenty of money, and where major corporate takeovers are running wild (particularly in the oil industry), the pressure for loans is coming face to face with government financing requirements. This will put immense pressure on interest rates. And what happens to interest rates in the United States affects interest rates in Canada.

No more inflation

Canada can't afford another round of inflation. Its unemployment level is around 12 percent and can't afford large increases in taxes because the economy isn't robust enough to pay for them. Neither can it afford to carry huge government deficits that are already swallowing up 4 percent of the GNP in current carrying costs.

What we can hope for is enough time for industry to get its debt ratios down to reasonable levels so that it can start spending new money on capital projects. In addition, it is to be hoped that the government will have enough sense to encourage major new projects which will get people working and enlarge the tax base, while at the same time cutting down on wasteful and expensive programs.

Equipment bargains

If Canada can manage to accomplish these things by the end of this year, the country can look forward to continued and uninterrupted controlled growth that will be sufficient to get it through the rather rocky waters that appear to lie ahead in 1985.

Meanwhile, Canada has been doing quite well recently in its balance of trade payments. And if the country can keep up a strong export drive, it will eventually reflect in a stronger Canadian dollar.

If things go forward as they might, it seems likely that the U.S. dollar will start declining against other major foreign currencies later this year. And the Canadian dollar could well start to appreciate against the American dollar some time in 1985 from its current very weak position. That being the case, it would appear that 1984 is going to be a bargain year for U.S. broadcasters to buy Canadian equipment. □

Patrick de Courcy, Canadian correspondent, is a broadcasting consultant in Toronto.



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Build your own election network

BY ED GORDON

In February, the election campaign got off to a roaring start. And moving right along with candidates was a convoy of transportable earth stations. In 1984, this approach to election coverage has become a definite trend.

Wold Communications got the ball rolling for ABC by wheeling their Los Angeles-based unit 3,000 miles from a San Diego golf tournament to Manchester, New Hampshire, to cover the primary there. While Gary Hart scored an upset victory, Wold uplink services delivered regular news feeds from the Manchester Holiday Inn to ABC. The reports were included in *Good Morning America*, *World News Tonight*, and *Nightline*.

VideoStar, another uplinking service, also logged a number of miles during the primary campaign. Their units helped cover the races in Iowa, Massachusetts, New Hampshire, Georgia, Texas, Alabama, and Florida. For the final primary in California, VideoStar used their Ku-band truck to transmit a signal from Hart's headquarters in the Beverly Wilshire in Beverly Hills to ABC and KGO-TV. The use of Ku band proved to be the answer in the heavily congested RF at-

mosphere of Los Angeles.

Jim Black, president of VideoStar, said he was extremely happy with the results. "For these short ENG-type of feeds, 15 to 20 minutes at a time, the Ku band worked great."

Next the conventions

The Democratic National Convention, July 16-19 at Moscone Center in San Francisco, and the Republican National Convention, August 20-23 at the Dallas Convention Center, will have these trucks rolling again.

Wold Communications has confirmed more than 312 hours of mobile uplink and satellite transmission during these two conventions. Wold will be using its own fleet of mobile uplinks and several of its own transponders to provide service to 26 local television stations in major markets. In addition, the company will provide transmission services to several syndicated television news services.

According to Robert Wold, "Many local stations do not want to depend entirely on network coverage for the stories of local interest. The networks have indicated they will provide less in 1984 than before." Because of this, many major-market stations have contracted for specialized feeds to cover the delega-

tions from their home states. Their efforts will keep the home audience better informed on how delegates are voting and what is swaying those votes. Wold provided similar services during the 1980 conventions, but the 1984 volume is considerably greater.

According to VideoStar, the company has already booked over 800 hours of convention coverage on four birds. VideoStar will provide services to such groups as The Cable News Network, the Canadian Broadcasting Company, the Post Newsweek Group, Gannett, and NHK-TV of Japan.

VideoStar has been able to obtain site clearance for C band and will be operating directly from the Moscone Center in San Francisco. Most of the other services will operate off-premises due to clearance problems. VideoStar will have four trucks on line from this site.

Additionally, other services such as Bonneville Telecommunication's Satellite Systems Division, will be providing service to other stations and broadcast groups. Bonneville will provide coverage for 60 stations, representing 9 different broadcast groups. Interestingly, Skip Erickson of Bonneville said they will all use C band since they "don't trust Ku band yet."

Continued on page 46

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November is coming

What's next on the agenda in election coverage for these transportables? The November election will result in many satellite networking systems covering both national races and state-wide elections. Obviously, the key national races for the Senate and House of Representatives, along with the Presidential race, will mean uplinking to the networks and other news services from the headquarters of candidates in home districts. Live coverage of wins, losses, and reactions to events in other areas will all be relayed. But one of the major differences in this year's election coverage will be the advent of state-wide satellite networks.

In Pennsylvania, for example, it has been the practice for years for the Philadelphia and Pittsburgh stations to trade feeds over telco lines from the headquarters of candidates. This year coverage will be provided by satellite with an added attraction. Telecom Broadcasting, which has a transportable satellite uplink stationed at Penn National Raceway just outside Harrisburg, will be providing uplinking services for various stations. Reactions from the state capitol will be relayed to the broadcast-

ers by satellite transmission.

Your election network

If you have the time and the expertise to put it all together, it is possible to establish your own satellite network. But for those lacking the proper knowledge, there are a number of organizations that offer full-service networking. Generally, these organizations can package the uplinks with transponder time, get clearances, and coordinate the event. This leaves the broadcaster free to handle the actual news coverage.

Do it yourself

If you want to organize the networking yourself, be prepared for a few headaches. Again, there are a number of companies which provide transportable uplink and transponder services and are happy to let you call the shots. Cost of these services varies, but the average prices typically run \$3,000 for the first day, \$2,500 for the second day, and \$1,000 for each additional day the service is utilized. There may also be charges for personnel, transportation, and site coordination.

Transponder time may be available from several sources, depending upon

your specific needs. Obviously, RCA, Western Union, and other satellite services will be interested in working with you. But several other groups with long-term leases have time available. And, since election coverage may fall outside their normal program schedule, the price may be right. It doesn't hurt to shop around.

Transponder time typically runs \$250 to \$420 an hour during off-hours to \$400 to \$600 an hour during prime time (4 p.m. to 2 a.m. Eastern Time).

While doing it yourself might sound like a great idea, without experience, the problems can be overwhelming. Using a full-service company, at least the first time around, is strongly recommended. It may even be less expensive in the long run. The full-service company can help you to avoid making costly and time-consuming errors.

Remember, no matter which method is selected, book services early. Permanent uplinks, transportables, and satellite transponder time will be at a premium during the election season. □

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

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HEAD BUMP:

BY EUGENE LYSINGER

In an article last February, I mentioned low-frequency excesses as a reason for equalization in television audio.

Why worry about it, anyway? Television audio is supposed to be "good" from 50 Hz to 15 kHz. Ideally, it *should* be. But experience shows us that 100-150 Hz to 10, or *perhaps* 12, kHz is a more believable statistic.

One problem is the legendary "little speaker" in the receiver. At an *average* diameter of about 5 inches and a free air resonance of no lower than perhaps 100-140 Hz, it isn't much of a low-frequency reproducer. Combine low magnet content and poor to non-existent baffling, and the strikes against low-frequency performance add up. If you add an audio amplifier to poor damping characteristics, the stage is set for *intermodulation distortion* on both the electronic and mechanical levels. It sounds like the mids and highs are being "ground up." It is all too common.

Intermodulation distortion is common in nearly every generation of product from the field or studio on through to the air master tape. A further negative contribution is made by the problem of *proportion* in television audio recording. In the current analog process, the audio passes through several (too many) generations before it reaches its final form. Inherent in the process is the repeated roll-off of high frequencies with each generation. This brings up a point about the *hearing* process.

Human hearing tends to perceive sound in a "continuum" of sorts. The hearer doesn't "pick out" a given portion of the spectrum. A change in a discrete frequency will be perceived more as a "tilt" in the whole spectrum than a peak or notch.

Experienced, trained listeners can—with concentration—"guesstimate" a peak in frequency response. Dips or cuts are much more difficult to identify. The casual listener probably couldn't pinpoint either a peak or dip.

Chronic problem

When you combine these problems with a common characteristic in VTRs

Where does it hurt?

and VCRs called "contour effect" or "head bump," the effect becomes chronic. The slower the tape speed and the greater the compromise in stationary audio head design, the worse the contour effect becomes. Three-quarter-inch equipment seems to perform worse in this area than 1- or 2-inch machinery. Part of the problem with ¾-inch is its relatively poor high-frequency performance. Another is its limited dynamic range.

(A phone call to the tech center of a large manufacturer elicited, first, a response that the company's equipment was flat; and, second, a dearth of data about the phenomenon in the setup and calibration materials—the usual $\pm X$ or Y dB at widely separate frequencies with no accounting for the curve in between.)

Given 1 to 3 dB boost at any frequency from 50 Hz to 200 Hz in a single pass through any average machine, *noticeable* spectral changes are not apparent. After several generations with the "bump" being increased by 1 to 3 dB accompanied by 3 dB or more in high-frequency loss each time, the *perceived* spectrum will begin to tilt. The resulting low-frequency emphasis is quite apart from the boost that some "bass enthusiast" may want to add!

Proportional problem

The proportional problem can create another complication. Assuming the foregoing buildup of low frequency is accompanied by the low signal-to-noise and limited dynamic range performance in ¾-inch VCRs, you should be cautious in applying noise reduction. It's a good idea, but *any* encode/decode system will be sensitive to dynamic change either

across the band or in the high-frequency region.

Where the center frequency and amount of boost is known, a reciprocal contour or "dip" can be created to give a relatively flat result. Remember the psychoacoustics. Cutting is harder to detect and will result in a *perceived* improvement in high-frequency performance.

Perhaps a wise course would be to use the widely available high-pass filters on the first generation. What you don't record is less likely to come back and haunt you later. A notch filter (or one-band equalizer) also can be useful where the center frequency is known and other variables remain fairly constant. We will deal with the notch filter as a project/column in the near future as well.

Ideas and suggestions

In all of this discussion, the following ideas remain:

1. Try to record in the first generation with a view to the likely process the audio will undergo before it is heard by the viewing audience.
2. With each succeeding generation, try to keep the *perceived* "tilt" of the audio spectrum as "level" or flat as will benefit you in succeeding generations.
3. At every generation, *know* (don't guess) what the audio quality is. Insist, where possible, on monitoring that is honest. Don't fall for the idea that checking it on a 5-inch speaker is all that is necessary. That 5-inch speaker could tell you there is something wrong, but without more bandwidth, *where* it is wrong will remain a mystery.
4. There are no color bars for audio. It is largely subjective. Where possible, a set of credible (not necessarily "golden") ears with some experience and training will save production time and money.
5. *Good* audio takes as much time and trouble as good video. It's also as important.
6. Educating the non-audio people in the team to *at least give the audio* a fighting chance will soon create a sense of balance among the whole team, and the product will look *and* sound more credible. □

Gene Lysinger, audio technology editor, is an independent audio consultant currently associated with Oregon Public Broadcasting.

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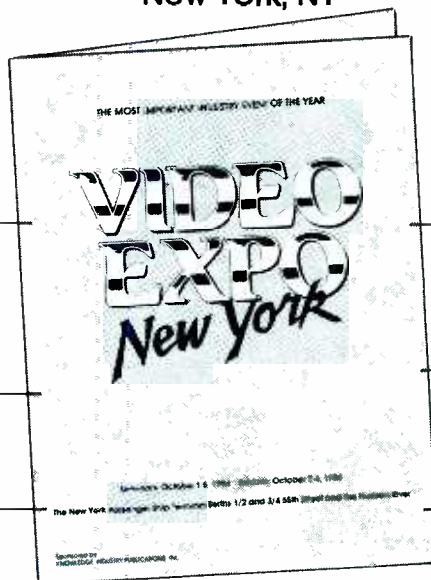
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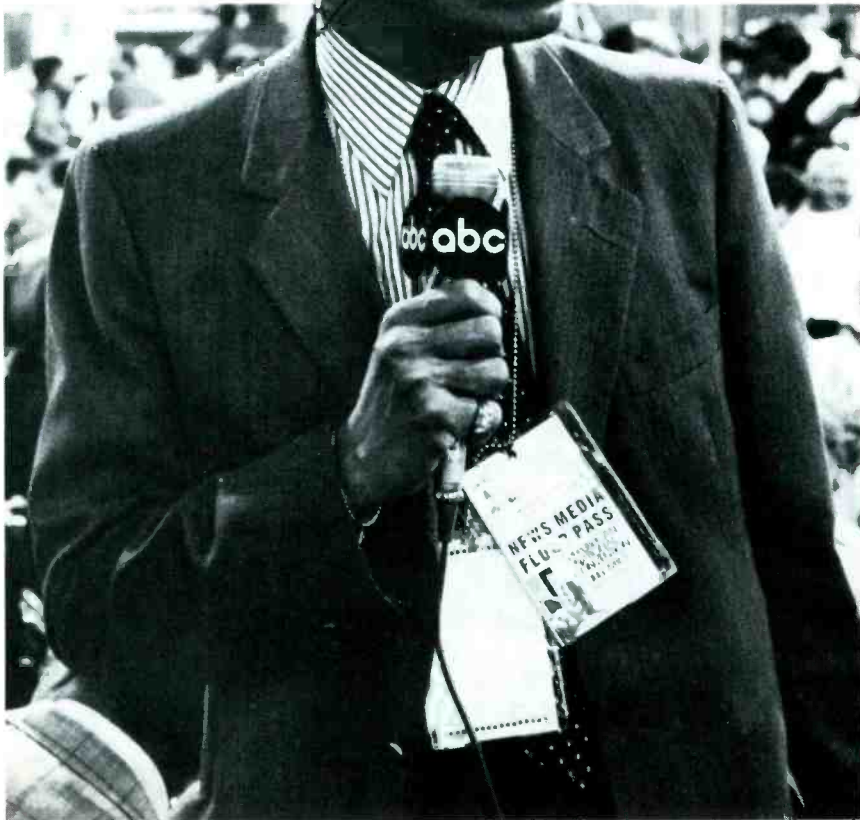
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WIRELESS MIKES

ENTER THE ELECTIONS

BY JAMES A.
LARSON

Wireless microphones have become an integral part of network election coverage. Former ABC reporter and anchor, Max Robinson, is shown using a unit at the 1980 Republican National Convention (Photo courtesy of the Sony Corporation)



Although the first Tuesday in November is still several months away, broadcasters have already begun casting their ballots for the products to be used in their election coverage.

Not surprisingly, a large number of stations and networks have voted to incorporate wireless microphones into their arsenal of ENG and production equipment. From the back rooms of county courthouses, filled with the pungent aroma of cheap cigars, to the floors of the San Francisco and Dallas convention centers, wireless mikes will undoubtedly play a paramount role in the coverage of Election '84.

Ironically, the battle in the wireless microphone marketplace has become as heated as any political campaign. Armed with technological developments, manufacturers are looking to impress broadcasters with the increased reliability and performance emblazoned in their products. And there is no question that the wireless mike producers have made great strides in perfecting their product.

The past two years represent a period of dramatic change in the industry. Increased attention to audio processing, reception systems, frequency congestion, and dependability has resulted in a selection of microphones as far apart in design philosophy as the Republican and Democratic parties.

Diversity is an issue

The wireless camps draw lines in several key areas. Although a play on words, "diversity" is what many consider to separate manufacturers to the greatest degree politically.

Reception systems have long been a controversial topic in radio microphone design. Following their introduction, it became apparent that when used indoors, wireless mikes are subject to multipath problems that can literally destroy incoming RF signals. Hidden and metal objects in walls and ceilings can reflect the RF. When these reflected signals are combined 180 degrees out of phase, a partial or total cancellation of signal can occur. To meet these multipath problems, wireless microphone manufacturers have refined three diversity systems.

The first, known as dual-receiver, or "true" diversity reception, involves the use of two complete receivers. A logic control constantly monitors the output

Continued on page 52

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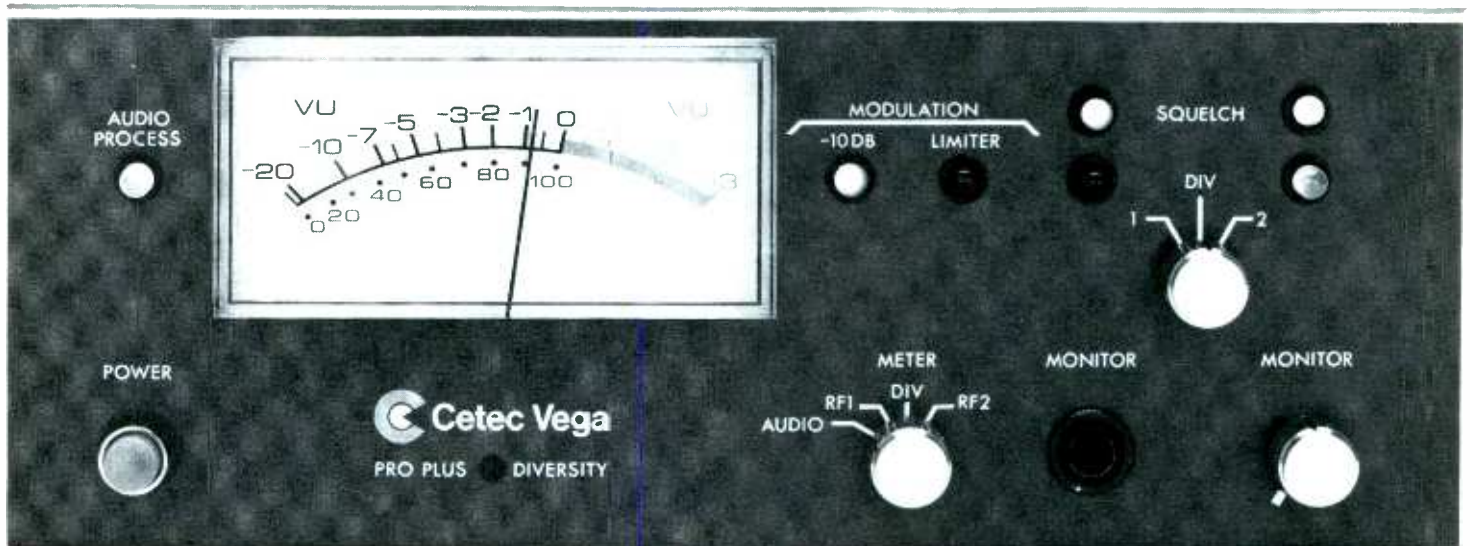
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of both units, and then selects the receiver with the best signal and thus best signal-to-noise ratio.

The second system, referred to as multiple-antenna diversity, utilizes three antennas together with isolation amplifiers and a summing network. This technique is premised on the concept that it is unlikely all three antennas will experience simultaneous multipath nulls.

Finally, phase-switching diversity uses electronic circuitry to alter antenna phase by 180 degrees when a drop in

signal strength is detected. The corrected vector sum has electronically eliminated the multipath problem.

As for which reception system is best, manufacturers seem to base their rationale on a number of different design criteria.

Design philosophies

According to Paul Tepper, president of Micron Audio Products, the company's receiver diversity system virtually eliminates wireless-mike multipath

problems. "There is nothing for you to adjust or tune. It's all preset for you," Tepper said. "All you're going to do is put two antennas out there and plug it in."

One of the charges often made against receiver diversity systems is that changes between receivers can be detected by a variance in signal level. According to Tepper, this charge is unfounded.

"Very small amounts of (signal deterioration) make the comparator switch between the receivers," Tepper said. "There is no way you're going to hear that thing change."

John Kenyon, general sales manager for HM Electronics (HME), explained that his company prefers an antenna diversity system. HME uses three dipoles that are fed into a tuned combiner and amplifier. The inputs from all three antennas are combined and averaged. The output from this "equal-gain combining" is then fed into the receiver.

"If you have a strong signal at one antenna and a strong signal at another antenna 180 degrees out of phase, they would cancel each other out," Kenyon said. "But you still have a third antenna. So, your chances are actually less of having a dropout with equal-gain combining than they are with a switching-receiver diversity. And, the equal-gain is far more cost-effective."

Telex, another manufacturer of wireless microphones, utilizes what is called a dual-antenna space diversity. According to Jerry Wade, wireless microphone sales manager, the system uses two continuously active antennas.

"We have a circuit that constantly compares signal-to-noise ratios of each antenna as well as its phase," Wade said. "If at any time one of the antennas is going into an out-of-phase condition with the second antenna, one of the antenna's phase is changed."

According to Wade, "There is no way you're ever going to obtain 100 percent dropout-free reception. All we're saying is that we developed the technique to do what we consider to be an acceptable level of performance."

It is important to note that not every wireless-microphone application requires a diversity system. In fact, if the devices are to be used outdoors or in ENG applications where setup time is a prime consideration, using diversity may be unnecessary. A station purchasing wireless equipment might consider purchasing both a diversity and non-diversity system. Or, as a cost-saving measure, it is possible to take a diversity receiver into the field and operate it as a non-diversity unit.

As an alternative to these systems, several manufacturers offer receivers

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that use a modified antenna design.

According to Ivan Kruglack, president of Coherent Communications, interfering signals from other transmitters can occasionally infiltrate a receiver through a diversity system.

"The diversity receiver has no means of determining which is the good and which is the bad signal," Kruglack said. "It only knows the stronger of the two. What we have developed is a circularly polarized receiving system." Kruglack reports that the antenna, used for some time in transmission processes, practically eliminates multipath cancellation.

While undesirable, there appears to be no way to completely eliminate the cause of signal nulls. According to HME's Kenyon, "Multipath problems are not something that is the fault of the equipment. It's just the nature of FM transmission."

One factor that can have an impact on the susceptibility of signals to multipath cancellation is the frequency of the wireless-microphone transmission. As was the case with the diversity issue, many manufacturers hold different views on what is the best band for wireless operation.

Currently, broadcast wireless units are operating in two portions of the frequen-

cy spectrum. The FCC has authorized licensees to operate in portions of both the high VHF and UHF bands. Each portion of the spectrum offers broadcasters different propagational characteristics.

According to Lynn Distler, sales manager for the Comrex Corporation, one of the key advantages of operating in the UHF band is the ability to transmit with a greater power output. Comrex units have a maximum output of 1 watt. Wireless transmitters operating in the VHF band are limited to 50 milliwatts.

"Operating in the UHF band means higher power," Distler said. "That brings a greater capability for mobility. We're not kept in the unused TV bands."

While being in the unoccupied VHF spectrum may potentially increase the likelihood of multipath problems, it may also decrease the chances of experiencing frequency crowding and congestion.

According to HME's Kenyon, "There's very few clear frequencies that can safely be used by broadcasters in the UHF range." Even Distler admits that finding a clear UHF band is a problem.

Congestion nightmare

"Frequency congestion is a nightmare

really no matter where you work," Distler said. "Because we're in the 450 MHz band, which is very congested, we do the heavy crystal filtering and the dual channeling."

That is not to say congestion is a problem for everyone. Broadcasters operating wireless microphones in the VHF band are assigned the frequencies of television stations not operating in their market. Depending upon where the mikes are used, a licensee may not experience any interference. However, problems may surface if the wireless is taken to another city where a television station is operating on the same band. In addition, the potential for frequency congestion may also exist if several licensees are operating at the same location.

According to Larry Weston, president of Edecor, "There simply aren't that many channels available for wireless microphones." Weston believes there is virtually nothing that can be done to ensure interference won't become a problem.

"There's so much radio traffic going on these days, and it's going to get worse," Weston said. "In the middle of the city, it would be extremely difficult

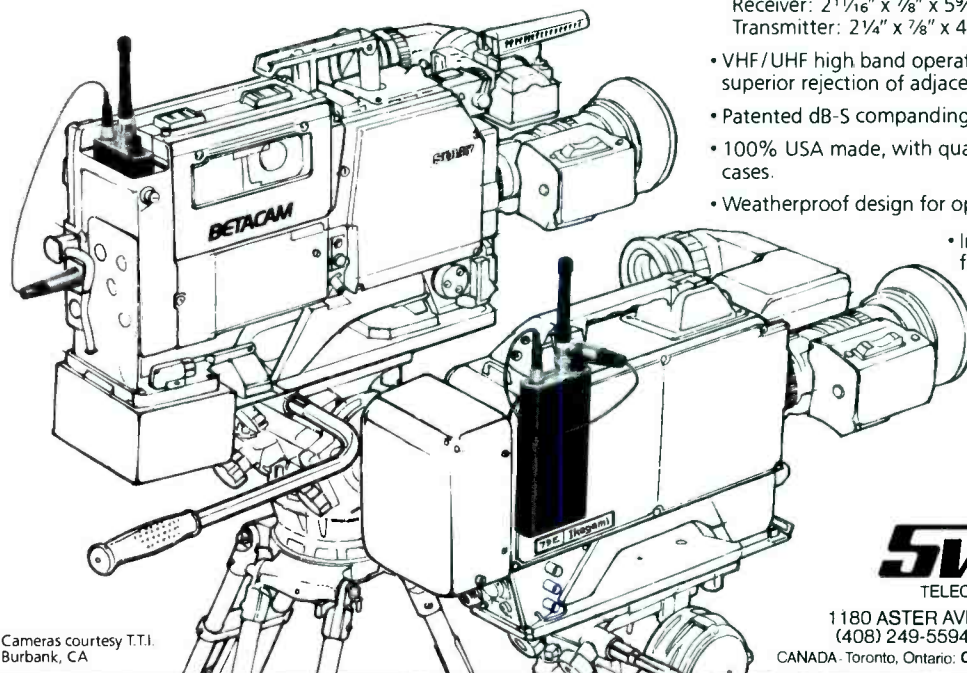
Continued on page 54

"For reliability and performance, I only feel confident recommending Swintek wireless microphone systems to my ENG/EFP customers."

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to use wireless microphones. I can visualize real problems at the Democratic and Republican conventions this summer."

The problem of frequency congestion in election coverage will not be limited to the national conventions. Local broadcasters using wireless mikes may be surprised to find who is operating on their frequency when they set up their live unit at local party headquarters on election night. The mere presence of another wireless unit operating in the area can present problems.

Ken Bourne, director of marketing at Cetec Vega, said that interference can result from adjacent frequency operation.

"As you get into more and more frequencies being used in an area," Bourne said, "you do get into more susceptibility of frequency mixes."

Cetec Vega introduced several new professional wireless products at this year's NAB. The use of GaAsFET front ends provides high sensitivity for maximum system range.

Coordination is a solution

The answer to this problem may not be that complicated. For several years, networks and other broadcasters have worked out frequency assignments prior to beginning their coverage of a news event. The frequency coordination can help eliminate congestion problems. Local broadcasters would be wise to work out similar arrangements prior to using wireless microphones in locations where other stations may be using the devices.

But an assigned frequency does little good if a broadcaster is unable to operate on it. For this reason, at least one company has developed a frequency-synthesized system that allows operators to transmit on any of 48 different channels.

According to Jim Guthrie, Sony national sales manager, the company has introduced a new VHF frequency synthesized system in order to offer broadcasters some new choices.

"Our new system allows more channels of simultaneous operation," Guthrie said. "(VHF) also allows us to introduce a popularly priced system."

In order to meet FCC requirements, the new Sony wireless system utilizes a crystal oscillator as part of its frequency-synthesizing circuitry. A true space-diversity system is available for broadcasters requiring dropout-free reception indoors. In addition, the new Sony VHF wireless unit also features a compander for audio processing.

Manufacturers of wireless mikes have



Wireless microphone design has shown a trend toward compactness. A Swintek unit attaches easily to a user's waist. (Photo courtesy of Swintek Enterprises)

long strived to provide customers with noise-free operation. The use of compander circuitry is one result of these efforts. According to Bill Swintek, president of Swintek Enterprises, companders improve the signal-to-noise ratio of wireless systems.

"Companders utilize a modulation technique whereby you can compress the audio, increase the modulation factor, broadcast it, then re-expand it at the other end," Swintek said. "This gets rid of a lot of low-level, incidental FM modulation."

According to Swintek, his company's units are designed to operate like a narrow-band piece of equipment. As a result, the devices not only are subject to less interference, but are capable of greater range.

"The wider the bandwidth, if there is anything on the adjacent channel, the more likely the squelch will be activated," Swintek said. "The effect is that the squelch is activated at 20 microvolts instead of at a half a microvolt."

However, not all wireless microphone manufacturers believe compander circuitry is a requirement for effective operation. According to Comrex's Dist-

ler, "Companding comes up with a whole set of other problems."

"Your companding is basically good in a constant noise environment," Distler said. "If you have a signal-to-noise ratio worse than 46 dB, you're going to have pumping and swishing. We feel that in the RF situation, companders provide more trouble than they are worth."

According to Distler, Comrex is not necessarily against the use of companders in all applications. The company recognizes that wireless-microphone applications fall into two different types of applications: field and studio. "We don't plan on broadcasting the Boston Symphony from the street," Distler said.

The desirability of compander circuitry is not the only feature of a wireless system dependent on the unit's intended area of operation. Other characteristics that should be considered include battery life and estimated range of the device.

Power consumption and range

In general, frequency-synthesized and high-power wireless transmitters will consume more power than other units. Battery life for these mikes typically will range from three to five hours. Other crystal transmitters with a power output of 50 milliwatts will generally operate from six to 10 hours with a new alkaline battery.

However, manufacturers (like Sony) that offer a frequency-synthesized unit with higher power consumption also offer an additional battery pack that will allow up to seven hours of operation. The prime consideration, of course, is the trade-off between increased frequency flexibility and the need for prolonged operation. Again, the application is the key.

As was the case in power consumption, the expected range of individual wireless microphones varies from manufacturer to manufacturer. In fact, asking "how far" can have company spokesmen spouting movie titles like *From Here to Eternity* and even *The Longest Yard*.

One company representative mentioned that their device was capable of transmitting several thousand miles in free space. Still others felt their device was reliable for only several hundred feet indoors under the most adverse conditions.

Generally speaking, most manufacturers expect their products to produce usable signals outdoors at a maximum distance of approximately one-fourth mile. Indoors, depending on the amount of reflective surfaces and number of

signal-absorbing objects, wireless microphones have a reliable range of at least 300 to 500 feet.

Wireless wins this vote

One thing all manufacturers agree on is that wireless microphones can and will play an important role in the upcoming election coverage. The devices, as they did in 1980 and will do again this year, can provide networks, production companies, and local stations with freedom unparalleled by conventional microphones and their associated cables.

"At the 1980 Republican Convention, ABC's reporters roamed the floor extensively," Sony's Jim Guthrie said. "It gave them the kind of journalistic freedom that contributed a great deal to their broadcast.

"Their reporters weren't tied down with cables. They were free to walk up to delegates and other attendees and ask the kind of questions they needed to ask. I think it was a tremendous addition to their coverage."

Dwight Mosley, regional marketing manager for Nady, feels stations can't afford not to use wireless microphones.

"They're very important," Mosley said. "If you can eliminate one cord,

there is substantial justification for using a wireless mike. That's especially true for a roving reporter."

And the applications may not stop once the elections are over. As Coherent's Kruglack said, people may not want to stop using the devices "once they have a taste of the additional flexibility that is afforded by wireless microphones.

"Now that we have the all-in-one video camera... then those two together make a completely stand-alone package," Kruglack said. "I think there is a real synergistic effect having both free-wielding video and free-wielding audio."

The ability to leave a microphone cable behind is appealing. Reporters like the ability to move about freely. Traditionally, it's been the engineer who has been reluctant to use a wireless. They often felt the devices just weren't reliable enough. According to Jerry Wade at Telex, maybe they were right.

"Engineers worried about their performance being discredited by a faulty wireless microphone," Wade said. "They often felt the wired mike was going to be the more reliable form of transmission. To be honest with you, it is.

"A wireless microphone will never be as reliable as wired mikes. What we're

trying to do is get into that area between 99 and 100 percent."

Manufacturers may have obtained their goal. The units are more reliable and they sound better. Also, transmitters are getting smaller and are better able to stand up to day-to-day ENG use.

Wireless mikes may not be needed in every application. What's more, not every wireless unit is suitable for every situation where a radio mike is desirable.

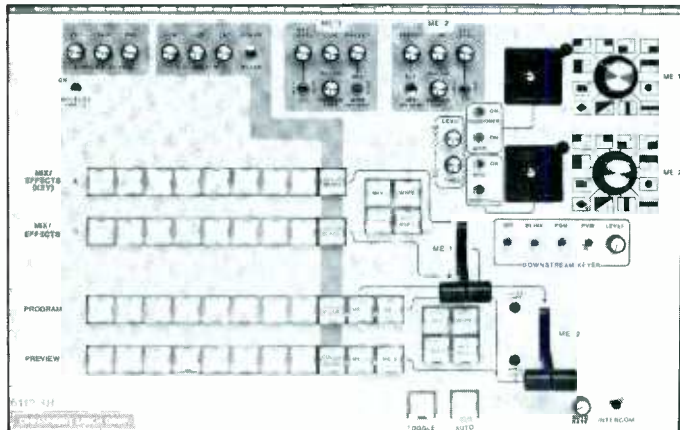
The key to effectively purchasing and using a wireless microphone is to determine the requirements of the application and then find a suitable microphone for the purpose.

Editor's note: For more information about a manufacturer's wireless products, circle the appropriate number on the Reader Action Card.

	Circle No.
Cetec Vega	150
Coherent Communications	151
Comrex	152
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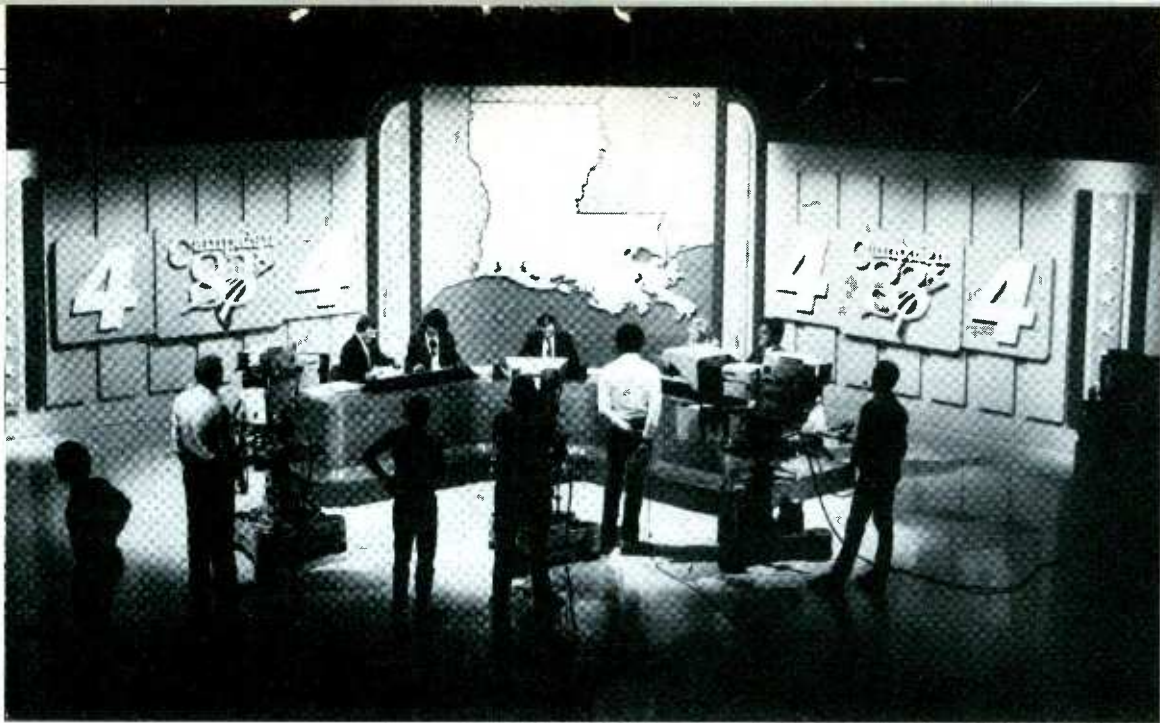
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WVL-TV's news team was kept busy in their efforts to win viewership for their election night coverage.

ELECTION COVERAGE:



An investment that pays off

Editor's Note: When you walk down the street after an election, you want people to stop you and say, "I watched your coverage all night. It was great!"

But winning the viewer's vote on election night may be the biggest challenge any television station faces, because the results can have a lasting effect. And that means more viewers and more ad dollars. You can either view election night as a problem or an opportunity. WVL-TV chose the latter course, and they won.

As the Louisiana 1983 gubernatorial race drew to a close, New Orleans' CBS affiliate WVL-TV was positioned and ready to undertake its most extensive election coverage to date. With the help of crews stationed with two microwave-equipped ENG vans and at seven stationary remotes, WVL-TV was prepared to cover 80 different political contests.

Pre-production

Three months prior to the October 22nd election, WVL-TV chief engineer Hugh Burney, news director Jim Boyer, the assistant news director, and the news program producer convened to discuss which races they would cover based on what the station had done in the past and what their present technical capabilities could accommodate. They determined who would be deployed where, how to link the communications network, and what would be required at each

location. The results became a master plan that was revised no less than a dozen times. Since gubernatorial candidates traveled extensively, the master plan was not definite until shortly before election night.

To better predict the hottest races, WVL sponsored a dozen public-opinion polls throughout the campaign to survey the prevailing mood of voters, and to determine which headquarters would have the most activity.

Because of equal-time requirements, WVL-TV was unable to sponsor a political debate. However, the station was awarded exclusive broadcast rights to a pre-election debate sponsored by Tulane University.

"We put together a statewide network of a half dozen TV stations," recalled news director Jim Boyer, "to produce the debate in New Orleans and uplink it to a number of other stations."

Hammering out logistics

"It took all of our resources to pull off this election," Boyer said. "It was our biggest election ever, as far as the station's commitment to coverage."

Virtually all of WVL-TV's principal crews and reporters were assigned to the election coverage. Nearly 160 employees from the news, engineering, production, and *P.M. Magazine* departments were called into action. An additional 100 individuals were hired and stationed in the studio to conduct

Continued on page 59



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Investment pays off

exit polling and key precinct vote-profile analysis.

According to Burney, "Engineers were used when we had more than one camera location because that required technical expertise beyond routine news gathering."

For the most part, news crews were kept in the field. Throughout the campaign, individual reporters were assigned to specific candidates. When election night arrived, based on their familiarity with the particular race, the reporters were deployed to their candidate's respective headquarters.

The assistant news director served as the election producer. The executive producer became the remote coordinator in the control room. Finally, the newscast producer served as local remote coordinator.

Boyer broke the coverage area into cells so crews, reporters, and equipment could be assigned appropriately. Five stationary remotes were planned for New Orleans. At the headquarters of Edwin Edwards, located at the Monteleone Hotel in downtown New Orleans, a rented GMC production van was assigned to provide coverage. The unit contained a Sony BVU-200 VTR, two Norelco PC-70 studio cameras, an Ikegami HL-79A, and a Sony BVP-300. Signals from the van were transmitted back to WWL-TV via a M/A-COM MA-2B 2 GHz microwave transmitter mounted on the roof.

Activities at the Royal Sonesta Hotel, site of incumbent governor Dave Treen's headquarters, were covered with a Sony BVP-300 camera. The signal was fed to a microwave transmitter mounted on the building's roof. Similar coverage was provided from the headquarters of lieutenant governor Jimmy Fitzmorris. At Treen's Baton Rouge headquarters, the WWL-TV GMC mobile production van was used to control two Ikegami HL-79As and a Sony BVU-200 recorder that was used for playback. Telco provided the return feed to the studio.

Two additional stationary remotes were located in Jefferson Parish where the site for the sheriff's race promised to be exciting. For the incumbent's headquarters, a Sony BVP-300 and a BVU-110 field recorder captured the action. The signal was fed on an MA-6 2 GHz transmitter to a receiver on an office building. From there it was relayed to WWL-TV's studio on a permanent microwave link.

The challenger's headquarters was covered with WWL-TV's ENG truck. The signal, transmitted by an MA-2B, was fed to an antenna mounted on the truck's 40-foot telescoping mast. After being picked up by an alternate receiver on WWL-TV's transmitting tower, the signal was relayed to the station via another microwave link. All seven stationary remotes also had a BVU-50 field recorder for backup.

A remote established by WBRZ-TV in Baton Rouge (which formed a cooperative with WWL and two other stations) featured exit pollster Steve Teichner. The reports were uplinked by Telesat to Westar IV. Two microwave-equipped ENG vans captured the victors of all the races.

"Two tape crews," Boyer said, "were also assigned to cover various locations and sidebar developments, which were driven back to the station for editing and air."

At the station, coverage involved a Chyron RGU character generator; four channels of digital effects; two Grass Valley switchers; two studios; specially constructed election sets; four SK-110 Hitachi studio cameras and an Ikegami HL-79; a host of Ampex VPR-2B 1-inch VTRs; and an RCA TCR100 cart machine to shuttle pre-produced segments.

Pre-produced lead-ins

Several pre-produced election graphics and stories about the various races were generated in advance of the primaries. The graphics were stored in an ADDA still-store ESP 750 and an ESP 200-C. Eighteen pre-produced stories were in

Continued on page 60

the file for use during election night. According to Boyer, some of the stories hinged on the outcome of undetermined political races.

"We knew the incumbent governor was going to lose, so we did a story on his administration to be aired following his defeat," Boyer said. "Then a story from the angle of what the new governor would do would be filed following his victory."

Vote returns

The returns for nearly 80 races were displayed with a Compositor II character generator with a TED election compilation and display program. "Five input terminals were installed in the newsroom," explained Boyer, "and fed directly into the TED computer. All raw vote returns from the field were transmitted to the newsroom and entered into a computer."

In the event that a format needed to be changed or a new race composed, a Silent 700 composing keyboard was available. To track returns from multiple locations, an Apple II computer was utilized.

Communications

The communications network involved enough telephone lines to link all of the remote sites and polling headquarters with separate intercom and IFB systems, a program-interrupt line, and a line for off-air cuing. The station's VHF and UHF two-way radio channels were used for the roving remotes, while business telephone lines and multi-point PL lines provided communications between WWL-TV and the stationary remote locations.

In various vote-tabulation centers statewide, computer terminals were tied directly into WWL-TV's reporting system for prompt updates. According to chief engineer Burney, linking the configuration consumed a great deal of work.

Controlling the feeds

By using two control rooms, one could function on-air while the second could coordinate the remote inputs from the various headquarters in New Orleans, Baton Rouge, and surrounding parishes.

From the remote locations, 3/4-inch VTRs were used to record and play back reports. At the station, the remote material was recorded on 1-inch tape in the engineering section. The newsroom also recorded the reports on 3/4-inch tape. That way, while some of the remotes played back on air, the news department could record the same interviews and edit them for the next news show.

Election night

WWL-TV scheduled the election-night broadcast from 7:30 p.m. to 1:00 a.m. The coverage began 30 minutes before the polls closed. Reports consisted of a combination of pre-recorded tapes, live features, cutaways, and remotes. A dozen pre-recorded pieces in the first half-hour set the mood for the evening. Throughout the night, anchors covered their special areas of expertise. A political analyst furnished his views and fielded questions pertaining to the outcome of the votes. The exit poller in Baton Rouge, the remotes, and the incoming returns comprised the bulk of the remaining broadcast.

With eyes trained on the governor's race, anchors covered ballot propositions, trends in voter participation, and recaps from the polls that had been open from 6 a.m. to 8 p.m. Head shots of candidates, similar to those used in football coverage, were generated.

Said Boyer: "The graphics producer, later in the evening, would log in the current returns of a race, and then we could

call up the appropriate display. If we had completed a live remote with a newly elected sheriff, up came his biography."

To keep the program balanced, a log in the control room was maintained throughout the broadcast to show how many times a particular race had been covered. A list of all the races was broken down into time slots and recorded on a board. That way, the production assistant was able to keep track of the coverage. Then, during a commercial break, the producer could see on a flashing computer screen what races had not been covered. Updates could then be scheduled accordingly.

"In those circumstances," related Boyer, "what happens is you get hot and heavy on one race and you never get down to the bottom of the list. The method we used helped maintain equilibrium."

"We used a lot more production techniques this year," added Burney, "because we had two Grass Valley switchers with two channels of digital effects. In some cases, we produced a two-channel effect and recorded it as an interview while another one was on the air in the studio."

"Having two producer/directors and all this equipment, including synchronizers and an elaborate communications network, allowed us to do a much slicker production. We could tie it together with what races were coming up next and which ones we had yet to report."

Engineering backup

Another facet of WWL-TV's coverage that made it an enormous success was the positioning of the engineers in their specific areas of expertise.

"We always sent an engineer to a location he had already covered for the past events," Boyer said. "That way, he knows what's involved. If something went down, it was back up in no time. Although it's rare that we have serious technical errors, with that many remotes, something always goes wrong."

And it did.

A hum in the audio line from Baton Rouge took some time to locate. The problem was found to be a faulty mike WWL had borrowed from another station.

Compiling totals

Fifty key precincts were staffed; and when the polls closed, numbers were phoned into the station's operations division. These numbers were used in two ways: the political analyst used them to determine what the final outcome would be; and WWL-TV's vote-carrying unit took the raw numbers and put them into the tally for the governor's race.

Since the secretary of state's office was the official dissemination point for the returns, WWL-TV displayed the raw votes from key precincts and courthouses until the state's numbers overtook them. They then switched from their own tally to that of the state's, which were culled from AP and UPI wire services. This method allowed WWL-TV to post numbers earlier than its competitors and maintain continuity throughout the night.

Cooperative polling

Four stations had formed a cooperative polling venture: Baton Rouge's WBRZ-TV; KATC-TV in Lafayette; KSLA-TV in Shreveport; and WWL-TV in New Orleans.

"Our original plan was to have the reporter announce the results on all four stations simultaneously, live via satellite," Boyer said. "But two of the stations didn't go on the air until 8 p.m., while the other two (WWL-TV included) went on the air at 7:30 p.m. After a bit of a frenzy, we went with the results at 8 p.m. Our competition had been doing exit polling as well, and we didn't want to jeopardize our chances



A host of anchors discuss election results. A problem for all stations is how to maintain viewership after the numbers are in.

of getting to the new governor.

According to Boyer, the staff had determined prior to the closing of the polls that the present governor had lost his reelection bid. "We knew Edwards had won," Boyer said, "but we didn't release it until 8 p.m. because of our agreement with the other stations."

On cue, exit pollster Teichner went live via satellite from Baton Rouge, reporting the projection: a sweeping 62 percent to 38 percent victory in favor of Edwards. Following a recap of the voting demographics, the station switched live to the new governor's headquarters.

"At 8:05 p.m., we announced who was going to win, and all we had to do was wait for the numbers to come in," Boyer said. "We were talking about the win, but the suspense was gone. In the past, we only polled key precincts and it took an hour to get enough precincts to make a reliable prediction."

In addition to expanding its production techniques, there were other approaches that helped WWL-TV troubleshoot the "unknown" on election night. For former elections, terminals had been installed at the clerks of court offices in the surrounding parishes. But this year, WWL-TV installed them right in the newsroom.

"When the terminals were located at the clerks' offices, if we had a machine break down, we were out of luck in that particular parish," Boyer said. "But prior to this election, our physical setup was such that we didn't have room in our old newsroom to accommodate an election operation."

"With the new physical setup of our newsroom, we were able to have all the incoming telephone lines we needed. We set up the terminals on the reporters' desks, and the people from the outlying parishes called into a phone number that had a dedicated terminal with two operators. If the machine went down, we'd merely transfer the call over to the next operator. This election was much easier for us since we used our newsroom as the clearinghouse, centralizing the operation right at the studio."

In retrospect

When WWL-TV personnel approach an election year,

they sit down six months prior to an upcoming campaign and review the previous year's play list to determine what did and didn't work, and what they can do to improve the next election coverage. For Campaign '83, it was the exit poll. This year, Boyer suspects it will be a new approach to liven up the program once the returns are in.

A return on investment

WWL-TV spent more on this election than it had ever spent on an election before. Boyer approached the general manager at budget time and said, "Forget last year's budget. We're going to spend upwards of \$100,000 on this election and here is why. Number one, this is the biggest story to hit New Orleans in 1983. We will be building our reputation for the next four years based on our coverage of this campaign. So whatever we spend, we can amortize our investment over the next four years."

"If we are number one on election night, we will live on the residual benefits of that until the next election. So when you look at it that way, we're only spending \$25,000 a year, which is negligible to maintain our share."

Apparently Boyer's rationale was right on target. The culmination of Campaign '83 scored a 47 share for WWL-TV on election night. To what do they attribute their success? "We did more than the other stations," stated Boyer. "We constructed an election set, not just a bunting. We did more remotes. We did more pre-production. We did more graphics. We kept it as interesting as we could. And we won the night."

"If you go down the street and ask who watched whom, people will say they watched Channel 4. What they're saying is when the news mattered to me, Channel 4 is the one that came through. Based on that response, we can sell commercials for the next four years."

"It costs about \$100,000 every election year, but it's worth the investment. My advice to stations that want to be number one in news, is go for the big stories. Appropriate the necessary capital and expertise, and bring those viewers home, in front of their sets, tuned to your station for the best coverage an affiliate can offer." □

Gannett USES satellites FOR election coverage

BY PHILLIP KEIRSTEAD

Provide individual live and tape inserts for a dozen or more stations; uplink on both C band and Ku band; do multicity feeds; cover candidates' headquarters where possible; and do the whole show with people who may never have worked together before. An order like that is enough to overwhelm most news, production, or engineering executives!

The tall order just described is exactly what Gannett Broadcasting handed a group of its managers.

Gannett Broadcasting is proving that local stations do not have to harness their news and special-events coverage to what is fed by the networks. Based on its experience covering the previous presidential election, Gannett this year set out to create three separate ad hoc networks. The first was the Gannett Primary Consortium. The second will be the Gannett Convention Consortium. And the third will be known as the Gannett Olympic Consortium.

The word consortium implies association or fellowship, and that is just how Gannett covered the Iowa, New Hampshire, and first "Super Tuesday" primaries. The Gannett Washington news bureau provided one or two reporters; the corporate offices employed freelance producer/director Brian Norcross; participating stations brought their own people and equipment; uplinking was contracted out; and everyone shared the reasonable cost of producing live and taped individualized coverage of the primaries.

It began in Des Moines

The odyssey began in mid-February in Des Moines, Iowa. The objective was to cover the Iowa Democratic Caucuses, which were believed to be indicators of the relative strength

of the Democrats seeking the presidential nomination.

Gannett had VideoStar park its Ku-band transportable uplink right next to the Savery Hotel, home of the Democratic Tabulation Center. In addition, Gannett arranged with Services by Satellite of Denver to provide a C-band transportable transmitter, which was parked a block away from the hotel. The C-band uplink was fed by microwave from the hotel.

The camera work was simple. It consisted of two cameras that were switched out of a small control room aboard the VideoStar truck. The reporters were positioned right next to NBC's anchor desk. In fact, at the end of the late news on Monday night, WTCN-TV of Minneapolis panned from its reporter to a live shot of Tom Brokaw's back, and then cut to the special network feed originating a few feet away.

Gannett vice president for news, Jim Sieger, reports the consortium scored two "exclusives" in Des Moines. It had a one-on-one interview with Walter Mondale and live coverage of the former vice president's victory speech.

According to producer Brian Norcross, the consortium fielded 50 people in Iowa. Participating stations included WPLG-TV of Miami; WRC-TV in Washington, D.C.; WLS-TV in Chicago; WJXT-TV of Jacksonville, Florida; WTCN-TV in Minneapolis; KBTB (now KUSA-TV) of Denver; KABC-TV in Los Angeles; KRON-TV in San Francisco; KMTV of Omaha, Nebraska; WXIA-TV in Atlanta; KOCO of Oklahoma City; and KPNX-TV in Phoenix.

Handling the numbers

Norcross said the major difficulty was accommodating so many stations, all of which wanted to receive feeds during



The ENG control area for Gannett affiliate KPNX-TV in Phoenix is capable of receiving three simultaneous satellite feeds.

the same period. The logistical problems were solved by doing pre-feeds via the VideoStar Ku-band uplink.

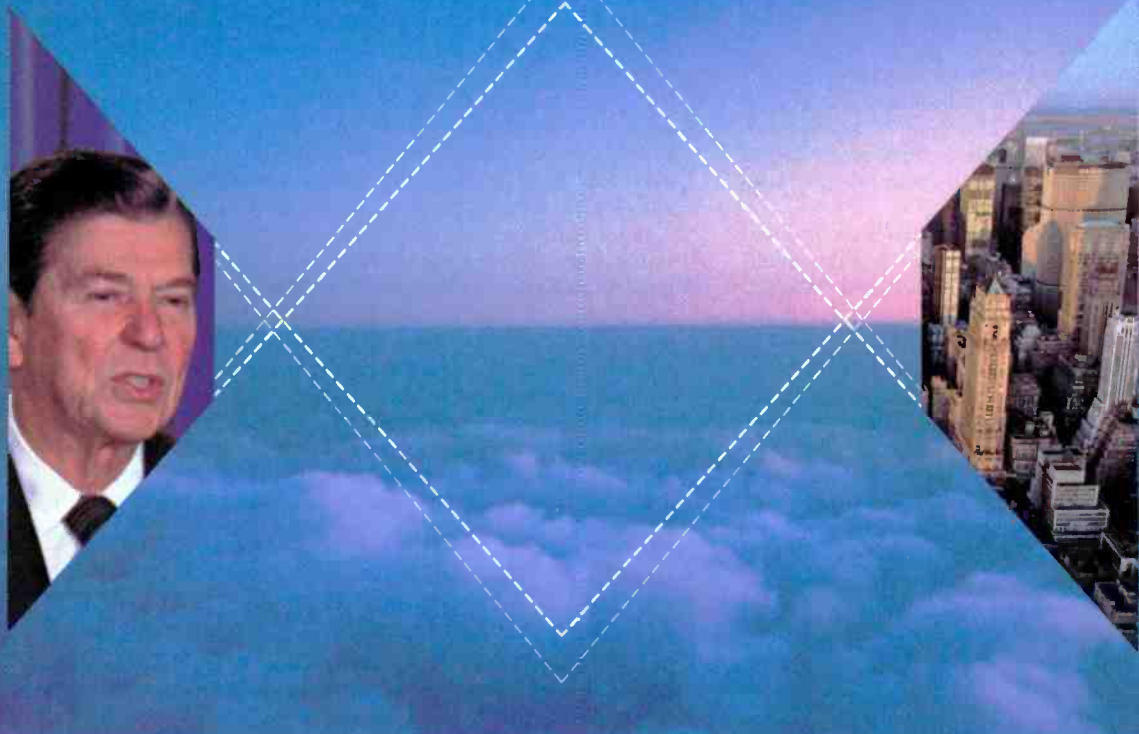
During the live newscast period, feeds were sent on both the Ku- and C-band transmitters. The Ku-band truck provided control, and its signal was relayed by microwave to the C-band unit. According to Norcross, "We used the preview buss of the switcher to run one feed and the line buss to run another feed. The complicated part of the thing was handling all the IFBs."

The production team met each morning to set feed times. Live "tops" or "tags" were assigned to the recorded material so that stations could use it live at the top of their shows.

The IFB problem was solved by using customized equip-

Continued on page 64

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Gannett uses satellites

ment and working with a detailed log. An assistant director handled the IFB coordination. There were four channels, and each on-air crew was told which channel to use before going live.

The assistant would call each station in order to assign lines. Director Norcross would then connect the individual station into the IFB system in accordance with his log. The IFB unit consisted of two 30-button sets, a custom control box, and "common equipment" used to handle the hold and other functions of the multi-button sets.

On to New Hampshire

The setup became more complicated for the New Hampshire primary on February 28. The tabulation center was located in a hotel in Manchester. The same VideoStar Ku-band uplink was used, but a separate control room had to be set up in an 11th floor suite. A picture window provided a panoramic view of Manchester.

One camera was installed in the suite and a second was stationed on the second floor to provide a view of the street.

Stations added to the consortium included WKYC-TV in Cleveland; WCIV-TV of Charleston, South Carolina; and WLWT-TV in Cincinnati.

Basic logistical problems in New Hampshire were complicated by several factors. Large numbers of reporters covering the primary, in addition to microwave congestion from the two remote locations, made the coverage more difficult.

Gary Hart's headquarters in a restaurant about a mile away from the hotel required only a simple microwave link. However, reaching the Mondale headquarters in a Bedford restaurant proved tricky. Located in a "hole," the shot required a double hop. The shot was so difficult that the Cable News Network (CNN) elected to uplink directly to satellite from the Mondale headquarters.

Super Tuesday

By March 13, the date of the first "Super Tuesday" in the 1984 primary trail, the Gannett crew had begun to feel confident in its abilities. However, that feeling of confidence was soon dampened.

According to Gannett's Jim Sieger, the candidates' plans were changing so fast, that none of them knew four days ahead where they would be the day of the primaries. As it turned out, Hart and Mondale were in Washington, D.C.; Jackson was in Alabama; and John Glenn was in Atlanta.

As a result, the coverage became even more complicated than anticipated. For instance, Jim Benneman, Gannett's Washington correspondent, covered the candidate's debate in Atlanta prior to primary day. He then flew to Washing-



KPNX-TV's back lot where the station's satellite reception dishes receive signals from the Gannett Network feed.

ton for primary coverage. Washington bureau reporter Patti Berman worked from Boston, taking side trips to Providence, Rhode Island. Neil Browne from Denver's KBTV also went to Atlanta for the debate and then moved to the nation's capitol for primary coverage.

Atlanta Gannett station WXIA-TV became the coordination center for Super Tuesday. The Ku-band uplink was located at Gannett's WLVI-TV in Boston. The studio location was a hotel in Cambridge, Massachusetts. The signal was relayed by microwave to the Prudential Building near downtown Boston. From there, it was put on WLVI-TV's network loop and fed to the station. Coverage from Georgia was uplinked on the C band by Up South of Atlanta.

According to Norcross, one of the main challenges was to establish IFB communications. A 13 GHz microwave link was used to relay signals both to and from the street outside Atlanta's Fox Theatre.

Working together

The stations providing "Super Tuesday" coverage included WXFL-TV of Tampa, Florida, which provided Washington coverage; WDIV-TV of Detroit and WTCN-TV of Minneapolis, which combined forces for special coverage from Miami; and WXIA-TV of Atlanta and WLS-TV of Chicago, which staffed both Boston and Birmingham, Alabama. The Super Tuesday coverage was transmitted to the basic cluster of stations in the consortium.

During the primaries another Phoenix news director was reported to have asked, "Where are you guys getting all those live shots?" The answer, of course, was from "the consortium"—a prime example of how stations can provide outstanding local coverage of a major national news story by working together. □

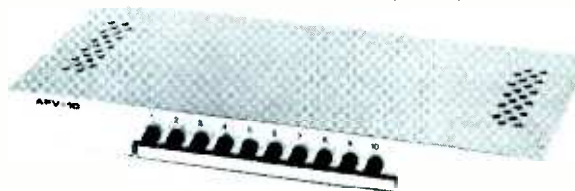
Phillip Keirstead, news technology editor, is a professor of journalism at Florida A&M University in Tallahassee.

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USING Computer graphics FOR BETTER ELECTION RESULTS

BY ROBERT WATKINS

Computer graphics will dominate the on-air look on election night this November. But how important are computer graphics to a station's ratings? Apparently no rating service is claiming a direct relationship between the millions of dollars going into computer graphics for television and their effect on ratings.

Arbitron suggests that to determine the relationship, it would be necessary to poll programs without computer graphics, then poll the same programs with graphics in the opens and promos. Judging from the on-air look of the networks and cable channels, it's apparent that there is a connection between computer graphics and ratings, even if it hasn't been documented.

Good graphics are already adding substance and visual excitement to hundreds of weekly promotional and transitional spots on stations coast to coast. But the proof of graphic effectiveness was never more evident than in award-winning ads and the astounding success of music videos.

A competitive trend

The 1984 National Association of Television Program Executives (NATPE) convention illustrated perfectly what the high-tech machines shown at NAB can do to enhance programs. Practically every other new program offered at NATPE had some kind of special-effects open or trailer. Was it because program executives have low attention spans and therefore need strong graphic stimulants to get their attention? Or was it because distributors know that a good tool for selling programs is to wrap them in colorful, interesting, and action-packed graphics?

Exciting graphic animation will capture viewers' attention for at least a few

seconds, enough time to hook them on a show. Of course, from there it is up to the program to retain that attention.

A critical time during any broadcaster's day is during "across the channels program changes," when the viewer spins the dial looking for something to catch his interest. Capturing the viewer in his search with a few seconds or even a half a minute of fascinating visuals is easily done with computer graphics. It's becoming almost a guaranteed hook element when the graphics are new and

different. With the presidential election on the horizon, you should be planning on how you can hook the channel changers.

Election '84

With the presidential elections at hand, this is an ideal time to sample computer graphics on-air. Your first efforts might not produce measurable results, but it will put you in a better and more informed position to deal with the use of graphics on election night.

Within the production industry there are certainly enough varieties of effect styles, systems, and prices to fit any station's needs. Any look you desire can be produced depending on the depth of your production and promotion budgets.

For stations that have paint systems or electronic graphic enhancers, right now is a good time to experiment with the system's election potential. If you don't have digital effects, all the major post facilities do; and it's easy to figure out what device will complement your graphics. The result can be achieved by taking your in-house system worth \$50,000 or \$150,000, and making it look like \$1 million. If you don't have the equipment, you can take your ideas to a nearby production house. It can give you an on-air look that rivals the networks.

Here's a list of possibilities for upgrading your on-air look without dumping your production budget:

- Purchasing generic computer graphic backgrounds.
- Posting the backgrounds with in-house title cards.
- Combining character-generator and switcher effects.
- Purchasing theme graphics and specific animations with variations.
- Combining in-house computer graphics with on-line enhancement from a post-production facility.

Continued on page 66



Designed especially for this article, these photos show variations of designs on the Aurora AU/100. (Photos by Robert Watkins)

The effect of style

If you want to increase your knowledge of the rapidly changing videographics industry, you need to get as close to the creation process as possible. By staying close to the production house doing the work, you'll get firsthand experience in determining what your system purchase should eventually be.

Style is an important consideration. It can be fixed, and system dependent. Some of the high-end-effects houses are so locked into a system purchase that every spot they produce includes the 3-D floating perspective. First, you have a front-on view, then the view flies overhead, and then it changes speed. Many styles today are tied to system dependent functions, so style is an important key to selecting an effects house when you want a unique look. If you have a choice of effects houses, you can be flexible. But for promos, news intros, and long-term campaigns, it pays to be consistent. The overuse of graphics can be distracting.

Whatever specific needs you have, the style of the graphics should successfully integrate and support your station's promotional strategies. For election coverage, the Americana motifs of U.S. flags and red, white, and blue color schemes are direct hits for expedient communications. The symbolism says tradition and politics quickly. Probably every station in your market will play on that motif by November. The edge is gained by a clever and attractive execution of the idea. One simple line animation could have extreme impact in promoting an idea, where 20 shots of talking heads may miss.

What makes some promotion and production staffs at first seem more talented or creative is that they're using an idea with potent style supported by their computer software. Consequently, certain effects have become identifiable with certain equipment brands. Relying on these pre-programmed effects works until the saturation point is reached. In other words, you may be locked into a graphic or effects style, stunting your creative flexibility later on.

The new look

Whatever the idea, the execution will ideally transmit a feeling to the viewer that, "Here's some exciting information... stay tuned." The subliminal message should be that "this information is new and interesting, not the same old stuff... stay tuned." Even if it is the same old stuff, cosmetically changing the information states that you have made an effort to increase viewing pleasure. The illusion that special attention is required from the viewer can be wrapped in a 10-second spot.

New, by itself, is sensational. New, tempered by your station's effort to provide new substance, is growth. Based on commercial trends, advertising agencies are eating up new looks as fast as they can be developed. Consequently, viewers are wanting faster, newer, and shorter commercials. Fortune 500 companies almost unanimously have bought computer-generated logo treatments. Even old-



Pictures of candidates can be placed in the ovals of this Peter Holler illustration created on the Ampex AVA-3.

guard conservatives appear in step with the times through intriguing graphics.

How to do it

People generally are interested in election coverage. If voting were as easy as watching TV, there would be a higher voter turnout this year. As it is, the electorate will look into many issues only superficially. So why should they watch your station? Let's look at some practical suggestions that will encourage viewership.

Let's take an idea like animated graphics to support your telephone polling. The polling-segment results will be aired once a week. Some people will tune in just for that segment because they participated, so any extra look will be appreciated.

Starting with the most austere example, let's say you've purchased only a still background and a reel of generic charts. You intend to end the telepoll segment in-house by adding a title to the graphics that will change weekly. The title could be "Do You Vote?" The title or question can be added to the computer graphic through a character generator. Assuming there are no digital effects available, you could add effects through a switcher.

With a title on a black card, the studio camera can be used to simulate effects with camera zooms and tilts.

Home-spun effects can be even more elementary.

To simulate perspectives with an art card, here is an easy trick: (1) paste a white title on the center of a six-field black card and paste a reverse reflection at the center of a second six-field card; (2) sandwich a black fishing line between

the two cards and secure it; (3) two people hold the ends of the line and wind the cards a few times until the tumble duration is set and the cards can easily be stopped full-frame; (4) shoot the action with a 36-inch by 36-inch black background and use the zoom and tilt to taste; (5) key this directly over the computer-generated background for the position desired. The result is a perspective animation similar to the functions of ADO or Encore. (For best key results, use blue cards and key with an Ultimatte or Newsmatte.)

Now punch up the actual statistics of the poll. Run the character-generator numbers over the above.

Another way is to purchase animated 3-D bars with percentage increments. Since the polling requires new statistics each airtime, and real-time animation can do this in a flash, the choice is easy. Just tell your vendor you want two sets of bars animated 10 times each in increments of 10. For more exacting reporting, 20 times each. It may sound like a big order, but it's not. The computer artist really makes only two sets of bars, each with an identical grid background on a key color.

The station receives two tapes. Tape A has the left bar animated from 0-100. From 0 to 100 is a predetermined duration. The bar finishes at 10 and plays for another 20 or 30 inches. Fast forward the tape and the next animation is 0 to 20, etc. Tape B is identical to Tape A except that the animation is on the right bar. The editor takes the results of the poll, such as 30 percent say "yes" and 70 percent say "no," and then finds the corresponding animation and keys them over the title and background. Presto, a first-rate computer-generated support graphic is ready to air. No matter what the statistic, the two tapes will provide the animation you need. It's like having a computer-graphics system at your station.

Another example uses just a still computer graphic and any source video. The illustration labeled "Great Debate" could be any title. The ovals indicate where portraits will be inserted. Simply make an oval matte with any switcher and key it over the graphic. As the debating candidates change, so do the portraits.

Going a few steps further, the illustration of the U.S. flag is a combination of digital paint system graphics and digital video effects that can be reused. With proper VO, the look can be tailored to specific and changing needs. The action is the flag flying in from infinity and trucking forward until it's full-frame, at which point it spins over to its back side where character-generated election results can be added.

Being cost-effective

Many computer-graphics systems currently installed in stations could appear more effective with the addition of digital-effects elements. Planning the use of paint systems with digital video effects should have this ratio: for every three hours of paint system, five hours should be used for planning. The objective is that when you create the graphics in-house for eventual manipulation with digital video effects, more time should be spent on doing what your system does most effectively.

It may sound like a lot of extra work, but once the initial production efficiency procedures have been outlined, future productions will be increasingly cost-effective. One problem most stations have is that they don't develop a production analysis. If it's a computer, it takes time to reveal its potential.

Using a post house

Planning one month of election graphics this way could include the use of Mirage. If you are featuring an election segment every day, you could begin with a cut to the theme graphic, which in turn fades to a category graphic. Now these category graphics may number 25 separate pieces (i.e., Reagan, Mondale, Hart, Jackson, Major Issue 1, Major Issue 2, etc.). These categories are sent to a post-production house for page curls or other pre-programmed effects of the Mirage. No one from your station needs to accompany the tapes because the process is so simple. Just indicate the ins and outs, durations, and the number of the effects you wish (as numbered on the facility's sample reel). If the page curl is used, the background will be your lead-in video, which changes daily and can be easily keyed. The invoice for about 30 graphics may be only \$3,000 (maybe less if it's only one pre-programmed effect desired, and if you supply the source tape).

Standards vs. style

How your station is equipped in the control room determines what mixes well with other outside systems. One of the most typical mistakes in buying generics or even custom graphics is that the on-air look appears generic. Buying flashy computer animation with complete unlimited use may seem like a good deal; but if it comes across hodge-podge, it won't contribute any real benefit. The graphics should reflect the production standards of the station and reinforce your promotional objectives.

Sometimes a station's CG over the generic is the wrong style or color. The solution is to buy the graphics that match or blend with the station's equipment.

Video crawl and moires that occur when supering a CG over a graphic can be eliminated by color correcting or changing the background, foreground, or both. Sometimes freeze framing the CG super eliminates crawl.

Producing all the elements on 1-inch is, of course, the safest for image quality. When multiple pages are necessary, the source tape should always have been recorded with a noise reduction system. Black or white key colors are the least difficult to work with. Where possible, use a direct key from the computer graphic system or CG.

Looking ahead

There are literally thousands of techniques that can be used to upgrade your on-air look. Many effects can be generated by a few good artists, a camera operator, and an editor. If there weren't so much interest in computer graphics, I would be tempted to recommend non-computer-graphics methods. The intelligent art computer has the rendering abilities of 30 artists, and temperament and operational ease of a Volkswagen.

Technology frees artists to be more creative, and computers are dependent on creative people. Computers do help people be creative. But unlike most of the computer industry, which develops products that displace people, intelligent art systems will not replace creative artists. Though there is an expanding need for all forms of video, the monetary importance of computer graphics is that fewer people and machines are needed to fill the expanding need.

"Nonsense," say some manufacturers. "There will be pixels on every tube and a mouse on every table. Everyone will unleash their latent computer-artist tendencies." Maybe, but good business sense dictates using a machine that produces more and costs less to maintain than its predecessor.

Where to buy it


In the meantime, you might want to take your graphics and effects needs to an effects house. Within your market area there should be several choices. Whether your budget is \$5,000 or \$100,000, there is enough variety of choice to fit any need. Because your needs will require certain specifics, you might get a better deal by negotiating a fixed price for the product. By-the-hour charges work well only when you know exactly what you want and how long it should take to produce. Buying several timings of an on-going animation will help when voice-overs are made.

Cable channels, on the average, buy more opens and promo graphics from vendors than broadcasters. Marc Chalom, in charge of production and operations for the Arts and Entertainment Network, relies heavily on vendor-supplied computer graphics for promos. He likens his purchases to "building a traditional wardrobe." He has created a library of effects that can be mixed and matched according to need and occasion. With approximately 300 promotional spots every quarter for the A&E Network, he apparently has worked out an exciting look that can change daily and requires few in-house production hours.

Overall, computer graphics for television is no longer an esoteric novelty. It has become a necessary tool for producing television programming. It may seem costly for start-up, and confusing in finding efficient applications for specific needs; but like the automobile replacing the horse, it's the ride of the future today. Better yet, it can help you win on election night. □

Robert Watkins is a writer and computer artist, working with broadcast and corporate computer graphics since 1978 in San Francisco (415-824-0214).

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Circle (48) on Action Card

CHARACTER GENERATORS are ready for the '84 ELECTION

BY RON MERRELL

Every station wants an election-night victory. To the winners go the spoils, which in the case of elections, translates into higher ratings and advertising rates. Winning always means someone paid the price. For election-night competition, the cost is manpower, creative techniques, and an investment in time and equipment.

In recent times, the workhorse of any election has been the character generator. Fortunately, it is more suited than ever for election-coverage applications.

While technology has brought us to the brink of our ability to understand the advantages it represents, character-generator manufacturers have called a truce just in time for the 1984 elections. Battle lines that were blurring two years ago have now become distinct.

During this cease fire, let's review how the war started.

Destiny or evolution?

While the basic functions of character generators were steadily improving, digital and graphic generators appeared in the marketplace and drew rave reviews. You could spot an effects or graphic-generator display at any NAB convention just by looking for exhibits with overflowing crowds.

It wasn't long before these manufacturers and a few new weather-graphics manufacturers discovered that their equipment could generate type on the television screen. Suddenly, NAB and SMPTE booth visitors realized that these new manufacturers might be on the verge of developing an all-in-one black box. With a few software modifications, it would be possible to create a machine that did everything.

Protecting their flanks, many character-generator manufacturers began adding graphic effects and what is loosely referred to as animation capabilities. The war was on.

For example, the Apis Graph-Pac is an inexpensive microcomputer package that offers high-resolution display of logos, animated marquees, and many other custom graphics. The system uses insertable memory-pod techniques and low-cost factory graphic composition services to eliminate the excessive costs of in-house graphic composition systems. Graph-Pac is a graphic generator that offers an optional full-screen character generator. It includes a 56 alphanumeric character set, including special ones for use in commercial production.

Earlier systems, with much higher price tags and greater animation and graphics capabilities, also were capable of character generation. These include Ampex, Dubner, Aurora, and MCI/Quantel. However, if you're looking for practical, everyday character-generation applications, such systems would be impractical.

This sophisticated graphics and animation machinery, however, has had a big effect on stations. They now desire at least some of this capability in their character generators. Hence, most character-generator manufacturers are now inclined to include some graphics capabilities in their units, but they prefer to maintain character generation as the basic function. The result is that character generators today are showing the aftereffects of an equipment evolution that, unabated, might have absorbed the character generator into the universal box.

With the exception of very few companies, most character generators on the market today have settled into basic design improvements. Among these are numerous features that lend themselves

to interesting applications during election coverage.

At Knox Video Products, Phil Edwards told *TV/BC*, "Four or five years ago we thought computer graphics and character generation would come together in one package in a relatively short period of time. In the meantime, we've discovered that more features and lower dollars are more attractive to stations than a combined unit. Rather than adding massive graphics capabilities, most character-generator manufacturers are adding very limited graphics.

"What we're seeing is a price/performance trade-off rather than a change in the nature of the generator. This has been somewhat of a surprise, because computer graphics have advanced so far. The problem is that with a computer-graphics machine, generally it is difficult to load a full screen in one field time. Until computer graphics are fast enough and dense enough to operate on a field, or at least a frame basis, we won't see graphics and character generators come any closer together."

Doug Rupe of Mycro-Tek thinks that graphics capabilities for elections are important. For example, one important feature, Rupe said, "is the ability to call up different graphic characters and symbols to create the graphics you need. At Mycro-Tek, we don't use a bit pad. Everything is accessed right off the keyboard. By doing it this way, we can keep the price down. It's really pseudo-graphics.

"What station people want, as we're hearing it, is something that is not expensive, but has some of the features of the more expensive units."

Special election packages

Thomson-CSF, Beston, and Bosch have special election packages designed

Continued on page 70



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Character generators

for stations looking to streamline their election coverage. Thomson-CSF's Vidifont V character generator now has an option called Vidivote.

According to Tom Hindle, "On the Vidifont V, you can create what we call an OEM, an off-line entry message. What this allows you to do is to design the screen presentation of the various election format pages. It's not limited to the way the computer wants to present the information. If you want to have pictures of the candidates up on the screen, if you want your station logo, if you want animated rows coming on, you set it up and tell the Vidivote which parts of the screen are for candidates' names, vote totals, and percentage of votes. The Vidivote automatically computes the total number of votes and divides by the candidate's total. It rounds off the numbers and protects against ever showing more than 100 percent on the screen."

Vidivote will also present races in descending order. If you have Yes and No votes, it will always present these in the same order. In fact, Hindle added, "Another interesting feature is its ability to do extractions. Throughout the election night, or after all the votes are in, you can find out how many incumbents won or how the parties fared for total winners and losers. These extractions are standard. You can build in an additional four local-interest extractions, and Vidivote will do the calculations automatically."

According to Hindle, Thomson-CSF also has an option called Vidifex. By using Vidifex, you can take a computer feed through the RS-232 interface. It's strictly a software option that makes the system more flexible.

Speaking of flexibility, Knox's Phil Edwards reported that what makes the Knox K-100 unique is that it has a dissolve mode and an interpalette dissolve mode. "What this means," Edwards said, "is that you can go off the air with part of your screen by making that part transparent to video. For elections, you can update that portion and then fade it back in."

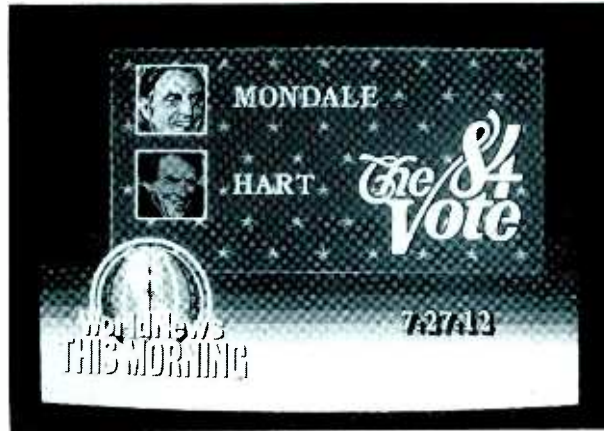
The K-100 system also has what the company calls options B and C. In the B option, you can have your computer do the election updating. In the C model, the mass storage capability qualifies it as a stand-alone election system.

Voting with TED

TED is an option for the Bosch Compositor character generator, and it stands

for television event display. Bosch's Al Schoenberg explained TED as "a little bit of hardware and a lot of software. It really is another program that converts the computer into a number cruncher, and then it dumps pages into the character generator.

"On the hardware side," Schoenberg continued, "the system includes a rack frame that has interfaces for up to eight



Thomson's Vidivote option allows you to format pages.

terminals, either RS-232 or current loop. It also has a board that interfaces to the Compositor and a board that has its own little character generator on it. This board we call the Whizzer. The Whizzer includes a light pen. You hook a monitor up to the video output of the Whizzer, and it gives you a group of 50 numbered races at a time on the display."

Whenever a race is updated, the appropriate number on the display will blink. The technical director can touch the light pen to the blinking race number, and the display will show the vote totals for that race.

Explaining its operation, Schoenberg said, "The light pen doesn't put the race on the air. That command comes from the Compositor keyboard. The TD touches the races he wants to air, and they will appear in the sequence he selected when the Compositor operator hits the Take button. When these races have been aired, the race numbers selected will stop blinking. This way the TD can keep track of the races he hasn't shown or updated, because unused race numbers will continue to blink."

For field terminals tied to the TED system, the system protects against entering faulty data. When the operator at a remote terminal hits the race ID number, the machine prompts him with the name of the race to make certain data will be entered for the proper race. It also prompts him with the first three digits of the candidate's name to make certain numbers are being entered for the proper candidate. When the entry is

completed, he hits the Return key, and back at the studio the Whizzer board blinks that race ID number. By using the TED system, you can cover up to 200 races.

Back to graphics

Just a few years ago, a Chyron spokesman told *TV/BC* that the company was reluctant to add graphics and animation as standard features to the company's line of character generators. According to Chyron, at that time there was no indication from users that they were serious about the need for such features on a character generator. Today, that opinion has changed. Several manufacturers reported that booth visitors at the NAB were disappointed that character generators were not endowed with sophisticated graphics features. Of course, when told what such units would cost, the visitor often responded, "I thought technology would make graphics cheaper."

Like Thomson-CSF, Chyron has been adding graphics features, and the change has kept Chyron on the best-seller list. Speaking for Chyron, Ron Witkow told *TV/BC*, "A lot depends on how sophisticated you want to get. I think what many users are looking for, essentially, is something that will combine the highest quality titling system with sophisticated graphics, then put these together to manipulate graphics and animation. Having the ability to mix this with still- or slide-store machinery is also important."

"When it's all married in one unit, it definitely has to be easy to operate. Now we've doubled the Chyron IV font memory capabilities. In any case, being able to expand the system is important, because that keeps you from having obsolete equipment."

Witkow said that the RGU-2 character generator can be expanded to a sophisticated graphics system. The Chyron IV can be expanded to include animation and electronic paint capabilities. This way you can expand the machinery as your need change, instead of buying entire new systems.

For election-night applications, Witkow explained, "You can interface an external computer to the Chyron, where all the formats are already entered. During election night, all you have to do is input information from precincts, or wherever you're reporting from, to a central computer. The computer will update all the election returns, put the winner on top, calculate percent-

ages and percentage of vote in, and may be even make predictions. For stations that don't know anything about computers, we can lease packages."

As for interesting graphics and animation, Witkow said, "I don't know anyone who has done it, but you could put up an elephant and donkey. When you declare a winner, the character generator would make the donkey kick or the elephant wave his trunk. A check mark or a flashing check mark are no problem either."

Another slant

B.J. Lipari of Beston reported that his company is still very much in business building the Marquee character generator. However, added Lipari, "In our graphics system, we have a Vote Scan program. This includes remote and local entry for a data stream source that you can put in from a keyboard, any terminal, or an IBM PC. It automatically plots program graphics for the proper races. It can also drive a bar chart or something of that nature.

"We can draw in elephants and donkeys to go with the proper candidates. Using pictures of Mondale or Reagan, we'd tie that into a still-store and access the still-store simultaneously. We do have camera load to input such things as elephants or donkeys in line-drawing form, but our camera-load capability doesn't include photographs...yet. What we've done is to interface our graphics system with the Iris (Harris) still-store. This allows you to cut and paste, zoom, pan, and other things in that function. You can take it combined, digitize real video in real time to form a picture along with graphics, to make the output complex graphics. It's called the data graphics system."

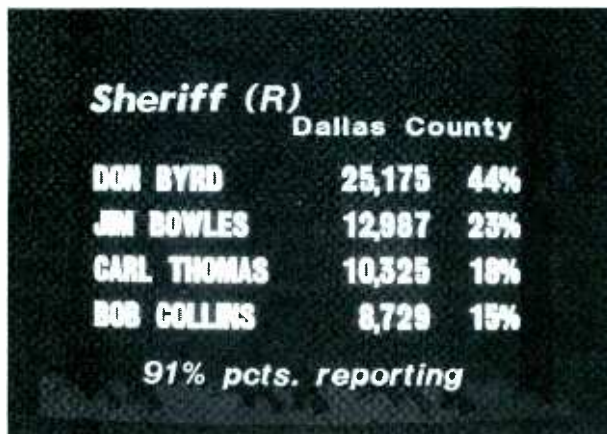
Another unique feature of this system is that it can create its own high-resolution characters. Or it can be used with the Marquee character generator. For election applications, you also have dual-channel capability and multiple workstations that can be used simultaneously.

"What we've done," Lipari continued, "is to take the character generator and combine it with our graphics system. Now you can do pseudo-animation, color cycling, bar graphs, or any of a wide variety of interesting graphic effects. It's a lot more interesting to watch than a static character-generator display. The processing power is there. It just depends on how creative the user wants to be."

Facing the fonts

At Quanta, Vicki Pearson reflects a more traditional approach to character generators, even though the Quanta Q8 has a variety of special features, including Pop-on Animation.

According to Pearson, "This is sophisticated keystroke sequencing. In other words, you can assign a set of commands to a single keystroke. If you have a word



The CG's main election function is to display vote totals.

on the screen and you want it to automatically change colors as part of a sequence, you can tell the disc that when it sees the letter A, for example, it will change from red to blue. You can use this to declare a winner by having it flash three times in red. You also have control of how many frames you want it to stay in a particular color. You can do this right on the keyboard in real time, because it's very fast.

"If you want to use donkeys and elephants, you can do it. However, you would need to build it and store it on the disc. Then you could bring it up when you showed a candidate's name and vote total. You just assign the symbol or logo to a key and punch it up."

Pearson continued, "We have a special face called Geometric. It's a combination of circles, squares, straight lines, triangles, and what have you. This allows you to build any kind of geometric pattern or symbol. If you want it to move, you can do that as well.

"We're not going to lose sight of the fact that a character generator is first and foremost a video typography generator. If you have a typography machine, you're going to use this machine to create type, and type is text. You should be able to manipulate text quickly and easily, because that's the name of the game in election reporting."

At Laird Telemedia, Ralph Lee agreed with Pearson. Laird Telemedia has consistently maintained that while some graphics may be appropriate, "what people are finding is that when

they get a box that does it all, the cost is too high for their budget. Basically, a character generator should feature what it says it is," Lee said.

As for election reporting, Lee said, "The easiest way to report elections without writing all the software up front is to use a dual-channel generator. The 7200 is an example. In an election situation, with the dual-channel system and two keyboards, one channel can be used to pull information from the disc and update it as election returns come in. The other channel could air the updates. Many systems can do this simultaneously. That makes it fairly simple for election returns. You're just passing information back and forth via disc drives."

RS-232 everywhere

What makes character generators so compatible with election-night applications is their ability to interface with central computers, and that's the RS-232 capability of most units.

Jerry Tapley of 3M said that 3M's character generators use the 232 interface, and the units can be connected to Telesource. Telesource is a company that offers an election reporting service for stations that can interface with them through a telco line. (For more information on Telesource, you can contact Will McLain at 602- 265-1232.)

As Tapley put it, "By using a service such as Telesource, the station doesn't have to purchase a special package they have to keep forever. You simply buy the service from Telesource. From an election standpoint, it can almost be a hands-off operation through the Telesource package, or you can jump in at any time and manually update information.

"To add to the presentation, you can bring in such things as party symbols very simply, or you can make it more complicated. The simple way is to use a discette that includes donkeys, elephants, stars, and stripes. You can take this a step further and create your own additional art through our camera-load capability. Your artist can draw up the flat art, put it under the camera, and digitize it in the machine. Then you can colorize it. It just depends on how elaborate you want to get.

"We also offer a paint system. You could have your artist draw faces of Mondale and Reagan, color them if you like, place the faces beside the names, color the background, and run up the totals. You can take it further and include a map of a county or precinct."

Continued on page 72

Character generator suppliers

Amтел Systems	(Circle 170 on Action Card)	3M Broadcasting	(Circle 186 on Action Card)
Apis	(Circle 171 on Action Card)	Mycro-Tek	(Circle 187 on Action Card)
Barda	(Circle 172 on Action Card)	PESA	(Circle 188 on Action Card)
Beston/McInnis-Skinner	(Circle 173 on Action Card)	Portac	(Circle 189 on Action Card)
Bosch	(Circle 169 on Action Card)	Quanta	(Circle 190 on Action Card)
Chyron Telesystems	(Circle 174 on Action Card)	RCA Broadcast Systems	(Circle 191 on Action Card)
Chyron Video Products	(Circle 175 on Action Card)	Shintron	(Circle 192 on Action Card)
Computer Video	(Circle 176 on Action Card)	Sigma Electronics	(Circle 193 on Action Card)
Datum	(Circle 177 on Action Card)	System Associates	(Circle 194 on Action Card)
EEG Enterprises	(Circle 178 on Action Card)	Texscan	(Circle 195 on Action Card)
For-A Corporation	(Circle 179 on Action Card)	Thalner	(Circle 196 on Action Card)
Harris	(Circle 180 on Action Card)	Thomson-CSF Broadcast	(Circle 197 on Action Card)
Interand	(Circle 181 on Action Card)	Torpey Controls	(Circle 198 on Action Card)
Knox Video Products	(Circle 182 on Action Card)	Unitel	(Circle 199 on Action Card)
Laird Telemedia	(Circle 183 on Action Card)	Video Associates Labs	(Circle 200 on Action Card)
Landy Associates	(Circle 184 on Action Card)	Wilk Power & Video	(Circle 201 on Action Card)
Logica	(Circle 185 on Action Card)		

Although camera load is a way to get creative election art, the single most important capability is the RS-232 interface. It's this interface, which most manufacturers now offer, that allows stations to tie into remote-input terminals and to services such as Telesource and the wire services to bring in those vote totals.

A video typewriter

So far we've looked at systems with both massive and minimal graphics. But basically they are classic character generators. For-A Corporation has what it calls a video typewriter. The design is relatively simple, and it's as easy to use as a standard typewriter.

David Acker explained that For-A's philosophy is to design "character generators to make them user friendly. We don't want them to operate like a computer. There, you might have to call up the video and answer numerous questions before you can type in a sentence. We want it to be no more difficult than using a typewriter. In terms of doing special designs, statistical analyses, and number crunching, we've stayed away from that. We put the character on the screen, and we do it easily."

According to Acker, the company now has a design unit called the DU-600. The new unit and other options include a preview and program memory, eight pages each. Each page can store up to 16 lines, with 32 characters per line. You can design as many logos as you want, because there's an optional storage unit that allows you to use up to 620 pages per disc.

While the video typewriter stands alone as a unique design approach, there is yet another character generator format. This last group depends on using your in-house computer or microcomputer. Typical of all these machines,

however, is their RS-232 interface capability.

Other system designs

Since many stations today have computers around for various applications, they can be enlisted for election-night reporting. The Datum and Sigma Electronics systems are examples of how to use the in-house computer to cut costs.

At Datum, Les Turner told *TV/BC*, "The difference between our character generator and the others is that the others are really titlers. Our units work in real time. In real time, they overlay voting results or other voting information over real-time video. Any time you wish, you can run election results over real-time video as it's being created.

"Another unique capability we have is to directly enter time and date. There's a separate connector on the input, so it doesn't interfere with the alphanumeric.

"Our basic philosophy," Turner continued, "is that our equipment is designed for microcomputer control. As a microcomputer peripheral, we try to make it as simple and low in cost as possible. We figure the microprocessor has all the memory and the software to do the formatting, so why duplicate it? You can buy a Commodore 64 for a couple of hundred dollars. So to the microprocessor, our unit acts like a printer."

Using a similar approach, Sigma genlocks a relatively inexpensive but powerful computer to the video system. Kent Porter explained, "We load a character-generator software package into the computer. The computer has additional power that the normal character generator doesn't have. For example, for elections, it can do tabulations.

"With our \$250 artist's pad," Porter continued, "you can draw inputs on a 16-color pad. You could draw a state or county and color it. You insert the dif-

ferent tabulations. However, to get characters superimposed over graphics, you would first create the graphics you need and videotape it. You can genlock to the videotape and insert the vote totals. Once the tape has been made, you can keep updating the totals over the taped graphics. This isn't as direct as many character generators, but this is only a \$4,000 system."

The newest offering from Wilk Power & Video is the 4400. It's a microprocessor-based character generator that's designed to include sophisticated editing features, making page composition and color graphics fast and easy. Each 4400 can be programmed from one or more keyboards or Apple computers.

As election features, the 4400 can display one or two channels, and it has 295 pages of memory. It also includes those features that make any character generator a workhorse on election night.

The final tally

The danger of including massive graphics and animation capabilities inside character generators is that stations may defeat their very design purposes by overuse, or applications that are so distracting that the viewer loses sight of the original intent of the message.

As Quanta's Pearson put it, "If you do special effects, that's great. If you can make fancy symbols, that's fine too. But, basically, in order for the character generator to be versatile, you should have the capability to rapidly change fonts, you should have a good selection of typeface styles, and you should have high-resolution characters. And don't forget user-friendly editing capabilities."

Yet graphics are being used more and more. 3M's Tapley offered an explanation: "Viewers have seen better graphics in the last two years. The machinery allows us to work faster. In the next few

years, graphics will be used more and more. The use will be more as explanation of ideas instead of just being decorative. They've been decorative for a long time now, but graphic artists are starting to communicate with images, not just text. We're seeing the ideas that the script calls for projected or moved along more rapidly through the visualization on the screen. And it's a visualization that communicates more. That stems from the ability of the artist. And they're getting better because they have better tools to work with."

Thomson's Hindle agreed, but cautioned, "There must be tasteful use of all these video effects, so that the production doesn't get in the way of the information you're trying to convey. When the ADO first came out, everyone was having panes of glass fly by. Now things have settled down, and people are using effects in more tasteful ways. I think that's the case with the new character generators. When Vidifont V first came out, people were using all its capabilities. Now they're getting more sophisticated.

"There's so much technology and video manipulation available to producers now that they can start picking and choosing for the right look and the

right kind of transitions, for the message they're trying to convey. But for elections, the most important information is still the vote totals."

Parting shots

Manufacturer interviews for this equipment review showed that the language of the subject is so confused that it's often difficult to understand exactly what's being said. The word font, borrowed from the newspaper industry, has not carried over its traditional meaning to the broadcast industry. The problem of definition and semantics is even greater for words such as graphics and animation.

As Sigma's Porter lamented, "Graphics is a word that has lost its meaning in the industry. People are calling everything graphics. To me, graphics means more than just bars or graphs. Graphic artists, for example, don't just draw bars and graphs. They do drawings, and that's what's missing when people refer to graphics. Animation is the next word that's really been killed. If a ball or word moves across the screen, many call that animation. I don't think that's animation."

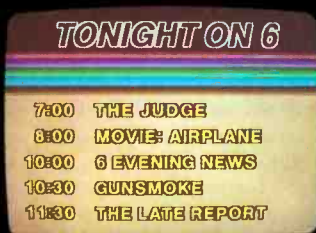
What we're doing is developing a

broadcast language for equipment features. Character-generator buyers today should be asking for definitions from the manufacturers. Otherwise your station artist may be sadly disappointed that something termed animation in the literature has little to do with the classic definition of animation.

Despite the definition problems, today's character generators will match strides with any budget, with prices ranging from \$2,500 to \$70,000. It may or may not have graphics or animation features, but remember that your investment is twofold. For now, you want something that will lend itself to improving your election reporting. For the long run, you need a machine that will allow you to be creative whenever you need to.

In a separate section of this article, we've included a list of manufacturers who offer character generators. By circling the appropriate number on the Reader Action Card elsewhere in this issue, you can receive additional details and specs directly from the manufacturer. Since the general elections are now only a few months away, you should send your request for information right away. That way you'll have a better chance of winning on election night. □

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Circle (50) on Action Card

HOW TO IMPROVE YOUR REMOTE LIGHTING

BY E. CARLTON WINCKLER

The editor called to say, "Frame up an article on lighting a TV remote." My reaction: "But writing about remote lighting is one of America's leading indoor sports."

"Yeah, I know," said the editor. "But look for some new angles on lighting a remote."

Angle? Angle! The angle at which light falls on a subject is the key to that subject's appearance. When you combine the angle of the illuminating sources with the angle from which a camera sees the subject, you have either a great picture or a passport photo.

On a remote or in a studio, you can control two of these angles: the camera and at least one source of light. Of course, I know you can't move the sun, the light from a window, or a lot of other fixed sources. But you *can* move the talent and the camera, which accomplishes the same result in changing the angle at which light falls upon the subject. Getting talent and cameras moved isn't easy. It requires massive negotiation in the case of a stubborn director, but forceful diplomacy is a required skill for any good lighting person.

A few months ago, I was asked to present a lighting seminar at a metropolitan television station for the remote staff. The attendees immediately informed me that the seminar was a waste of time because management sent them out with one camera and one light, so they could not do a thing about lighting.

Where did they place the light? On the camera, of course.

A better angle

How about a new angle for that light? I can't think of a worse place for a main

light source than mounted on a camera, because the head-on, low angle guarantees that anything you shoot will look like a passport photo. The single source, mounted on a stand or hand-held just a bit to one side of the camera, can provide modeling and accent. The key here is positioning the light so that it illuminates the subject from both the front and side. The side light should ideally be a bit brighter.

Keeping the subject approximately six feet away from the background to make sure the single light source doesn't illuminate the subject and background with equal flat brilliance, assures the subject of being brighter than the surroundings. This makes the subject more attention-holding. The varied brightness of subject and background, plus the modeling due to the slight side angle, accentuates the separation of the two. So with one light source it is possible to fulfill every one of the objectives of lighting: separation, modeling, accent, illumination, and directing viewer attention. Meeting these objectives will give you a quality picture. It doesn't take a second longer or add cost.

ENG remotes

There are times when a main light on a subject must be placed head-on for best results with shadow control or reduction of texture. Usually in such cases, a slight downward angle of projection provides some degree of modeling and separation.

For real ENG of the disaster or non-event type, there often isn't time to do more than get the story on tape. If the fire chief describing the catastrophe looks just like the adjoining alarm box, you can only hope viewers will differentiate when one of the two speaks. But this isn't always the case. ENG footage can rank with the finest in clarity and quality

because an alert and talented camera operator selected a good angle of light with a good background.

On a deluxe remote (one with two lights), the main source a bit to one side of the camera may be complemented by a second directional (spotlight) source. Place the light at an angle to the side and rear of the subject. But make sure it is from the side opposite the main source and that it is, naturally, outside camera range. This will greatly enhance separation and modeling for a really great picture. In most cases, two sources thoughtfully placed provide a better picture than one directional light. The selection of the second angle is purely a matter of taste as long as it contributes to one of the objectives of lighting.

If you have two subjects, placing light sources diagonally opposite each other can provide key light and backlight for each subject. One source should be adjacent to the camera. This arrangement will require a bit of experimental positioning of each element, but the resulting picture will be well worth the effort. Adding a diffuse flood source adjacent to the camera can produce a nearly ideal result.

Working with the sun

When sunlight is present, there are always very hard shadows on the subject and the background. These are usually cast at a steep downward angle, and are rarely flattering. Try to reposition your action so that the sun becomes a backlight or even a side light. That way you can light the faces with artificial light or with a diffuse reflector in front of the subject. The sunlight can be redirected back to act as front fill, or even as a directional key light. If some unalterable reason forces the subject to face the sun, there are several extremely important steps to take.

“When you combine the angle of the illuminating sources with the angle from which a camera sees the subject, you have either a great picture or a passport photo.”

Artificial fill light from the camera position is needed to soften facial shadows, especially around the eyes. A piece of netting hung from a rope stretched between upright poles or from a stand with one of the large frames designed to hold netting (called a butterfly net frame), filters the direct sun on the faces and will prevent the subjects from the inevitable squinting. Perhaps most important of all, make sure the background isn't as brightly illuminated as the subject. If the background is too bright,

camera exposure has to be reduced to avoid overexposure or the sunlit subjects will appear dark. (You can see this effect far too often on any TV channel you watch.)

Manmade exterior backgrounds can be darkened by using a cuke. Place cut tree branches or foam-core panel in the sun's rays to cast a shadow on the backing. If the background is the open sky or a natural scenic panorama, the only practical thing to do is change the camera angle to cause a darker area like

shrubby or dark colored structures to appear in back of the subjects.

A surprise to neophyte lighting directors is the importance of backgrounds, talent positions, and camera angles in lighting for remotes. Quite often these factors are more important than choice and placement of lighting equipment. These often-overlooked items are always of vital concern to the lighting director who should always insist upon active participation in their arrangements. Consideration of visual elements not usually thought of as lighting are really a very basic part of lighting.

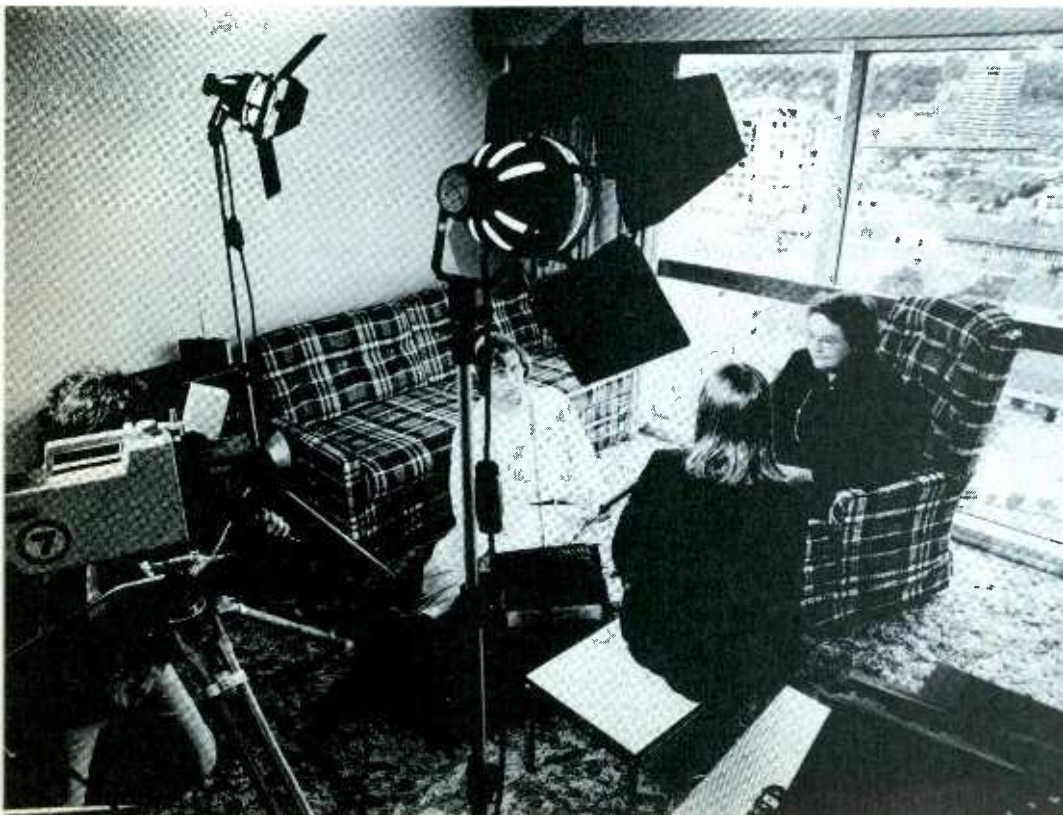
Too much red

Be alert to the fact normal incandescent quartz light sources appear red when used in a daylight environment. Correct them to match daylight color by adding a Tuf blue 50 gel. The gel reduces light output by about 40 percent, so plan for additional voltage. HMI or CID sources burn at 5600° Kelvin and match daylight color with no light loss. These sources are available in hand-held or battery-powered units as well as in all types of standard luminaires. If you don't have these sources on hand, they can be rented from most lighting service companies.

Interior remotes

Most remote originations come from building interiors. They are actually studio shows done the hard way. Unfortunately, very little of an interior remote is under your control. It

Continued on page 76



Without proper diffusion, bright sunlight through a window can overpower most artificial light and dominate the scene.

Improving remote lighting

is necessary to adapt to existing conditions. Through careful observation, lighting directors can find something helpful and useful at every site.

It is the height of folly to go into any area and work out lighting on the spot. And it is equally dangerous just to take someone's word for what material will be needed. Such an approach always results in unnecessary costs, wasted time bad pictures, and complete frustration for the entire staff. (Some indoor remotes develop with little or no warning. But when you have the time, be prepared.)

It is essential that the lighting director personally survey the proposed site of the remote well in advance of the pickup date. The examination should reveal how to get into the place, where lights may be placed, how many will be needed, and sources of power. Be sure to note backgrounds, reflecting surfaces, intrud-

ing daylight from windows and doors, decor color values, and internal traffic patterns. During election remotes, these considerations will go a long way toward making your election night a winner.

Look carefully at existing fluorescent light. It is usable, but its color rendition on camera is unstable. Remember that fluorescent light all comes straight down. Our eyes adjust to this. The camera never does. It reproduces all the unflattering facial shadows that our eyes ignore, so low angle fill light is usually a must. This brings up another required talent for any remote lighting director: the ability to see on a survey what is really there as opposed to what is expected or desired to be at the location. A "quick look" survey will result in great embarrassment for you, for the whole crew, for the program sponsor, and for your (possibly) former employer. This is especially true for election remotes when you have time to check out remote sites in advance.

As in a studio show, each remote requires an individual approach based on the intended communications. So, take time to think through what you are trying to do before you attempt to do it. Knowing where you are going is always a short cut to getting there.

Before looking at a few specific techniques, let's generalize about important items normally encountered on internal remotes.

Power requirements

No power, no light, so this is an important item. Most active buildings are not overburdened with extra or unassigned power, so work closely with knowledgeable management or electricians in arranging for your requirements. Extra temporary power may be brought in by the local power company for large productions.

For smaller ones, existing loads may be disconnected for the duration of your activity at the location. But get this item fully arranged beforehand. Leave nothing to chance and nothing to the last minute. Many small remotes may be powered by existing convenience outlets (wall outlets). In these cases, it is wise to plug the various light units into outlets which are on as many different circuit breakers as possible, even if this requires some fairly long cable runs. Even though this divided connection arrangement will probably prevent a total blackout due to circuit overload, it is smart to have all other devices disconnected from the circuits during the remote. A desk light, typewriter, or air conditioner that is suddenly put into operation may prove too much for the breakers. Incidentally, when figuring power needs, a convenient

approximation is that 1,000 watts equals 10 amps. This provides an automatic safety factor for total load.

Window light

Daylight proves to be very blue and very bright. To remedy this potential problem, off-camera windows may be covered with tracing paper. This fine and inexpensive diffuser will reduce intensity effectively while assuring even fill light. More than one layer can be used to suit individual taste. Windows appearing on camera require a double approach. Because of the brilliance of daylight, light from the window can overpower most artificial light and dominate the scene.

Optically good gel is available in lengths 54 inches wide and in various densities. These may be cut to cover individual panes or used over the entire sash. The outside scene will be clearly visible and present no problems if the correct density gel has been selected. Since the neutral density gel will not affect the blue or daylight, you may wish to use light sources for your scene burning at 5600° Kelvin to match the daylight color, or to correct the daylight through the window to match incandescent sources at 3200° K. In the latter case, the window covering gel should be an N85 tone which introduces the same brightness reduction as the neutral density gel.

These gels are listed as N3/85, N6/85, or N9/85, indicating the degree of density present. All these gels have highly specular (shiny) surfaces like the gloss window itself. They will require careful placement of scene light sources to avoid reflections.

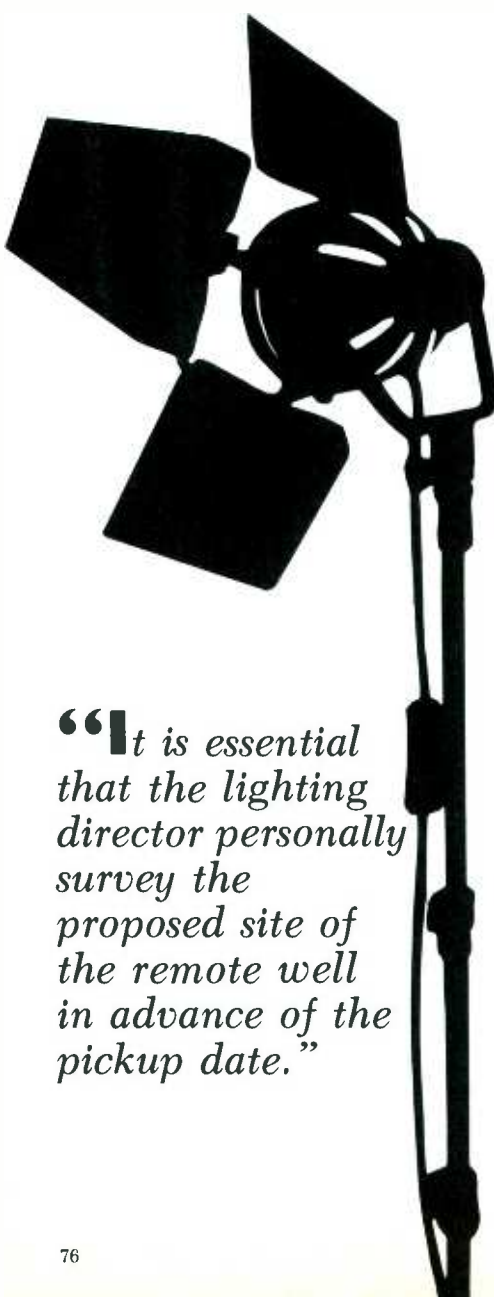
Fluorescent light

Fluorescent light is present in most areas as an architectural or decorative part of the location. As noted earlier, fluorescent light is usable, but flat. Use it for the illumination it provides, then light your scene and action normally right on top of this existing light with 3200° K or 5600° K sources. The camera can be balanced for either condition.

Large interior areas, used primarily as background for action, can be illuminated with fluorescents, while the main area is lit in the normal way with the 3200° K sources.

Angles of projection

The use of portable adjustable stands allows you to place lights at any height between the floor and ceiling. In this fashion, a light may be used as a key, a back, a modeling, or an accent light. The height and placement of every source is an extremely important consideration



"It is essential that the lighting director personally survey the proposed site of the remote well in advance of the pickup date."

because the position of the light source determines the placement of the resulting shadows.

The key light in the face of the subject is a matter of special concern. By adjusting the source up or down or side to side, you can avoid disturbing shadows, dark eye sockets, and unattractive hair lines. Of course it is desirable to keep subject shadows off the background, but if such a shadow is unavoidable, keep the top of the shadow, as seen by the camera, below the shoulder line of the subject. Having the shadow appear directly in back of the subject is second choice.

In either of these cases there must be only one shadow visible. Since every light will cast a shadow, care must be taken to make sure unwanted shadows fall outside camera range or onto the floor where they are less apparent. All of these positions are under your control because they depend upon placement and height of the light stand.

Backlight

The vast majority of pictures are enhanced by having the subjects and foreground elements rimmed with light projected from the rear (the side away from the camera). In a studio, hang backlights from a grid along the back wall or wherever they perform effectively for the camera angle used. On interior remotes, backlights are the hardest direction to provide. There is usually nothing to hang the lights on and stands get into the camera shots. Consider a goalpost arrangement: tall stands at each side of the shooting area, which support a pipe spanning the action. Remember that backlights need not be directly behind the action as seen by the camera.

Light coming from the side rear (preferably both rear sides) and aimed a bit toward the camera provides a quite satisfactory rimming effect. These cross backlights are usually better than direct backlight because they provide good modeling as well as separation. They also allow talent to turn their heads side to side while addressing compatriots without turning into darkness.

Most skilled lighting practitioners use cross backlights as a choice in all instances, with direct backlight being very much a second choice. The ideal position for cross backlights has their beams forming a 90° angle at the subject. As a bonus, some extremely handsome lighting is achieved now and again with highly diffused front fill light and cross backlights, with one of them being considerably brighter than the other and serving as a back key. This is a favorite with many fine photographers.

“To the lighting director doing an important remote, accessories are often more important than the luminaire itself in assuring good results.”

Equipment

Lightweight, easily portable luminaires are available from a number of reliable manufacturers. These lights are either floodlights (non-focusable) or spotlights (focusable). The latter, in most cases, come in the “open face” or lensless configuration. The lighting director should keep in mind that open-face spotlights, while delivering a brilliant spot also have considerable spill light which can cause shadow problems. The spill can be masked off however.

Floodlights are usually small reflectors with exposed light sources. They produce a very hard shadow of any solid object and must be used with diffusion material. Many of the better quality units provide supporting frames much larger than the floodlight itself, thereby making the illuminating source larger and able to produce a very soft shadow pattern.

Folding stands are available to support these lightweight luminaires at heights up to ten feet. Many stands provide for mounting multiple luminaires on a single base, but some are too frail or unstable. They usually fall over with the general effect of a guillotine. Make sure you have really good stands and always attach the base weights provided for added stability.

At least one manufacturer provides weights in the form of water bags to be filled and emptied at the remote. Good stands may be more expensive than the frail kind, but much cheaper than hospital expenses for cut or injured heads, or even damaged equipment.

Most manufacturers offer an amazing array of accessories for their luminaires: barndoors, funnels, clamps, screens, flags, reflectors, cutters, and brackets. Their catalogs provide fascinating reading. But here is a very important point usually overlooked: to the lighting director doing any important remote, these accessories are often more important than the luminaire itself in assuring good results.

So, a word of advice to all lighting directors, production managers, and purchasing departments. Be sure your remote kit has an assortment of both floodlights, spotlights, barndoors, diffusion/color correction frames, solid

stands with weights, and a plentiful kit of as many accessories as the budget can be stretched to cover. Also, plenty of extension cords with four way outlets. Such provisions will save a lot of money even before many remotes have been done, with superior picture quality as a bonus.

You can't plan for every remote. Many occur too quickly for steep planning. But from planned remotes, there is much that can be carried over. If there is a different angle for remotes, it's that every remote deserves the best shot. □

E. Carlton Winckler is a senior production consultant/director in the educational division of Imero Fiorentino Associates, New York City.

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PRODUCT PREMIERE

Wireless lighting system (Circle 101)

UNION CONNECTOR COMPANY—Union Connector has introduced a wireless, remote-controlled lighting system featuring a modular design.

The SU-I and DIGI-I were designed to utilize the latest advances in solid-state and digital technology while remaining compact and economical. In addition to operating as a complete dimming and switching system, the two products can be used as an addition to other three-phase lighting systems.

Dimming and relay control are conducted by the use of RF digital data, which is transmitted on the same AC power lines servicing the switching and dimming modules. No other control racks or patch panels are required.

The lighting source to be controlled is connected to the SU-I, which in turn is connected to any outlet. The DIGI-I then provides complete control of up to 256 dimmers when hooked into an outlet anywhere in the same wiring system.

Stereo UHF transmitter (Circle 102)

RCA—RCA has introduced a stereo-compatible, 100 kW, UHF transmitter. Displayed for the first time at this year's NAB, the TTT-100U will operate with the proposed multiple-channel sound systems.

In addition, RCA has introduced conversion kits that can be used to retrofit present RCA monaural VHF and UHF transmitters for stereo operation. The company plans subsequent additions to its product line that will include VHF and UHF stereo transmitters.

Approximately half of the television stations in the United States broadcast with transmitters manufactured by RCA.

Marketing planning sourcebook (Circle 103)

COMPUCON—The results of comprehensive communications industry surveys on private voice and data networking are available in a new book offered by Compucon.

Titled *Unraveling Opportunities in Business Communications—Voice and Data*, the volume includes the results of six industry surveys of more than 400 respondents. Separate chapters are devoted to such topics as circumvention of the public switched network, retail common-carrier markets, and local area networks.



Lexicon's stereo delay synchronizer

Stereo delay synchronizer (Circle 104)

LEXICON—The Lexicon model 1300 is a microprocessor-controlled, stereo digital delay synchronizer. The unit gives the user complete compatibility in virtually any broadcast configuration.

The device precisely compensates for video delay, decoding the hysteresis frame offset information from any video synchronizer for frame-accurate synchronization. Lip sync is maintained regardless of the type of digital video processors in use. The 1300 also will compensate for satellite transmission delays.

The device's removable delay configuration control module can be software or hardware configured to conform to any delay/sync decoding arrangement. Engineering techniques ensure transparent audio processing and conform to the 16-bit standard. Digit switches on the front panel can set a delay value displayed in either milliseconds or frame units.

The 1300 features a 20 kHz bandwidth and a stereo delay of 0 to 340, 680, 1365, or 2048 milliseconds. Input/output levels are +24 dB maximum.

Tabulation/transcription device (Circle 105)

JBL—JBL has introduced CallCount, a new tabulation/transcription device that can be used to instantly measure telephoned audience response.

In addition to the CallCount unit, the system consists of two or more line concentrators and a digital recording device. Any basic phone arrangement with up to 200 lines can be used. CallCount is capable of recording up to 15 responses for each line every minute.

In typical operation, a question is posed during a broadcast. Viewers are then instructed to call one of two dif-

ferent numbers to cast their ballot. Through an RS-232 interface, tallies are immediately displayed and continuously updated on a video screen or as an output of the device. The basic CallCount unit is expandable to handle multiple-choice questions.

In addition to operating as a tabulation device, the data derived from CallCount can be used to act as a supportive tool for sales and marketing efforts.

Time base corrector (Circle 107)

NOVA SYSTEMS—Nova is now offering an enhanced version of the model 500 digital time base corrector.

The original nova 500, introduced at the 1983 fall SMPTE show, was designed for heterodyne 3/4- and 1/2-inch VTRs that accept subcarrier and advance sync required for full bandwidth picture correction. The unit features a 32-line correction window and 8-bit, four times subcarrier sampling.

The improved nova 500 features functions most important to videotape editors. Among these are "picture in shuttle" and "still-frame picture" editing. The latter function refers to the machine's ability to maintain still-frame pictures without resorting to more expensive frame-store devices.

Audio component line (Circle 108)

PROTON—Proton has introduced a new line of audio products to further its commitment to the "true marriage" of audio and video.

The new line includes the 440 stereo AM/FM digital tuner; the 520 high-current integrated amplifier; and the 720 soft-touch stereo cassette deck. All are engineered to match the look and high performance standards of Proton's video systems.

The 440 tuner features new noise-reduction circuitry. Designed by re-

nowned FM circuit designer Larry Schotz, the Schotz Noise Reduction (SNR) system allows the tuner to take noise out of an FM signal. As modulation drops 50 to 75 percent and noise increases, the SNR removes the hiss found in the mid-strength FM signal. The result is a major reduction in distortion.

The Proton 520 amplifier features a highly sophisticated phono section able to handle almost any type of high-quality phono cartridge. Rated at 20 watts per channel, the amp features Proton's anti-clipping circuit that gently limits any wave form that would otherwise cause the amplifier to clip. A loudness-compensation circuit and a built-in LED overload warning light engage if the power amplifier is overdriven.

Precision amplifiers (Circle 106)

ATI—The MicroAmp series of precision amplifiers is designed by ATI to be an easy solution to signal generation, distribution, and monitoring problems.

The line includes mike, line, phone, monitor, and several varieties of distribution amplifiers. All are designed around the NE5533 IC, which provides high outputs; high slew rates; and low noise and distortion. Ample headroom is provided by transformer-coupled or active-balanced outputs.

Specific suppression is incorporated for power- and signal-line RF. The units feature enclosure shielding and rugged construction. All are rack mountable or can be stacked for versatility.

The newest addition to the ATI amplifier line is the Encore series P100 of line phono amplifiers. The amps provide selectable cartridge loading, active feedback warp filter, and +20 dBm active balanced outputs with low noise and flat response.

ATI also offers the Emph'aSizer, a new audio processor. The device combines several audio processing functions into a versatile, easy-to-use system. It includes a program-controlled signal gate with adjustable time delay, sensitivity, depth, and speed of fade in conjunction with a flexible, gated compression-limiter.

Four switchable parametric equalizers can be used with any combination of direct mike- or line-level inputs.

Artist paint program (Circle 109)

VECTRIX—Vectrix has introduced an easy-to-use Paint Program designed for the professional artist. No knowledge of computer language is required to operate the program, since functions are selected from a simple icon menu.

The icon menu offers a wide choice of effects, including user-definable brushes, air brushing with variable-spatter widths, color mixing, and rubber banding. It also features a choice of 10 different fonts and storage of up to 20 brushes at one time.

The Paint Program runs on either the IBM PC or PC/XT with the Vectrix VX384A graphics processor or the new Midas Color Card. □



ATI's precision amplifiers

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ADVERTISERS INDEX

Agfa-Gevaert15	Dynatech Data Systems52	Panasonic Video58, 59
Circle (12) on Action Card	Circle (41) on Action Card	Circle (45) on Action Card
Alexander Manufacturing16	ESE23	Perrott Engineering57
Circle (13) on Action Card	Circle (19) on Action Card	Circle (44) on Action Card
Alpha Video35	Fuji Photo Film27	Quanta Corp.1
Circle (26) on Action Card	Circle (21) on Action Card	Circle (2) on Action Card
Amperex18-19	Full Compass Systems2	Real World Technology22
Circle (15) on Action Card	Circle (4) on Action Card	Circle (18) on Action Card
Ampex AVSD41	Grass Valley GroupIFC	S & M79
Ampex Magnetic Tape17	Circle (1) on Action Card	Circle (53) on Action Card
Circle (14) on Action Card	Key Systems79	Shure Brothers39
Asaca36	Knowledge Industry Publications .49	Circle (29) on Action Card
Circle (27) on Action Card	Circle (39) on Action Card	Sitler's Supplies79
Basys45	Knox Video Products77	Circle (52) on Action Card
Circle (36) on Action Card	Circle (51) on Action Card	Softwiz47
Belar67	Laird Telemedia73	Circle (38) on Action Card
Circle (48) on Action Card	Circle (50) on Action Card	SonyIBC
Belden31	Lenco25	Swintek53
Circle (24) on Action Card	Circle (20) on Action Card	Circle (42) on Action Card
Beston/McInnis Skinner33	Magna-Tech37	Tektronix6-7
Circle (25) on Action Card	Circle (28) on Action Card	Circle (7) on Action Card
Bosch (Quartercam)29	MCI/Quantel3	Telcom Research2
Circle (23) on Action Card	Circle (5) on Action Card	Circle (3) on Action Card
Walter Brewer42	Merlin Engineering Works28	Telemet14
Circle (34) on Action Card	Circle (22) on Action Card	Circle (11) on Action Card
Bruel & Kjaer9	Micron20	Thomson-CSF Broadcast69
Circle (8) on Action Card	Circle (17) on Action Card	Circle (49) on Action Card
Centro Corporation5	Midwest12-13	Videostar Connections63
Circle (6) on Action Card	Circle (10) on Action Card	Circle (46) on Action Card
Cetec Vega51	Mobile Satellite46	Ward-Beck SystemsBC
Circle (40) on Action Card	Circle (37) on Action Card	Wilk Power & Video11
Crosspoint Latch Corp.55	Mycro-Tek43	Circle (9) on Action Card
Circle (43) on Action Card	Circle (35) on Action Card	
H.M. Dyer Electronics64	Philips Television Systems21	
Circle (47) on Action Card	Circle (30), (31), (32) on Action Card	

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