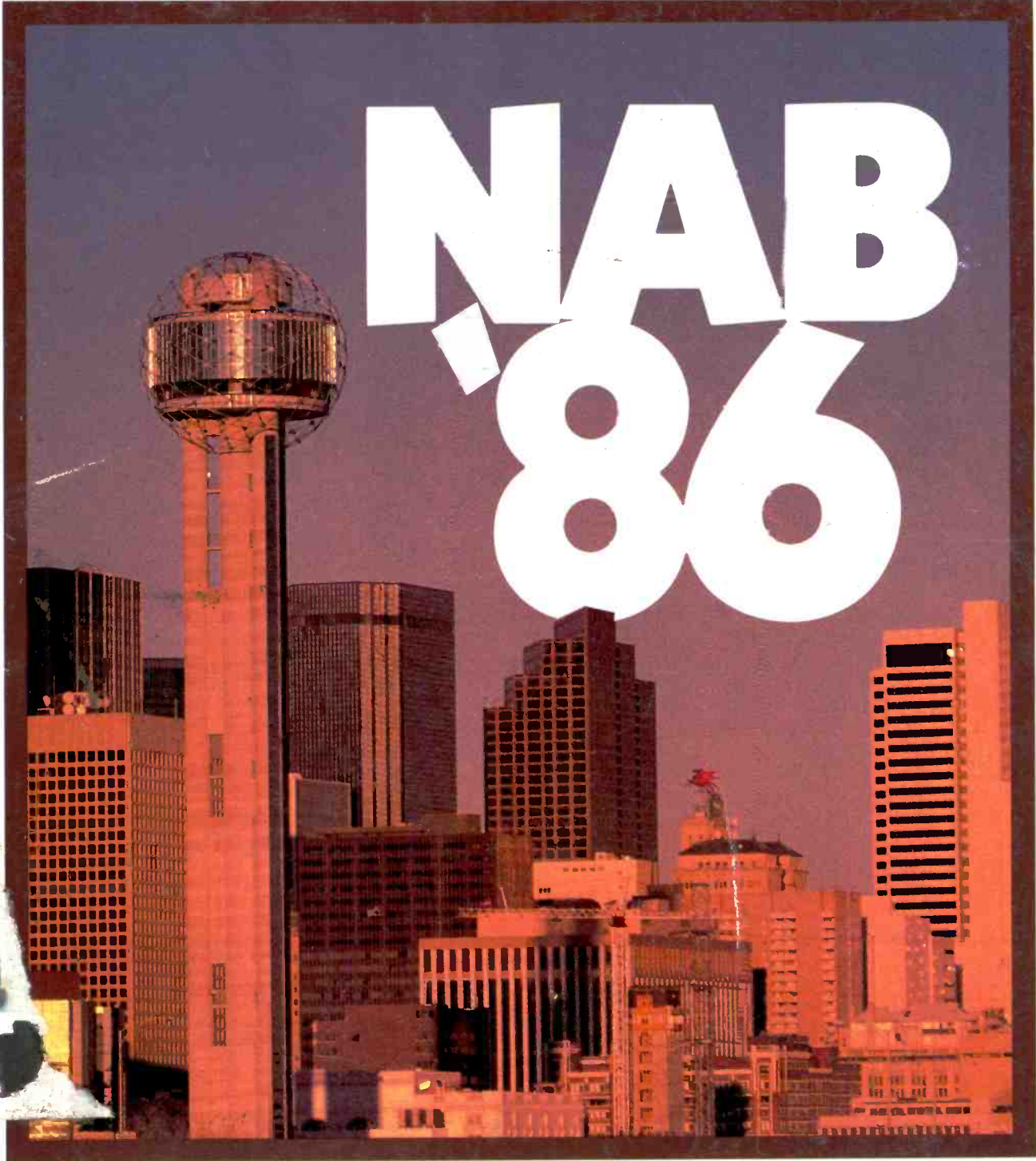


MARCH 1986

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NAB 86

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- SAP Channel's Creative Potential
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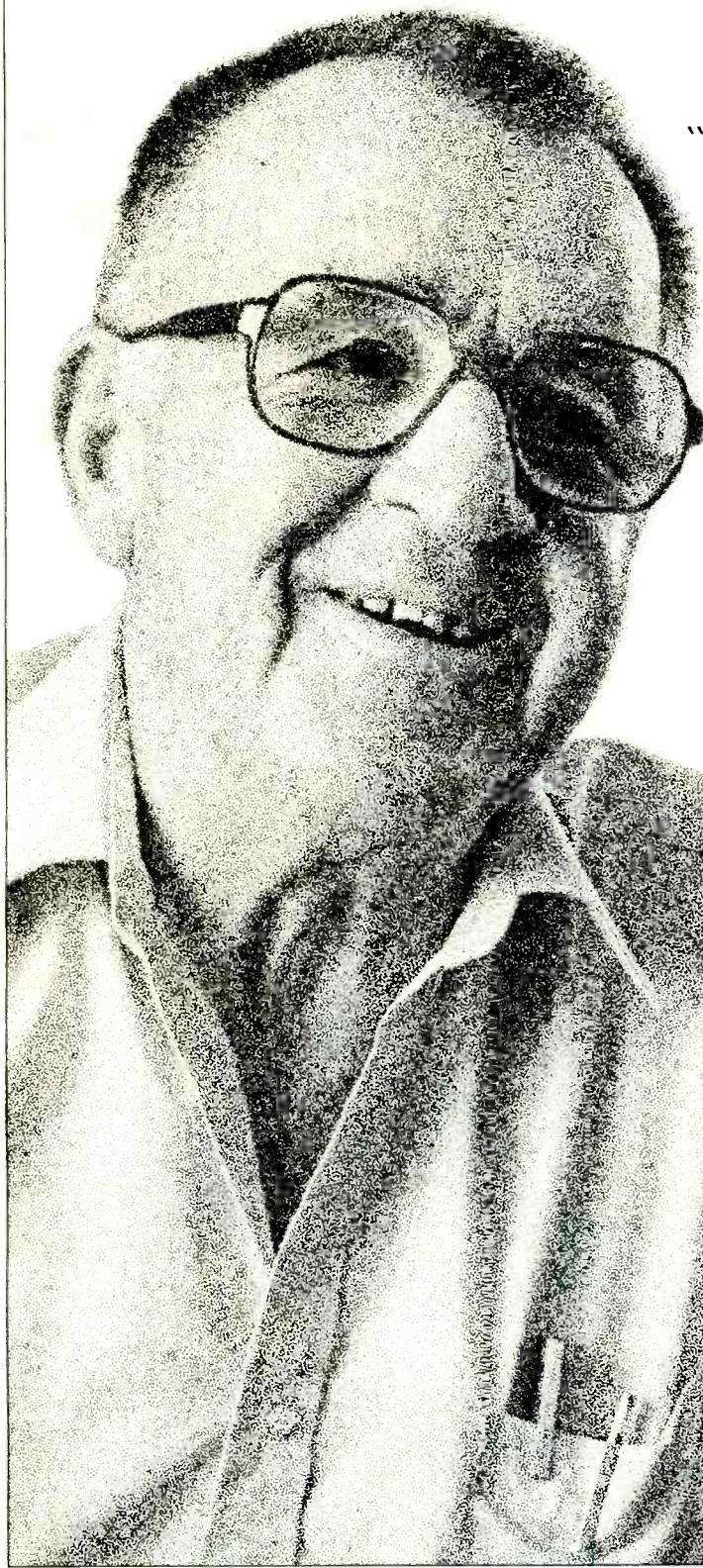
Track Time Elapsed



Disc Time Elapsed

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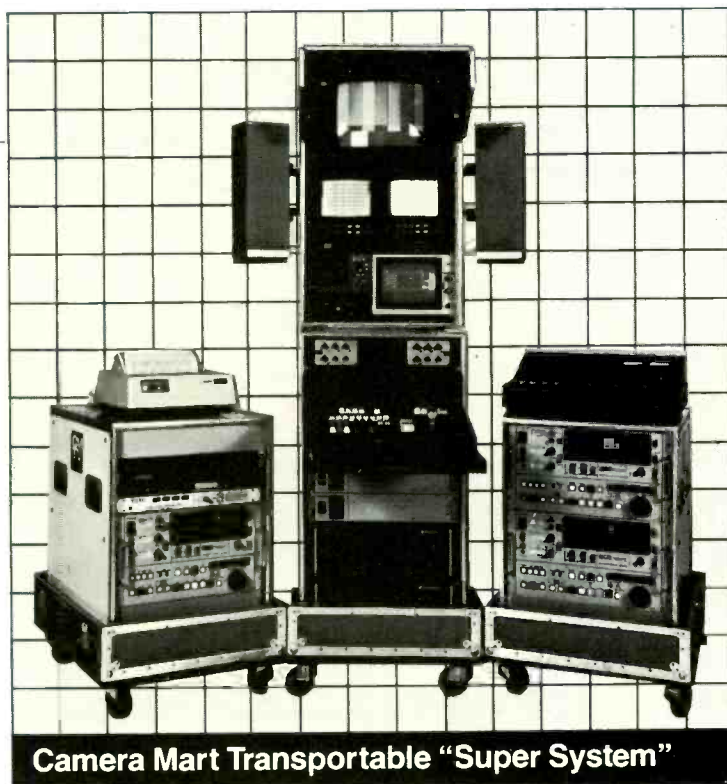
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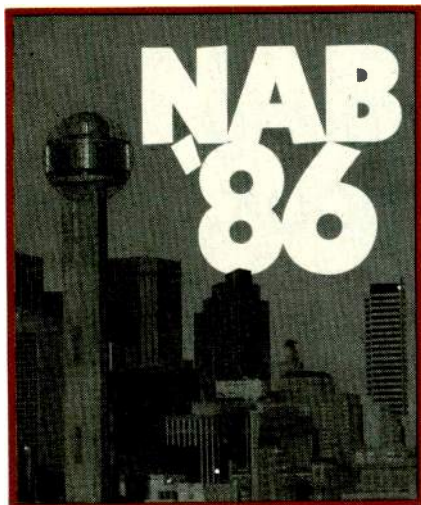


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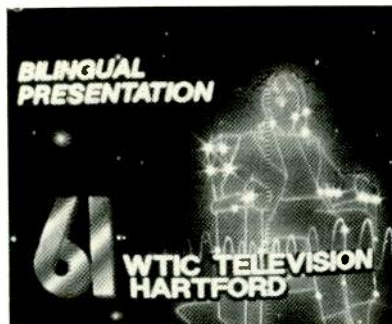


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Dallas welcomes NAB '86. Prominent landmark, the Reunion Tower, with its "ball," houses the studios of Group W's KQZY, 165.3 MHz. Photograph by The Stock Market/Doug Handel.

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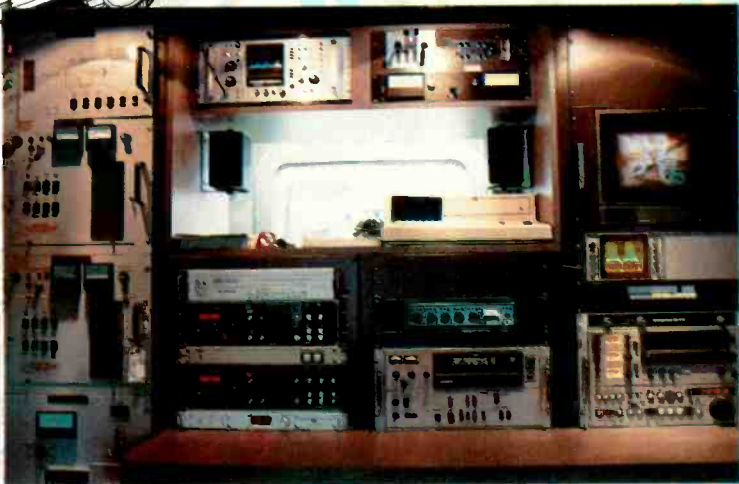
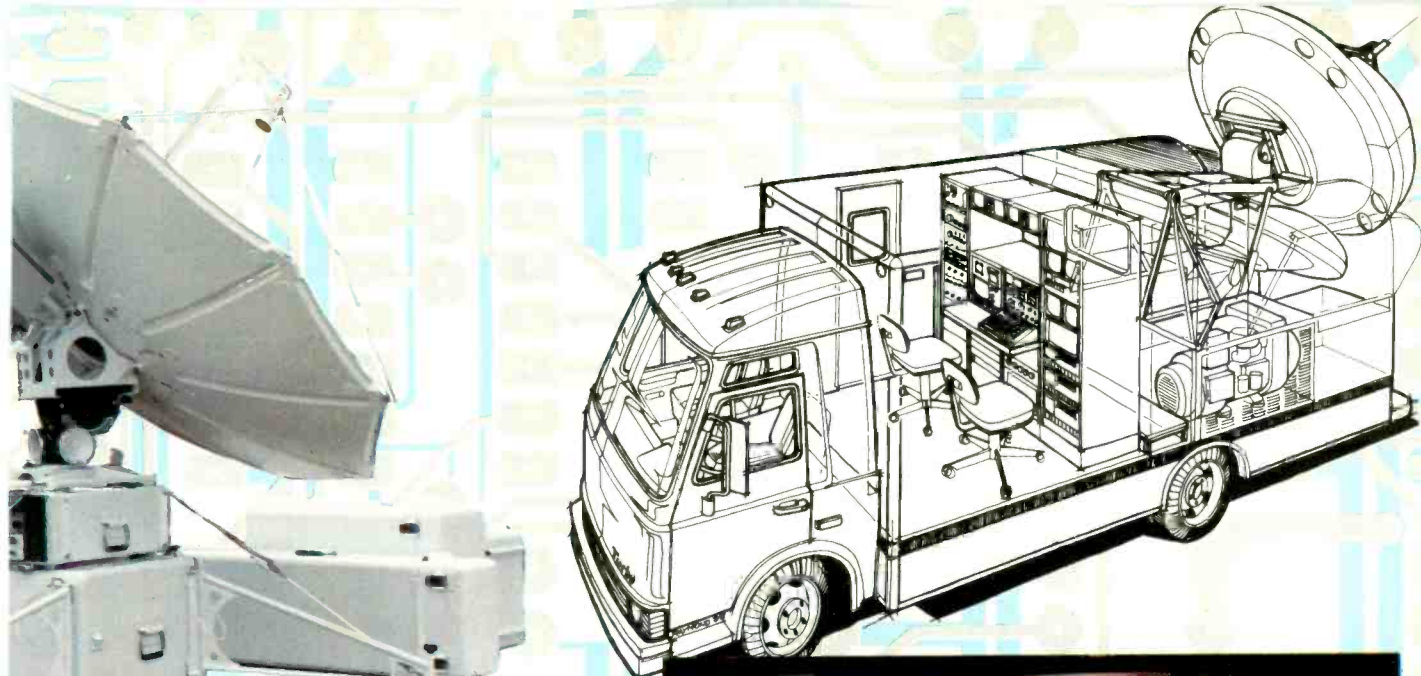
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'Must-Carry'—A Lawyer's Dream

"Must-carry must be an area for regulation."

On a recent Sunday morning TV public affairs forum, a lawyer was asked by an interviewer about a particular conflict: "Well, we have two distinct points of view. Which is right?"

Responded the lawyer, "Both are."

This is a position that only a lawyer could love. In civil law, most conflicts involve two or more sides, all of which are right until a trial determines which side is most right.

The "must-carry" rule is a classic case. Much of the research to date, especially the "Tulsa Study" done a few years back by Ogilvy & Mather, suggests that independents, and UHF independents in particular, are the primary beneficiaries of cable carriage. Poor UHF reception due to signal conditions and tuner/receiver faults on the UHF band had placed UHF independents at a distinct disadvantage for years. Cable carriage put UHF independents on a "tuner" parity with VHF stations and network affiliates. In the intervening years, both the public and the UHF independent TV stations benefited mightily. The public benefited because UHF independents grew in strength and began providing better program services. UHF independents benefited because they improved their ratings positions, collected better commercial revenues and bought with it better programming, and provided better service.

In the meantime, cable TV operators continued to struggle along, seemingly satisfied with carrying "must-carry" signals, partly because they filled unused channels with programming that some subscribers might see as the "dealmaker" for taking the service, and partly because the programming came at the "right price"—free. Broadcasters, during this period, made constant noise about the unfairness of not being paid by the cable operator for the program use.

Lo and behold, the almighty market did its work and broadcasters benefited from cable carriage, cablers benefited from carrying broadcast programs, and the public benefited.

Now cablers want to drop some of the local "must-carry" signals. Why? Because there are now more program services that want access to the home through the cable, and these suppliers may be willing to pay something for that access.

It seems to us that regulation (that nasty word) has to take a hand in this. A "compromise" by concerned parties will not lead to anything that seems fair in the long run.

"Must-carry" must be an area for regulation. No one, as far as we know, suggests that government ought to get out of the business of traffic law enforcement. Speeding, drunk driving, parking, etc., are all matters of concern to local government, and that seems to be where proper jurisdiction resides for "must-carry." Only localities can know what commerce is most important for the welfare of its society. Franchise agreements should include some requirement for "must-carry" provisions with periodic review. It should be up to the elected officials of the local government to determine how its populace is best served.



David Hawthorne
Editorial Board Chairman



Harry J. Pappas
President
Pappas Telecasting

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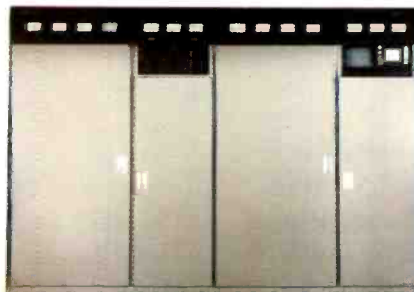
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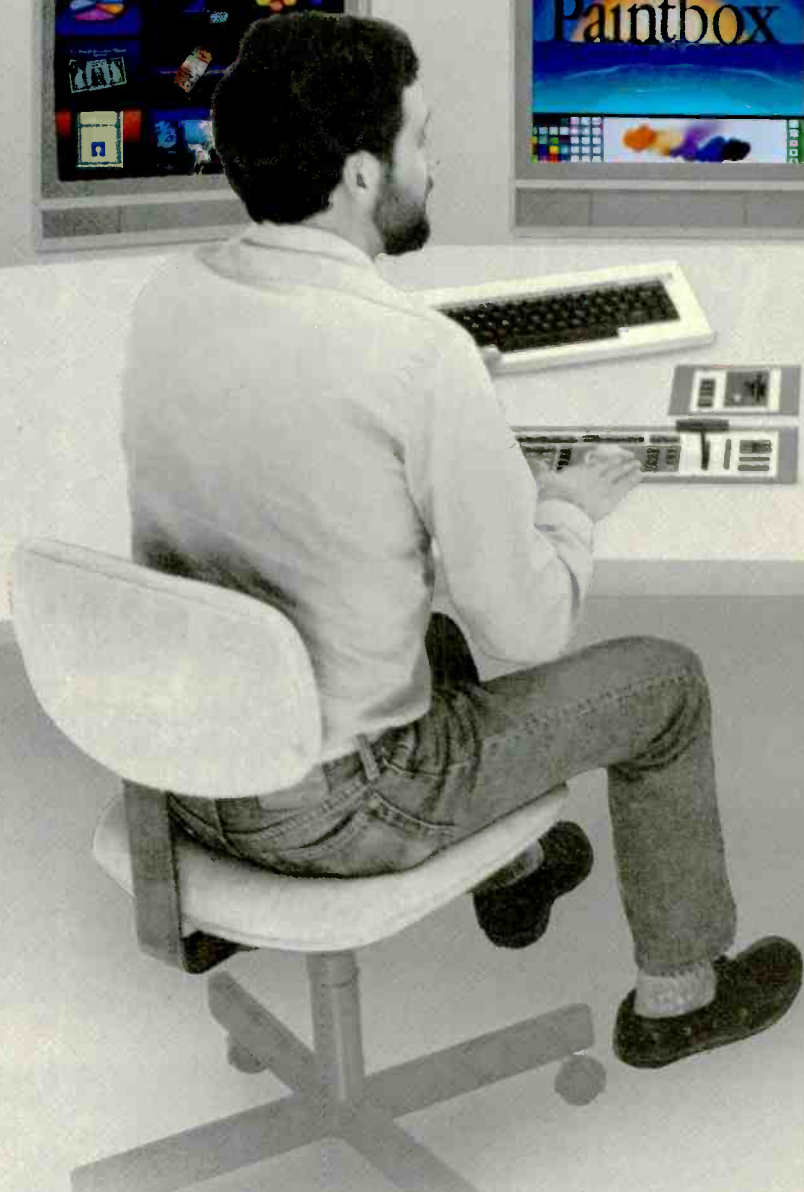
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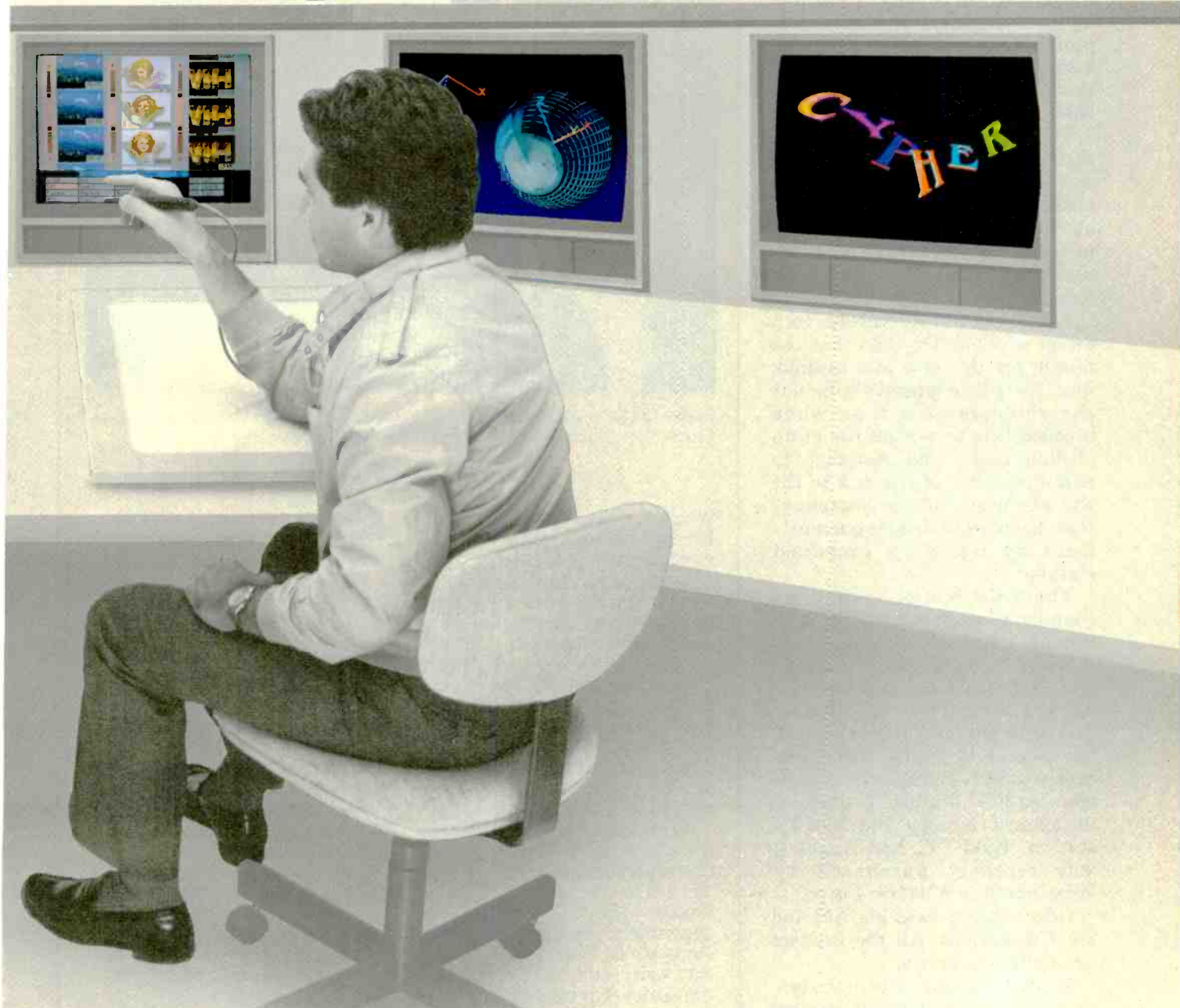
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MCA Buys WOR-TV for \$387 Million

MCA, Inc., paid eloquent testimony to the value and potential profitability of independent television with its recent \$387 million purchase of WOR-TV, Secaucus, NJ.

The purchase price is approximately 20 times the station's projected 1986 cash flow of \$19 million, according to reports, well above the 10 to 17 times cash flow price tags typical in television station sales. WOR-TV's 1985 cash flow was \$15 million.

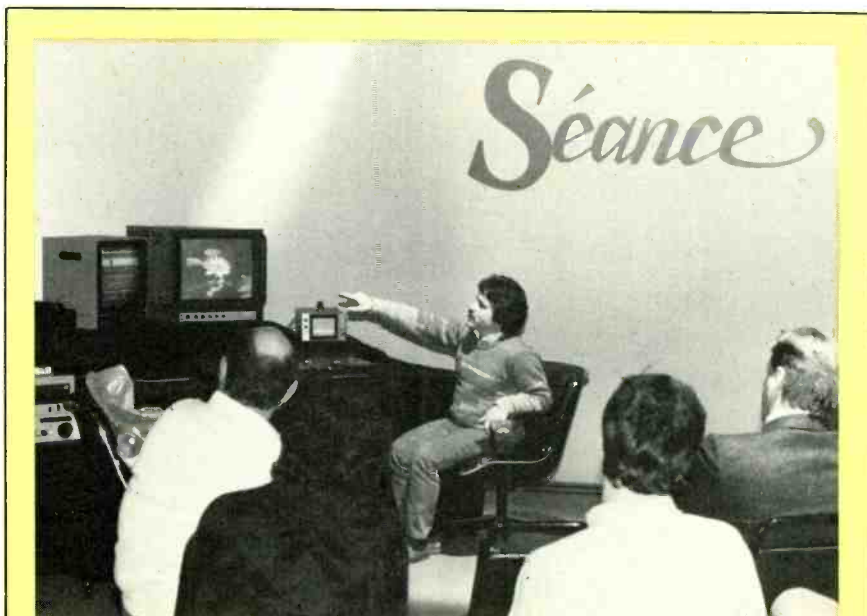
A spokesman for Gencorp, Inc., owner of WOR-TV, said that the reason for the sale was twofold: first, "to realize some value for our shareholders at a time when broadcasting properties are at an all-time high," and secondly, "to eliminate some of the risk to the shareholders and the company" from license challenges currently faced by Gencorp's broadcast stations.

The sale is the second by Gencorp of a television station in recent months, leaving only WHBQ-TV, Memphis, in the company's TV roster. Gencorp (formerly General Tire and Rubber Co.) is the parent of RKO General, licensee of WOR-TV, whose licenses have been under challenge since an FCC finding of wrongdoing against Gencorp. The third TV station, KHJ-TV, Los Angeles, was recently purchased by Westinghouse Electric Corp.

Gencorp also owns six AM and six FM stations. All the licenses are under challenge.

WOR-TV is currently in the process of relocating from its original New York City home to a new, state of the art facility in Secaucus. The move was undertaken to protect the license when Congress mandated automatic renewal for any licensee willing to move a VHF station to New Jersey, which lacked a VHF outlet.

The new facility, scheduled to go into full operation in mid-April, was built from the ground up on the site of a former racquet club. Station engineers designed the ap-



Editel/Chicago colorist Pete Janotta describes the da Vinci Unified Color Correction System during an introduction to Seance.

Mediums Meet at Seance

What happens when the latest film-to-tape technology meets creative editorial applications? At Editel/Chicago, the result is Seance, a new department designed to allow clients the opportunity to mix and match services as needed for their specific applications.

According to Editel/Chicago president Len Pearlman, "With this new equipment configuration, our team of editors and engineers will be capable of providing widely expanded services in the area of film-to-tape."

An important feature of Seance is the new da Vinci Unified Color Correction System, which offers 16 color vectors plus a "Color Grabber" with roving cursor. The department also includes a Rank Cintel Mk IIIC flying spot scanner with varispeed and XY zoom, plus the Steadi-Film pin-registered

antiweave gate, which eliminates film weave for composite matting and graphics applications.

Graphics and animation capabilities are further enhanced by an Abekas A62 digital disk recorder. Seance is further enhanced with digital repositioning for the Bosch FDL-60 solid-state telecine; Dolby stereo sound with digital format or magnetic interlock; FT system for "electronic dailies" and off-line post-production; tape-to-tape color correction from one-inch, 3/4-inch, and Betacam; Ultimatte post-production matting; and Lexicon time compression transfers.

Pearlman comments, "We chose the name Seance because it's unique. It's also a lighthearted jab at the mystique of all the bells and whistles of the business. Between the two mediums, if you will, is the Seance."

proximately 110,000-square-foot station, which will have three studios and a fully integrated switching and station automation system built by Utah Scientific.

CBS Inaugurates MTS with Grammy Awards Show

CBS has begun its commitment to stereo TV with last month's broadcast of "The 28th Annual Grammy Awards."

The network ended a period of reluctance to embrace MTS technology by announcing in January its plans for stereo programming and transmission of stereo sound.

Estimates are that some two million homes have stereo TV sets, and that some 250 stations, including 23 CBS affiliates, are equipped for MTS transmissions.

CBS's position before the shift in policy was that stereo TV would

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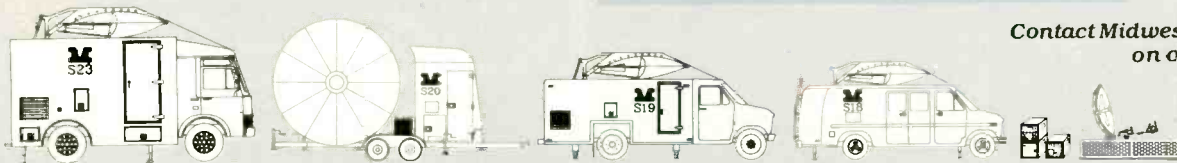
board power, editing and microwave communications capabilities. The 2.4M antenna's deployment system is in full compliance with the latest FCC radiation regulations. And the unique antenna stowage system virtually eliminates snow and ice accumulation. The SCR-25 communications package, developed by Midwest, utilizes Bandedge digital carriers which allows encrypted communications between a remote or base station and the ability to access any satellite, any transponder, any frequency. Stay on the leading edge of competition, with an SNG vehicle from the leader in broadcast communications — Midwest.



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be "evolutionary, not revolutionary," but rapid growth of MTS stations apparently has changed the network's mind. Another factor may be the fact that the network has placed second in the ratings recently to NBC, which made an early and strong commitment to MTS and has run its most popular shows in stereo. But according to sources, the real reason behind CBS's change of heart was the emphatic and vehement demand of

affiliates for stereo programming at a recent affiliates meeting. Local stations, both network affiliates and independents, have been enthusiastic about stereo as a way to gain the competitive edge in their own markets.

CBS has announced plans to air *The Twilight Zone* and this month's miniseries *If Tomorrow Comes* in stereo, and may be considering next year's Super Bowl for MTS audio as well.

One problem yet to be addressed is that of stereo transmission to CBS affiliates not yet receiving network programming via satellite. NBC's completed Ku-band system, "Skypath," has facilitated that network's stereo delivery, and PBS's digital DATE satellite system has made it possible for member stations to receive stereo audio for several years. But CBS's satellite system is not complete to all affiliates, which may mean that stereo transmission could be an expensive and more difficult undertaking for the network.

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Dielectric Acquires RCA Antenna Center

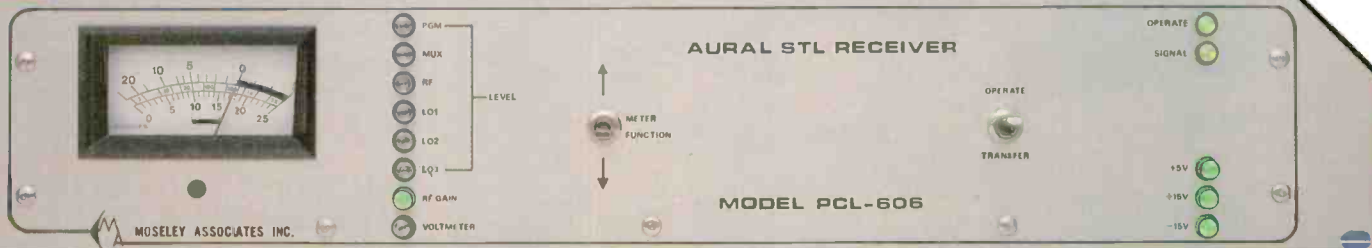
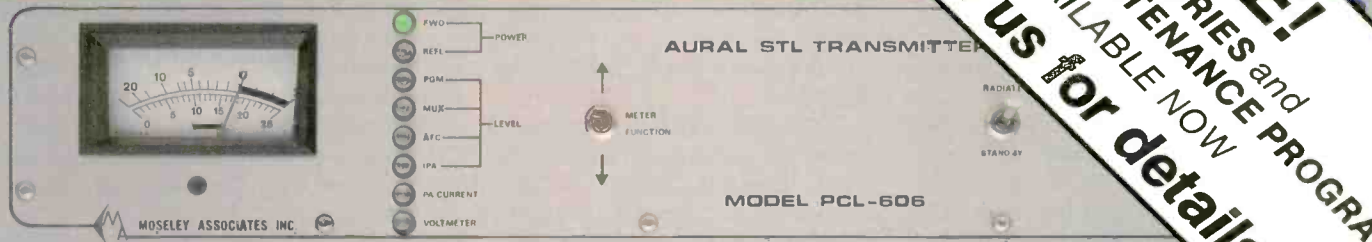
Dielectric Communications of Raymond, ME, has closed an agreement of intent with RCA to purchase the antenna operation of its Broadcast Systems Division, which was closed last October following heavy losses. The purchase covers RCA's UHF and VHF antennas and high-power wave-shaping devices. RCA is still involved in negotiations with undisclosed potential buyers for its transmitter and other broadcast product lines.

According to Rick Broadhead at Dielectric, the Maine-based company will pick up RCA's VHF and UHF TV transmitter antenna product lines, patents, and rights in the prospective purchase. Dielectric has been and will continue manufacturing the company's transmitter and filter lines.

"The two corporations, RCA and General Signal [which owns Dielectric], have signed a letter of intent," says Broadhead. The value of the deal has not yet been revealed. Engineering, manufacture, and design expertise will be retained in RCA's Gibbsboro, NJ, location, with marketing and management functions being run from Raymond.

In addition, Dielectric has retained RCA's sales staff in a number of locations. They are: Chuck Koriwchak in Pittsburgh, Jim Kelly in Atlanta, Dan Schulte in Minneapolis/St. Paul, and Max Ellison in Seattle. Also, RCA's District of Columbia-based consultant relations manager,

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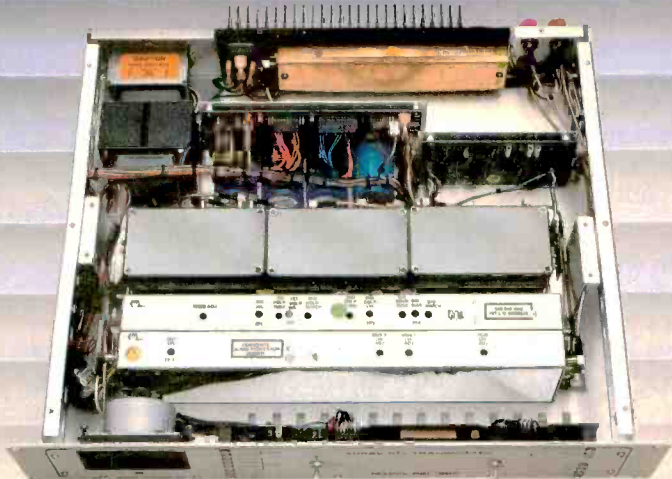
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Industry News

Noel Luddy, becomes one of the Dielectric staff.

Snuff Ads Snuffed Out for Broadcast, Cable

The Senate and House of Representatives agreed early last month on a bill that would ban ads for "smokeless tobacco" on television, radio, and cable systems. While under consideration, the bill received little attention from broadcasters or the tobacco indus-

try, unlike last year's controversial effort to ban advertising of alcoholic beverages. (That move generated powerful lobbying and public affairs efforts by broadcasters fearful of losing millions of ad dollars.)

NAB was quick to criticize Congress for passage of the bill, however. The association is "deeply disturbed and greatly disappointed that once again Congress is singling out radio and television

for a discriminatory and basically unfair ad ban," according to a statement by Joint Board chairman Ted Snider. He continued, "We believe that Congress is being unfair, inconsistent, and discriminatory. They should be as concerned with First Amendment rights of free speech as they are with solving the issue of tobacco usage."

The bill is likely to be challenged in court by such groups as the Smokeless Tobacco Council—with probable support from the NAB. Television garnered almost \$9.3 million in smokeless tobacco ad revenues in 1984, according to the Television Bureau of Advertising.

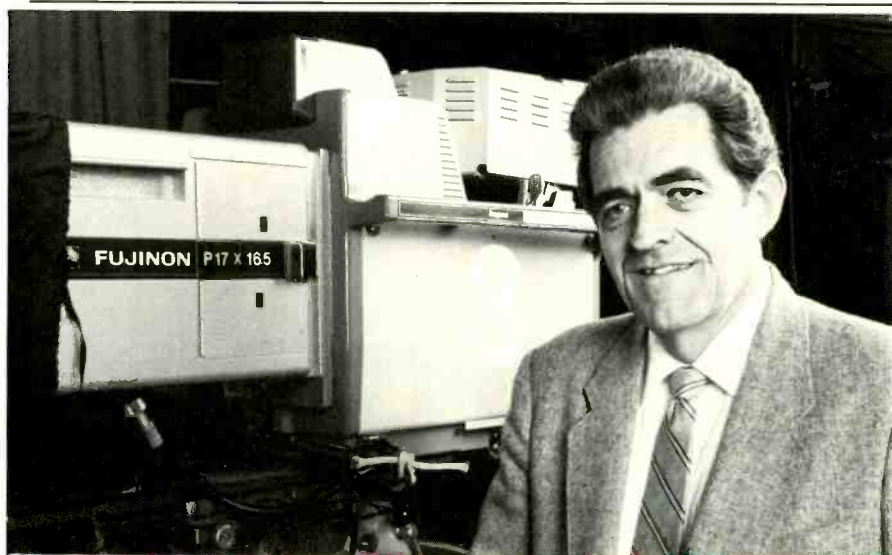
EBU Scores Introduction of Nonstandard DVTRs

In apparent reaction to Ampex Corp.'s intention to display a digital video cart player at next month's NAB convention, the European Broadcasting Union has issued a sharply worded statement warning its members that they must comply with the recently developed SMPTE/EBU D-1 DTTR standard for component digital video recording.

The EBU, which did not mention Ampex by name, said in the statement it was "surprised to read in the press that certain manufacturers envisage putting their efforts into a project which is based on neither an interface nor a format that has been approved internationally, and is thus in contradiction with the present agreement."

Unlike the SMPTE in this country, the EBU has the authority to insist that its members adhere to approved standards for broadcasting equipment. In the U.S., such insistence could bring the SMPTE into conflict with anti-trust laws.

The Ampex ACR-225 cart system, which uses the D-1 standard tape cassette but codes the digital signal in composite form, is intended as a replacement for cart decks using two-inch quadruplex tape—itsself a format seldom used elsewhere in the modern broadcast plant. Ampex has emphasized



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Industry News

its commitment to the D-1 format, while insisting on the practicality of composite video for the ACR-225. While the marketplace alone will determine the ACR-225's viability here, the EBU declaration may hamper its acceptance in Europe.

More Power, Bandwidth for Wireless Mics

Modifications proposed by the FCC to its technical requirements

for broadcast low-power auxiliary station (LPAS) devices are intended to make it easier for broadcasters to transmit signals by wireless microphone for cueing and control in program production.

The Commission proposes allowing LPAS devices to be used in broadcast TV VHF channels 2-6 and UHF channels 14-69. Licensees would be permitted to stack up to eight 25 kHz adjacent channels with the removal of current

restrictions on adjacent channel operations. In addition, the authorized output power of LPAS devices would be raised from 50 to 250 mW in UHF.

The proposed changes will help broadcasters in situations where they need to coordinate the simultaneous use of many wireless microphones, as in major ENG and sports events. The FCC's proposed changes won a cautious welcome from John Nady, president of Nady Systems, a leading wireless microphone maker. "As far as opening up the spectrum and increasing the power, we, as a wireless microphone company, encourage that," he says.

The Commission's proposed allocation of adjacent 25 kHz LPAS channels may raise problems, however. "You can't space 25 kHz apart and still have full frequency response," Nady warns.

Advisory Group Examines Expanding AM Spectrum

As part of a continuing effort to improve AM radio, a subgroup of the Advisory Committee on Radio Broadcasting is set to meet early this month to discuss plans for expansion of the AM spectrum.

The Allocations and Technical Subgroups of the committee will consider preparations for the Region 2 Conference on the expansion, scheduled for mid-April.

The subgroups are expected to discuss the planning method to be used in developing the spectrum that will become available when the AM band is widened, probably to 1705 kHz. A major issue is the maximum power that will be permitted, with attention being given to results of bilateral and regional meetings that have preceded the conference.

The subgroups will also take a look at ways to improve the effective use of the AM band, including possible policy and technical changes that will help AM compete in the radio marketplace.

NBC Networks May Go with GE Takeover

If the divestiture of NBC-owned radio stations as a result of General Electric Corp.'s acquisition of

Telescoping Pneumatically Raised Support Masts for SNG and ENG.

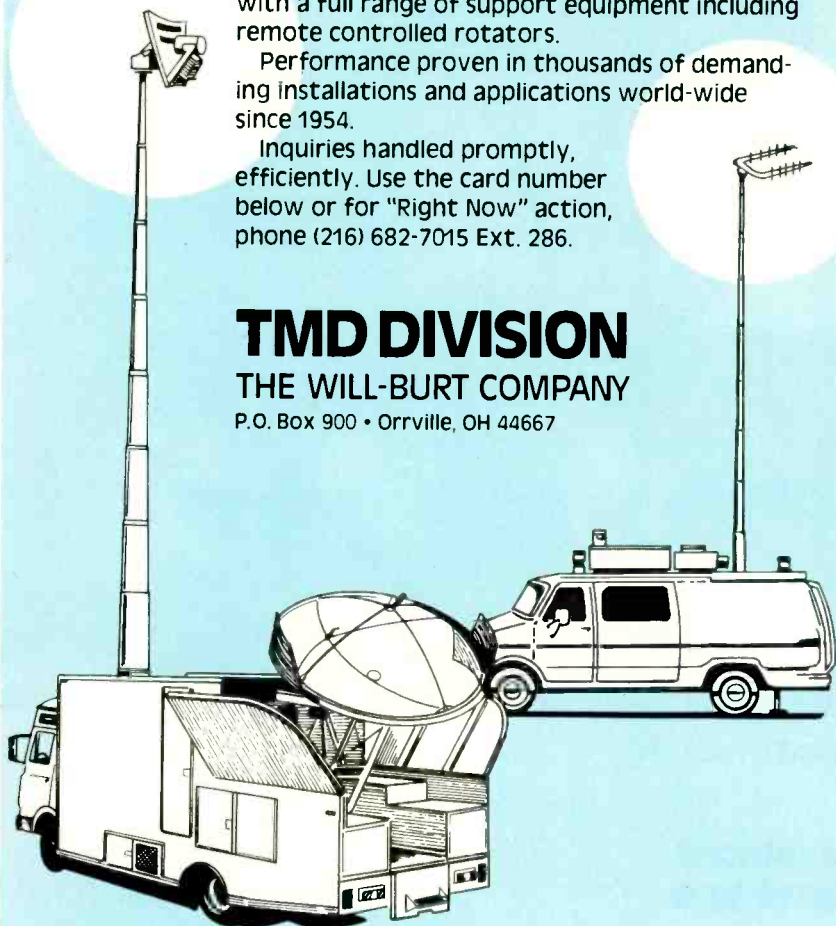
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RCA proves harmful to the three NBC radio networks, GE may decide to dispose of the networks as well as the stations.

In GE's filing before the FCC last month, the corporation asked for an 18-month waiver to sell NBC-owned radio stations in order to comply with crossownership rules. NBC-owned WNBC-AM and WYNY-FM in New York, WKYS-FM, Washington, DC, and WMAQ-AM and WKQX-FM,

Chicago, all would have to be sold under the rules once the takeover goes through. GE will evaluate the impact of the stations' disposal on its three radio networks—NBC Radio Network, The Source, and Talknet—to determine to what extent the networks' viability is dependent on ownership of stations in large markets.

In its takeover bid of RCA, GE has maintained that NBC will retain its independence, and that

NBC networks and stations will not favor GE's nonbroadcast businesses in any way.

An RCA stockholder meeting last month approved the takeover, which is being reviewed by the Justice Department and needs FCC approval.

FOBs Can Fine Stations \$10,000 for Violations

The FCC has delegated responsibility for issuing notices of apparent liability (NALs) of up to \$10,000 from its Mass Media Bureau to its Field Operations Bureaus (FOBs). The previous limit of fines given by the FOBs was \$2000. The MMB dealt with more serious violations.

While the new policy makes it easier for the FCC to enforce its technical rules, the licensee is not affected, according to a Commission spokesperson. The values of NALs and Notices of Forfeiture that may be issued are unchanged.

Nonetheless, the FCC is using the MMB-FOB policy statement to remind licensees to correct deficiencies, respond to NOFs within the allotted 30 days, and provide greater evidence that defects have been corrected.

"Station identification has been relaxed to an absolute minimum," the FCC points out, "yet compliance is at best marginal." The Commission intends to enforce its remaining rules and regulations while continuing efforts to deregulate, it says.

CBS Equips Mobiles with Hitachi Cameras

CBS Operations and Engineering is replacing the cameras in five of its mobile units with a total of 45 SK-970 field cameras from Hitachi Denshi. The cameras are 2/3-inch tube auto setup models in Hitachi's Computacam line.

According to George Shannon, CBS O&E president, the new cameras join Hitachi studio cameras installed four years ago in New York, Washington, DC, and Los Angeles. "The interchangeable camera heads will provide a new level of flexibility in choosing camera configurations," he notes,

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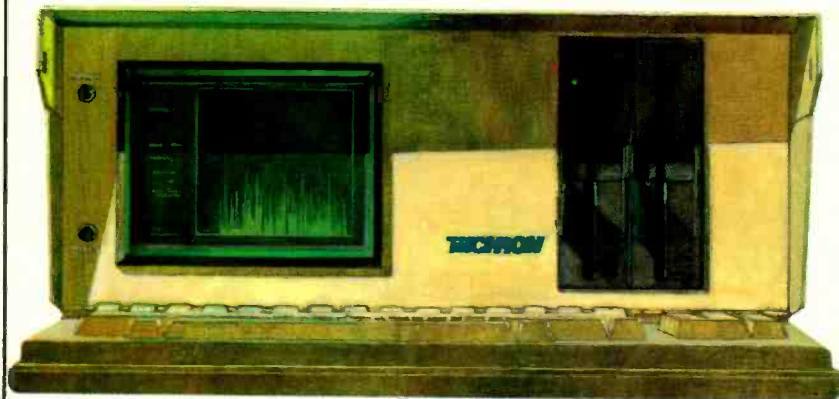
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Industry News

"and the automatic setup function will help minimize the time needed to prepare for field productions."

Until recently confined to handheld ENG cameras, 2/3-inch tubes have improved over the past few years to the point where many major camera makers are incorporating them into sophisticated studio and field cameras. Sony, Ikegami, Philips, and Thomson-CSF are among current

manufacturers of computerized 2/3-inch studio cameras.

Fowler May Step Down When FCC Term Ends

Mark Fowler, the current FCC chairman whose policy of "unregulation" has led to the dismantling of many long-held FCC policies and regulations, reportedly is considering stepping down from his post when his term ends this June. Official word, how-

ever, is adamantly neutral, and rumors at the FCC shift back and forth from day to day. According to an FCC spokesman, Fowler "has not decided whether he will seek renomination."

Fowler was appointed to head the FCC by president Reagan in 1981. Since then, he has spearheaded the FCC's move away from program content regulation and toward simplification of the rules and regulations. Changes that have occurred so far during his tenure have included replacement of old license renewal applications with a postcard-sized form, removal of commercial time limits, and the recent increase in the number of licenses a single entity may hold.

If Fowler does leave the FCC, dramatic policy changes are unlikely. His replacement would also be a Reagan appointee, most likely someone with a similar antiregulation bent. Commissioner Dennis Patrick is viewed by some observers as a likely successor, although no official word has yet come from the FCC or Fowler himself.

Cutting Through Static

Electrostatic discharge (ESD) loses American industry billions of dollars a year by damaging sensitive microelectronics equipment, according to Collins & Aikman Corp., which has developed a line of static control products to protect audio, visual, and other electronic equipment.

Contact with the company's new line of tables or floor mats grounds the static charge that may have built up in a user. Collins & Aikman has also published a free booklet to increase awareness of problems caused by ESD, which is available by calling (800) 235-8817.

Correction:

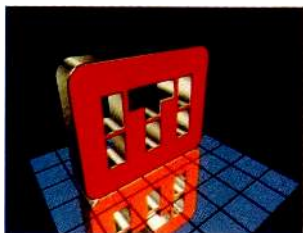
BM/E's January Business Briefs section inadvertently misidentified Video Production Services, Inc. The Fort Wayne, IN, post house is believed to be the first component post facility in the state.

The Swiss Army Knife

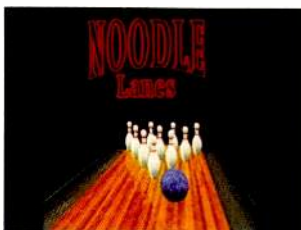
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News Briefs

WIOD-AM in Miami, FL has been awarded \$84,026 for expenses in modifying its transmission facility to reduce **Cuban interference**. WIOD received special authorization for a power increase and changes in its radiation patterns . . . **Radio Marti** is reportedly adding three hours to its daily schedule. The U.S. Information Agency believes Radio Marti is having some effect because Cuban radio has started airing news actualities and is said to have increased the amount of "American" music it plays.

VCR sales slowed in the second half of 1985 but still grew by more than 70 percent, or 16 million units, last year, according to figures from the U.S. Commerce Department . . . **Prerecorded videocassettes** will account for a quarter of television viewing and earn \$20 billion in retail volume, equal to network advertising, by 1995, according to a study by

Wilkofsky Gruen Associates, Inc., a New York City research firm, which presented the report to an investment conference sponsored by Merrill Lynch.

As of press time, NCTA execs were huddling to consider what kind of deal cable wants to arrange on the **must-carry issue**. Pressure has reportedly been building in Congress for the cable industry to come to a compromise on the issue.

TVRO sales have plummeted, in some cases by 80 percent, since HBO started scrambling its signal, according to industry sources. Dish dealers blame HBO's publicity blitz for the public's reaction . . . **Pay-per-view** television will start competing with movie theaters for first releases, according to a study by International Resource Development, Inc., a research company in Norwalk, CT.

Bringing newcomers up to speed: the NAB's Television Infor-

mation Office has published *A Broadcasting Primer: With Notes on the New Technologies*, a brief but well-written overview of the broadcasting industry. Copies cost \$2 apiece; call (212) 759-6800.

Doubleday Broadcasting plans to sell its last three radio stations, industry sources say. Those are WHN/WAPP in New York City, and WAVA-FM in Washington, DC.

Ed Joyce, until recently head of CBS News, has resigned. Joyce reportedly has been held responsible for overspending and then cutting the division back too much . . . **Grant Tinker**, chairman and CEO of NBC, will receive the NAB's Distinguished Service Award at the NAB show's opening session in Dallas. Reps. Thomas **Tauke** (R-IA) and W.J. "Billy" **Tauzin** (D-LA), both on the House Telecommunications Subcommittee, will also receive awards at the Dallas convention.

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Tuning • In America

Broadcasters can make a Nation into a Neighborhood. That's the theme chosen by the NAB for its sixty-fourth annual convention, which begins April 12 in Dallas.

Tuning in is what it's all about. Broadcasters tune in to America's local communities, knitting them closer together to make a neighborhood of a nation. The NAB convention organizers hope to imitate that example by tuning in to needs felt by stations in every neighborhood. And *BM/E* is tuning in to your needs: your comprehensive guide to the Dallas NAB starts here.

Following *BM/E*'s new format, our show coverage is divided into three sections: TV/Video; Radio/Audio; and RF/Sats, T & M; followed by the most comprehensive

listing of NAB exhibitors.

Engineers may pick and choose from the above, but broadcast managers may have to cover all of them. But they will be particularly interested in some of the opening sessions that the NAB has designed to tune in specifically to their needs.

The need, for example, to make a profit is a keenly felt one by most stations, whether in TV or radio. The opening sessions for both media will take this as a theme.

The radio general assembly will open with "MegaRate\$: Getting Top Dollar for Your Spots." This address will present findings from The Research Group, a

Seattle-based company that has investigated the strategies of "rate aggressive" radio broadcasters. If you need to know how and why certain stations are able to achieve their highest cost-per-thousand in their markets, or what a "demand curve pricing model" is, then this is the session for you.

The substantial change in the TV industry during the '80s is the subject of a comprehensive study by the Denver consulting firm of Browne, Bortz & Coddington, to be sum-



marized in the opening television session! "Great Expectations—Making It Happen." With industry observers and economists predicting selective, and in some areas substantial, growth in commercial television broadcasting, this industry analysis will be a valuable aid for broadcast managers to project future developments and formulate strategies and "best practice" recommendations to take advantage of them.

Both addresses will coincide with the publication of two new NAB Research and Planning titles, named for these opening addresses. They will be available at the NAB's two stores in the Dallas Convention Center.

One man who knows more than most people about making money in the media business is Rupert Murdoch, whose Twentieth Century Fox will take delivery of the Metromedia group's television stations this month, creating a fourth network in the United States. He will

give the television luncheon keynote speech.

Management sessions will examine financing acquisitions, forecasting, planning, and evaluating a television station's worth. Others will look at the progress made by multichannel sound in the past year, news networking, the role of television critics, the problems of public broadcasting funding, and a wide range of general issues.

American viewers and listeners are tuning in with ever better receivers, says the NAB. So it's ever more important for the broadcast engineering community to provide the best possible broadcast signal. The NAB's Fortieth Annual Broadcast Engineering Conference aims to tune you in to the latest improvements in broadcast technology.

Sessions start on Saturday with the hot topic of AM technical improvements and the actions of the National Radio Systems Committee and the NAB. Other radio sessions during the convention will cover AM-FM allocations, FM developments, remote-control advances and rules, and AM stereo.

The parallel television engineering sessions kick off with television

recording and tape technology, aiming to answer the question: Which small format tape system to use? SNG, multichannel sound, graphics, component and digital video, and high-definition and other advanced systems will be among the topical issues covered.

For all engineers, the conference will have a number of special technical sessions, dealing with new UHF transmitter technology, broadcast auxiliary services covering aural STL and the 23 GHz bands, and nonionizing radiation assessment and rule compliance.

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RADIO Session Topics

**Engineering for Managers and Programmers
Doing Your Own Research
Instant Book Analysis
Minority Employment Opportunities
Legal & EEO Workshop
Program Consultants
Ask NAB Services
Ask the FCC
SCA Opportunities
Computer Showcase
Radio Production Workshop
Radio in Search of Programming Excellence
The Whole Brain Approach to Radio Programming
Small-Market Radio Programming
Surviving in AM Radio
Making \$ with Your Mouth
Building on Basics '86
Daytimers' Forum: What's Ahead for Daytimers
Audience Retention—Increasing Revenues
Radio Acquisition: "So...You Want to Buy Your First
Station"
Public Domain Software Showcase
Broadcasting '86—Women & Minorities at the
Crossroads
Working with Your Rep
Legal Workshop: Political Advertising
Megarete \$: Getting More for Your Spots
Are You Teaching Your People to Fail...Enough
Agencies—How to Sell Them
Increasing Revenues Through Community
Promotions
What's New at the FCC
What Radio Must Know About Selling Retailers
RAB General Session
Fitting Yourself for the Libel Suit
The Campaigns Ahead
FCC Breakfast
Getting the \$\$ to the Bank, Faster!
Small-Market Radio Management
Making Money with Direct Mail
Getting to Your Local Advertiser Through Research
Are You Playing with a Full Deck? How to Manage
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Building a Money-Making Co-op Department
Allocations
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Common Traits of Successful Managers
Telephone Cost Management
Vendor Money: How Can Radio Compete for those
Big 100 Percent Retail Bucks?
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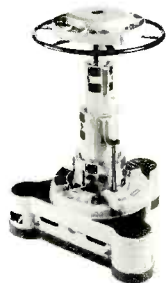
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TELEVISION

Session Topics

Multichannel Sound: A Year Later
Government Relations—Music Licensing
The Power of Positive Management
LPTV in 1986
The Sales Representative Business
TV General Opening Session
Political Advertising
Fitting Yourself for the Libel Suit
Planning for Your Broadcast Facility's Future
Television Luncheon—Rupert Murdoch
Government Relations—Must-Carry
What's a TV Station Worth?
Children's Programming
In the Box
News Networking Systems
Financing the Acquisition
Home Team Advantage
Forecasting—A Tool for All Managers
Naturally Effective...The Best Possible You
Getting Along with Your Cable Operator
TV Music Licensing-1986: Where's the Beef?
TVB General Session
News Promotion...Your Best Foot Forward
TV Critics...Friend or Foe?
The Crisis in Funding for Public Broadcasting
Stop the Madness: Abuse in the Station

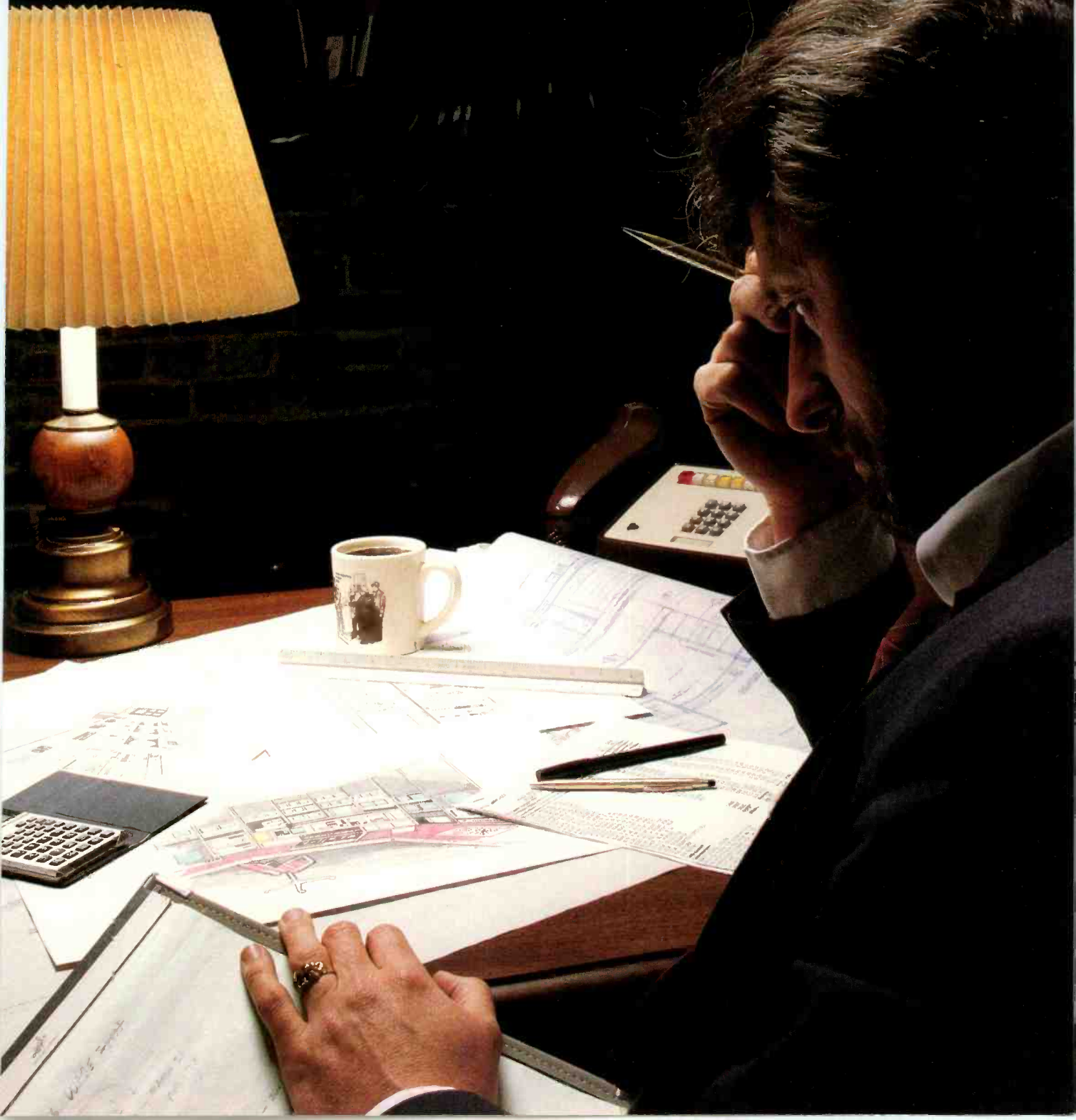
ENGINEERING

Session Topics

AM Technical Improvement
TV Recording & Tape Technology
Radio Broadcast Engineering
TV Multichannel Sound
TV Graphics
Radio Station Maintenance
TV System Maintenance
AM-FM Allocations
Radio Subcarriers
TV New Technology
Advanced TV Systems
UHF TV Transmission Systems
Broadcast Auxiliary Services
Radio New Technology
Television Satellite Systems
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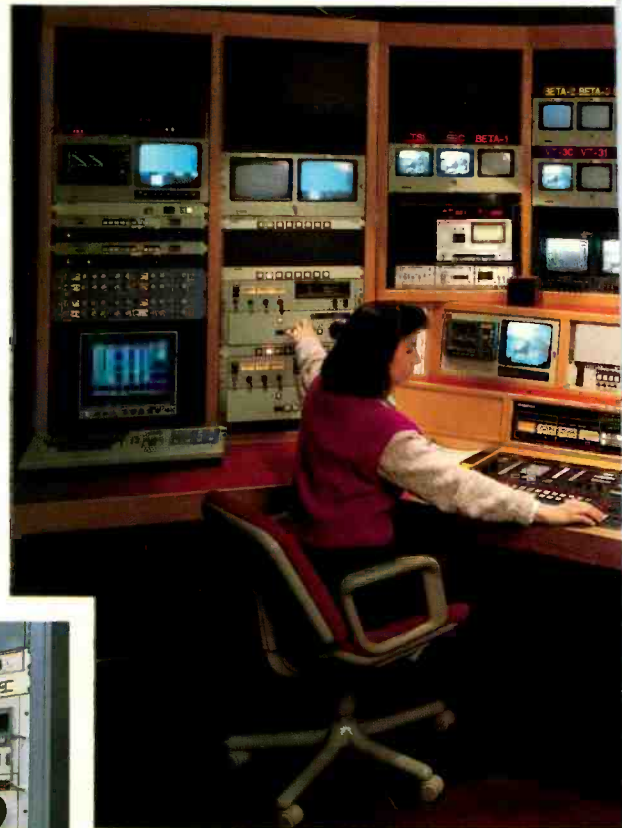
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Machine control interfaces may be grouped together, or located at the individual machines.

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meet your needs for today and the future. . .



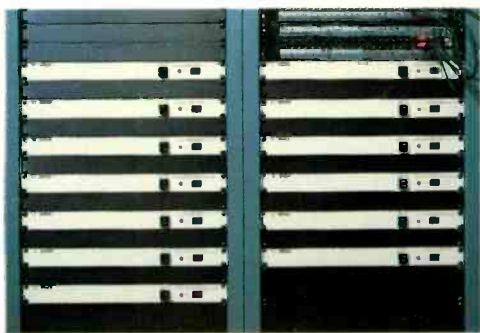
VTRs can be controlled with source selection panels and machine assignment panels.

(Facility Photos Courtesy of KTZZ Channel 22, Seattle, Washington.)

Source selection and machine control in a production control room.

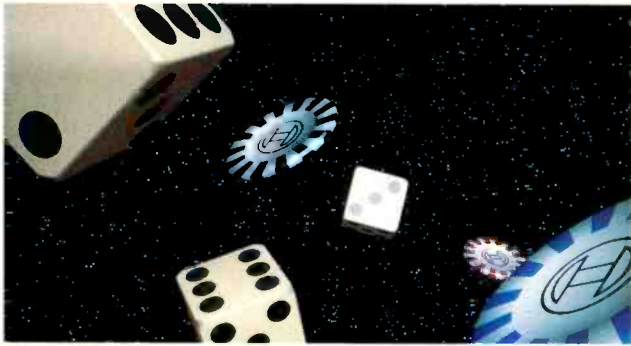


Custom control panels are designed to meet specific control needs.

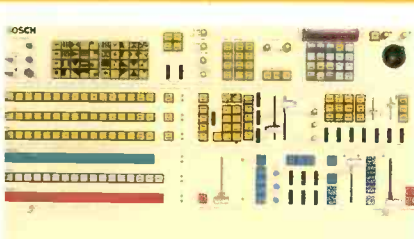


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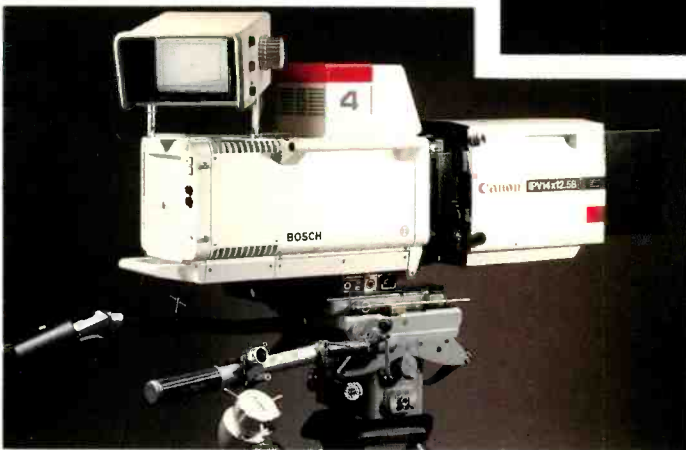
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TV/VIDEO

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Controversy, excitement, and hard decisions await television broadcasters at NAB '86. Without a doubt, video recording technologies will create the greatest ferment. SMPTE's recently standardized digital video recording format will spark prototype equipment from at least one manufacturer. Current technology will be pressed by upgrades in all areas—half-inch, 3/4-inch, and one-inch—and by new 1/4-inch systems. And hard disk-based video recording will make more of an impact.

The commercial playback and MERPS issue, a hot one for stations desperate for a solution to makegoods, will continue to boil with a controversial digital cart system and other new and upgraded systems.

Excitement can be expected, too, in the graphics and effects arenas, with new component effects gear and high-end art and animation systems. Post-production will bring important new gear from heavyweights in the field, and some surprises. The camera industry will come back from a brief slowdown with new computerized cameras from several makers, including one major returnee to the U.S. market.

Cameras

After a slow 1985, the camera field is picking up momentum with a host of new and improved models. One of the most exciting an-



ColorGraphics' new ArtStar III-D 24-bit paint system offers high-quality vector type and 3D animation capability.

nouncements is the apparent return of Toshiba (3302) to the U.S. camera market. The Japanese company has shown its cameras every year, to be sure, but has not sold them. Now, company executives say the time is ripe for another try. Toshiba plans to introduce the brand-new PK-50 camera family, consisting of a 1 1/4-inch studio camera and a 2/3-inch ENG/EFP model. Also new will be a tiny (less than 1.5 inches long) color CCD camera with 2 m cable and compact CCU, perfect for point-of-view sports applications. The unit is still under development and the cable will probably be lengthened.

Bosch (3170) will be showing at least two new cameras to NAB attendees: the KCM-125 automatic setup camera and the Quartercam recorder/camera described in the section on video recording.

With the recent announcement by Robert Bosch GmbH and N.V. Philips Gloeilampenfabrieken of

their intention to merge certain activities into a new company, Euro Television Systems GmbH, questions have been raised about the merger's impact on the companies' existing camera lines. For now, the impact is nil. Both companies will exhibit their existing camera lines in their separate booths at the NAB show. Philips Television Systems, Inc., will show new versions of its LDK-6 studio camera line including the LDK-6A with 30 mm and 25 mm tubes and the LDKP-26A with 18 mm tubes. A new companion portable, the LDK-54A, will be shown in configurations for ENG, EFP, triax, and EFP multicore. A new computer-based maintenance and diagnostic system for the LDK-6, called Coach, also will be introduced.

Other camera companies are also rising to the challenge. Expect Ikegami (3150) to jump on the $\frac{2}{3}$ -inch studio camera bandwagon with its new HK-323 (it also comes in a one-inch version). This is a fully automatic, microprocessor-controlled camera, unlike the no-frills SC-500.

At the Thomson-CSF Broadcast booth (3190), the camera news will be the TTV-1530 midrange studio/OB camera, an automatic model with $\frac{2}{3}$ -inch tubes.

Hitachi (3160) will introduce the Z-31P, a Plumbicon version of the Z-31 ENG camera, which made its debut at SMPTE. The full Computacam line will be on view.

The much-heralded BVP-360 studio/field camera, introduced last year, will grace the Sony booth (3100). Sony Video Communications will show a new three-chip color CCD camera, probably for the industrial market. Harris Broadcast Systems (3136) will show its TC-85C.

NEC America (3161) continues as the only marketer of a broadcast-quality CCD camera since RCA withdrew from this market. The SP-3A will be shown in a recorder/camera configuration that accepts all VCR formats. Who will be the next to join them in the CCD arena remains a subject for speculation.

Sharp Electronics (3305) will bring a line of new fixed-installation accessories for its XC-A1 camera, including a top-mount camera plate, three-camera RCU, and specialized remote-control lenses.

Established cameras will be shown by JVC (3180), which will feature its ProCam line of teleproduction cameras, and by Panasonic (3216/3116), which will show its one- and three-tube models.

An unusual entry will be the new Insight Vision Systems 75 Series low-light monochrome ENG camera, complete with image intensifier and zoom lens. It will be shown by Cinema Products (140).

Lenses, Accessories, Camera Tubes

Has the race for the longest lens ground to a halt? Sorry, folks—no one will be exhibiting a 50X lens this year (at least, not as of press time). Lens introductions are concentrated in the ENG/EFP area, although it's a sure bet Canon and Fujinon will be showing their mega-lenses.

Speaking of Fujinon (3410), that manufacturer will be introducing a new 18x8.5 ENG lens to replace the previous 17x9 model. Angenieux (3020) will have two new lenses: a 14x7 super wide-angle zoom for ENG cameras, plus a 40x9.5 OB sports zoom. The 14x8 wide-angle with nonrotating front element, seen at SMPTE, will make an NAB appearance.

Another new lens for $\frac{2}{3}$ -inch cameras, the TV-80 17X wide-angle with built-in diascope, will be introed by Schneider (3343). The company will also unveil the TV-64/65/66 14.5X wide-angle studio zoom for cameras with $\frac{2}{3}$ -inch, one-inch, or 1 $\frac{1}{4}$ -inch tubes.

Canon (3300) will display its full line of BCTV and ENG camera lenses, along with its recently introduced line of support gear.

Tamron (120) will show its ENG/EFP lenses.

In specialty lenses, Schwem Technology (2559) will introduce a new wide-angle attachment and remote-control system for its Gyrozoom image stabilizing lens. Film/Video Equipment (2803) will have its Wide Eye wide-angle lens attachments. Visit Century Precision Optics (2422) for more wide-angle and periscope lenses.

Zellan Optics (2477) will feature a range of interesting camera accessories, including the Betaheater, designed to maintain your Betacam's body heat. Telemetrics (2569) will have a new camera remote-control system. For the latest in special effects filters, visit Tiffen (2736) and Belden Communications (2926); both will have new items. Nalpak Sales (2800) will have a new mini test chart for quick camera alignment in the field.

Tubes

CCD cameras may be few, but CCDs themselves are there for the taking. Amprex (2600) will introduce versions of its high-resolution frame-transfer chip for use with color or monochrome cameras in NTSC or PAL. In addition, the company will have new diode and triode electron guns for $\frac{2}{3}$ -inch and 30 mm camera tubes.

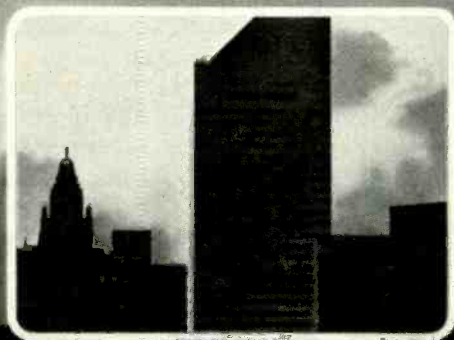
EEV (2626) will pull the wraps from a new one-inch diode gun Leddicon boasting low lag and output capacitance plus high resolution.

Despite the death of its Broadcast Division, RCA Corp. (3292) will display its line of camera pickup tubes.

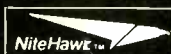
Video Recording Technologies

Videotape recording activity at Dallas will once again throw mud in the water.

While *BM/E's* 1986 Survey of Broadcast Industry Needs (see February issue) indicates that interest remains strong in one-inch Type C videotape recording and in $\frac{3}{4}$ -inch U-type formats (particu-



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WHAT'S HOT!

TV/Video

larly in markets 50 and below) and reflects growing interest in half-inch component systems, other formats and approaches continue to proliferate.

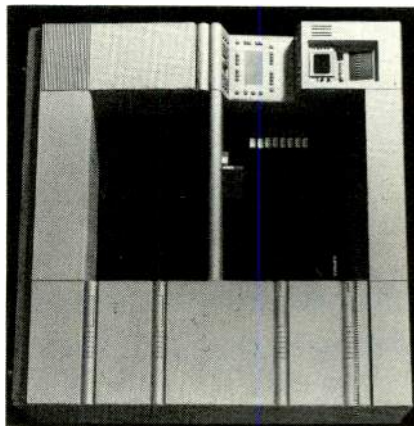
Particularly prominent at this NAB will be 8 mm videotape systems and 1/4-inch systems. While no one manufacturer is suggesting that these formats will supplant the widely accepted half-inch and 3/4-inch systems, they are equally adamant about refusing to "say 'no' for the market." Ikegami, with no vested interest in the tape format preferred, will show its HL-95 Unicam designed to interface with on-board half-inch or 1/4-inch VTRs.

Sony, which might be suspected of having a "vested interest" in recording formats, is covering all of its bases. In 3/4-inch recording systems Sony will show off its new SP U-matic line, consisting of BVU-850 and BVU-870 studio player/recorders and a new BVU-150 portable. The SP Series are souped-up versions of earlier U-type recorders, offering better video and audio signal performance along with improved DT performance in the 870. In the price ranges bracketed by 3/4-inch systems there is still a lot of interest and, while no one is comparing the signal quality of 3/4-inch with that of half-inch or one-inch, 3/4-inch users are just as interested in functions like slow-motion and performance in post-production as are users of the superior signal quality machines such as half-inch component and one-inch Type C systems.

Panasonic will demonstrate its much anticipated M-II format video recording systems at this NAB. The YIQ format embodied in M-format has pretty much gone by the wayside and Panasonic (Matsushita) appears to have gone with the tide and produced, in M-II, another half-inch Y, R-Y, B-Y system that seeks to take the quality of half-inch into the territory generally assumed to be the exclusive domain of one-inch systems. Using metal particle tape, M-II promises to offer quality comparable to that of one-inch.

Sony, confident in the quality headroom it can offer with Betacam in small format video, has had no crisis of confidence in one-inch, choosing to introduce at this year's show two new one-inch models—the BVH-2000/10 and the BVH-2000/12. These two machines are lower in cost than the 2000/02 and do not include some of the functions found in the top-of-the-line unit. They are, instead, targeted at specific VTR functions in production and duplication that do not require all features.

While the industry has accepted half-inch, 3/4-inch, and one-inch into its video recording framework there will be no acquiescence on the part of proponents of other systems. No company has formally



Ampex's prototype ACR-225 spot player uses composite digital coding.

announced an intention to promote 8 mm videotape to the broadcast audience at NAB, but efforts on behalf of 8 mm by Hitachi and Kodak in related areas suggest they may have something to say on that score. It should be noted, however, that no manufacturer, as yet, has gone so far as to suggest 8 mm as a broadcast origination product. Most have suggested that 8 mm may be a viable industrial strength format and certainly a viable distribution format for nonbroadcast operations. On the other hand, anyone facing near-term (within the next three years) decisions regarding new ENG systems can proceed along the 3/4-inch and component half-inch lines without grave fears of passing up major opportunities in 8 mm.

Digital videotape recording is likewise an improbable source of near-term technical advances. The digital composite format chosen by Ampex for its new cart system, the ACR-225, is not being positioned or envisioned as a production videotape recorder. Commercial playback in broadcasting has long been handled as an "island unto itself" and the ACR-225 continues that conceptual approach. Though criticized by some for introducing a digital recorder that fails to conform with CCIR recommendations, Ampex sees it as just another digital "black box" with a conventional composite spigot in and a conventional composite spigot out. The internal handling of commercials in digital composite format, thinks Ampex, has numerous advantages in terms of signal quality and replay-without-degeneration aspects that recommend it superbly for the job of playing back commercials. Recent criticism by the EBU and others of Ampex for introducing a machine that does not conform to CCIR 601 could, understandably, befuddle the manufacturer. The application—playback of commercials—for which the machine was designed has long been treated as a technical island using two-inch quadruplex recording long after that technology was abandoned for use in any other application.

The MERPS (Multiple Event Record and Playback System) issue is far from resolved. Though the ACR-225 will offer a playback duration of 10 to 30 minutes (depending on engineering decisions yet to be made), the company is only suggesting at this time that the ACR-225 be considered for spot playback. The half-inch cart systems, in component, offer playback times of only 20 minutes, but with metal particle tape or other changes these systems might easily offer longer playback durations. At these longer durations broadcasters start thinking about putting other program material than just commercials on the systems. While possible, it is not at all clear that broadcasters will trust their

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precious commercial load to any system that is not devoted to just commercials.

The one area in which the Ampex ACR-225 is compatible with recommended international standards is in its use of the 19 mm videotape cassette. This is the same cassette standard demonstrated by Sony last year at the NAB in use with its digital VCR. As yet, however, no tape manufacturer, including Sony and Ampex, has announced bulk manufacturing of the 19 mm cassette format. Though the 19 mm cassette is the recommended standard, it would seem that until a large number of machines using the 19 mm cassette are available in the market, it might remain an oddball.

As of this writing, Sony has stuck with its last announcement in June 1985 regarding the production of a commercially available DVTR no sooner than 1987. While it is reasonable to expect that Sony will demonstrate a D-1 DVTR at NAB, as it has in the past, it is unlikely it will present it as a market-ready product.

As promised, Bosch (3170) will feature its line of 1/4-inch Quartercam video recording equipment, including the KBF-1 recorder/camera and the BCF-9/10 playback recorder unit. Two one-inch Type B-VTRs, the BCN-21 portable and BCN-51 studio version, will also be shown.

Ampex (3108) will have a stereo upgrade kit for its popular VPR-2 VTR. Hitachi (3160) will show its established HR-230 Type C unit.

With MTS such a hot topic in television, it's no wonder Ampex isn't the only one showing a stereo upgrade kit. Merlin Engineering (3408) will feature its vertical interval stereo audio system, which puts stereo audio into the vertical interval of the video signal. It's primarily designed as an upgrade for ACR-25 and TCR-100 quad spot players, but it can be used on any straight cable run as well as for microwave or satellite links.

JVC's (3180) CR-850 3/4-inch editing VCR, seen in prototype last year, will be seen in a production version. Sharp (3305) will

show a new line of "Professional Series" VHS VCRs.

VTR modifications of various stripes will be shown by Merlin (3408) and Alpha Video (2524).

In nontape recording technologies, a number of significant products will be shown, although few new introductions are expected. Abekas (3527) will feature its A62 digital video hard disk recorder in 50- and 100-second versions. Optical Disc Corp. (162) will display its 610A laser disc recording system, which is convertible from NTSC to PAL. 3M's Optical Recording Project (3120) will show interactive videodiscs.

Tape

The quest for the perfect tape formulation continues, with manufacturers striving to increase shares in this competitive marketplace. Expect tape manufacturers to descend on NAB '86 in force, armed with their latest introductions.

3M's Magnetic Media Div. (3120) will announce—but not show—a new Betacam cassette, PB 30. Other significant tapes from 3M will include the PV (M-format) and PB (Betacam) cassette lines; MBR 3/4-inch tape; and the BC half-inch broadcast cassette.

Digital audio tape will also make news at booth 3108, where Ampex will unveil its new 467 digital audio cassette. The full line of one-inch and 3/4-inch videotape and audio mastering tapes will be shown.

Sony Magnetic Products Co. (3100) will add a new 30-minute cassette to its Betacam line, in addition to its established one-inch and U-matic tapes.

For a new one-inch videotape, stop by the Fuji booth (3240) and check out H621E. Fuji will also have two new half-inch cassettes, H421M (M-format) and H321B (Betacam).

New from Agfa-Gevaert (2815) will be a low-noise iron oxide bulk audio cassette tape (PE 616/816) and an improved VHS tape.

Established tape lines will be

featured by Maxell (3551) and Eastman Kodak (3204). The latter company will, of course, feature its 35 mm motion picture film stocks and the Datakode magnetic control surface.

Tape accessories and erasers will abound once again. Tentel (3326) will unveil the T2-H7-AC Tentelometer tape tension gauge. Taber (3491) will feature its Taberaser degausser line.

RTI (3386) will introduce a new videotape evaluator/cleaner (TC-6120) and a new dropout detector (D-5). A new continuous-duty degausser, Model 2700, will be premiered by Garner (2601).

Audico (2720) will introduce a videocassette cyler for its 619 Rewinder, as well as a new videocassette timer.

Production Switchers

One of the most significant announcements in the production switcher field is the revitalization of Vital Industries, a major force that had been slipping from the picture over the last few years. At NAB '86, Vital (3191) will introduce its 3000 Series high-end production switcher, which made its industry debut at SMPTE last fall. The switcher is available with one, two, or three double-level M/Es, each capable of simultaneously airing up to five separate keys.

Another surprise entry in the production switcher market will be Toshiba (3302), which plans to introduce a digital switcher with effects capability.

Look for a new video production switcher, the 6129, from Crosspoint Latch (3533).



Shintron will unveil the 392 DUBYC component post-production switcher.

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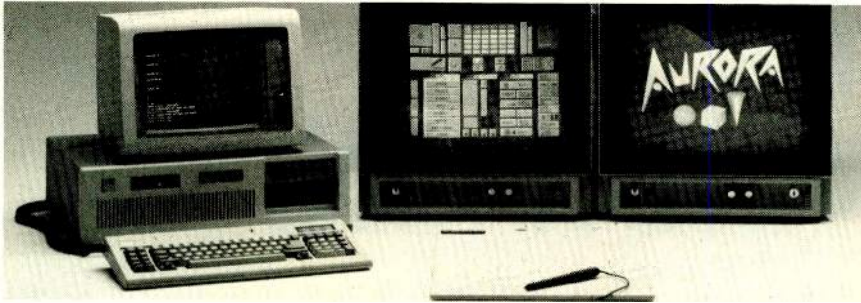
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The Aurora/220 videographics system, based on the IBM PC/AT, will also be seen at the Harris booth.

Shintron (3036) will have two new component switchers: the EC2000 Empress component switcher with downstream keyer/chromakeyer and the 392 Empress DUBYC component post-production switcher. Also new will be the DK3/CK3 component downstream shadow keyer/RGB chromakeyer.

Apollo Video Enterprises (3468) will show a line of new equipment from Polar Video, including the PVM-1 compact production switcher and the PPM-1 Picture Mover analog effects device.

Other production switcher manufacturers will show established wares. Grass Valley Group (3112) will feature its 300, 100, and 1680 Series switchers. Ross Video (2616) will highlight its RVS 210 composite production switcher and 508 multilevel effects system.

Intergroup Video Systems (3312), which could surprise us with some new products, will display its 9000 Series production switcher. Central Dynamics (3080) will also have its established production switching line.

Other established switchers will be shown by Bosch (3170)—the R51-ME, R61-ME, and R102-ME—and by Beaveronics (2703). Graham-Patten Systems (2528) will introduce the eight-input Model 608 to its line of edit suite audio mixers, designed specifically for television audio.

Special Effects

As of press time, a small but select group of manufacturers had announced their intentions to introduce new special effects equipment for video. Broadcasters who

attended last fall's SMPTE show will have seen some of this new gear, at least in prototype.

One of SMPTE's most exciting announcements was the Kaleidoscope DPM-1 component digital effects system from Grass Valley (3112). In its desire for industry reaction, GVG showed the Kaleidoscope in a developmental stage at SMPTE, complete with glitches. Expect a more polished production version of this innovative product at NAB '86.

Another effects product that premiered at SMPTE, the Magic digital video manipulator from Vital Industries (3191), will make its NAB debut. Magic features a touchscreen and trackball.

Digital Services Corp. (3304) will introduce new, sophisticated effects for its Illusion digital effects system. The component version of Illusion, seen at SMPTE, will probably be at NAB.

Other important effects systems will be on display at various booths. Ampex (3108) will feature its ADO 2000 and ADO 3000 effects systems in its Creative Command Center display. Quantel (3171) will show the latest versions of its Mirage and Encore effects packages, both with floating viewpoint ball.

Drop in on NEC America (3161) to view the DVE System 10 digital video effects system, complete with 3D rotation, perspective, and on-board memory for 100 effects.

Microtime (3086) will feature its Genesis 1/ACT 1 digital effects system. The Harris Digital Effects product family will be shown by Harris Video Systems (3136).

GML America (241), which may unveil as yet unannounced new

products, will be sure to display its Proteus dual-channel, synchronizing digital video effects unit.

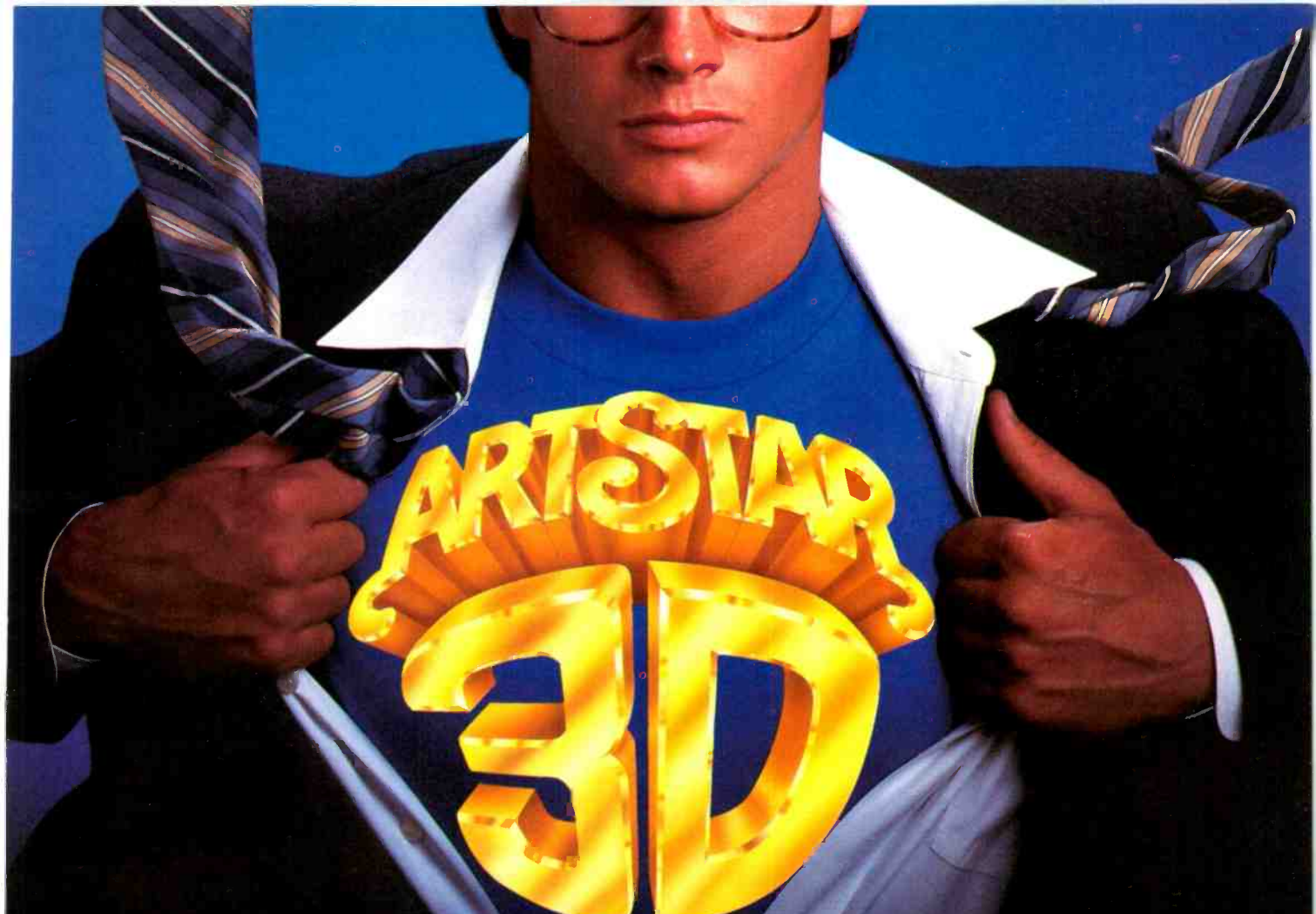
Digital Art/ Graphics, Weather Systems, and Character Generators

As always, electronic graphics and text generation equipment will arrive at NAB '86 will plenty of dazzle. A host of new and upgraded systems will beckon to television stations of all sizes and budgets. Once a plaything of the "rich," high-quality graphics is now a competitive necessity within the reach of almost all.

One company making a forceful play for a share of this competitive market is ColorGraphics (3144), which will unveil ArtStar III-D, the latest version of its 24-bit, 3D graphics and digital paint system. The new ArtStar offers an Animation Automation feature that allows direct, automatic animation recording of solid geometric objects onto tape in digital component form. The system also offers "vector type" character generation, fully antialiased model construction, and too many features to describe here. Better visit the booth.

Another required stop on the graphics tour will be the Aurora booth (104), where the new 220 videographics system will be on display. (Also look for the 220 at Harris Video Systems, booth 3136.) Features include 32-bit processing and picture storage, a range of picture generation tools, and optional 3D modeling. Of course, the Aurora/75 graphics design system will also be featured.

In high-end systems, Bosch (3170) will show new enhancements to its FGS-4000 computer graphics image system. They include a 3D Illustrator paint system with full three-dimensional graphics and 16 moveable light



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sources, and a new off-line modeling system.

Dubner's (3110) new DPS-1 paint system, unveiled at SMPTE, will make its first NAB appearance, as will two new character generators, the 10K and 20K (seen last year in prototype). The CBG-2 graphics and animation system and the Texta graphics/CG system will also be featured.

An NAB newcomer, Alias Research (2497), will introduce a real-time 3D graphic design system as well as a full-featured paint system that allows the user to work in HSV (hue, saturation, and value) as well as RGB. The paint system is priced at \$62,000 in a standalone configuration.

Cubicomp's (2692) Picture-Maker 3D modeling system, recently shown for the PAL market as well as NTSC, will be displayed with enhanced imaging capabilities, additional motion scripting functions, 3D sectioning, and a new user interface.

Computer Graphics Lab (2929) will have new single-frame record software for its IMAGES II+ electronic paint system. Ampex (3108) will again feature its AVA-3 art/paint system.

A new IBM PC-based paint system, the PGS4, will be introduced by Symtec/One Pass (228). The system, which also works with Sperry PCs, accepts component inputs and puts out component or NTSC video. A redesigned character generator/paint system, the PGS3A, will be shown along with the Chargen CG for the Sperry PC.

Super-high-quality text generation will be featured by the three players in this arena: Quantel (3171), Chyron (3072), and Aston Electronics (212). Quantel will show its Cypher, a 3D caption generation and manipulation system featuring cameos and floating viewpoint control. Aston's Aston 4 high-resolution production character generator with antialiasing, introduced to the U.S. market at SMPTE, will make its NAB debut.

Chyron will feature not only the Scribe high-quality text generator—also in its NAB debut—but its full line of character and graph-

ics equipment, including the VP-1 and VP-2 CGs, the new Chameleon low-cost paint system, the high-end Chyron IV Model 4100 EXB character/graphics system, and the RGU-2 graphics and titling system.

Expect Quanta (3145), recently acquired by ColorGraphics owner Dynatech, to announce a new product or two at the show. The full CG line and the QuantaPaint graphics system will be featured.

3M (3120) will have several new graphics products, including the D3600 character generator with 96 built-in font sizes; the Panther Graphics CG/paint system; the economical D2200 character generator; and new models and software for the 3M Paint System.

Artronics (216), whose Studio Computer graphics system was marketed by 3M until recently, will exhibit in its own booth this year. The company will introduce the VPL Video Paint Library, a high-resolution paint system and digital frame store with special effects and keying capabilities. Also new will be the VGA-3D, a high-resolution 3D animation system with many sophisticated features.

Established character/graphics systems on display by Thomson-CSF Broadcast (3190) will include the Vidifont Graphics V and Viditext II, both with Graphicstore still store/paint option. Viditext II will have a new second channel and expanded memory; Graphics V can now directly access weather databases.

A newcomer to the graphics field will be JVC (3180), which will unveil the Mindset range of computer-assisted video products. Shown at NAB will be the Titler, an entry-level CG that is upgradable to a complete computer graphics system with the addition of a personal computer, graphics tablet, and additional software.

Mycro-Tek (2490) will have a new network communications package for its Max and Ernie character generators. In addition, Ernie will have a new dissolve enhancement. Other upgrades for the CGs include a production font and an on-line tape storage device.

A new IBM PC-based video titler, the MK-85-60, will be announced by Mark Electronics (2417). Knox Video (2611) will unveil the new K40 Microfont, a full-featured CG for under \$2500.

Laird Telemedia (3474) will have enhancements for its 1500 character generator, including camera entry and font compose. New from ICM Video (2711) will be the CG-7000 character generator in genlock or standalone configurations.

The new Star character generator/titler will be introduced by Compu-Cable Systems (2449). It features built-in genlock, keying capabilities, and more.

A useful graphics item from Video Associates Labs (3330) is the Microkey add-on board, which gives NTSC output from Apple and IBM computers.

Weather systems

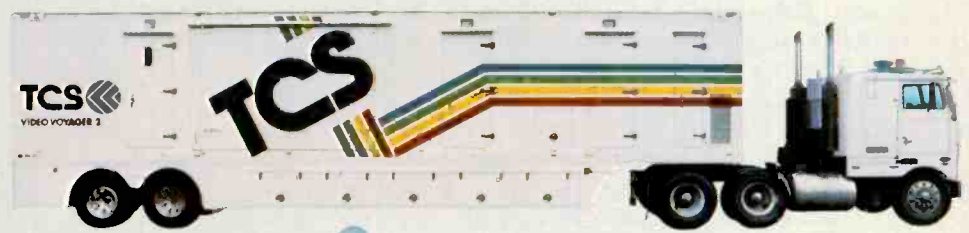
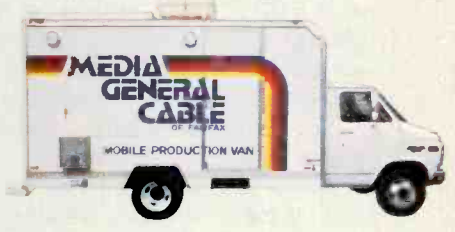
The importance of weather reporting to television stations is eloquently emphasized by the number of new and improved systems on display at NAB '86. Almost every maker of weather graphics and information products has enhancements and new items.

A good example is Kavouras (2657), which will unveil the Weatherlink Vista ultrafast pushbutton satellite communications system; Weatherlink Metpac, a multi-printer (up to four), 56 baud hardcopy satellite communications system; the Radac 2020 color weather radar receiver; enhancements in graphics and animation software for the Triton weather graphics system; and new database products. All this, of course, is in addition to the established Kavouras line.

WSI (1631) will have a new weather system, Astro-WX, consisting of three products: ASTROfax instant printouts of NWS facsimile maps and charts; ASTROgraphics weather graphics and satellite images; and ASTROdata, a customized selection of data from the most popular sources.

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news will be the Front-End Model 6000 CD weather workstation with color display, plus new clutter-free radar with locally centered display. ESD's Color Connection 9000 weather graphics system will also be on view.

ColorGraphics will unveil the latest in its LiveLine series, the LiveLine IVA weather animation system. Also new will be the WeatherLine 256-color weather display/animation system. Both feature an automatic map draw database and optional Doppler radar interface.

R*Scan (2794) will show new software for Kavouras TritonX and ESD Color Connection weather graphics systems, as well as its own lightning positioning and tracking system and the Northern Video Graphics weather satellite picture animation system.

Alden (2759) will have its full line of color weather display systems for radar and satellite graphics. Advanced Designs Corp. (2419) will feature the DOPRAD II Doppler weather radar system and the associated display unit. Sea-Tex (2683) will display its CR-1011 color weather radar.

The news from Accu-Weather (2761) is new satellite delivery of all weather products. A new weather database will also be offered.

Still Stores, Animation

"Animation" will be a buzzword at NAB '86, with more and more companies showing systems.

DSC (3304), for example, will introduce a new nonreal-time graphics animation system that can flip, spin, and metamorphose from one shape to another. It will store sequences on tape frame by frame, ready for real-time playback. The company will also show its Frame File still storage system.

New from Computer Graphics Labs (2929) will be the InstaMation real-time animation system, for broadcast or industrial applications.

Harry, the digital cel animation recorder from Quantel (3171), will come down from the suites onto the floor this year. The hard disk-based system will be shown interfaced to the Paintbox electronic graphics studio. Also on view will be Quantel's still store range, including the "central lending library."

Abekas (3527) will show its A42 digital still store system, also hard disk-based, with on- and off-line library system. The A52 digital special effects system in single- and dual-channel versions will also be shown.

The Slide File from Rank Cintel (3066) will be shown in two new configurations: as the Art File graphics workstation, and as Gallery 2000, a full digital picture library based on Slide Files, a library computer, and digital optical discs, each with 1000-frame capacity.

Ampex (3108) will feature the ESS-3 digital still storage system. Harris Video Systems (3136) will introduce the ESP II still store with effects capability, formerly an ADDA product. The IRIS still store and IRIS Composition System from Harris's own line will also be highlighted.

Lyon Lamb Video Animation (2932) will introduce the ENC VI color encoder/sync generator with NTSC and composite outputs. The company will also have new interfaces for the VAS IV and VAS V animation controllers, allowing them to talk to Hitachi HR-230 one-inch VTRs and Panasonic AU-300 M-format VCRs. In addition, the VAS DELTA animation controller has a new interface for the Sony BVW-40 Betacam VCR.

For coverage of remote animation camera control systems, check the section on camera support.

Image Processing

New TBCs and frame synchronizers will abound at NAB '86 as manufacturers strive to meet the industry's image processing



For-A will introduce the CCS-4400 color corrector at NAB '86.

needs. At least two high-end processing systems first shown at SMPTE will make NAB debuts: the Zeus I advanced video processor from Ampex (3108), shown interfaced for the first time to the VPR-6 one-inch VTR; and the TBC-450 digital time base corrector from Lenco (3056), with a 16-line correction window and eight-bit resolution.

Microtime (3086) will introduce a quartet of low-cost TBCs, three for NTSC and one for PAL. They offer a host of features including freeze with digital comb filter, viewable pictures at 40X play speed, synchronizer capability, and Dynamic Tracking operation. A range of established processing gear will include the T-220 FIT component format interchange TBC, the S-230 TBC/frame sync, and the TSE-120 A/B roll effects system.

At Harris Video Systems (3136), check out the new Model 640 frame synchronizer with time base correction, noise reduction, remote control, and audio synchronizer control. Former ADDA products now made by Harris will include TBCs, frame synchronizers, and effects systems.

The FA-800 Autocor TBC, introduced last year by For-A (3572), will appear in a new version for one-inch VTRs. Features include full frame memory synchronization, automatic video level control, velocity compensator, and dropout compensator. Also new will be the CCS-4400 component video color corrector and a range of other new processing, keying, and time code equipment.

Crosspoint Latch (3533) will unveil a new dual TBC, the Model

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8200. NEC America (3161) will have its new FS-19 frame synchronizers, with 10-bit quantization.

Fortel (3044), which is expected to announce one or more new products at the show, will feature its TBC32DE digital effects unit in addition to its line of TBCs, chroma noise reducers, and the Y-688 Total Error Corrector.

The Digital Video Systems Div. of Scientific-Atlanta (3272) will have its range of image processing equipment, including the DPS165 frame store/flash synchronizer, the DPS170 TBC, the DPS175 flash frame store, and Fourmatte multichannel video display.

Alta Group (3408), which showed its Pyxis dual-channel digital video production system in the Convergence booth at last fall's SMPTE convention, will bring the unit in a new PAL version as well as its original NTSC incarnation. In either form, the Pyxis packs a surprising amount of processing and effects power into a small and inexpensive (\$6990 in NTSC, under \$8000 in PAL) box. Alta will also unveil the Cygnus, a single-channel unit with infinite-window TBC, digital picture freeze, strobe, posterization, mosaic, and audio and video routing, all for under \$5000.

Faroujda Labs (3408) will display its line of signal processing gear, including an NTSC encoder guaranteed not to generate cross-color or cross-luminance patterns.

Merlin Engineering (3408), famous for its wideband VTR conversions, will display its full-featured ME-888 universal standard converter, which takes video in NTSC, PAL, PAL-M, PAL-N, or SECAM and converts it to any other standard. The unit includes color correction and H and V enhancement.

Featured by NOVA Systems (2778) will be the line of digital TBCs, including the 501, 511, and 620.

Existing products from Apert-Herzog (2931) will include the Models H and H2 digital TBC/synchronizers, the A2 digital frame sync, The Step audio/video

memory device, and the line of DAs.

An interesting new system will be premiered by Amherst Electronic Instruments (107). It is a digital video image processor with an open-bus structure that provides time base correction with digital test software and SMPTE time code reader.

New from Video International (2754) will be three digital standards converters, the DTC 2500, DTC 3500, and DTC 4500—the last with four fields and RGB inputs.

Digivision (2527) will introduce the CP 100 real-time contrast processor, which joins the company's DRGB-343 high-resolution digital video converter.

Broadcast Video Systems (2730) will have several new introductions: the CK-950 component keyer; the CDK-1000 component downstream keyer with fade to black; the CS-1100 color corrector/scene store; and more.

Ultimatte (3552) will feature its Ultimatte 5 production matting system and Newsmatte 2 for live applications.

Post-Production

It's an old saw that good writing is 90 percent rewriting. A similar principle can be suggested for video and film production: even with the best raw material, the timing and the punch are created in post. NAB '86 will see a host of new and improved equipment for post-production as manufacturers strive to fill the needs of an industry bent on perfection.

Industry leader CMX will replace its long-time workhorse, the 340XL, with the new, upgraded 336 editing system. The 336 adds a sixth machine port, an expanded ASCII keyboard, and many other features of the advanced 3100 system, introduced at SMPTE. The 3100 itself will make its NAB debut; it has ports for eight to 24 machines. In addition, CMX will introduce a pair of new software options for the 3100, 3400, and 3400A editors. Lookback searches through unlimited generations of

EDLs to find original source material; Superclean is a cleaning and text editing routine. The top-of-the-line 3400A and low-end (for CMX, that is) 330XL will play repeat performances, as will the CASS 1 audio editor.

You can expect exciting news from Convergence Corp. (3252), but you'll have to visit the booth to find out what it is. All the company would say at press time was that its three new video editing products would continue its trend toward low-priced, highly sophisticated A/B list management systems. It appears certain, however, that one of the products will be an eight-VTR system with full auto assembly, the ability to mix VTR formats, and assignable record. While you're there, check out the existing systems, including the 195, 205, 204, and Super 90.

Convergence isn't the only editing company playing coy before the show. Neither Videomedia (3558) nor Paltex (3592) would reveal their plans for new equipment, although it's a good guess that both will have some product introductions. Videomedia plans to show its Eagle line and top-of-the-line Magnum A/B roll editor with a raft of sophisticated features. Paltex can be expected to display its Esprit edit controller with five-VTR capacity, Edit-Star four-VTR controller, and Gemini eight-bit digital video processor with updated software.

United Media (3526) will introduce the Comm-ette, another in the series that started a few years back with the Commander. The Comm-ette is an A/B roll system with automatic editing capability, 250-event memory, list management with ripple, and more features. The established line, including the recently enhanced Mini Comm and the Commander II, will also be featured.

EECO (3540) will have additions and enhancements for both its IVES II desktop editing system and EMME computerized editing system. New from Calaway Engineering (149) will be the CED+, an expanded version of the CED

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Established editing systems will be displayed by all the leaders in the field. Grass Valley (3112) will feature the Model 51 editor, introduced last year, along with the Model 41. Sony (3100) will display its BVE-5000 and BVE-800 editors. Ampex (3108), in its Creative Command Center display, will show the ACE and ACE Micro editors interfaced with AVC switchers, the ADO 3000 digital video effects system, VPR-3 one-inch VTRs, and the Zeus 1 advanced video processor.

The Droid Works (3572) and Montage Computer Corp. (3260) will again feature their innovative computer-controlled editing systems, each with its unique approach.

PEP (3387) will feature the Model AS64/800 alternate VHF edit source with Sony BVU-800 interface as well as a method for direct editing of VHS to 3/4-inch with Sony edit controllers for the On-Cam VHS-C VCR.

Time code

The full acceptance of SMPTE time code as an essential ingredient in post-production installations is amply shown by the number of companies in the field—many of whom are displaying new equipment this year.

Skotel (2738) will introduce two longitudinal time code readers, the TCR-111 and TCR-112, with LED or video displays, in addition to the full line of time code reader/generators.

New from Gray Engineering (3402) will be the TCA-143 time code analyzer, which analyzes SMPTE time code for a series of diagnostic faults and retransmits it in either bypass, restore, or correct mode.

Coherent Communications (2675) will introduce a line of low-cost SMPTE time code readers, generators, and inserters, all designed around a single-chip reader IC. They include portable, handheld, and miniature units.

Cipher Digital (2605) will unveil the Model 750, a time code

reader/generator with coincidence detector, along with the Shadow II transport synchronizer system.

The range of time code equipment and transport synchronizers will be featured by Evertz Microsystems (201). Datum (2408) will display its 9550 video data encoder and 9200 video data reader, plus the 5300 Intelligent Time Processor.

The Amtel Systems booth (2820) will highlight the T-7000 portable time code generator, along with the full line of VITC and longitudinal time code gear. ESE (3470) will show its line of digital clocks, timers, and time code equipment.

Telecines

It appears that the telecine area will remain mostly stable this year, with few new products expected. Rank Cintel (3066) will feature its Mk IIIC flying spot scanner, the ADS-1 CCD broadcast telecine, and the MK IIIHD high-definition telecine, all seen previously.

Bosch (3170) will show the new Ampex ATX X-Y zoom unit for its FDL-60 CCD telecine, along with the established FRP-60 color corrector and FR-GN grain reducer. A.F. Associates (3141) will display the Marconi line array telecine.

Film weave in Rank telecines, a concern in high-end graphics applications, will be addressed by two companies. Steadi-Film Corp. (249) will show the Steadi-Film anti-weave gate, introduced at SMPTE. Cinema Products Corp. (140) will have its Steadigate anti-weave gate along with a new version, the Steadigate TC, which features a magnetic head for recording time code on Datacode film stock.

L-W International (3427) will premiere a new low-cost film-to-tape telecine system and projectors, in addition to its established Athena projectors. Ikegami (3150) will introduce a new HDTV telecine system and an HDTV projection system.

In a somewhat different vein, J&R Film/Magnasync Moviola

(3450) will introduce the Lokbox, a hard lock synchronizer that synchronizes a video machine to a film transport so film sound editing techniques can be used with the video picture.

Steenbeck (2749) will bring its established line of film editors and film-to-video transfer equipment.

Newsroom Computers

If 1985 was the Year of the Newsroom Computer, 1986 is the Year of the Newsroom Computer Shakeout. As the importance of newsroom automation increases in both TV and radio stations across the country, the number of companies actually supplying such systems has dwindled, with one or two companies far in the lead. Not all the others have given up the ghost, however, and it will be interesting to follow the developments over the coming year.

ColorGraphics (3144), the current front runner, will introduce the new ADP automated database system for its NewStar newsroom computer system. ADP features crossreferenced script archives, tape library archive, and rolohex software systems and includes fixed and removable disk drives for unlimited mass storage.

New from Basys (2913) will be an integrated management information system, based on optical discs, for long-term storage of scripts, story files, and other information. It will be shown alongside the Basys newsroom computer system.

Other newsroom systems will be shown by Data Communications Corp. (3204) and by Jefferson Pilot Data Systems (3204).

Routing Switchers

The robust routing switcher arena continues to abound with new and improved products, including many for component video. Bosch (3170) will unveil a line of new routing and signal processing equipment that will include audio and video DAs, a sync pulse gener-



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WHAT'S HOT!

TV/Video

ator, and a 20x1 routing switcher, along with two new switcher control panels. The TAS/TVS-2000 audio/video distribution switcher will be featured.

3M (3120) will introduce several additions to its H Series line of hybrid switching systems. They will include a 32x32 switcher with one level of video and one of audio; a 64x64 router with one level each of video and audio, plus an associated 64x64 two-audio frame; and a 16x16 and 20x20 component video switching system. Another innovative new product will be a 40 MHz high-frequency switching system for HDTV.

HDTV will be the watchword at the Dynair booth (3409), too, where the 1600 Series ultra-wideband switching system will be unveiled. Designed for graphics and high-definition applications, the system has bandwidth greater than 100 MHz.

More new routing products will

come from Hedco (2751), in the form of the HD-50 Series including the HD-12 12x12 video and stereo audio router. Other new products will be the GSC-101 microprocessor-based general switching controller; the VAC-300 video activated switcher for monitor and alarm remote control; and the SSG-321 audio test generator.

Utah Scientific (3144) will introduce several new video DAs, as well as the CSP-30/4 four-level, 30-source/button-per-source, single-bus router control panel. A companion unit, the CX-30/4, is a 30-button extension for a total of 60 sources. The established lines of routing switchers and DAs will be shown with enhancements.

A new exhibitor, Scip Electronic System (2602), will show a routing switcher especially for MTS stereo. The Model 3302 Stereo Signal Manager carries up to three channels and features line balance indicators for input and out-

put, a polarity selecting switch, azimuth compensation network, matrix circuit for decoding or encoding of L + R or L - R signals, and more.

Di-Tech (3567) will have a range of new routing products, including a new color CRT master XY controller, an alphanumeric XY control panel with breakaway, and a 40-LED pushbutton panel with triple breakaway. The established 5850 and 5800 Series AFV routing switchers will be featured, along with the line of DAs.

New products from Omicron (2661) will include the Model 501 10x1 video switcher and the Model 415 sync generator. The line of DAs will be on view.

Grass Valley Group (3112) will have its established lines of routing switchers including Horizon, Ten-XL, and Ten-XT, plus the 8500 Series DAs and 3240 Series sync generators.

Central Dynamics (3080) will

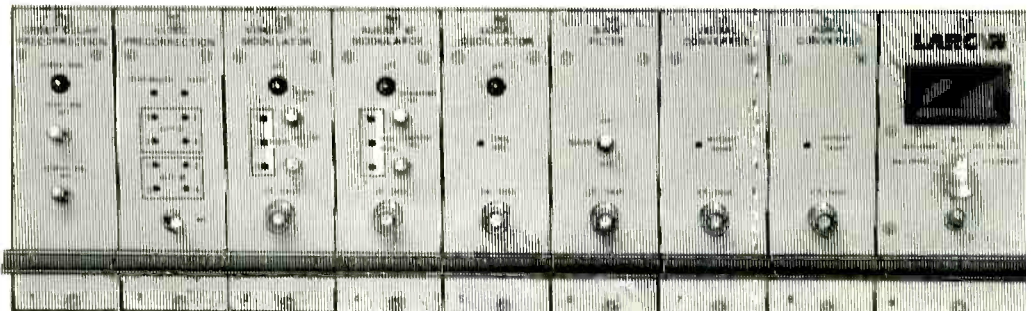
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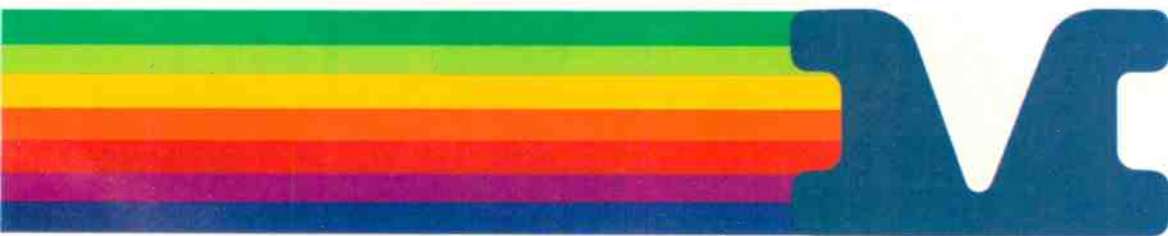
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WHAT'S HOT!

TV/Video

feature its routing switcher and distribution lines.

BSM Broadcast Systems (2668) will introduce a new microprocessor-controlled routing switcher, the miniModula, with a basic configuration of 8x8 (expandable to 24x16 or greater). New remote-control units, including a PC interface, for Modula routing switchers will also be shown.

BGW Systems (2825) will have a line of new 2x4 rackmount DAs, the 2242, with active-balanced inputs and outputs. Shintron (3036) will unveil the new 12x-c4 12x4 component video routing switcher.

Intergroup Video Systems (3312) will feature its 1100 Series routing switcher with an updated control system. The Suite 16 video-only router, introduced at SMPTE, will be shown in a new analog component version.

Image Video (2636) will highlight its 6000 Series and high-

density 9000 Series routing switchers.

Technical Automation, Master Control

The advent, in the past year or two, of MERPS and other automated program and commercial playback systems, has changed the face of the television automation industry. New and innovative systems continue to be introduced as more companies try to match Sony's success with its Betacart.

The most exciting announcement in this area for NAB '86 comes from Ampex (3108), which will unveil a digital video cart spot player designed as a direct replacement for the ACR-25 quad cart system. The ACR-225, as the new system is known, offers one channel of digital composite video

and four channels of digital audio on 19 mm cassettes. As many as 256 cassettes can be on-line at any time, and a library database can identify over 10,000 cassettes. Expect interest to be high. (This product's implications in light of SMPTE and CCIR standardization efforts are discussed in the section on video recording technologies, above.)

Odetics (3586), the California robotics company that built RCA's Silverlake M-format MERPS system, will display it under its new designation, the TCS-2000. The big news is that it will be shown in a new Betacam version.

The Asaca (3278) MERPS system, with software by Dubner Computer, will be shown in two versions: one with the new M-II tape format and the other with Betacam. Asaca also promises two or three mystery products, to be revealed at the show.

As mentioned, Sony (3100) will

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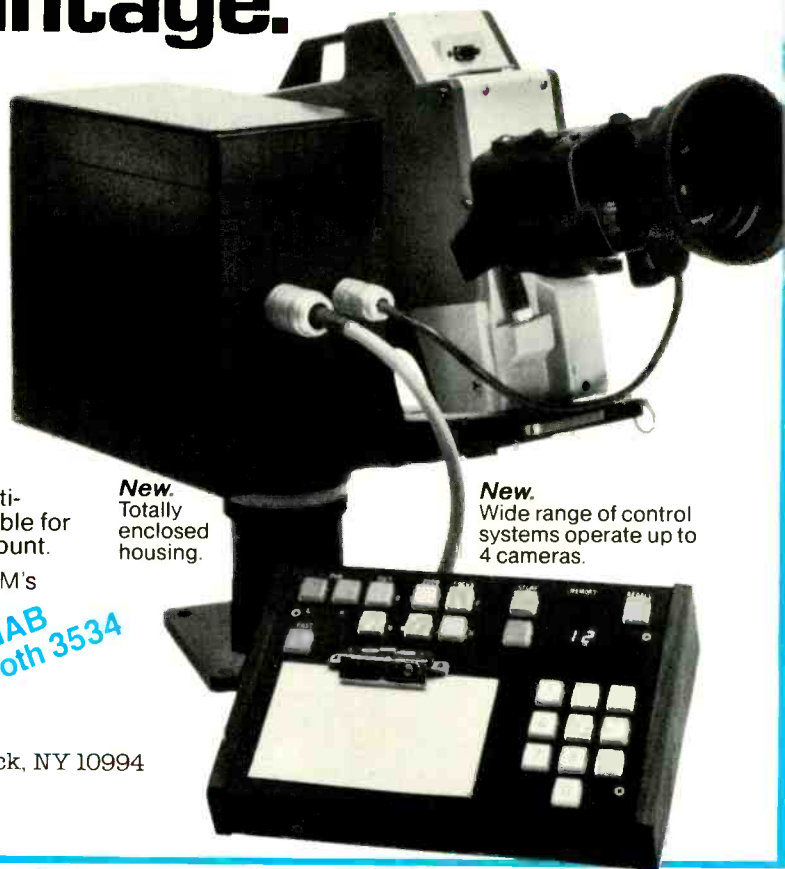
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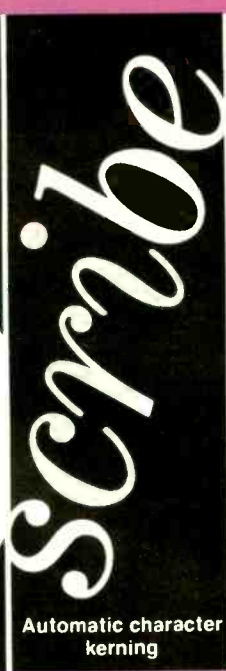

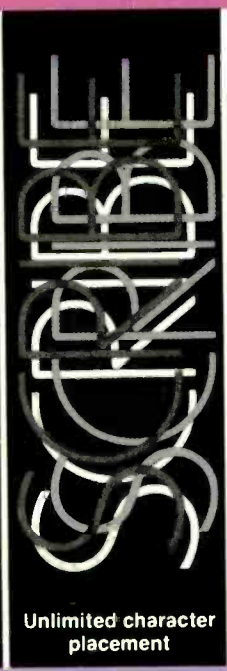
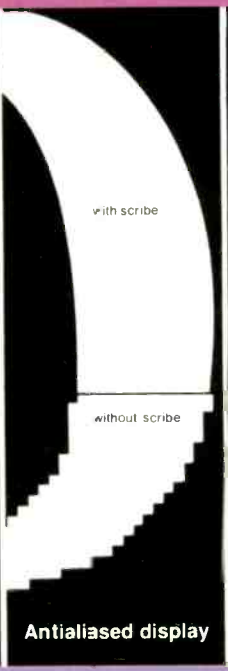
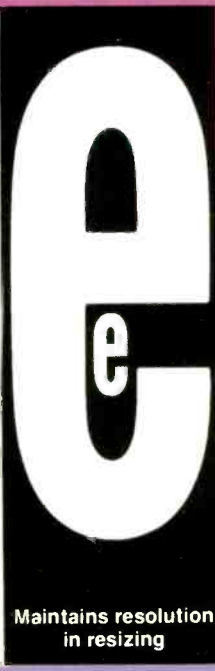
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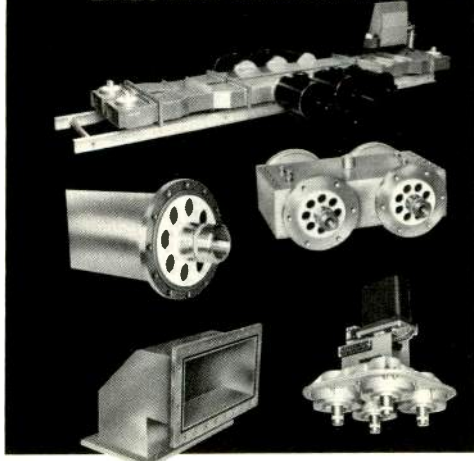
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feature its Betacart multicassette playback system. A new barcode printer for the Betacart was unveiled at SMPTE and should be on view.

Lake Systems (112) will have the latest versions of its La-Kart video cart system. The dual-channel La-Kart, shown at SMPTE, can address up to 28 VTRs of any format with complete random access.

A.F. Associates (3141) will unveil a new version of its Pegasus commercial compilation system, which automates spot reel creation.

Alamar continues its "systems approach to station automation," improving its already substantial "automation bang for the buck." It will show its new low-cost MC-500 video cart system and the TL-2500 tape library system. Other new products will include the SC-3000 low-cost machine control system utilizing SMPTE time code. The MC-1050 six-channel automation system has pressed forward in exploitation of the SMPTE control bus and offers auto cueing, random access, transition entry, and tape verification. The Alamar automation systems can also be seen in the CDL exhibit as the result of an OEM arrangement under which Alamar supplies automation systems for CDL switchers.

A recent entry into the automation field is Merlin Engineering (3408), which for many years has refurbished quad VTRs and done wideband VTR conversions. At last fall's SMPTE show, Merlin unveiled the Q-Driver, a master control automation system based on serial interface machine control. The company will show a new version of the Q-Driver incorporating "quite a few changes" since the SMPTE debut.

Solutec (2530) will show upgradable, intelligent versions of its SOL-6800 automated broadcast system for commercial inserts.

Traditional master control and machine control systems will, of course, be well represented. Utah Scientific (3144) will have a new serial machine control system, the

SMC-1, in addition to its established SAS-1B station automation system and MC-500 master control switcher.

Auburn Instruments (2836) will have a new computer interface for its MC/1 two-wire machine remote-control system. The MC/1-RUCC allows the MC/1 to interface with master control switchers and associated computer systems.

Vital (3191) will feature its VIX-115 Series on-air MC switchers and the SAM station automation system. 3M (3120) will show a SMPTE RS-422 machine control system for any format VTR, telecine, or ATR.

Intergroup Video Systems (3312) will show its established 8000 Series MC switcher; Image Video (2636) will show its own MC switcher of the same name.

The 1600-4S master control switcher and M200 automation system will be on display at Grass Valley Group (3112). Bosch will feature its MCS-2000 master control switcher and the line of custom control panels.

Lighting, Power, and Support

No NAB would be complete without a brilliant array of new lighting equipment, and this one will be no exception. Kliegl Bros. (3581) will unveil a new memory lighting control console and a new "wedge" Fresnel spotlight.

Strand Lighting (3024) will introduce the XP light board and the DC90 dimming system, in addition to the range of HMI fixtures and Light Palette control boards. New from Lighting Methods (2673) will be the SD Series portable, single-channel dimmer packs.

Lowel-Light (2601) will have several lighting accessories, including Maxa-Mount, which turns lightweight foamcore panels into light reflectors; a Surmountable Kit of 38 light components; and an improved version of the Grand Stand with air-cushioned sections.

LTM (2537) will show four new Luxarc lights, two for daylight/interior work and two for exterior

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WHAT'S HOT!

TV/Video

lighting. A new 12,000 ballast with automatic voltage selection will also be on view.

Union Connector (2923) will have new "Stage Pro" software for its Unitrol lighting control system. Keylight PSI (2432) will introduce the QuartzColor Ianiro range of "Arturo" HMI and incandescent softlights, plus the Matthews Super Crank heavy-duty light stand.

Stage Lighting (2446) will introduce a new fog and smoke machine in addition to a new 12x24 dimmer pack, the Servo color changer and pan/tilt device for studio fixtures, and the Q4z 500 W quartz ellipsoidal zoom focus.

Mole-Richardson (3368) will have a new mini softlight in its extensive lighting line. New from the Great American Market (2714) will be the MicroBrute LV9 mini 9 V light, Fog Power scented fog fluid, and the ColorQ computer controller for ColorMax rolling color changers.

Grosh Scenic Studios (NA) will introduce the Studio Winch, a portable scenery lifting winch with infrared control.

Colortran (3598) will have a new line of computerized lighting control systems, the Prestige Series, along with several new dimming systems and a new 1 kW Fresnel. DeSisti (2796) will unveil its 2400 Series "Rembrandt" HMI Fresnels, the 2100 Series "Raffaello" quartz halogen softlights, and Pro-Arc Venture Lighting HMI lamps.

B-W Lighting Systems (2922) will have a pair of new softlights with full line of accessories. Bardwell & McAlister (2746) will show an updated version of its Modulight portable, collapsible softlight.

Musco Mobile Lighting (1) will roll its mobile lighting truck into the outdoor exhibit area. The rental unit can lift its light pod, consisting of 15 6K lamps, as high as 150 feet.

Teatronics (2756) will feature its Genesis line of lighting switchers, along with its computerized and manual control consoles. Rosco Labs (3443) will have its

line of lighting diffusion material, gels, and filters.

Olesen (3309) will bring its complete studio lighting packages. Alan Gordon Enterprises (3435) will have its full line of lighting and grip equipment. Electro Controls (2710) will feature its lighting control systems.

Cinemills (2777) will show the line of Lee gels and filters, along with HMI fixtures.

GTE Sylvania (3393) will introduce a new 1000 W PAR 64 lamp, the FF Series, with 800-hour life. Lamps will also be featured by GE's Lighting Group (2717).

Power supplies

Expect Frezzolini (2716) to introduce a full line of new non-memory, high-capacity, rechargeable nicad battery packs, along with a new ac adapter for portable video cameras, the RPS-4. A new lightweight location lighting kit will also be introduced.

Anton/Bauer (2729) will unveil the Powerstrap 12 V, 4 Ah nicad battery strap, first seen at SMPTE.

New from PAG America (2459) will be the PAG-lok battery-to-camera mounting system, the PAG-lok microprocessor-controlled charger, the Master 90 PP90-type battery, and the Nitecam monochrome ENG camera employing a safe laser illuminator for extreme low-light photography.

Cine 60 (3428) will introduce a new on-board battery. Perrott (2733) plans to show unspecified new power products.

Paco Electronics (2447) will have several new power products, including the DP-11 nicad battery pack (a direct replacement for the Sony NP-1), a new mobile charger for nicad battery packs, and the KD-440 four-channel quick charger for simultaneous charging of four batteries.

Established battery lines will be displayed by PEP (3387), G&M Power Products (2790), Alexander (2924) and Film/Video Equipment (2803). Christie (3324) will feature its CASP battery charger/analyzer/sequencer/power supply

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for sealed nicad packs and other batteries.

Support

Remote pan/tilt systems and camera motion control systems, some for graphics applications, are more and more common in the world of camera support. TSM/Total Spectrum Manufacturing (3534) will have new operating software for its Multi-Controller four-camera motion control system, which works with the HS-100P high-speed servo control pan/tilt head system. The new software allows two controllers to work in tandem. Interactive Motion Control (2771) will have a new video camera lifter, designed for precise up/down movement of a camera mounted on a nodal point head. It is a companion to the IMC 3565 motion control computer.

Elicon (2784) will introduce the CCS-XT extended-length boom arm camera control system for film and video, as well as a new Sonic Follow Focus system.

Listec (3579) will unveil the Vinten Microswift 200, a remote servo camera control system for remote control of pan, tilt, zoom, focus, iris, and/or pedestal height. The company will also have new heads and tripods.

A new remote-controlled pan/tilt table, Model TM 832-A, will be unveiled by Telemetrics (2569). It offers triax control over more than one mile.

In conventional camera support, Sachtler (3419) will introduce the Hot Pod tripod with self-locking center column, and the Video 20 studio and OB pedestal.

O'Connor Engineering (3364) will introduce a new line of heavy-duty camera support systems based on the Model 155M-B Super Claw ball metal tripod. A new mini side-loading camera platform will be shown for the System 30 and 50 support systems.

Matthews Studio Equipment (2701) will introduce the Unit 85 dolly, the Briefcase Dolly, the Super Crank, and new boom arms ITE (3258) will unveil the H-50 and H-16 fluid heads, the P-1



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TV/Video

pedestal, and the P-8 remote dolly/pedestal.

New from Karl Heitz (2900) will be the Gitzo 480 fluid head with adjustable counterbalance; the 510B4 Mini Tele Studex for cameras up to 50 pounds; the 510B6 Mini Tele Studex for cameras up to 100 pounds; and the 563LM mic fishpole.

Ultimate Support Systems (2783) will have a new line of rackmount stands, a new modular parts system for support stands, and a new one-hand-adjustable mic stand.

Check the Quick-Set booth (3380) for additions to the support line. Omnimount Systems (2507) will expand its line of Universal Mounting Assemblies.

Cinema Products (140) will have its full line of support equipment including the Mini-Worrall geared head and, of course, Steadicam, plus the Camraprompter prompting systems.

Bogen Photo (2405) will introduce two new light stands, a folding dolly, a compact convertible tripod, and a black anodized tripod with mini fluid head.

Prompting systems

In teleprompting, Telescript (3351) will unveil the C-64 networking prompting program with built-in word processing, underline, immediate edit/insert, and other features; and the 8088-8086 PC prompting program with font editor and remote controller.

Q-TV (3469) will introduce the VPS-500 II ComputerPrompter program and a new IBM-based ComputerPrompter system. Computer Prompting Corp. (132) will introduce the CPC-1000 computerized teleprompter for operation on IBM PCs and compatibles, which features over one hour of script scrolling capacity, three fonts, and underlining.

Compu = Prompt (2768) will introduce the Micro-Prompter for ENG or other handheld cameras, and the Podium Prompter for public speaking and conferences. Tekskil Industries (2570) will feature its 909 monitor prompting system.

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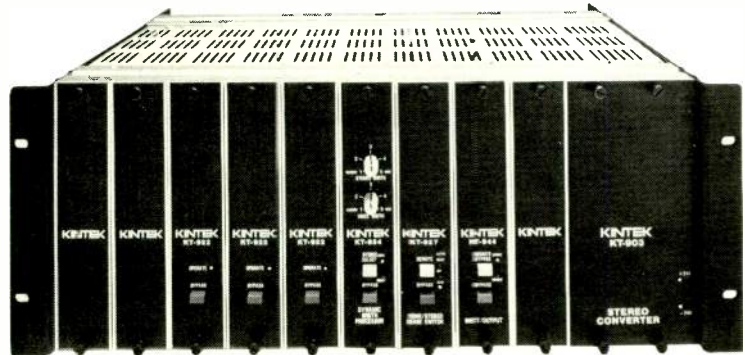
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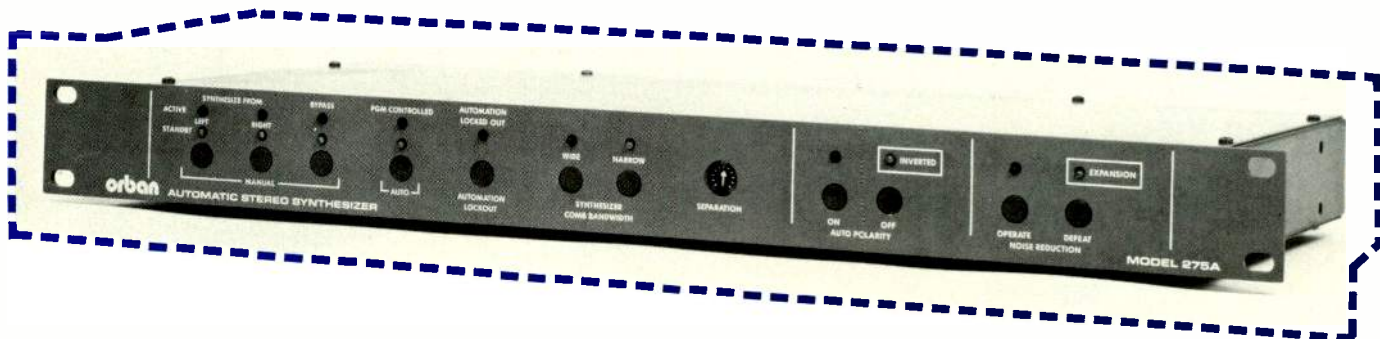
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to our 245F. The new "Narrow" mode creates a more subtle ambience which properly centers dialog. While the two modes are remote-selectable, "Narrow" can safely and effectively be used with all program material.

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When not in a stereo mode, the 275A ordinarily routes its inputs directly to its outputs. In this mode ("Bypass") the 275A can detect and correct "out-of-phase" stereo material before your mono audience notices any degradation. Our sophisticated Auto Polarity detection circuitry is highly resistant to "falsing"—even with Dolby MP Matrix® material containing substantial out-of-phase surround information.

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There are exciting developments in the audio field, brought on by increased interest in digital audio and by advances spurred on by the phenomenal growth of MTS.

Audio editors are starting to come of age, and there are more products available for audio-for-video editing. Consoles are becoming more sophisticated, reflecting the trend toward multitrack production in radio stations and a greater focus on audio in teleproduction.

Digital ATRs are beginning to emerge, aimed probably more at audio production and post-production than at stations, where cost is still a prohibiting factor. Digital ATRs are now lining up in two camps: Sony's DASH format supported by Matsushita and Studer, and Mitsubishi's PD or Pro-Digital format, supported by Otari and AEG.

A digital area that seems to be moving rapidly is CDs. There are now automation systems and some professional players on the market, and most major music syndicators are offering radio stations music libraries and production libraries on CD. Digital spot/jingle players, meanwhile, which made their debut at last year's show, are showing up in production models and improved prototypes, with a variety of storage systems (floppy disk, removable and nonremovable hard disk) represented.

Audio processing is also begin-



Valentino's Sound Effects Library is one of many music and production libraries being offered this year on compact disc.

ning to reflect the rapid rise of MTS, with more TV stereo synthesizers being offered, and other processing products addressing themselves to specific audio needs, such as audio-for-video, AM stereo, and TV stereo as well.

Intercoms continue to get smarter and more versatile, and visitors to this year's exhibit floor will also find no shortage of offerings in the ever-important production essentials: mics, monitors, headphones, and wireless systems.

Audio Consoles/ Editors

This is a big year for consoles of every type—small and low-cost,

WHAT'S HOT!

Radio/Audio

large and intelligent, portable, assignable, production, and on-air. Mixing consoles with assignable faders and faders that control several inputs are a trend, and there are an increasing number of consoles designed specifically with audio-for-video applications. Also important to the market this year are audio editors, which made their first significant showing at last year's show, and A/V synchronizers, more vital than ever in the growing post-production field and in video's greater emphasis on quality audio.

While many of the same players offer on-air and production consoles, some companies are concentrating on either one or the other for the show itself.

Production-wise there are many new offerings. Audio & Design Calrec, Inc. (2708) has a new digitally assignable production and post-production console.

Auditronics (3310) is featuring its second generation 310 console as a replacement for its 300 Series. It's available in four or eight output configurations, includes sub-mastering to stereo and mono mix, and features stereo or mono inputs each available with or without graphic equalizations.

Broadcast Audio Corp. (2615) will introduce its new System 6 modular console with six mixers, which uses the same plug-in assemblies as the company's larger consoles, aimed at the small production or news editing market.

Arrakis Systems, Inc. (2742) will unveil the latest addition to its line of consoles, the Model 5000 16-channel modular console.

From Graham-Patten Systems (2528) comes the Model 608 eight-input Edit Suite Audio Mixer for small post-production applications.

Meanwhile, Logitek (2807), in addition to unveiling Crossfire, a new automatic audio crossfade amp designed for A/B roll edit systems, will also introduce the Stereorack, a stereo version of the Audiorack rackmountable audio console.

Harrison Systems (3412), is of-

fering the new, totally-automated 10 Series audio console with hard disk automated support. It's a virtual console, with applications for TV studios, TV post-production, film, and multitrack recording and production.

There will be two console introductions from Howe Audio Productions (2832); the 8000 Series, a new rotary fader audio console, modular and expandable, and the 10000 Series Console, a new modular design suited for TV and radio air and production. Panasonic's Pro Audio division, Ramsa



The SL 6000 E Series stereo console is an advanced system being offered for audio-for-video from Solid State Logic.

(3216), will introduce the WR8428 post-production and recording mixing console, capable of handling up to 24-track recording with added capability of stereo line input features, and basically a larger upgrade version of its WR8616.

At the Mitsubishi-Quad Eight booth (3530), there will be two new Quad Eight production and post-production consoles. The Superstar audio mixing console with 72 inputs, 64 centrally assigned mixing buses, two stereo outputs, and up to 12 stereo sub masters, is expandable, and features Compumix IV hard disk automation. The Quad Eight Westar audio mixing console, with 20 to 60 inputs expandable, 24 mixing buses, two stereo outputs, and up to four

stereo sub masters, also has Compumix IV hard disk automation.

At Rupert Neve's booth (3318) you will find the new 8232 mixer featuring mic/line inputs with 24 mixing buses and optional stereo reverb returns. Each channel has Neve four-band Formant Spectrum Equalization, four mono auxiliary sends, and one stereo cue send. This will be featured along with the 51 Series multiple application audio consoles, and the 542 Series recording and broadcast consoles.

Soundcraft USA (2770) will unveil the 200B Series, an updated version of its 200 Series stereo recording console.

A working version of the APC 1000 audio production console can be seen at the Amek Console, Inc. booth (2558). It can be configured for varying degrees of automation, on the "building block" principle. Various frame sizes can accommodate up to 88 inputs, and bus operations are from eight mono and four stereo to 48 mono and six stereo. A complete setup for the whole console is stored as a page of RAM, with multiple RAM pages available to different users.

Sony Pro Audio (3100) is planning to introduce two consoles, one aimed at post-production, and the other marking Sony's first on-air offering. The MXP-3000 is a recording/remix console offering automation capabilities, and "digital-ready" audio performance features. Sony's first broadcast console, the MXP-2000 stereo mixing console, is designed for both on-air and production, and features an optional user-assignable dynamics processor module, tape transport control from the fader, and can accommodate a video editor interface.

Solid State Logic (3560) is featuring additions to its modular SL 5000 M Series range of stereo broadcast consoles, including the new SSL Stereo Submixer. There will also be enhancements to the SL 6000 E Series stereo video system.

Audio Technologies, Inc. (2508) is aiming at the smaller market,



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Chances are that the M-21 Professional Audio Tape Recorder from AEG will outperform whatever 2-Track you're currently using or considering for future purchase. No other machine is built to such exacting standards, no other machine handles tape as gently yet rapidly, and no other machine is presently available with Amorphous Metal Butterfly Core Heads. (Ours are standard equipment; ask about our exclusive head warranty.)

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Radio/Audio

with its new Vanguard Series compact, eight-mixer, dual-stereo console first introduced at Radio '85.

Tapecaster (same booth as Auditronics), meanwhile, will have a new on-air console, the 1000 Series, with standard stereo outputs, and available in six, eight, 10, or 12 mainframe sizes. It allows any position to be mono or stereo with subsequent mono to stereo conversion possible in the field.

Autogram Corp. (2720), will have its new Model 20 radio/TV audio console, which features 20 slide pots with electronic switching and VCA level control. It's expandable to interface with Autocode II logging system and external computer control. Also new is the LC-10 audio console, an updated version of the standard IC-10, with slide attenuators and pushbutton switches. The Microgram, a microprocessor-controlled audio console with up to 64 inputs; the IC-10, a 10-channel rotary pot console; and the AC-6 and -8 rotary pot consoles will also be shown.

LPB, Inc. (3338) will show its new Alpha Series on-air, stereo audio consoles featuring from six to 10 inputs. The company will also be featuring its other consoles.

Pacific Recorders and Engineering Corp. (3151) will be featuring its popular BMX consoles II and III Series, as well as its AMX operations console and ABX production consoles.

Wheatstone Corp.'s (2400) new offering, the AP500 on-air and production console, combines features of both plus "on-board" signal processing, input mode selector, total logic and multi-studio-to-control room interface. Remote controls for cart and multitrack tape machines are available. Electronic Systems Lab (2640) will show the new EELA Audio SBM broadcast console and S 100 B Series audio consoles.

Hallikainen & Friends, Inc. (2925) will announce its TVA200 stereo audio mixer with audio-follow-video with 11 inputs, line level, and stereo.

New from A.F. Associates, Inc.

(3141) will be the Audix assignable desk audio console, effectively providing digital control of audio analog switching.

Soundtracs (144), a new NAB exhibitor, will introduce mixing consoles from its line, including the CM-4400 studio console linked by a CMS-2 interface to a 24-track ATR with automatic mixing and routing.

New from Orion Research (2499) is the AMU Series console with rackmount analog electronics and automated digital remote control.

Ward-Beck (3060) will feature the ST-2442 24-input and ST-3642 36-input stereo consoles for TV, plus a new routing switcher accessory to the two consoles, as well as several radio consoles ranging from six to 22 inputs, plus the T-1202A transportable console.

Not a console, but an interface to consoles, is a new offering from ADM Technology, Inc. (3266). The BCS 3243-PC, a PC interface to the 3243 console which allows for the storage and retrieval of console assignments and setups via a PC, will be shown. The STV stereo TV audio consoles and Post Pro consoles will also be at the booth, along with radio production and on-air consoles.

Audio editors

Last year saw the emergence of audio editors with systems such as The Droid Works' SoundDroid. It will be back this year at The Droid Works booth (3572), along with many new offerings in audio editing and A/V synchronizers from other companies.

Last year CMX had its CASS-1, featuring audio synchronization and editing with audio console automation; it will be back this year at the CMX booth (3232) along with the 3400A with GISMO II and up to 64 GPI relays; and the 330XL inexpensive large-scale editing system.

Alpha Automation (203) will show The Boss 8400/8410 automated audio editor system, a computer-based system to accelerate audio production.

Amtel Systems, Inc. (2820) will exhibit the Soundmaster audio editing system and Soundmaster tape synchronizer modules which together provide a turnkey audio-for-video editing system. Also shown will be the T-7000, a portable time code generator model, a low-cost portable SMPTE generator with playspeed reader, plus the complete line of vertical interval and longitudinal SMPTE time code equipment.

In the area of controllers and synchronizers, Timeline (2686) will introduce the Lynx Model VSI, compatible with Ampex, CMX, and GVG editing systems, for full control of audio machines from external computers; the Lynx System Controller, a control keyboard/computer for sophisticated production work; and a new office automation software package for recording and broadcast studios. Featured will be the line of time code and synchronization products featuring the Lynx Time Code Module, a reader, generator, and chase synchronizer in a single enclosure.

Adams-Smith, Inc. (2488) will unveil a new compact controller, Model 2600 CC, an audio-for-video tape synchronizing system controller which features integrated multicontrols and sophisticated audio engineering capability in a compact, lightweight package.

New from Audio Kinetics, Inc. (2506) is the Eclipse editor-controller for Q.Lock, the 4.10 synchronizer, a microprocessor system offering four-machine editing, and the Pacer synchronizer, a chase synchronizer, synchronizer, generator, and resolver. The Master Mix Q.Lock System will also be shown.

Fostex Corp. (2579) will introduce the Model 4030 SMPTE-based A/V synchronizer, and the Model 4050 SMPTE-based synchronizer for MIDI-SMPTE lock-up.

Geise Electronic (2785) will display its line of time code equipment and synchronizers, featuring the Lock-System 3 and Lock-System 3/2. The 19-inch rack-mount unit is designed for

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During the last decade cameras have gotten smaller, switchers have gotten smarter, and computers have changed the look of television.

But basically, the audio console hasn't changed.

It's still the largest piece of production equipment in your facility.

And even the most elementary video products have more computer control and memory than a standard console.

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We think it is. That's why we developed the Orion AMU series television audio consoles with the same technology found in the video equipment you use every day.

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Serial communications, and the ability to control all audio functions and settings, make video editing easier and faster, too.

There are several things we didn't change, though.

Like the audio features and functions every television facility needs: 8 to 32 stereo inputs, 7 band stereo EQ, up to 4 stereo aux sends, 2 stereo submasters, 2 stereo masters, 2 mute groups, 2 editor control groups, 6 VCA groups, 4 stereo monitors, machine controls, cue, solo, studio muting, oscillator, mix-minus, and much, much more.

And, a traditional panel layout that insures easy operation for even the first time user.

But maybe we saved the best for last.

You see, the advanced software design and almost total elimination of hand wiring makes our pricing extremely competitive.

So, if you're looking at television audio consoles, don't miss the Orion AMU. Or you'll be missing the new generation in audio console technology.

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SEE US AT NAB BOOTH 2499
LOWER LEVEL

WHAT'S HOT!

Radio/Audio

SMPTE/EBU time control of video, film and audio machines.

Datek Corp. (3547) will show its D-2000 A/V output-oriented routing system using matrix frame sizes of 50x25, 25x25, 25x20 as building blocks; its D-2200 machine control system; D-2300 A/V monitoring switcher; and D-4300 Series A/V switchers with building blocks of 6x1, 16x1, 20x1, and 20x2 (IRU) audio only.

From Studer Revox America, Inc. (3048) are several controllers for varying applications. The SC 4008 and SC 4016 System controllers are SMPTE-EBU bus controllers designed for a wide range of audio/video post-production needs. The SC 4008 controls up to eight synchronizers, and the SC 4016 up to 16. And the B203 Controller is a basis RS232 automation controller for multisource radio production and on-air playback.

Portable consoles have begun to make a strong showing, due to an increased emphasis on field production. There are several new offerings this year.

Audio Developments/Instruments (2933) will introduce the AD260, a stereo 4x2 portable mixer with 48 V-12 V battery operation with internal inverter, battery charger circuit, oscillator, monitor, and two VU meters.

From Connectronics Corp. (2403) comes the SECK portable mixing console, with 18 inputs which can be switched between mic, line, or tape; all inputs are balanced. Full in-line monitoring facilities provide stereo monitor mix for multitrack recording, plus extra facilities can be switched into the signal channel to provide three extra effects buses during mixdown.

Sennheiser (2914) will unveil the M8 studio-quality portable mixer for broadcast, ENG, and EFP, with eight inputs, two outputs, parametric mid EQ and graphic high and low EQ, dual limiters, phantom-powering for mics also available with A/B (12V) powering, line or mic level inputs, Penny and Giles faders, phase inversion, and channel inversion.

Shure (3320) will show two new portable mixers, the FP-32, stereo ENG mixer, and the FP-42, stereo production mixer.

Audio Developments/Portland Instruments (2933) will show the EFP and ENG, field audio mixers; the 145 Pico Plus, a six-input stereo mixer with 48 volt and 12 volt mic supplies. The 062 portable console with up to 16 inputs will also be shown.

Noise Reduction/Processing/Effects

It's back to basics for audio processors, with an increasing interest in the field from video broadcasters and producers who are finally paying more attention to audio.



Portable audio mixers, such as this stereo FP42 model from Shure, will generate interest at this year's show.

One trend has been an increase in processors with MIDI interfaces, and these are in evidence this year. Another direction is a new awareness of phasing problems with several different systems available for correction and detection. Especially hot this year are stereo synthesizers, to serve the estimated 250 TV stations transmitting in stereo.

In the traditional processing realm, there are new compressor-limiters, signal processors, and the like.

Aphex Systems, Ltd. (2816) will add to its line The Dominator, a tri-band peak processor/limiter which will be shown along with The Compellor, and the Aphex II Broadcast Aural Exciter.

Audio Developments/Portland Instruments (2933) will introduce the Model "A" battery-powered

compressor-limiter for field use, with XLR inputs and outputs and full broadcast specs.

Barcus Berry Electronics (2485) will unveil the 401 BBE signal processor for musical instruments, an audio component to correct phase and amplitude distortion resulting from amplifier-speaker interface, and the 202 Pro-audio component which corrects phase and amplitude distortion resulting from amplifier-speaker interface.

Circuit Research Labs/CRL (2538) will show its existing lines of audio processing equipment and stereo and SEA generators for AM, FM, and TV.

New from dbx, Inc. (2740) is the 463X Noise Gate and the 263X De-esser in half-rackmount chassis. Both are part of 63X performance series of signal processors, and two can be connected together for use in tandem. Also featured will be the 163X Compressor Limiter, a full line of compressor-limiters, the 900 Series modular signal processors, and 700 Series digital processors.

Gotham Audio (3354) will introduce the EMT 277 DX Limiter, a high-powered AM processor using dynamic preemphasis. It has a delay limiter to sense peaks and avoid overmodulation. Built-in compressor has daytime and nighttime switchable settings, and an adaptive presence boost.

Valley People and U.S. Audio, Inc. are sharing a booth (2747), and each is introducing new processors.

U.S. Audio, Inc. will have the new Gatex Model 904, a single-channel version of the Gatex four-channel noise gate/expander designed to be housed in and powered by the dbx F-900 powered frame. A mode-select switch permits "hard" noise gating, 1:2 expansion, or unobtrusive noise reduction. Also new is the Leveler, a two-channel audio signal processor.

New from Valley People, Inc. (2747) is the Model 415 Dual DSP, dynamic sibilance processor, which differs from de-essers in that it does not react to normal

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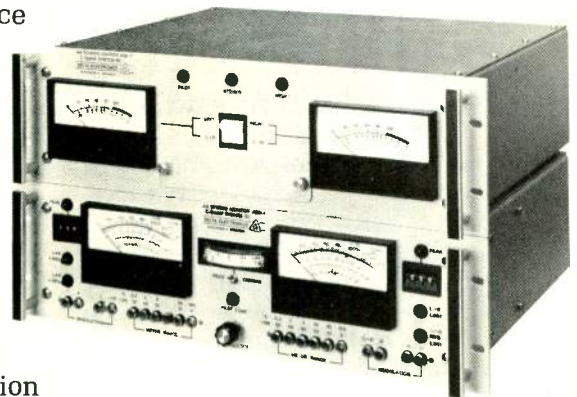
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WHAT'S HOT!

Radio/Audio

"ss" or "x" sounds, but only removes the sibilant or whistle present without affecting the high-frequency content. Valley People will also show the Model 815 DSP single-channel version of DSP, and the Model 400 Mic Processor single-channel processor which accepts single low impedance mic input, then boosts signal to line level for processing through the two-band shelving EQ section.

Symetrix (2519) will unveil the 528 voice track processor, which combines an FET mic preamp, frequency selectable de-esser, gated compressor/limiter, and three-band parametric EQ in a single rack space. The company will also show the SE-400 parametric EQ, the CL-150 fast RMS compressor/limiter, the 501 peak-RMS compressor/limiter, and the 544 quad expander/gate.

Texar (2571) will show its audio prism line of four-band digitally-controlled processors for stereo generators/limiters for AM and FM and introduce the Super Eagle processor for FM.

Noise reduction and efx

In the area of noise reduction, Dolby Laboratories (2705) will update its one-inch video noise reduction with the introduction of the Noise Reduction Indication, NRI, with an automatic feature that switches on noise reduction automatically through an encoding-decoding technique. Also new is the UC-20, a "C"-type noise reduction encode-decode unit for application with 3/4-inch U-matic videotape recorders. It's an outboard unit designed to be connected to the audio input and output of any 3/4-inch tape machine. Dolby will also show its plug-in cards for Sony BVH 1000, Ampex VPR 2, Sony BVH 2000 Series, and Ampex VPR 3, 6 and 80; and its XP Series multichannel noise reduction package, for use with multitrack tape recorders for post-production.

There seems to be no end to the variety of new audio effects that emerge each year, and Eventide, Inc. (2830) has new offerings. However its newest product is not

effects but a broadcast time delay unit, for audio delay. Eventide will also show the new Channel Vocoder and Automatic Panner audio effects programs for the SP2016 Effects Processor/Reverb, along with demonstrations of the SP2016.

Another company offering an audio delay unit is Audio Digital (NA) with the introduction of the TC-4 Broadcast Digital Processor, a digital delay for audio fixed at seven seconds with a "dump-catchup" option for immediate deletion and return to air with build-up of delay gradually from real time, almost imperceptibly.

Lexicon, Inc. (2909), a leader in the digital audio processing and effects field, will introduce a production model for the newly-developed Model 2400 stereo time compressor expander, featuring advanced signal processing techniques, for performance virtually free of noise and artifacts. Also new is the Model 480L Digital effects system, an advanced time effects system, featuring 20 kHz bandwidth digital 1/0 dynamic MIDI, advanced reverberation/room simulation, and new time effects. Also to be shown are the PCM-60 low-cost digital reverb; the PCM-70 six-voice digital effects processor/reverb; Model 200 digital reverb/room simulator; and 1300S digital audio delay synchronizer.

Applied Research & Technology (236) will introduce new software for its digital reverb equipment. Also new will be a multitap digital delay and the PD-3, plus new balanced EQs.

New England Digital (134) will show its enhanced Synclavier digital music system, as well as a guitar interface module and music printing software.

Audio time-base correction has come about to help broadcasters with phasing problems such as those that occur in stereo TV, AM and FM stereo, and two-channel satellite delivery. To remedy such problems, Howe Audio (2832) offers its Phase Chaser, a cross-correlator and correction unit.

Harris Broadcast Group (3136) will again show its Phase Fixer, the audio TBC which relies on an encoding-decoding process to make its corrections.

Several manufacturers will have stereo synthesizers in their booths.

Orban Associates (3444) will unveil its 275A automatic stereo synthesizer for stereo TV shown first at the AES then at SMPTE. It has automatic recognition with manual operation possible, and is designed more for on-air than Orban's previous synthesizer, which is still recommended for stereo production.

Studio Technologies (2769) will show its AN-2 Stereo Simulator, a TV stereo synthesizer, and its RCU-1 Recognition Control Unit for TV stereo, a real-time unit which determines and displays the mono/stereo status of audio programming and automatically switches stereo simulator on when mono is detected.

Kintek (2455) will introduce the KT-960 Monoguard, an automatic correction system to prevent loss of mono due to polarity reversal. It monitors channel-to-channel stereo signal correlation, and if polarity reversal is detected, a fast-acting circuit automatically corrects it. There are longer time constraints for music program material. Also featured is the KT-903 Stereophonic Converter, a three-part automatic stereo synthesizer for TV.

Straight Wire Audio (2518) has several processing products which will be introduced this year. The Humm Gobbler monitors a stereo audio line and automatically applies required filters to eliminate hum and buzz when present. The Stereo Sentinel is an accessory for Orban's new stereo synthesizer; it has a mono humm gobbler circuit in line to the stereo synthesizer circuit, and voice recognition which suppresses stereo synthesis during dialog, in order to avoid the false triggering which seems to be a problem with some synthesizers.

For noise reduction for mobile applications, ANT Telecommuni-

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cations/Solway (2745) will unveil the Telcom C4E, a single-channel noise reduction card which can also be used for line transmission, ATRs, and VTRs. The company will also show Telcom C4 models.

ATRs, Cart Decks, Digital Recording

Multitrack ATRs are very big this year, along with more units featuring center track time code for audio-for-video applications. There has also been some more movement toward digital, particularly in the area of digital spot players and CD programming and automation.

In digital ATRs, Mitsubishi, Otari, and AEG have decided to unite to support the Pro-Digital, or PD digital recording format which was the basis for Mitsubishi's previous digital recording products.

At the Mitsubishi Pro Audio, Quad Eight, and DEC booth (3530), there will be several new offerings. The newest is the Mitsubishi X-86 two-track digital audio tape mastering recorder, featuring second generation design, cut and splice editing, and sophisticated logic control. The new Mitsubishi X-850 32-track digital audio multitrack recorder offers second generation design, cut and splice editing, RS-232 and RS-422 control ports, 48 kHz or 44.1 kHz sampling frequencies, and SMPTE generator with drop frame. The Westrex Digital Master motion control system, with SMPTE time code generator and up-down counter, has a foot/frame counter, meter/frame counter, and four simultaneous motor drive signals each with three output circuits.

Otari (3246) will unveil the DTR-900-32, one-inch, 32-channel digital audio PD format recorder/reproducer with remote and locator. Also new from Otari is the analog MX-80-24, an open-reel, two-inch, 24-channel ATR. Otari will also show its MKIII Series ATRs; MTR-10/12II Series; MTR-20 Series; MX-70, a one-inch re-

order available in eight-, eight/16, or 16-channel versions; and MTR-90-II multitrack ATR in one-inch eight-track, two-inch 16-track, two-inch 16/24, and two-inch 24 channels.

AEG Corp. (2700) reports that it will have a PD format offering next year. This year the company will introduce the M-20 ATR, a 1/4-inch two-track available in stereo with digitally-controlled audio alignment, and the M-21 with SMPTE Time code.

Sony Pro Audio (3100) will show both its PCM 3102 (7.5 ips) and 3202 (15 ips) two-track digital tape recorders, in the DASH format which has the support of Matsushita and Studer. The Sony 3102 features cut and splice



Sony will exhibit the CD modular system with two CD players and one control unit for both.

editing while the 3202 has electronic editing.

Studer Revox America, Inc. (3048) has a new analog recorder, the A812, with a new design featuring a powerful package of microprocessor-based electronics for maximum operating flexibility. Studer will also show the A820-TC analog recorder with time code channel; the A810-2-TC/FM/NEO special version of A810 for film audio applications; the A800 multitrack audio recorders; and A820 half- and 1/4-inch stereo audio recorders.

Tascam Professional Products (3614) will introduce five products in the ATR-60 Series: the ATR-60/2T, a 1/4-inch two-track recorder with center time code track; ATR-60/2N 1/4-inch two-track with NAB stereo head format; ATR-60/2D 1/4-inch with DIN stereo head

format; ATR-60/2HS half-inch 30 ips two-track; ATR-60/4HS half-inch four-track with 30 ips; and the ATR-60/8 half-inch eight-track with IEC head.

Fostex (2579) will introduce the E-2, a 1/4-inch stereo mastering recorder with center-track SMPTE time code, and the E-22, half-inch two-track recorder.

CDs and cart machines

CDs continue to attract a lot of interest from broadcasters. Three companies, Philips Television Systems (3128), Studer Revox (3048), and Sony (3100) will show previously introduced players, with Sony exhibiting its CD modular system for multiple CD play. It consists of the CDS-3000 central control unit and CDP-3000 player, a version of Sony's CDP-5000.

There are new developments in CD automation. Digital Programming, Inc. will exhibit its CD encoding-decoding on Broadcast Electronics automation equipment in the BE booth (3226).

New in cart automation is Schafer Communications Corp.'s (3353) Ready Spot cart automation machine with 30 trays in increments of 10 per unit up to 90 trays. Schafer's automation equipment can interface with CD players as well.

In the cart machine market itself, Otari (3246) will make its debut with the CTM-10, NAB cart-ridge recorder/reproducer.

Fidelipac Corp. (3092) will show its new cart machine, the Dynamax CTR10 Series, introduced at Radio '85 and featuring the same mechanical construction and durability of the CTR100 Series but at lower cost and without some extra features such as Cartscan and Vary Speed. Also new from Fidelipac are the CTR30 Series three-deck cart machines and the ESD10 Eraser/Splice Detector. International Tapetronics/3M (3052) will show the new ESL V eraser/splice locator, and the new ScotchCart II broadcast cartridge, along with its full line of cart machines including 99B Series, Delta, and Omega Series. Pacific Recorders and Engineering (3151)

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will show its line of Tomcat and Micromax cart machines.

Broadcast Electronics (3226) will also have its cart machines on display.

At the Auditronics/Tapecaster booth (3310) the Tapecaster X-700 Series cart machine, available in mono or stereo, reproducer or recorder/recorder models, and mono recorder/reproducer with delay will be shown.

Audi-Cord Corp. (3433) will feature its "S" and "E" Series families of cart equipment and the "TDS" twin-deck reproducers.

Digital spot players, intended as eventual replacements for cart machines, made their first showing at last year's show, and they will be back, in greater numbers and improved models this year.

A new offering from a new company comes from Digital Broadcast Systems (170), in the introduction of the Astre system, a random access digital audio storage system that allows up to eight production, scheduling, and on-air workstations to simultaneously add or retrieve material. The exhibited version is scheduled to have hard disk storage capacity for 150 minutes of single-channel audio (75 stereo), though the company says its fully expanded version can hold 1600 minutes.

Broadcast Electronics, Inc. (3226) will be back with an updated version of its Digitalk, the DV-2, a RAM chip-storage system for jingle-ID-spot play which now features extended frequency response to 6.6 kHz over last year's 3 kHz, storage time of up to five minutes of mono, and new control features including a repeat function. It will again be a prototype, although BE intends to go into production with it.

Compusonics Corp. (2002) will unveil a production model of its floppy disk-based digital spot player, the DSP 1200 and recorder DSP 1500. It features improved fidelity from 20 Hz-15 kHz, four minutes of stereo storage, and is designed for the look and feel of a cart machine.

Gotham Audio (3354) will demonstrate a production model of its

EMT 448 digital spot recorder, hooked up to its larger system, the Systex, both using Winchester disk drives.

Microprobe Electronics, Inc. (2620) will show two new versions of its Digisound Winchester hard-disk-based audio system. One features a frequency response of 20 Hz-15 kHz for broadcast use, the other 20 Hz-20 kHz for recording studios. The broadcast version can store up to 76 minutes of mono, has a membrane keypad and a CTR screen, and it fits in a rack panel.

An unusual new entry in the digital audio recording field is the Audiofile, being introduced by Advanced Music Systems (2919). It's a Winchester disk-based audio record and playback system featuring 16-bit sampling which offers 20 minutes of mono storage at a 49 kHz sampling rate.

In other recording equipment, Nagra (3453) will have its TA-TC time code recorder with a new 422 interface to allow for use of video editor, and will also show its IV-STC SMPTE time code portable recorder and post-production TA/TC recorders.

A new cassette deck recorder will be unveiled by Nakamichi U.S.A. Corp. (2456). It's the MR-2 two-head professional cassette deck, unveiled at AES, with the company's "silent mechanism" transport, a microprocessor motor-driven Cam system that removes vibration-induced flutter. It features an extended bandwidth to 20 kHz and Dolby-B and C noise reduction. Nakamichi will also show the MR-1 Discrete head professional cassette deck.

Audio Production Equipment

There is never a lack of interest in audio production essentials: mics, wireless mics, speakers, and headphones. There are many new product offerings to address this ongoing need.

Crown International, Inc.

(2927) will introduce GLM 100 and GLM 200 mics, small condenser mics with flexibility and ease of mounting. Also new is the MT 600LX power amp, 3.5-inch chassis with 220 W per channel, and 8 ohms which delivers high power in a compact package. Crown will also highlight its PZM—pressure zone mics, and PCC—phase coherent cardioid mics.

Electro-Voice, Inc. (3430) will introduce the RE98 miniature electret mic; and also show the Sentry 100 and 500 Series precision studio monitor speaker systems, the ELX-1 microphone mixer, the S200 compact portable constant directivity speaker system, and professional mics for studio and on-location applications.

AKG Acoustics, Inc. (2521) has several new products, the C-460 condenser mic systems featuring CK-1X, CK-2X, new CK-3X capsules; CK-61 and CK-62 ULS Series cardioid and Omni capsules for use with C-460B mics; the Q-34 headset boom combinations; and K-240DF flat response studio monitor headphones.

Sennheiser (2914) will introduce a new headphone, the HD 540 top-of-the-line open air headphone which allows outside noise to be heard. Also new is a low-noise cardioid condenser mic, the MKH 40 P48.

Shure (3320) will be highlighting its FP Series including the FP-16 DA, FP-11 mic-to-line amp, FP-12 headphone bridging amp, and its mics: the SM-91 unidirectional surface mount mic, SM-90 omnidirectional surface mount mic, and also its SM1 and SM2 headset mics.

Audio Engineering Associates (2769) will focus on technologies to ease transition from mono to stereo, and new products include two new M-S stereo units: an M-S box with mic preamps as part of it, and a four-input battery-powered mixer with M-S matrix in production form.

Audio-Technica U.S., Inc. (2407) will introduce the ATM5R miniature unidirectional fixed-charge condenser vocal mic; the ATM33R unidirectional condens-

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er instrument mic; the ATH-M7 PRO Studiophones headphones; and new microphone stands and a shotgun mic accessory line.

New from Beyer Dynamic, Inc. (2823) are the MCE-6 high SPL version of the MCE-5 mini electret condenser lavalier mic; the MCE-10 cardioid version of MCE 5 mini-electret condenser lavalier mic; the MC 736 PV short shotgun con-

denser mic; the MC 737 PV long shotgun condenser mic; and the MSM 48 n(c) 1A (nicad) 48 V dc power supply that is portable and powered by 5-9 V batteries.

RF mics

Cetec Vega (281) will unveil Models 66B and 67B Pro-Plus portable wireless mic-receivers. Each receiver operates on four in-

ternal 9 V alkaline batteries, and the 67B provides dual-receiver diversity. Also on display will be the Model R-42 Pro-Plus diversity wireless receiver, along with the Model 77/DII Pro-Plus bodypack wireless microphone transmitter, and other wireless microphone systems and accessories.

HM Electronics, Inc. (2619) will show the new BH720 and BH721, cabled intercom belt pack headset stations, each housed in a contoured aluminum extrusion designed for comfort. The 720 is a single-channel unit, the 721 a two-channel unit.

Com-Tek Communications Tech. (2653) will introduce a new wireless microphone miniature field unit receiver system, the MR182, as an addition to its Pro Series as well as an accompanying new transmitter, M72C. Also new will be the RC72 personal wireless receiver cue system with IFB capability.

Micron Audio Products, Ltd. (2685) has a new wireless microphone system, the CTR-501 mobile system, and will also show the complete line of Micron CNS-500 Series wireless microphone systems.

Swintek Enterprises, Inc. (2918) will show the new Mark QDC/2 and Mark QDC-H/2, small dual-frequency radio microphone receivers for use on video cameras. Also new is the line of RFSD switching diversity receivers designed for live audio road shows.

Telex Communications, Inc. (3370) will unveil the ENG-4, a compact, lightweight ENG-type wireless microphone receiver with four RF channels selectable within a frequency range of 165-216 MHz. It can be purchased as a system including the Telex WT-400 belt-worn transmitter and WLM-100 (silver) or WLM-200 (black) miniature lapel mics.

Speakers

There are new offerings in audio monitors to look for.

JBL Professional (2727) will introduce the JBL/Urei Model 6215, a one-rack-space amp; and JBL studio monitors utilizing a pure ti-

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tanium dome tweeter: Model 4406, a two-way 165 mm; Model 4408, two-way 200 mm; Model 4410, three-way 250 mm; and Model 4412, three-way 300 mm.

Panasonic Pro Audio (3216) will show its new WP-9055 a stereo 50 W per channel into 8 ohms power amp for studio monitoring in broadcast environment and the WS 810K and WS 810W compact monitor speakers for broadcast studio monitoring.

Anchor Audio, Inc. (2426) will introduce two new powered speakers for audio edit-from-video, the AN-1000 and the AN-1400.

A new exhibitor, Tannoy North America (215) will introduce the NFM-8B near field audio monitor, which is rackmountable, as well as the FSM studio monitors with two 15-inch drivers.

Stanton Magnetics, Inc. (3331) will have new headphones, including the Dynaphase 30M/SR disco headphones, for DJs., with

shoulder-rest, and single cup, lightweight and durable. Also featured is the 310B stereo phono preamp, designed to interface to all Stanton and selected magnetic phono cartridges.

Intercoms, Telco Interface

The news in intercoms is their design, geared toward flexibility and expandability, with stations able to perform multifunctions. IFPs are more versatile as well, and telco interface equipment and hybrid systems have been improved for better sound quality.

In intercoms, McCurdy Radio Industries (3028) will show the new CS9400 Digital Intercom system, featuring up to 320x320 with full microprocessor control, and enhanced terminal storage. H M Electronics (2619) will introduce the RL742, a two-channel, rack-

mounted loudspeaker intercom station compatible with all HME700 Series products and other wire intercom systems.

RTS Systems, Inc. (3366) will unveil the Model 848 Intercom Station which is a component of a distributed bus matrix intercommunications system. A maximum of 24 stations can be used to create a 24x24 system. Any one station can talk to any other or a combination of stations. Also new are 802 software updates for the Model 802 master station.

Clear-Com Intercom Systems (3352) will introduce a new standalone IFP system, a dedicated Program Interrupt system designed for broadcast applications. Basic system consists of a talent access station (MA-4), program interrupt controller (PIC-4000), up to four talent receivers (TR-50), and interconnect cabling and power supply.

Comrex Corp. (3460) will intro-

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WHAT'S HOT!

Radio/Audio

duce the Model STLX two-line frequency extender console, in a self-contained remote package, which incorporates a two-line encoder with noise suppression, and complete telephone interface for program talkback. R-Columbia, Inc. (2672) will show a new ENG/IFB telephone, the Model 6058/T, featuring hands-free tone dialing and operation from any modular phone jack. It clips to user's belt and accepts Model UL-85 R-Columbia one-ounce headphone/mic.

Bradley Broadcast Sales (2663) will introduce the Tecos "Echo" digital auto-answer telephone message unit, and show the Tecos-10 digital telephone hybrid.

Gentner Engineering, Inc. (2669) will have a new VRC-1000 remote-control unit, which uses a dial-up phone circuit, responds in synthesized voice, and has full ATS capability, and also introduce the DPH-5 dual-line, auto-nulling

telephone hybrid; the TC-1000 automatic telephone interface; and the EFT-900 extended frequency transceiver for a single telephone line. Symetrix (2519) will feature the 104/108 telephone interface, and the TI-101 single-line telephone interface.

Normex (2453) will introduce the new Telnox L-O computerized telephone, featuring conference calls to 10 lines along with other features.

Program and Business Automation

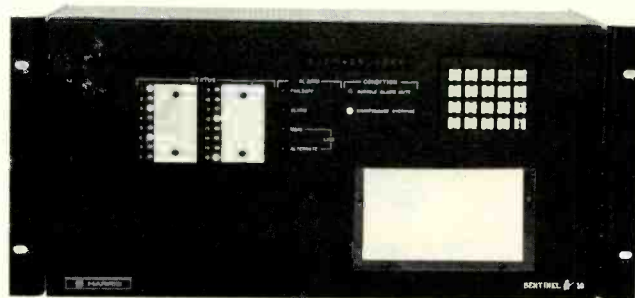
More companies than ever are getting into the business automation field, and as a result, the day-to-day operations of radio and TV stations are becoming smoother and easier. Most new products are designed to take advantage of the

increasing use of PCs in business, and new software can handle jobs as far-ranging as scriptwriting and logging.

Basys (2913) will introduce a new integrated management information system, an optical disc archive system for long-term storage of scripts, story files, etc. Designed for radio and TV applications, it features large storage capacity. Also featured will be the Basys newsroom computer system, based on VAX, Parallel, Onyx, & IBM PC computers and ranging in size from two or three terminals to large multistation networks.

CBSI/Custom Business Systems, Inc. (2517) has new products which include The System PC, with the same software as The System but for PCs. It handles traffic, logging, billing, sales projections, availabilities, other accounting and word processing, and can operate on Wang PC, Wang

With Sentinel 16 Remote Control, There's No Cause For Alarms!



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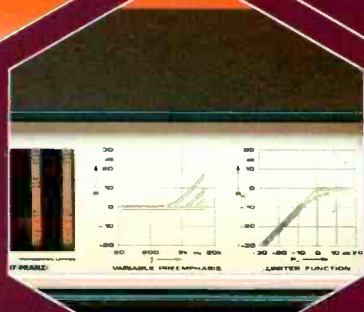
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WHAT'S HOT!

Radio/Audio

APC, IBM PC-XT and AT, AT&T 6300, Compaq Portable Compaq Desk Pro, Zenith 150 Series, and Sperry PC. Also new is the Concert Music Library, which catalogs up to 200,000 selections, and Satellite Music Traffic Program, Snow Closings, and Sales Analysis reports.

Columbine Systems, Inc. (3405) will show the new Newsroom Management System designed to meet broadcasters needs for personnel and equipment tracking, producers desk, assignment desk, story cost estimation, news wire management, archives, scripting and indexing applications, all on an IBM minicomputer. Also new is the Fixed Assets Package, for IBM PC and 100 percent IBM compatible PCs, with three modules: Fixed Assets Accounting, Capital Budgeting, and Equipment and Vehicle Information Reporting.

Comprehensive Video Supply (3593) will unveil new software in its CAV (computer aided video) line. These include Tape Master, for locating scenes in a videotape library, and cataloging slides, films, audio tapes; Log It PC, a PC version of Log It 100 which adds time code reading and tape logging capabilities to the IBM PC; Cabletrak, for logging and labeling up to 1200 cables in a studio; AICP Quickform, for generating screen overlays that customize Lotus 1-2-3 to video production bidding and budgeting needs; Budget Master, budgeting preparation and tracking for corporate and independent producers; Script Master, for easily preparing and revising multicolumn scripts on screen exactly as they appear on paper; Autoprompter, which allows an Apple II computer to be used as a teleprompter; and Chyron Connection, which allows an IBM PC to create titles on Chyron VP-1 character generator.

Data Communications Corp. (3204) will introduce BIAS PC Cable, IBM PC-XT or AT based sales/traffic/billing system for cable operators with advertiser-supported channels; also Buyline Electronic Contract which links a station's and its rep's computer

systems together, and Buyline Electronic Invoicing, which links stations and advertising agencies.

Sunspot (2498) will unveil a new IBM PC version of the Sunspot broadcast system, a fully integrated business computer system for radio stations including order processing, traffic, billing, accounts receivable, accounts payable, and general ledger.

Strata Marketing (2689) will show new Strata Planner business software, in addition to the established Radio Calc and Super Ranker software programs and the Recall diagnostic package.

Register Data Systems (2505) will show new features, including a log generator, for the traffic and accounting computer system for radio and television. Also new will be a multiuser system, based on the IBM PC XT/AT, with 16-workstation capacity.

National Television Systems Co. (2472) will introduce the CAPS: Computerized Automatic Programming System, a family of multitasking computer systems with interfaces to all types of broadcast equipment including tape machines, switchers, satellite antennas, and receivers. Exhibit will feature a CAPS-408 automated program system demonstrating control of videotape playback in a real-time programming environment using SMPTE time code.

Kaman Broadcasting Systems (3078) will show new software for complete demographic research and avail submission, a new film inventory program, and a new Betacart autoswitch interface to business systems.

Jefferson Pilot Data Systems (3440) will introduce \$ally, a computerized productivity system for TV sales and research that runs on an IBM PC. Also new will be the JDS broadcast management system, with music rotation and program management.

Grumman Electronics Systems (2481) will show a four-channel version of its new AIS5000 system offering random access, computerized control of spot insertions and complete automation capabilities

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The Dictaphone 5600 Veritrac™ voice communication recording system is a complete broadcast recording-retrieval system that lets your radio station keep its entire broadcast day on the record. In one dependable unit you get around-the-clock verification that you're running your advertiser's spots on schedule and meeting all your FCC requirements. So if they ask for proof, you've got it all there on tape, ready for quick retrieval and replay.

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OBM/E MARCH, 1986 91

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WHAT'S HOT!

Radio/Audio

of sales, traffic scheduling, machine control, and billing.

Generic Computer Systems (312) will show its IBM PC- and Apple IIe-based automation system for broadcast traffic and billing.

Compucon, Inc. (2633) will unveil two new packages, BEAM to assist TV industry managers with their marketing analysis, and the FM-80/90 FM filing services package to help broadcast applicants.

Omnisoft (172) will introduce its Max traffic and billing software for radio, TV and cable, along with Gold Key music scheduling and Accutrack music programming.

Radio Syndication

The big news in radio syndication this year are CDs, with CD offerings for main music libraries, production music, and sound effects.

Digital Programming, Inc. (3226) is offering to produce custom music libraries on CDs, with its automation encoding as described above. Interest is running high in CDs this year, and broadcasters as well as other syndicators will no doubt be curious about DPI's method.

Associated Production Music (2650) will introduce the KPM 1337-CD, KPM Music Library's first compact disc offering produced digitally, start to finish. The album is called "Tradewinds" and features music with Outdoors/Americana orchestra arrangements featuring acoustic guitar.

Century 21 Programming, Inc. (3452) will unveil the new Compact Disc production library, CD music services, and digital 8 mm tape; plus automation programming—computer software for music rotation, and also show its 19 automation formats on reel-to-reel analog.

De Wolfe Music Library, Inc. (2712) will introduce newest selections on CD and offer some favorites in "six packs." Network Production Music, Inc. (2627) will have new Network Production

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Reliability and proven performance make Continental's 816R-4 compact FM transmitter a winner. Crisp clear signal, high fidelity, good stereo separation, very low noise and distortion, excellent frequency stability, simple installation,

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Music and Sound Effects Libraries available on CD.

Omnimusic (2775) will introduce new CD recordings of the Omnimusic library, and have a new library imported from England, the "Atmosphere Music Library."

Sound Ideas Sound Effects Library (2444) will offer 3000 stereo sound effects on CD.

Valentino Music Library (3465) also has music and sound effects libraries on CD.

VTS Music (206) will introduce promotion and production music on CD, and Versatracks, a music library for TV.

There are new music syndication offerings that are not on CD, however.

Concept Productions (3334) will introduce five contemporary MOR formats with a target demo of 35 to 55, and show formats for automated or live assist including a/c, chr, aor, country and contemporary mor.

Music Director Programming Service (2414) has auditorium-tested music research for a/c and chr formats and 20 reels of its Country Gold Oldies library restructured, including a new *Country Music Consultant Guide of the '80s*.

The Musicworks, Inc. (2734) has a new Factor Five format, a "modern" approach to a/c programming, more energetic than a/c but not quite chr.

Peters Productions (124) will unveil its Ultimate Programming System which gives radio stations control and flexibility for ac, country, easy listening, and chr formats.

Radio Arts, Inc. (NA) will invite attendees to a private suite to listen to its new shows, such as *Country's Best Countdown*, *From Rock 'N Roll to Rock*, *Milton Berle's Mad Mad World of Comedy*, and *Summer Series* talk specials.

Manhattan Production Music (2550) will show a new music library specifically geared for broadcast use, including theme music, and commercials, and a package just for TV stations.

If it's worth doing,
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We did it right.

It's no surprise that when the key engineers of our PZM[®] microphone technology set their sights on combining the benefits of the boundary effect with unidirectionality, the fruits of their efforts would be nothing less than superior.

After all, Crown has been leading the way in boundary technology longer than anyone in the industry. And, like the PZM project, our commitment to developing the "premiere" unidirectional, surface-mounted microphone rings true.

Introducing the PCC[™]-160 Phase Coherent Cardioid[™] from Crown.

Designed for easy mounting on a boundary surface, the PCC-160 utilizes a sub-miniature supercardioid mic capsule to create a directional pattern which im-

proves gain-before-feedback, reduces unwanted room noise and rejects sounds from the rear.

For stage reinforcement, podiums, news desks, or for hiding in sets, the PCC-160 offers superior performance.

And because the microphone is mounted on a boundary, direct and reflected sounds arrive at the diaphragm in-phase. The result...wide, smooth frequency response free of tonal coloration or unnatural sound which can occur with conventional microphones.

Self-contained electronics eliminate the need for a sometimes awkward in-line preamp box. The PCC-160 can be powered directly from the console or other remote power source. Or if battery power is convenient, a battery supply unit can be inserted anywhere in the mike line...right up to the console or mixer.

For maximum flexibility, the PCC-160 features an exclusive three-way "bass tilt" switch which allows you to tailor, up or down, the low-end response for special applications or unusual boundary sizes.

Due to its low profile and "go away gray" finish, the PCC-160 microphone becomes nearly invisible in use, making it ideal for the stage, newsroom or lectern top.

But beneath its cloak of dark gray, the PCC-160 is protected by a heavy-gauge, all-steel body, tough enough to stand up to even the most severe abuse.

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New technology, high performance. TTC Wilkinson introduces the Model X FM Exciter. It achieves breakthrough performance to meet the challenge of digital audio broadcasting and multiple sub-carrier opportunities.

Unparalleled loudness and clarity for a "Stand Out" sound. Flat frequency response and low distortion make the Model X virtually transparent. The result is outstanding signal integrity and clarity. Meticulous AFC design radically reduces modulation-robbing baseline shift. And broadband circuitry eliminates the need for any tweaking and tuning.

Digital audio compatibility. Now that compact discs, digital STLs, and other forms of digital audio are becoming commonplace, new performance capabilities are needed from excitors. Model X provides the ideal frequency response, distortion, and signal-to-noise characteristics to achieve superior digital audio reproduction.

Multiple subcarrier capacity. Since the FCC decision allowing multiple sub-carriers, broadcasters have needed an exciter with enhanced capabilities. Model X is designed to handle up to five sub-carriers with absolutely no loss in quality.

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WHAT'S HOT!

RF/SATs, T&M

Transmitters	97
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Satellite Systems	108

For different reasons, all areas of transmission, both radio and TV, have cause for more than usual activity at this year's NAB. For one thing, this will be the first year of the show when transmitter manufacturers will no longer have to contend with RCA as a major force.

In UHF TV transmission, new tube designs are beginning to be incorporated into functioning transmitters. In VHF, there is the continued thrust into solid-state amplification to ever higher power levels.

AM radio transmitter manufacturers must consider the impending likelihood of stereo since it is the transmitter, and not other components of the broadcast equipment, that limits the stereo sound quality. In FM, on the other hand, it will be in exciters that improvements might be expected.

Developments in remote-control and test and monitoring equipment are technology-led by progress in computing hardware and software. In mobile units and satellite equipment, it is market demand for more immediate and complete news and sports broadcasting that is determining this NAB's hot topics.

Transmitters

At last year's NAB, Varian EIMAC revealed a novel UHF transmission tube that combined aspects of both a klystron and a tetrode into its design. This Klystrode tube has now been in-



Tektronix engineering project manager Margaret Feisel evaluates the new 1720 vectorscope and 1730 waveform monitor.

corporated into a 60 kW amplifier UHF transmitter from Comark Communications (3561).

Although the transmitter is still under development and testing, Comark expects to display it at the show, by which time it should have demonstrated 10,000 hours of continuous operation. The two companies have an exclusive arrangement regarding the Klystrode transmitter design that expires shortly. If Comark's tests are successful, next year's NAB could see competing units based on similar power-saving designs. For this year's NAB, however, Comark and Varian EIMAC retain their monopoly.

Remaining with UHF transmitters, NEC America (3161) will

WHAT'S HOT!

RF/Sats, T&M

show its PCU-900 Series devices, which are high-power, single units with power levels up to 60 kW. ITS Corp. (2535) will show a backup system for the ITS-231 1 kW UHF standby exciter/transmitter.

RCA's (3292) only new product announcement in the area of transmission is in VHF TV. It will reveal a new 1.1 kW transmitter for low-power.

Acrodyne Industries (3521) will introduce a line of externally diplexed high-power TV transmitters—TRL(H)-20KA, 20 kW output; TRL(H)-30KA; TRL(H)-40KA; and TRL(H)-60KA. The two highest power units have parallel transmitters. They incorporate proven exciter and amplifier design techniques in use in current Acrodyne medium- and high-power devices, says Acrodyne.

The transmitters are available in system M and system B/G formats and feature remote-control interface and stereo-ready exciters. Acrodyne also has combining and switching equipment for parallel and redundant systems.

There will be several new products in the VHF field from Larcan Communications Equipment (3314). Principal among them is a 50 kW high-band transmitter, designated TTC-50LH, using two tubes—one aural and one visual. Larcan will also show a 1.2 kW VHF high-band/low-band solid-state transmitter and a contactless switcher for paralleling two VHF transmitters without using coaxial switches. In UHF, the company will display a new 60 kW transmitter.

Nautel's (2658) Ampfet 50 AM transmitter, announced at last year's show, retains the lead as the most powerful solid-state device, at 50 kW, although the company will not have any new products this year.

Broadcast Electronics (3226) will have new products in transmission equipment as well as its range of FM transmitters and live demonstrations of both AM and TV stereo using its own exciter and generator. At Pesa Electroni-

ca's booth (3417) will be a new FM transmitter and a new 1 kW solid-state TV transmitter.

Harris Corp.'s Broadcast Group (3136) will show a 35 kW FM transmitter, FM-35K, among its new offerings. Its range of transmitters for UHF and VHF TV as well as AM and FM radio will also be represented on the stand. Also in FM, Elcom Bauer will announce the Model 690B exciter and a 300 W FM transmitter, designated 6300.



Relative field strength element from Bird Electronic.

Antennas

Manufacturers' wait-and-see attitude to the results of the NAB-sponsored tests of two possible improved AM antenna designs (see *BM/E*, February 1986, p. 65) may lie behind the dearth of new products in this area. Other antennas are represented, however.

Bogner Broadcast Equipment (3406) will show a range of new low-cost UHF TV antennas, the DUI Series, available in directional patterns for side mount only; the BUI18 for 39 kW input; and the BUH18 for 78 kW input, both directional or omnidirectional.

Tennaplex Systems (2812) will introduce FM and TV antennas with ideal, cosecant nullfill vertical patterns. LeBlanc and Dick Communications (2903) will not show any new products, but will highlight projects showing its

range of custom designs. Cetec Antennas (3587) will show a new TV slot antenna in addition to its spiral, panel, and ring designs. Kintronic Labs (2780) will have new variable arc gaps for lightning protection of whip antennas as well as its existing RF equipment line.

Tubes, other RF equipment

Thomson-CSF (3422) will show two traveling wave tubes, the TH-3639A and the TH-3717, with respective output powers of 160 W and 200 W. EEV (2626) will announce a one-inch diode gun Leddicon with low lag, high resolution, and low output capacitance. The unit, P8498/99, has a barium aluminate cathode for longer life, says EEV. Ceco Communications (3383) will carry new tubes from EIMAC, RCA, and Amperex as well as solid-state replacements.

In the Amperex booth (2600) will be a host of new products, including two high-efficiency klystrons, YK1233 and YK1263, and a tetrode and cavity, 9018/YL1631, for AM and FM radio as well as TV broadcasting.

The Electron Tube Division of Thomson-CSF (3422) will show a 50 kW tetrode for UHF TV. Water cooling is integrated into the tube structure, which measures eight inches high by five inches in diameter and weighs about 13 pounds.

ITS Corp. (2535) will expand its range of exciters and multichannel sound offerings. New products include a VHF exciter, ITS-10, a UHF backup system for last year's exciter/transmitter, an ICPM corrector, ITS-70, a 10 W MMDS/ITFS transmitter, ITS-1610B, and an aural IF modulator for MTS, ITS-29. Communication Microwave Corp. (139) will also display a new range of ITFS repeaters and MMDS/ITFS automatic transmitters.

Bird Electronic Corp. (3472) will again show its 15 and 25 kW dry load resistors as well as new STL RF test equipment. Holaday Industries (2737) will show a new broadband RF hazard monitor.

SATELLITE AGILE AND MORE!

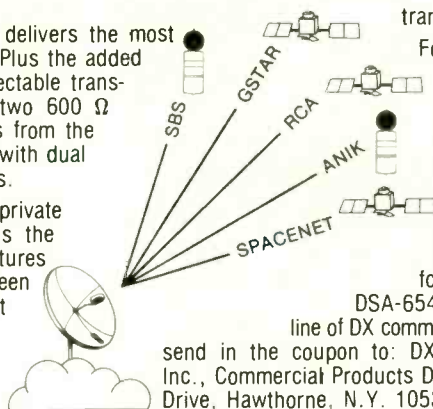


Introducing the new DSA-654TM from DX.

The only Ku and C-Band receiver offering a unique front-panel bandwidth selector, synthesized 1 MHz step tuning, and dual audio.

Like our proven DSA-654, the new DSA-654TM delivers the most precise Ku-Band and C-Band reception available. Plus the added convenience of two new features: front-panel-selectable transponder bandwidths of 17/24/30/36 MHz and two 600 Ω balanced audio outputs—tunable in 10 kHz steps from the front panel! The DSA-654TM can also be ordered with dual video outputs for viewing on two separate monitors.

Whether it's broadcasting, video conferencing, or private satellite network applications, the DSA-654TM is the simple solution for the flexibility you need. It features frequency-synthesized tuning in 1 MHz steps between 11.7 and 12.2 GHz as well as 3.7 to 4.2 GHz. Exact transponder and downlink frequencies for SBS, GSTAR, RCA, ANIK, SPACENET, or any other format can be selected directly from the front panel along with the appropriate full or half-



transponder bandwidth.

For descrambler interface, the DSA-654TM features unclamped video and composite baseband outputs and can be ordered with an optional de-emphasis on/off switch.

To complement the receiver, DX also supplies ultra-low-noise Ku-Band LNBS with a local oscillator stability of ± 1.5 MHz from -45°C to $+50^{\circ}\text{C}$.

For complete information on the DSA-654TM and the full line of DX commercial products, just send in the coupon to: DX Communications, Inc., Commercial Products Division, 10 Skyline Drive, Hawthorne, N.Y. 10532.



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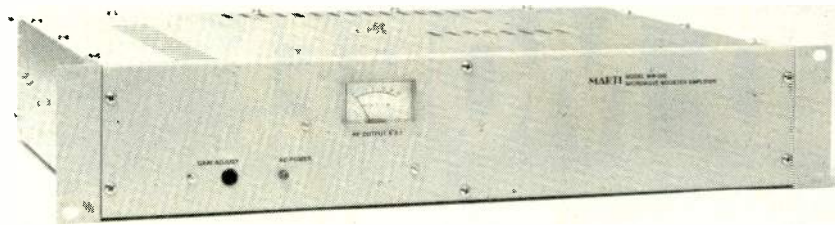
Please send me information on the DSA-654TM DX receiver.

Company Name _____

Name _____

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Marti's MW-500 microwave booster amplifier.

Fiberoptic, other transmission systems

Colorado Video (3447) will announce its Model 240 freeze-frame vertical blanking interval transmission system. It can transmit a color image in eight seconds—effectively an electronic slide show, the company says.

Artel (2920) will expand its SL3000 fiberoptic video/audio/data communication system. It will also announce a new fiberoptic system, T134, handling full duplex, standard telephone data rates over more than two miles. The system consists of two standalone modems and a two-fiber optical cable. Grass Valley Group (3112) will show its new 85 Series EZ-link fiberoptic system.

In microwave links, RF Technology (2809) will add the RF-102, a 950 MHz diversity wireless microphone system, to its 7 and 13 GHz portable microwave links.

Harris (3136) will reveal a new 2.0/2.5 central microwave receiver for ENG.

Marti Electronics (3496) will display an on-frequency STL booster amplifier, MW-500, for use in a path where there is no direct line of sight between the transmitting and receiving antennas. Marti's STL systems, relay stations, and telemetry links will benefit from the introduction of the UPS-12 battery backup power system at this NAB show.

Motorola C&E (3539) will show a new 23 GHz starpoint NTSC microwave link, intended to utilize that newly available region of the transmission spectrum for studio links. Marti Electronics, on the other hand, says that the number of presently available STL channels could be doubled as a way of

accommodating the rising demand for links. Its narrowband SCPC techniques offer immunity to interference as well as lower channel crosstalk, lower receiver noise threshold, and a higher S/N ratio than multiplexed (composite) FM systems in current stereo service, Marti claims.

Micro Controls (2623) will announce new FM subcarrier paging equipment as well as a new TSL. American Diversified's national paging system will also be on the stand. Datum (2408) will show its Model 5300 Intelligent Time Processor, available in versions from basic SMPTE/EBU time code generator/readers to sophisticated processors handling VITC code and video character generation. Also on view will be the company's 9500 video data encoder and 9200 reader.

Stereo

Both TV and AM stereo remain lively at this year's NAB. Kahn's (2454) stereo signal generator will again be trying to win more support. Motorola, meanwhile, has repackaged its C-QUAM AM stereo exciter, and will be showing them along with a range of modulation monitors and accessories.

Delta Electronics (3488) will also show an improved stereo exciter, in addition to a new low-power coaxial transfer switch and an AM stereo servicing generator.

In television products, Inovonics (2434) and Marcom (2435) will both display the Model 710 TV stereo generator that was shown as a prototype in 1985. Inovonics will, in addition, be showing the Model 390 Mag-Film Electronics high-quality insert film recording

electronics for OEM and retrofit applications.

Orban Associates (3444) will demonstrate its new Model 275A automatic TV stereo synthesizer. It has two forms of automatic recognition—single-channel recognition which will crossfade to synthesize a missing audio channel; and mono-stereo recognition which analyzes a two-channel input. Two synthesis modes are also offered. The company will also show a new FMX stereo generator.

Hallikainen and Friends (2925) will show its TVA-200 stereo audio mixer with all inputs line level and stereo.

Marcom's booth will feature the Model 730 metered TV stereo monitor with an all-channel tuner and a stereo/SAP demodulator. The company will also show the Model 701-00M, a device to extend the total life of a TFT 701/702 by enabling the unit to monitor total modulation. TFT (3420) will also display aural modulation monitors. One new product is the Model 855 SAP/Pro monitor for the 850 Series BTSC monitors. Another new product is an addition to this series, the 850-1450 BTSC monitor compatible with the Tektronix 1450 TV demodulator. Belar Electronics Laboratory (3347) will display its TVM-100 and TVM-200 aural modulation monitors.

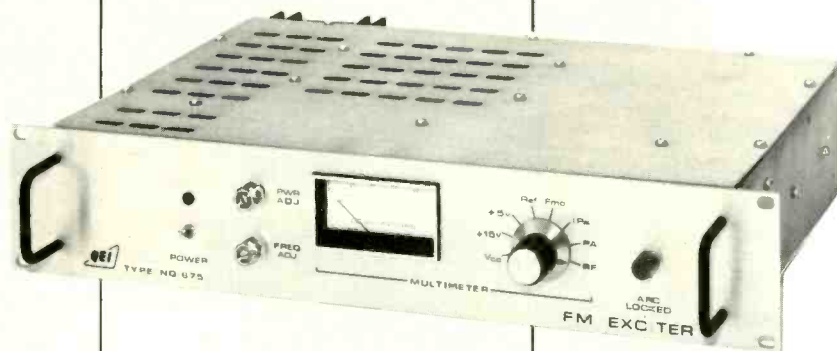
Modulation Sciences (2514) will show a stereo reference decoder for TV, the SRD-1. The unit can decode stereo audio in left and right or sum and difference in BTSC encoded mode or equivalent test mode.

Remote-control systems

Faster hardware and software seem to be the key to the future of remote-control systems. Manufacturers are announcing enhancements to their systems providing control of more transmitter locations than before. Cat Systems (3333) will show a new multisite cable monitoring and control system, the 9000, capable of controlling up to 40 sites with multiple controllers. Cat Systems will also have faster software for its existing systems with faster

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WHAT'S HOT!

RF/Sats, T&M

lightpen and communications modules.

Moseley Associates (3202) will display a video analyzer option for its MRC-2 remote-control systems, and software enhancements for the MRC-1600 as well as a secure dialup system and spectrum-efficient STLs. TFT (3420) will show the Model 8610 multichannel remote-control system, an updated version of its 7610 model.

Harris (3136) will add the Sentinel 48 to its range of monitors.

Potomac Instruments (3329) will show a series of modulator/demodulator units designed for the Potomac remote-control equipment to be able to interface to other companies' STLs and telemetry return links. A remotely controlled cable channel identifier, CHID-10, will be shown by QSI Systems (2722).

Radio broadcasters will appreciate the new T2-H7-AC tape tension gauge from Tentel (3326). Quality measurements may be made on broadcast audio cartridges to eliminate slippage. Other tape gauges will complete the company's display.

Paco Electronics (2447) will announce a number of new battery packs and charging accessories for use with Sony equipment. Provisional Battery (214) will also bring new battery equipment to power both lighting and the recorder.

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Monitors, Test, and Measurement

In television equipment, a number of companies will show new signal generation and test equipment. Tektronix (3214) will lead the field with the introduction of its latest vectorscope and waveform monitor companion units, numbered 1720 and 1730. The company says the two instruments are among the most important new products it has introduced in years.

The monitor and vectorscope feature bright line selector with on-screen readout of the line and field, four automatic front panel recalls, two-channel operation on-screen simultaneously, and x-y inputs for stereo audio display on the vectorscope.

Tektronix will also announce a number of other products in test, measurement, and monitoring, among them a modulation monitor/decoder, audio monitor and vector converter for stereo audio, and a video waveform monitor and analog test signal generator for component TV.

Leader Instruments (2763) will show a portable picture, audio, and waveform monitor, the LVM-5863A for EFP, as well as an attache case oscilloscope, the LBO-325.

Sigma Electronics (2905) will announce its Model TSG-375 test signal generator and its BSG-100 black signal generator. The gener-

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WHAT'S HOT!

RF/Sats, T&M



Automatic distortion and noise measuring system for Amber Electro Design's 5500 Series.

ator provides monitor, systems, and graphics test signals, including countdown generator and source identification, under microprocessor control.

Telemet (3396) will show a new precision broadcast demodulator, Model 3713, featuring stereo audio (wideband) output and quadrature output for measuring

incidental phase. Amber Electro Design (2741) will expand the capabilities of its 5500 programmable audio measurement system to include stereo phase and dc voltage measurement. New application software will also be shown.

Audio Precision (2560) will announce options for its System One IBM PC-based test equipment, which debuted at last year's NAB. Options are for wow and flutter, and intermodulation distortion. Audio routing switcher modules for the System One will also be shown.

Sound Technology's booth (3328) will feature the 3000 Series outputs of various waveforms for measurement. Full proof of performance test results on the 3000 Series can be achieved in less than a minute, the company claims. Other new products include menu-driven software modules for automated testing using Sound Technology products with IBM,

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WHAT'S HOT!

RF/Sats, T&M

Compaq, or Hewlett-Packard PCs.

Videotek (3316) will show a new broadcast vectorscope, VSM-60, and a number of monitors. These include a 19-inch high-resolution broadcast master color monitor, a 13-inch color with audio monitor, and an eight-input audio program monitor with four stereo inputs.

Barco (2577) will also display a range of monitors including a high-definition TV. Ikegami (3150) will add to its range of monitors a nine-inch monochrome unit, PM9-5, among a collection of cameras and HDTV equipment. A nine-inch color monitor, BM-4309UN, will be featured by Pesa Electronica (3417) along with a new digital sync analyzer, designated ASC-4652B.

Porta-Pattern (3538) has among its new products the familiar RCA P-200 and P-300 test patterns in Porta-Pattern's test chart system size and as eight inch by 10 inch transparencies. The company is also planning a new series of test

media for film-to-video interface systems.

QSI Systems' (2722) products new at this NAB are the BG-309/316 split-field color bar generator and the CB-1601 SMPTE bar pattern generator in test products. New from North American Philips Test and Measurement is the PM5654 VITS generator and inserter, added to the company's range of video test equipment to be displayed.

Mobile Units

Visitors to last September's NATPE will probably suffer from a feeling of *deja vu* at the NAB looking at the advances in mobile units for electronic and satellite newsgathering. The principal trend will be the move to add SNG to existing ENG capability and to make the combined units more transportable.

ENG Corporation (3308) will

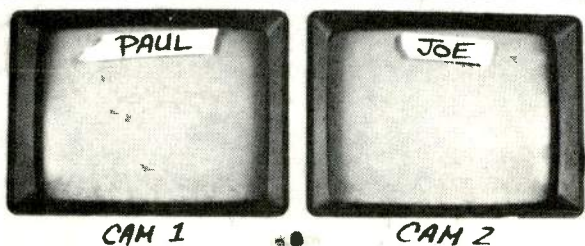
debut a compact SNG vehicle that was shown in prototype at NATPE. The van has an antenna system that provides 90 degrees of azimuth and 5 to 60 degrees of elevation coverage. One man, remote-control operation is possible.

Roscor (3404) will show a range of Ku-band satellite uplink and receive mobile units.

With equipment miniaturization the trend and increasing transportability a necessity, companies are diversifying their mobile unit lines. Midwest Communications (3210), for example, will introduce three new units at different sizes for ENG and SNG. Its S-25 truck is intended for top-of-the-line broadcasters who want more than basic news coverage. It has on-board editing and microwave communications.

The S-18 is a smaller news vehicle, while the S-1 is a 500-pound system suited to international, re-

"Who's on first?"



It's a question everyone in TV remote trucks and studio control rooms has asked. And until now, the solution to identifying camera numbers and operator's names has been state-of-the-art masking tape.

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It's the Roscor MTS-1 Monitor Tally System.

This high-tech solution to a frustrating problem is typical of Roscor's commitment to providing not only the basic required system, but exceeding the customers expectations for engineering, quality and workmanship.

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WHAT'S HOT!

RF/Sats, T&M

mote, and immediate satellite communications. This unit is also available as the S-15, which adds a four-wheel drive pickup truck to the package.

Gray Communications Consultants (3402) will make another addition to its line of vans and mobile production units at this NAB.

Shook Electronic Enterprises (3222) will show its Model 14-22/D 22-foot mobile TV production system using dual generators. Also on display will be the 48-63, a custom-built 48-foot network trailer featuring equipment from Philips, Grass Valley, Abekas, Chyron, Sony, Leitch Distribution, and others.

Television Engineering Corporation (3400) will display a 14-foot four-camera production unit with on-board power and production facilities including video switcher, audio mixer and character generator.

Dalsat (2424) will have a live

programming demonstration of a new SNG van with a 1.8-m antenna, and edit and communications electronics in a 19-foot, 10,000-pound van.

Satellite Systems

Portability is also the name of the game in satellite systems. Modulation Associates (2692) will announce what it describes as a suitcase portable uplink, the KU 02, designed for stereo remote broadcast and SNG. It is configured to provide continuous two-way voice/telephone communications without interruption to broadcast programming.

Spectra Communications in the outdoor exhibition area is another company moving towards increased mobility of satellite equipment. It will announce a new 1.8 m flyaway system and van antenna that can use the same electronics.

QSI Systems (2722) will have a

new all-numeric front panel selectable indicator for transportable uplinks.

A transportable Ku-band satellite uplink vehicle from Microdyne Corp. (3520) features automatic satellite acquisition, SCPC order wire, and encryption. Microdyne will also show a new automated programmable Ku-band/C-band earth station. It allows up to 96 satellite positions, transponder frequency, bandwidth, subcarrier, polarization, and C- or Ku-band feed. The CIM-8511, another addition from the company, is an addressable modem to drive hard-copy printers over satellite audio channels.

Also in downlinks, RCA American Communications (3298) expects to demonstrate live downlinks of new RCA Ku-band satellite service for program syndicators. Pesa Electronica (3417) will bring a new Ku-band satellite receiver, the SR-91785A. **BM/E**

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Ikegami's newest field/studio broadcast camera achievement has arrived—engineered and designed to provide the user with features beyond expectations.

The HK-323 1" features self-contained operation, numerous auto set-ups in any mode, a built-in encoder and sync generator, high performance prism optics, self-diagnostic functions, a control panel that connects directly to the camera head, a S/N ratio of 59dB and more—all in a camera weighing only 55 lbs.

In addition, the HK-323 1" is equipped with a 7" viewfinder featuring pan and tilt, and special functions that include Chroma Aperture for sharpest picture quality regardless of color or lighting; High/Low Compression Circuitry for broadcast contrast range; Soft Detail to eliminate harsh or overwhelming presence; Auto Beam Control, and more.

A companion hand-held camera is also available and is operational off the same base station.

Optional remote control is available in triax, multicore and fiber optics.

Compare the HK-323 1" to any camera in its class and find out why the lightest field/studio camera is also the biggest value.

For a complete demonstration of the HK-323 1" and other Ikegami cameras and monitors, contact us or visit your local Ikegami dealer.



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A companion hand-held camera is also available, and is operational off the same base station.

Optional remote control is available in: triax, multicore and fiber optics.

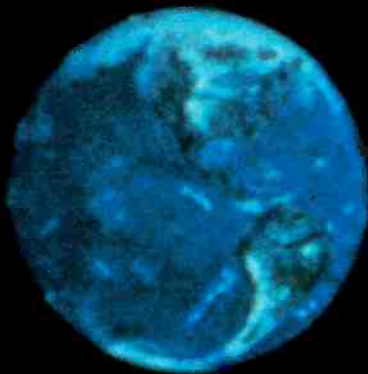
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The TKC-990 features computer-controlled automatic set-up of the camera operating parameters, as well as automatic set-up of registration level, shading and detail correction for up to three input projectors.

Both cameras utilize a built-in large image field lens, neutral density disc for automatic light control and automatic color balance circuitry.

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Ikegami's HL-79E has lived up to its billing as the greatest achievement in hand-held camera technology, a claim supported by an increasing number of 79 series purchasers, presently in excess of 5000.

And yet, today, the engineers at Ikegami have found a way to improve the camera. Now, when equipped with the new VBA-1 adapter, the HL-79E is totally compatible with the Sony Beta recorder.

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On a tripod, the HL-79E becomes the premier EFP camera which can be used in various systems configurations and controlled remotely by the MA-79 Multicore Adapter, through multi-core cable (up to 300 meters) or by the TA-79E triax adapter through triax cable (up to 2000 meters).

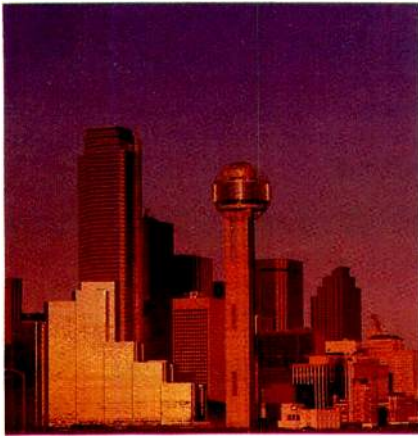
The camera can be set up using conventional manual techniques or an optional microprocessor assist.

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See ad page 121. Circle No. 178.

ACCU-WEATHER 2529
Will feature new satellite delivery of all weather products, including the Family of Service circuits, FAA 604 line, & NAFAX and DIFAX. The inexpensive WeatherMate 350 printer allows meteorologists to select the DIFAX charts they need easily and inexpensively. Also new is a weather database offering weather data, hourly reports, plain-language forecasts, statements & warnings, computer output, upper air observations, and the Advanced Map Plotting System (AMPS). Accu-Weather now offers more than 400 graphics a day, ranging from temperature band maps to almanac features.

ACQUIS 3252
Will show the ECS-225 Edit Control System to control eight VTRs of mixed format. Full auto assembly capability is included and kits are available to upgrade ECS-200 systems to full ECS-225 capability. Also on show will be the ECS-195 two-source A/B roll editor and the ECS-90 single source offline editor.

ACRIAN 2458
Will introduce high-power UHF amplifiers for transposers ranging from 30, 60, and 120 W. From its regular line will bring RF power semiconductors.

ACRODYNE INDUSTRIES 3521
Will introduce a range of externally diplexed high-power VHF TV transmitters available in system M and B/G formats: TBL(H)-20 KA, 20 kW output; TRL(H)-30 KA, 30 KA; TRL(H)-40 KA; TRL(H)-60 KA. Also shown will be single-tube UHF transmitters, TRU/5 KA and TRU/1 KAC.
See ad page 107. Circle No. 174.

ADAMS-SMITH, INC. 2488
Will unveil a new compact controller, Model 2600 CC, an audio-for-video tape synchronizing system controller which features integrated multicontrols and sophisticated audio engineering capability in a compact, lightweight package.

ADC TELECOMMUNICATIONS, INC. 2819
Will have a new patch kit, a complete patch bay kit for the "do-it-yourselfer" that offers the same features as ADC's prewired patch bays. Also new is the SAILS kit, a complete kit for fitting almost any patch bay with Self-Adhesive Identifications Labeling System. ADC will also show its line of Pro Patch audio and video patch bays as well as VAMP—video audio modular patchbay, plus its full line of patching accessories.

ADM TECHNOLOGY, INC. 3266
Will introduce the BCS 3243-PC, a

PC interface to the 3243 console which allows for the storage and retrieval of console assignments and setups via a PC, plus a new line of resistive output stereo DAs. The STV stereo TV audio consoles and Post Pro consoles will also be shown.

ADVANCED DESIGNS CORP. 2419
Will feature the DOPRAD II Doppler weather radar system with eight-plane graphics capability, 768x480 resolution, range height indication, and other features. Also on view will be the DOPRAD II display unit, DOPRAD I/II Doppler retrofit systems for existing antennas and display units, and the RCD-1000 remote color weather radar display system.

ADVANCED MUSIC SYSTEMS 2919
Probably will introduce to NAB the Audiofile, a hard disc digital audio recording and playback system with 16-bit sampling. Also will present its digital audio processing equipment, including the DMX 15-80S dual-channel digital delay line/pitch changing system, RMX 16 digital reverberator, and Timeflex stereo time compression/expansion device, plus new tape machine interfaces.

AEG CORP. 2700

AEG-BAYLY 2700
The new M-20 ATR, a 1/4-inch two-track available in stereo with digitally-controlled audio alignment and with SMPTE Time code will be introduced. The M-21 Series professional ATRs, avail-

e in 1/4- and half-inch versions
also be shown. In addition, the
company will have the line of
Bayly FM transmitters.

See ad page 73. Circle No. 148.

A.F. ASSOCIATES, INC. 3141

Will premiere a new version of its Pegasus commercial compilation system as well as a presentation system using the Pegasus environment. Also new will be the Audix assignable desk audio console, effectively providing digital control of audio analog switching, and a new, variable speed version of the Marconi B3410 CCD line array telecine.

See ad page 123. Circle No. 179.

See ad page 214. Circle No. 240.

AGFA-GEVAERT 2815

Will introduce a new low-noise iron oxide bulk audio cassette tape, PE 616/816, along with a new half-inch VHS Studio Performance tape with improved S/N and lower dropout rate. Also featured will be the four lines of audio cassette tape (Magnetite 12, 11, 19, and 27 Series), a line of audio mastering tape products including the recently introduced PEM 297D digital mastering tape, and the videotape line, including Broadcast Plus U-matic cassettes and U.S. Professional Beta/VHS cassettes.

See ad page 21. Circle No. 113.

AKG ACOUSTICS, INC. 2521

Has several new products, the C-460 condenser mic systems featuring CK-1X, CK-2X, new CK-3X capsules, CK-61 and CK-62 ULS Series cardioid and Omni capsules for use with C-460B mics. Also new are the Q-34 headset boom combinations and K-240DF flat response studio monitor headphones. Also on display will be the full line of condenser and dynamic mics, stereo headphones, phono cartridges, and KM stands and booms.

See ad page 28.

ALAMAR ELECTRONICS 2582

Will introduce three new products: the MC-500 low-end video cart system, the TL-2500 tape library control system, and the SC-3000 affordable machine controller with SMPTE time code. Will also show an upgrade to the

MC-1050 automation system featuring six-channel station automation system with auto cueing, random access, transition entry, and tape verification. General purpose record and all source to destination channels are also available.

See ad page 131. Circle No. 183.

ALDEN ELECTRONICS 2759

Will show its full line of color weather display systems including the C2000R for live pictures from NWS RRWDS radar transmitters; the C2000S satellite/graphics system for reception of satellite pictures from commercial databases; and the C2000R/S, which combines the first two systems' features. Also shown will be the C2000M single-picture color weather radar display system, designed primarily for radio.

See ad page 149. Circle No. 200.

ALEXANDER MFG. CO. 2924

Will show its line of battery packs for video cameras in VTR and ENG applications.

See ad page 102. Circle No. 168.

ALIAS RESEARCH 2497

At its first NAB exhibition, will introduce its 3D graphic design system, a user-friendly, real-time turnkey work station system which simulates objects, scenes, and events with computer-generated imagery. Also new will be a paint system offering 16 million colors selection, display and output, all in real time, plus full electronic airbrushing, the ability to work in RGB or HSV, and zooming, stenciling, and masking. The paint system's hardware and software package costs \$62,000 as a standalone, or \$20,000 as an option to the graphic design system.

See ad page 129. Circle No. 182.

ALLEN AVIONICS 2724

Will announce a new high-frequency noise eliminator, VNE-75. Also shown will be the VES Series delay lines for high-frequency and video applications.

See ad page 184. Circle No. 211.

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

ALLIED BROADCAST EQUIPMENT 3414

Is offering new studio furniture completely shippable by UPS or any other prompt, overnight method.

ALLIED TOWER CO., INC. 3432

Will advertise its products and services in tower and other broadcast structure manufacture.

ALPHA AUDIO ACOUSTICS 102

Will show its Sonex, Soundtex, Acoustilead (sheet lead) acoustic materials.

See ad page 278. Circle No. 276.

ALPHA AUTOMATION 203

Will show The Boss 8400/8410 automated audio editor system, a computer-based system to accelerate audio production.

ALPHA VIDEO & ELECTRONICS 2524

Will introduce new direct color 3/4-inch high-band modified Sony U-matic recorders, and a time code modification for the Sony VO-6800. Also the standard line of Alphatized modified 3/4-inch recorders.

ALTA GROUP 3408

Will introduce PYXIS-P, a PAL version of PYXIS, the dual-channel digital video production system consisting of two 16-line window TBCs, two tape and two camera inputs, and transition effects between channels and audio switching. Price for the PAL version is under \$8000; NTSC is \$6990. Also new will be CYGNUS, a one-channel component production system with infinite window TBC, digital picture freeze, picture strobe, posterization, mosaic, and a 4x1 input routing switcher for audio and video, costing under \$5000.

See ad page 104. Circle No. 170.

ALTRONIC RESEARCH 146

Will display from its Omega line of RF coaxial dummy load, and high-power nonreactive resistors using fixed film.

AMBER ELECTRO DESIGN, INC. 2741

Will introduce new stereo phase and dc volts capabilities to its 5500

MAGNETIC TECHNOLOGY THAT ATTRACTS WORLD ACCLAIM.



In the world of magnetic technology, one name has attracted world acclaim. Producing more formats and providing more service than anyone else.

One name has won world recognition. With an Emmy in 1983 for pioneering the first videotape—and a Scientific and Engineering Award from the Academy of Motion Picture Arts and Sciences in 1985 for developing Cinetrak™ Magnetic Film.

That one name is Scotch™ Magnetic Technology—number one in the world of the pro.

Scotch™

AUDIO & VIDEO TAPES

NUMBER ONE IN THE WORLD OF THE PRO

3M

programmable audio measurement system, which will be exhibited with new application software. Also shown will be the 3501 distortion and noise measuring system.

AMCO ENGINEERING 3426

Will introduce a new vertical cabinet line, available in a variety of configurations for rapid delivery in a choice of 10 colors. Also featured will be the FX Series and aluminum cabinet lines.

AMEK CONSOLE, INC. 2558

Will introduce a working version of the APC 1000 audio production console, which can be configured for varying degrees of automation on the "building block" principle. Various frame sizes can accommodate up to 88 inputs, bus operations are from eight mono and four stereo to 48 mono and six stereo. A complete setup for the whole console is stored as a page of RAM, with multiple RAM pages available to different users. The Amek Angelica console with A10S stereo input module will also be on display along with other Amek consoles.

AMERITEXT 2643

Will display samples of World System Teletext projects ongoing in the U.S., including teletext magazines from Wisconsin, Los Angeles, and Tampa/St. Petersburg, and the national regional Electra teletext network. Origination, transmission, editing, and receiving equipment will be on hand from companies based in the U.K. (VGE, Logica, Jasmin, Aston, and Mullard) and the U.S. (Zenith, Sanyo, Harris, and Signetics).

AMHERST ELECTRONIC INSTRUMENT 107

Will premiere a digital video image processor with open bus structure providing timebase correction with digital test software and built-in SMPTE time code reader with character insert. Edit controller and automation equipment will also be shown.

AMPEREX ELECTRONIC CORP. 2600

Will introduce versions of its NXA1010 high-resolution 604 x

576 pixel solid-state frame transfer CCD image sensor for use with color or black-and-white NTSC or PAL cameras. New diode and triode guns will be shown for 2/3-inch and 30 mm camera tubes as well as the established line of guns. Also among existing products will be two high-efficiency klystrons and a tetrode and cavity for TV and FM/AM broadcasting.

See ad page 135. Circle No. 185.

AMPEX AUDIO-VIDEO SYSTEMS DIV. 3108

Will unveil the ACR-225, a digital video cart spot player designed as a replacement for the ACR-25. Offering one channel of digital video and four channels of digital audio, the 225 has on-line storage for 256 19 mm cassettes and a library database that can identify over 10,000 tapes. A stereo upgrade kit for VPR-2 VTRs also will be introduced. Ampex will also feature its Creative Command Center, consisting of VPR-3 one-inch VTRs, Zeus 1 advanced video processors (in their first NAB showing), the ACE editor, AVC switcher, and ADO 3000 digital video effects system with Infinity effects option. The Zeus 1 will also be demonstrated with the VPR-6 one-inch VTR. Also on view will be the ADO 2000 on-air digital effects system, the AVA-3 video art system, the ESS-3 digital still store, the ACE and ACE Micro editors, and the entire line of switchers.

See ad page 133. Circle No. 184.

AMPEX MAGNETIC TAPE DIV. 3108

Will unveil the 467 digital audio cassette, in addition to the established tape line including 196 one-inch videotape, 197 3/4-inch tape, 456 Grand Master studio mastering tape, 467 professional digital mastering tape, and 406 professional mastering tape.

See ad page 139. Circle No. 187.

AMP SPECIAL INDUSTRIES 2764

Will show a new commercial BNC connector crimpable in industry standard tooling, along with other BNC connectors and application hand tooling, subminiature D connectors, pin and socket connectors and the Taper technique audio interconnection system.

AMTEL SYSTEMS, INC. 2820

Will exhibit the Soundmaster audio editing system and Soundmaster tape synchronizer modules which together provide a turnkey audio-for-video editing system. Also shown will be the T-7000, a portable time code generator model, a low-cost portable SMPTE generator with playspeed reader, plus the complete line of vertical interval and longitudinal SMPTE time code equipment.

ANCHOR AUDIO, INC. 2426

Will introduce two new powered speakers for audio edit-from-video, the AN-1000 and the AN-1400 to fit Tektronix or Leider halftrack. Other powered speakers and sound and intercom systems will be shown.

ANDREW CORP. 3098

Will show its established line of UHF and VHF transmitting and terrestrial microwave antennas, transmission lines, C- and Ku-band earth stations, and associated equipment.

ANGENIEUX 3020

Will introduce two new lenses: a 14x7 super wide-angle zoom for 2/3-inch ENG cameras, and a 40x9.5 OB sports zoom. Other featured lenses will include the 14x8 wide angle ENG/EFP zoom with nonrotating front element; the 14x9 ENG zoom with 2x range extender; and the 18x12.5 high-quality studio zoom.

See ad page 203. Circle No. 229.

ANT TELECOMMUNICATIONS/SOLWAY 2745

Will unveil the Telcom C4E, a single-channel noise reduction card for mobile applications, line transmission, ATRs, and VTRs. The company will also show Telcom C4 models: DM single-channel noise reduction card, 122 two-channel unit for use on STLs and satellite transmission, 232 two-channel unit for use with one-inch VTRs and ATRs, and for FM multitrack applications of four, eight, 16 and 24 channels.

ANTENNA TECHNOLOGY CORP. 3104

Will premiere new ITFS and MDS transmitters and parabolic antennas in the 1.8 m to 32 m ranges,

The Abekas A52 Digital Special Effects System.

Take the controls of our A52 Digital Special Effects System. And let your fancy fly. Your video will be limited only by your own imagination.

The A52 offers a striking combination of simple, yet powerful, programming techniques and effects editing capabilities.

Your A52 can be configured to accommodate up to

four control panels and two channels. Assign any control panel to any channel. A52 features include: extremely high signal transparency, smooth picture movement, a powerful control system for on-air and post-production activities, simplified operation, a wide variety of special effects, and unique DataKey* off-line effects storage.

If you have powerful picture manipulation on your

mind, think of the Abekas A52. For details contact: Abekas Video Systems, Inc., 353A Vintage Park Drive, Foster City, CA 94404. (415) 571-1711.



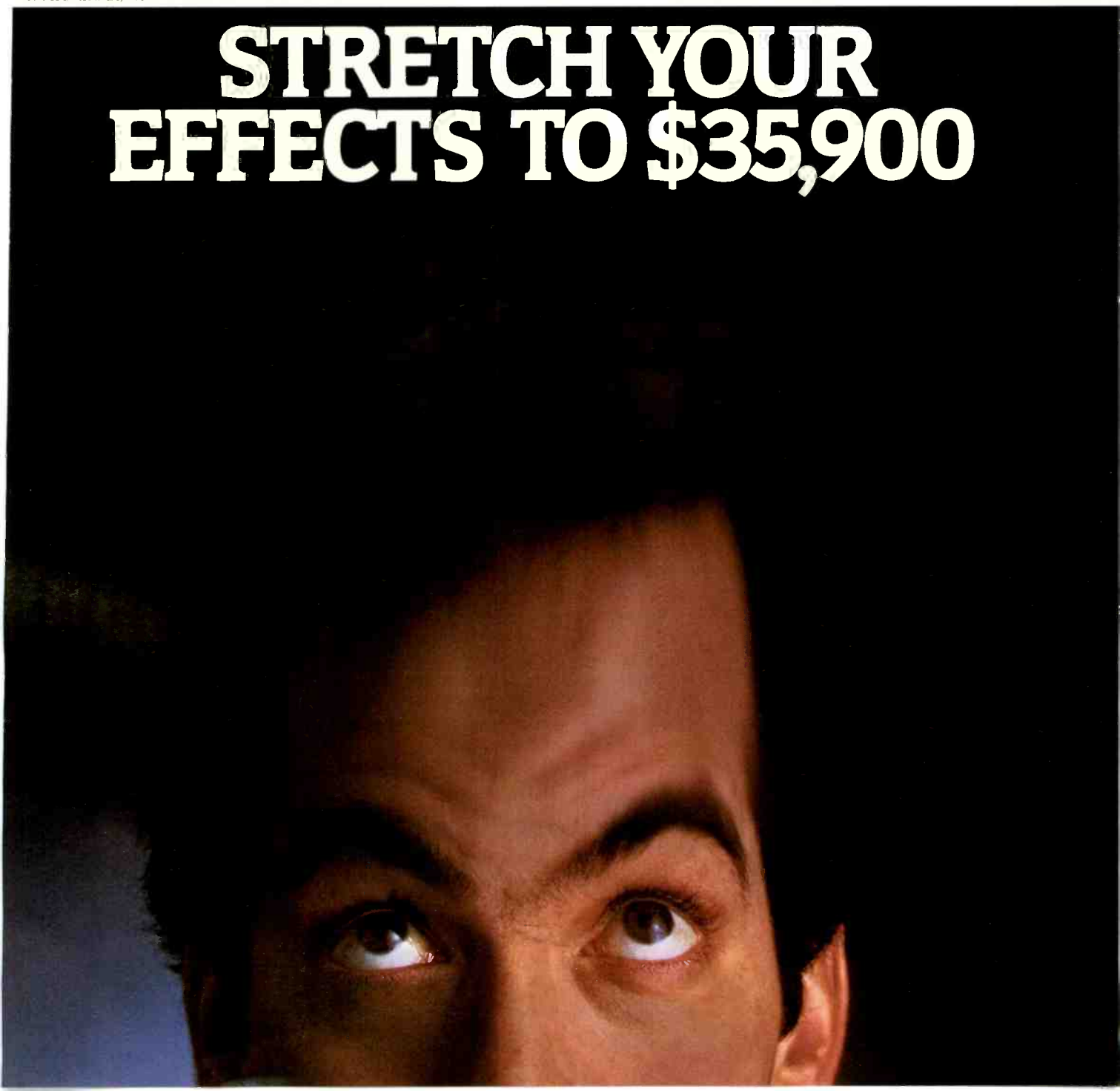
Abekas
Video Systems, Inc.

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Circle 178 on Reader Service Card

*TM of DATAKEY, Inc.

STRETCH YOUR EFFECTS TO \$35,900



and spherical antennas in 3, 5, 7, and 10 m sizes. Established Simulstat antennas, microwave products, and satellite downlink headend electronics will also be shown.

ANTON/BAUER 2729

Will introduce the Powerstrap, a multipurpose 12 V, 4 Ah nicad battery strap first seen at SMPTE. Also showing the line of Snap-On Pro Pac batteries, Pro Pac 90 VTR batteries, Lifesaver chargers, UltraLight 30/13 battery belt, LPS-4 mobile fast charger, and dual battery holder.



Anton/Bauer's Powerstrap powers lights as well as recorders.

ANVIL CASES 2706

Will introduce new design concepts in EIA rackmount cases and enclosures as well as new features to the existing line of Military Applications Cases and Containers, emphasizing computer interface for video production and ENG equipment.

APERT-HERZOG 2931

Will feature the Model H and Model H2 digital TBC/synchronizers, the A2 digital frame synchronizer, the 1x24 video DA, The Step audio/video memory device, and the VBB-1 video DA in a chip.

APHEX SYSTEMS, LTD. 2816

New this year is the Dominator, a triband peak processor/limiter which Aphex will show along with its Compellor, and the Aphex II Broadcast Aural Exciter.

APOLLO VIDEO ENTERPRISES 3468

Will bring a line of new equipment from Polar Video, including the PVM-1 compact production switcher; the PPM-1 Picture Mover, an analog device for full-range picture location; the SAG safe area generator; and the PAF-1

auto fade unit for the PVM-1. Also new will be the Acron Video 605 N NTSC encoder and 512N pulse generator. Established products will include the range of studio, portable, and on-camera prompting systems.

APPLIED RESEARCH & TECHNOLOGY 2336

Will introduce new software for its digital reverb equipment, a multi-tap digital delay, the PD-3, and two new balanced EQs. The regular line of microprocessor-controlled signal processing equipment includes equalizers, digital reverbs, digital delays, pitch transposer.

See ad page 192. Circle No. 218.

ARIES INDUSTRIES OUTDOORS

Will make its NAB debut with a 40-foot model from its line of hydraulic telescoping masts, which range in length from 15 to 60 feet. They are available with roof or side mounting.

ARRAKIS SYSTEMS, INC. 2742

Will add the Model 5000 16-channel modular console to its established line of consoles, the Series 150, 500, 2000, and 2100, which will also be on display. In addition, a new line of breakdown modular furniture for radio station studios will be unveiled.

ARRIFLEX 3553

Will introduce Lightflex, a new video/film on-camera accessory that overlays a controlled amount of light on the scene at the time of exposure, allowing the camera operator to modify the gamma curve in the camera while shooting, as well as ARRI Time Code, a system for optically burning SMPTE 80 bit time code into film. The line of Arriflex cine cameras, camera accessories, Zeiss cine lenses, and a ARRI lighting and grip equipment will be on view.

ARTEL COMMUNICATIONS CORP. 2920

Will introduce new capabilities for the SL3000 fiberoptic communication system as well as a new fiberoptic duplex, standard telephone data rate system, T134. The established SL2000 LED-based system will also be shown.

ARTRONICS 216

Will feature the Artronics Studio Computer electronic art/graphics system, formerly marketed by 3M. Two new products in the Studio Computer family will include the VPL Video Paint Library and the VGA-3D Video Graphics Animator. The VPL combines a 28-bit high-resolution paint system and a 1200-image digital frame store, adding special effects (including 3D perspective) and keying capabilities. The VGA-3D is a high-resolution 3D animation system with a full range of functions, including metamorphosis, multiple light sources, texture mapping, automatic antialiasing, smooth shading, and many more. The two systems are designed to talk to each other.

See ad page 127. Circle No. 181.

ASACA/SHIBASOKU 3278

Will show its usual array of test instruments, & monitors, cart system, one playing M-II & one w/Betacam, software for both by Dubner Computer, and will have two or three secret products to be revealed at show.

ASSOCIATED PRODUCTION MUSIC 2650

New is the KPM 1337-CD, KPM Music Library's first compact disc offering produced digitally, start to finish. The album is called "Tradewinds" and features music with Outdoors/Americana orchestra arrangement featuring acoustic guitar. KPM, Bruton, Conroy, Themes, and Shepherd's Bush production music libraries will also be shown.

ASTON ELECTRONICS 212

The Aston 4 high-resolution production character generator, featuring antialiased characters, will have its first NAB showing.

ATI-AUDIO TECHNOLOGIES, INC. 2058

Will show the new Vanguard Series audio consoles, 8 mixer, dual stereo, smaller, more compact, and aimed at smaller or low-cost operations. Also on exhibit will be the Match-Maker and Disc-Patcher interface units, the Encore Series phono preamp and DA, the Microamp Series modular and

THERE'S MORE TO AN AFA VIDEO SYSTEM THAN MEETS THE EYE.

EXPERIENCE

For more than a decade, AFA has designed and fabricated complete turn-key video systems for leading corporate users, production and post-production facilities, broadcasting stations and the networks.



PERFORMANCE

AFA has consulted, advised, designed, fabricated, installed, tested and serviced systems of every size and configuration... from 45' mobile units to 3/4" corporate editing suites, production and post-production facilities, network playback centers and specialized systems.

COST EFFICIENT

Our experience and expertise makes it possible for us to avoid mistakes, stay on budget, and deliver on time. This ultimately saves you money!

SERVICE

And when maintenance is required, we're there—no questions asked—with our own service guarantee and the manufacturers' as well.

RELIABILITY

An AFA system is thoroughly tested both at our plant and on site, so that it works at the outset and will continue to work well into the future.

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what's behind an AFA Video System.**

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self-contained audio DAs, phono preamps, monitor amps, mic and line amps, and the Emphasizer audio processor.

See ad page 194. Circle No. 220.

AT&T COMMUNICATIONS 3212

Will hold live demonstrations in a specially constructed videoteleconferencing room. New products to be shown will be the System 75 digital private branch exchange and the Merlin ACD, a low-end phone system, combined with automatic call distribution. Telemarketing agent support software, a home banking video terminal, and a voice response system will also be featured.

AUBURN INSTRUMENTS 2836

Will introduce the MC/1-RUCC computer interface, which allows the MC/1 two-wire machine remote-control system to be interfaced with master control switchers and associated computer systems. The MC/1 will also be on view.

AUDICO, INC. 2720

Will introduce a videocassette cycler on 619 Rewinder that fast-forwards tape to leader then automatically rewinds allowing a rapid check for broken or damaged tape. Also new are a videocassette timer to verify the lengths of tape in cassettes, an 8 mm cassette tape loader, and VHS spine label sheets. The company will also show videocassette tape loaders for U-matic, VHS, Beta, and 8 mm, with feature to remove old tape so cassette housings can be reused without disassembly. Videocassette rewinder, timer, and pressure-sensitive label sheets for U-matic, VHS and Beta will also be shown.

AUDI-CORD CORP. 3433

Will feature "S" and "E" Series families of cart equipment and the "TDS" twin-deck reproducers.

AUDIO BROADCAST GROUP 2581

Will feature its "Human Engineered" studio system, a wired system for turnkey installation. Custom cabinetry is designed and built to fit any size console and associated equipment for on-air or production applications. System

on display will be an Auditronics 200 Series Console, Studer CD player, BE cart player, Revox reel-to-reel and Technics turntables.

AUDIO & DESIGN CALREC 2708

Will unveil a new Calrec digitally assignable broadcast production and post-production console, and will also feature its "M" Series portable mixer with up to 16 inputs x 2 outputs plus mono sum. Also shown will be the Scamp four-band audio processing system; Filmex four-band audio noise reduction system; Soundfield stereo microphone featuring remote electronic control of polar patterns, plus a complete range of Audio & Design broadcast and production processing.

**AUDIO DEVELOPMENTS/
PORTLAND INSTRUMENTS 2933**

New is the AD260, a stereo 4x2 portable mixer with 48 V, 12 V battery operation with internal inverter, battery charger circuit, oscillator, monitor, and two VU meters. The company will also introduce the Model "A" battery-powered compressor-limiter for field use, with XLR inputs and outputs and full broadcast specs. The EFP and ENG, network used field audio mixers; the 145 Pico Plus, a six-input stereo mixer with 48 V and 12 V mic supplies; and the 062 portable console with up to 16 inputs, will also be shown.

AUDIO DIGITAL (IN RADIO RESOURCES BOOTH)

Will show the TC-4 Broadcast Digital Processor, a digital delay for audio fixed at seven seconds with "dump-catchup" option for immediate deletion and return to air with buildup of delay gradually from real time, imperceptibly.

AUDIO ENGINEERING ASSOCIATES 2769

The focus is on technologies to ease transmission from mono to stereo, and new products include two new M-S stereo units: an M-S box with mic preamps as part of it, and a four-input battery powered mixer with M-S matrix in production form. Also shown will be the regular M-S 38 matrix. Studio Technologies will be exhibiting in the same booth.

AUDIO KINETICS, INC. 2506

Will introduce the Eclipse editor-controller for Q.Lock 4.10 synchronizer, a microprocessor system offering four-machine editing, and the Pacer synchronizer, a chase synchronizer, synchronizer, generator, and resolver. The Master Mix System, TimeLink timecode, and Q.Lock Systems will also be shown.

AUDIO METRICS (SEE RADIO SYSTEMS)

AUDIO PRECISION, INC. 2560

New are the Wow and Flutter option, the Intermodulation distortion option, and audio routing switcher modules all for the System One PC-based audio test system with onscreen graphs tests and data saved to disk. The System One will also be demonstrated.

See ad page 143. Circle No. 189.

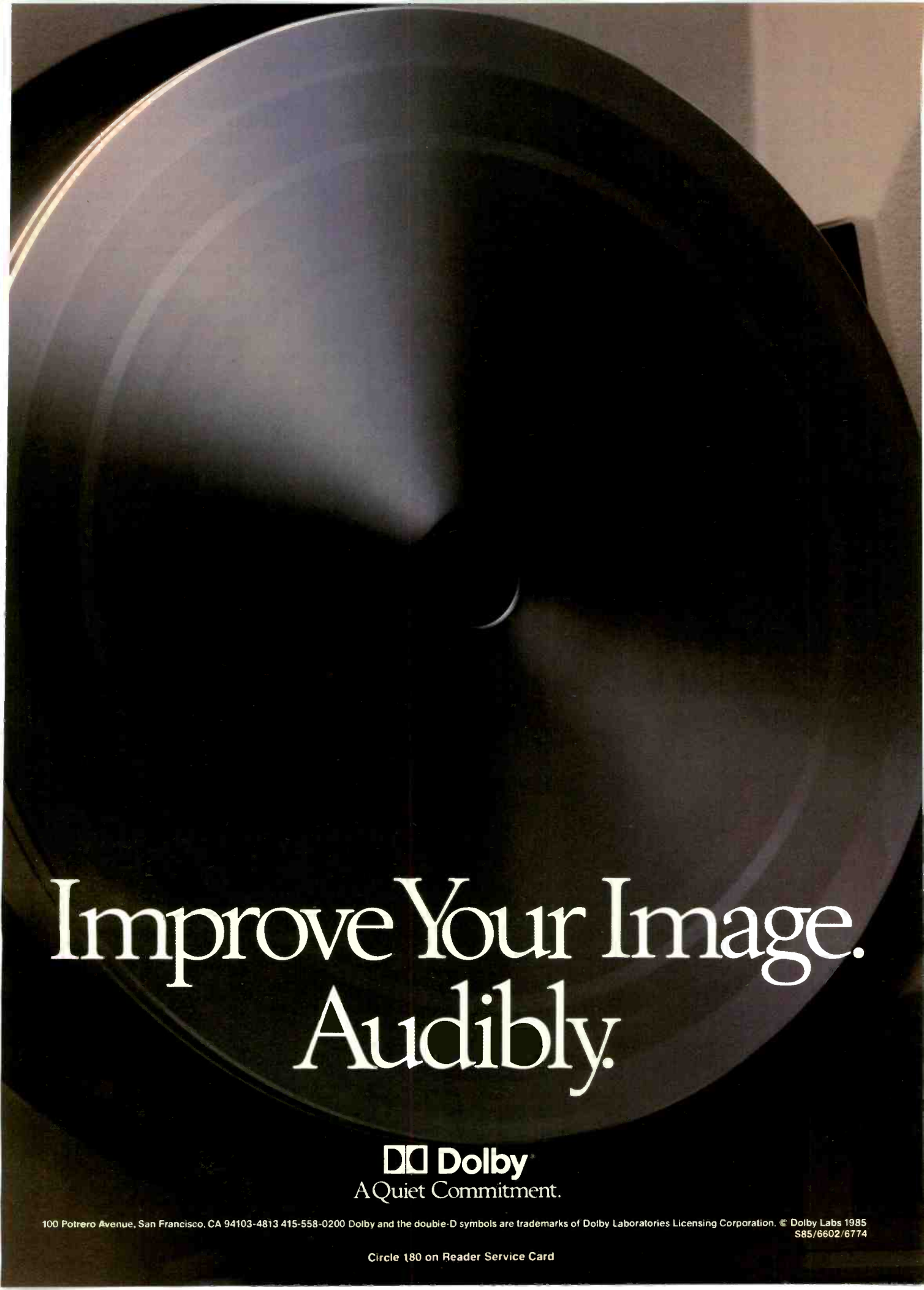
AUDIO-TECHNICA U.S., INC. 2407

New this year are the ATM5R miniature unidirectional fixed-charge condenser vocal mic, the ATM33R unidirectional condenser instrument mic, the ATH-M7 PRO Studiophones headphones, new microphone stands and a shotgun mic accessory line. Also to be shown are the complete line of mics and related accessories, mic cable, tone arms, phono cartridges, studiophones, and recorder/mixers.

See ad page 83. Circle No. 153.

AUDITRONICS, INC. (TAPECASTER) 3310

Will introduce the Auditronics 310 Series audio console second generation replacement for 300 Series production console, available with four or eight outputs including submastering to stereo and mono mix, and with mono or stereo inputs, each available with or w/o EQ. Also new is the Tapecaster 1000 Series audio on-air console, with standard stereo outputs, available in six, eight, 10, or 12 mainframe sizes. It allows any position to be mono or stereo with subsequent mono to stereo conversion easily accomplished in the field. Other featured products



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are the Auditronics broadcast, on-air audio control consoles, audio production consoles with four, eight, 16 or 24 outputs; Tapecaster X-700 Series cart machine available in mono or stereo, reproducer or reproducer/recorder models, also Tapecaster 100X automatic tape cartridge loader.

See ad page 29. Circle No. 121.

See ad page 218. Circle No. 244.

AURORA IMAGING SYSTEMS 104

Will announce the 220 videographics system with full color, a range of picture generation tools, high-resolution output, 32-bit processing and picture storage, and optional three-dimensional modeling. Also shown will be the Aurora/75 graphics design system.

See ad page 145. Circle No. 190.

AUTOGRAM CORP. 2720

Will introduce the 20 R/TV Audio Console, featuring 20 slide pots with electronic switching and VCA level control. It's expandable to interface with Autocode II logging system and external computer control. Also the LC-10 audio console, an updated version of the standard IC-10, with slide attenuators and pushbutton switches. The Microgram, a microprocessor-controlled audio console with up to 64 inputs; the IC-10, a 10-channel rotary pot console; and the AC6 and AC8 rotary pot consoles will also be shown.

BAF COMMUNICATION CORP. 2544

Will introduce the 340T, a production-oriented larger SNG unit using the same vehicle as its 230 SNG unit, but with a more spacious workspace compartment. Also new will be a SNG flyaway unit.

BARCO INDUSTRIES, INC. 2577

Will show its CTVM4 Series broadcast monitors, CM22 professional broadcast monitor, PCD3 chroma decoder series, as well as a high-definition TV.

BARCUS BERRY ELECTRONICS 2485

Will unveil the 401 BBE signal processor for musical instruments, an audio component to correct phase and amplitude distortion resulting from

amplifier-speaker interface, and the 202 Pro-audio component which corrects phase and amplitude distortion resulting from amplifier-speaker interface.

See ad page 147. Circle No. 191.

BARDWELL & McALISTER 2746

Will feature a newer version of the Modulight portable, collapsible softlight, as well as the line of Bardwell & McAlister lighting fixtures and grip equipment.

BARRETT ASSOCIATES 2654

Will unveil the Jasoni Electronics Tape Analyzer System, TAS-1000, which aligns and calibrates any audio tape unit including cart machines, reel-to-reels, and cassette recorders. The line of reconditioned audio and RF equipment will also be featured.

BASYS 2913

Will introduce a new integrated management information system, an optical disc archive system for long-term storage of scripts, story files, etc. Designed for radio and TV applications, it features large storage capacity. Also featured will be the Basys newsroom computer system, based on VAX, Parallel, Onyx, & IBM PC computers and ranging in size from two or three terminals to large multi-station networks.

See ad page 269. Circle No. 273.

B&B SYSTEMS, INC. 2665

Will introduce the AM-1B Stereoscope, similar to the AM-1 but smaller in size. Also new is the AM-2B Stereoscope, an even smaller model. Also to be shown are the original AM-1 Stereoscope designed for TV production and post-production; the AM-2 Stereoscope designed for AM and FM stereo radio broadcasters; the AM-3 Stereoscope for TV broadcast with CRT display; the MP-4 audio meter panel for all audio applications featuring buffered, balanced, active bridging electronics with four separate input circuits; and the Imagescope, a graphic display of stereo audio image for

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

both TV and audio applications.

BEAVERONICS, INC. 2703

Will show the DSK-4-DLB downstream keyer and the 154 and 712 video production switching systems, as well as the Favag range of QMS modular plug-in clock systems and secondary slave clocks. A low- to medium-power FM transmitter from Energy-onix will also be featured.

BELAR ELECTRONICS LABORATORY 3347

Will feature the TVM-100 aural modulation monitor for measurement of the total modulation characteristics of mono and multi-channel sound transmitters and the companion TVM-200 for monitoring BTSC stereo characteristics. Existing products on show will be the FMM-2 FM modulation monitor.

See ad page 92. Circle No. 162.

BELDEN COMMUNICATIONS 2926

Will show new spun diffusion media, seven new colors in its color correction line, and filters for working in fluorescent light. Existing ranges of resin camera filters, polyester filters and color correction filters will be shown.

BELDEN ELECTRONIC WIRE & CABLE 2651

Will announce the addition of two satellite cables, 9213 and 9214, and two conformable coaxial cables, 9307 and 9308, to its displayed full line of coaxial, twinaxial, and triaxial cables.

BENCHER 2568

BENCHMARK MEDIA SYSTEMS, INC. 2407

Will unveil the MIA-4 microphone preamp card featuring 200 kHz ultra-wide bandwidth, a broad gain range of 75 dB, high output to +30 dBv, and switchable phantom power. Also to be introduced is the DA-102 stereo version of DA-101. Other products featured include the System 1000, an audio interface and distribution system; the RPM-1 remote program meter card; and a series of differential interface devices (DIFs) to convert unbalanced audio electronics to balanced in/out.

Artronics VPL

VIDEO PAINT LIBRARY



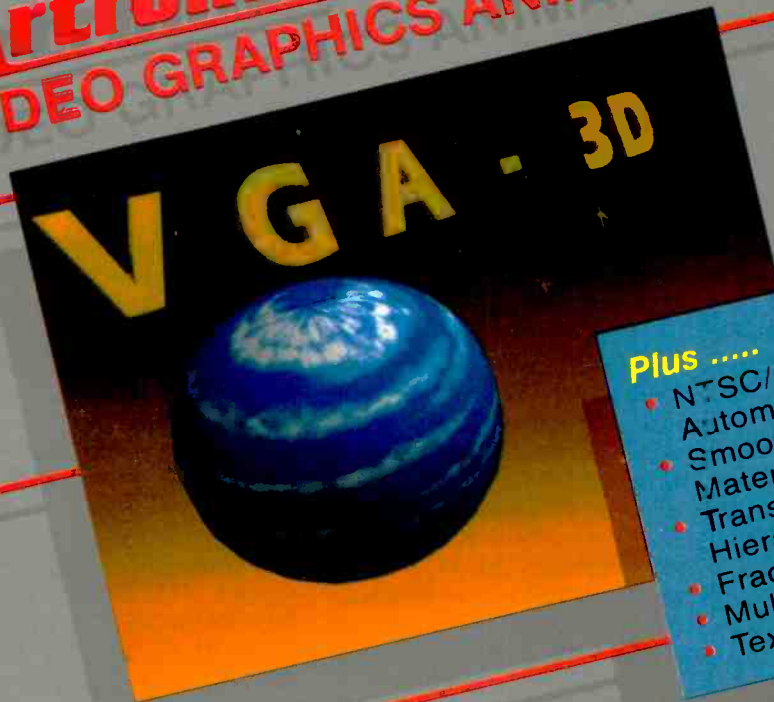
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KEYING OVER/UNDER

Plus

- 24 Color Planes with 4-Bit Antialiased Key Output
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- Flash Grab (Field or Frame)
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- Full Antialiasing

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VIDEO GRAPHICS ANIMATOR



HIGH SPEED
HIGH RESOLUTION
3D ANIMATION

Plus

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- Automatic Antialiasing
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BEYER DYNAMIC, INC. 2823

Will introduce the MCE-6 high SPL version of the MCE-5 mini electret condenser lavalier mic; the MCE-10 cardioid version of MCE 5 mini-electret condenser lavalier mic; the MC 736 PV short shotgun condenser mic; the MC 737 PV long shotgun condenser mic; and the MSM 48 n(c) 1A (nicad) 48 V dc power supply that is portable and powered by 5-9 V batteries. Beyer will also show its full line of dynamic mics including all broadcast quality announcers mics.

BGW SYSTEMS, INC. 2825

New this year are BGW 2242 high performance, two input x four output DAs in a 1 3/4-inch rackmount enclosure. All inputs and outputs are active balanced. Eight miniature bridge-connected audio power amps built with discrete transistor devices are incorporated. The 2242 acts as if it were equipped with output transformers and may be used as a single-ended or balanced DA. also on display will be the complete line of broadcast audio power amps including Model 85 and Model 150.

BHP 2795

Will unveil its EnVISION video/film editing system, which is touchscreen-driven, user-friendly, reads film edge or SMPTE time code, and can output an edit list onto a CMX compatible disc. The picture and sound editing system, complete with all equipment, costs \$95,000.

BIAS (SEE DATA COMMUNICATIONS CORP.)**BIRD ELECTRONIC CORP. 3472**

Will exhibit the 15 kW and 25 kW forced air-cooled, dry load resistors, for dual transmitter installations along with new STL RF test equipment and FM broadcast filters and filter/couplers, and the established range of RF power measurement, directional wattmeters, and loads.

BIW CABLE SYSTEMS, INC. 3493

Will show its line of connectors and cables for TV cameras, microphone cables, fiberoptic cables, and triaxial cables.

B&K PRECISION 2464

Will show its NTSC vectorscope, waveform monitor, deluxe NTSC generator, and related test instruments.

BOGEN PHOTO 2405

Will introduce eight- and 13-foot black anodized light stands; a folding auto dolly; the 3170 compact convertible tripod with micro fluid head; and the 3140 black anodized tripod with mini fluid head. The full line of video tripods and fluid heads, video accessories, lighting stands, and quartz lighting will also be on display.

BOGNER BROADCAST EQUIPMENT 3406

New antenna additions are a low-cost UHF TV broadcast range, the DUI Series available in directional patterns for side mount only, the BUI18 omni or directional for up to 39 kW input to a side, and the BUH18 for up to 78 kW. Existing antennas for UHF and VHF in all power levels and MDS/ITFS/MMDS transmit and receive and two-way radio, cellular, and paging high performance base station antennas.

See ad page 84. Circle No. 154.

ROBERT BOSCH CORP. 3170

Will introduce a variety of new products, including: the 3D Illustrator paint system with full 3D; a line of new signal processing equipment including audio and video DAs, a sync pulse generator, and a 20 x 1 routing switcher; the KCM-125 auto setup video camera; the FGS-4000 graphic off-line modeling system; two new switcher control panels, the CP-1410 and CP-1600; and the Ampex ATX X-Y zoom unit for the FDL telecine. Established products will include the FDL-60 telecine, FRP-60 color corrector, and FRGN grain reducer; the FGS-4000 computer graphics image system; the KBF-1 Quartercam recorder/camera and BCF-9/10 1/4-inch playback recorder unit; the TAS/TVS-2000 audio/video distribution switcher, MCS-2000 MC switcher, and line of custom control panels; the R51-ME, R61-ME, and R102-ME production switcher; the BCN-21 portable and BCN-51 studio one-inch VTRs; and two high-resolution color

monitors, the MC-37BA (15-inch) and MC-51BA (20-inch).

See ad page 37 40. Circle No. 126.

BOWEN BROADCAST SERVICE 2522

Will offer new LED switch modifications and other accessories for the RCA TCR-100 cartridge machine.

BRADLEY BROADCAST SALES 2663

Will introduce the Tecos "Echo" digital auto-answer telephone message unit, and show the Tecos-10 digital telephone hybrid

BROADCAST AUDIO CORP. 2615

New is the System 6 modular console with six mixers, which uses the same plug-in assemblies as the company's larger consoles, for news editing and small production facilities; also the BA 10T, BA 10R aural STLs using recent advances for frequency stability, low noise, and receiver selectivity. Stereo audio consoles for radio and TV, and the complete line of MOSFET amplifiers, passive RIAA phone preamps, and premium DAs will also be on display.

See ad page 87. Circle No. 157.

BROADCAST ELECTRONICS, INC. 3226

Will show the updated version of its Digitaltalk, the DV-2, a digital jingle-ID-spot player which now features extended frequency response to 6.6 kHz over last year's 3 kHz, more storage time up to five minutes of mono, and new control features including a repeat function. Digitaltalk is a RAM chips based system, and it will again be a prototype, although BE intends to go into production with it.

Also new is the FM35A, a 35 kW FM transmitter similar in design to the FM30 featuring a 4CX 20,000C tube. The new transmitter will be hooked up to BE's MVDS: Microprocessor Video Diagnostic System for display. BE will also be demonstrating a complete automation system for CDs, in conjunction with Digital Programming Inc. who will share the booth. It will demonstrate BE's automation system with DPI's encoding for radio-station auto-

LOOK TO ALIAS



IMAGES: MACS PRODUCTIONS

ANIMATION & DESIGN

The ALIAS/1 3D graphic design system gives you the power to use computer generated imagery to simulate real world objects, scenes and events. A turn-key workstation that stands alone to deliver computerized design in real time.

- ▶ ALIAS/1 is focused on the designer. Putting extensive computing power and sophisticated application tools directly into the hands of graphic designers in film and video production, slidemaking, electronic print and industrial design environments.
- ▶ ALIAS/1 is designed for ease and utility. Allowing designers to quickly create, manipulate and output three dimensional computer graphic imagery of the highest quality.
- ▶ ALIAS/1 offers natural expansion as performance needs grow. A clear upgrade path and automated access to numerous film, video, slide and print options.

▶ NAB Booth #2497

Alias

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Circle 182 on Reader Service Card

mation of CD players and cart machines.

BDCST. MICROWAVE SERVICES/BMS 3578

Will feature a new Ku-band SNG uplink truck. Existing Loran-controlled high-gain helicopter systems and portable transmitters and receivers and antenna systems.

BROADCAST SUPPLY WEST 2743

Will unveil Prodecor, a studio furniture package consisting of a console table, single-bay cabinet, and double-bay cabinet, all with reinforced construction. Also featured will be the complete line of audio studio equipment.

BROADCAST SYSTEMS 2418

New equipment will include an automatic program delay system for television stations; the DC-80 automatic cart machine with stereo audio playback and up to 24 transports; the BJ-800 stereo audio distribution system; and the DC-8/EP low-priced (under \$60,000) version of the DC-8 video cart machine. The full line of interface panels, remote controls, equipment cabinets and consoles, wired jack panels, and DC-8 video cart machine will also be seen.

See ad page 196. Circle No. 222.

BROADCAST VIDEO SYSTEMS 2730

Will introduce a range of new products including the CK-950 component keyer, the CDK-1000 component downstream keyer with fade to black, the CS-1100 color corrector scene store, BAL miniature video filters, EV waveform monitor with line selector, Cox RGB/component converters, and a component color bar generator. The Cox encoded and component color correctors, Cox 203CV encoder with component video inputs, and BVS video delay lines and safe area generators will also be shown.

BRYSTON MFG., LTD. 497

Will unveil the 6B, a new 500 W mono amp with a 100 W switch on the back, and also features two balanced preamps: the BP1 broadcast preamp for phone use, and the

commercial BP5 phono amp with three high-level inputs. Also featured are the 2B-LP 50 W amp for broadcast and the 3B 100 W amp.

See ad page 263. Circle No. 269.

BSM BROADCAST SYSTEMS 2668

Will unveil the new "miniModula" microprocessor-controlled routing switcher, with a basic crosspoint configuration of 8x8 and expandable to 24x16 or greater. Also introduced will be newly developed remote-control units for Modula routing switchers, including a personal computer interface. Established products will include recently redesigned self-contained audio DAs, small application video and audio routing switchers, and large tailored Modula System switchers, now with a new look.

B-W LIGHTING SYSTEMS 2922

New lighting equipment will include the Model 20.170 12K softlight and the Model 20.180 1K softlight. Accessories for both include gel frame, barndoor, motion picture adapter cable, and stand mounts. The full line of studio lighting equipment, electrical distribution and grid, curtains and track, dimming and control, lighting fixtures and accessories, and miscellaneous support equipment will also be shown.

CABLEWAVE SYSTEMS, INC. 3489

Will introduce a new rigid coaxial transmission line in addition to its established range of coaxial cables.

See ad page 165. Circle No. 192.

CALAWAY ENGINEERING 149

Will introduce the CED+, an expanded version of the CED editor with six-machine control capability. Also new will be the ST-225 translator for JVC 8600 half-inch machines.

See ad page 232. Circle No. 264.

CALVERT ELECTRONICS, INC. 2503

Will show RCA, EIMAC, and National Electronics radio and TV

transmitter power tubes, Amperex camera tubes, Acron RF transistors, and Jennings vacuum capacitors.

CALZONE CASE CO. 2502

Will show the Pro Line II ATA styled case, medium duty for road travel, the Escort, an ATA-approved flight case providing maximum protection, and the Convoy for lightweight minimum protection.

CAMBRIDGE PRODUCTS CORP. 2731

Will introduce a new mini UHF and TNC crimp and twist-on to the line of RF BNC and UHF connectors.

CAMERA MART 3040

Will bring its complete line of broadcast equipment, representing over 100 lines of cameras, recorders, audio equipment, lighting equipment, support, processing, and post-production.

See ad page 5. Circle No. 103.

CANARE CABLE 2523

Will introduce a new video cable, LV61S, in addition to its established line of audio and video cables, cable reels, and multiaudio cables.

CANON USA 3300

Featured lenses will include the J8x6 wide angle ENG lens, the J13 and J18 ENG lenses, the J45 EFP zoom for 2/3-inch cameras, the PV40 field lens, and the PV18 studio lens. Also on view will be the full line of support equipment, including pedestals, tripods, and cam heads.

See ad page 6-7. Circle No. 104.

CAPITOL MAGNETIC PROD. 3345

Will show the A-2 and AA-4 broadcast carts.

See ad page 86. Circle No. 156.

CATEL TELECOMMUNICATIONS 2585

Will introduce a production version of its analog FM fiberoptic transportation system. Also shown will be broadcast versions of the CTM-11 and CTM-20 modulators for LPTV transmitter manufacturers.

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

“KLJB found the right combination with Alamar Automation and Central Dynamics switchers.”

Gary Brandt
General Manager
KLJB-TV



KLJB, Davenport, Iowa

The MC-990 Master Control switchers represent the latest technology utilizing the

proven CD-480 electronic hardware. This combination provides a compact, flexible, reliable and economical switcher for any On-Air operation.

The MC-990 may be operated as a manual/semi-automatic Preset-Take switcher, or as a fully automatic system under the control of CDL's APC-900 Automation Systems.

Please phone us toll free at 1-800-361-2354 for full descriptive literature.

Alamar Automation Features:

- Net Delay Programming
- “As-Aired” Station Log
- Automatic Spot Cueing and Confirmation
- Controls up to 32 VTR's
- Many VTR/Telecine Interfaces
- Random Access to Multiple Spots on Tape
- 6 Channel Capability
- All Source to Destination
- Multi-User (up to 3 CRT's)
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- On Screen Operator Prompting
- Help Key to Aid Any Level User



CENTRAL DYNAMICS

Central Dynamics Ltd.
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See us at NAB, Booth #3080

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 **ALAMAR
ELECTRONICS**
Affordable Automation™

Alamar Electronics USA, Inc.
36 Railway Avenue
Campbell, CA 95008
408/866-9373

See us at NAB, Booth #2582

CAT SYSTEMS, INC. 3333
Will introduce the Model 9000 multisite cable monitoring and control system with 40-site capability per controller. Also new will be software to double the speed of existing computerized remote control systems for broadcast, earth station, and cable facilities.

DWIGHT CAVENDISH CO. 2662
Will introduce the Copymaster 250 videocassette duplicator. Established products will include VCR remote-control systems, video/audio distribution systems for duplicators, U-matic VCR automatic changeover switchers, video dub signal switcher, Q.C. station for duplicators, and racking for duplicators.

CBSI/CUSTOM BUSINESS SYSTEMS, INC. 2517
New products include The System PC, with the same software as The System but for PCs. It handles traffic, logging, billing, sales projections, availabilities, other accounting and word processing and can operate on Wang PC, Wang APC, IBM PC-XT and AT, AT&T 6300, Compaq Portable Compaq Desk Pro, Zenith 150 Series and Sperry PC. Also new are Concert Music Library, which catalogs up to 200,000 selections, and Satellite Music Traffic Program, Snow Closings, and Sales Analysis reports. These will be shown along with The System.

CECO COMMUNICATIONS, INC. 3383
Will introduce transmitting power tubes from Eimac, camera tubes from RCA and Amperex, as well as new industrial and recovery tubes and semiconductor and solid-state tube replacement components.

**CELWAVE RF, INC.
(SEE CABLEWAVE SYSTEMS, INC.)**

CENTRAL DYNAMICS 3080
Will feature its line of production switchers, routing switchers, master control switchers, and distribution equipment.
See ad page 153. Circle No. 194.

CENTRO CORP. 3181
Will show its new standard electronic equipment enclosures in

one- and two-rack modules, as well as a new one-inch vertical standing VTR console. Videos will demonstrate the company's design capability in turnkey facilities, mobile, and fixed units.
See ad page 151. Circle No. 193.

CENTURY PRECISION OPTICS 2422
Will feature its line of lenses and accessories, including the V16 periscope for 2/3-inch video cameras and 16 mm film cameras and the two-piece wide-angle adapter set.

CENTURY 21 PROGRAMMING, INC. 3452
Will introduce the new Compact Disc production library, CD music services, and digital 8 mm tape; plus automation programming—computer software for music rotation, and also show its 19 automation formats on reel-to-reel analog.

CERCONE-VINCENT ASSOCIATES, INC. 2584

CETEC ANTENNAS 3587
Will announce a new TV slot antenna to join its range of CP TV spiral, panel, and ring panel antennas and CP FM antennas at a full range of power ratings.

CETEC VEGA 281
Will unveil Models 66B and 67B Pro-Plus portable wireless receivers. Each receiver operates on four internal 9 V alkaline batteries. 67B provides true dual-receiver diversity. Both models have a GaAsFET front end for improved sensitivity. Also on display will be the Model R-42 Pro-Plus diversity wireless receiver, along with the Model 77/DII Pro-Plus bodypack wireless microphone transmitter, the Pro-Plus handheld wireless microphones, Pro 1B Bodypack and Pro 1H handheld wireless microphone systems, "Q" system wireless intercom, and accessories for professional wireless microphone systems.
See ad page 155. Circle No. 195.

CHANNELMATIC 2548
Will feature the Broadcaster I automatic videocassette changer,

the AVS-10AS stereo Patchmaster 10 x 1 A/V switcher, the Spotmatic random access PC-controlled 32-VCR commercial cart system, and the VCR-3005A commercial break sequencer system, along with a line of time/tone switchers.

CHESTER CABLE CORP. NA
Will introduce a new digital miniature coaxial cable to join its complete line of audio and video cables to be shown at the booth.

CHRISTIE ELECTRIC CORP. 3324
Will feature the CASP battery charger/analyzer/sequencer/power supply for sealed nicad packs and other types of batteries, plus the full line of batteries and chargers and the tape degausser.

CHYRON CORP. 3072
Will introduce the Scribe high-quality text generator, seen at its first NAB. Other featured products will include the VP-1 and VP-2 character generators, the new Chameleon high-resolution, low-cost paint system, the Chyron IV Model 4100 EXB character/graphics system with MGM font compose option and background graphic paint system, and the RGU-2 graphics and titling system.
See ad page 51. Circle No. 131.

CINEMA PRODUCTS 140
Will feature a range of products including the Mini-Worrall continuous pan cable drive geared head; the new Mini-Worrall Super with a Sachtler-style quick release system; the new CP-35E lightweight handheld 35 mm camera; the Steadigate anti-weave gate for Rank Cintel telecines; the new Steadigate TC with a magnetic head for recording time code on Datakode film stock; the new Insight Vision Systems Series 75 b&w broadcast camera, image intensifier, and zoom lens for low-light ENG; the Steadicam Universal Model III image stabilizing system; the Mini-Mote remote-controlled pan and tilt head; the WRC-3A wireless lens control system; the Camraprompter and Camraprompter L portable prompting systems; and the J-6 joystick zoom control for cine and EC cameras.

Ampex versatility, long appreciated by over 6100 users of the famous Ampex VPR-2, is part and parcel of its successor, the new VPR-6. But the VPR-6 brings you state-of-the-art performance and even more flexibility with multi-point search-to-cue, comprehensive integral editing, variable speed True-Frame™ playback, stereo audio, serial communications, and precision handling

of everything from short spots to two-hour reels.

With hundreds of machines in service worldwide, the VPR-6 delivers a price-performance-reliability package that makes good business sense to broadcast, production and post-production users, either as a stand-alone performer or teamed with the growing family of Ampex Computerized Editors.

Call your nearest Ampex sales engineer for more information about the VPR-6, and its worldwide Ampex support team.

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Dallas (214) 960-1162 Los Angeles (818) 240-5000
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Ampedextrous!



True-Frame is a trademark of Ampex Corporation

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CINEMILLS**2777**

Will show the line of Lee lighting gels, resin and polyester & camera filters, Daymax HMI globes, Sunburst HMI lights, DeSisti lighting equipment, and Venture Lighting incandescent globes.

CINE 60**3428**

Will introduce a new on-board battery to the line of battery belts, battery chargers, camera batteries, Sun-Guns and Sun-Gun Kits, battery packs, and battery dememorizers.

CIPHER DIGITAL**2605**

Will introduce the Model 750 time code reader and generator with coincidence detector and the Shadow II transport synchronizer system. Established products will include the Model 700 time code reader with quad inserter, the 710A time code reader, the 716A time code generator, and the 735 Series time code readers and coincidence detection equipment.

CIRCUIT RESEARCH LABS/CRL**2538**

Will introduce its 3000 Series TV signal generator utilizing stereo triband processor and CBS loudness. Existing complete lines of audio processing equipment and stereo and SEA generators for AM, FM, and TV broadcasting will be on display.

CLEAR-COM INTERCOM SYS.**3352**

Will introduce a new standalone IFP system, a dedicated Program Interrupt system designed for broadcast applications. Basic system consists of a talent access station (MA-4), program interrupt controller (PIC-4000), up to four talent receivers (TR-50) and interconnect cabling and power supply. Extension access stations (AX-4) allow expansion of system to a maximum of 96 talent positions. Two people at separate access stations may simultaneously access same talent or separate talent. All IFB button accesses all talent. Other featured products include the MS-808 mainframe which provides up to eight channels intercom and eight IFB channels, plus dedicated line; the CP-300, a port-

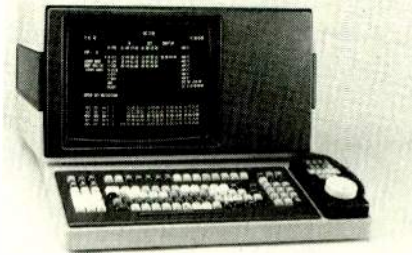
able remote system configured to work with Clear-Com and RTS type intercom systems; and the TW-12 an interface to RTS systems, rackmountable.

CMC TECHNOLOGY**3340**

Will show its complete line of replacement video heads for all C-format VPR Series machines, quad video and audio heads, VTR accessories, and the Videomax TD-800 bulk tape demagnetizer.

CMX CORP.**3232**

Will unveil the 336 editing system, which upgrades the 330XL with a sixth port and expanded ASCII keyboard and many other features of the 3100. Also new will be the Lookback and Superclean software options for the 3100, 3400, and 3400A. Lookback searches through unlimited gen-



CMX will show its advanced 3100 large-scale editing system.

erations of EDLs to find original source material; Superclean provides cleaning and text editing of EDLs. The CMX 3100, introduced at SMPTE, will make its first NAB appearance. It is an eight- to 24-port system falling between the 336 and the 3100 in performance, features, and price. Previously exhibited equipment will include the CASS 1, which combines audio synchronization and editing with audio console automation; the 3400A with GISMO II and up to 64 GPI relays; and the 330XL inexpensive large-scale editing system.

COAXIAL DYNAMICS, INC.**2766**

New this year will be the peak and CW reading portable meter. Also featured will be RF wattmeters: frequency counter/wattmeter combination, termination wattmeters, low- to high-power terminations, and RF filters/power sensors.

COHERENT COMMUNICATIONS, INC.**2675**

Will introduce various SMPTE time code readers, generators and inserters, low-cost, all designed around single-chip reader IC, including the YAM-7 portable handheld time code reader-generator with jam facility; the YAM-3 miniature time code reader which operates by battery or ac with adapter; the SA-300K portable reader/inserter specially designed for field production; the KS-700 ac-operated console or tabletop time code reader/generator with jam capabilities, and miniature UHF video transmitter, cigarette pack-size designed to be connected to any standard video source such as camera or VTR to transmit for monitoring purposes. Also on display will be the regular line of portable audio mixers, wireless mics, and mini-mic lavalier mic.

COLORADO VIDEO, INC.**3447**

Will announce the Model 240 freeze-frame vertical blanking interval transmission system, which uses one line of information per field in the VBI to transmit an NTSC-like color image in eight seconds. Also shown will be the new 496/497 video multiplexer/demultiplexer system for up to four video sources over one channel. Existing products to be shown include the 302-2 sync stripper and freeze frame communications systems.

COLORGRAPHICS SYSTEMS**3144**

Will unveil ArtStar III-D, a 24-bit-per-pixel 3D graphics and digital paint system. Animation Automation feature controls VTRs for full automatic animation recording of solid geometric objects directly onto tape in digital component form. Other features include "vector type" character generation, plus model construction with fully antialiased rendering, multiple light sources, smooth shading, full color real-time frame grab in NTSC or RGB, and many other capabilities. The LiveLine IVA weather animation system and the WeatherLine 256-color weather display/animation system, both featuring an automatic map draw database showing any country, state, or county in five produc-

HIGH EFFICIENCY UHF KLYSTRONS FOR NEW EQUIPMENT OR RETROFITTING

Whether you're installing a new transmitter or upgrading an existing transmitter, specify Amperex UHF klystrons with Annular Beam Control for best performance and economy.

Amperex klystrons:

- Have efficiencies in excess of 65%.
- Cover the entire UHF band from 470MHz to 860MHz with a single tube.
- Have choices of output power up to 64kW.
- Have long life expectancy.
- Are easy to retrofit into existing equipment...and, have low replacement cost.

Easy Retrofitting and Low Replacement Cost

The rugged simplicity of our design and assembly also makes it simple to upgrade an existing transmitter. Recently a UHF TV station, using its own engineering staff, was able to retrofit its output amplifier with an Amperex klystron and cavity within 72 hours*.

Amperex klystrons use external cavities. When a tube replacement is required only the tube is replaced. This can reduce costs by at least 40% when compared to internal cavity klystrons.

Rugged and Reliable Construction

With more than three decades of klystron manufacturing experience we have kept the broadcaster in mind by having a rugged mechanical design. By using alumina ceramic-to-metal seals we completely eliminate the use of toxic

beryllium oxide. This advanced sealing technique has shown that it also adds significantly to the life of Amperex klystrons. User records show that the average lifetime of Amperex UHF klystrons exceed 32,000 hours with peak lifetimes recorded in excess of 80,000.

Reduce Cooling Costs

In addition to reducing your power consumption costs, with efficiencies in excess of 65%, Amperex klystrons are available with cooling systems designed to lower your operating costs further. You now have a choice of proven cooling modes using either vapor cooling, vapor condensation or water cooling with the same tube. With our more efficient collector design your water cooling costs can be reduced substantially.

*Station name supplied on request.

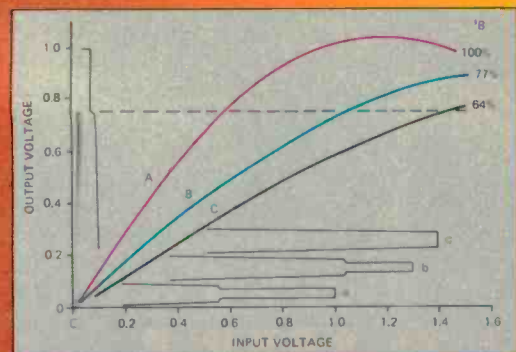


KLYSTRON HOTLINE

800-227-1613



Whether you're thinking of a new installation or retrofitting, call Peter Fochi, Power Tube and Rectifier Product Manager, at the above toll free number for information on improving your on-the-air performance and reducing your operating costs.



Klystron output voltage versus input voltage (relative values)

SEE US AT THE NAB SHOW
BOOTH #2600



Amperex® Electronic Corporation

A NORTH AMERICAN PHILIPS COMPANY
230 Duffin Avenue, Hicksville, NY 11802

Phone: 516/931-6200 FAX: 510/221-1839 WATTS: 1-800-227-1613
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When it comes to choosing the video recorder that works best with our videotape, we're not biased. We prefer them all.

That's because we constantly use them all to test and perfect and retest and refine our videotape. That way we know our tape will work flawlessly on your video recorder, no matter what brand of machine you own.

Take our latest tape, for instance. The picture quality is higher and the background noise is lower than on the tape we were

making less than a year ago. In fact, the improvement is so obvious, you can see it on your monitor as well as our spec sheet.

Thanks to our new base and backcoating, you can virtually drop the word "dropout" from your vocabulary.

And besides constantly improving our tapes, we're also constantly improving our service—from staying on top of your orders to helping you get to the bottom of your technical questions.

One tape is designed brand of equipment.



So if you're considering a new line of videotape, consider one that isn't new to your brand of video recorder.

Call your nearest regional representative and talk with him about Fuji, the videotape designed to make everyone's equipment look good. Even our competitors'.

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(in IL 312-569-3500)

Southwest Region 1-800-527-0804
(in TX 214-243-2537)
Western Region 1-800-241-7695
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 **FUJI** PROFESSIONAL
VIDEOTAPE

exclusively for this

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tions, with optional Doppler radar interface. The NewStar automated newsroom system will also be on display, with the new "ADP" automated database system. ADP features cross referenced script archives, tape library archive, and rolodex software systems and includes fixed and removable disk drives for unlimited mass storage. *See ad page 49. Circle No. 130.*

COLORTRAN 3598

Will introduce the Prestige Series 1000, 2000, and 3000 family of computerized lighting control systems with Magic Sheet designer's remote option; the Dimension 192 Pack, Portable Pack, and Wall Pack dimming systems with power modules; and a 1 kW, six-inch Fresnel. Also shown will be ENG kits for location lighting, HMI units, the Zoom Mini special effects projector, and the ColorArc 2006ST followspot.

COLUMBINE SYSTEMS, INC. 3405

Will introduce the new Newsroom Management System designed to meet broadcasters needs for personnel and equipment tracking, producers desk, assignment desk, story cost estimation, news wire management, archives, scripting and indexing applications, on IBM mini-computer. Also new is the Fixed Assets Package, for IBM PC and 100 percent IBM compatible PCs, with three modules: Fixed Assets Accounting, Capital Budgeting, and Equipment and Vehicle Information Reporting. Also featured will be Sales, Traffic and Billing System; Music System; Accounts Payable; General Ledger; Payroll; Media Inventory; and Film Amortization.

COMARK, INC. 3561

Is in the process of developing high-power UHF TV transmitters using Klystrode amplifiers and hopes to demonstrate a 60 kW Klystrode unit. Products on display will be UHF, VHF, AM and FM transmitters and RF systems from 1 kW to 240 kW (NTSC, PAL,

and SECAM), as well as a complete line of RF transmission lines and components and turnkey RF installations.

See ad page 13. Circle No. 107.
See ad page 62. Circle No. 139.

COMEX CORP. 2829

Will show its latest techniques and equipment for MMDS (multi-channel, microwave distributions service).

CCI/COMMERCIAL CABLE 2884

Will introduce the BCS Sequence Controller, machine controller which addresses a remotely-controlled audio-follow-video switcher. Multiple events may be used on each machine, and the BCS can handle half- or 3/4-inch tape players, or a combination of both. It accepts a sync source and distributes it to all tape machines. Typical configuration is four machines; the BCS-8 can handle eight machines. Other featured products are the EPC-8 Controller and the BRCV-8 Full Remote Panel.

COMMUNICATION MICROWAVE 139

Will add new ITFS repeaters and MMDS and ITFS automatic transmitters to its range of solid-state transmitters for video, audio, and data.

COMMUNICATIONS GRAPHICS 2423

Will bring its line of promotional novelties.

COMPREHENSIVE VIDEO SUPPLY 3593

Will unveil new software in its CAV (computer-aided video) line. These include Tape Master, for locating scenes in a videotape library, and cataloging slides, films, audio tapes; Log It PC, a PC version of Log It 100 which adds time code reading and tape logging capabilities to the IBM PC; Cabletrak, for logging and labeling up to 1200 cables in a studio; AICP Quickform, for generating screen overlays that customize Lotus 1-2-3 to video production bidding and budgeting needs; Budget Master, budgeting preparation and tracking for corporate and independent producers; Script Master, for easily

preparing and revising multi-column scripts on screen exactly as they appear on paper; Auto-prompter, which allows an Apple II computer to be used as a teleprompter; and Chyron Connection which allows IBM PC to create titles on Chyron VP-1 character generator.

Also new is the Custom Cable Shop, computer interface and other cable needs custom designed for user's application, plus a new 1986 catalog featuring everything including a full line of lighting equipment.

COMPU-CABLE SYSTEMS 2449

Will introduce the Star character generator/titler with built-in genlock, keying capabilities, and other features. Also on view will be the Spectraview I and Spectraview II character generators.

COMPUCON, INC. 2633

Will unveil two new packages; BEAM, to assist TV industry managers with their marketing analysis, and the FM-80/90 filing services package to help broadcast applicants.

COMPU = PROMPT 2768

Will introduce the Micro-Prompter for ENG or other handheld cameras; the Podium Prompter for public speaking and conferences; a lightweight handheld color monitor for TV/stage work; and increased memory for 120-minute text capacity. The Compu = Prompt camera-mounted prompting system, modem transfer option, CP-1000 full-color prompter, and CP-1130XM expanded memory prompter will also be featured.

COMPUSONICS CORP. 2002

Will unveil a production model of its floppy disk-based digital spot player, the DSP 1200 and recorder DSP 1500. It features improved fidelity from 20 Hz-15 kHz, four minutes of stereo storage and is designed for the look and feel of a cart machine.

COMPUTER GRAPHICS LABS 2929


Will introduce the InstaMation real-time animation system for motion broadcast graphics or in-

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C O L O R

The rich radiance of
hues captured in
their true position
within the spectrum.
Radiance achieved
through the
combination of
superior chrominance
with unparalleled
luminance. Radiance
resulting in a video
tape of sensational
color. Ampex 197.

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197

PROFESSIONAL BROADCAST

CASSETTE 

dustrial video. The IMAGES II + electronic paint system will be shown with new single-frame record software for VTR control.

COMPUTER PROMPTING CORP. 132

Will introduce the CPC-1000 computerized teleprompter, which operates on IBM PCs and compatibles and features over one hour of script scrolling capacity, three fonts, and underlining.

COMREX CORP. 3460

Will introduce the Model STLX two-line frequency extender console, in a self-contained remote package, which incorporates a two-line encoder with noise suppression, and complete telephone interface for program talk-back. Also featured will be one and two-line frequency extenders, specialized broadcast telephone couplers and hybrids, ENG RF cue systems, and TV pocket aural monitors.

See ad page 198. Circle No. 224.

COMSAT 2482

Comsat General will display its Skybridge SNG vehicle and talk about domestic satellite network services via Ku-band. Comsat International will discuss its international satellite services.

See ad page 103. Circle No. 169.

COM-TEK COMMUNICATIONS TECH. 2653

Will introduce a new wireless microphone miniature field unit receiver system, the MR182, to its Pro Series as well as an accompanying new transmitter, M72C. Also new will be the RC72 personal wireless receiver cue system with IFB capability.

COMTRONIX SYSTEMS 2487

Will feature its ABC-BCD klystron pulsers, solid-state RF amps, 4 kV solid-state klystron pulsers, LPTV transmitters, standby TV exciters, and klystron gas testers.

CONCEPT PRODUCTIONS 3334

Will introduce five contemporary MOR with target demo of 35 to 55 and show formats for automated or live assist including ac, chr, aor, country and contemporary mor.

CONNECTRONICS CORP. 2403

Will unveil SECK portable mix-

ing console, with 18 inputs which can be switched between mic, line, or tape, with all inputs balanced. Input amps have extended range from -55 dBm to +10 dBm with full 20 dB margin of headroom above this. Full in-line monitoring facilities provide stereo monitor mix for multitrack recording, plus extra facilities can be switched into the signal channel to provide three extra effects buses during mixdown. Also on display will be specialized audio wire and cable, including quality microphone cable with color code options.

CONRAC CORP. 3124

Will premiere a new Model 6545/6550 automated monitor alignment system called Micro-match, which cuts successive monitor setup times to about 20 seconds per monitor.

CONTINENTAL ELECT. DIV. OF VARIAN 3200

Will display the full line of AM and FM radio transmitters for the broadcaster, including AM units from 1 kW to 50 kW and FM units from 2.5 kW to 60 kW. Related RF products and FM broadcast antennas will also be shown.

See ad page 92. Circle No. 163.

CONTROL CONCEPTS CORP. 2652

Will display its IIsatron "active tracking" power line filters, which provide transient reduction for all broadcast applications.

CONUS COMMUNICATIONS 3385

Will demonstrate the capabilities of its Conus Washington Direct service, offering live and taped coverage of Washington events via K2 satellite from the Conus SNG van parked outside the White House. Also on show will be Conus' News Service and Newsfeed SNG facilities.

CONVERGENCE CORP. 3252

Plans to unveil three new video editing products; details unavailable at press time. The new products, however, can be expected to continue the company's trend toward low-priced, highly sophisticated A/B list management systems, started last year with the 195. Established editing products

on view will include the 205, the 204, and the 195, along with the Super 90.

See ad page 157. Circle No. 196.
See ad page 159. Circle No. 197.

CORPORATE COMMUNICATIONS CONSULTANTS 2753

Will display its line of color correction products, some with time-saving automation, for component video, flying spot scanners, and CCD telecines.

COUNTRYMAN ASSOCIATES 2425

Will show its Isomax headset mounted mic, gooseneck mics, and wireless mics.

CROSSPOINT LATCH 3533

Will introduce the 6129 video production switcher and the 8200 dual time base corrector, in addition to the established line of production switchers, post-production switchers, and sync generators.

See ad page 200. Circle No. 226.

CROWN INTL., INC. 2927

Will introduce GLM 100 and 200 mics, small condenser mics with flexibility and ease of mounting; also MT 600LX power amp, 3.5-inch chassis with 220 watts per channel; the LX version has XLR connectors, front panel level controls and additional front panel displays. Crown is also highlighting its PZM—pressure zone mics, and PCC—phase coherent cardioid mics.

See ad page 93. Circle No. 164.

CSI ELECTRONICS 3306

Will show its line of FM transmitters at 3 kW, 20 kW, and 25 kW power levels, and AM transmitters at 1 kW, 10 kW, and 25 kW levels.

CUBICOMP CORP. 2692

Will highlight the PictureMaker 3D modeling and animation system with enhanced imaging capabilities, additional motion scripting functions, 3D sectioning for sculpting 3D surfaces, and a new user interface. The ModelMaker solid modeling system will also be shown.

See ad page 163. Circle No. 199.

PETER H. DAHL CO. 222

Plans to bring a three-phase, 5 kW plate transformer, 1 and 5 kW

THE NEW FUJINON 44X ZOOM



NO STADIUM IS TOO BIG FOR A CLOSEUP

Fujinon redefined the large-format field zoom to make it smaller, lighter and more maneuverable. The new 44X combines wide angle coverage you'd expect in a studio lens with the focal range to give you a tight shot in the largest arena . . . indoors or out. It also combines a built-in 2X extender with an optional pattern projector and heater in a rugged, weatherized housing.

All adjustments can be made from outside the shroud. You have easy access to the tally light switch, back focus adjustment/lock, circuit breakers, and pattern projector level and chart adjustments. Data such as focal length and aperture is reported through viewports in the lens shroud. You can see if the 2X extender is deployed or not. And you can double the range from a remote demand unit, shot box or manually from the lens itself.

The 44X maintains its maximum relative aperture out to a 26X zoom and ramping

can be avoided completely! You can limit the zoom range to match lighting levels for every production. And zoom speed control is smooth and steady regardless of zoom rate or camera angle.

The 44X also gives you Fujinon's traditionally better optical performance—higher MTF, better edge-to-edge resolution, freedom from flare, ghosting, distortion, absence of detectable longitudinal chromatic aberration, greater contrast and brightness.

All major components, such as the power supply and pattern projector, are modular. With motherboard construction and no wiring harnesses, trouble-shooting is simplified and field servicing is a practical reality.

Optically, electronically, electro-mechanically . . . in terms of performance, range, operation, setup and servicing, the new 44X offers advantages you can't get in any other field lens. Call your nearest Fujinon location for more information or a demonstration.



P44 X 18ESM

18–800mm (36–1600mm)
F2.4 (18–470mm); F4.1 (800mm)

R44 X 13.5ESM

13.5–600mm (27–1200mm)
F1.8 (13.5–350mm); F3.1 (600mm)
Minimum Object Distance: 2.5m
Weight 25kg

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MIDWEST 3 N. 125 Springvale, West Chicago, Ill. 60185
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(214) 385-8902
(312) 231-7888
(213) 532-2861 Telex 194978



FUJINON

modulation transformers and reactors, and high-voltage rectifiers.

DALSAT 2424

Will stage a live programming to demonstrate a new SNG van featuring a 1.8-meter antenna, edit and communications electronics, integrated in a 19-foot-long, five-ton van. The established range of SNG vehicles, with antennas from 2.3 to 4.5 m, will also be demonstrated.

BILL DANIELS CO. 2631

Will introduce a new broadcast edition of its Yellow Pages telephone directory, in addition to its range of broadcast equipment buyers' guides, dealer catalogs, manufacturers catalogs, and literature management services.

DATA COMMUNICATIONS CORP. 3204

Will introduce BIAS PC Cable, IBM PC-XT or AT based sales/traffic/billing system for cable operators with advertiser-supported channels; also Buyline Electronic Contract which links a station's and its rep's computer systems together, and Buyline Electronic Invoicing, links which link stations and advertising agencies. Featured will be the rest of the BIAS products: PC Radio, Newsroom, and Traffic System.

DATATEK CORP. 3547

Will show its D-2000 A/V output-oriented routing systems using matrix frame sizes of 50x25, 25x25, 25x20 as building blocks; its D-2200 machine control system; D-2300 A/V monitoring switcher; D-4300 Series A/V switchers with building blocks of 6x1, 16x1, 20x1, and 20x2 (IRU) audio only; Interface modules BCD, RS 232 C, RS422, and Telco; D-500 Series audio DAs; and D-600 Series video DAs.

DATAWORLD, INC. 2779

Will feature updated, comprehensive broadcast databases for AM, FM, TV, LPTV and ITFS, based on current FCC information. Services offered include directories, allocation and interference studies, population counting, and a terrain elevation retrieval program, among others. Recently added FM and TV area-to-locate

studies on map overlay, FCC/FAA tower locations with overlay, and unused call-sign listings.

DATUM, INC. 2408

Will show its 9550 Video Data Encoder and 9200 Video Data Reader to insert digital information into a composite video signal. Also shown will be the 5300 Intelligent Time Processor, available in configurations ranging from basic SMPTE/EBU time code generator/readers to processors handling VITC code and video character generation.

dbx, INC. 2740

New at the show will be the 463X Noise gate and the 263X Deesser in half-pack-mount chassis. Both are part of 63X performance series of signal processors, and two can be connected together for use in tandem. Also featured will be the 163X Compressor Limiter, a full line of compressor limiters, the 900 modular series signal processors, 700 digital processors, and OEM products.

DELCOM CORP. 3580

Will show a new line of control room furnishings, consoles, racks, and traditionally built custom cabinetry with solid oak trim, but as a standard product, in addition to custom work. These include off-line editing consoles, paint system consoles, and a group of racks with matching trim, finished in formica with solid oak trim. Also on display will be the SCAT—computerized cable documentation, for systems, and emphasis will be on turnkey systems.

DEL COMPU-CABLE SYSTEMS 2449

Will announce a new low-cost character generator, the Star, with genlock and superimpose capability to join its existing Spectraview 1 and 2 character generators.

DELTA ELECTRONICS 3488

Will introduce an improved AM stereo exciter and an AM stereo servicing generator as well as a new pow-power coaxial transfer switch. The company's established product line of RF instrumentation will also be shown, including RF ammeters, bridges, phase

sampling transformers, power and modulation controllers, and remote-control systems.

See ad page 77. Circle No. 150.

DESISTI LIGHTING/ DESMAR 2796

Will unveil the 2400 Series of "Rembrandt" HMI Fresnels, the 2100 Series "Raffaello" quartz halogen softlights, and Pro-Arc Venture Lighting HMI lamps. Will also feature the established line of HMI softlights, focusable discharge lights, ballasts, portable location kits, and grip and mounting equipment.

DE WOLFE MUSIC LIBRARY, INC. 2712

Will introduce newest selections on CD and offer some favorites in "six packs," and feature their entire music library and new releases.

DIELECTRIC COMMUNICATIONS 3436

Expects to have closed its purchase of RCA's recently closed transmitter division and should show RCA's line of TV antennas, in addition to Dielectric's own RF transmitter and antenna line.

See ad page 202. Circle No. 228.

DIGITAL BROADCAST SYSTEMS 170

Will unveil the Astre system, a random access digital audio storage system that allows up to eight production, scheduling, and on-air workstations to simultaneously add or retrieve material. The exhibited version is scheduled to have hard disk storage capacity for 150 minutes of single-channel audio, though the fully expanded version can hold 1600 minutes. Aired items such as commercials are automatically timestamped, and a log can be printed out at anytime. The company will also discuss its Vixan system, which will offer general ledger functions in addition to Astre's production and scheduling.

See ad page 212. Circle No. 238.

DIGITAL (IN BE BOOTH) PROGRAMMING, INC.

Will demonstrate its encoding/decoding hardware and software for CD automation along with BE's cart automation system. DPI

FACT!

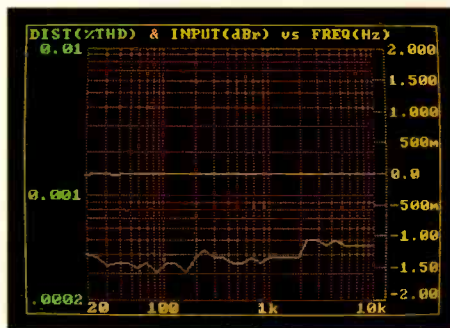
AUDIO PRECISION SYSTEM ONE:

Measures thd + n, broadband or 1/3 octave level and noise, imd including TIM, phase, frequency, wow and flutter, quantization distortion—FASTER!

Tests multi-channel devices via optional routing switcher.

Delivers industry-leading performance; tests 16-bit digital systems to manufacturers specifications.

System THD + N	0.001%
Noise	1.5 μ V
22k BW	(-114 dBu)
Flatness	0.05 dB



Provides real time test results graphed on screen; paper print-out at the touch of a key.

Comes bundled with software package for all common audio tests; runs automated tests 20 minutes out of the box.



Costs only moderately more (including computer) than quality manual audio test sets, substantially less than comparable automated systems.



See us at NAB Booth # 2560

PROOF!

For specification sheets or a demo disk showing the ease of use and flexibility of the graphics (for IBM PC or compatible), use the coupon.



Return coupon to:

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 PO. Box 2209
 Beaverton, OR 97075
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 Send literature only.

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International Distributors: **Australia:** JNS Electronic Industries, Rosanna, Victoria 3 439 1430 **Austria:** ELSINCO GmbH, Wien 222 87 17 51 **France:** SCV Audio, Paris 1 863 22 11
Germany: West, RTW, Köln 221 70 10 55 **Italy:** Telav, Milano 445 57 41 **Netherlands-Belgium:** Pieter Bollen, Eindhoven 040 424455 **Norway:** Lydconsult, Oslo 2 14 89 44
Switzerland: Technad, St. Sulpice/Lausanne 21 35 35 01 **United Kingdom:** Scenic Sounds, London 1 387 1262

offers custom music libraries on CD for radio stations, with automation encoding which includes access to the music library's database. CDs can be used on any player, but DPI may surprise everyone with a Pioneer professional model that plays six disks. Format on CD: "All That's Rock," will be available to radio stations for testing. DPI also offers CD automation encoding for producers of production libraries.

DIGITAL VIDEO SYSTEMS (SEE SCIENTIFIC-ATLANTA)

See ad page 118. Circle No. 245.

See ad page 220. Circle No. 248.

See ad page 222. Circle No. 251.

DIGIVISION 2527

Will introduce the CP 100, a real-time contrast processor. The DRGB-343 high-resolution digital video converter will also be featured.

DI-TECH 3567

Will introduce the 9001 color CRT master XY controller with lockout capability; the 937 alphanumeric XY control panel with breakaway; the 948 40-LED pushbutton panel with triple breakaway; and the 7006 dual-meter, dual-speaker monitor/amp. Established products will include the 5850 and 5800 Series AFV routing switchers; audio, pulse, and video distribution amps; and touchtone control systems.

DOLBY LABORATORIES 2705

Will introduce its updated noise reduction for one-inch video: Noise Reduction Indication, NRI, with an automatic feature which switches on noise reduction automatically through an encoding-decoding technique. The automatic feature reduces the chance for operator error. Also new is the UC-20, a "C" type noise reduction encode-decode unit for application with 3/4-inch U-matic videotape recorders. It's an outboard unit designed to be connected to the audio input and output of any 3/4-inch tape machine. Dolby will also show plug-in cards for Sony BVH 1000, Ampex VPR 2, Sony BVH 2000 Series, and Ampex VPR 3, 6 and 80; and its XP Series multi-channel noise reduction package, for use with multitrack tape re-

coders for post-production.

See ad page 125. Circle No. 180.

DORROUGH ELECTRONICS 2602

Will show the 40-A Loudness Meter, for mono and stereo level monitoring; the 610 Discriminate Audio Processor for AM, FM, and TV; and 80-B Stereo Generator for FM.

See ad page 204. Circle No. 230.

THE DROID WORKS 3572

Will feature the EditDroid electronic editing system for film or video post-production and the SoundDroid all-in-one, general purpose sound processing station.

DSC/DIGITAL SERVICES CORP. 3304

Will introduce a new nonreal-time graphics animation system that can flip, spin, and metamorphose from one shape to another. It stores sequences on tape frame-by-frame, ready for real-time playback. The Illusion digital effects system will be demonstrated with new, sophisticated effects. Also on view will be the Frame File cost-effective still store.

See ad page 211. Circle No. 237.

See ad page 215. Circle No. 239.

See ad page 213. Circle No. 241.

DUBNER COMPUTER SYSTEMS 3110

The DPS-1 paint system, introduced at SMPTE, will make its first NAB appearance, as will the 10K and 20K character generators (the 20K appeared last year in prototype). Also on view will be the CBG-2 graphics & animation system and the Texta graphics/character generator system.

DX COMMUNICATIONS, INC. 2693

Will introduce the DSM-654TM frequency-agile satellite receiver, intended mainly for corporate and private users, the DSM-110 agile modular unit, and will show other satellite receivers.

See ad page 99. Circle No. 166.

DYNAIR ELECTRONICS 3409

Will unveil the 1600 Series ultra-wideband switching system for graphics and HDTV with 100+ MHz bandwidth, and the System 23 SMPTE/EBU "ESbus" controls and components for end user and OEM application to the entire con-

trol environment. The line of audio/video switching and distribution equipment will also be on-hand.

See ad page 167. Circle No. 201.

EASTMAN KODAK 3204

Will feature the full line of Eastman professional videocassettes and tapes in all popular lengths and formats; Eastman professional 8 mm videocassettes and the Kodak 8 mm video duplicator system; Datakode magnetic control surface for film stock; and Eastman 35 mm motion picture films.

See ad page 175. Circle No. 205.

ECD INDUSTRIES 2773

Will feature its variety of electron tubes, including Eimar, Varian, RCA, GE, Amperex, and Raytheon.

ECHOLAB, INC. 2827

Will introduce the DV-5 digital video effect with front panel controls integrated into an SEG. Calibration is constantly maintained by computer control, and the unit may be upgraded to component version. Also on display will be the SE-3 microprocessor-controlled SEG with serial interface to editors available as an option, and the SE-6, SEG with five keys.

ECONCO BROADCAST SERVICE 2578

Will show its rebuilt power tubes.

EECO 3540

Will demonstrate new additions and enhancements to the IVES II desktop post-production editing system and to the EMME computerized editing system, along with the established line of time code peripheral products.

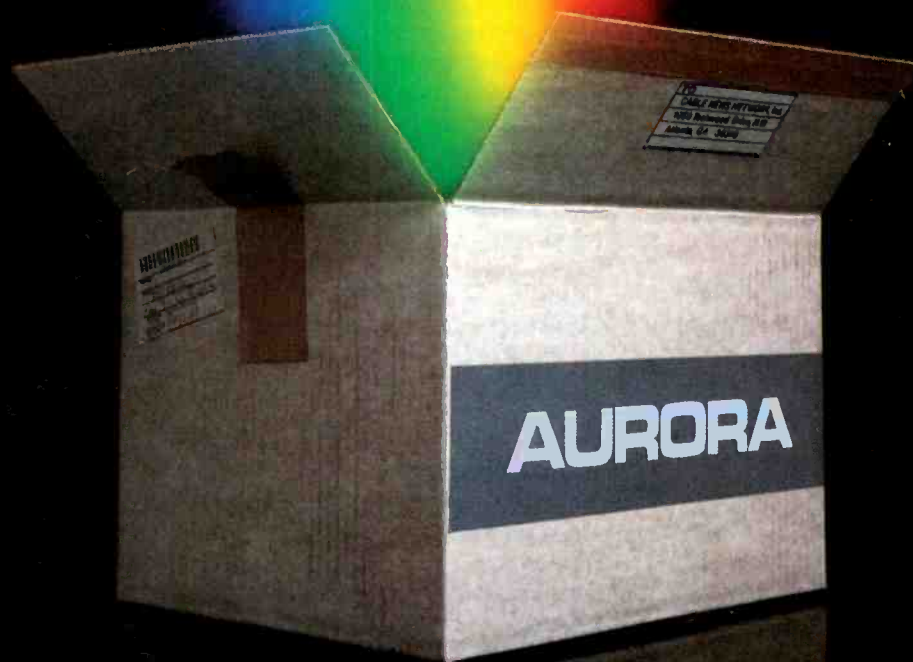
EEG ENTERPRISES, INC. 2802

Will introduce its ADAC-2 live captioning terminal to work with its smart encoder for news captioning. Another new addition will be a vertical interval teletext data bridge and inserter system. The established line 21 closed-caption system will also be demonstrated.

EELA AUDIO (IN ELECTRONIC SYSTEMS LAB BOOTH)

New to its Leddicon line is a one-inch diode gun Leddicon,

THE GRAPHICS PACKAGE YOU HAVE BEEN WAITING FOR...



HAS ARRIVED!

Aurora Systems' new AU/200 series is the next generation in digital videographics. For the first time a system that combines all these features in one box!

- ▶ 32-bit full color
- ▶ complete paint system
- ▶ frame grab and still store
- ▶ multiple-station networking
- ▶ 3-D modeling
- ▶ compositing and matting
- ▶ vector-based font library
- ▶ real-time multiplane effects
- ▶ animation with VTR control
- ▶ automated weather graphics

See us at NAB Booth # 104

Tomorrow's state-of-the-art graphics can be yours today.

Call for further information or see a full demonstration in Dallas
at NAB Booth #104

AURORA 

185 Berry Street San Francisco, CA 94107 (415) 777-2288

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P8498/99, with low lag, high resolution, low output capacitance, and a barium aluminate cathode for longer life. Other Leddicons and Vidicons will be shown along with power tubes for AM and FM transmitters and kylstrons for UHF TV.

EEV, INC. 2626

New to its Leddicon line is a one-inch diode gun Leddicon, P8498/99, with low lag, high resolution, low output capacitance, and a barium aluminate cathode for longer life. Other Leddicons and Vidicons will be shown along with power tubes for AM and FM transmitters and klystrons for UHF TV.

EG&G 2612

Will show the SS-125 Owl flash head, SS-122 controller, SS-124 photocell, and LS-159 antenna beacon.

ELCOM BAUER 3414

In the Allied Broadcast Equipment booth, will unveil the 690B FM exciter and the 6300 300 W FM transmitter. Its existing 610C 10 kW FM transmitter will also be on display.

ELECTRO CONTROLS 2710

Will feature its Premiere, Celebrity, and Celebrity Plus lighting control systems.

ELECTRO IMPULSE LAB 3431

Will feature its line of dry, forced-air-cooled FM dummy loads, RF calorimeters, wattmeters, and attenuators.

ELECTRONIC RESEARCH, INC. 2576

Will introduce its 940 Series FM multiplex filter units, and also its existing notch filter and FM multiplex panel antennas and cog-wheel-type top-mounting multiplex antenna system.

ELECTRONIC SYSTEMS LAB 2640

New equipment on display will include the EELA Audio SBM broadcast console and S 100 B Series audio consoles: Graf in-cassette duplicators with direct drive, three-motor transports; Giese Taker 1000 ADR equipment, capable of total production management of scenes, talent, and

even bookkeeping; and the Hum Killer, which eliminates capacitive and inductive interference up to and including the thirteenth harmonic. Established products will include the Reportophone, which permits a reporter to connect directly to a standard telephone line and go live on-air from anywhere in the world.

ELECTRO-VOICE, INC. 3430

Will introduce the RE98 miniature electric mic; and also show the Sentry 100 and 500 Series precision studio monitor speaker systems, the ELX-1 microphone mixer, the S200 compact portable constant directivity speaker system, and professional mics for studio and on-location applications.

See ad page 258. Circle No. 266.

ELICON 2784

Will introduce the CCS-XT extended length boom arm camera control system for film and video, as well as the new Elicon Sonic Follow Focus, designed for live action work. The Roger real-time overhead gantry effects robot will also be featured.

EMCEE BROADCAST 3032

Will give a live demonstration of data transmission over the air using its own equipment. New additions will be stereo capability for the 5 kW VHF transmitter, a solid-state 100 W UHF translator with phase lock receiver, and ITFS translator, a 1 kW UHF single-bay transmitter, and an MMDS downconverter and antenna package. Existing lines of transmitters for MMDS, ITFS, and LPTV will also be shown.

EMCOR PRODUCTS 2402

Will show blowers, modular enclosure systems, and computer support furniture.

E-N-G CORP. 3308

Will announce a compact Ku-band SNG van weighing 1000 lbs. with roof-mounted remote-controlled 1.8-meter antenna system that provides plus-or-minus 90 degrees

of azimuth and 5 to 60 degrees of elevation coverage. An ENG vehicle will complete the exhibit.

ENVIRONMENTAL SATELLITE DATA 2786

Will unveil the Front-End Model 6000 CD, a weather workstation with color display that allows the operator to manipulate the WIX of Zephyr weather data at will. Also new will be clutter-free radar, with locally centered display. The Color Connection Model 9000 weather graphics system will also be shown.

ESE 3470

Will show the line of digital clocks, timers, time code generators, readers, inserters, comparators, master clock systems, programmable clocks, hybrid telephone interfaces, video DAs, and audio level indicators.

ESS 2469

Will show new diffusion filters, holographically produced, 1-5 (densities) plus Fantasy Diffusion and Fantasy Star filter for video, film, and still, all laser-etched for clarity of image. ESS will also show its defraction and star filters.

ETHEREUM SCIENTIFIC 207

Plans to bring one of its five models of SNG trucks, two C-band, three Ku-band. And will discuss its network capabilities including teleports, satellite links, and transponder time.

EVENTIDE, INC. 2830

Will have a new broadcast time delay unit, and will introduce the Channel Vocoder and Automatic Panner audio effects programs for the SP2016 Effects Processor/Reverb, along with demonstrations of the SP2016.

Also on display will be the H949 and H969 Harmonizer pitch change effects units, the BD955 broadcast delay with delay-catch-up feature, and the BD931/932 broadcast delay with fixed delay of up to 6.4 seconds at full bandwidth.

EVERTZ MICROSYSTEMS 201

Will show its range of time code equipment and transport synchronizers.

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

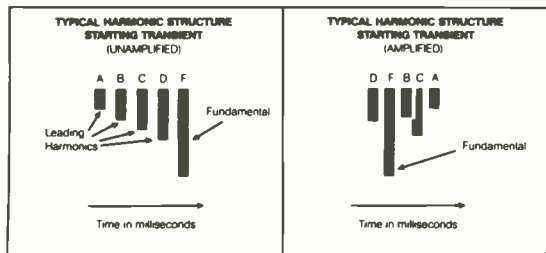
"I wouldn't part with my BBE™ for \$10,000."

Larry Allen, Chief Engineer, WKSI Radio.

In the high-powered world of Top 40 radio, the rewards go to those who have that competitive edge. Anyone can play the hits. The trick is to make them sound better at your particular frequency than they do anywhere else on the dial. That's why pioneering broadcast engineers like Larry Allen of WKSI in North Carolina rely on the BBE™ 202R.

tion alters the natural relationships among fundamental frequencies, their leading harmonics and between the leading harmonics themselves. The result? Muddiness, poor imaging and pinched, colored sound that lacks the presence and punch of the real thing.

balanced or unbalanced. And because BBE is *not* an encode/decode process, there's no need for special playback

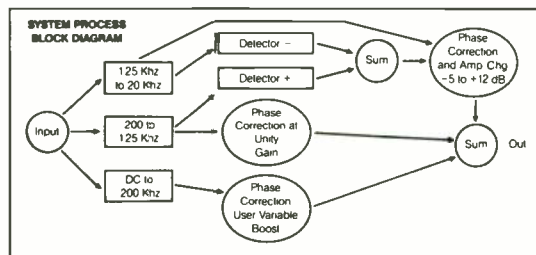


"Everything WKSI plays on the air is processed through BBE. The results are nothing short of remarkable. I have tried to duplicate these results with other major-brand processors and sound enhancers, but they don't even come close to achieving the same level of clarity and high-end response."

Whether your format is all-metal or all-Mozart, the BBE 202R can dramatically improve the quality of your broadcasts by correcting phase and amplitude distortion problems. This type of distortion

Altered by a signal just prior to transmission, the 202R puts the sparkle back into broadcast sound. We like to think of it as the "unprocessor." Rather than artificially altering the original source, BBE restores the natural harmonic balances that were present in the live performance. How? First it divides the audio spectrum into three bandwidths. Then it applies phase correction across the full spectrum and dynamic high frequency amplitude compensation as required. BBE's continual sampling of the mid/high frequency relationship allows this correction to take place automatically. Convenient front-panel controls let you boost low frequencies and regulate the amount of high frequency amplitude correction to suit your needs.

The BBE 202R is easy to install with either standard XLR or ¼" connections,



equipment. Anyone with an AM or FM receiver can hear the amazing difference BBE makes. On-the-air tests have proven BBE's compatibility with the type of compression and limiting equipment normally used in broadcast. And by curbing phase and amplitude distortion, the BBE 202R increases the *apparent* loudness of your signal. Your broadcast comes through strong, clean and clear.

Even though industry leaders like Larry Allen wouldn't part with BBE for \$10,000, you can get *your* BBE 202R for a lot less. To find out how, contact your professional sound dealer or call us toll-free at 1-800-233-8346. (In CA call 1-800-558-3963.) Or write Barcus-Berry Electronics, 5500 Bolsa Ave., Ste. 245, Huntington Beach, CA 92649.



BBE™ All the sound you've never heard.
Barcus-Berry Electronics, Inc.

See us at NAB Booth # 2485

EXCALIBUR INDUSTRIES 2637

Will introduce a line of 19-inch rackmount cases with shock isolation feature, as well as new video system cases with pullout shelves and drawers. The line of standard AKS cases, video camera cases, video monitor cases, and travel carts will also be shown.

FAIRLIGHT INSTRUMENTS 2460

The Computer Video Instrument (CVI), a computer-based video effects processor and graphics system, will make its first NAB appearance.

FAROUDJA LABORATORIES 3408

Will show its NTSC to RGB Decoder, a comb filter decoder for critical applications, the NTSC Encoder, the H&V Detail Processor for better small picture details, and the Flesh Tone Corrector to automatically correct NTSC phase errors affecting skin tones.

FERNO-WASHINGTON 2782

Will unveil its new "Freelancer" cart designed to transport up to 300 lbs. of video and audio gear for field production work. Also on exhibit will be the 289-1 On-Location cart.

FIBERBILT 132

Will introduce the 855 ATA spec, and 300 reusable shipping containers. Established products to be shown include the 847 Supertrunk, 947 rackmount shipping cases, 808 molded shipping cases, and 707 heavy-duty equipment cases.

FIDELIPAC CORP. 3092

Will show the new Dynamax CTR-10 Series cart machines, introduced at Radio '85. They have the same mechanical construction and durability of CTR100 Series



Fidelipac's new Dynamax CTR10 is a scaled-down, lower-cost version of its CTR100 cart machine.

but without some extra features such as Cartscan and Vary Speed, and the CTR10 is lower cost.

Also new are the CTR30 Series three-deck cart machines and the ESD10 Eraser/Splice Detector. Other featured products are the Dynamax CTR100 Series cart machines with Cartscan and Vary Speed functions, and a full line of tape cartridges, bulk tape, cartridge accessories, studio warning lights, and bulk erasers.

See ad page 1. Circle No. 101.

FILM HOUSE 2781

Will bring a 42-minute demo reel of TV commercials to promote radio stations.

FILM-VIDEO EQUIPMENT 2803

Will feature new-style Wide Eye I and II wide-angle attachments for ENG lenses, with modification to allow use of Arriflex matte boxes and follow focus units. The line of Portable Energy Products sealed lead-acid and nicad batteries will also be on display.

FLASH TECHNOLOGY CORP. OF AMERICA 3454

Will display the FTB-301 medium-intensity beacon, designed to meet new FAA requirements, and the FTB-205, OL-205, and SC-105 controller.

JOHN FLUKE MFG. CO., INC. 100

Will announce the 9000A-006 asynchronous signature probe for Fluke's 9000A Series Micro-System Troubleshooters. The troubleshooters and TestWriter software will be on display as well as a 4.5-digit multimeter.

FOR-A 3572

Will feature the new one-inch version of its FA-800 Autocore TBC, introduced last year for half-inch and 3/4-inch VTRs. It has full frame memory synchronization, automatic video level control, velocity compensator, and dropout compensator, all for under \$9000. Also introducing the CCS-4400 component video color corrector, based on the previously shown high-performance CCS-4300 composite color corrector, priced in the \$7000 range.

Also new will be the DEC-110 NTSC-to-RGB decoder with proc amp; the CT-500 component out-

put transcoder; a component color bar generator; the Y-2000 composite title and downstream keyer; the TGR-3300 longitudinal time code and VITC generator/reader; and the LG-100 logo generator. In addition, the line of component and composite video processing equipment will be on hand, along with the VTW-400 character generator/graphics system and CE-10 character and graphics effects interface unit.

See ad page 25. Circle No. 117.

FORTEL 3044

New products will be announced at the show. Established products on view will include the TBC32DE digital effects unit, the Digitest digital test signal generator, and the line of TBCs, chroma noise reducers, and the Y-688 Total Error Corrector.

FORT WORTH TOWER CO. 3360

Will show its range of towers and prefabricated equipment buildings.

FOSTEX CORP. 2579

Will introduce the Model 4030 SMPTE-based A/V synchronizer, audio editing systems, the Model 4050 SMPTE-based synchronizer for MIDI-SMPTE lockup, the E-2, 1/4-inch stereo mastering recorder with center-track SMPTE time code, and the E-22, half-inch two-track recorder with center-track SMPTE time code. Also featured will be the M-22RP stereo M-S mic, RM765 and RM 780 near field reference monitors, T-20 headphones and the B-16M 16-track recorder with dedicated monitor system.

See ad page 183. Circle No. 210.

FREZZOLINI ELECTRONICS 2716

Will introduce a complete line of new Frezzi super, no memory, high-capacity, rechargeable nicad battery packs; the new RPS-4 ac adapter for portable video cameras; and a new lightweight location lighting kit. The full line of professional portable power and lighting equipment and accessories will also be featured.

FUJINON 3410

Will introduce a new 18x8.5 ENG lens, replacing the previous 17x9 ENG lens. In addition, the full line of broadcast camera lenses for stu-

EIGHT QUESTIONS YOU SHOULD ASK WHEN BUYING WEATHER RADAR.

1. Where does the data come from?

The National Weather Service is now fully operational with a series of radar transmitters called RRWDS: it's their primary precipitation detection tool. The Alden C2000R is the color radar display system which allows its subscribers to access any of these RRWDS transmitters, on a direct line or dial-up basis.

2. What if I only want three or four sites?

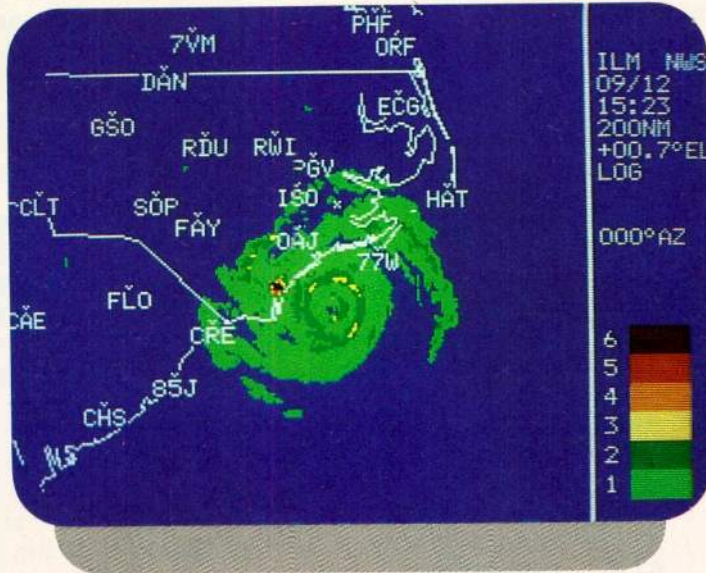
With the Alden system, there's no need to pay for access to the whole country if you only need data from a few radars. You specify the sites you want, and we program your auto-dialer phone to receive these sites. You pay only for the sites you need.

3. Will I get busy signals?

Probably not. The system is designed so multiple users can call simultaneously. And because we know who has access to each radar, we can expand the system as subscribers increase.

4. What about service?

Of course the transmitters are maintained by on-site government technicians. And for Alden equipment, we maintain a nationwide



compatibility, time lapse and level flashing are included in the standard C2000R. And there's no hookup charge to connect to any radar.

6. Are there options?

You can add additional memory, clutter blanker, alarm, customized backgrounds—even a high-resolution printer for color print or transparency. And for a surprisingly small additional cost, you can convert the C2000R

service network for reliable operation.

5. What features are included?

The Alden C2000R has a number of built-in features that are costly options in other radar display systems. Zoom, range rings, sweep line, NTSC/RGB

to the C2000R/S, which lets you receive color weather graphics from private data bases.

7. Can we afford it?

The Alden C2000R is far less expensive than other similarly equipped radar display systems. If you don't need all the features of the C2000R, the cost is even less for our C2000M radar monitoring system. If you've looked at weather display systems in the past, you will be pleasantly surprised at the cost, lease or purchase, of an Alden system.

8. How do I find out more?

Just fill in the coupon, or call Alden, and we'll be happy to set up a demonstration.

Alden Electronics, 127 Washington Street,
Westborough, MA 01581, (617) 366-8851

Please send information on:

C2000R C2000M C2000R/S

Name _____

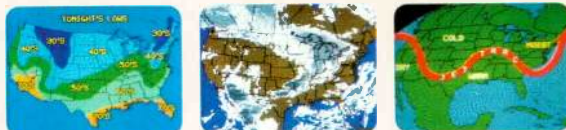
Title _____

Company _____

Street _____

City _____ State _____ Zip _____

Our C2000R/S adds weather graphics from private data bases, such as these from Accu-Weather® and WSI SUPSAT™



ALDEN ELECTRONICS

"See a live demonstration in booth 2759"

Circle 200 on Reader Service Card

dio, field, and ENG use will be on display.

See ad page 141. Circle No. 188.

FUJI PHOTO FILM 3240

Will introduce the new H621E one-inch videotape, as well as the new H421M and H321B half-inch professional videocassettes for M-format and Betacam, respectively. The line of one-inch videotape, 3/4-inch cassettes, and standard and Super High Grade half-inch videocassettes will also be shown.

See ad page 136-137. Circle No. 186.

GA CARLEY 2648

Will present its printing services for transit advertising by broadcasters.

GARNER INDUSTRIES 2601

Will introduce the Model 2700 continuous-duty degausser for magnetic media. The Models 1200 and 1400 high-capacity degaussers and the Model 270 compact videocassette eraser will also be on view.

GE LIGHTING BUSINESS GROUP 2717

Will show its line of lamps.

GENERIC COMPUTER SYSTEMS 312

Will show its IBM PC- and Apple IIe-based automation system for broadcast traffic and billing.

GEISE ELECTRONIC 2785

Will display its line of time code equipment and synchronizers, featuring the Lock-System 3 and Lock-System 3/2. The 19-inch rackmount unit is designed for SMPTE/EBU time control of video, film, and audio machines. Modular construction consists of central unit with remote control, one master and two slave interfaces. Also on display will be the SMPTE/EBU time code generator, time code video display, biphasic time code generator, time code comparator, high-speed time code reader, and the Taker A/B and computerized Taker 1000 for automatic dialog replacement.

GENTNER ENGINEERING CO., INC. 2669

Will have a new VRC-1000 remote-control unit, which uses a

dial-up phone circuit, responds in synthesized voice, and has full ATS capability, and will also introduce the DPH-5 dual-line, auto-nulling telephone hybrid; the TC-1000 automatic telephone interface; and the EFT-900 extended frequency transceiver for a single telephone line. Also on display will be the complete line of telephone interface equipment including Microtel, SPH-3A, SPH-4, Telemix IX, and EFT-1000; and audio routing equipment

GML AMERICA 241-242

New products unannounced at press time; but will also feature the Proteus dual-channel, synchronizing digital video effects unit with A/B roll capability.

See ad page 171. Circle No. 203.

G&M POWER PRODUCTS 2790

Will feature the line of extra-high-capacity nicad batteries, including slow- and fast-charging batteries for cameras, recorders, and lights.

ALAN GORDON ENTERPRISES 3435

Will display its full line of HMI fixtures, lighting and grip equipment, and Cinemeter light meters.

GORMAN-REDLICH MFG. CO. 2715

Will be offering its line of EBS encoder-decoders, NOAA weather receivers, and digital antenna monitors for directional AM arrays.

GOTHAM AUDIO CORP. 3354

Will demonstrate a production model of its EMT 448 digital spot recorder, hooked up to its larger system, the Systex, both using Winchester disk drives, and the EMT 448 with removable hard disks. New products include the EMT 277 DX Limiter, a high-powered AM processor using dynamic preemphasis; it has a delay limiter to sense peaks and avoid overmodulation. Built-in compressor has daytime and nighttime switchable settings, and an adaptive presence boost. Also on display will be Neumann microphones and consoles; EMT broadcast limiters and turntables; EMT

consoles; Klein and Hummel loudspeakers; NTP meters and compressor amps; and Gotham audio cable.

See ad page 90. Circle No. 160.

GRAHAM-PATTEN SYSTEMS 2528

Will introduce the Model 608 eight-input Edit Suite Audio Mixer for small post-production applications, priced under \$10,000. Also on view will be the complete line of edit suite audio mixers; video keying systems including the Model 1230, capable of six simultaneous key signals; video and audio DAs; and the Universal Equipment Control System.

See ad page 108. Circle No. 175.

THE GRASS VALLEY GROUP 3112

Will introduce the Kaleidoscope DPM-1 component digital effects system, first displayed at SMPTE, as well as the 85 Series EZ-Link fiberoptic system. Also featured will be the lines of production switchers (300, 100, and 1680 Series), master control/automation (1600-4S MC switcher, M200 automation systems); video editing systems (Models 41 and 51); routing switchers (Horizon, Ten-XL, Ten-XT); fiberoptic systems (3290/91 systems and 3295 digital multiplexers); and timing/processing/distribution equipment (8500 Series DAs, 3240 Series sync generators).

GRAY COMMUNICATIONS CONSULTANTS 3402

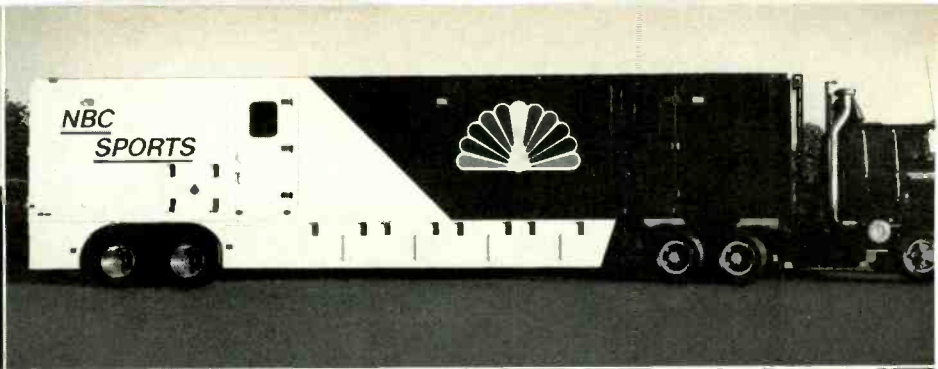
Will unveil a new van to add to its line of mobile production units and vans, also to be on show.

GRAY ENGINEERING LABS 3402

Introduced will be the TCA-143 time code analyzer, which accepts SMPTE edit code, analyzes it for a series of diagnostic faults, and retransmits it in one of three modes: bypass, restore, and correct. Other featured products will include the DT-213 data transmitter and FC-142 film counter/character generator.

GREAT AMERICAN MARKET 2714

Will introduce the MicroBrute LV9 mini 9 V light; Fog Power scented fog fluid in six "flavors" and plain; complete lines of RDS/USA studio and portable lighting equipment; and the ColorMax



TELEVISION REMOTE TRUCK DESIGN AND CONSTRUCTION

Innovative concepts, attention to detail and competitive pricing has identified Centro as an attractive alternative for mobile facilities planning, chassis and floor plan delineation, systems integration and project implementation.

With a decade of nationwide service and dedication to quality, Centro is a design and engineering firm employing the disciplines necessary to implement successful television mobile systems and facilities.

Call us today and compare our services and prices.



CENTRO CORPORATION
9516 CHESAPEAKE DRIVE
SAN DIEGO, CALIFORNIA 92123

(619) 560-1578

See us at NAB Booth #3181

Circle 193 on Reader Service Card

ColorQ computer controller for ColorMax rolling color changes. The full line of effects lighting equipment will be on view.

GROSH SCENIC STUDIOS NA

Will introduce the Studio Winch, a portable, infrared-controlled scenery lifting winch. Established products will include the Tru-Climber light batten and associated Tru-Controls.

GRUMMAN ELECTRONICS SYSTEMS 2481

Will show a four-channel version of its new AIS5000 system offering random access, computerized control of spot insertions and complete automation capabilities of sales, traffic scheduling, machine control, and billing.

JAMES L. GRUNDER & ASSOC. 2429

Will present the Cel Ltd. line of frame synchronizers with infinite window and color corrector with proc amp.

GTE SYLVANIA 3393

Will introduce the FF Series 1000 W PAR 64 lamp with 800-hour life and a ruggedized "Roughneck" construction CYZ 2000 W lamp. The line of tungsten-halogen, fluorescent, and metal halide lamps will be shown.

GTE SPACENET 2573

Will offer satellite services, with emphasis on Ku-band.

HALLIKAINEN & FRIENDS, INC. 2925

Will announce its TVA200 stereo audio mixer with audio-follow-video with all inputs line level and stereo. The existing DRC190 programmable remote-control and logging system will be shown in a configuration to control eight FM stations and a dial-up control system. The TEL Series digital telemetry adapters and TVA audio equipment will complete the display.

HARRIS BROADCAST GROUP 3136

New products from Harris will include the FM-35K 35 kW FM broadcast transmitter; the PUP portable uplink package for SNG; a 2.0/2.5 ENG central microwave

receiver; the Model 640 synchronizer; the Sentinel 48 remote-control system; the ESP II still store; the Model 634 synchronizer with effects; a 4.5 m Ku-band satellite antenna; program automation equipment; the Model 560 TBC; the VW-3 synchronizer; and the AC 20 dual-channel TBC with effects. Also featured will be the established lines of AM, FM, and TV transmitters; RF and TV antennas; microwave transmitters; STLs; remote-control equipment; telephone interface equipment; the IRIS C still store; Medalist audio consoles; TC-85C camera; PX-91 turntable preamp; Ultra-Mate 91 compressor/limiter; and Phase Fixer encoder and decoder.

See ad page 88. Circle No. 158.
See ad page 173. Circle No. 204.

HARRIS VIDEO SYSTEMS 3136

Will introduce the Model 640 frame synchronizer with time base correction, noise reduction, remote control, and audio synchronizer control. Also new will be the AU-220 videographics system from Aurora, based on the IBM PC. Will also show a full line of former ADDA products, now built by Harris, including the 560 Vision TBC, the AC-20 dual TBC/synchronizer/effects system, the VW-3 TBC/frame sync, and the ESP II still store with effects, IRIS still stores, the IRIS Composition System and Aurora graphics systems, the line of TBCs and frame synchronizers, and the Harris Digital Effects product family will also be featured.

HARRISON SYSTEMS, INC. 3412

Will show the new totally-automated 10 Series audio console with hard disk automated support. It's a virtual console, with applications for TV studios, TV post-production, film, and multi-track recording and production. Also to be shown are the 3, 4, and 7 Series audio mixing consoles for stereo TV, radio, and production and the 9 Series audio routing switcher.

HEDCO 2751

Will introduce the HD-50 Series routing switchers; the HD-12 12x12 video and stereo audio routing switcher; the GSC-101 microprocessor-based general

switching controller; the VAC-300 video activated switcher for remote control of monitors or alarm systems; and the SSG-321 audio test generator. Established products will include video and audio DAs in rackmount and standalone versions, audio and video 4x1 switchers; small routing switchers, a 16x1 video and stereo audio monitoring switcher, and a 24x24 A/V routing switcher with three levels of audio.

HEIE ENGINEERING 2452

Will introduce the Commander BC-1 broadcast on-air console with automatic sequencing, Lexan overlays, telehybrid interface, and other features.

KARL HEITZ, INC. 2900

New support equipment from Gitzo will include the 480 100 percent fluid head with adjustable counterbalance; the 510B4 Mini Tele Studex for cameras up to 50 pounds; the 510B6 Mini Tele Studex for cameras up to 100 pounds; and the 563LM microphone fishpoles. The full line of Gitzo support equipment will be on view.

HIPOTRONICS 2728

Will show the electromechanical Peschel Automatic Voltage Regulator available with all standard service line voltages and a variety of current ratings as well as options for individual phase control, bypass switch, and transient suppression.

HITACHI 3160

Will introduce the Z-31P camera, a Plumbicon version of the Z31, shown at SMPTE in prototype. Established products on display will include the complete line of Computacam auto setup cameras, ranging from the Z-31 to the top-of-the-line SK-97 and SK-970, and the HR-230 Type-C VTR.

See ad page 176-177. Circle No. 206.

HM ELECTRONICS, INC. 2619

Will introduce the BH720 and BH721, new cabled intercom belt pack headset stations, each housed in a contoured aluminum extrusion designed for comfort. The 720 is a single-channel unit, the 721 a two-channel unit, both are compatible with HME 700

You don't have to wait for NAB
to make the best switcher deal.
You can make it now!
A fully-equipped SP Series 80.
Call now...1-800-361-2354

One of the best kept production secrets in New York City:

Over 90 Central Dynamics Series 80 video production switchers are providing the video power and effects to the Big Apple's best talent... from Music Videos to Network News.

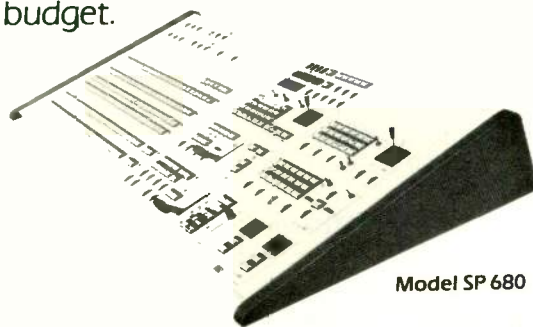
And now the New SP Series 80 switchers promise
the same competitive advantages to any size facility,
in any location, and for just about any size budget.

SP...Special in every way.

Special Power.
Special Performance.
Special Packaging.

and at a very competitive price.

Discover why buyers and users claim...
"the SP switcher gives you more...
in fact, a lot more for your money."



Model SP 680

Call or write for complete details.
Use our New 800 numbers in U.S. and Canada.
Product Information 1-800-361-2354
Product Service 1-800-361-2357



CENTRAL DYNAMICS

at NAB
Booth 3080

Central Dynamics Ltd., 147 Hymus Blvd., Pointe Claire, Quebec, Canada H9R 1G1 (514) 697-0811 Tlx: 05-821506 Twx: 610-422-3906
New York (914) 668-4928 • Chicago (312) 864-6045 • Los Angeles (818) 766-8185 • Texas (214) 894-6303 • Atlanta (404) 633-2100 • Washington, DC (301) 258-7676 • Toronto (416) 446-1543

Circle 194 on Reader Service Card

Series and other three-wire intercom systems. Also new is the RL742, a two-channel, rack-mounted loudspeaker intercom station compatible with all HME700 Series products and other three wire intercom systems. Other featured products are the complete line of wireless mics, wireless intercoms and cabled intercoms.

HOFFEND & SONS, INC. 2641

Will introduce the Micro Commander II, a computerized control system for motorized studio rigging; Omni, new motorized scenery/lighting hoists; and lighting hoists and point hoists for individual lighting fixtures; and will show the complete line of studio equipment including rigging, turntables, curtains and cycloramas.

HOLADAY INDUSTRIES, INC. 2737

Will introduce a new broadband RF hazard monitor. Its isotropic broadband field strength meters will also be shown.

HOTRONIC 2531

Will bring its line of video processing equipment, including TBCs and TBC/frame synchronizers.

HOWE AUDIO PRODUCTIONS 2832

Will have two new consoles, the 8000 Series, a new rotary fader audio console, modular and expandable, with 8-22 channels available; and the 10000 Series Console, a new modular design suited for TV and radio air and production. Also on display will be the 9000, 7000 and 7500 Series consoles, and the Howe Phase Chaser audio TBC.

HUBBARD COMMUNICATIONS (HUBCOM) 3286

Will announce a host of new products headed by a new generation "Low Boy" SNG truck. Also new are the Video Flight Pack and the HC-5, airline baggage checked Ku-band video and audio unlinks, the HCP-500 video time delay ma-

chine for use with extended local news segments, and a 25 W antenna-mounted Ku-band TWT amplifier. Existing items represented are SNG vehicles, a mobile news bureau, and other equipment.

See ad page 10-11. Circle No. 106.

HUGHES COMMUNICATIONS 252

Will discuss its satellite and terrestrial network services for broadcasters, and international services for the Atlantic and Pacific.

HUNGERFORD & CO. 2534

Will be offering its financial and auditing services for broadcasters.

ICM VIDEO 2711

Will introduce the CG-7000 character generator in genlock or standalone configurations, with an infinite number of character and background colors. Will also show the established line of video enhancer/processors, audio and video DAs, satellite receivers, downconverters, and accessories.

IGM COMMUNICATIONS 3378

Will show a new IGM controller using the Commodore 128 computer; an IGM-SC systems controller using IBM-PC computer; and IGM-custom designed systems; also IGM Instacart and Go-Cart multiple cartridge audio playbacks.

See ad page 222. Circle No. 250.

IKEGAMI 3150

Will introduce a new HDTV telecine system and HDTV projection system. Other new products will include the HK-323 studio camera in 2/3-inch and one-inch tube versions, both fully automatic with microprocessor control, and the PM 9-5 low-cost monochrome monitor. Previously shown products will include the HL-95 Unicam camera; the HL-79E ENG/EFM camera; the ITC-730A/AP ENG camera; the SC-500 economical studio/field camera; and the TKC-990 high-performance telecine system.

See ad page 109-116. Circle No. 176.

IMAGE VIDEO 2636

Will introduce the 10K Control System for programmed control over existing 6200 and 9600 Series

routing switchers. On the convention floor, the 10K will reconfigure a 9600 switcher, CP-2/18 control panel, and various Image Video custom control panels. Also new will be an IBM-PC-based real-time automation system operating over the 8200 master control switcher. Regular line will be represented by an 8020 MC switcher, 6030 10x1 routing switcher, composite and RGB, 6010 10x1 routing switcher with remote and local control, and 7707 under monitor display.

INNOVATIVE TELEVISION EQUIPMENT 3258

New products will include the H-50 fluid head, the H-16 fluid head with increased counterbalancing, the P-1 pedestal, and the P-8 remote dolly/pedestal. The entire line of camera support equipment will be featured.

INOVONICS 2434

Will introduce a full production model of the 710-TU stereo generator, shown in prototype last year, along with the Model 390 high-quality "insert" film recording electronics for OEM and retrofit applications. The TVU on-screen audio level display keyer will be featured along with the full line of audio processing and recording equipment.

INOVION 2445

Will debut with its PGS II Image Processor for digitizing images taken from a video still frame. Images can be manipulated, recolored, and overlaid. The system may be genlocked and is NTSC standard input from most NTSC and RGB equipment, with output in either composite video or RGB.

INTEGRATED MEDIA SYSTEMS 2476

Will introduce the 216 Series new generation audio routing system for radio and stereo TV, which contains up to 1024 crosspoints in 5 1/4-inch rack with power supply; and ADA 1000, a digital audio conversion system with SMPTE/AES communications interface which converts audio into digital information for digital video recording. Also shown will be the 2004 Series and 400 Series audio routing switchers.

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

R-42 diversity receiver • Now with GaAsFET's.

Improved sensitivity and system range, with ultralow noise.

Cetec Vega's top-of-the-line PRO PLUS R-41 and R-42 wireless-microphone receivers have quickly become the worldwide standard of excellence. Overall quality of the PRO PLUS wireless system is equal to wired microphone systems, with respect to dynamic range, signal-to-noise ratio, distortion, etc. *We invite your comparisons.* Check these features of the new, improved PRO PLUS receivers:

- **GaAsFET front end.**

Provides the highest achievable sensitivity for maximum system range. Also incorporates a high-performance helical filter.

- **Lowest distortion.**

0.25% maximum, 0.15% typical.

- **Measurably the highest signal-to-noise ratio and widest dynamic range.**

Quiet as a wire. With DYNEX II (a new standard in audio processing), SNR is 101 dB (108 dB A-weighted). System dynamic range is 133 dB including transmitter adjustment range, from input for maximum nondistorting gain compression to noise floor.

- **"Infinite gain" receiver.**

Improved performance in the critical threshold region, superior handling of multipath conditions, better SNR, and constant receiver audio output level.

- **Professional audio circuits.**

Output is adjustable from +20

dBm to -60 dBm in four ranges. Also featured are selectable phasing and 0.2-watt independent headphone amplifier.

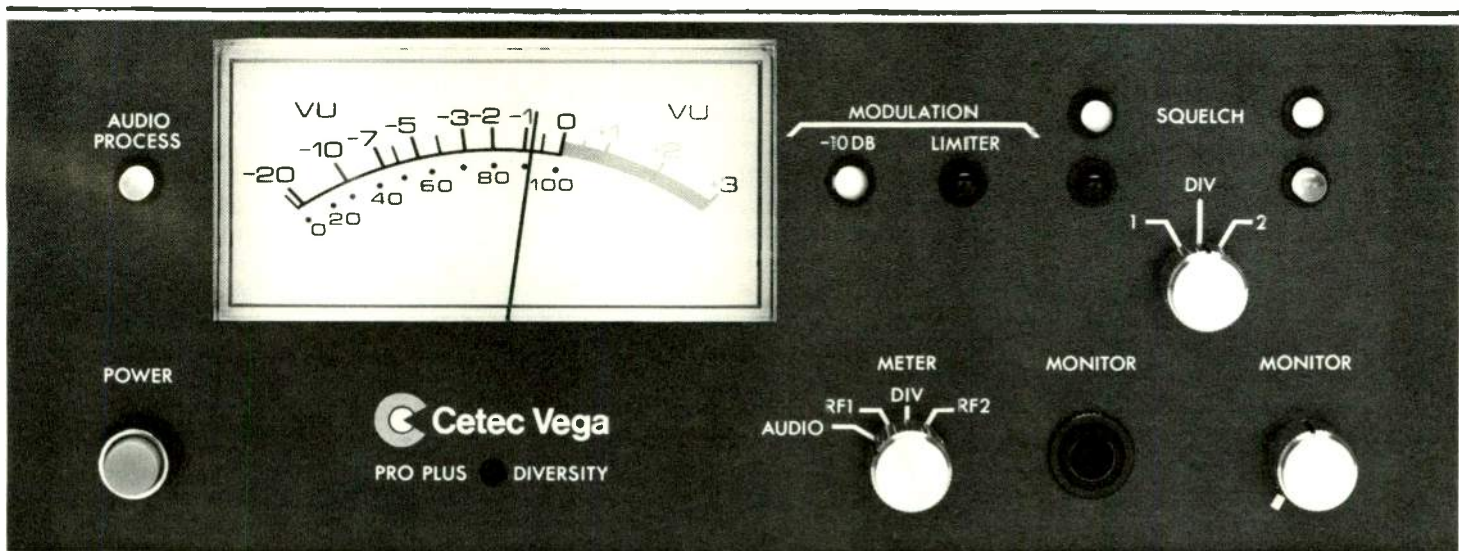
- **True dual-receiver diversity.**

The R-42 diversity system is the most reliable method to avoid dropouts. The R-41 nondiversity receiver has all of the other features of the R-42.

PRO PLUS wireless-microphone systems achieve the highest performance possible with today's advanced technology.

Write or call for further information and location of your nearest dealer: Cetec Vega, P.O. Box 5348, El Monte, CA 91734. (818) 442-0782.

The best wireless gets even better.



See us at NAB Booth # 3394

 **Cetec Vega**
...the professional's wireless

Circle 195 on Reader Service Card

INTEGRATED TECHNOLOGIES

2758

Will introduce the Whirlwind Graphics system, an IBM-AT-based graphics package providing weather graphics and hookups, paint system, and still storage, with upgrade for automation, at a cost of \$28,000. The Ami-Maker, an animation workstation and networking system designed for production houses and full-bore television stations, will also make its debut. It offers a 3D rendering package, completely anti-aliased, and for easier operation uses a graphics tablet as well as "self-guided" software. Work can continue at several stations while edits are made by the AT. The Weather Wand electronic drawing chromakey wall also will be discussed.

See ad page 26.

Circle No. 118.

INTERACTIVE MOTION CONTROL

2771

Will introduce the IMC video slide image system, designed to magnify 35 mm slides or 2¼-inch transparencies to a 4.5-inch image. Also new will be the IMC video camera lifter, designed to provide precise up/down movement of a camera mounted on a nodal point head. Both work with the established IMC 3565 motion control computer, also on view.

INTERGROUP VIDEO SYSTEMS

3312

New product information unavailable at press time. Previously shown products will include the 9000 Series production switcher, the 8000 Series MC switcher, the 1100 Series routing switcher with updated control system, and the Suite 16 video-only routing switcher, introduced at SMPTE, also in a new analog component version.

See ad page 169.

Circle No. 202.

INTERNATIONAL TAPETRONICS/3M

3052

Will show the new ESL V eraser/splice locator, which replaces popular ESL IV model. It's designed for use with cartridges loaded with high-output, low-noise tape, and uses microprocessor technology. Also new is the ScotchCart II broadcast cartridge. The full line of cart machines in-

cluding 99B Series, and Delta and Omega Series, will also be shown with ongoing demonstrations.

ITELCO USA

2765

Will display its lines of high- and low-power TV transmitters, FM transmitters, and 2 GHz microwave link.

ITS CORP.

2535

Will introduce the ITS-10 VHF TV exciter and the ITS-70 ICPM corrector. Also on display will be the ITS-231 UHF backup system, exciter/1 kW transmitter, the ITS-1610B 10 W MMDS/ITFS transmitter, the ITS-29 aural IF modulator for multichannel sound, and the ITS-20 UHF exciter.

JBL PROFESSIONAL

2727

Will introduce the JBL/Urei Model 6215, a one-rack space amp; and JBL studio monitors utilizing a pure titanium dome tweeter: Model 4406, a two-way 165 mm; Model 4408, two-way 200 mm; Model 4410, three-way 2500 mm; and Model 4412, three-way 300 mm. Also on display will be the Urei Models 1650, 1680, and 1690 Series, five-, eight-, 12-channel on-air broadcast consoles; the Urei Model 809 Time-Align studio monitor, and the JBL Model 4425 Bi-Radial studio monitor.

JEFFERSON PILOT DATA SYSTEMS

3440

Will introduce Sally, a computerized productivity system for TV sales and research that runs on an IBM PC. Also new will be the JDS broadcast management system, with music rotation and program management. The JDS newsroom computer system will also be featured.

JENSEN TOOLS, INC.

2721

Will introduce new transportable electronic enclosures. Also on show will be the JTK-87L3 tool kit for field engineers working in both inch and metric systems. This kit

and existing kits JTK-17 and JTK-99 may be contained in military-style rugged cases, also to be shown.

J-LAB

2474

JOHNSON ELECTRONICS

3451

Will introduce a new version, DTR-6, of its desktop SCA receiver, enhanced with new mute circuitry and tone control, and a new addressable SCA tuner allowing the operator of an entire system to switch any receiver or group of receivers within the operator's area.

J&R FILM/MAGNASYNC MOVIOLA

3450

Will introduce the Lokbox, a hard lock synchronizer that synchronizes a video machine to a film transport to allow film sound editing techniques to be used with the video picture. Also featured will be Plus Video, an inexpensive film-to-tape transfer system using Moviola 16 and 35 mm console editors.

JVC CO. OF AMERICA

3180

Will highlight the CR-850 ¾-inch editing VCR, seen in prototype last year. Also featuring the ProCam line of high-end teleproduction cameras, including the KY-320U & KY-950U. The line of digital audio equipment, including the DAS-900 digital audio mastering system, will be shown. In addition, the Mindset range of computer-assisted video products, distributed by JVC, will make its first NAB appearance. The Titler is an entry-level character generator system with cartridge-based software; it is keyboard-controlled with four colors selectable from 512 available. With a personal computer, graphics tablet, and additional software it becomes a complete computer graphics system with the ability to zoom or size graphics.

See ad page 23.

Circle No. 115.

KAHN COMMUNICATIONS, INC.

2454

Will show the new AM stereo signal generator for receiver manufacturers, developed in cooperation with Boonton Electronics; and the STR-84 AM Stereo exciter, as well as the RF-01 AM

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

AT NAB...

TAKE A
WALKING TOUR
OF THE BEST*
THE EDITING
INDUSTRY
HAS TO
OFFER



stereo monitor, and Lines-Plus high- and low-frequency telephone extender.

KAMAN BROADCASTING SYSTEMS 3078

Will introduce new software for complete demographic research and avail submission, a new film inventory program, and a new Betacart autoswitch interface to business systems. The full line of business automation systems for broadcasters will be on view.

KANGAROO VIDEO PRODUCTS 2676

Will unveil new cases for the Sony BVU-150, Nagra recorders, stereo mixers, and time code generators, plus raincovers for broadcast and industrial cameras. Prototypes of the Super-Tough II toploading camera case with viewfinder protection and the KVP-25 case for the Sony BVW-25 recorder. The full line of nylon cases for broadcast equipment will be shown.

KAVOURAS 2657

Will unveil several new additions to the line of weather equipment, including: Weatherlink Vista, an ultrafast pushbutton satellite communications system providing instant weather products in video format with automatic updating; Weatherlink Metpac, a fast (56 baud) hardcopy satellite communications system capable of operating four printers simultaneously; Radac 2020, an advanced color weather radar receiver that eliminates ground clutter; advancements in Triton graphics and animation software; and new Kavouras database products including exclusive McIdas forecasting graphics and maps. The full line of Radac color weather radar receivers, Triton graphics and Animation systems, and Triton Doppler radar systems will be shown.

KAY INDUSTRIES 2511

Will show range of single- to three-phase converters.

KINEMATRICS/TRUE TIME 2513

Will announce two clocks, the OM-DC Omega synchronized clock and the SF-DC which may be synchronized or free-running. Its estab-

lished clocks, driver, remote time display, and frequency comparator will be shown.

KEYLIGHT PSI GROUP 2432

Will introduce the QuartzColor Ianiro range of "Arturo" HMI and incandescent softlights, plus the Matthews Super Crank heavy-duty light stand. The line of QuartzColor Ianiro HMI fixtures, Ianiro Bambino fresnels, and Matthews studio equipment will be featured.

K&H PRODUCTS/PORTA-BRACE 2532

Will introduce the PC101 nylon audio case; a padded nylon case for the Sony BVU-150 recorder; and a new heavy-duty shoulder strap, Model HB20A. The line of video equipment cases will be displayed. *See ad page 208. Circle No. 234.*

KINGS ELECTRONICS 3464

Will show the RF coaxial, Twinax, and Triaxial connectors, video patch panels and patch cords.

KINTEK 2455

Will introduce the KT-960 Monoguard, an automatic correction system to prevent loss of mono due to polarity reversal. It monitors channel to channel stereo signal correlation, and if polarity reversal is detected, a fast acting circuit automatically corrects it. There are longer time constraints for music program material. Also featured is the KT-903 Stereophonic Converter, a three-part automatic stereo synthesizer for TV. It leaves mono program intact, and does not change spectral density, also features an automatic dialog centering control, and mono-stereo sense switch to leave stereo audio intact. It can be installed at the transmitter. *See ad page 67. Circle No. 145.*

KINTRONIC LABS 2780

Will introduce new variable arc gaps for lightning protection of whip antennas. The line of AM directional antenna phasing, power dividing, and matching equipment will also be on view.

KLIEGL BROS. LIGHTING 3581

Will unveil a new memory lighting control console and a new

"wedge" Fresnel spotlight. The full line of lighting fixtures and computerized lighting control consoles will be featured.

KNOX VIDEO PRODUCTS 2611

Will unveil the K40 Microfont, a lower-priced (under \$2500), full-featured character generator. Also on view will be the established K100 Option C character generator.

KOBOLD LIGHTING 2834

LAIRD TELEMEDIA 3474

Will introduce new options to the Model 1500 character generator, including camera entry and font compose. Also showing the 1500 PROM character generator (similar to the 1500 but without the disk drives); the 5300 optical multiplexer; and the line of CGs, multiplexers, equipment racks, and consoles. *See ad page 181. Circle No. 208.*

LAKE SYSTEMS CORP. 112

Will feature a new low-cost, easy to operate version of the La-Kart video cart system for commercial insertion and TV station automation. Also shown will be the La-Kart multichannel cart system, which can address up to 28 VTRs with complete random access. *See ad page 68-69. Circle No. 147.*

LANDY ASSOCIATES, INC. 2609

Will show the Ikegami HL-95 Unicam for ENG and camcorder applications, with a Nisus variable speed shutter for cost-effective slow motion, and Skotel's new time code generator and a Tektronix TSG-170A. Existing Ikegami monitors will be on the stand along with an Ampex one-inch VTR, a Ross video switcher, a Laird character generator, and an Interphase CB-1 countdown and safe area generator.

LANG VIDEO COMMUNICATIONS 2533

Will introduce the SNG852-03 satellite newsgathering unit, designed for processing of audio and video signals for satellite uplink use. It contains a four-input vertical interval switcher, a line/mic mixer, a video source identifier,

TOUR BOOTH 3252



CONVERGENCE CORPORATION



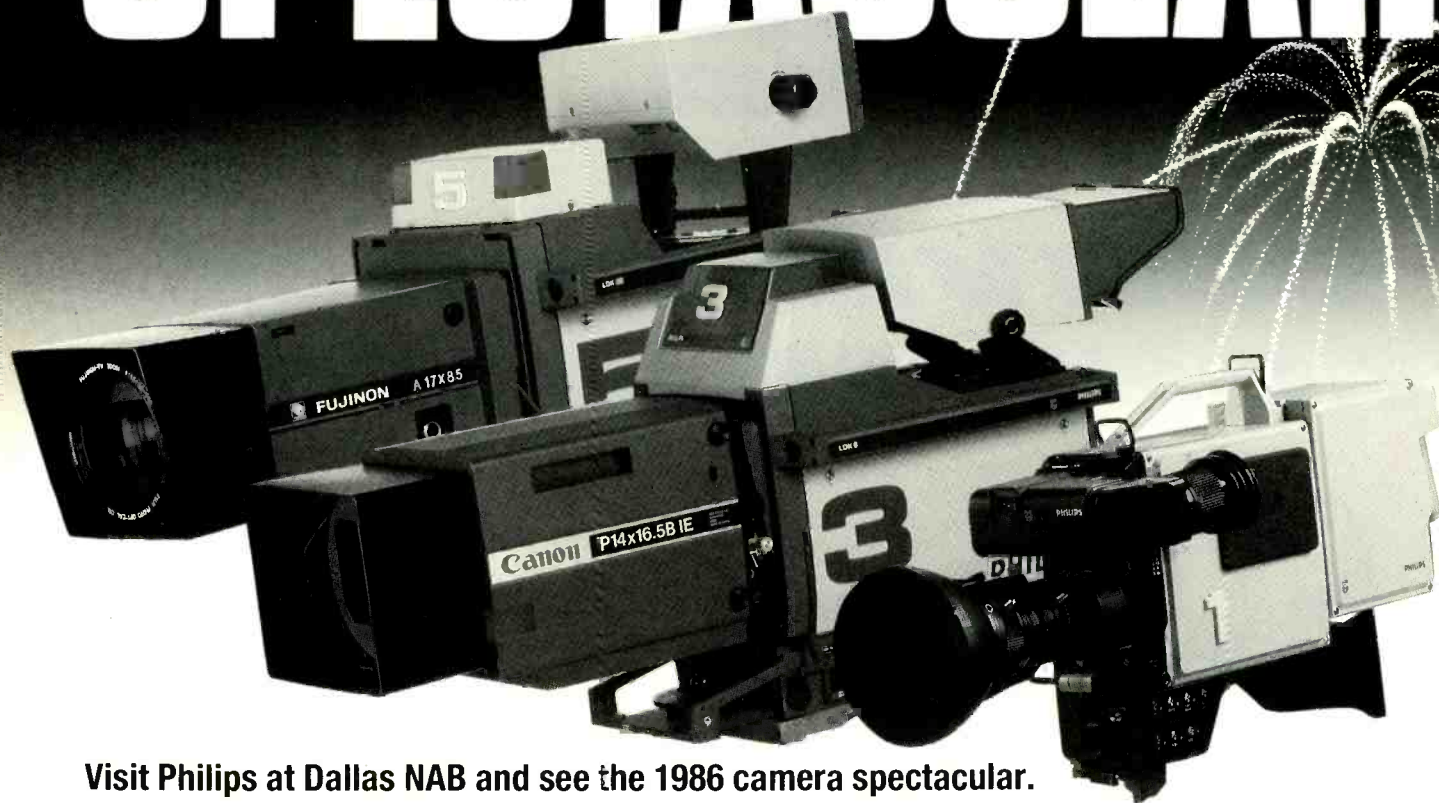
***THE BEST...**

- Dealer Network with post-sales/service
- Low-cost A/B Roll Editing
- Complete ENG Post-Production Travel Package
- Six VTR Controller at a reasonable price
- On-Line, Eight VTR System with Advanced List Management and 409

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Dallas NAB-Philips makes it a CAMERA SPECTACULAR



Visit Philips at Dallas NAB and see the 1986 camera spectacular.

The LDK 6 with "Total Computer Control" has a new 1986 series, the advanced LDK 6A and LDK 26A. With new production features. Plus innovations like the unique COACH computer maintenance and diagnostic aid with telephone interconnect. There's also the new LDK 54A multi-role compatible portable.

And don't miss the other star attractions at the Philips NAB booth.

- High quality color monitors
- UHF television transmitters

- FM radio transmitters
- Television test and measuring instruments
- Philips professional compact disc player
- Philips professional lighting

See Philips at NAB or for immediate information call 201-529-1550. In Canada call (416) 439-9333

PHILIPS TELEVISION SYSTEMS, INC.
900 Corporate Drive, Mahwah, N.J. 07430



Broadcast Equipment

PHILIPS
Reliability through Quality

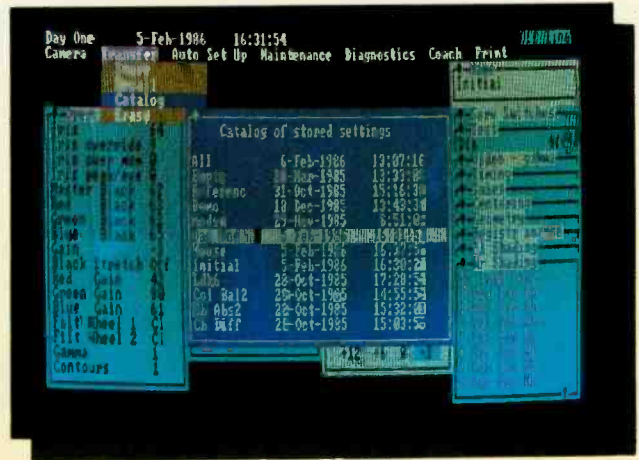
Would you like . . . the assurance of your top maintenance engineer wherever your camera goes?

With COACH you can have it. COACH – the new Philips remote control and monitoring system for the LDK 6 family of automatic cameras. A system devised to give double assurance of the perfect performance provided by total computer control . . . in the studio or field . . . with your top engineer on-line supporting your production staff.

LDK 6A and LDK 26A television cameras already have the industry's most extensive diagnostics.

The new Philips COACH is a tool for centralised maintenance and monitoring of the LDK 6 family of cameras. It consists of 2 components – an interface and an IBM compatible personal computer. Simple to use, COACH provides –

- remote control and monitoring of LDK 6 family camera systems



COACH display

- flexible retrieval, storage and control of camera data with greatly expanded and highly protected memories to warn of approaching end of range and unusual changes in camera set-up
- in depth diagnostics monitoring including surveillance
- remote access via standard modems over telephone lines.

COACH, therefore, helps make more efficient and cost effective use of high grade engineering staff. It also allows them to give on-line technical support and advice whenever and wherever it is needed.

COACH is just another example of the developments that ensure Philips LDK 6A and LDK 26A cameras remain the fastest selling cameras in their class with over 400 sold worldwide.

Users from networks, stations, production facilities and institutions are discovering for themselves the benefits that come from total computer control. It is available from Philips in all tube formats . . . the 2/3" (18mm) LDK 26A and the choice of 1" (25mm) or 1 1/4" (30mm) LDK 6A.

Prove the total computer difference for yourself.

A demonstration will prove why these cameras are years ahead in design, performance and cost effectiveness. Call or write for demonstration or request the descriptive LDK 6A, LDK 26A and COACH technical brochures.

PHILIPS TELEVISION SYSTEMS, INC.

900 Corporate Drive
PO Box 618
Mahwah, New Jersey 07430
Tel: 201-529-1550 Telex: 37-62558



LDK 6A
LDK 26A

LDK 6 – the total computer control camera.

LD 15



Broadcast Equipment

PHILIPS
Reliability through Quality

Circle 198 on Reader Service Card

plus monitoring. Other featured items will include the VSI820 video source ID; the OSH850 mixer, switcher, and source ID; the TSH852 portable mixer, switcher, and source ID; and the VAX700 automatic video-follow-audio switcher.

LARCAN COMMUNICATIONS EQUIP. 3314

Will premiere a 50 kW VHF high-band transmitter TTC-50LH using two tubes, a 1.2 kW VHF high-band/low-band solid-state transmitter, a 60 kW UHF transmitter, and a contactless switcher for paralleling two VHF transmitters without using coaxial switches. Established VHF and FM transmitters and exciters will also be on show.

See ad page 58. Circle No. 135.

LB TELESYSTEMS OUTSIDE

Will discuss its ENG, EFP, and SNG trucks. An SNG van will be present with satellite antenna and electronics from Spectra Communications, which is sharing the exhibit.

LEA DYNATECH, INC. 3332

Will show enhanced versions of its 1-3000 kVA SE Model series-hybrid ac light protector surge eliminators for high-voltage spikes, 1-2500 kVA clean line electronic filter system combining surge protection and EMI/RFI filtering and sine-wave tracking transient suppression, and 1-250 kVA perfect power source with these features and voltage regulation. The improvements incorporate status annunciator, remote annunciator, and power line monitors.

LEADER INSTRUMENTS CORP. 2763

Will introduce the LDM-171 semi-automatic distortion meter and



This EFP monitor from Leader Instruments demonstrates the greater portability of monitors.

the LVM-5863A EFP monitor. The established LCG-420 and LCG-400, NTSC test generators, LBO-5860A waveform monitor, and LVS-5850B vectorscope will also be shown.

See ad page 105. Circle No. 282, 283.

LEAMING INDUSTRIES 136

For its first NAB show, will introduce companded FM SCPC modulation and demodulation equipment for high-quality audio transmission.

LEASING CONCEPTS 168

Will present its specialized leasing services for the broadcast industry.

LEBLANC & DICK COMMUNICATIONS 2903

Will highlight projects from the past year demonstrating its range of custom broadcast antenna system designs.

See ad page 179. Circle No. 207.

LEITCH VIDEO OF AMERICA, INC. 3559

Will bring two new test sets, the TTG-1120 for FM transmitters and the TTG-1130 for AM transmitters. Also new will be the SCH-7000 subcarrier to horizontal phase measurement device, and a range of clocks. Existing products shown will include the DFS-3000 frame synchronizer, VIP-1101 vertical interval processor, and distribution, sync, and test equipment.

See ad page 185. Circle No. 212.

LEMO USA 2805

Will introduce a new compact connector series capable of 500 V dc and 350 V ac at 3 A per contact. The full line of connectors for audio/video applications will be shown.

LENCO, INC., ELEC. DIV. 3056

Will introduce the TBC-450 digital time base corrector with a correction range of 16 lines and eight-bit resolution. Lenco's established range of sync pulse generators, timing devices, encoders and decoders, and test equipment will be on display.

LEXICON, INC. 2909

Will introduce a production model

for the newly-developed Model 2400 stereo time compressor expander, featuring advanced signal processing techniques, for performance virtually free of noise and artifacts. Optional time code reader available for frame-accurate time compression expansion. Also new is the Model 480L Digital effects system an advanced time effects system, featuring 20 kHz bandwidth digital 1/0 dynamic MIDI, advanced reverberation/room simulation and new time effects. Also to be shown are the PCM-60 low-cost digital reverb; the PCM-70 six-voice digital effects processor/reverb; Model 200 digital reverb/room simulator; and 1300S digital audio delay synchronizer.

LIGHTNING ELIMINATION & CONSULTANTS 164

Will introduce the Chem-Rod line of rechargeable chemically activated grounding electrodes, with models for vertical and horizontal position, and regular, dry, and wet soils. Its Dissipation Array equipment for preventing lightning strikes will also be presented.

LIGHTING METHODS 2673

Will unveil the SD Series portable, single-channel dimmer packs, in addition to the established RD digital dimming system and the Concept, Idea, Designer, and CH200 lighting control consoles.

LIPSNER SMITH 3386

Will display its ultrasonic film cleaning machines.

LISTEC TV. EQPT. CORP. 3579

Will unveil the Vintel Microswift 200 remote servo camera control system for remote control of pan, tilt, zoom, focus, iris and/or pedestal height, as well as Vinten's new Vision Series lightweight heads and tripods for ENG and EFP applications. Its full range of existing studio and field pedestals, heads, tripods, and dollies will also be shown.

See ad page 64. Circle No. 142.

See ad page 36. Circle No. 125.

LOGITEK 2807

Will unveil Crossfire, a new automatic audio crossfade amp designed for A/B roll edit systems

YOU MADE US LOOK TERRIFIC!

You took our
PictureMaker™ 3D
Computer Graphic Video
Animation System and
did wonders with it.

What will our customers
think of next!?

See for yourself.
At NAB Booth #3478



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ANOTHER SOLID IDEA FROM CUBICOMP



CUBICOMP
CORPORATION

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Circle 199 on Reader Service Card

and controlled by a VTR edit controller. Also new will be the Stereorack, a stereo version of the Auditorack rackmountable audio console. Established products will include the Perfectionist and Custom Audio audio consoles, Auditorack, audio DAs, audio power amps, phono preamps, LED audio level displays, speakers, timers, and a pro audio interface.

LOWEL-LIGHT 2601

New products will include: Maxa-Mount, a device that turns large, lightweight foamcore or other panels into light reflectors; a Surmountable Kit consisting of 38 clamping, mounting, rigging, and light control components; and an improved version of the Grand Stand with air-cushioned sections. The full line of lighting equipment and accessories will be featured.

LPB, INC. 3338

Will show the new Alpha Series broadcast audio consoles: six-, eight-, and 10-mixer stereo on-air consoles. All audio circuits are confined to circuit boards with dc control from the panel. Also featured are the Citation Series eight- and 10-channel consoles; Signature Series five-, eight-, and 10-channel stereo consoles; audio compressor-limiters; eight- and 16-output audio DAs; and modular control room furniture.

See ad page 262. Circle No. 268.

LTM CORP. OF AMERICA 2537

Will unveil four new lights: the Luxard 575 W and 1200 W units for daylight/interior lighting and the compact Luxarc 2500 and 4K for exterior lighting. Also new will be a 12,000 ballast with automatic voltage selection. The line of conventional and HMI lights will be on view.

L-W INTERNATIONAL 3427

Will premiere a low-cost film-to-tape telecine system and projectors. The established Athena 4500/6000 telecine projectors will also be featured.

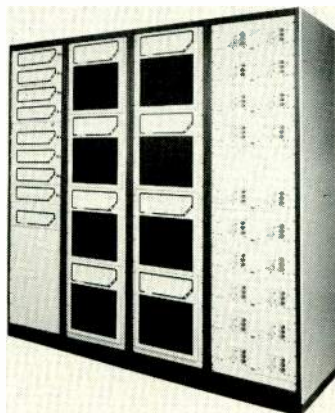
LYON LAMB VIDEO ANIMATION 2932

Will introduce the ENC VI color encoder/sync generator, with NTSC composite and Y, R-Y, B-Y component outputs. New inter-

faces for the VAS IV and VAS V animation controllers allow them to talk to Hitachi HR-230 one-inch VTRs and Panasonic AU-300 half-inch VCRs. The VAS DELTA animation controller now has an interface for the Sony BVW-40 Betacam VCR.

3M BROADCAST AND RELATED PRODUCTS DIV. 3120

New products from the Broadcast and Related Products Div. will include several additions to the Series H hybrid switching systems line: a 32x32 one video, three audio switcher; a 64x64 one video, one audio switcher with companion 64x64 two audio frame; a SMPTE RS-422 machine control system for any format VTR, telecine, or ATR; and a 16x16 and 20x20 component video switching system using Series H technology. The division will also introduce a 40 MHz high-frequency switching system for HDTV; a 128x32 one video, three audio Series H switching system; and new control panels for the 660 Control System. New graphics products will include the D3600 character generator with 96 built-in font sizes and three operating modes; the Panther Graphics system with CG plus paint capabilities; the D2200 CG for the economy production and industrial messaging markets; and new models of the 3M Paint System, plus new software for both old and new models.



3M H Series 128x128 routing switcher has one video level and three audio levels.

3M MAGNETIC AUDIO/VIDEO PRODUCTS DIV. 3120

Will announce, but not show, the new PB 30 broadcast Betacam cassette, plus the new SP U-matic

tape. A new version of the Snap-Cap hanger system for Beta cassette storage will be introduced. Recently introduced tapes will include the PV and PB lines of M-format and Betacam broadcast cassettes, the MBR 3/4-inch cassette, and the BC half-inch broadcast cassette, along with 3M's digital audio U-matic tape. Other featured tapes will include UCA 3/4-inch tape, 479 one-inch tape, and 226 and 250 audio tapes.

See ad page 30-31.

See ad page 119.

3M OPTICAL RECORDING PROJECT 3120

Will feature its full line of optical laser-based media, including interactive videodiscs and CDs, plus write-once and erasable data disks.

M/A-COM MAC, INC. 3280

Will introduce its new Navtrack system for its line of tracking systems. Navtrack uses Loran-C to enable tracking in both azimuth and elevation planes, and also incorporates an autosearch function. The new low-cost, low-profile Microscan tracking system will join the existing Miniscan and Superscan. Microscan will be offered in receive and transmit versions in dual 2 and 7 GHz bands. A redesigned, more efficient Miniscan unit will also be featured. A new 23 GHz radio link for live digital audio transmission will also be introduced. Existing remote, heterodyne, fixed links and 2, 7, and 40 GHz ENG products will complete the display.

See ad page 187. Circle No. 214.

MAGNI SYSTEMS, INC. 128

Will introduce a new 1527-Combination waveform monitor, vectorscope, test signal generator, and SCH phase meter, 1510 Digital Test Signal Generator, and new software for the 2015 PC-based test signal generator. Other products to be exhibited are the 1520 Integrated Measurement Package, 1525 IMP Display Monitor, and 2015 PC-aided synthesizer.

MAGNUM TOWERS, INC. 2901

Will show its range of tall guyed towers for FM and TV transmission.

If you need rigid line, here's where to get it fast.

CABLEWAVE rigid coaxial transmission line is available in sizes from 7/8 inch to 3 1/8 inches in 50 ohm impedance and 6 1/8 inches in both 50 and 75 ohm impedances.



Not only available, but in most cases, we can ship from stock. You will rarely have to wait more than two weeks.

You can order twenty foot lengths or any shorter length cut to your specifications. You can request that line be fitted with flanges on both ends, one end or without the flanges. Hardware and other installation accessories are also available from stock. Aluminum outer conductor is available, as well.

Quality? You can count on it. Every inch is constructed of high conductivity, hard drawn copper tubing and fitted with pin-type Teflon dielectric insulators produced to exacting standards.

And, all rigid line, flanges and conductors are manufactured in accordance with Mil-L-3980, EIA Standard RS-225 and international IEC recommendations.

While purchasing rigid line for system upgrading and repair may be a simple matter, you may encounter layout and design problems in new installation. We can help here too, with appropriate technical and engineering assistance. Just ask.

In Canada: LeBlanc & Royle Communications, Inc.
514 Chartwell Road
Oakville, Ontario L6J 5C5
Tel: 416-844-1242

Cablewave Systems
DIVISION OF CELWAVE SYSTEMS, INC.

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Member of the Radio Frequency Systems Group

RL-1

CELWAVE

Circle 192 on Reader Service Card

THE MANAGEMENT 2512

Will highlight its Superlog I, Superlog II, Superlog III; computer traffic, billing affidavits programs for single or multiuser systems IBM compatible computers.

MANHATTAN PRODUCTION MUSIC 2550

Will have a new music library specifically for broadcast use, including theme, commercials, and a package just for TV stations.

MARCOM 2433

Will show its 730 metered TV stereo monitor, which includes an all-channel tuner and a stereo/SAP demodulator, as well as the 710 TV stereo generator and TVU audio level display for TV connecting in-line with video monitor to key stereo level metering into the picture and switching between VU and PPM response with full scale annotation. Also will show the C.N. Rood Bax telephone line extenders, and the Rood SC-200 Series digital FM stereo generator.

MARCONI INSTRUMENTS 2436

Will show its 2923 TV signal generator for both insertion test signals and composite full-field waveforms, the 2914A insertion signal analyzer, and the 1192 BC computer interface for the 2914A.

MARK ELECTRONICS 2417

Will announce a new character generator, the MK-85-60 video titler, that is menu-driven from an IBM PC. Its existing range of audio monitoring and automation systems and equipment racks will be shown.

MARTI ELECTRONICS, INC. 3496

Will introduce the MW-500 on-frequency STL booster-amplifier for use in interrupted STL paths. Also new will be the UPS-12 battery back-up system for existing Marti STL systems, relay stations, and telemetry/data links. Estab-

lished mono or stereo STLs, remote pick-up equipment, relay systems, and telemetry links will also be on display.

MATCO CONTROL PRODUCTS 2687

Will unveil the Matco MBC-24 tape duplication system, offering video and stereo audio routing, individual and group control of all VCRs in the system, ability to mix VCR types, and many other features. The line of control components and systems for commercial insertion, tape duplication, video teleconferencing, and A/V distribution and routing will be on view.

MATTHEWS STUDIO EQUIPMENT 2701

Will introduce the Unit 85 dolly, the Briefcase Dolly, the Super Crank, new boom arms, new auto mount accessories, and a gift line of T-shirts, hats, and jackets. The established line of support equipment, including dollies, grip, the Tulip crane, lighting control scrims, Cam-Remote, and other items, will be featured.

See ad page 226. Circle No. 256.

MAXELL CORP. OF AMERICA 3551

Will display the established line of half-inch, 3/4-inch, and one-inch videotape, as well as communicator and duplicator audio cassettes.

MAZE BROADCAST EQUIPMENT 213

In its first exhibit at the NAB, will discuss its services as used equipment brokers.

MCCURDY RADIO INDUSTRIES 3028

New is the CS9400 Digital Intercom system, which can go up to 320 x 320 and features full micro-processor control, plus enhanced terminal storage. Also new is the AMS 210 editing audio console, a 12-input three-buss audio mixing console with addressable RS 422 ports for interface with existing video production or editing systems; a new range of audio DAs, and a new range of dual-channel audio test sets, McCurdy will also feature a comprehensive range of audio and video facilities for radio TV and broadcaster.

See ad page 193. Circle No. 219.

MCG ELECTRONICS 169

Will introduce new 600 "Mini" Surge-Master local service panel protectors for protection from lightning, transients, and over-voltage surges. The Surge-Master line of heavy-duty power line protectors will also be featured.

MEDIA CALIFORNIA 2688**MEDIA COMPUTING 2545**

Will introduce ANGIS: automated news graphics interface system, with the capacity to update information for character generators via IBM and compatible microcomputers, plus flexibility to input info manually from remote field locations and or directly from wire services. The company will also show other software in TEN (The Electronic Newsroom) series: Wire Editor, PC Promoter, Producers Rundown, Assignment/Archives, Script Writer.

MEDIA GENERAL BROADCAST SERVICES 3335

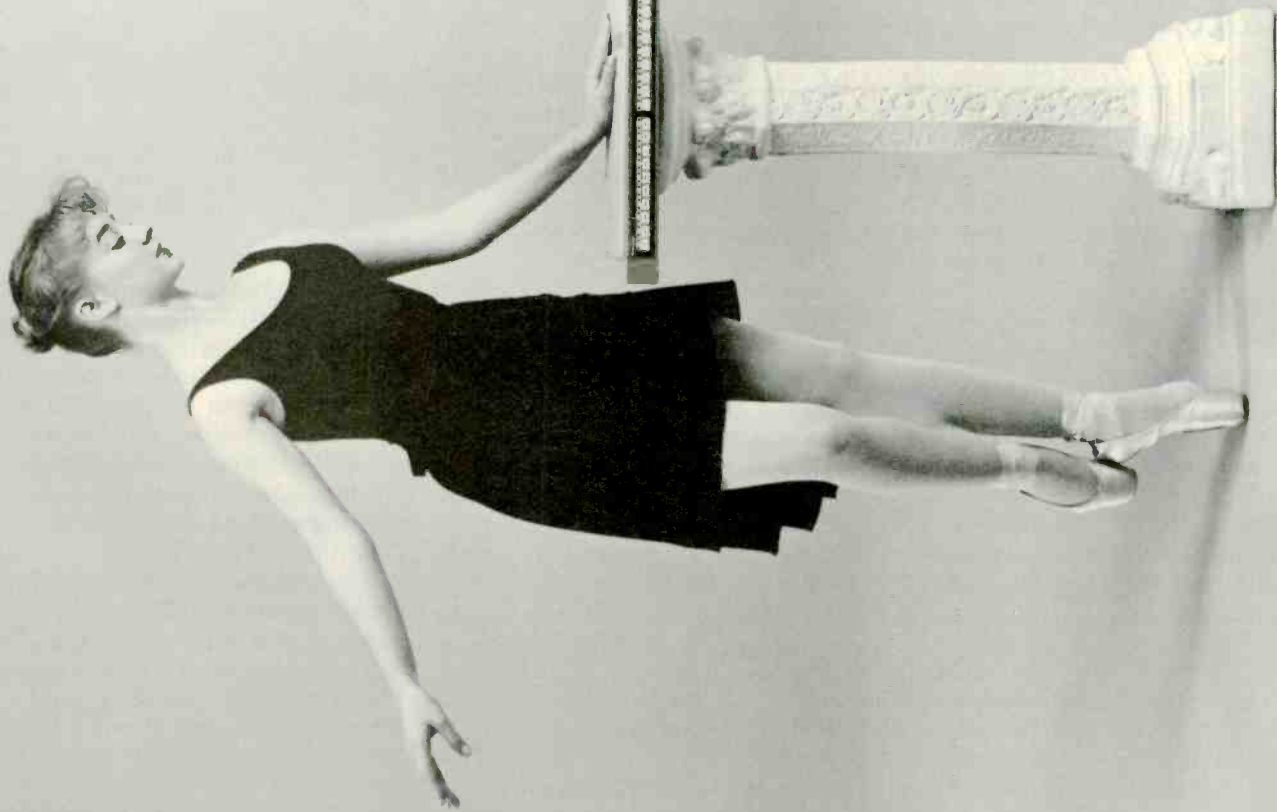
Will feature production libraries, sales production services which include jingles, and four music formats: Your Country, Hit Rock, Action, Headliners, as well as contest and promotion packages, station IDs, custom client jingles.

MERLIN ENGINEERING WORKS 3408

Will unveil the Q-Driver master control automation system, a serial interface machine controller. First seen at last fall's SMPTE, the Q-Driver has been extensively modified since then. Also featured will be the ME-888 universal standards converter, which converts among NTSC, PAL, PAL-M, PAL-N, and SECAM in any combination. It has a built-in TBC and framestore and performs color correction and both horizontal and vertical enhancement. The vertical interval stereo audio system, designed primarily to upgrade ACR-25 and TCR-100 quad cart decks to stereo performance, will be featured, along with a refurbished Ampex AVR-2 quad VTR, possibly with vertical interval stereo.

*See ad page 228. Circle No. 260.
See ad page 232. Circle No. 263.*

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.



CONTROL

That A Ballerina Would Appreciate.....

Is by way of introducing a new era in video switching *control*. Like the ballerina whose quality of dance expression demands absolute control, broadcasters can now achieve new levels of *control* over their video switching matrix.

To become a "video choreographer", start with just 21 buttons. Add our Series 1 Control Computer. Select from a library of firmware. Put it all in a 1 3/4" package and call it the PCA-904A. Now you've got a switcher *control* tailored for today's job... reprogrammable for tomorrow's.

Choice of functions is limitless, and most features are available for EVERY Series 10, Series 25 and System 21 matrix **EVER BUILT!**



- **Simple Operation**—downloadable input assignments, one per button
 - **More Inputs**—reprogrammable as 100 input, downloadable alphanumeric controller
 - **Compact**—a multi-bus controller in a 1 3/4" package
 - **Rearrange Matrix**—stores up to 20 salvos, one per button
 - **Sequential Control**—individual dwell adjustment with random order sequencing
 - **Restricted Access**—downloaded from system controller
- Try *THAT* in any other 1 3/4" rack-mounted panel!
- And that's only a sample of what the powerful Series 1 Control Computer can do in just one configuration. Multi-level control, alpha displays and VDT interfaces are offered in other packages. The Series 1 can also give **YOUR** custom *control* panel all these features plus others you program yourself.

Isn't it time you assumed absolute control!

DYNAIR

5275 Market Street, San Diego, California 92114 • (619) 263-7711

Leaders in  Signal Switching and Control

MICRO COMMUNICATIONS, INC. 3438

Will show its transmission lines, diplexers, switches, and antennas.

MICRO CONTROLS, INC. 2623

Will unveil new FM subcarrier paging equipment and a transmitter-studio link. Existing STLs, remote-control systems, and subcarrier generators will also be on view. Sharing the stand is American Diversified whose National Paging System will be featured.

MICRODYNE CORP. 3520

Will premiere a new transportable Ku-band satellite uplink vehicle with automatic satellite acquisition and SCPC order wire. Also new will be an automated programmable C- or Ku-band earth station, and a new addressable data modem designed to drive hard copy printers over normal satellite audio channels. Established lines of satellite communications equipment, in both C- and Ku-band, will be shown in addition.

See ad page 195. Circle No. 221.

MICRON AUDIO PRODUCTS 2685

New will be the Micron CTR-501 mobile wireless microphone system, along with the complete line of Micron CNS-500 Series of wireless microphone systems.

MICROPROBE ELECTRONICS, INC./MEI 2620

Will show a production model of its Digisound in two versions: a 20-20 kHz, for recording studios, and a 20-15 kHz for broadcast. It's a Winchester disk-drive system featuring 76 minutes mono, a membrane keypad, CTR screen, which fits in a rack panel, and it's available in stereo. Also featured will be Satmaster, a satellite music programmer which ties into cart equipment for low cost satellite system, or ties into Digisound for an all-digital satellite system.

See ad page 220. Circle No. 247.

MICROSONICS, INC. 2543

Will introduce 20 MHz and 30 MHz HDTV equalized video delay lines featuring a sharp cut-off, delay equalized video low-pass filter for stereo TV; also a dual in-line

"micro filter" miniature video lowpass filter. Other featured products include 1H and 2H glass delay lines and modules; replacement glass delay lines for most broadcast equipment; equalized video delay lines and modules and crystal filters and oscillators.

MICROTIME 3086

Will introduce four new low-cost TBCs, three for NTSC and one for PAL B or PAL M. Features include freeze with digital comb filter, viewable pictures at 40X play speed, synchronizer capability, Dynamic Tracking operation, extra wide window memory, and many others. Established products on view will be the Genesis1/ACT 1 digital effects system, the T-220 FIT component format interchange TBC, the S-230 TBC/frame synchronizer, and the TSE-120 A/B roll effects system.

See ad page 197. Circle No. 223.

MICROWAVE NETWORK 166

Plans to show new 23 GHz microwave radio equipment, which it says is the first to meet EIA RS-250-B specs. It anticipates broadcasters will use the equipment for STL and TSL links and other shorthaul applications (10 miles or less).

See ad page 278. Circle No. 277.

MIDWEST CORP. 3210

Will add three SNG vehicles to its range to suit a variety of station needs and budgets. The S-25 is for more elaborate news coverage and has onboard its own editing and microwave communications equipment. The S-18 is more compact a one-ton van, and the S-1 is for greater portability, weighing less than 500 pounds.

See ad page 17. Circle No. 109.

See ad page 51. Circle No. 138.

See ad page 59. Circle No. 136.

MILLER KAPLIN ARASE 2507

This CPA firm will discuss its full range of broadcast and accounting financial services, plus market revenue reports, market salary surveys, and station audits.

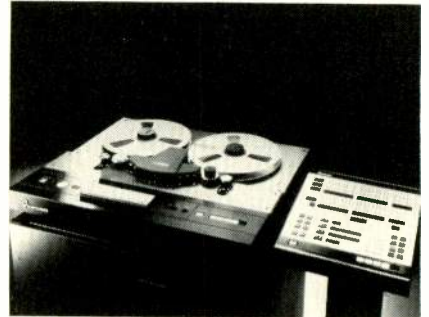
MINOLTA CORP. 2810

Will show its TV color analyzer II to provide objective setting of white balance on color monitors,

as well as its range of light and color meters.

MITSUBISHI PRO AUDIO GROUP (QUAD EIGHT and DEC) 3530

Will unveil the Mitsubishi X-86 two-track digital audio tape mastering recorder, featuring second generation design, cut and splice editing, sophisticated logic control; and the X-850 32-track digital audio multitrack recorder, with second generation design, cut and splice editing, RS-232 and RS-422 control ports, 48 kHz or 44.1 kHz sample frequencies, SMPTE generator with drop frame. Each of these is in the PD format. Also new is the Quad Eight Superstar production and



Mitsubishi's X-850 32-track digital audio multitrack tape recorder is one of two being shown in the Pro-Digital format; Otari's DTR-900 32 will be the other.

post-production audio mixing console with 72 inputs, 64 centrally assigned mixing buses, two stereo outputs, up to 12 stereo submasters, mono mic/line I/O modules, stereo line input modules, modular frame, field expandable, Compumix IV hard disk automation; the Quad Eight Westar production and post-production audio mixing console, with 20 to 60 inputs expandable, 24 mixing buses, two stereo outputs, up to four stereo sub masters, Compumix IV hard disk automation; and the Westrex Digital Master motion control system, SMPTE time code generator and up-down counter, foot/frame counter, meter/frame counter, four simultaneous motor drive signals each with three output circuits. The Westrex ST-6000 magnetic film recorder/reproducer and ST-12000 dual magnetic film reproducer will also be featured.

See ad page 8. Circle No. 105.

Look Into Intergroup...



Discover The Value.

As you're trying to sort out who to see and what's really available at NAB this year, Intergroup urges you to keep one concept in mind. Value. We know that the value of our products is determined by you. You want the production equipment that best satisfies your needs for the amount you want to spend. At Intergroup we find out what features you want most in television production equipment, and we give them to you at fair affordable prices.

**Buy Intergroup,
You'll Get More Than A
Piece Of Equipment.**

With Intergroup, value goes beyond our production, master control and routing switchers. We know that reliability and service are important to you, so they're part of the package when you buy Intergroup. We back everything we make with a five year

limited warranty. And when you need it, we provide the best service in the industry.

Useful innovative products, excellent reliability and stand-out service, that's Intergroup. We're ready to serve your needs now. Stop by our booth, top floor, 3312. Intergroup. Discover the value.

NAB Booth 3312

INTERGROUP

"Creativity You Can Depend On"



INTERGROUP VIDEO SYSTEMS, INC.
GAINESVILLE, FLORIDA

(800) 874-7590 / IN FLORIDA (904) 335-0901

Circle 202 on Reader Service Card

MODULATION ASSOCIATES 2692

New to its line of satellite hardware will be the KU 02 suitcase portable uplink designed for stereo remote broadcast and SNG. It is configured to provide continuous two-way voice/telephone communications plus program channels between remote locations and a master control center. Additional channels are available as options.

MODULATION SCIENCES INC. 2811

Will show the SRD-1 stereo reference decoder for TV, as well as the established TSG stereo generator and TV Sidekick SAP and Pro Channel generator.

MOLE-RICHARDSON 3368

Will add a new mini softlight to the line of Moletronic dimmers, fresnels, HMI fixtures, Solarspots, Solar-Arcs, Molepars, softlights, lighting kits, cyc strips, quartz lights, hangers, adapters, and grip equipment.

MONROE ELECTRONICS 3028

In the RAM/McCurdy booth, Monroe will introduce two new transmitter remote-control products, Models 5001 and 6005. The established Model 5002 remote control for digital audio satellite receivers will also be shown.

See ad page 18. Circle No. 110.

MONTAGE COMPUTER CORP. 3260

Will feature the Montage Picture Processor video editing system.

MOSELEY ASSOCIATES, INC. 3202

Enhancements to its range of microprocessor-based remote-control systems will be in the form of a Video Analyzer for the MRC-2 and new software for the MRC-1600, as well as a new secure dial-up for remote control and a spectrum-efficient new STL.

See ad page 19. Circle No. 111.

MOTOROLA, INC. 3539

Will introduce repackaged C-Quam AM stereo exciters, modulation monitors and accessories and feature all the new C-Quam-compatible AM stereo receivers.

MOTOROLA C & E, INC. 3539

Will show the new PCX 1000 Portable synthesized repeater; the CCB 1001 Portable synthesized base station; and the 23 GHz Starpoint NTSC microwave link, and feature the SRI studio RF intercom; tactical field equipment for ENG; paging and cueing receivers; tone remote consoles; synthesized high power base and repeater stations and a full line of test equipment.

MPO VIDEOTRONICS 2549

MULTI-TRACK MAGNETICS 2515

Will introduce the Model R-180 15x speed sound follower and the Model R-104 time code recorder for use with Kodak's Datakode magnetic film coating. The established MST-100 time code synchronizer for use between film and video will be featured, along with a variety of record/reproduce head assemblies for time code recording on film.

MUSCO MOBILE LIGHTING 1

In the outdoor exhibit area will show its mobile light truck, available for rental. The truck is approximately 35 feet long with a 20-foot pup trailer attached. It is self-contained and can go 100 to 150 feet in the air. It houses a light pod consisting of 15 6K lamps, each individually controlled.

MUSIC DIRECTOR PROGRAMMING SERVICE 2414

Will show new auditorium-tested music research for a/c and chr formats, plus 20 reels of its Country Gold Oldies library restructured, including a new *Country Music Consultant Guide of the '80s*. Six new 1985 reels have been added to the Basic Gold Pop Oldies library. Also featured will be Joel Whitburn's Record Research books.

THE MUSICWORKS, INC. 2734

Will introduce the Factor Five format, a modern approach to a/c programming, more energetic than a/c but not quite chr. "Mellow" a/c is included on separate reels for more controlled rotation. Stereo tape delivery, with monthly updates. Syndicated formats will also be featured.

MYCRO-TEK 2490

Will announce a new network communications package for the Max and Ernie character generators. Also new will be a production font, now a standard feature on the Ernie generator, and an on-line tape storage device to take information from either generator and convert it for audio tape storage. In addition, there is a new dissolve enhancement for the Ernie.

MZB & ASSOCIATES 2495

Expects to show a new ENG suburban unit and a 13-foot three- or four-camera production unit.

NADY SYSTEMS, INC. 2902

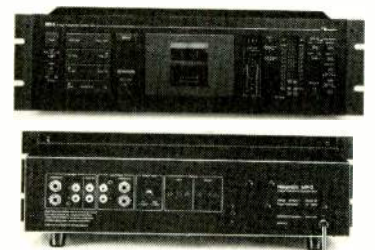
New-Quad Pak coupler for multiple wireless systems Nady Infrared cordless studio monitor system, and Nady Wireless mics, Models 501 VHF and 601/701 VHF.

NAGRA MAGNETIC RECORDERS INC. 3453

Will unveil a new 422 interface for TA-TC tape recorder to allow use of video editor with its audio, and Nady will set up an editing facility using this new port. Also to be shown are the portable IV-STC and post prod TA/TC recorders.

NAKAMICHI U.S.A. CORP. 2456

Will introduce the MR-2 two-head professional cassette deck, unveiled at AES, it has the company's "silent mechanism" transport, a microprocessor motor-driven CAM system that removes vibration-induced flutter, yields extended bandwidth to 20 kHz, and features wired remote input and output which allow multiple units to be operated from single control, plus has Dolby-B and -C noise reduction. Also fea-



The MR-2 two-head professional cassette deck (shown front and back views) is new this year from Nakamichi.

DIGITAL EFFECTS

GML's Proteus. One of the most comprehensive effects packages around. It's a dual channel, multiple input system, incorporating two full frame stores with time base correction.

Using the latest in state of the art hardware and software, backed by GML's long experience of digital video systems, Proteus is designed to work with virtually any input, including, unlike some competitors, component video systems. Pictures can be moved, compressed, inverted and reversed. There are independent color background and color border generators. Mosaic, solarize, posterize and colorize extend the range of effects still further. Freeze, strobe and quad repeat are available on each channel. And all of these effects are stackable, allowing really complex packages to be put together.

Then there are the interchannel effects. Wipes and dissolves obviously, but also reveals, conceals, pushons and mosaic mix. Channels can be overlaid with varying priority. And if all this gets too complex for one pair of hands to operate then you can always use the in-built memory to store a sequence of moves and effects – for replay at will. All of this would be so much junk if picture quality were degraded. That's where Proteus really wins – the pictures are so good and clean, you won't know that a digital process has been involved – until you see those effects.

And if you think that all those features and all that quality is going to cost – we think that you'll be in for a pleasant surprise.

For all the details on Proteus contact: –

GML
AMERICA INC.

8150 Leesburg Pike
Suite 910
Vienna
VA 22180
Tel: (703) 790 0101

See us on
Booth 242
at NAB

tured will be the MR-1 Discrete head professional cassette deck, and the DMP-100 Digital mastering processor.

NALPAK SALES 2800

Will introduce a new mini test chart, a smaller version of the established Accu-Chart, designed for quick field alignment of color video cameras. The line of Tripak tubular cases for tripods has been expanded and now consists of seven sizes. Also new will be the Scrim-pak, a molded box designed to hang from light stands for convenient storage of lighting scrims and gel frames. The Bel-Air line of molded ATA-type shipping & carrying cases will also be featured.

NARDA MICROWAVE 2551

Will demonstrate its new 8682 ANSI standard radiation monitoring probe, as well as a multipath simulator for microwave radio system verification and an ultra-broadband RF radiation monitor covering 300 kHz to 40 GHz with one probe.

NATIONAL TELEVISION SYSTEMS CO. 2472

Will introduce the CAPS Computerized Automatic Programming System, a family of multitasking computer systems with interfaces to all types of broadcast equipment including tape machines, switchers, satellite antennas, and receivers. Exhibit will feature a CAPS-408 automated program system demonstrating control of videotape playback in a real-time programming environment using SMPTE time code.

NAUTICAL ELECTRONIC LABS. 2658

Will show its range of solid-state AM broadcast transmitters from 400 W to 50,000 kW.

NEC AMERICA 3161

Will feature the SP-3A CCD camera, which accepts all VTR formats in its recorder/camera configuration; the DVE System 10 digital video effects system with 3D rotation and perspective plus on-board memory for 100 effects; the PCN-1400 Series VHF transmitters up to 35 kW; the PCU-900 UHF transmitters up to 60 kW;

the FS-19 frame synchronizer with 10-bit quantization; the TVL-800 Series microwave in 7 GHz or 13 GHz models for ENG or STL use; and the FBN-11K Series FM transmitters.

See ad page 66. Circle No. 144.

See ad page 67. Circle No. 146.

See ad page 279. Circle No. 278.

L.E. NELSON SALES/ THORN EMI 2437

Will show the new 1200 W par 64 C.I.D. daylight source; the 575 W C.I.D. daylight source; the DSE 1000 W and DSF 1500 W Scoop lamps; and FFN FFP FFR FFS 1000 W par 64 lamps; and also feature the complete range of 120 volt and 220/240 volt studio tungsten-hallogen lamps.

NETCOM INTERNATIONAL 2739

Will describe its fixed and transportable satellite transmission services via domestic and international transponders.

NETWORK PRODUCTION MUSIC, INC. 2627

Will introduce Network Production Music and Sound Effects Libraries on CD, and show Network Production Music Library and Network Sound Effects Library.

RUPERT NEVE, INC. 3318

Will introduce the 8232 console with 32 mic/line inputs, 24 mixing buses and optional stereo reverb returns, each channel has Neve four-band Format Spectrum Equization, four mono auxiliary sends, and one stereo cue send. New central assignment panel with digistat switches for assignment configuration is easy to use and allows quick visual review of all channel assignments. Also on display will be the 51 Series of consoles, multiple application audio consoles for video and film; the 542 Series range of recording and broadcast application consoles from six to 16 inputs, and two or four buses, portable and tabletop consoles, and the Necam 96 newest version of computer-based automation system.

See ad page 35. Circle No. 124.

NEW ENGLAND DIGITAL 134

Will introduce an enhanced Synclavier digital music system

with new options making it a standalone tapeless recording studio. Also will show a guitar interface module and music printing software.

NORMEX 2453

Will introduce the Telnox L-O computerized telephone for broadcasters, featuring conference calls for up to 10 lines in full duplex, auto hold, auto on-air, and priority calling.

See ad page 281. Circle No. 281.

NORPAK CORP. 2574

New teletext equipment will include the TDS3 data delivery system, the TTXS data terminal, and the TTX6S low-cost, cable-ready consumer teletext receiver. Other featured products will be the IPS3 videotex graphics workstation and the VTX6AX NAPLPS videotex recorder.

NORTRONICS 3384

Will introduce Matrax retrofit tape heads for all cartridge machines, both record and playback, as well as a new playback tape head with improved low-frequency response and noise rejection shield, available in mono and stereo. The standard line of OEM and replacement tape heads will also be featured.

NOVA SYSTEMS 2778

Will feature its line of digital TBCs, including the 501 with direct/subcarrier feedback mode processing; the 511 with heterodyne or subcarrier feedback mode processing; and the 620 full-frame digital TBC.

FRED A. NUDD CORP. 2672

Will present some innovations in tower construction for its lines of guyed and self-supporting towers.

NURAD, INC. 3573

Will show its complete line of microwave broadcast equipment, including central ENG/EJ receivers, frequency-agile central receivers, digital remote-control equipment, airborne automatic tracking systems, remote transmission systems, portable transmit and receive equipment, and STL/ICR systems.

See ad page 199. Circle No. 225.

Take both Harris exits at NAB!

HARRIS

3238

Main floor center aisle

1800 square
feet of video
signal processing
equipment

This year, Harris is hosting a double-barreled NAB exhibit in Dallas. Booth 3238 is reserved for Harris signal processing equipment — time base correctors; frame synchronizers and digital effects systems; still stores; paint and graphics systems; studio and ENG cameras.

Main floor center aisle

HARRIS

3136

Main floor center aisle

6000 square feet of
AM, FM & TV, audio,
microwave & satellite equipment

Just across the aisle, Booth 3136 will be bustling with activity centered around Harris AM, FM and TV transmitters, audio, broadcast microwave and satellite equipment. Remember — you haven't seen the Harris exhibit until you've been through both areas. See you at NAB. Harris Broadcast Group — your broadcast equipment supplier since 1922.

**FOR YOUR INFORMATION,
OUR NAME IS**

HARRIS

 **HARRIS**

**NYTONE ELECTRONICS
CORP.****123**

Will feature its Flying Spot Scanner, slide-to-video transfer system models VSS 1 and VSS 2. The VSS 1 features a forward and reverse sequence; the VSS 2 has random access capability.

**O'CONNOR ENGINEERING
LABS****3364**

Will introduce a new line of heavy-duty camera support systems featuring the new Model 155M-B Super Claw ball metal tripod with internal adjustable spread. Also new will be the Mini Side-Loading Camera Platform for the System 30 and 50 support systems. The complete line of professional camera support systems will be on view; an actual studio floor will feature five support systems on a studio dollies with live monitored cameras.

ODETICS**3586**

Will unveil a new Betacam version of its TCS2000 video cart machine, originally developed in M-format for RCA. The new version was developed under an accord with Sony Corp. that includes Sony support and training for Odetics personnel. The M-format TCS2000 will also be on view.

*See ad page 201.**Circle No. 227.***OLESEN****3309**

Will feature its studio lighting packages complete with pipe grid, lighting, dimming distribution, curtains, cycloramas, and track, along with a complete line of expendables.

OMICRON VIDEO**2661**

New products will include the Model 501 10x1 video switcher and the Model 415 sync generator with RS-170A SMPTE color bar/tone generator. Other featured items will be the Model 200 video DA, the Model 230 stereo audio/video DA, and the Model 715 line driver.

OMNIMOUNT SYSTEMS**2507**

Will add additional models to its line of Universal Mounting Assemblies. The full line now covers weight loads from a few pounds to hundreds of pounds.

OMNIMUSIC**2775**

Will show new CD recordings of the Omnimusic library and a new library imported from England, "Atomsphere Music Library."

OMNISOFT**172**

Will introduce its Max traffic and billing software for radio, television, and cable; Gold Key, a system for its line of tracking systems. Navtrack uses Loran-C to enable tracking in both azimuth and elevation planes, and also incorporates an autosearch function. The new low-cost, low-profile Microscan tracking system will join the existing Miniscan and Superscan. Microscan will be offered in receive and transmit versions in dual 2 and 7GHz bands. A redesigned, more efficient Miniscan unit will also be featured. A new 23GHz radio link for live digital audio transmission will also be introduced. Existing remote, heterodyne, fixed links and 2, 7, and 40GHz ENG products will complete the display.

OPTICAL DISC CORP.**162**

Will introduce the 610A videodisc recording system, convertible from NTSC to PAL, with enhanced microprocessor control and an enhanced audio system. The unit provides complete LaserVision-compatible video encoding that can be field-accurately controlled with SMPTE time code.

ORBAN ASSOCIATES**3444**

Will unveil the new Model 275A Automatic Stereo Synthesizer for stereo TV, a stereo in/out device incorporating two forms of automatic recognition allowing the unit to switch between synthesis and bypass. Single-channel recognition looks for missing audio on one channel and will crossfade to synthesize from remaining channel. A "narrow" mode centers dialog and creates spatial sound while a "wide" offers more dramatic spatial characteristics suited to music. Also new will be the FMX stereo generator. Other featured products include the Orban TV Stereo System including Optimod-TV audio processor, TV stereo, SAP and Pro channel generator; the 245F Stereo Synthesizer; 412A/414A Compressor/Limiter; 422A/424A

Gated Compressor/Limiter/De-Esser; 536A Dynamic Sibilance Controller; 622A/622B Parametric Equalizer; 672A/674A Graphic parametric Equalizer.

*See ad page 27.**Circle No. 119.**See ad page 70.**Circle No. 151.***ORION RESEARCH****2499**

Will introduce the AMU Series audio console with rackmount analog electronics and a highly automated, all digital remote-control panel separated by serial cable. It provides full audio console specs, plug-in serial interface for video editors which can control all audio functions, eight to 32 stereo inputs, and can store 32 panel setups without external memory. It is said to be competitively priced. Also new will be a vertical interval machine control system manufactured by Dynamic Technology, Ltd. for control of multiple machines through standard video lines.

*See ad page 75.**Circle No. 149.***OTARI CORP.****3246**

Will introduce the MX-80-24, open-reel, multichannel ATR in two-inch 24-channel formats; and enter the cart machine market with the CTM-10. Plans are to have four models, record/play, and playback in mono and stereo... offer high-end performance at midrange price. Otari plans to have the CTM-10 to retrofit to automation equipment, and have the ability to offer discrete or matrixed stereo, and promises delivery by this summer. Also new is the DTR-900-32, one-inch, 32-channel digital audio PD format recorder/reproducer with remote and locator. Featured products include the MKIII Series ATRs, with machine in 1/4-inch two-channel, half-inch four- and eight-channel formats; the MTR-10/12II Series, with machines in 1/4-inch and half-inch two- and four-channel and center track time code formats with 10.5 and 12-inch reel sizes, the MTR-20, in same formats as MTR-10/12 but with 14 inch reels, the MX-70, a one-inch recorder available in eight-, eight/16, or 16-channel versions; the MTR-90-II multitrack ATR in one-inch eight-track, two-inch 16 track, two-inch 16/24, and two-inch 24 channels; and a full line of



EASTMAN PROFESSIONAL VIDEO TAPE CAPTURES YUKON QUEST RACE.

When Alaska Video Productions set out to cover the 1985 Yukon Quest International Sled Dog Race, it went with a winner.

It picked ½-inch PRO FORMAT EASTMAN Professional Video Cassettes with Betacam equipment to record the grueling event, which saw 28 entrants mush over a 1000-mile course from Whitehorse, in Canada's Yukon Territory, to Fairbanks, Alaska.

Says AVP partner Garry Russell, who handled most of the camera work for the production: "The Eastman tape performed flawlessly through the rigors of the two-week event, in temperatures ranging from -30°F to 40°F. In dazzling sunlight, blowing snow, and after dark."

Adds producer Alex Epstein: "The pictures we brought back were some of the finest we've ever seen of this beautiful part of the world."

Altogether, AVP shot nearly 17 hours of tape during the race. This was edited into a 30-minute production that was seen throughout Alaska via satellite, in the Pacific Northwest on McCaw Cablesystems, and in parts of Canada on CBC-North TV.

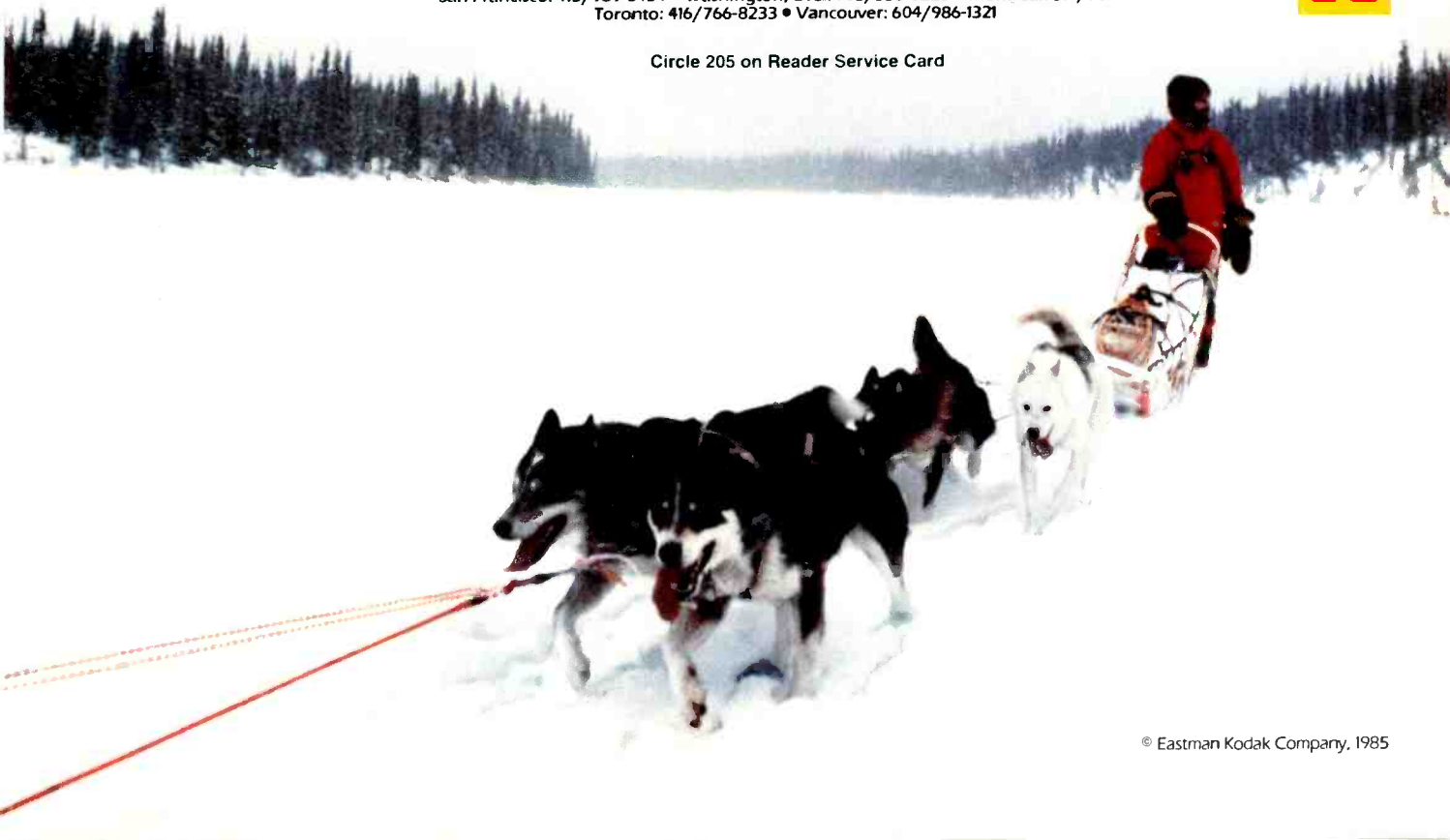
Recording "The Challenge of the North" proved to be another challenge overcome by EASTMAN Professional Video Cassettes. If you'd like to tell us how EASTMAN Professional Video Cassettes have helped you, write to Eastman Kodak Company, Dept A-3063, 343 State Street, Rochester, NY 14650.

For more information about EASTMAN Professional Video Tape, call 1 800 242-2424, Ext 80, or contact your nearest dealer in EASTMAN Professional Video Products.

Eastman Kodak Company, Motion Picture and Audiovisual Products Division
Atlanta: 404/351-6510 • Chicago: 312/654-5300 • Dallas: 214/351-3221 • Hollywood: 213/464-6131
Honolulu: 808/833-1661 • New York: 212/930-7500 • Rochester: 716/254-1300
San Francisco: 415/989-8434 • Washington, D.C.: 703/558-9220 • Montreal: 514/761-3481
Toronto: 416/766-8233 • Vancouver: 604/986-1321



Circle 205 on Reader Service Card



HITACHI PUT AUTO SETUP EXACTLY WHERE IT BELONGS.

**"Not only does the SK-970 have complete auto setup,
but it's a genuine studio camera that's lightweight enough to
send into the field!"**

I. Jay Azimzadeh, President
Video-Pac Systems, Ltd.
Hollywood, CA

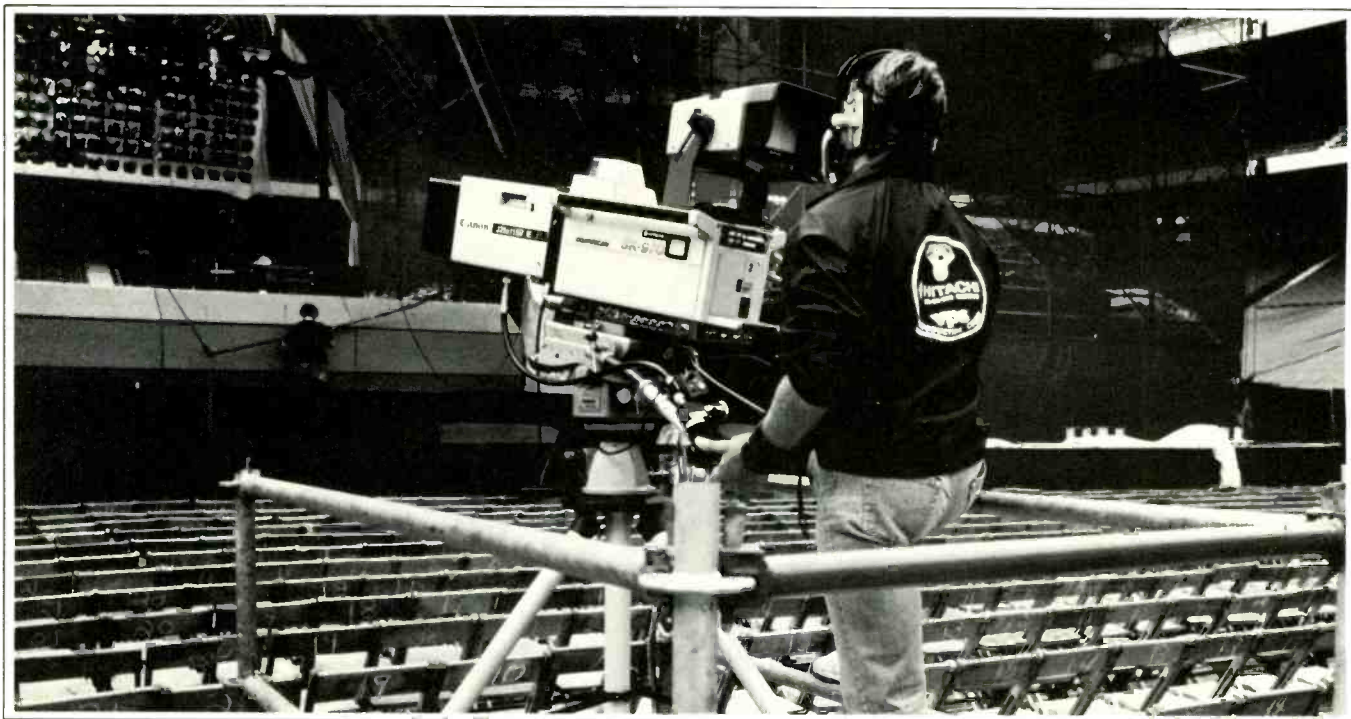
The largest producer of live concert videos in the U.S., VPS requires lightweight, low-maintenance broadcast cameras it can put on the road for long stretches.

Azimzadeh considers the SK-970 the only studio camera with 2/3-inch mobility and EFP handling. So it can meet the demands of often makeshift stadium facilities, while delivering the broadcast images that are needed for larger-screen multiple projection.

Since each of the four SK-970s and two SK-97s in the

travelling package has complete self-contained auto setup, a separate box isn't needed. And any potential problems are confined to one head.

Although VPS earmarks two SK-97s and SK-970s for studio use, the ability to use both wherever they are needed is a welcome economy. Still, the greatest asset of the SK-97 and SK-970 is rockbottom reliability. To Azimzadeh, concerts are just like live TV—no one can afford any slip-ups, or an equipment failure.



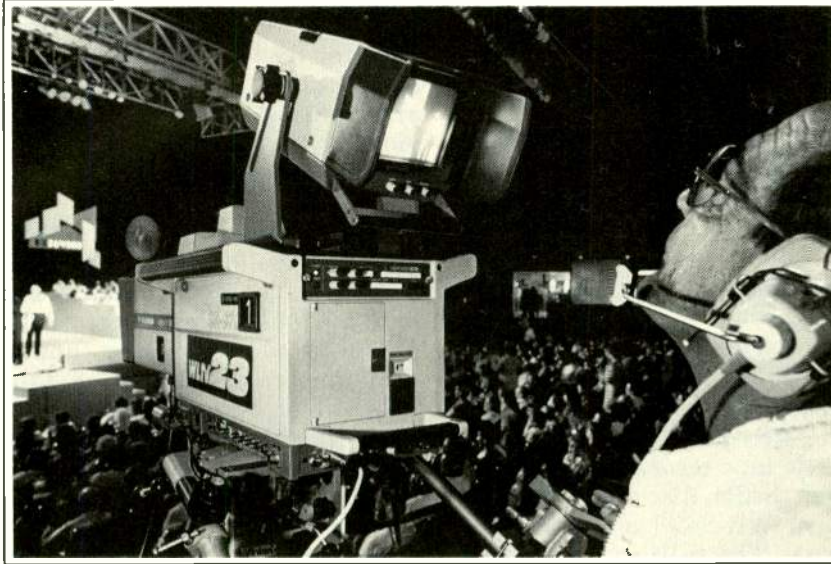
"Since each SK-97 and SK-970 has its own on-board computer, I can set everything up at the same time automatically."

Terry McIntyre, Remote Supervisor
F&F Productions, Inc.
St. Petersburg, FL

As a mobile production facility covering sports and large outdoor events for local and network TV, F&F needs broadcast quality on location.

They also need fast, independent setup. So they keep three handheld SK-97s and four compact studio SK-970s

permanently stowed on one of their trucks. And with complete computerized auto setup on-board each camera, the crew can set all of them up at the same time from parameters stored in memory without having to worry about drift or last minute adjustments.



The SK-97 and SK-970 also perform superbly under low-light conditions. As a result, notes Chief Engineer Dennis Lusk, both can use very large lenses. And with real-time registration compensation automatically correcting for any changes throughout the travel of zoom lenses, the cameras are ideal for the demands of sports coverage. Resolution and colorimetry are also unsurpassed, according to Bill McKechnie, another Remote Supervisor. In fact, the SK-97 is often run by F&F as a "hard" camera, in place of the SK-970. Location recording is done on two Hitachi HR-230 1-inch VTRs.

Most important, however, is the almost complete interchangeability of both cameras. Not only are they easy to work with, but they are also easy to link up. And so similar electronically, a single set of spares can cover any potential emergency.

"The SK-97 is a real mini-cam that can be completely integrated into a total studiowide auto setup system."

Bill Weber
Vice President for Engineering
WHYY Television
Philadelphia, PA

WHYY has extensive production facilities at Independence Mall and more studios on the drawing board. To plan for this rapid growth, WHYY sought a family of broadcast cameras that was as flexibly integrated as it was advanced.

While evaluating computerized camera systems, Bill Weber and his staff found that the Hitachi SK-110 studio unit and the portable SK-97—with the same basic complete auto setup—were so perfectly matched in colorimetry and resolution that pedestal and handheld work could be combined without a hitch. And because the SK-97's auto setup is also completely self-contained, both cameras are as electronically independent as they are geared toward common console control.

Staffers like Senior Video Engineer Bob Miller consider the SK-97's auto setup easy-to-use, as well as accurate and reliable. And the on-board lens and scene files give operators instant-filter and color correction at each camera head, in addition to the console. So the staff looks upon the Hitachi SK-97 as a studio camera that they can shoulder.

As facilities grow, WHYY's Weber knows that he will have the flexibility to configure and reconfigure SK-110s, SK-970s, and SK-97s to meet production requirements of most any complexity without encountering technical snags. In fact,



with Hitachi cameras at other sister stations in the Eastern Educational Network, joint productions can even be assured of a common look.

For a demonstration of the SK-97 and SK-970 in your studio, contact Hitachi Denshi America Ltd., Broadcast and Professional Division, 175 Crossways Park West, Woodbury, NY 11797; (516) 921-7200, or (800) 645-7510. Canada: Hitachi Denshi Ltd. (Canada), 65 Melford Drive, Scarborough, Ontario M1B 2G6; (416) 299-5900.

 **HITACHI**

Circle 206 on Reader Service Card

DP-4050 cassette duplicators.
See ad page 81. Circle No. 152.

**PACIFIC RECORDERS
& ENGINEERING 3151**

New products are the TX-990 phono preamp; self-powered rack frame; and IS-12 insert switcher to insert processing equipment into production. Also featured will be the BMX consoles Series II and III; the AMX operations console; the ABX production console; News-mixer; Tomcat and Micromax cart machines; all switchers and DAs; and studio furniture.

**PACO ELECTRONICS USA,
INC. 2447**

Will premiere the Model DP-11 nicad battery pack, a direct replacement for the Sony NP-1 with 13.2 V, 1.7 AH; a mobile Charger for nicad battery packs; and the KD-440 quick charger, a simultaneous four-channel charger. Also will show the DP-1240 nicad battery pack, 12 V, 4.4 AH, a direct replacement for the Sony BP-90; the two-channel KD-220 nicad battery pack quick charger; and the KD-120 four-channel batter pack dememorizer, operable with Sony BC-210 chargers.

See ad page 186. Circle No. 213.

PAG AMERICA 2459

New products will include the PAG-lok battery-to-camera mounting system, the PAG-lok microprocessor-controlled charger, the Master 90 PP90-type battery, and the Nitecam monochrome ENG camera employing a safe laser illuminator for extreme low light photography. The line of microprocessor-controlled chargers, ENG batteries, belts, lights, and lighting kits will also be featured.

PALTEX 3592

Information and new products unavailable at press time. Featured products will include the Esprit five-VTR edit controller, Gemini eight-bit digital video processor with updated software first seen at SMPTE, Edit-Star four-VTR edit controller in two versions, and Abner A/B-roll editor.

**RAMSA (PANASONIC
PRO AUDIO) 3216**

Will show the new WR8428 post-

production and recording mixing console, capable of handling up to 24-track recording added capability of stereo line input features and an upgrade version of WR8616; also the WP-9055 a stereo 50 watt per channel into 8 ohms power amp for studio monitoring in broadcast environment; and the WS 810K and WS 810W compact monitor speakers for broadcast studio monitoring. Ramsa will also feature the WR8616 post production mixing console and its full line of audio mixing consoles with associated signal processing equipment and studio monitor speakers.

PANASONIC 3216/3116

Will unveil a family of new broadcast-quality videotape recorder equipment for the M-II format announced last year, using high-performance half-inch metal particle tape recorded in the component model. Also new will be the Ramsa WR-8628 audio mixing console. The full line of Optical Memory Disc recording products, instrumentation products, Ramsa audio products, single- and three-tube color video cameras, VTRs, and related equipment will also be

*See ad page 43. Circle No. 127.
See ad page 45. Circle No. 128.*

**PATCH BAY
DESIGNATION 2409**

Will feature PatchPrints custom labeling for audio and video patch bays.

PENNY & GILES 2774

Will introduce the T-Bar controller which provides smooth and accurate control of signal in vision mixing systems and video generators; and a motorized fader to permit audio console manufacturers to incorporate moving fader into automated remix. Featured products also include 3000 Series faders and 4000 Series faders.

PEP 3387

Featured items will include the Model AS64/800 alternate VHS edit source with Sony BVU-800 interface; direct editing of VHS to 3/4-inch with Sony edit controllers for the On-Cam VHS-C VCR system; the Model OC1 ON-Cam VCR and playback unit; and the line of batteries, chargers, recon-

ditioners, and analyzers.

PERFORMANCE GROUP 2584

Will show its TV studio facility consultation equipment and services.

**PERROTT ENGINEERING
LABS 2733**

New products will be revealed at NAB. The full line of nicad, silver-zinc, and lead-acid power systems, single and multiple Minichargers, and lighting systems will be on view.

See ad page 106. Circle No. 173.

PESA AMERICA, INC. 3417

Transmitters for FM and TV will be new to the product line, along with a Ku-band satellite receiver, a digital sync analyzer, and a nine-inch color monitor. Established lines of translators, monitors, intercoms, and character generators will also be at the booth.

*See ad page 217. Circle No. 243.
See ad page 219. Circle No. 246.*

PETERS PRODUCTIONS 124

Will unveil its Ultimate Programming System which gives radio stations control and flexibility for ac, country, easy listening, chr formats; can vary the format, and provide specific rotations and custom modification of selections; includes station ID, jingles, and graphics for other advertising.

**PHILIPS TELEVISION
SYSTEMS 3128**

Will unveil the LDK-6A (30 mm or 25 mm tubes) and the LDK-26A (18 mm tubes), the latest versions of the popular LDK-6 family of microprocessor-controlled cameras for studio and field. Also new will be the LDK-54A portable camera, an update of the LDK-54, a plug-compatible partner to LDK-6A and 26A with many of their automatic features. It will be demonstrated in ENG, EFP triax, and EFP multicore versions and as a combination recorder/camera with interfaces for three tape formats. Philips will also premiere the new Coach system, a computer maintenance and diagnostic aid that allows VDU and printed hardcopy display of all LDK-6 camera setup parameters. It can also remotely integrate any of the

Some uncommon projects have something in common!

Take a look at this list of leading American Broadcasters and guess what they all have in common: Amature Group, American Broadcasting Company, Arch Communications, Belo Broadcasting, Capital Cities Communications, Gilmore Broadcasting, Metroplex Communications, National Broadcasting Company, Outlet Broadcasting and Scripps Howard Broadcasting.

The answer is that they have all chosen the LDC Group to supply them with products and services in the exciting Eighties!

The LDC product range includes antennas for both TV and FM in broadband and high power configurations, broadcast towers in all height ranges up to more than 2000 feet, and design, supply and support services for complete turnkey installations.

If the leading broadcasters like our products and our work, maybe you will too! Why not talk to us about your next project!

See us at NAB Booth 2903 in Dallas

Circle 207 on Reader Service Card



LeBlanc & Dick
Communications Inc.

1440 Cherry Lane Court, Suite 201
Laurel, MD. 20707. Tel: (301) 498-2200.
FAX: 3014987952

camera's operational parameters and operating functions, allowing full access over unlimited distances. Existing products on display will include 14-inch, 20-inch, and high-resolution 20-inch color monitors; 10 to 240 kW UHF television transmitters; solid-state FM transmitters to 1 kW; the professional CD player system; the sync pulse generator; and Philips studio lighting.

See ad page 160-161. Circle No. 198.

N.A. PHILIPS TEST & MEAS. INST. 3128

Will announce its PM 5654 VITS test signal generator and inserter. Its existing range of test and measurement equipment will be on show including color generators and analyzers, vectorscopes, waveform monitors, test generators, modulators and demodulators.

PHOENIX FINANCIAL 160

Will discuss its creative financial services for the professional audio, video, and broadcast industries.

PINZONE COMMUNICATIONS PRODUCTS 2411

Will announce two new vertical interval multichannel audio systems, the VIMCAS for stereo or multichannel conversion of existing video cart playback systems using three VBI lines, and the VIMCAS-5H permitting 5 kHz news/talkback audio on ENG video and replacing audio subcarriers. Existing equipment ranges for use with the RCA TCR-100 will also be shown.

PINZONE SATELLITE 2411

Will display a new Ku-band antenna system from Comtech Antenna Corp. In the outdoor satellite exhibit. Other turnkey systems and uplinks and downlinks will be displayed.

PIONEER ELECTRONICS 3546

Will highlight family of LD-V6000 laser disc players, consisting of LD-V6000, 6010, 6200; plus brand new eight-inch videodisc player, LD-V3000.

PORTA-PATTERN, INC. 3538

Will introduce the RCA P-200 and P-300 test patterns in its proprie-

tary Test Chart System size and as 8 x 10-inch transparencies for use in the Spherical Illuminator. Other new test media will also debut for film-to-video interface systems, including both large and small format patterns for field lens positions. Established products on show will include a selection of test charts and test chart systems, as well as the Illuminator and specialized optical test media.

POTOMAC INSTRUMENTS, INC. 3329

Will show its QuantAural QA-100 audio program analyzer, designed to quantify the character and quality of a program signal. Also on display will be a series of subcarrier modems to allow the Potomac range of remote-control equipment to interface directly with other companies' STLs and telemetry return links. Other products on show will include field strength meters, modulation and power controllers, and other test and monitoring apparatus.

See ad page 206. Circle No. 232.

PPS ELECTRONICS 2465

PRISMAGRAPHICS 2791

Will display its line of presentation folders and media kits.

PROCART (SEE BROADCAST SUPPLY WEST)

PROVISIONAL BATTERY 214

Will introduce new lighting equipment, a 12 V kit that powers both a light and the recorder, and a 14.4 V battery. Will also show its service for recelling battery packs.

See ad page 224. Circle No. 254.

QEI CORP. 3336

New this year is the ARC-34 automatic remote-control system that will interface with any transmitter. It also contains a diagnostic package that keeps track of transmitter performance and stores information useful for autologging or troubleshooting purposes. Also highlighted will be the 695 FM exciter and FM transmitters.

QSI SYSTEMS, INC. 2722

Will introduce split field colorbar generators with eight or 16 alpha-

numeric identifiers, BG-308 and 316, a SMPTE bar pattern generator, CB-1601, as well as the STAR-16N and STAR-16NGB telephone points of contact for transportable satellite uplinks, and a new remotely-controlled cable channel identifier, CHID-10. Existing products represented will include blackburst, bar, and countdown generators.

Q-TV 3469

Will unveil the VPS-500 II ComputerPrompter program and a new IBM-based ComputerPrompter system. Established prompters will include the VPS-100 and VPS-300 VideoPrompters, the Mini Q II on-location prompter, and the Mini VideoPrompter.

QUAD-EIGHT ELECTRONIC (SEE MITSUBISHI)

QUALITY VIDEO SUPPLY 2461

Will introduce the Telecom 2000, which permits computer and video displays to be output on the same screen by regenerating signals from any computer as NTSC, no genlock required. The version for monochrome computer costs \$995, for color computer \$1595.

QUANTA CORP. 3145

New products will be announced at the show. The full line of character generators, including the Microgen, QCG-300, QCG-400, QCG-500, and Q8, will be displayed along with the Quanta-Paint video paint system.

See ad page 57. Circle No. 134.

QUANTEL 3171

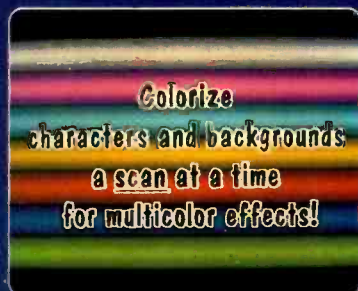
Featured products will include the Harry digital cel recorder; Paintbox, the complete electronic graphics studio; the Mirage 3D image manipulator with floating viewpoint control; Encore, which manipulates 2D images in 3D space with floating viewpoint control; the Cypher 3D caption generation and manipulation system featuring cameos and floating viewpoint control; and the complete Quantel digital still store range, including the central lending library. Satin, the broadcast quality bidirectional standards converter, will also be seen.

See ad page 14. - 15. Circle No. 108.

You can't expect much from a \$4,500* character generator.

SURPRISE!

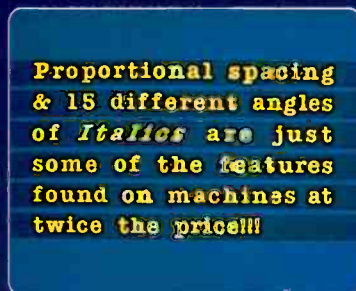
Introducing the Laird 1500-PROM high resolution character generator with 6 font resident memory and built in expandability.



65,536 Colors



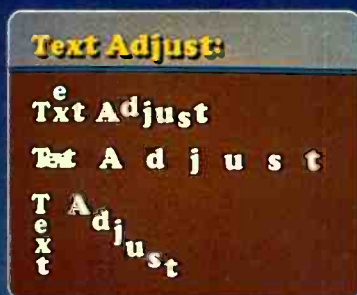
12 to 56 line
Character sizes



Proportional Spacing
and Italics



Edge Modes
Attributes



Text
Adjust



Multifont
Display

Actual raster photos

STANDARD FEATURES:

- 5 resident fonts (expandable to 16 with disk option)
- High resolution characters (35ns, 1508 pixels x 485 scans)
- Up to 100 pages of internal memory
- Dual channel operation
- 65,536 resident colors
- Proportional spacing
- Flash and underline
- Selectable roll and crawl rate
- 16-tab stops
- Eight edge intensities
- Four quadrants of drop shadow
- Insert and delete editing
- Vertical and horizontal flip
- Center, right and left justify
- Character tuck and overlap
- Multiple angle italics

EXPANDABLE OPTIONS:

- 3½" dual disks, 16 resident fonts and 70 font disk library
- Camera entry
- Font compose with autosize
- Bit pad
- Battery back up

*User's choice of broadcast or industrial encoder required for color operation. See us at NAB Booth # 3474



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(801) 972-5900

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Three Dallas Communications Complex
6311 N. O'Connor Suite N38 LB160
Irving, Texas 75039-3510
(214) 869 7693

EAST
#1 Perimeter Park South
Suite 100 North
Birmingham, Alabama 35243
(205) 870-0967

Circle 208 on Reader Service Card

QUANTUM AUDIO LABS 3446

Will feature its 22 Series Broadcast Production on-air console.

QUICK-SET 3380

May have new additions to its full line of camera support equipment.

RADIATION SYSTEMS 244

Will bring 5 and 5.5 meter earth station antennas with both C- and Ku-band capacity. Will also show its satellite receivers, as well as four- and six-foot 23 GHz antennas.

RADIO ARTS, INC. (PRIVATE SUITE)

New feature shows including *Country's Best Countdown*, *From Rock N Roll to Rock*, *Milton Berle's Mad Mad World of Comedy*, *Summer Series* (talk specials) *Arte Johnson America's Pet Peeves*, *Dream Concert*, *Power of Music*, also introducing a new format, *Pure Gold*, and featuring its regular formats.

RADIO RESOURCES 2833

Will show the Advanced Dynamics remote-control system,

Audio Digital's broadcast digital processor, Studio Technologies' stereo synthesizer, the Revox PR-99 Mark II, and the Potomac Instruments QuantAural audio program analyzer.

RADIO SYSTEMS 2680

Will introduce the DCX line of studio products, a low-cost line of modular studio accessories including turntable, mic, line, headphone and power amps; and machine control units. Also new are exclusive lines from foreign manufacturers including Key/Cart cart machines and portable and tabletop subcarrier receivers. Other featured products are the line of high-quality studio products including PA-1 stereo phono preamp, DA-8 and DA-16 audio DAs and TM-1 studio timer; the ESA-10 10-channel broadcast console and full line of LED metering systems.

RAM BROADCAST SYSTEMS 3028

Will show the new RAM Phase-scope Model PS-1000, used to bridge off the output of an audio console to monitor phase, peaks and level differentials between left and right outputs; and feature McCurdy radio/TV audio consoles, intercom systems, and audio and video switchers, plus extended range VU meters, clocks and counters (analog and digital), telephone hybrids, analog and digital tape recorders, tape duplicators, speaker systems and mic systems.

RANK CINTEL 3066

Will introduce the Art File, which transforms the Slide File digital



Rank Cintel will show its Slide File in two configurations.

FM NEEDS "THAT EXTRA MILE!"

When it comes to designing and building towers for radio transmission, especially for Class C FM, no company is more demanding of itself than we are. We believe in "going that extra mile" for excellence . . . every time.

When you choose **STAINLESS**, you get 39 years of proven performance; the best design for your present and future needs; the most reliable, state-of-the-art fabrication, and the kind of thorough, knowledgeable service that will make your life a lot simpler, easier, and worry-free.

STAINLESS . . . because "going that extra mile" does make a difference . . . especially for FM.

The
EXPERIENCED
Tower People.



Stainless, inc.

North Wales, PA 19454 U.S.A.
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AF0486

See us at the
NAB Show.
Booth 2735.

ON-LINE AUDIO FOR OFF-LINE VIDEO.

Fostex



COMPLETE 8-TRACK AUDIO POST SYSTEMS FROM \$6000.

Here's your best buy in a fully functional audio sweetening facility, complete from input to output. Made expressly for film and video post production. No other manufacturer can offer you complete systems, fully integrated, ready for video or film interface.

Many popular record, TV show themes and movie soundtracks have been recorded on this equipment. Join the fast-growing list of Fostex professional users. You can continue to go outside for all your audio post work, or you can go on-line with Fostex and watch your investment pay for itself

Fostex

PERSONAL MULTITRACK

FOSTEX CORPORATION OF AMERICA
15431 Blackburn Ave., Norwalk, CA 90650
(213) 921-1112

- Model 80: 8-track recorder with integral Dolby C NR. **\$2000**
- Model 20: 2-track recorder with center SMPTE track. **\$1000**
- Model 4030 Synchronizer with Model 4035 Remote Controller: one master recorder can control up to three slaves with chase, pre-roll; resolves to film. **\$2000**
- Model 450: 8 x 4 x 2 recording console with parametric EQ, solo and in-line monitoring. **\$1000**
- Fostex makes a complete line of microphones, monitors, recorders, signal processors and accessories, even the interconnecting cable.
- All prices are approximate retail. You can pay more if you insist, but wouldn't it be better to check with a Fostex dealer first? The more you invest in a Fostex post suite, the more you'll save for that next expensive piece of video hardware. Look to Fostex for all your on-line audio needs.

Prices subject to change without notice.

Circle 210 on Reader Service Card **See us at NAB Booth #2579**

still store into a full graphics workstation; and Gallery 2000, a full digital picture library using Rank Slide Files, a library computer, and digital optical discs, each with a capacity of 1000 full-frame still pictures. Established products will include the MK IIIC flying-spot telecine, the ADS-1 CCD broadcast telecine, the Slide File, and the MK IIHD high-definition telecine.

See ad page 225. **Circle No. 255.**

RCA AMERICAN COMMUNICATIONS 3298

Plans live downlink demonstrations of a new Ku-band satellite service for program syndicators. Also on demonstration will be the DATS radio service, and international/domestic occasional TV service, and a SCPC radio networking service.

RCA CORP. 3292

Will introduce a new 1.1 kW VHF LPTV and translator tube and cavity, featuring greatly reduced IM distortion and fast warmup. The complete line of camera tubes for broadcast and professional color cameras will be shown, along with the complete line of VHF power tetrodes for TV broadcasting.

R-COLUMBIA PRODUCTS 2672

Will introduce the Model 6058/T ENG/IFB telephone, featuring hands-free tone dialing from any modular phone jack, clips to user's belt and accepts model UL-85 R-Columbia one-ounce head-phone/mic. Comes with mic mute switch, incoming volume control, auxiliary mic for ENG, auxiliary

output for IFB. Other products include FM Wireless intercom headphones; self-powered intercom headphones; broadcasters headphones; cameraman's headphones; and ultra-light headphones.

See ad page 263. **Circle No. 270.**

REACH ELECTRONICS 2438

Will have on hand its pocket paging receivers and dial paging terminals.

RECORTEC, INC. 3327

Will feature its one-inch videotape evaluator, Models VTE-102 and VTE-103; and 3/4-inch videotape evaluator, Model VCE-750

REES ASSOCIATES, INC. 2500

Will demonstrate a computerized programming and planning service used to determine present and future space requirements of broadcast facilities, as well as outlining its planning, design, and engineering services.

See ad page 34. **Circle No. 123.**

REGISTER DATA SYSTEMS 2505

Will show new features, including a log generator, for the traffic and accounting computer system for radio and television. Also new will be a multiuser system, based on the IBM PC XT/AT, with 16-workstation capacity. The established multiuser system based on LF Technologies hardware will be shown along with Music Master software and the Data Scan ratings analysis system.

RE INSTRUMENTS 108

Will premiere the Model 201 distortion analyzer in various setups,

including as a standalone, with a IEEE controller, and with an input/output bus in use.

See ad page 227. **Circle No. 258.**

RESEARCH TECHNOLOGY INTL./RTI 3386

Will introduce the TC-6120 one-inch videotape evaluator/cleaner and the DV-5 dropout detector, for use with any video recorder/player. The line of half-and 3/4-inch videocassette evaluator/cleaners; film editing, inspection, and cleaning machines; and Lipsner-Smith ultrasonic film cleaners.

See ad page 216. **Circle No. 242.**

R.F. SPECIALTY 165

Will have on hand RF components for directional and nondirectional antennas.

RF TECHNOLOGY, INC. 2809

Will show its range of 7 and 13 GHz portable microwave links, in addition to the new RF-102 950 MHz diversity wireless microphone system. Established microwave link equipment will also be on display.

RIVIERA BROADCAST LEASING 2793

Will be offering its services in broadcast equipment and personnel leasing.

RJW SOFTWARE 243

Will bring its hitlist computer music scheduling and library system, IBM-PC based.

ROCKWELL INTL. 3484

Will demonstrate video transmission using light-wave technology.

ROH CORPORATION 2647

Will show its 190 Series Line monitors, 2010 Series mainframe systems, audio DAs, audio amplifiers and intercom systems.

ROSCO LABS 3443

Will feature its line of lighting diffusion material, gels and filters, scenery and props.

ROSCOR CORP. 3404

Will be offering its engineering design services for mobile and fixed production and post-production facilities, Ku-band uplink and receive mobile units, and field

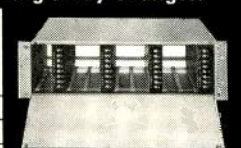
RACK MOUNTABLE VIDEO DELAY LINES

A complete Rack Mountable series of Video & Pulse Delay Lines, with the capability of replacing up to 1450 feet of 75 ohm coaxial cable. The units reduce size, weight, installation costs, save time and effort in making delay changes.

Part No.	Delay Range (Nano-Sec.)	Delay Steps (Nano-Sec.)	Method of Variation	Maximum Insertion Loss @ 100 KHz (db)	Amplitude Flatness At Any Delay Setting 100 KHz to 5.5 MHz (db)	Max. Rise Time (Nano-Sec.)
VRM011	0-11	Continuous	Trimmer & Slide	.30	.3 Max.	10
VRM0255	0-255	1.0	Slide Switch	.40	.4	20
VRM0637	0-637.5	2.5	Slide Switch	*1.00	.4	28
VRM1275	0-1275	5.0	Slide Switch	*3.00	.4	33
VRM2270	0-2270	10.0	Slide Switch	*3.00	.5	40
VRS0317	0-317.5	2.5	Strap	.40	.5	26
VRS0635	0-635	5.0	Strap	.75	.5	35
VRS1270	0-1270	10.0	Strap	1.50	.5	37
VRS2260	0-2260	20.0	Strap	3.00	.5	40

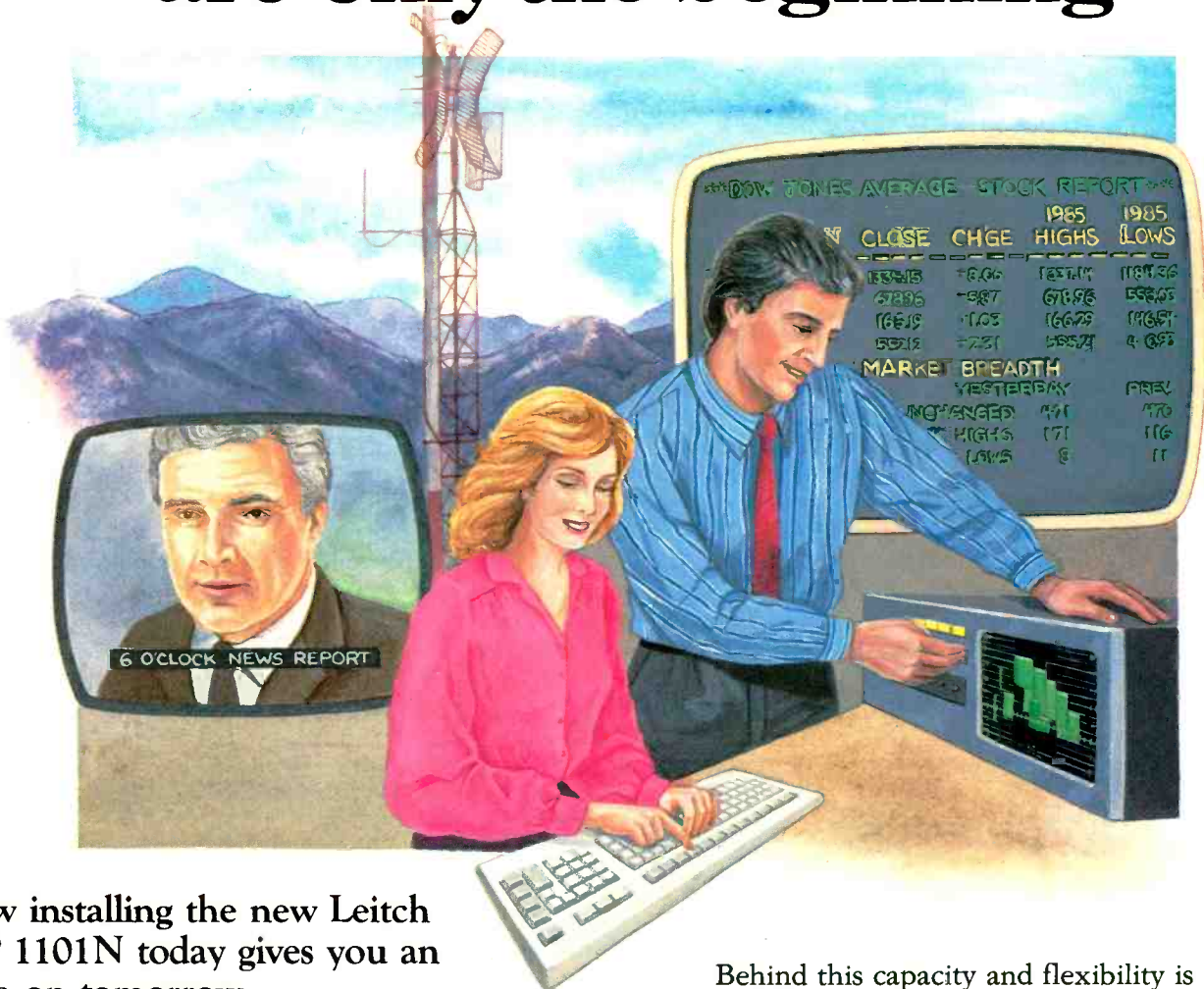
See us at NAB Show, Booth 2724

* ± .2db variation at any delay setting.



Call/Write for Complete Video Delay Lines & Video Filters Catalog. ALLEN AVIONICS, INC. 224 EAST SECOND ST. MINEOLA, NY 11501 Phone: 516-248-8080

Closed captioning and teletext are only the beginning



How installing the new Leitch VIP 1101N today gives you an edge on tomorrow.

If vertical blanking intervals only meant blanking, you wouldn't need the new Leitch NTSC vertical interval processor. But this isn't the case as you know. You'll see more and more use made of the VBI in the near future.

You couldn't be better prepared than with the new Leitch VIP 1101N. Because this is a fully programmable stand alone vertical interval inserter/deleter it will not become obsolete. This innovative vertical interval processor doesn't generate any insertion test signals. Instead it handles with remarkable ease and accuracy a number of external insertion signals. The VIP 1101N is easily programmed even from a remote location. It provides complete protection for the VBI and the all important program signal.

Behind this capacity and flexibility is a combination of advanced techniques -- micro-processor control, digital technology and the most recent developments in analog circuit components.

The new Leitch VIP 1101N also offers comprehensive self-diagnostics including set-up and timing modes. Two vertical signal inputs are standard. But the VIP 1101N is expandable to nine inputs -- a feature unique to Leitch. It is also programmable up to 4 fields.

Your program signal couldn't be in better hands. Get the full information on the new Leitch VIP 1101N now. Let us show you how you can keep a sharp eye on the future while protecting your bottom line.

For further information, contact:



LEITCH

Progressive Concepts in Television Technology

Leitch Video International Inc.
10 Dyas Road, Don Mills,
Ontario, Canada M3B 1V5
(416) 445-9640

Leitch Video of America, Inc.
825k Greenbrier Circle
Chesapeake, VA 23320
(804) 424-7920

Leitch Video of America, Inc.
12520 Loma Rica Drive, P.O. Box 1985
Grass Valley, CA 95945
(916) 273-7541

tallation services. The company's "Elite fleet" series of TV remote trucks and MTS-1 monitor tally system will also be shown.

See ad page 106. Circle No. 172.

ROSS VIDEO 2616

Will feature the RVS 210 composite video production switcher with 10 inputs and one M/E, plus the 508 large, multilevel effects system.

RPG DIFFUSOR SYSTEMS 2463

Will display a new, low-cost diffusor, QRD-734, for production room use. Also shown will be a new "designer diffusor" series, and the company's existing complete line of reflection phase grating acoustical diffusors.

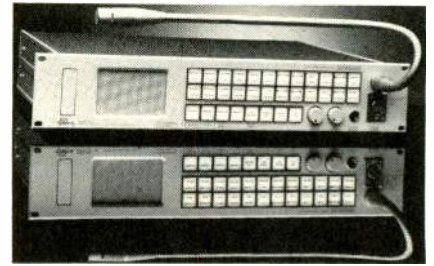
R*SCAN CORP. 2794

New software will be shown for the Kavouras Triton-X and the ESD color connection series of weather graphics systems in addition to R*Scan's lightning positioning and tracking system and Northern Video Graphics' wea-

ther satellite picture animation systems.

RTS SYSTEMS, INC. 3366

Will introduce the Model 848 Intercom Station, a component of a distributed bus matrix intercommunications system. A maximum of 24 stations can be used to create a 24x24 system. Any one station can talk to any other or a combination of stations. Interconnection is done on 50-conductor cable without the need for a central matrix switch. Also new is the HST17 low-cost headset; and the 802 Software updates for Model 802 master station. Other featured products include the TW Intercom System-high performance conference line intercom system; the 4000 Series IFB system; the 800 Series Intercom; Model 802 microprocessor-assisted master station; Model 810 10x10 squawk/matrix intercom station; 400 Series Pro Audio, Phono preamp, monitor amp 1x4 DA, 1x6 DA, buffer amp; 2500 Series Amplifier System, card-cage plug-in amps, 1x6 DA, 2x12 DA, four-channel buffer



RTS Systems will show the Model 802 microprocessor master station for use in intercoms, IFB, and more.

amp, relay 10-card, four-channel lin amp; and 17 Series Intercom-low-cost conference line intercom system.

RUSSCO ELECTRONICS MFG., INC. 2440

Will show its dial-up remote amplifier, six-channel console and products from the standard line, including turntables, tone arms, preamps, audio DAs, and telephone coupling equipment.

SACHTLER CORP. OF AMERICA 3419

Will introduce the Hot Pod, a tripod with central locking and a

PACO Ni-Cad BATTERY PACK

POWER UP! NEW PACO DP-11 (13.2V 1.7Ah)



- NEW HIGH POWER CELLS ENABLE 1.7AH(0.2C Discharge Rate)
- THE MAINTENANCE FREE THERMAL PROTECTOR IS BUILT-IN, AS OTHER PACO BATTERY PACKS.
- THIS IS THE DIRECT REPLACEMENT FOR SONY NP-1.

PACO ELECTRONICS U.S.A., INC.

714 WEST OLYMPIC BLVD., SUITE 706, LOS ANGELES, CA 90015
TEL-213-747-6540 / TLX-756923 / FAX-213-747-3731

Circle 213 on Reader Service Card

M/A-COM MAC, INC.

Microwave Systems

For Broadcasters Around the World



Over the past 25 years, Microwave Associates Communications has been installing communications links and Electronic News Gathering (ENG) equipment around the world. We are now the

leading microwave systems supplier to the broadcast industry. One stop shop for portable transmitters, receivers, and antennas to base-band and heterodyne fixed links.

Continuous Product Innovation

Beginning with the first solid-state portable transmitter in 1964, B-line fixed and portable equipment in 1967, G-line terrestrial radio in 1970 and up to present day with a complete line of ENG equipment, M/A-COM MAC has been the technological innovator. We have delivered the most advanced and reliable equipment spanning both local broadcasters and major networks around the world. To further our role as product innovators, we introduced a new series of portables, a new central receiver and a helicopter skypod system in 1983. In 1984, we introduced the 40 GHz portable system, multiband radios and a state-of-the-art ENG receiver.



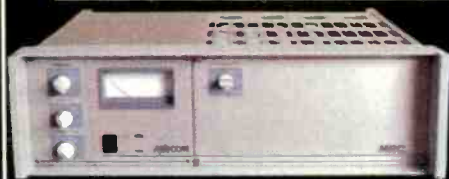
Commitment To Service

As part of our commitment to total customer satisfaction, we now have two dedicated domestic service and support centers: Eastern region – Massachusetts (800) 343-3006 and

Western region – California (714) 538-3772.

For product information, write to us, Sales Department, M/A-COM MAC, Inc., 63 Third Avenue, Burlington, MA 01803 or call (617) 272-3100, Ext. 4238.

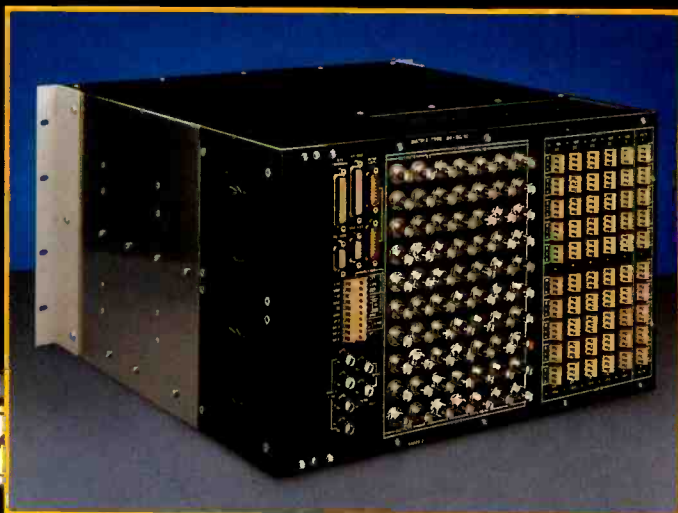
See us at the N.A.B. Show in Dallas, April 13-16, 1986 (Booth 3280)



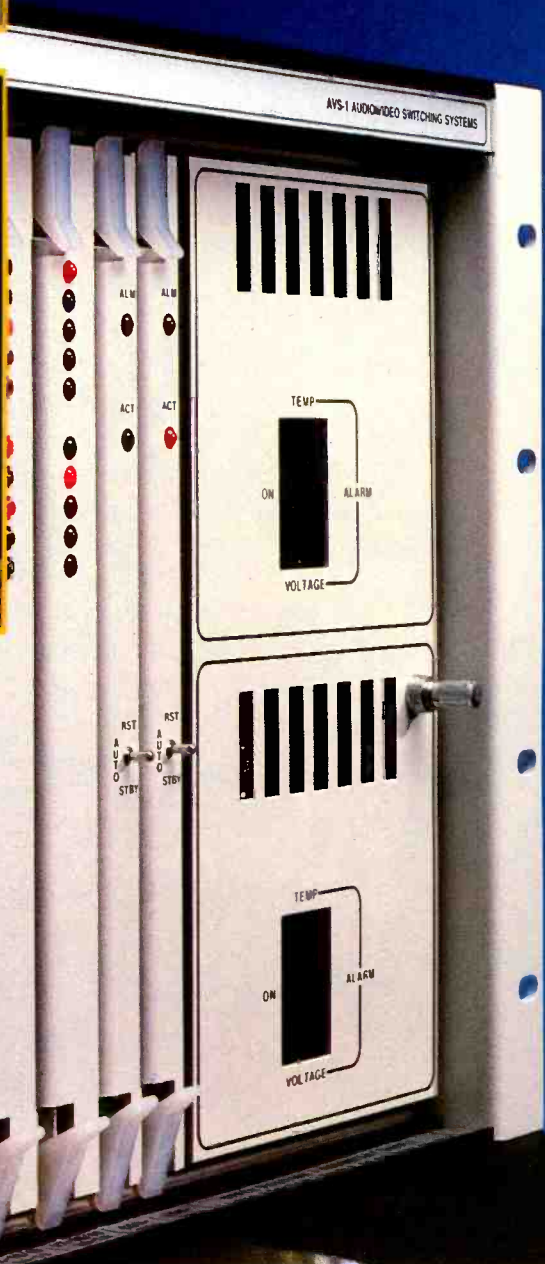
M/A-COM

Microwave innovations for a changing world.

SMART SWITCHER



The AVS-1B routing switcher is a totally new design — more levels, larger matrices, better performance, greater control flexibility and reprogrammability — all without sacrificing the reliability that has established Utah Scientific as America's largest supplier of routing sw tchers to the broadcast/teleproduction market.



VERSATILITY

- 8 separately addressable switching levels
- 23 models of audio & video matrices plus metallic contact, tally & regenerative time code
- 21 standard control panels plus variations & customs
- System reprogramming, lockouts, and salvos all from a dumb terminal
- 60 MHz video bandwidth for future needs
- 4 user ports, RS-422 & RS-232
- Easy-to-service single motherboard design

PERFORMANCE

- Industry's best performance specs
- 5 year warranty, parts *and* labor
- Redundant control & memory option with automatic, alarmed, switchover
- Transparent reprogramming—no panel or system downtime

STABILITY

- Precision components throughout
- Design philosophy proven in 100's of ultrastable AVS-1 systems
- Redundant plug-in cooling fans for extended drift-free component life



UTAH SCIENTIFIC, INC.
DYNATECH Broadcast Group

1685 West 2200 South, Salt Lake City, Utah 84119
Phone: (800) 453-8782 (Toll Free) or (801) 973-6840 • TWX: 910-925-4037
Circle 215 on Reader Service Card See us at NAB Booth # 3144

self-locking center column; plus the Video 20 studio and OB pedestal for ENG cameras configured for the studio. Established products will include the Video 14 System, a true fluid head combined with pedestal-tripod, the 7+7 lightweight fluid head; the Video 20 mid-sized and Video 25 larger

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

capacity fluid heads; and the Video 30, with seven-step dynamic counterbalance.

SAMSON MUSIC PRODUCTS

2797

Will feature the complete line of VHF wireless systems, available with hand-held mic transmitters or body pak transmitters for lavalier and guitar/bass, and a synthesized receiver that can change frequencies, and is true-diversity to prevent dropouts.

SCHAFFER WORLD COMM. CORP.

3353

Will introduce the Ready Spot cart automation machine with 30 trays in increments of 10 per unit up to 90 trays. Addition to Schaefer 7000 or 7000 GLS with super-ROM software, it replaces cart sources, upgrades system and allows broadcasters to achieve flexibility and quality program control. Also to be featured are the full line of consoles including the modular 2000 Series five- or eight-channel mono or stereo and 8000 Series eight channel expandable to 16 channels mono or stereo for on air or production.

SCHMID TELECOMMUNICATION

2462

Will premiere its stereo international sound-program circuit analyzer SZ 340 for transmission parameter measurement under manual or remote control via IEEE-488 interface. Also on show will be the SZ 311 programmable signal generator and measuring receiver products.

SCHNEIDER CORP.

3343

Will introduce the TV-80 17X wide-angle zoom lens with built-in diascope for 2/3-inch studio or field cameras, and the TV-64/65/66 14.5X wide-angle studio zoom for cameras with 2/3-inch, one-inch, or 1 1/4-inch tubes. Established TV zoom lenses on view will be the TV-44 14X ENG/EFP zoom and the TV-39 30X super telephoto zoom for half-inch or 2/3-inch tube or CCD cameras.

SCHWEM TECHNOLOGY

2559

Will unveil a new wide-angle attachment and remote-control system for the Gyrozoom 60/300 image stabilizing lens.

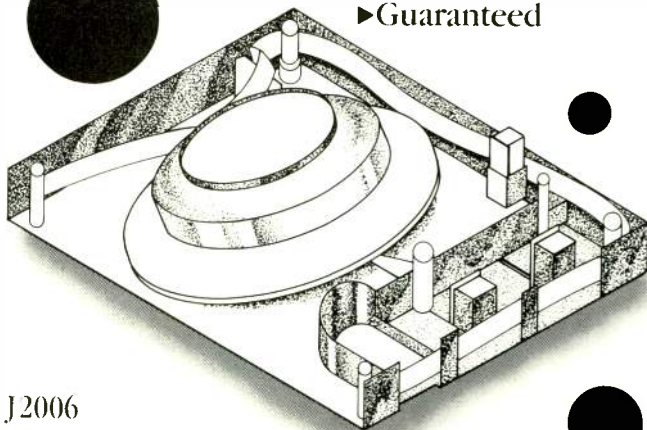
SCIENTIFIC-ATLANTA

3272

Optima Division will highlight its new Optimum modular packaging system, designed to accept rack-mountable equipment as well as cards without the need for card cages. Digital Video Systems Division will show its existing range, including the DPS185 test signal generator, DPS165 frame store flash synchronizer, DPS170 timebase corrector, DPS175 flash frame store, and Fourmatte,

MORE THAN JUST RADIO SPOTS

- ▶The Best Phase Stability
- ▶The Flatest Frequency Response
- ▶Dramatically Increased Tape Life
- ▶Guaranteed



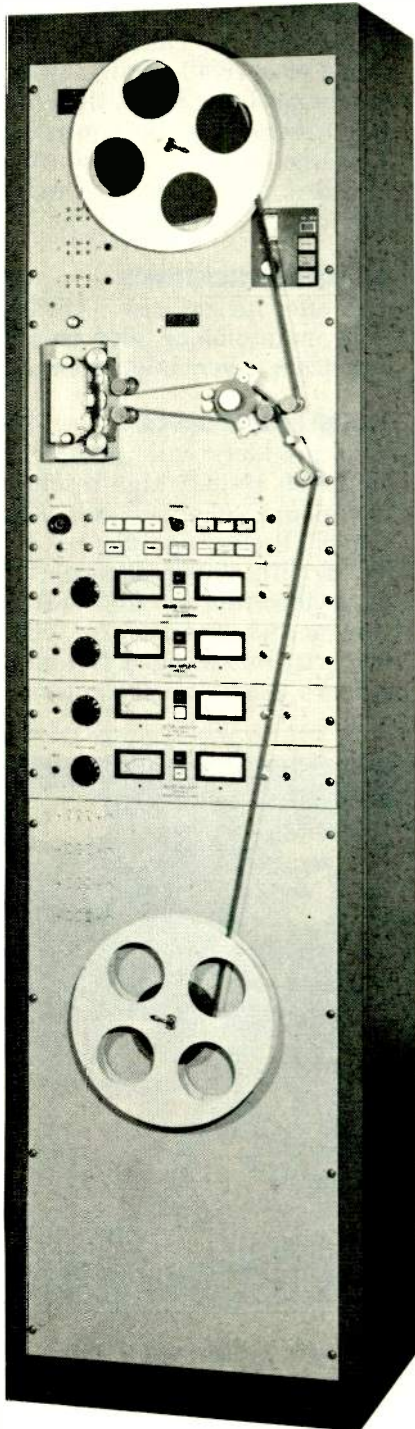
J2006

We've tilted the turntable on our new ARISTOCART 2006 cartridge. This is the most important design advance in 10 years of cartridge technology, and in combination with our new ARISTOCART HOLN 2006 tape gives you the finest tape/cart combination available today. We guarantee it.

WIC Manufactured by:
Western International Communications Ltd.
1950-505 Burrard Street, Vancouver, B.C. Canada V7X 1M6
Telephone (604) 526-3214 Telex 04-54639

OUR GUARANTEE
If any **ARISTOCART** cartridge should fail to meet NAB AM/FM performance specifications on a properly aligned cart machine, we will replace it at our sole expense.

ARISTOCART



MAGNA-TECH

THE SOUND HEARD AROUND THE WORLD

Magnetic Film
Recorders and Reproducers
for Television and Film
Sound Post-Production

HIGH SPEED

Telecine Magnetic Followers
Video Tape-Film Interlock
Electronic Looping
Dubbing Systems
16 and 35mm Electronic Projectors
Total Facility Engineering

WORLDWIDE SALES OFFICES

Paris

Hi-Fidelity Services
4 Rue Semard
75009 Paris, France

Sydney

Magna-Techtronics (Aust.)
PO Box 150
Crows Nest NSW 2064
Australia — Telex 24655

Johannesburg

Magna-Tech Satty Ltd.
Private Bag #5
Melville 2109
South Africa
Tel: 011-726-4266

Rome

Studio Sound System S.N.C.
Via Teano 305
00171 Roma Italy
Tel: 257-9458

Brussels

A R.C.
Rue de Boisse Linthout 45
1200 Brussels Belgium

Hong Kong

Paul Yang and Associates
901 Star House
3 Salisbury Road
Kowloon, Hong Kong

Bombay

Capt. P.K. Vishwanath
234/4 Rama Baug,
Deodhar Road
Bombay 400 019, India

Willstatt West Germany

Zenon GMBH
Carl-Benc Str. 6
Willstatt 7601
Tel: 07852/7025
Telex: 753537

London

Branch & Appleby
Stonefield Way
Ruislip
Middlesex HA40YL
England

Kuala Lumpur

Kinematronika Sdn. Bhd.
2852, Jalan Selangor/
Persekutan,
Federal Hill
Kuala Lumpur, Malaysia

Caracas

Cine Materiales srl
Apartado Postal 61.098
Caracas 106 Venezuela

MAGNA-TECH ELECTRONIC CO., INC.

630 Ninth Avenue, New York, N.Y. 10036

Telephone (212) 586-7240

Telex 126191

Cables "Magtech"

Circle 217 on Reader Service Card

which allows four frames of video to be shown on one display. Satellite Communications Division expects to show a new L-band input 950-1450 GHz receiver and Ku-band exciter as well as its B-MAC scrambling system, low-noise amplifiers, and related equipment.

See ad page 207. Circle No. 233.

SCIP ELECTRONIC SYSTEMS 2602

A new exhibitor, Scip Systems will introduce the Model 3302 Stereo Signal Manager with the following features: line balance indicators for input and output; routing switches for up to three channels of information; a polarity selecting switch; azimuth compensation network, which introduces error compensating time delays; high frequency shelving equalization function; matrix circuit for decoding or encoding of L+R or L-R signals; X-Y audioscope with log and linear mode.

SEA-TEX 2683

Will display the CR-1011 color weather radar system.

SELCO/SIFAM 2450

Will show its line of Selco knobs, including collect and push-on, available from 10 mm to 38 mm in diameter, plus accessories such as caps, pointers, figure dials and nut covers which fit into the basic knob to give added versatility.

SENNHEISER ELECTRONICS 2914

Will introduce a new mixer, the M8 studio-quality portable mixer for broadcast, ENG and EFP, with eight inputs, two outputs, parametric mid EQ and graphic high and low EQ, one auxiliary send with own master, dual limiters, test-tone oscillator (10K), phantom power for mics (each input has its own switch for phantom) and also available with A/B (12v) powering, line or mic level inputs, Penny and Giles faders, phase inversion and channel inversion, illuminated VUs, ac or dc. Also new is the HD 540 top of line open air headphone with no ceiling effect, for hearing outside noise as well; and a new condenser mic, the MKH 40 P48, a low noise cardioid.

Other featured products include the EK 2012 wireless, bodypack receiver for operation on UHF freqs; it works with the SK 2012 transmitter.

SESCOM 3445

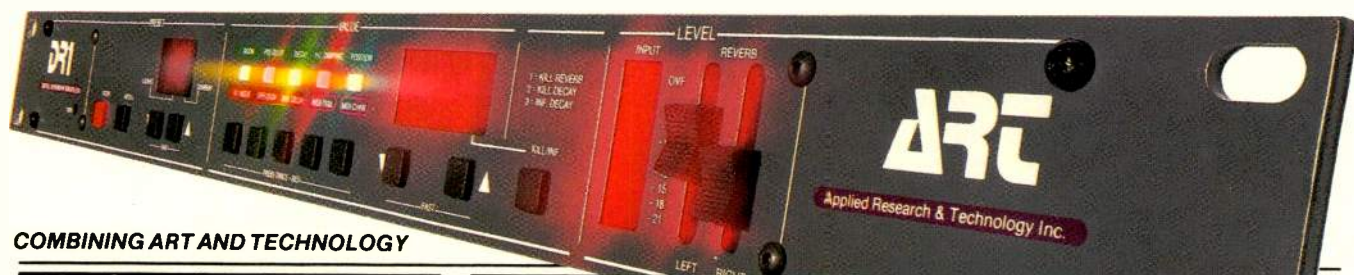
Will introduce "The Portables," a range of over 40 small, low-cost, problem-solving boxes that interface common audio equipment. The line of audio transformers, modules, and electronic products will also be shown.

SG COMMUNICATIONS 2556

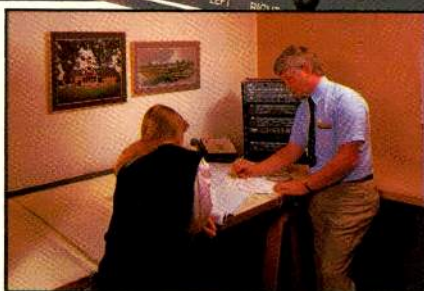
Will offer its services in the erection, maintenance, and repair of broadcast towers and antennas.

SHARP ELECTRONICS 3305

New products will include: the XM-1900 19-inch high-resolution rackmount color monitor; a new line of "Professional Series" VHS VCRs with double azimuth four-head video; and new fixed installation accessories for the XC-A1 camera, including a top-mount camera plate, three-camera re-



COMBINING ART AND TECHNOLOGY



In the business of professional audio, new products and ideas are being applied to expand the boundaries of creativity.

ART products are being used creatively in a growing number of studios, commercial installations, touring companies and broadcast/post-production facilities. This is the result of our dedication to the professional

audio industry - providing quality high technology performance.

When you're in a demanding audio situation, keep in mind that ART products are designed to help you achieve superior results with ease and reliability.

ART brings talent and technology together to produce excellence in audio.

We remain devoted to the art of professional audio...today and tomorrow.



Applied Research & Technology Inc.
215 Tremont Street
Rochester, New York 14608
(716) 436-2720

• DR1 DIGITAL REVERB • 01A DIGITAL REVERB • DR2a DIGITAL REVERB • 1500 DIGITAL DELAY • 1/3 OCTAVE EQUALIZER • 2/3 OCTAVE EQUALIZER • PITCH TRANSPOSER PACKAGE

Circle 218 on Reader Service Card

Sound Management

McCurdy's AMS-210 gives you full capability over audio stereo mixing in a trim package that allows responsible control over budget. A host of standard features includes everything you need to meet the demands of live, post production and master control requirements in a compact package designed to be heard rather than seen.

Advanced Design

The latest in advanced analog and digital microprocessor technology. Solid state switching. Five selectable transition modes for master control applications.

Dual serial RS-422 interface for interconnection with editor and switcher such as the Ross Video RVS-210.

Versatile Capabilities

Serves any audio-follow-video switcher, audio-follow-editor or stand-alone mixer application. Twelve stereo inputs with full level trim. Pushbutton PGM, PST, and OVER input selection buses.

Performance Convenience

Easy visual monitoring via two sets of full scale ANSI standard VU meters (PPM meters optional). Audio monitoring via front panel control output. Program and

monitor metering in stereo for easy level adjustment and previewing. Auto mode for accurate crossfades, manual transitions via slide fader. Numeric readout of relative gain. Independent input trim.

Priced and Sized to Please

Electronics package requires a mere 5 $\frac{1}{4}$ " of rack space. Compact control panel measures 14" (355MM)X17" (430MM)X7" (178MM). Optional desk, console or rack mounting. At a price in keeping with its practical size.

AMS-210 Everything you need in audio stereo mixing.



McCurdy

MCCURDY RADIO INDUSTRIES

108 Carnforth Road, Toronto, Ontario
Canada M4A 2L4
Tel: (416)751-6262 Telex: 06-963533

In U.S.A.: **RAM Broadcast Inc.**
346 West Colfax Street, Palatine, Illinois
U.S.A. 60067 Tel: (312)358-3330

In Europe: **Seltech International**,
Rose Industrial Estate,
Bourne End, Bucks. SL8 5AT England
Tel: (06285)29131 Telex: 848960

Circle 219 on Reader Service Card

mote operation panel, and specialized remote-control lenses. Established cameras on view will be the XC-A1 (mixed-field Saticon), the XC-900D (diode gun Plumbicon), and XC-800II (Saticon II). Other featured products will include the XC-89CA component VTR adaptor for Sharp cameras, the XC-803TX triax control unit, the XM-1300 13-inch monitor, and the XM-900 nine-inch monitor.

SHINTRON 3036

Will unveil the DK3/CK3 component downstream shadow keyer/RGB chromakeyer; the EC2000 Empress component switcher with downstream keyer/chromakeyer; the 392 Empress DUBYC component post-production switcher; and the 12x-c4 12-input, four-output component video routing switcher. The line of component and composite production switchers, component frame synchronizer/effects units, component color format converters, time code generator/readers, and video and audio DAs will be on view.

See ad page 228. Circle No. 259.

SHIVELY LABS 2709

Will introduce new half-wave spaced, vertically polarized, and custom horizontal and vertical ratio broadcast antennas to its existing line of FM and TV antennas and related items. The half-wave antenna is designed to reduce downward radiation for stations whose RF radiation exceeds standards. The vertically polarized antenna is for educational band stations.

SHOOK ELECTRONIC ENTERPRISES 3222

Will premiere a new 22-foot mobile TV production system with dual generators. It will also show a 48-foot network trailer, custom-built for John Crowe Productions.

SHURE BROS., INC. 3320

Will introduce two new portable mixers; the FP-32, stereo ENG mixer, and the FP-42 stereo production mixer; and will highlight the FP Series including FP-16 DA, FP-11 mic-to-line amp, FP-12 headphone bridging amp, FP-31 mono version of FP 32-ENG mix-

er, SM-91 unidirectional surface mount mic, SM-90 omnidirectional surface mount mic, also SM1 and SM2 headset mics, and the rest of the line of mics.

See ad page 221. Circle No. 249.

SIGMA ELECTRONICS, INC. 2905

Will announce two new signal generators, the TSG-375, a microprocessor-based test signal and sync generator, and the BSG-100 black signal generator. A complete line of sync, processing, timing, and distribution terminal equipment for the professional TV industry will also be shown.

SINGER PRODUCTS CO., INC. 3344

Will show its new CCA-FM 20 kW transmitter; support equipment, studio equipment, single sideband communications equipment, and two-way radio equipment.

SKOTEL CORP. 2738

Will introduce the TCR-111 and TCR-112 longitudinal time code

Vanguard Series™
Broadcast Audio Consoles



Performance, Value and Reliability through Innovative Technology

- Raised, tactile feel, lighted membrane switch panel-digitally scanned
- 12 stereo inputs plus optional expander
- VCA controls, rotary and linear
- Analog and fluorescent meters
- Modular, plug in electronics
- Easy punch block installation
- Effective RF protection

**BC8DS
8 Mixer
Dual Stereo**
only **\$2,995**

AUDIO TECHNOLOGIES INCORPORATED



328 Maple Avenue, Horsham, PA 19044 • (215) 443-0330

Now you can change satellites the same way you change channels — with the touch of a button



Our motorized polar mount and 5-meter antenna spans the satellite arc in just 145 sec.

Now you can take advantage of all the syndicated programming that's rapidly becoming available by satellite. And you can do it with just the touch of a button.

Change channels during station breaks

Our motorized polar mount only has to rotate about a single axis, so it's fast. In fact, it takes just 145 seconds to span the satellite arc. That's about .5° per second, so in most cases you can switch satellites in less than the time it takes for a station break.

You could, for example, switch from a business program on Satcom F4 to a news show on Westar 3 in 16 seconds. Then, in just 58 seconds, you could switch to Spacenet 1 for an international program. And with a pointing accuracy of $\pm .1^\circ$, you can rely on broadcast-quality reception.

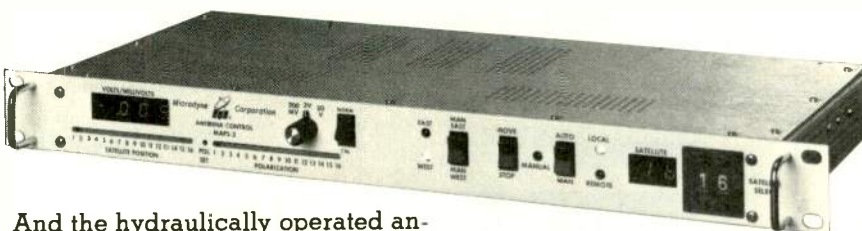
Operationally stable in winds up to 80 mph

Our polar mount will keep a 7-meter antenna operationally stable in winds up to 80 mph for C-band, and up to 60 mph at Ku-band frequencies, where even a little movement can't be tolerated. And it is survival rated—with 1-inch radial ice—for winds well in excess of 125 mph.

Stores up to 16 satellite positions

The rack-mounted programmable position controller lets you store up to 16 satellite positions, including presettable polarization. That's more than enough capacity to allow you access to virtually any programming that's available now and in the foreseeable future.

The controller also features an LED readout to display the antenna position so you can confirm that you're where you ought to be. Not only that, but the controller can be remotely controlled by either telephone or a station-to-transmitter microwave (STL) link.



And the hydraulically operated antenna position motor works off a standard 110 volt, 30-amp line, so no special wiring is involved.

The latest addition to the Microdyne line

The motorized polar mount for our 5- and 7-meter antennas joins our existing line of motorized mounts for our 10' and 12' antennas. It is the latest addition to our full line of satellite communications equipment for uplink and downlink of voice, video and data in both C- and Ku-bands. Best of all, it carries the Microdyne guarantee for quality and dependability.

Call us today

So if you want to take advantage of all the new programming that's being syndicated via satellite, call our sales department today at (904) 687-4633. Or write to us. We'll send you information on how you can increase your programming options with just the touch of a button.

*Microdyne Corp. P.O. Box 7213,
Ocala, FL 32672 • (904) 687-4633
TWX: 810-858-0307*

The programmable controller stores the positions of 16 satellites. It can be controlled by phone or STL link.

Microdyne  Corporation

See us at NAB Booth #3520

Circle 221 on Reader Service Card

readers with LED or video displays. The TCR-80 and TCR-80V time code readers and TCG-80N time code generators will also be shown.

SLOAN, LEONARD ASSOC. 234

Will present wearable promotional items such as jackets, shirts, and sweatshirts.

SOLID STATE LOGIC 3560

Will showcase additions to the modular SL 5000 M Series range of broadcast consoles, including the new SSL Stereo Submixer, and demonstrate new hardware options and software developments for the SL 6000 E Series Stereo Video System. Other featured products include the SL 4000 E Series Master Studio System, SSL Studio Computer with Total Recall, SSL Integral Synchronizer, SSL Events Controller, and SSL Programmable Equalizer.

See ad page 79.

H.A. SOLUTEC, LTD. 2530

Will show its AD.ID/generator for

message recognition and Micro and upgradeable intelligent versions of its SOL-6800 automated broadcast system for commercial inserts. The SOL-6800 and SOL-6800 Mini will also be shown, along with the SOL-8200 co-channel filter.

SOLWAY, INC. (SEE ANT/SOLWAY)

SONO-MAG COR. 3480

Will feature the line of automation programmers and systems for live assist and full automated operation.

SONY, PRO AUDIO DIV. 3100

Will introduce the MXP-2000 stereo audio mixing console, designed for on-air and post-production, featuring optional user-assignable dynamics processor module which provides compression limiting or expansion to any input. Also new is the MXP-3000 recording/remix console with automation; the MX-P29 VCA-control eight-channel audio mixer for video post-production, designed to interface with BVU

series and other Sony editors. Other featured products include the PCM-3102 (7.5 ips) and 3202 (15 ips) DASH two-track digital tape recorders; the 3102 features cut and splice editing, the 3202, electronic editing, and the CDP-3000 and CDS-3000, a CD modular system with two players and a controller in a system.

See ad page 89.

Circle No. 159.

See ad page 209.

Circle No. 235.

See ad page 256-257. Circle No. 265.

SONY BROADCAST PRODUCTS DIV. 3100

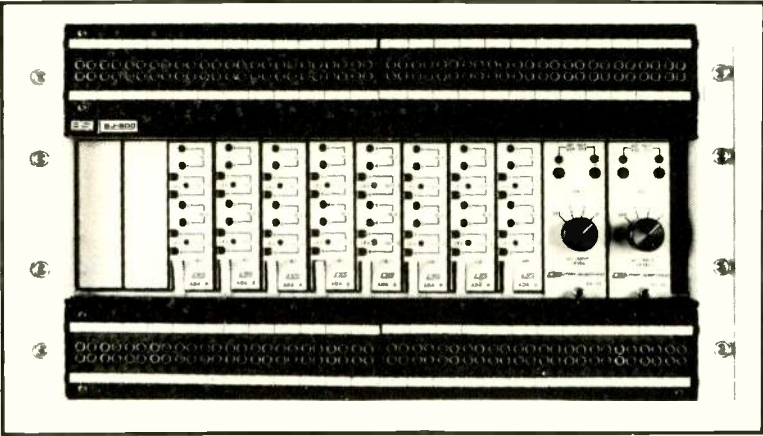
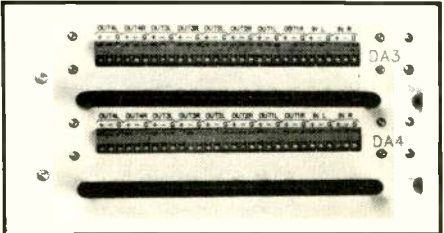
The Broadcast Products Div. will debut the new SP U-matic product line, consisting of the BVU-850 and BVU-870 studio recorder/players and the BVU-150 portable recorder/player. They offer improved audio/video characteristics, improved operational functions, and improved DT picture quality on the 870. When used with new SP tape, they offer third-generation picture performance comparable to first-generation pictures on conventional U-matics. Also new will be two eco-

NEW!

BJ-800

STEREO AUDIO DISTRIBUTION SYSTEM


NEW!

**PARTIAL REAR VIEW
SHOWING INTERCONNECTION STRIPS**

- Eight stereo audio DA's.
- Prewired system.
- Saves 1700 connections.
- Jacks paired for patching both channels simultaneously.
- Dual designation strips.
- Solderless barrier strips for external connections.
- Dual power supplies.
- THD distortion $\leq .05\%$.
- Freq. Resp: $\pm .05\text{dB}$.
- 10.5" rack space.
- Enclosed system.

Eight - four output Utah Scientific stereo audio DA's prewired through two ADC Bantam jack panels. Easy to install, connect only external audio circuits. Occupies only 10.5" rackspace. You can convert your plant to stereo in same space now occupied by old style long frame jack panels.



BROADCAST SYSTEMS INC.
8222 Jamestown Drive Austin, Texas 78758
512/836-6011 800/531-5232 800/252-9792 TX

A TOUGH ACT TO FOLLOW

Genesis 1™ With ACT 1™ \$27,990



Genesis 1 ACT 1, Microtime's high quality, low-cost digital effects system increases creative capabilities to your imagination's limit. Create through self-prompting, icon-driven menus and instructions for sequences involving moves, freeze, flips, tumbles, posterize, shadow, variable aspect ratio, XY mosaic, strobe, and source change.

Genesis 1 ACT 1 offers:

- 3-Axis joystick control
- Keyframe creation of sequences
- Smooth curvilinear movement
- Frame accurate duration of a sequence
- Routing switcher interface for dual input switching when flipping and tumbling
- Three levels of sequence storage: RAM, internal and portable

VISIT US AT NAB
BOOTH #3086

Microtime Salutes
Camera Mart...
50 Years of Dedicated Service

Genesis 1 ACT 1... A user-friendly digital effects system for your video productions. An ACT not to be missed at \$27,990.

 **MICROTIME**

A Subsidiary of ANERSEN GROUP

Microtime, Inc.
1280 Blue Hills Avenue
Bloomfield, CT 06002 USA
Tel: (203) 242-4242
TWX: 710-425-1165

Northeast, Ray Bouchard (609) 896-3716
Central, David Everett (312) 934-9191
Southcentral, Steve Krant (214) 644-0232
Southeast, Jerry Rankin (404) 979-4437
Western, Chuck Bocan (714) 989-4433

Genesis 1 and ACT 1 are trademarks of Microtime, Inc.

Circle 223 on Reader Service Card

Visit us at NAB, Booth #3086

nomical one-inch Type C VTRs, the BVH-2000/10 and BVH-2000/12, designed for duplication and production applications, as well as post-production and on-air use. The SU-L200 compact console unit, for use with all BVH-2000/2180 Series VTRs, will make its first NAB appearance. The complete line of Betacam recorder/cameras and playback equipment will be shown, along with the Betacart multicassette playback system.

Other featured items will be Sony's full camera line, including the BVP-360 field/studio camera, introduced last year, and a full line of high resolution monitors, including the auto setup kit for the BVM-1900 monitor, BVE-5000 and BVE-800 editing systems will be on display, along with digital and analog audio tape recording and editing equipment.

See ad page 2-3.

See ad page 94-95.

SONY MAGNETIC PRODUCTS CO.

3100

Will add a new 30-minute cassette

to its Betacam line and will show its full line of U-matic and one-inch videotape.

See ad page 53.

Circle No. 132.

SONY VIDEO COMMUNICATIONS

3100

Plans to display a new 8 mm video line, plus its SuperBeta and U-matic systems, monitors, and monitor/receivers. Also new will be a three-chip color CCD camera.

SOPER SOUND MUSIC LIBRARY

2443

Will show music programming services and software for computerized locating, sorting and selecting music from sound library.

SOUNDCRAFT USA, INC.

2770

Will introduce the microprocessor-controlled two-track mastering machine in 1/4-inch and half-inch versions, and Series 200B an updated version of Series 200 stereo recording console, and highlight the TS-24 recording post production console, the Series 600 production recording console and

the SCM 760 two-inch 24 multi-track recorder reproducer.

SOUND IDEAS SOUND EFFECTS LIBRARY

2444

Will show 300 stereo sound effects on CD.

SOUND TECHNOLOGY

3328

Will announce the Series 3000 sinewave, squarewave, IMD, toneburst, and sine/step waveform outputs. Also new will be menu-driven software with full graphics for automated testing using Sound Technology equipment with an IBM, Hewlett-Packard, or Compaq PC, and a line of bus-controlled switching systems for automated testing of multichannel equipment. The existing tape test, distortion measurement, and precision filters lines will also be shown.

SOUNDTRACK/AIRCRAFT

2554

This music writing company will bring its Aircraft music library for television broadcast and production work.



5K LOOP?

Now you can take control of your remote broadcasts. Because with a Comrex Frequency Extender you can transmit a full 5K, using just two standard telephone lines.

Comrex Frequency Extenders include a multiband noise suppression system to handle even the high noise on many international circuits. And we offer a variety of models, including a self-contained console, and a full range of one-line systems.

Since our introduction of the Frequency Extender in 1976, we have built over 5,000 systems, making Comrex the recognized world leader in Frequency Extension.

5K quality over standard phones? We don't expect you to believe it without proof. Call for a demo tape at 1-800-237-1776. Or write Comrex Corporation, 60 Union Avenue, Sudbury, MA 01776. TEL 617-443-8811 TWX 710-347-1049.

COMREX®

BUILT FOR BROADCAST

Circle 224 on Reader Service Card



SUPER POD™ (sōō' pər pod) *noun* 1. A microwave transmit/relay system used with ENG helicopters: enhances and extends the coverage capabilities of television news departments. 2. Nurad's advanced airborne ENG system featuring an automatically rotated transmit antenna; incorporates a sophisticated Loran C control system.

THE SUPER POD CONCEPT

The operational concept of the SUPER POD is sophisticated yet simple. As the helicopter changes direction, the Loran C interfaced control system constantly computes the helicopter position and automatically points the transmit antenna toward the receive site.

SUPER POD features a unique circularly polarized transmit antenna and a circularly polarized receive antenna (for relay operations) housed within a sleek, aerodynamically streamlined radome.

LOW PROFILE



The SUPER POD radome is only 8.75 inches in height for maximum ground clearance under the helicopter.

NURAD

2165 Druid Park Drive Baltimore, MD 21211 Telephone (301)462-1700 TWX/Telex (710)234-1071

SOUNDTRACS**144**

As a new exhibitor to the NAB, will introduce selected audio mixing consoles from its complete range for recording and sound reinforcement. Will present the CM-4400 studio console linked by a CMS-2 interface to a 24-track ATR with automated muting and routing against SMPTE/EBU time code, and video sync. Also the 8-12 Series console for small commercial studio and post-production work, and the T-Series console for four- to eight-track recording, expandable up to a 32-8-2 configuration.

SPANTEL**3382**

Will bring its SCA paging equipment.

SPECTRA**COMMUNICATIONS****OUTSIDE**

Will introduce SNG equipment including a 1.8 m parabolic, segmented flyaway system and an elliptical offset antenna for vans. The same electronics can be detached and used for both antennas. The satellite equipment will

be installed in an LB Telesystems truck.

SPECTRUM PLANNING, INC.**2633**

Will add a new service for TV marketing, engineering, and cable analysis in a management tool called TV-Beam. Also new will be a package for 80/90 applicants. The company's existing range of services for microwave, satellite, or mobile communications will be offered.

SPRAGUE MAGNETICS**2540**

Will add new replacement heads for Ampex, Otari, and Sony BVH decks to its line of replacement tape heads and recorder parts, MRL and STL alignment tapes, recorder care accessories, and refurbishment services.

STAGE LIGHTING DIST.**2446**

New items will include the SP-1500 fog and smoke machine, the 12 x 24 dimmer pack with 12 2400 W dimmers, the Servo color changer and pan/tilt device for studio fixtures, and the Q4z 500 W quartz

ellipsoidal zoom focus. The full line of studio lighting fixtures and effects gear will be shown.

STAINLESS, INC.**2735**

Will show its guyed and self-supporting tower designs up to 2000 feet with elevators and multiple antennas.

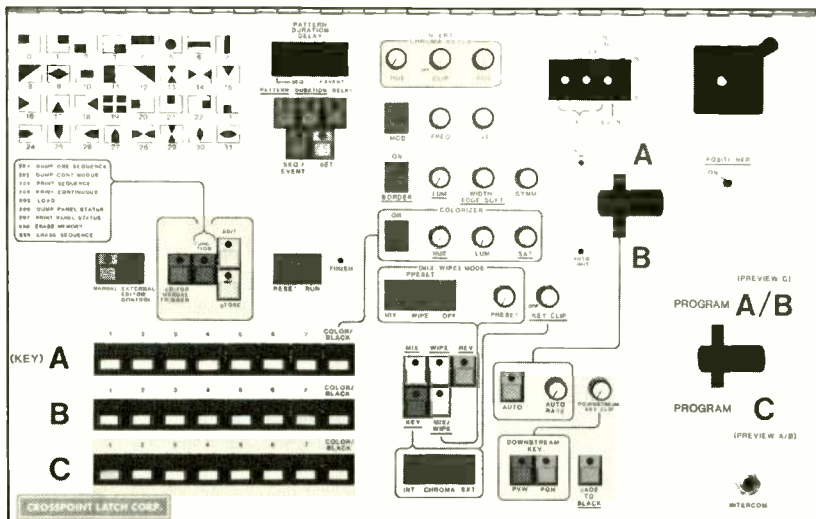
*See ad page 182.**Circle No. 209.***STANTON MAGNETICS, INC.****3331**

Will unveil the 30M/SR disco headphones, a shoulder-rest, single cup headphone, lightweight, durable, can be worn left or right, and features a samarium cobalt magnet, frequency response of 20 Hz-22 kHz, impedance of 100 ohms max, input 0.25mW, soft, foam-filled leather-like ear cushions. Also new is the 310B stereo phone preamp, designed to interface to all Stanton and selected magnetic phono cartridges, special features include active balanced output resulting in additional gain of 6 dB. Can be used balanced or unbalanced. Other products include magnetic car-

400 EVENT REGISTERS, 100 SEQUENCES 6109/7209 (WITH 99 SEQUENCES) AUDIO FOLLOW MIXER

OPTIONS: • GENLOCK SYNC GENERATOR • 99 SEQUENCES
• SECOND CHROMA KEYS • EDITOR MODULE
• 6800 AUDIO FOLLOW

**MANY VERY SOPHISTICATED
EDITOR INTERFACES**



The FOUR EVENT SEQUENCE is a very powerful, yet simple, way of programming a switcher for editing applications. It allows for three programmable transitions (between the EVENTS) together with a programmable delay before each transition. Events can be programmed easily and rapidly. Stored EVENTS can be altered or edited by means of the unique **CROSSPOINT LATCH** "Edit" mode, which permits incremental changes to be made with ease and precision. A RUN controls positioners, border width, hue, etc. smoothly and simultaneously from any point to any other point.

FULLY CONTROLLABLE BY EDITORS

The 7209 interfaces with most editing controllers or any computer. All functions on the switcher can be accessed.

Send \$15 for VHS Demo Tape

6109 (NTSC) \$7,240. Basic 7209 \$3,105.

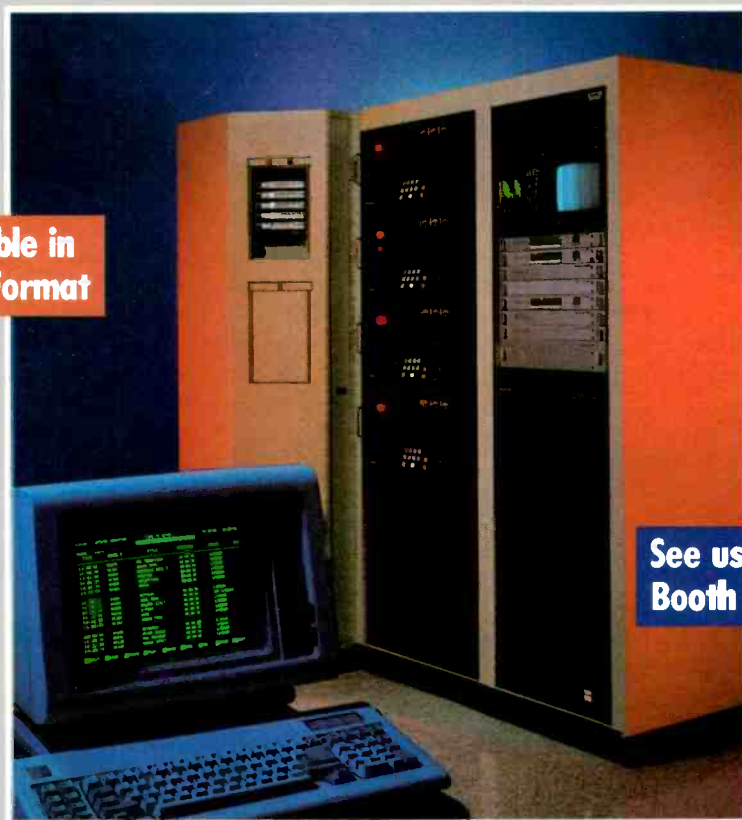
DELIVERY WITHIN TWO WEEKS

95 PROGRESS STREET • UNION, N.J. 07083
(201) 688-1510 • TELEX 9104901990

CROSSPOINT LATCH CORP.

PAY LESS ATTENTION TO YOUR VIDEO CART MACHINE

Now Available in
Beta-Cam Format



See us at NAB
Booth #3586

Great idea! Now you can do just that with the TCS-2000.

The Cart Machine automatically manages, records and plays-to-air all forms of spots and programs, giving you much more uninterrupted time away from programming concerns.

The Cart Machine holds up to 280 carts on-line. Tracks 65,000 carts in the database. With its 1,000 event look ahead feature, you receive a printed list of needed carts and your saturation spot carts never have to leave the machine.

The Cart Machine's comprehensive software system interacts with your traffic system to download your logs and automatically preplans the spot play lists days in advance.

Now other station operations get your undivided attention—with The Cart Machine.

Odetics
We put *smarts* in The Cart Machine.

Odetics, Inc. 1515 S. Manchester Ave., Anaheim, CA 92802-2907. Call toll free 1-800-243-2001. In California call 714-774-5000.

Circle 227 on Reader Service Card

tridges, and the complete line of styli, headphones and record care products.

STANTRON, UNIT OF ZERO CORP.

2911

Will show its line of cabinets, consoles, decks, and racks for post-production and dubbing.

See ad page 65.

Circle No. 143.

STAR CASE MFG. CO., INC.

2555

Will introduce new private label ATA and carry cases and will show its established shipping cases.

STEADI-FILM CORP.

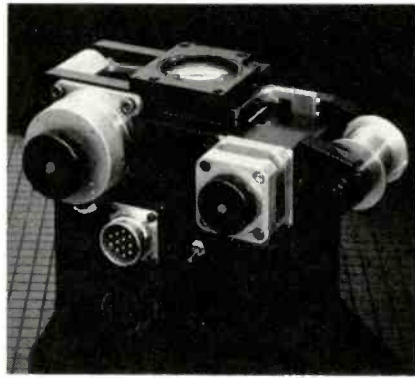
249

Will exhibit the Steadi-Film anti-weave gate for Rank Cintel flying spot telecines.

STEENBECK

2749

Will show several items from the established line, including the Model ST-201V video reporter, a portable unit with a videocassette deck that can be locked to motion picture film units to edit soundtrack to the cassette or transfer



Steady-Film will display its anti-weave film gate.

film and sound from a film editing machine to the cassette. Also showing the Model ST-1401 four-plate 35 mm film editor with video camera for film-to-tape transfer and the ST-1901 six-plate, 16 mm version.

STOREEL CORP.

3322

Will show the new high density room stretcher for VHS cassette storage, and feature the instant access and modular rapid transit storage systems for videotape, cassettes, half-inch VHS tape, or film,

the room stretcher high-density storage for RCA, Ampex and Beta carts, setup trucks for transporting tape or film, and high density audio carts for FM and AM storage.

STRAIGHT WIRE AUDIO, INC.

2518

Will introduce three new products: the CDque, a CD player balanced output, user-friendly with opto-isolated remote control; the Humm Gobbler which monitors stereo audio line and automatically applies required filters to eliminate hum and buzz only when they are present; and the Stereo Sentinel, an accessory for the new Orban stereo synthesizer, has a mono Humm Gobbler circuit in line to stereo synthesizer circuit, has voice recognition which suppresses stereo synthesis during dialog, in order to avoid false triggering. Also featured will be Line Amps, DAs, phone preamps, all in modular card-frame design.

STRAND LIGHTING

3024

Will introduce the XP light board

Broaden Your Horizons

QUALITY MANUFACTURING & PERFORMANCE

Dielectric Communications expands your broadcasting horizons with a complete line of broadcast components—known worldwide for their reliability.

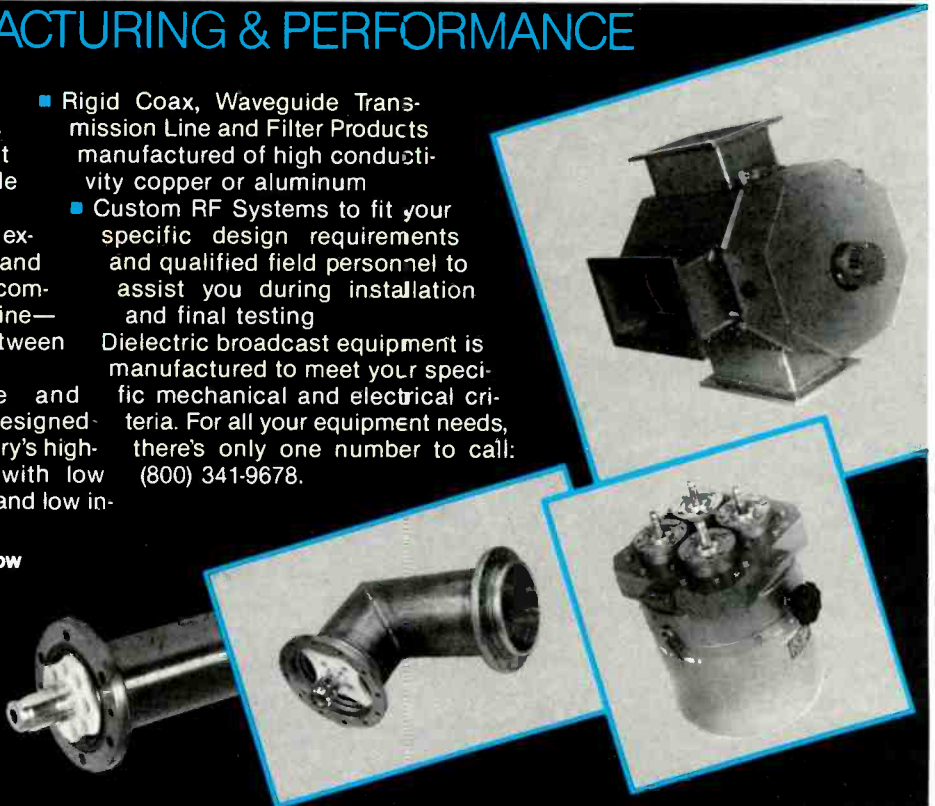
- Coaxial and Waveguide Diplexers for combining aural and visual TV transmitters to a common coaxial transmission line—all with high isolation between transmitters
- Motorized Waveguide and Coaxial Switches are designed for the broadcast industry's high-power requirements, with low VSWR, high isolation and low insertion loss

See us at the NAB Show

- Rigid Coax, Waveguide Transmission Line and Filter Products manufactured of high conductivity copper or aluminum
 - Custom RF Systems to fit your specific design requirements and qualified field personnel to assist you during installation and final testing
- Dielectric broadcast equipment is manufactured to meet your specific mechanical and electrical criteria. For all your equipment needs, there's only one number to call: (800) 341-9678.



Raymond, Maine 04071
(207) 655-4555 • (800) 341-9678
TWX: 710-229-6890



Circle 228 on Reader Service Card

THE NEW GENERATION

*Angenieux
proudly introduces
four new and
Advanced Broadcast
Lenses at
NAB Booth 3020.*

BE THERE.

angēnieux

THE HERITAGE OF EXCELLENCE.

and the DC90 dimming system. Also featured will be the Ianiro 12K HMI, HMI softlights, a range of audio/show lights, the Light Palette TV-2 lighting control board, and the Mini Light Palette.

STRATA MARKETING 2689

Will introduce Strata Planner business software, in addition to the established Radio Calc and Super Ranker software programs and the Recall diagnostic package.

STUDER REVOX AMERICA, INC. 3048

Will introduce the A812 analog broadcast recorder, all new design featuring powerful package of microprocessor-based electronics for maximum operating flexibility; 12.5-inch reel capacity, four tape speeds, programmable functions, and phase compensated audio electronics; also the SC 4008 and SC 4016 System controllers, SMPTE-EBU bus controllers designed for a wide range of audio/video post-production applications. SC 4008 controls up to

eight synchronizers, the SC 4016 up to 16; the B203 Controller, a basis RS232 automation controller for multisource radio production and on-air playback; the A820-TC analog recorder, special version of A820 with center-track time code channel; and the A810-2 TC/FM/NEO special version of A810 for film audio applications. Other products include the A800 multitrack audio recorders; AB20 half- and 1/4-inch stereo audio recorders; A810 audio recorders with center track time code option; TLS 4000 SMPTE/EBU synchronizing systems; PR99 MKII compact audio recorders; 900 Series studio production mixing consoles; 961/962 compact mixing consoles; 2706 studio monitor loudspeakers, A725 professional CD players; A710 professional cassette deck; A80 MKIV multitrack audio recorders; tele-

phone hybrid interfacing systems; A80 VU-3-LB video layback recorder.

See ad page Cover 2. Circle No. 100.

STUDIO TECHNOLOGIES 2769

Will feature its AN-2 Stereo Simulator- TV stereo synthesizer, which provides many audio effects including convincing stereo from a mono source, and the RCU-1 Recognition Control Unit for TV stereo, a real-time unit which determines and displays mono/stereo status of audio programming and automatically switches stereo simulator on when mono is detected.

SUNSPOT 2498

Will unveil a new IBM PC version of the Sunspot broadcast system, a fully integrated business computer system for radio stations including order processing, traffic, billing, accounts receivable, accounts payable, and general ledger. The IBM version is a complete multi-user system; the original Apple III version will also be shown.

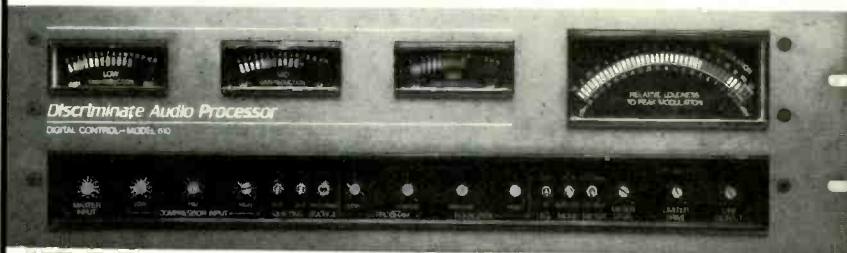
FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

The DORROUGH LOUDNESS MONITOR **simultaneously** displays **peak** and **persistence** information on one simple-to-read scale. Equal perceived loudness from program to program can now be achieved. Dual bridging inputs allow for monitoring L+R or L-R.

DORROUGH LOUDNESS MONITOR, Model 40-A. Other models available.



2 powerful tools for stereo TV!



DISCRIMINATE AUDIO PROCESSOR, Model 610.

Only **digitally controlled tri-band** audio processing gives your stereo signal a truly uncompressed, open and loud sound. Stop by the DORROUGH booth at NAB and find out why the DAP makes analog processors a thing of the past!

See us at NAB - Booth 2602.

dorrough

**YOUR LISTENERS
DESERVE A DAP!**

DORROUGH ELECTRONICS, INC.
5221 Collier Place
Woodland Hills, CA 91364
(818) 999-1132

See us at NAB Booth #2602

Circle 230 on Reader Service Card

Opening up New Worlds of Imaging!

TOSHIBA MICROMINIATURE COLOR CAMERA

TOSHIBA's imaging technology has once again gone one better! With the new Micro-miniature Color Camera, we have introduced a new concept in TV/video camera systems. This system consists of a separate camera head that fits easily into even a child's hand, connected by a 4mm-thick cable to a

Camera Control Unit (CCU) that is smaller than a thick paperback book and performs the imaging functions. The camera produces a fine clear picture on a color TV receiver, and can also be used in conjunction with a portable VCR by amateurs and professionals alike.



TOSHIBA

TOSHIBA CORPORATION TOKYO, JAPAN

ELECTRONIC SYSTEMS DEPARTMENT

1-1, SHIBAJIRA 1-CHOME, MINATO-KU, TOKYO, 105, JAPAN TELEX: J22587 TOSHIBA CABLE: TOSHIBA TOKYO PHONE: 457-3246-8

Circle 231 on Reader Service Card

SWINTEK ENTERPRISES, INC. 2918

Will unveil the Mark QDC/2 and Mark QDC-H/2, small dual-frequency radio microphone receiver for use on video cameras. Can be used with Swintek lavalier transmitters, including SM87 handheld. Featured products include the new line of RFSD switching diversity receivers designed for live audio road shows, and full line of video production radio equipment including new Mark 200D-H wireless headset system with a 10 hour run time.

SWITCHCRAFT 2684

New products will include BNC straight and right-angle PC-mount receptacles, XLR-type audio receptacles, and a new line of molded cable assemblies. Existing jacks, plugs, connectors, and switches will also be on the booth.

SWR, INC. 3350

Will show new single station FM antennas; multiple station FM antennas; 220 kW low gain UHF an-

tennas; and feature standard antenna products.

SYMETRIX 2519

Will unveil the 528 voice track processor, which combines a FET mic preamp, frequency selectable de-esser, gated compressor/limiter, and three-band parametric EQ in a single rack space for under \$600. Other featured products will include the 104/108 telephone interface, the TI-101 single-line telephone interface, the A-220 stereo amp, the SE-400 parametric EQ, the CL-150 fast RMS compressor/limiter, the 501 peak-RMS compressor/limiter, and the 544 quad expander/gate.

SYSTEMATION 2567

Will unveil new multi-terminal automation and remote control automation products. The XLV-716 screen touch live assist will be shown with new flexibility and the X3710 satellite automation system will have a new display. Also on view will be the line of automation equipment including satellite/cassette automation, full

cassette automation, live assist cassette automation, automatic telephone record/play, and automatic time and weather announcers.

SYMTEC/ONE PASS VIDEO SYSTEMS 228

Will announce the PGS4 paint system for use with the IBM or Sperry PCs. The PGS4 offers flash digitizing, 16 million colors, blending and other special effects. Component input and component or NTSC output are featured. Also shown will be the PGS3A, a redesigned version of the PGS3 character generator and paint system with new software. The Chargen character generator, contained within a Sperry PC and upgradable to operate also as a paint system, will complete the product offering.

SYSTEM ASSOCIATES 3392

Will describe its used equipment brokerage services.

TABER MFG. & ENG. CO. 3491

Will feature the Taberaser 1500

This new portable UHF Field Strength Meter gives you accurate readings across the entire band.

Someone once said that "Certainty is Security." That is the main idea behind field strength measurements. They verify the signal level and rf environment at the point of reception. You know for certain what's out there.

It is now easy for UHF stations to achieve this certainty. With the new FIM-72 from Potomac Instruments.

Tune the entire UHF band

From 470 to 960 MHz. The received signal strength is shown in volts and dB, with a 140 dB measurement range. Select peak or averaging detection; wide or narrow IF bandwidth. Seven 20dB logarithmic ranges assures precise readings. Internal demodulators (AM and FM) provide audio monitoring of the selected signal.

It is easy to use

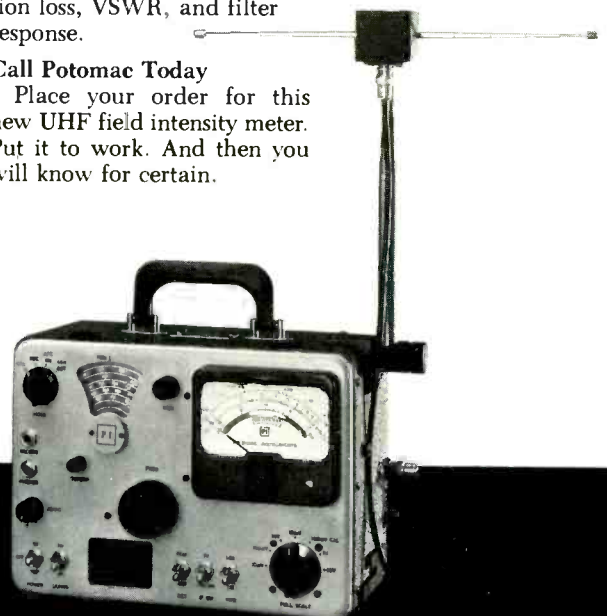
Find the desired signal on the spiral dial. Calibrate the meter using the internal generator, then read the signal strength from the mirrored meter. The field strength is easily determined from the supplied calibration data.

Laboratory applications

The FIM-72 includes a precision rf generator that tracks the tuned frequency. Typical measurements include insertion loss, VSWR, and filter response.

Call Potomac Today

Place your order for this new UHF field intensity meter. Put it to work. And then you will know for certain.



POTOMAC INSTRUMENTS

932 PHILADELPHIA AVE. SILVER SPRING, MD 20910
(301) 589-2662

Scientific Atlanta



THE ONLY FULL LINEUP THAT COVERS ALL THE BASES.

SCIENTIFIC-ATLANTA MAKES COMMUNICATION SYSTEMS TURNKEY AND TROUBLE FREE.

The need for reliable and trouble free systems for video, audio and data satellite transmission increases everyday. To meet this need, Scientific-Atlanta offers the most comprehensive line and has become one of the largest suppliers of high quality satellite products in the world.

Whether uplink or downlink, our earth stations are complete, offering: antennas, exciters, receivers, low-noise amplifiers, switching equipment, power amplifiers, plus every accessory.

Ku-Band electronics are now available with the same standard of performance that Scientific-Atlanta has set in its C-Band electronics. And, data communication is available from 56 Kb/s to T-1.

TURNKEY SYSTEM APPROACH.

Scientific-Atlanta can design and install a complete system. Or, we can provide specific components to stand alone or integrate perfectly with an existing system. Such flexibility results in cost-effectiveness because you choose only the features you need. And, once specified, you receive prompt system assembly and shipment.

SINGLE-SOURCE MANUFACTURER

Scientific-Atlanta is in a unique position to offer responsive and continuous after-sales support. From comprehensive training programs to the fastest possible turnaround for maintenance, replacement parts and repairs.

Our full line of trouble-free products, turnkey system approach, flexibility and responsive customer service have gained the confidence of operators worldwide. That's the reason we've supplied more large earth stations than any other manufacturer in the world.

Scientific-Atlanta has been the leader in earth station technology, sales and performance from the beginning. For more information call Dan Landreth at (404) 449-2844. Or, send in the coupon below.

I want to know more about the Scientific-Atlanta full lineup of products.

Name _____

Company _____

Title _____

Address _____

City _____ State _____

Zip _____ Phone () _____

Have a sales representative contact me

BM/E 3/86

Mail to: Scientific-Atlanta, Department AR,
P.O. Box 105027, Atlanta, CA 30348

and 409 tape degaussers, Taber's audio heads and head reconditioning service, and McCurdy Series 220 full duplex teleconference systems.

TAMRON INDUSTRIES 120
Will feature its line of zoom lenses for broadcast ENG/EFM cameras.

TANNOY NORTH AMERICA 215
A new exhibitor that will introduce a brand new near field audio monitor, the NFM-8B, rack-mountable, for mixing rooms and other broadcast uses. All Tannoy's monitors are dual concentric. Also new will be the FSM studio monitor boasting two 15-inch drivers. Regular line is the SR-840 power amp for high quality large installations, and the SRM-10B, a 10-inch near or free field space monitor, and the SRM-12B 12-inch monitor.

TAPSCAN 2664
Will show the Quali-Tap qualitative ratings system and Infinity

hour-by-hour ratings analysis system.

TAPECASTER (AUDITRONICS) 3310
Will introduce the Tapecaster Series 1000 audio console for on-air, standard stereo outputs, available in six, eight, 10, or 12 mainframe sizes, allows any position to be mono or stereo with subsequent mono to stereo conversion easily accomplished in the field, features three input sources, each mic or line level, selectable for each input position; transformerless inputs and outputs, and many other features. Also new is the Auditronics 310 Series audio console second generation replacement for 300 Series production console, available with four or eight outputs including sub mastering to stereo and mono mix, and

with mono or stereo inputs, each avail w or w/o EQ. Other featured products are the Tapecaster X-700 Series cart machine avail mono or stereo, reproducer or reproducer/recorder models; and Auditronics broadcast, on-air audio control consoles, audio production consoles with four, eight, 16 or 24 outputs, an audio accessory system incorporating audio DAs, high output line amps or stereo preamps.

TASCAM PROFESSIONAL PRODUCTS 3614
Will introduce five new products in the ATR-60 Series of audio recorder reproducers: the ATR-60/2T 1/4-inch two-track recorder with center time code track; the ATR-60/2N 1/4-inch two-track with NAB stereo head format; the ATR-60/2D 1/4-inch with DIN stereo head format; the ATR-60/2HS half-inch 30 ips two-track; the ATR-60/4HS half-inch four-track 30 ips four track NAB; and the ATR-60/8 half-inch eight-track with IEC head format. Other prod-

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.

NEW PORTA-BRACE CASE FOR THE SONY BVU-150 RECORDER



Cassette access door (Top) has zipper, eliminating sag.

Microphone holster and new Velcro cable wraps—Porta-Brace "Piggin Strings" allow any number of cables to be hung on outside of case.



K&H Products, Ltd.

Box 246
North Bennington,
Vermont 05257
802-442-8171

■ Porta-Brace continues to design new and better cases for new equipment. Check the many advantages of this new case. See it at the NAB Show, Booth No. 2532, or write for information.

NOW ALL THE WORLD'S A SOUND STAGE.

No matter what you're recording in the field, from Shakespeare-in-the-Park to "Dancing in the Dark," you'll find a Sony portable mixer that brings the creative control and flawless sonic performance of the studio to wherever you happen to be.



Studio quality is no longer confined to the studio.

zation for comprehensive signal control and modular construction for reliability and easy maintenance. Along with the phenomenal sonic performance with which the name "Sony" has been synonymous for decades.

THE 4-CHANNEL MIXER FOR EVERY CORNER OF THE GLOBE.

The incredibly small and light MX-P42 lessens not only your burden, but the complexities of field recording as well.

That's because each input incorporates a fast-acting compressor/expander with gain make-up control.

So input levels can be preset separately, then maintained automatically during recording.

HIGH QUALITY FOR LOW BUDGETS.

The family resemblance between the 8-channel MX-P21 and

Sony's more expensive portable mixers is readily apparent:

The MX-P21 is portable, durable, and has an incredible array of features for its size—including phono EQ, fader-start and cascade interface.

All of which makes the choice between Sony and any other portable mixer a simple one.

Just decide whether you want all your location recordings to be as good as studio recordings.

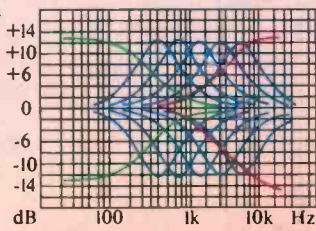
Or not to be.

For a demonstration or more information, call Sony in the North at (201) 368-5185; in the South (615) 883-8140; Central (312) 773-6000; West (213) 639-5370. Or write Sony Professional Audio Products, Sony Dr., Park Ridge, New Jersey 07656.

SONY
Professional Audio



The Sony MX-P42 weighs in at a scant 8 lbs., 10 oz.



EQ characteristics of the MX-P42.

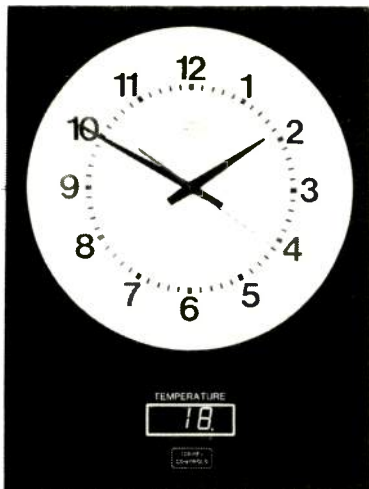
12 FOR THE ROAD.
The big difference between the Sony MX-P61 and other studio-quality 12-channel mixers is that the Sony can be tucked neatly into a small case and carried to any location—thanks to its switching power supply, transformerless design and, of course, the fact that it's made by the company that's best at making big things small.

Its myriad professional features include transformerless, electronically-balanced inputs and outputs, complete equal-

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Circle 235 on Reader Service Card





TIME AND TEMPERATURE



BY

TORPEY CONTROLS

- Master Clock Systems
- Central Temperature Systems
- Timers/Remote Stopwatches
- Video Time and Temperature Displays
- Serving Broadcasters for Over 10 Years
- See us at N.A.B. Booth 2906

TORPEY CONTROLS & ENGINEERING LIMITED

98 - 2220 Midland Avenue
Scarborough, Ont. Canada

(416) 298-7788

ucts include Studio 8, a self contained eight-track production system using 1/4-inch seven-inch reels; an eight-bus mixer, and the general line of recorder/reproducers, mixing consoles and accessories.

TEATRONICS, INC. 2756

Will feature the Genesis line of broadcast quality switchers. The company will also be demonstrating fully computerized and computer-assisted manual control consoles.

TEKSKIL INDUSTRIES 2570

Will feature the 909 monitor prompting system.

TECHRON INDUSTRIAL PRODUCTS 2927

Will unveil TES-12, a new test analyzer for anechoic measurements in nonanechoic surroundings. It measures frequency, phase from 0 to 31,000 Hz, phase angle, amplitude to 0.5 dB, and distance to less than an inch. Also measures energy over time.

See ad page 24. Circle No. 116.

TEKTRONIX 3214

Will premiere a new 1730 waveform monitor and 1720 vector-scope with bright line selector with on-screen readout of the line and field, four automatic front panel recalls, two-channel operation on-screen simultaneously, and x-y inputs for stereo audio display on the vectorscope. Other new products for stereo audio test are the 751 BTSC aural modulation monitor/decoder, 760 stereo audio monitor, and AVC-20 audio vector converter to convert any NTSC vectorscope into a stereo audio monitor. For component TV, Tektronix has a new component analog video waveform monitor and a test signal generator, WFM-300 and TSG-300 respectively. For reference timing, there is a new SPG-170A NTSC sync generator. Established products to be shown are the TSG-170A NTSC sync and test signal generator and 1710B Series waveform monitor for NTSC or PAL systems.

See ad page 47. Circle No. 129.

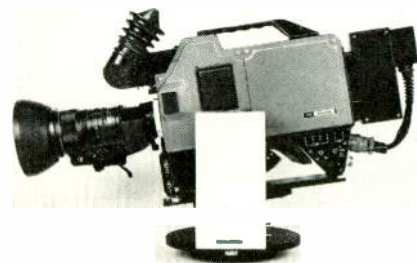
TELEMET, DIV. GEOTEL 3396

Will introduce the new 3717 precision broadcast demodulator with

stereo audio (wideband) output and quadrature output for measuring incidental phase. Established fiberoptic systems, routing switchers, isolation amplifier, sideband analyzers, envelope delays, and video test sets will also be shown.

TELEMETRICS 2569

Will introduce the TM 8505 camera remote control system for the Ikegami HL-95, Sony BVP-30, and other cameras. Will also feature the TM 832-A pan/tilt triax-connected table for remote control of portable video cameras.



Telemetrics will show the TM 832-A remote-control pan/tilt table.

See ad page 226. Circle No. 257.

TELEPAK SAN DIEGO 2566

Will show the new T-scope Tektronix 1740/50 waveform vector pak; the T-20 Sony BVM-20; the T-GAF grip and gaffer pak; the T-mini GAF half size gaffer pak; T-68 Sony V06800; and T GRA-Nagra recorder pak.

TELESCRIPT 3351

Will unveil the C-64 networking prompting program with built-in word processing, underline, immediate edit/insert, and other features; and the 8088-8086 PC prompting program with font editor and remote controller. Also new will be an 1150-line resolution monitor prompter. The line of monitor prompters, Telecue and Telescriptor transports, high-efficiency beamsplitters, and freestanding Telepod transports will be featured.

TELEVISION ENGINEERING CORP. 3400

Will show a new 14-foot four-camera production unit with onboard power, production facilities including video switcher, audio mixer, and character gen-

Illusion™



Pictures reproduced from unretouched monitor shots

Illusion™... the affordable full optical digital effects system keeps getting better.

New. NTSC Component version is now available.

New. Frame File option stores and retrieves still video frames and/or fields.

Illusion is a powerful full frame system with a complete range of optical effects including... • alternate line split image • feedback • mosaics • posterization • double image with axis offset... and • simulates a dual channel system when in its A/B video switching mode • uses bubble memory technology • 2 year warranty.

Optional accessories include... • perspective • rotation • key manipulation • multi-channel configuration.

Call for demo tape and complete details.

See new Illusion features at NAB Booth 3304 (main floor)



A member of The Chyron Group

Digital Services Corporation, 3622 NE 4th St., Gainesville, FL 32609 904-377-8013.
New York: 914-761-7928 MidWest: 317-738-3219. Minneapolis: 612-758-3036. West Coast: 619-485-1156.
Dallas: 214-894-6303. Southeast: 904-375-6740. Canada: 416-475-7575.

Circle 237 on Reader Service Card

FINALLY!

ASTRE



SCHEDULE PRODUCTION ON AIR CONTROL LOGGING

DIGITAL AUDIO FOR BROADCAST

A complete system for recording and playback of commercials, news and weather.

(See us at booth 170-171).



Digital Broadcast Systems Inc.

Southbridge, MA 01550 • Telephone (617) 764-4386

erator. The unit has 3/4 and one-inch videotape with slow motion, intercom with programmable IFR, and 42-foot mast with microwave system to transmit programs to a central receiving point.

TELEVISION EQUIPMENT ASSOCIATES 3342

Will show its range of new Matthey low- and zero-loss video delays and related products, new tape cleaners and profilers in 3/4-, one-, and two-inch formats from Elcon Associates, and a new lightweight intercom headset from Racal.

TELEVISION SYSTEMS 2472

TELEVISION TECHNOLOGY CORP. 3593

Will feature the Model X 30 W FM exciter; the FM-20000J 20 kW FM transmitter; the XL10FM 10 W FM translator; the XL100 100 W solid state LPTV transmitter; the Scully 8300 triple-deck cart player; the Ampro CT-3500 cart recorder/reproducer; Scully 250 and 280B reel-to-reel decks; and Ampro Micro-touch and AC-8 audio consoles.

See ad page 96. See ad page 165.

TELEX COMMUNICATIONS, INC. 3370

Will introduce the ENG-4, a compact, lightweight ENG-type wireless microphone receiver, with four R channels selectable within a frequency range of 165-216 MHz. Can be externally powered or battery operated, can be purchased as a system including the Telex WT-400 belt worn transmitter and WLM-100 (silver) or WLM-200 (black) miniature lapel mics. Other featured products are single antenna and dual delivery wireless mic systems, headsets, headphones, intercom systems, wired mics and tape duplicators.

See ad page 4. Circle No. 102.
See ad page 273. Circle No. 275.

TENNAPLEX SYSTEMS, LTD. 2812

Will unveil a multistation combiner capable of handling up to 1 MW of prime power, as well as new broadcast antennas for FM and TV with ideal (cosecant nullfill) vertical patterns. An existing

The revolution continues...
Two new powerful
production systems
will appear at NAB.

prisma

Graphics Animation.

High resolution graphic animation system including 3-D image shading and Metamorphosing.

eclipse

Digital Effects.

Sensational new 3-dimensional optical effects will excite your most creative talents.

Appearing at Booth 3304 (main floor)

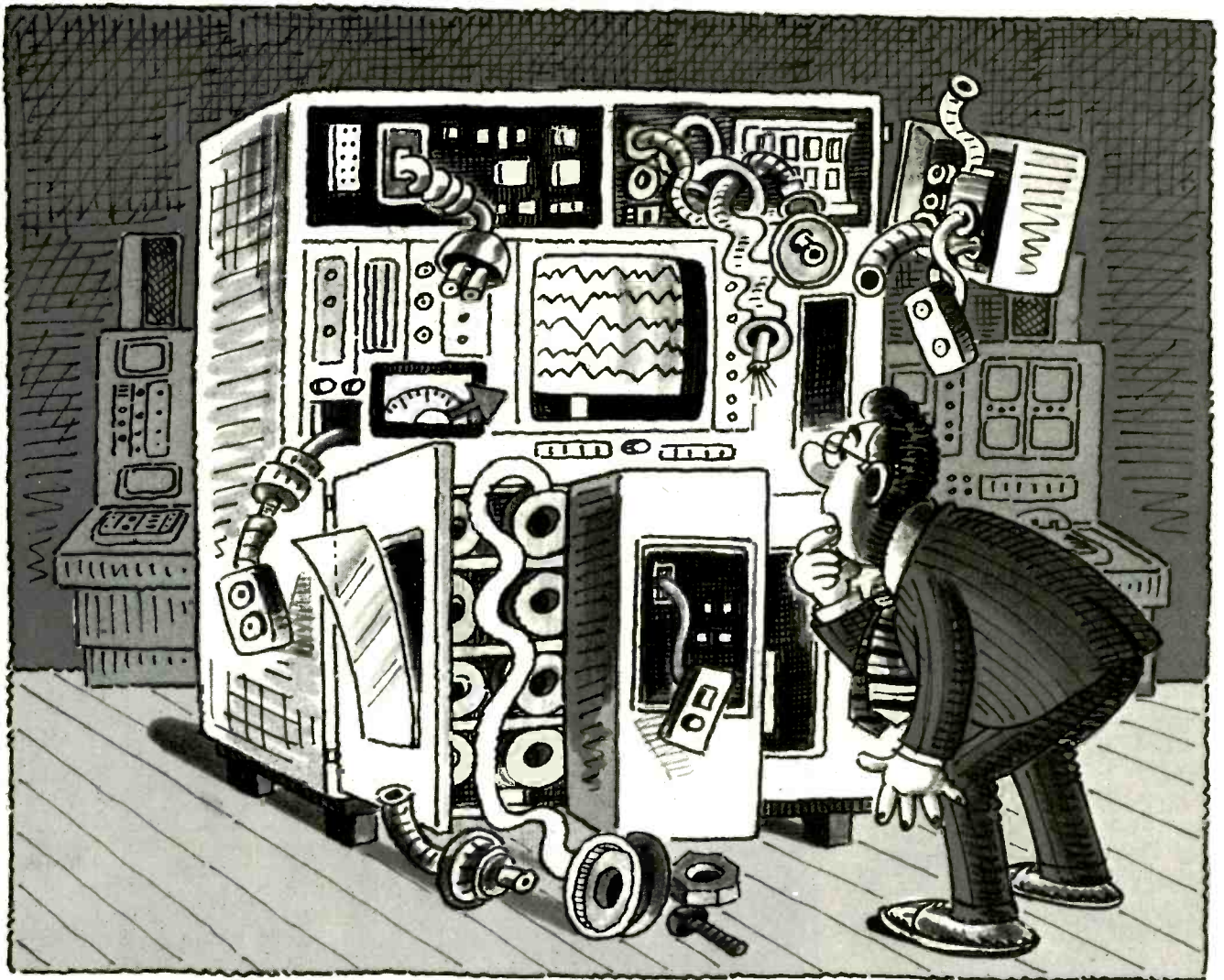
Also appearing... SX-2000D.
Digital effects integrated
with switcher effects.



A member of The Chyron Group

The inventor of Illusion™...
the first affordable digital effects system.

Digital Services Corporation, 3622 NE 4th St., Gainesville, FL 32609 904-377-8013.
New York: 914-761-7928 Mid West: 317-738-3219. Minneapolis: 612-758-3036. West Coast: 619-485-1156.
Dallas: 214-894-6303. Southeast: 904-375-6740. Canada: 416-475-7575.



The Solution To Your Old Cart Machine Is Not A New Cart Machine!

From AFA comes the remarkable new Pegasus 5100 commercial compilation system. It does everything cart machines do—and more. And it does it better, more efficiently, virtually eliminates the need for “make-goods”—and, ultimately, will save you money!

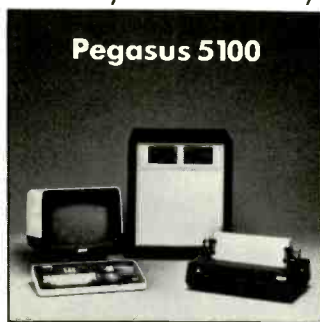
This new solid state computer support system facilitates the automatic off-line compiling of commercial breaks *using existing*

general purpose VTR/VCR equipment!

The system allows for the loading of approximately 175 spots on a single ninety-minute tape. And deletions, additions and last-minute changes are virtually automatic.

But be careful, once you see the Pegasus 5100 in action, you'll never want to use a cart machine again!

Call Marc Bressack at (201) 767-1000 to arrange a demonstration of this exciting new system.



SEE US AT
NAB
BOOTH #3141



A.F. ASSOCIATES INC.

ADVANCED SYSTEMS AND PRODUCTS FOR THE VIDEO INDUSTRY
100 STONEHURST COURT NORTHVALE NJ 07647 (201) 767-1000

Circle 240 on Reader Service Card

series of FM and TV broadband panel antennas with true circular polarization and able to serve as master multistation antennas without compromise to the radiated pattern of any station without electrical interaction with the tower will be shown.

TENTEL CORP. **3326**
Will show its new T2-H7-AC Tentelometer tape tension gauge that allows broadcast audio cartridge measurements. Established tape tension gauges for most video and audio recorder formats will also be on display, as well as head protrusion and eccentricity gauges, and spindle height and elevator position gauges for VTRs.

TEXAR, INC. **2571**
Will introduce the Super Eagle AM modulation controller, which drives two AM transmitters with separate adjustments for each including variable low-pass filtering, asymmetry, low frequency tilt correction, and a subsonic telemetry input for metering without telephone lines. Also will show its Audio Prism digitally controlled audio processor.

TEXSCAN CORP. **2473**
Will display its line of radio automation products, titlers and subtitlers, weather displays, RF attenuators, converters, filters, and test equipment.

TFT, INC. **3420**
Will update its 7610 multichannel remote control system as the 8610 for simpler broadcast operations. Also new on the booth will be the 855 SAP/Pro monitor and the 850/1450 aural modulation monitor compatible with the Tektronix 1450 TV demodulator. The company's range of monitors will also be present, along with the 8500 composite subcarrier generator and modulator for TV, the 8300 STL with IF repeater, and EBS receivers, encoders, and decoders.

See ad page 85. **Circle No. 155.**

THEATRE SERVICE & SUPPLY **2917**
Will announce price reductions in its #13 and #14 cyclorama tracks, for small/medium and medium/large studios, respectively.

The revolution continues...
the metamorphosis
of digital video effects
and video switchers...

introducing
SX-2000D

The complete
programmable
effects system.

SX-2000D provides complete
creative control of digital
video effects integrated with
switcher M/E and Keying amps.

Appearing at Booth 3304
(main floor)

Also appearing...
PRISMA. Graphic Animation.
ECLIPSE. 3-D Digital Effects.



A member of The Chyron Group

The Inventor of Illusion™...
the first affordable digital effects system.

Digital Services Corporation, 3622 NE 4th St., Gainesville, FL 32609 904-377-8013.
New York: 914-761-7928 Mid West: 317-738-3219. Minneapolis: 612-758-3036. West Coast: 619-485-1156.
Dallas: 214-894-6303. Southeast: 904-375-6740. Canada: 416-475-7575.

Circle 241 on Reader Service Card

This tape failure doubled the cost of an already expensive video production.



Videotape: The Weakest Link

To the producer, this shot became much more expensive and complicated than planned... all because the videotape quality was unknown before use.

Why wait for disaster to strike your video productions because of unknown tape quality? Prevention costs much less. RTI's new TapeChek 6120 is the world's top performing evaluator/cleaner for 1" videotape, specifically designed for professionals who demand superior tape performance.

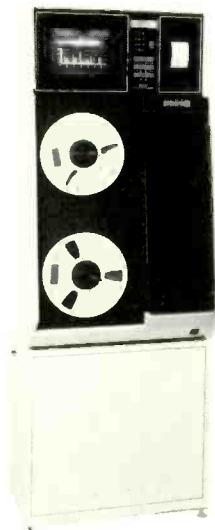
With TapeChek you are assured that every inch of videotape is up to the high standards you expect from 1" tape. At 20 times standard play speed, the TapeChek 6120 accurately and thoroughly evaluates, inspects, cleans and polishes all blank or prerecorded tapes. Advanced 20 track MicroPulse detection electronically identifies dropouts. Plus, it can provide physical evaluation of prerecorded tapes without erasure. TapeChek's precision vacuum-assisted cleaning system substantially reduces temporary dropouts caused by loose oxide and dirt. Tape condition is graphically displayed by color CRT while a hard copy printer reports type and location of dropouts and damage.

Why risk increased production costs and lost revenue because of unknown tape quality? For complete information call:

1-800/323-7520.

In Illinois, call: 1-800/851-4028.

From Alaska, Hawaii and outside the U.S.A., call: 312/677-3000.



4700 Chase Avenue
Lincolnwood, IL 60646-1689

Leading the way in videotape care.

See us at NAB Booth # 3386

THERMODYNE INTERNATIONAL

2824

Will feature its new designs and configurations in equipment transmit cases.

THOMSON-CSF BROADCAST

3190

Will introduce two new products: the TTV-1530 mid-range studio/OB camera, an automatic model with 2/3-inch tubes; and the TTV-2710 CCD slide scanner. In addition, Thomson will feature its full range of ENG/EFP cameras, including the 1623 Betacam-compatible cameras in Plumbicon and Saticon versions and the 1624 diode gun low-capacitance Plumbicon camera, also Beta-compatible. The full line of graphics systems including the Vidifont V and Viditext II, both with GraphicStore still store/paint option, will also be on view. Viditext II will gain a second channel, expanded memory for font message and animation, and the Vidivote election package. Graphics V will now offer direct dialup access to WSI, ESD, and AccuWeather weather graphics systems.

See ad page 261. Circle No. 267.

THOMSON-CSF ELECTRON TUBE DIV.

3422

Will show its TH-563 tetroid, and the TH-3639A and TH-3717 earth station traveling wave tubes, operating at 160 W and 200 W respectively. Existing UHF, VHF, FM and shortwave tetroids for broadcast transmitters will be shown, as well as Ku-band TWTs for ground station satellite broadcast transmitters.

See ad page 264. Circle No. 271.

TIFFEN

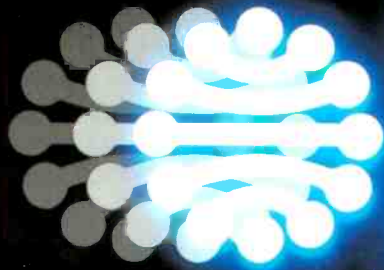
2736

Will unveil a new special effect viewing filter kit containing a viewing filter holder and 50 special effect filters. The full range of special effect filters in a variety of sizes and types will be displayed.

TIMELINE

2686

Will introduce the Lynx Model VSI, compatible with Ampex, CMX, and GVG editing systems, for full control of audio machines from external computers; the Lynx System Controller, a control keyboard/computer for sophisticated production work; and a new



PESA

The "SWAT" * The best engineers assistant.

automatic analysis of all sync parameters of the video signal * video monitor output * local liquid crystal display * two independent video inputs * manual/automatic testing modes * alarm indicators for parameters out of tolerance * self-test software * RS 232 output to feed printer or PC * PAL/NTSC version.

Standard Measurements

Watcher-Analyzer:

- * sync and burst amplitude
- * field period
- * number of lines
- * horizontal sync width
- * number of cycles in burst
- * breezeway
- * number of vertical sync pulses
- * equalizer width
- * vertical pulse width
- * SC/H phase up to two degrees
- * SC frequency error up to 0.2 Hz



Timer:

- * H and V lock
- * PAL lock
- * H delay and SC phase delay between inputs A and B

- * Sync
- * Watcher
- * Analyzer
- * Timer



Pesa Electrónica, S.A.

Albalá, 12 - 28037 Madrid (Spain) - Telex: 48449 PESAE E - Tel: 754 00 78

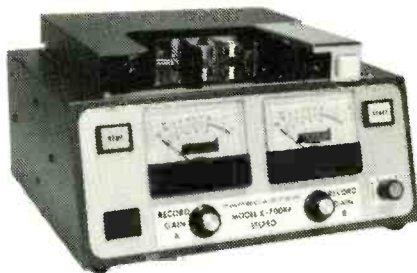
Pesa America Inc. 6073 NW 167th St. - Miami, FL 33015 (USA) - Telex: 6712435 PESAM - Tel: 305-556-9638 - Toll Free: 1-800-USA-PESA

 INISEL Group

The affordable hi-tech.

Circle 243 on Reader Service Card

THE BETTER BUY



Tapecaster Audio Cartridge Units

You can spend more money on your equipment, but you can't buy a more durable, dependable audio cartridge unit.

Tapecaster – the best value for your money.

Tapecaster Hot Line
To order, call toll-free
1-800-638-0977

TAPECASTER

3798 Watman Avenue
Memphis, Tenn. 38118

For service or technical information, call 901-794-6937

Circle 244 on Reader Service Card



DPS-170 Time Base Corrector

New technology yields a price/performance breakthrough in a single, space-saving rack unit. The DPS-170 time-base corrects monochrome and heterodyne inputs for editing, assembly and match framing. Direct-color is achieved with 3.58 MHz feedback to tape player.

The DPS-170 gives you a wide dynamic tracking range of -1 to +3 with clear viewing at up to $\pm 30X$ normal tape speed. You get tape source flexibility, with a 16-line buffered

correction window and RF/TTL selectable drop out compensator input.

- High performance/low cost
- Heterodyne or Direct Colour
- Dynamic Tracking® capability
- Digital Dropout Compensator
- Matched Frame Editing

®Trade mark of Sony Corp

**Scientific
Atlanta**

Digital Video Systems Division

120 Middlefield Road, Scarborough, Ontario
Canada M1S 4M6 (416) 299-6888 Telex 065-25344

Circle 245 on Reader Service Card

office automation software package for recording and broadcast studios. Featured will be the line of time code and synchronization products featuring the Lynx Time Code Module, a reader, generator, and chase synchronizer in a single enclosure.

TOA ELECTRONICS 2498

Will have on hand its shielded A/V monitors, F Series speakers, powered mixers, and condenser mics.

TORPEY CONTROLS & ENGINEERING 2906

Will demonstrate a video display of time and temperature in addition to its range of digital and analog clocks and master timing systems and temperature readings.

See ad page 210. Circle No. 236.

TOSHIBA 3302

Will introduce the brand-new PK-50 camera family, consisting of a 1¼-inch tube studio camera and a ⅔-inch ENG/EFP model. Toshiba is considering reentering the U.S. broadcast camera market and may sell these products directly by the end of this year. Also new is a tiny (less than 1.5 inches in length) color CCD camera with 2 m cable and compact CCU, designed for sports applications (e.g., attached to an umpire's helmet). Other introductions will include a digital switcher with effects and a solid-state Ku-band satellite transmitter/receiver.

See ad page 205. Circle No. 231.

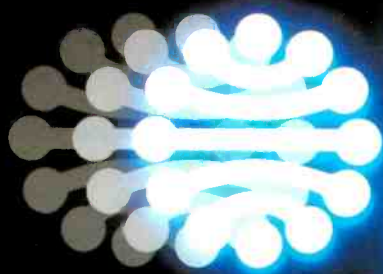
TOWNSEND ASSOCIATES, INC. 3418

Will introduce a new full 15 kW VHF transmitter and a new driver for its UHF transmitter line, featuring a new exciter switcher and new multiplex panel. Videos of recent transmitter installations in UHF, VHF, and LPTV will be shown at the booth.

TRANSMISSION STRUCTURES 2621

Will show the G58 new tower, designed to meet 80/90 docket requirements. The established range of AM, FM, TV, and microwave towers will be promoted, along with tower and antenna installation and inspection services.

TRIDENT (USA), INC. NA



PESA

SIM-4000 Intercom systems for professionals.

high quality audio system * fully microprocessor controlled matrix and terminals * four wire operation * transformer-balanced audio lines * easy expandability up to 32 / 32 matrix (larger systems on request) * customer designed configuration map * ease of maintenance * self-contained rackmountable terminal stations * hands-free microphone operation * RS232 access through terminal to configure matrix in the field * LED colors to indicate matrix status * internal foldback system * external headset connection * high flexibility to interface to any device * large range of accessories *



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 INISEL Group

The affordable hi-tech.

DIGISOUND™

DIGITAL AUDIO STORAGE



Add a New Dimension to Your Station

The Digisound™ Random Access Digital Audio Storage Unit from MEI Electronics provides the reliability and convenience of digital instant random access... with the superior sound quality of digital recording. Audio is digitized and stored on a large capacity disk for instant playback.

At the touch of a button, you select your next spot, song or message track. Instantly, Digisound presents the track with unprecedented audio fidelity, play after play.

What's more, Digisound is a one-for-one replacement for mechanical cartridge equipment.

For a free brochure, call Dave Collins, at 312/295-2606.

Have the Sound of the Future... Today

MEI

ELECTRONICS

910 Sherwood Drive Unit 19,
Lake Bluff, IL 60044

Circle 247 on Reader Service Card

TRIMM **223**
Will show its telephone, audio, and video jacks, jack panels, patch cords, plugs, terminal blocks, and fuse panels.

TROMPETER ELECTRONICS **3346**
Will feature its line of audio and video patching equipment, connectors, and coaxial cable.

TSM/TOTAL SPECTRUM MFR. **3534**

Will have new operating software for the Multi-Controller, a four-camera motion control system for the HS-100P high-speed servo control pan/tilt head system. The new software allows two controllers to operate in tandem for either two-studio control or program/preview mode. Also new will be a zero backlash servo drive for the HS-ZFSLD zoom & focus servo lens drive for the HS-100P. A color camera version of the FCS-20 font compose title stand will also be introduced. Established products on view will include the VS-200M motorized pan/tilt system with full line of controllers, plus the UNI-11-SND uniplexer system.

See ad page 60. **Circle No. 137.**

TVI **2752**
Will show its lines of beaming and lighting control equipment, tracks and rigging, and all kinds of television and studio production equipment, including new Peppers.

TWR LIGHTING **246**
Will add new strobe lights to its existing beacon, controller, and obstruction lights.

ULTIMATE SUPPORT SYSTEMS **2783**

Will unveil a new line of rack-mount stands, a modular parts system for support stands, and a new microphone stand that can be adjusted with one hand. The line of lightweight aluminum, portable tripods, utility stands, Versatables, and mic boom stands will also be featured.

ULTIMATTE CORP. **3552**
Will feature the Ultimatte 5 production matting system and the Newmatte 2 matting system for live broadcast applications.



Digital Dynamics

DPS-175 TBC/Framestore

Crystal vision framestore and full-featured TBC... all in a single rack unit. The DPS-175's 525-line buffered memory freezes frames or fields of incoming monochrome, heterodyne or direct color with a 3.58 MHz feedback to tape source. And you get TBC with wide dynamic tracking range of -1 to +3 and clear viewing up to ±30X play speed.

Synchronous and non-synchronous tape source switching means flexibility and compatibility of tape source, with a 525-line

120 Middlefield Road, Scarborough, Ontario
Canada M1S 4M6 (416) 299-6888 Telex 065-25344

buffered correction window and RF/TTL selectable drop out compensator

- Heterodyne or Direct Colour
- Auto memory diagnostic
- Frame hysteresis
- Digital Dropout Compensator
- Synchronous switching of tape source
- Dynamic Tracking® capability

Scientific Atlanta

Digital Video Systems Division

Circle 248 on Reader Service Card



Rev into stereo- With the remarkable new FP32 ENG Mixer.

Introducing the stereo version of our legendary FP31.

Stereo adds incredible dimension and realism to sports and news coverage. And Shure's new compact FP32 Stereo Mixer makes ENG and EFP applications easy and economical.

Consider these advantages:

- Three transformer-coupled XLR isolated inputs and stereo outputs, all switchable to low-impedance mic or line level.
- Dual mini and 1/4" stereo headphone jacks.
- Built-in slate mic and slate tone.
- Battery phantom, and A/B power (no special power supplies needed).

Plus new stereo advantages:

- Full stereo capability with separate, detented stereo pan pots and monitoring capability.

- Full 48 volt phantom capability.

Size? Only 2⁵/₁₆" x 7¹/₄" x 6", comparable to our FP31. Weight? Just 2¹/₂ pounds. Price? Hundreds less than you would expect. Stereo is here to stay. So is the FP32. For complete information about our full line of field production gear, write or call: Shure Brothers Inc., 222 Hartrey Avenue, Evanston, IL 60202-3696. (312) 866-2553

Circle 249 on Reader Service Card



The new FP42 Stereo Production Mixer — the stereo counterpart to our M267. Four channels with independent center detented pan pots and cuing. Headphone amplifier. Adjustable limiters.

"See us at the NAB Show. Booth 3320".



SHURE

Breaking Sound Barriers TM

IGM...

POSITIVELY SUPERIOR

IGM-SC and IGM-EC ...the Ultimate System Controllers

IGM-SC

- Sophisticated
- Unlimited Programming
- Easy Operation
- IBM PC Controlled
- Full Live Assist
- Highest Audio Specs.

IGM-EC

- Economical
- Syndicator & Satellite Programming
- Easy Operation
- Computer Controlled
- Backed by IGM Service

See us at NAB - Booth 3378 or call (206) 733-4567

IGM COMMUNICATIONS

282 West Kellogg Road Bellingham, Washington 98226

IBM and IBM PC are trademarks of International Business Machines Corporation

Circle 250 on Reader Service Card



DPS-165 Frame Synchronizer

Performance and reliability throughout the studio or headend with a single, space-saving rack unit. The DPS-165's 525-line buffered memory allows synchronous or non-synchronous switching of monochrome or direct color video feeds.

An internally generated test signal with wrap-around capability permits economical testing of system performance. Two RS-170A video outputs are standard, and remote control capability is optionally available.

- Monochrome or Color input.
- Synchronous or non-synchronous switching
- Auto diagnostic memory
- Frame hysteresis
- Two true RS-170A outputs

Scientific Atlanta

Digital Video Systems Division

Circle 251 on Reader Service Card

UNICOL PRODUCTS 2475

Will feature the complete line of trolleys, carts, and stands for A/V and video equipment; fully adjustable video projector stands; video copy stands; wall and ceiling monitor mounts.

UNION CONNECTOR, INC. 2923

Will feature new "Stage Pro" software for its Unitrol lighting control system operating on the Commodore 64 computer. Multi-scene, presetting, chasing, and lighting effects may be achieved. Another new addition will be a 12 kW electrical distribution center, joining a complete line of electrical wiring devices and distribution equipment.

UNI-SET CORP. 2806

Will show its modular studio staging.

UNITED MEDIA 3526

Will premiere the Comm-ette, an A/B roll videotape editor with automatic editing capability; features include 250-event memory, list management with ripple, built-in interfaces for one-inch, 3/4-inch, or half-inch formats, and more. A three-VTR A/B roll system costs \$6990. Established products on view will include the Mini Comm, recently enhanced to an A/B/C roll editor with 500-event memory, and the Commander II, a moderately priced eight-machine edit controller.

UNITED PRESS INTERNATIONAL 3374

Will describe its wire services, radio news networks, and photo services.

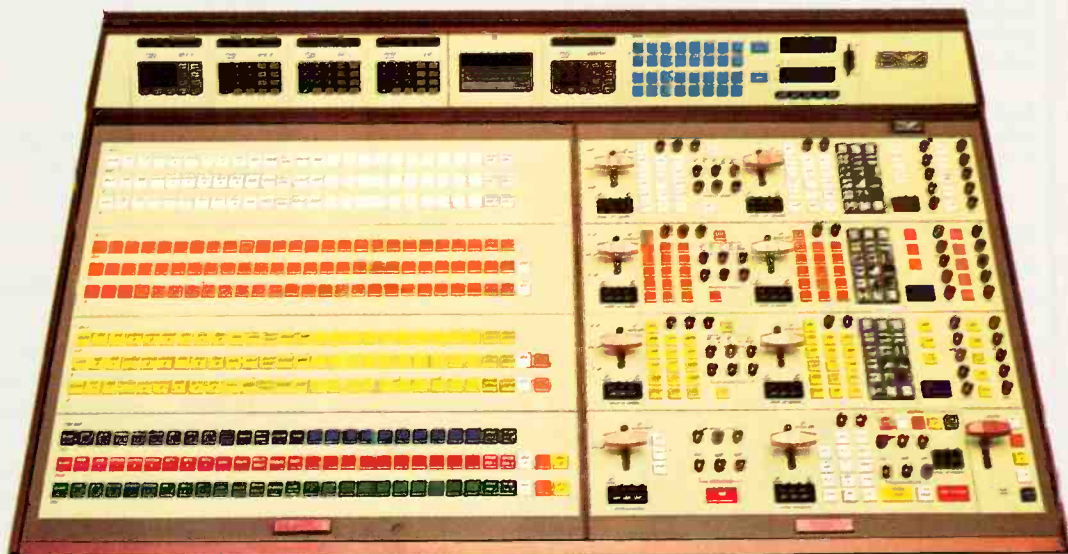
UNITED RESEARCH LAB 3382

Will introduce the ASC reel-to-reel recorder and cassette recorder, in addition to the established line of Autotech recorders and amps, Ampex and 3M tapes, MRL alignment tapes, Ampex replacement parts and motors, and ML-6 coated pinch rollers.

UNITED ROPEWORKS (USA), INC. 2420

Will show the Phillystran HPTG electrically transparent, maintenance-free tower guys and spe-

KEYING POWER. SIMPLE OPERATION. STATE-OF-THE-ART TECHNOLOGY.



That's Vital's **NEW** 3000 Series Production Switcher.

Need more keying power? Try 4 Video Keys, or a Chroma Key plus 4 Video Keys, in each M/E. Plus, all M/E's have separate key inputs with discrete filling signals, permitting 16 self-filled keys in our largest 3000 model. That's our new 3000 Series Production Switcher.

Want simple operation? How about Dual Handlebars, two Auto Transition Units, Simul-Key System for multiple key entries and exits, plus automatic key set-ups in memory for instant access. That's Vital's new 3000 Series Production Switcher.

And state-of-the-art technology? Compare our 3000 Series with any other production switcher in the market. If you can find a better one for less, buy it! Currently the 3 Mix/Effect switcher sells for only \$175,000. This is VITAL's top of the line production switcher—one so fully-loaded that the only option is the stereo audio-follow-video package.

And don't forget SAM... the most advanced station automation system in the world!

Magic. WHEN YOUR WORK HAS TO BE PICTURE PERFECT

Vital's MAGIC. A new approach to Digital Video Manipulation that combines operating ease and high video quality.

The secret? Human engineering. With MAGIC, simple, logical operations produce perfect picture quality and easy effects generation.

And state-of-the-art technology gives you a built-in hard disk for rapid recall of pre-programmed effects. Plus a micro-floppy disk for "walk-away" storage and future software updates.

MAGIC. It will change the way you view video production. And only Vital has it.



*Creating Modern Tools
For Creative Minds.*

VITAL INDUSTRIES, INC.

For more information call toll free 800-84-VITAL (U.S. only)

MAIN OFFICE: 3700 N.E. 53rd Ave., Gainesville, FL 32601 (USA) • Tel.: (904) 378-1581 • TWX 810-825-2370 • TLX 80-8572 Vital-A-Gain

Circle 252 on Reader Service Card



PRO

BATTERY

MAKES NEWS EVERYDAY!

CNN	WPLG	WTBS	KCNC
KTVY	WXFL	KING	KSL
WGBH	KCRA	KOMO	KSLA
WAGA	KRON	KABC	WDSU
KDFW	KGO	WTAE	WPIX
WBBH	WCBS		

Just a few of the 650 news operations that choose PRO as their ENG power source.

WHY?

Because PRO Batteries last longer!

PRO Batteries have matched cells for quality, color-coding for crew identification and are personalized with station call letters.

Go with the PRO!



A division of

Provisional Battery Co., Inc.
3941 Oakcliff Industrial Court
Atlanta, Georgia 30340
(800) 451-7171 (404) 449-5900

Circle 253 on Reader Service Card

NEW . . ON SPOOLS



5" AIR-DIELECTRIC
HELIAx®
CABLE

Nominal Size 5"
Impedance, ohms 50
Type Number HJ9-50
Outer Conductor Copper

Twenty Spools - 500 ft. ea.

Maximum Frequency, GHz	0.96
Velocity, Percent	93.1
Peak Power Rating, kW	765
Dia. Over Jacket, in. (mm)	5.20 (133)
Min. Bend Radius, in. (mm)	50 (1270)
Cable Weight, lb/ft (kg/m)	3.3 (4.9)



3500 ELM AVENUE
PORTSMOUTH, VA 23704
Phone 804/399-4071
TELEX 82-3469

Circle 254 on Reader Service Card

cially designed systems for high-power applications.

UNIVERSAL ELECON 152

Will debut the Model 7700 editor, which can use either the 7100 driven keyboard or CMX and ISC-style keyboards. Also new will be the EM 7924 coincidence comparator, a time code reader which upgrades a small editor by accepting up to five separate time code sources. Plus there will be the U.VAS 5521 audio editor which can sync audio to video or video to audio.

U.S. AUDIO, INC. 2747

Will show the new Gatex model 904, single channel version of Gatex four-channel noise gate/expander designed to be housed in and powered by the dbx F-900 powered frame. A mode-select switch permits "hard" noise gating, 1:2 expansion, or unobtrusive noise reduction. Can also be used in a "keying" mode, allowing external signal to trigger gating or expansion action. Also new is the Leveller, a two-channel audio signal processor. Attack and release controls are automatic and adjust to demands of the material being processed. Featured products include the Gatex four-channel noise gate/expander with new Valley People TA-104 voltage controlled amp.

U.S. TAPE AND LABEL 2723

Will show its promotional bumper stickers and window labels.

UTAH SCIENTIFIC 3144

Will introduce a range of new products, including the SMC-1 serial machine control; the VDA-9BDL video DA with custom delayed and nondelayed outputs; the VDA-4x2B video DA for the AVS-1B router; the VDA-8B eight-output video DA; the CSP-30/4 four-level, 30-source, button-per-source, single-bus router control panel; the CX-30/4 30-button extension (to 60 sources) of the CSP-30/4; color automation and other automation enhancements and AVS-1B reprogramming enhancements; a new line of two-level reprogrammable control panels; and a new standardized communication system (LAN). Established products will

include the AVS-1B routing system, the PLMC-1 machine control system, the SAS-1B station automation system, the ADA-8B audio DA line, and the MC-500 master control switcher.

See ad page 188-189. Circle No. 215.

UTILITY TOWER CO. 3485

Will show actual tower sections for AM, FM, TV, CATV, and MW communications.

VALENTINO MUSIC LIBRARY 3465

Will show music and sound effects libraries on CD.

VALLEY PEOPLE, INC. 2747

Will introduce the Model 415 Dual DSP, dynamic sibilance processor, differs from de-essers because it does not react to normal "ss" or "x" sounds, only removes the sibilant or whistle present without affecting the high frequency content; also the Model 815 DSP single-channel version of DSP housed in and powered by Valley People 800 Series rack enclosures. Link switch for two to be used in tandem for stereo; and the Model 400 Mic Processor single-channel processor which accepts single low impedance mic input, then boosts signal to line level for processing through the two-band shelving EQ section. Also featured will be the PR-10, cost-effective powered rack which provides power for up to 10 of 800 Series processing modules in 5¼ x 19 inch space; the PR-2 cost effective powered rack to house and provide power for same but in a horizontal 1¾ x 19 inch rack space; the 800 Series Processing Modules; 400 Series Signal Processors; and the Model 610 dual compressor/expander.

VARIAN ASSOCIATES 3206

New from the Microwave Tube Division will be a range of satellite uplink transmitting klystrons and UHF TV klystrons. The Microwave Equipment Division will show a modular power supply, and medium- and high-power amplifiers. Varian EIMAC will show a host of power grid tubes and two Klystron tubes, as well as a variety of cavities, low-frequency triodes, medium-frequency tetrodes and pentodes, and high-frequency and switching products.

Time is on your side with ADS-1.



**Full broadcast quality at
16 to 30 fps with 16 or 35mm film.**

ADS-1 is the only telecine designed specifically for broadcasters. It lets you compress film running time by as much as 25% without any unacceptable video side-effects. With this far superior technology, you'll never again have to cut scenes or suffer from picture degradation.

ADS-1 is fully compatible with 16 or 35mm film to give you the increased aesthetic impact that only 35mm can offer. You can also take advantage of the optional exclusive dirt/scratch concealment system and an automatic color corrector.

Rank Cintel is the world's only specialized manufacturer of telecine equipment. Backed by more than four decades of experience, you'll be glad to have ADS-1 on your side. For more information just call Rank Precision Industries at (914) 353-1914; (215) 886-9817; (609) 953-1331; or (818) 765-7265.

VEAM **2559**
Plans to introduce a new line of fiberoptic connectors, plus the Active Interconnect for easy interface with printed circuit equipment. Will present its regular lines of multi-pinned cylindrical connectors for light and sound applications.

VERTEX COMMUNICATIONS **208, 209**
Will introduce a 3.1 m Ku-band antenna with receive-only prime focus feed system, gain at mid-

band 49.6 dBi, and beamwidth - 3 dB .60 degrees. Sidelobes meet the 29.25 log theta dBi curve FCC 81-704 ruling. It is designed to provide high quality video in high winds and harsh conditions. Also will introduce a 1.8 m fly-away antenna.

VIDCOM INTERNATIONAL **225**
Will show its computerized BAT system for station billing, accounting, and traffic.

VIDEO AIDS OF COLORADO **175**

New products will be the PG-2PC color pattern generator, featuring five patterns and blackburst or multiburst output; Model SS10VA-2PC, a 10x1 sequential switcher with audio follow and alarm; a low cost, universal DA; and video line isolator to remove dc bias and grounded loop problems. Regular line includes broadcast quality video DAs, fault indicators, color sync generators, video squelch, RF power switchers, burst phase meters, cross pulse generators, black burst generator chip, and portable intercoms.

VIDEO ASSOCIATE LABS **3330**
Will feature its Microkey add-on board for NTSC output from Apple and IBM computers for graphics applications.

VIDEO INTERNATIONAL **2754**
Will introduce three new digital standards converters, the DTC 2500, DTC 3500, and DTC 4500 with four fields and RGB inputs. The TBC 3000 time base corrector will also be featured.

VIDEOLAB **210, 211**
Will present its time code refit for Sony Type 5³/₄-inch VTRs, allowing record, playback, and edit using address-track time code. A new feature is a zero offset, making it identical to BVU-800 time code. Also new will be a fast shuttle retrofit for up to 20X speeds with 60-minute cassettes; a VO-6800 time code retrofit; and a Type 5 balanced audio module.

VIDEOMAGNETICS **2725**
Will introduce a random-access cassette changer for station automation and video applications. The quad and one-inch video head rebuilding service will be described.

VIDEOMEDIA **3558**
New products will be announced at the show. Established products will include the Eagle XR low-cost A/B roll editing system; the Eagle I, II, and III upgradable editing system line; the top-of-the-line Magnum A/B roll editor with disk operating system, V. 2.0 expanded list management, CMX translator, and slow motion; the VMC-200 station automation system; the VMC-202 traffic control system; the VMC-260 FSK encoding station; and the VIDAL vertical interval commercial verification system.

VIDEOTEK, INC. **3316**
Will announce the VSM-60 broadcast vectorscope, HR-190 19-inch high-resolution broadcast master color monitor, APM-8RS eight-input audio program monitor with four stereo inputs, and AVM-13s 13-inch color monitor with audio. Its line of color monitors, waveform monitors, routing switchers, sync generators, distribution amplifiers, audio program monitors, and demodulators will also be present on the booth.

See ad page 63. **Circle No. 140.**

VTS MUSIC **206**
Adding to its lines of promotion and production music for radio and television, will introduce all new material in the Digital Production Library on CD (and albums), and will debut Versatracks, a new library primarily for television.

SPECIAL OFFER

ACADEMY AWARD WINNING TULIP CRANE by MATTHEWS

~~\$39,650~~

\$28,800

*1 Yr. terms interest free

Circle 256 on Reader Service Card

Exclusively from

ACADEMY LEASING

(213) 849-1525

Offer good while supply lasts. Comes with single seat converter and hard studio wheels. Other accessories and weights not included.

NEW for CCD micro-cameras:

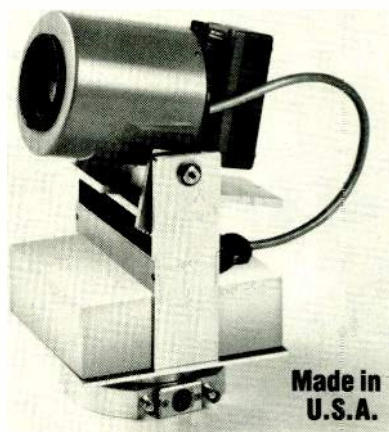
PAN/TILT TABLE

ONLY 6"Hx6"Wx6"D

- small size mounts in tight spot, right side up or upside down
- continuous 360° rotation
- remote total camera, zoom lens, table joystick-controlled up to 1 mile
- 12v. powers camera, zoom lens, table, rugged all-metal/wt. under 10 lbs

Call (201) 423-0347 for details

Telemetrics Inc.
7 Valley St. Hawthorne, N.J. 07506



Made in U.S.A.

See Telemetrics... at NAB Booth #2569

Circle 257 on Reader Service Card



Yes – An Audio Analyzer.

The RE201 Dual Channel Audio Analyzer looks and performs like no other audio analyzer. The functions of distortion analyzers, audio generators, wow and flutter meters, frequency counters, and voltmeters are all combined in this instrument.

The RE201 measures:

- Level: True RMS (selective bandwidth), Peak, Quasi-peak, Average DC
- S/N: weighted and unweighted
- Harmonic distortion
- SINAD
- Difference Frequency distortion (DIN std.)
- Intermodulation distortion
- Transient Intermodulation distortion
- Frequency and Drift
- Phase and Phase Drift
- Separation and Crosstalk
- Rumble
- Wow and Flutter

Performance The RE201 delivers speed and test diversity without compromise in performance. For example, harmonic distortion below 0.001% (–100dB) and single harmonics down to 0.0006% are guaranteed specifications.

Speed The operating system of the RE201 allows any of 100 complete test setups to be recalled with only a few keystrokes. The speed table demonstrates measurement time under IEEE-488 bus control.

Measurement	Time to first result (seconds)	Measurements per second	
Level Peak	0.35	Frequency > 50 Hz	3.6
Level RMS	0.17		47.6
Level Selective	0.35	Bandwidth > 600 Hz	5.3
Weighted Noise	3.30	Level > 1 mV, CCIR468-2	1.2
THD	0.40	Frequency > 500 Hz	4.0
		THD > 0.1%	
SINAD	2.50	Frequency > 200 Hz	0.4
		SINAD > 0.1%	
DFIM	0.37	Diff. frequency > 500 Hz	4.4
IM	0.4	Low frequency > 500 Hz	4.9
TIM	0.39		4.2
Frequency	0.34	Frequency > 200 Hz	5.4
Phase	1.0		9.1
Separation	0.65		1.8
Wow & Flutter	3.6	W&F > 0.2%	0.8
Signal	Setup Time (seconds)		
Sinewave	0.1		
Multitone	2.6	10 Hz resolution	
	0.43	100 Hz resolution	
	0.21	1000 Hz resolution	
TIM	0.013		
1 kHz reference	0.09		
Level change	0.09		

Adaptability Matching the RE201 to your individual application is easy through the use of available options. The instrument has proven itself through a wide range of applications from testing CD players, to quality control in radio manufacturing, to helping broadcasters meet required standards.



RE201 available options

The RE201 is a complete audio test system in one instrument. Write or call us today and find out why all audio analyzers should look like the RE201.

RE INSTRUMENTS Corp.
RE INSTRUMENTS AS
RE INSTRUMENTS GmbH
RE INSTRUMENTS Ltd.

31029 Center Ridge Road, Westlake, Ohio, 44145, USA (216) 871-7617
 Emdrupvej 26, DK-2100 Copenhagen Ø, Denmark +45 118 44 22
 Dürener Strasse 17, D-5170 Jülich, West Germany +49 02461/4147
 Sherwood House, High Street, Crowthorne, Berkshire RG 11 7AT
 United Kingdom (0344) 77 23 69

saRE INSTRUMENTS

140 Avenue Pablo Picasso, 92000 Nanterre, France +33 1 47 78 74 92



Licensed agents in more than 30 countries throughout the world.

VIKING CASES

2757

Will show its shipping and carrying cases for TV and radio broadcasting equipment.

VITAL INDUSTRIES

3191

Will bring two new products to their first NAB: the 3000 Series production switcher, with one, two, or three double-level M/Es, each capable of simultaneously airing up to five separate keys; and the Magic digital video manipulator with touchscreen controller and three-axis trackball. Also on view will be the VIX-115 Series on-air master control switchers and the SAM station automation systems.

See ad page 223. Circle No. 252.

WARD-BECK

3060

Will introduce the Model R1400 and R2200 radio audio consoles, along with the RS8024 stereo routing switcher. Also to be shown are the R1000 radio console, T1202A transportable production console, ST2442 and ST3642 stereo TV consoles, D8212 DA as-

sembly, the M600 Series DA, M405 Series of extended range meters, M7000 intercom system, and MicroCOM intercom system.

See ad page Cover 4.

WAVEFRONT

247, 248

Will introduce the following three module software for 3D animation: Model for modelling, of course; Preview for 3D dynamic animation; a rendering package called Image.

WEATHERBANK

2930

Will display WeatherCheck, its satellite-delivered weather information service.

WEGENER

COMMUNICATIONS

2760

New digital audio terminals will join its range of equipment to distribute audio and data over satellite and microwave systems and network controller.

WHEATSTONE CORP.

2400

Will introduce the AP500 on-air and production console which

combines the features of both plus "on-board" signal processing, input mode selector, total logic and multistudio to control room interface. Remote controls for cart and multitrack tape machines available. Client specified frame sizes and configurations available. Featured products include the Wheatstone SP-5 stereo production console with mono and stereo inputs offered, along with stereo subgroups, multitrack routing and matrix submixing; and the Wheatstone A-500 "on air" console.

See ad page Cover 3. Circle No. 230.

WHEELIT, INC.

2478

Will feature its IFP-20, EFP-17, and S-4218 video camera carts.

WHIRLWIND

2643

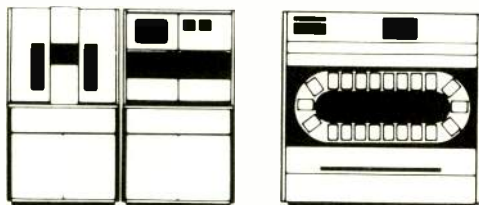
Will show interface cables for audio and video.

THE WILL-BURT CO.

2587

Plans to show a new series of light duty masts measuring 20, 27, and 34 feet that are designed primarily

ME-318 Stereo Sound



FOR ACR & TCR QUAD CARTS

VISA

Vertical Interval Stereo Audio

Upgrade any ACR or TCR to record and play stereo audio without transport modifications.

Separate encoder and decoder modules are used; multiplexing the two stereo channels into the vertical blanking portion of the video signal in Record and retrieving them during Playback.

MERLIN



MERLIN ENGINEERING WORKS

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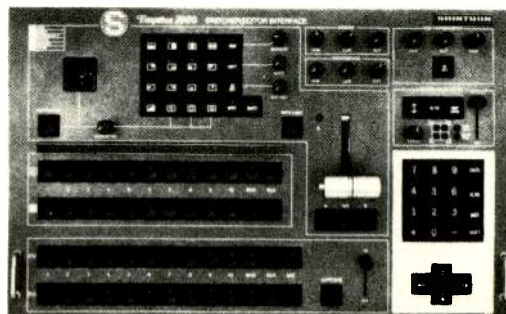
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See us at NAB Booth # 3408

Circle 260 on Reader Service Card

THE LARGEST SWITCHER FROM THE LEADER IN COMPONENT VIDEO



EMPRESS C2000 Component Switcher

- 12-Inputs, Transition Bus Type
- EMPRESS Multiple Event Memory
- DSK with Shadow/Border & Chromakeyer
- Interface to Convergence, EECO, ISC, Paltex, Horizon
- Optional DVE
- ORANGE Bus Compatible (RS-422)



SHINTRON

144 Rogers Street, Cambridge, MA 02142

(617) 491-8700

A CARING COMPANY

Circle 259 on Reader Service Card

Tracking down the sound Audio Analyzer UPA



the high notes of our audio specialist:

- frequency range 10 Hz to 100 kHz, 3 Hz to 300 kHz (-3 dB)
- voltage range <math>< 10 \mu\text{V}</math> to 300 V with 1 μV resolution
- distortion <math>< 0.003</math> to 100 % or -90 to 0 dB
- wow & flutter 0.003 to 5 %

Audio Analyzer UPA is the intelligent answer when you need a system-capable psophometer with integrated frequency counter. With options you can turn it into a complete audio test setup, with weighting filters for every application.

Write or call for full details of UPA Audio Analyzer

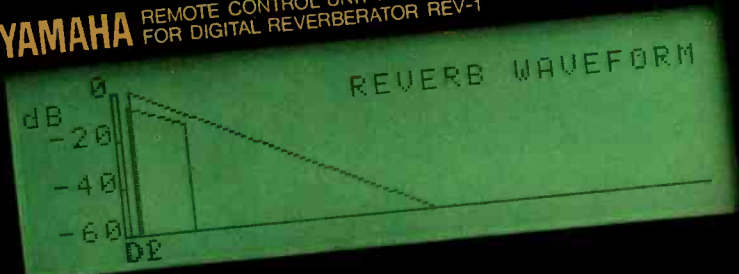


ROHDE & SCHWARZ
polarad

Rohde & Schwarz-Polarad, Inc., 5 Delaware Dr., Lake Success, N.Y. 11042
Tel: 516-328-1100 TWX: 510-223-0414

Create a room

YAMAHA REMOTE CONTROL UNIT RCR-1
FOR DIGITAL REVERBERATOR REV-1



DISPLAY
W/F F/C R/T RATIO
E/R REV P/S M



HPF LPF
400 10K
200 8K
100 6K
50 4K

REV. TIME (R/T)
2.5 sec
MID-LOW

E/R MODE
1 2 3 4
5 6 7 8



E/R NUMBER
AUTO
LIVENESS
E/R DELAY 1 (D1)
40 ms

REV. MODE
1 2 3 4
5 6 7 8



4K 2K 1K
MID-HI
500 250 125
LOW
REV. DELAY 2 (D2)
58 ms
AUTO

PRESET
1 2 3 4
5 6 7 8

PANEL
P EDIT AUTO

MEMORY
67
M STR RCL

FUNCTION
R/T D1 D2 M

7 8 9
4 5 6
1 2 3
0 CLR
UP DOWN ENT

ON
DIRECT

AUTO
ON
EARLY REFLECTION

AUTO
ON
REVERBERATION

ON
MASTER

with a view.

We'd like to open your eyes to the incredible REV-1 digital reverb. Because it gives you unheard-of control over virtually all reverb parameters. And something that has never been seen in any type of reverb: the capability to "look" at the sound as well as hear it.

The remote unit that controls the nineteen-inch rack-mountable unit has a lighted high-resolution LCD display that graphically depicts the results of the adjustments you make.

So getting just the right reverb sound is no longer a question of trial and error.

The logical grouping of the parameter controls on the remote also makes it easy to create any effect you like. Then store it in any of 60 memories for instant recall.

The remote also contains 9 additional RAMs so you can store programs and carry them with you to use anywhere there's an REV-1.

And there are 30 additional ROMs with factory preset sounds. Many of which can be completely edited (as can the user-programmed sounds) by using the LEDs to tell you the set value or indicate in which direction to move the control so you can easily and precisely match the value of the originally programmed sound.

And the sound itself is far superior to any other digital reverb. The REV-1 uses specially developed Yamaha LSIs to create up to 40 early reflections and up to 99.9 seconds of subsequent reverberation. So the effect can be as natural (or unnatural) as you want it to be.

We could go on about the REV-1. Tell you about its 44.1 kHz sampling rate that provides a full 18 kHz bandwidth to prevent the natural frequency content of the input signal from being degraded.

How it has a dynamic range of more than 90 dB for the delay circuitry and more than 85 dB for the reverb circuitry.

But why not take a closer look at the REV-1 at your authorized Yamaha Professional Audio Products dealer. Or for a complete brochure, write: Yamaha International Corporation, Professional Products Division, P.O. Box 6600, Buena Park, CA 90622. In Canada, Yamaha Canada Music Ltd., 135 Milner Ave., Scarborough, Ont. M1S 3R1.



"EARLY REFLECTION" display mode showing room size and relative level and time of discrete reflectors.



"REVERB DENSITY" display mode showing level and relative time of subsequent reverberation.



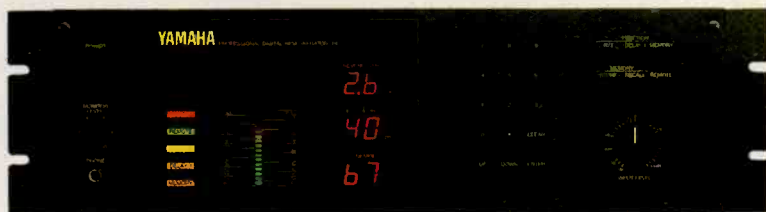
"REVERB TIME" display mode showing difference in reverb time in each of four frequency bands.



"MEMORY TITLE" display showing the titles of internal ROM memories.



YAMAHA



ly for radio ENG. Also will show its heavy duty 30-, 42-, 52-, and 58-foot masts for ENG and SNG.

See ad page 22.

Circle No. 114.

WINSTED CORP. 3424

Will premiere the E4950 mini console for half- and 3/4-inch tape editing and a modular editing console for half-inch Betacam tape. Existing space-saving tape and film storage systems, editing consoles for a variety of tape formats, and equipment racks and cabinets will be on show.

See ad page 281.

Circle No. 280.

WIREWOKS CORP. 2401

Will premiere a new cable reel, designated CR-107, as well as design kit literature featuring the company's range of mix-and-match multipin components.

WOLD COMMUNICATIONS, INC. 2606

Will be offering its range of services for electronic expediting of radio and TV satellite transmissions, and featuring its new Station Connection direct conduit

service to TV stations for a variety of uses.

WOLF COACH 3541

Will be showing and discussing its developments in SNG and ENG vehicles with new rackmount configurations, power systems, and noise-suppressed generator packages.

WORLD TOWER CO., INC. 2814

Will feature its line of tower sections for AM and FM antenna towers.

WSI CORP. 1631

Will demonstrate its new Astro-WX weather system, consisting of three new products: ASTROfax automatic, instant printouts of official NWS facsimile maps and charts; ASTROgraphics weather graphics and satellite images in-

cluding CLOUDSplus, a nationwide satellite image of the clouds; and ASTROdata, a customized selection of data from NWS, FAA, the World Meteorological Organization, and others.

ZELLAN OPTICS 2477

Will feature the latest models of the CamRail monorail camera movement system; the Kingsway matte box; the Aaton FDT (film data track) time code system; the Widefinder video camera viewfinder attachment to magnify the image; the Betaheater heating device for Beta recorder/camera systems to maintain operating temp; and Cooke lenses.

ZONAL LTD. 2586

Will introduce the 675 Series of audio mastering tape for a multi-track range from 1/4 through two inch. Also will show its 900 Series magnetic recording film with clear edge and stripe in 35 mm, full coat in 16, 17.5, and 35 mm. The company also will discuss its full range of other recording media.

FOR MORE INFORMATION on products advertised in this issue, use the Reader Service Card inside back cover.



Merlin ME-888 Standards Converter for ALL world video standards

- Automatic conversion between all world television standards — NTSC, PAL, SECAM, PAL-M, PAL-N and NTSC 4.43.
- Digital image processing — color correction, noise reduction, H & V detail enhancement
- Multistandard TBC, color bars, frame synchronization and freeze frame.



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 TOLL FREE (800) 227-1980

See us at NAB Booth # 3480

C•ED +



- CONTROLS 6 VTRS MACROS
- BLOCK MOVES SYNC ROLL
- RENUMBER MASTER SLAVE
- ... AND MORE



NAB BOOTH 149

Call or write:

CALAWAY ENGINEERING

49 SOUTH BALDWIN AVE. / P.O. BOX 323
 SIERRA MADRE, CA 91024 (818) 355-2094

Circle 264 on Reader Service Card

CAMERA MART. **WE'RE 50 YEARS YOUNG.**

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The **CAMERA MART** Inc.
50
YEARS

1936 - 1986



THE CITY OF NEW YORK
OFFICE OF THE MAYOR
NEW YORK, N.Y. 10007

January 28, 1986

Mr. Samuel "Chick" Hyman
Mr. Paul Meistrich
The Camera Mart
456 West 55th Street
New York, N.Y. 10019

Dear Mr. Hyman and Mr. Meistrich:

It gives me great pleasure to extend my congratulations to you on the Fiftieth Anniversary of The Camera Mart.

From its beginnings as a small professional camera store, The Camera Mart has grown to become one of the most respected purveyors of professional equipment and one of the most highly regarded production facilities in New York City.

Concerned with the future of the industry, The Camera Mart has always recognized and assisted the up and coming as well as the established - as evidenced by your annual award to student filmmakers.

An integral part of the motion picture and television industries in New York City, The Camera Mart has played an important role in bringing New York City to the tremendous position of prominence it now enjoys.

I applaud this milestone of The Camera Mart, and wish you continued success in the future.

All the best,

Edward I. Koch
M A Y O R

Camera Mart: Fifty Years of Growth

1986 marks the 50th anniversary of The Camera Mart, Inc., an institution whose growth has paralleled the growth and development of the motion picture and video industry.
by William Winston

The early days

When Irving and Sam Browning, two professional photographers, founded the Camera Mart in 1936, neither they, nor anyone, could have envisioned its growth over the next fifty years. Their small shop on West 40th Street has grown to a company occupying 30,000 square feet in its headquarters on West 55th Street, approximately 90,000 square feet at the Fox building housing two large sound stages, the video and lighting rental departments, and the 10,000 square foot lighting and grip department at the Astoria Studios complex. Today Camera Mart employs more than 130 people in its New York locations and in three regional sales offices across the country.

It's not just the size of Camera Mart or the number of people in the company that is important, but rather how it kept pace with and the contributions it made to the growth of the industry itself, that makes this story worth telling.

The early Camera Mart bought, sold and exchanged used motion picture equipment through the end of World War II.

Camera Mart to the industry. After the death of the Browning brothers, Chick, Paul and Anna Browning assumed the management of the company in 1962 which at that time occupied 4,000 square feet and consisted of three principals, Chick as President, Paul as Vice President and Anna as Treasurer. By this time Camera Mart had developed a line of accessories known as Camart Products and which included a sound-proof blimp for the hand-held Arriflex 35mm motion picture camera, a portable mike boom, portable studio type camera dollies, a prism system which created multiple rotating images right in the camera, and Chick had developed the Add-A-Unit Extension plate for the Moviola film editing machine which provided a practical method of adding sound heads for editing multiple sound tracks. The company was well based in renting editing equipment and began to expand into camera and lighting departments.

The new frontier

One of the first projects undertaken by the new Camera Mart was to organize a six day seminar in motion picture editing methods and technology, attracting more than 600 editors from around the country and tied it in with an equipment exhibit supplied by the equipment manufacturers.

Since television news required so much editing equipment, it was a short step to supply them with cameras and portable lights and batteries for their news crews. In 1963 Camera Mart received one of the largest equipment orders at that time, more than \$250,000 to equip ABC's expansion of its domestic and foreign news bureaus. How did Camera Mart, at that time one of the smallest equipment suppliers in the city, get to handle an order of this stature? Well, first Chick and Paul stayed up all night in figuring their bid down to their lowest possible cost, worked with vendors on volume discount and cash terms, approved overtime to meet deadline shipping dates, worked with their crews intensely in



Samuel Hyman, a nephew of the Brownings, and known as "Chick" throughout the industry, joined the company in 1946 selling and repairing camera equipment. Paul Meistrich came on board in 1949 with merchandising and marketing expertise and together they began to expand the services of



checking and assembling the equipment, supervised the packing and shipping, and even swept the shop when the order was done and gone.

Later in the 60's as the rental department rapidly expanded, their clients began to look to them for more sophisticated production equipment. Notes Shelly Brown, a 20 year plus

Camera Mart veteran, "My customers felt that if we did so well with the lightweight portable end of the business, they would like to see us service them in the studio end of the business. So before long we were into Mitchell 35mm BNC cameras, Elemack dollies from Italy, Ronford fluid tripods from England, Nagra sound recorders from Switzerland, and we became a full service rental supply house."



This move into studio equipment caused a like expansion into heavy duty lighting equipment and despite innovations of smaller high intensity quartz and halogen lights, Leo Rosenberg another 20 year plus veteran remarked, "I remember that our entire rental department was housed in a ten foot by fifteen foot area and now was push-

ing out the walls."

Increasing sales and rentals required not only more personnel in these areas but also maintenance and repair technicians to service the equipment, more work benches, more desks, more space; so Camera Mart relocated to their present headquarters on West 55th Street.

From film to video

The advent of Cinema Products CP-16 camera further advanced Camera Mart's involvement with network news bureaus as well as documentary film producers. In the early 1970's when the shift from film to tape became evident, as Chick Hyman recalls, "we began getting calls for EJ or ENG equipment as it was called then, and since equipping the television news people was a major part of our business, we went right along with them."

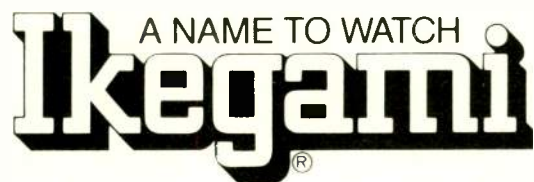
"This required a major commitment on our part," Paul Meistrich remembers, "a commitment in equipment, in engineering and technical support, in test equipment and shop facilities. The investment was a tremendous one for us, but we had the confidence in our industry and our timing was right on the button."

One of the first motion picture equipment suppliers to swing into the videotape business gave rise to their CMTV video operation as it got to be known throughout the industry.

An early dealer for Ikegami video cameras and products, Camera Mart very quickly began to represent Sony Industrial

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for another 50 years!*

VIDEOTEK



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continued success
and a future filled with
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and accomplishments.**

and Broadcast divisions, Panasonic, Microtime time base correctors, Tektronix, Grass Valley, Convergence, and many other of the well known video equipment manufacturers. Leo Rosenberg, who promoted the rental department of Camera Mart, noted that "Our cameras were tweaked to superior performance by our in-house engineers so that when our network users rented them, they saw that our cameras frequently produced better results." By the late 70's Camera Mart's CMTV department was already well known and was equipped to handle such jobs as coverage of the OP-SAIL procession of tall ships for our Bi-Centennial celebration, ABC's Fall Re-election campaign coverage, lighting Madison Square Garden for the Democratic National Convention, covering the primary campaigns of the presidential hopefuls, the release of the hostages from Iran, Pope Paul's visit to New York, the Van Cliburn piano competition in Dallas, and camera coverage on most major sports events.

An integrated sales approach

The sales department at Camera Mart is under the direction of Jeff Wohl who states that "the areas of responsibility have been assigned to capable individuals best equipped for each of those areas, so that Shelly Brown is responsible for network sales, Herb Browning for government and state sales as well as his regional offices, Quent Nelson for industrial video and Jean Yacobellis for broadcast video, Ana Ma-

ria Sagastegui for international sales. We meet frequently and compare notes and together with Shimon Ben-Dor who backs all of us up with repair and maintenance and system construction, we form a well integrated team." The sales force meets whenever a manufacturer brings out a new product, it's demonstrated in their video demo room, it's checked out by the service department, it's circulated through the industry by way of the rental department, they get feedback from the client and pass it along to the manufacturer. Thus Camera Mart fulfills the role of a clearing house for new products and acts as an intermediary between the manufacturer and the user. This also gives the manufacturer an oppor-



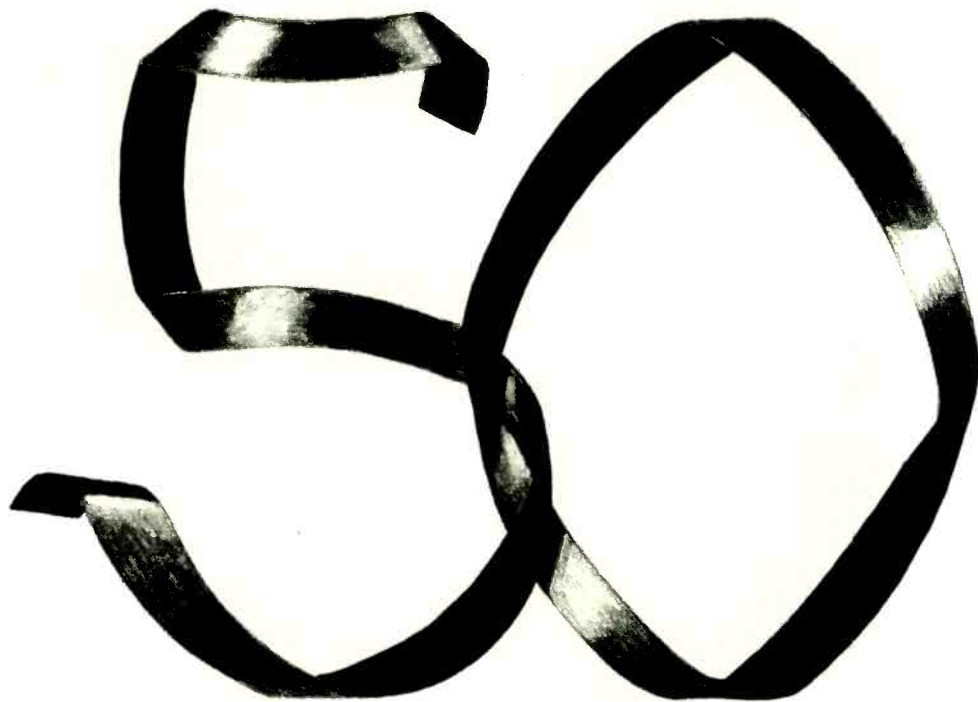
tunity to learn first hand from end-users how well their product will be received and if there is any room for improvement.

The sales department is divided into several areas. When you first walk into the well lighted display showroom on

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West 55th Street, you are greeted not only by a smiling Steve Gaeta, the showroom manager, but by a vast display of gen-



eral motion picture and video equipment. Steve and his showroom crew make every effort to help the client make his

selection. Should the client need engineering assistance, he is referred to the CMTV Broadcast Video center nearby where he meets with Quent Nelson or Jean Yacobellis depending upon the video area which concerns him the most.

The customer is questioned as to his immediate and long term goals and upon consultation with our engineering staff, the equipment selection is made. This is done partly by having access to the wide variety of equipment available through the demo room in the video center or through the video rental



department. The customer has an opportunity to use the equipment or receive training or may even rent it for a short period to make sure this is best for him. If systems are required, he sits with engineers. Equipment is eventually packaged or built to his specs, delivered, and accompanied by training on site if need be and eventual follow up to make sure everything is as it should be. Quent and Jean have consulted and sold production and post-production systems for such clients as Grumman Aerospace, J.C. Penney, Hewlett

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Camera Mart's further involvement with the industry is obvious in its participation in the major professional trade associations such as the National Association of Broadcasters (NAB) and the Society of Motion Picture and Television Engineers (SMPTE) being sustaining members of both organizations. Attendance and exhibiting at each of these annual conferences keeps Camera Mart in contact with all the manufacturers and their new product lines thus making this information readily available to their clients.

They also publish two catalogues each year which are distributed at the NAB Conference in the spring. The Video sales catalogue is a veritable encyclopedia of every major manufacturer and lists every important item and accessory for the broadcast and industrial market. The Rental equipment catalogue released at the same time is the standard in-
ble listing every item available for rental. Visitors to Camera Mart's exhibit areas at both conferences are quick to ask for their copies of these well known catalogues. The national trade shows are usually a meeting place for their international clients at their exhibit area under their orange and black logo. This division under the direction of Ana

Maria Sagastegui attracts many visitors from Central and South America and the Caribbean. Combining her technical expertise, her language fluency and her warm smile, she flits back and forth between the Camera Mart exhibit and any other manufacturer's exhibit to help her client make a choice or to answer any question he may have. Back home in New York, she keeps in contact with them with her Newsletters in Spanish every other month, and by Telex and telephone. She has sold production and post-production systems in almost every Latin American country.

Designing a multi-million dollar system

One of the largest systems engineered by Camera Mart to date was a multi-million dollar production and post-production center for Emivisa in Mexico. The integrated Camera Mart team approach began with a meeting between the client and Ana Maria who brought in Chief Engineer Jesse Diaz and Shimon Bendor who heads up the system construction team. The resulting system consisted of the field production units of four Ikegami EC-35 Electronic


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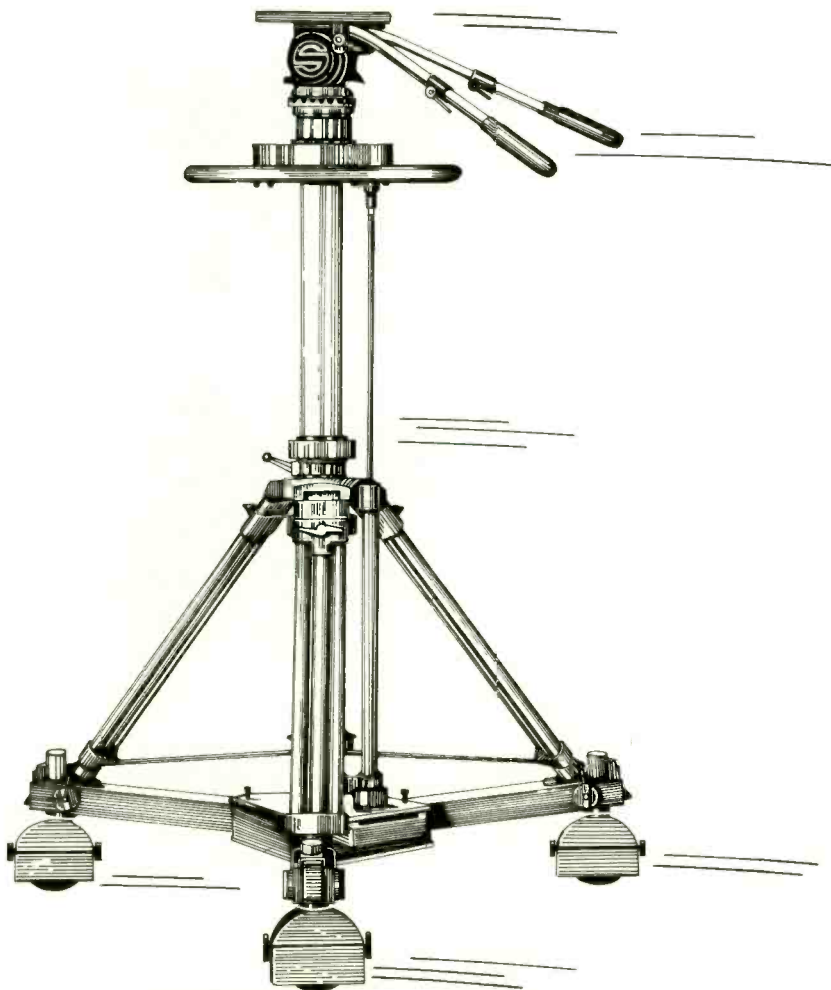
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Cinematography cameras, and four Sony Betacam recorders. The post-production center consisted of three off-line Betacam suites with Grass Valley 41 Editor and Grass Valley 100 switcher in each suite. The editor is able to access most of the functions of the System 41 directly and the dynamic tracking of the Betacam units. The main on-line editing suite is built around the Grass Valley 51 Editor and 300 switcher with Master E/mem and E/mem on each of the mixing effects busses. It is a multi-format suite working with one inch, 3/4" and Betacam. The editor communicates with all units in serial format.

The Quantel latest state-of-the-art Digital Effects units consisting of Paint Box, Cypher, Mirage and Encore are incorporated into the system.

The Audio room is Sony digital combining three BVU-800DB units with Sony PCM 1630 converting analog to digital signals. The editing controller is Sony DAE-1100. The Audio Effects room also uses the Lexican Audio Expander-Compressor system for audio correction.

This system was designed, constructed and tested at Camera Mart whereupon it was disassembled, shipped to the Mexican location, and re-assembled as a turnkey operation by Camera Mart personnel.

Projects such as this one for Emivisa makes good copy but Camera Mart's engineers and technicians were working simultaneously on an inter-format production post-production facility for Colombia, S.A.. and still another in Peru. And they had just finished a complete new editing suite at

Longwood Video in New York City, boasting a new Grass Valley/ISC editor interfaced with a Grass Valley 100 switcher and NEC's latest DVE System Ten, the first installed in New York.

Service with a smile

But Ben-Dor's work is not limited to these larger installations. Whether building systems on a grand scale or working with corporate video or smaller independents, "We deliver full service from Camera Mart," notes Ben-Dor. "Our engineering and service departments have only the latest in test equipment, 100% broadcast quality, Tektronix gear including logic analyzers and 'loaded' 1411 signal generators and Ikegami color monitors. We have a Compaq PC with an Auto-Cad program in which we can call up a blueprint or schematic and modify it in seconds. It is interfaced with a word processor so that we can write a precise system manual complete with drawings for system maintenance."

Besides the international division, Camera Mart has been expanding by way of opening regional sales offices in different parts of the country. Herb Browning, with Camera Mart since 1963, feels that "in our regional offices in Syracuse, southern California and in Indiana in the mid-west, we have the opportunity to service the local production people with the same attention we would give them in New York. The difference is that our people running the regional offices are

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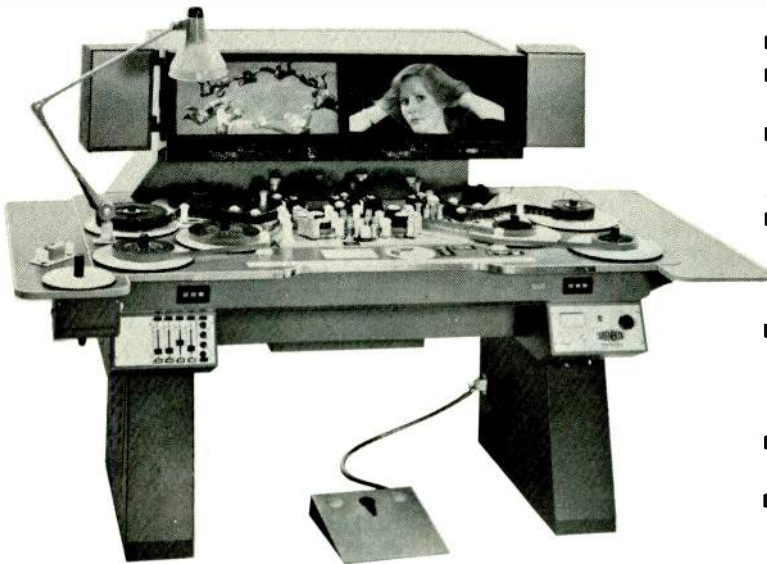
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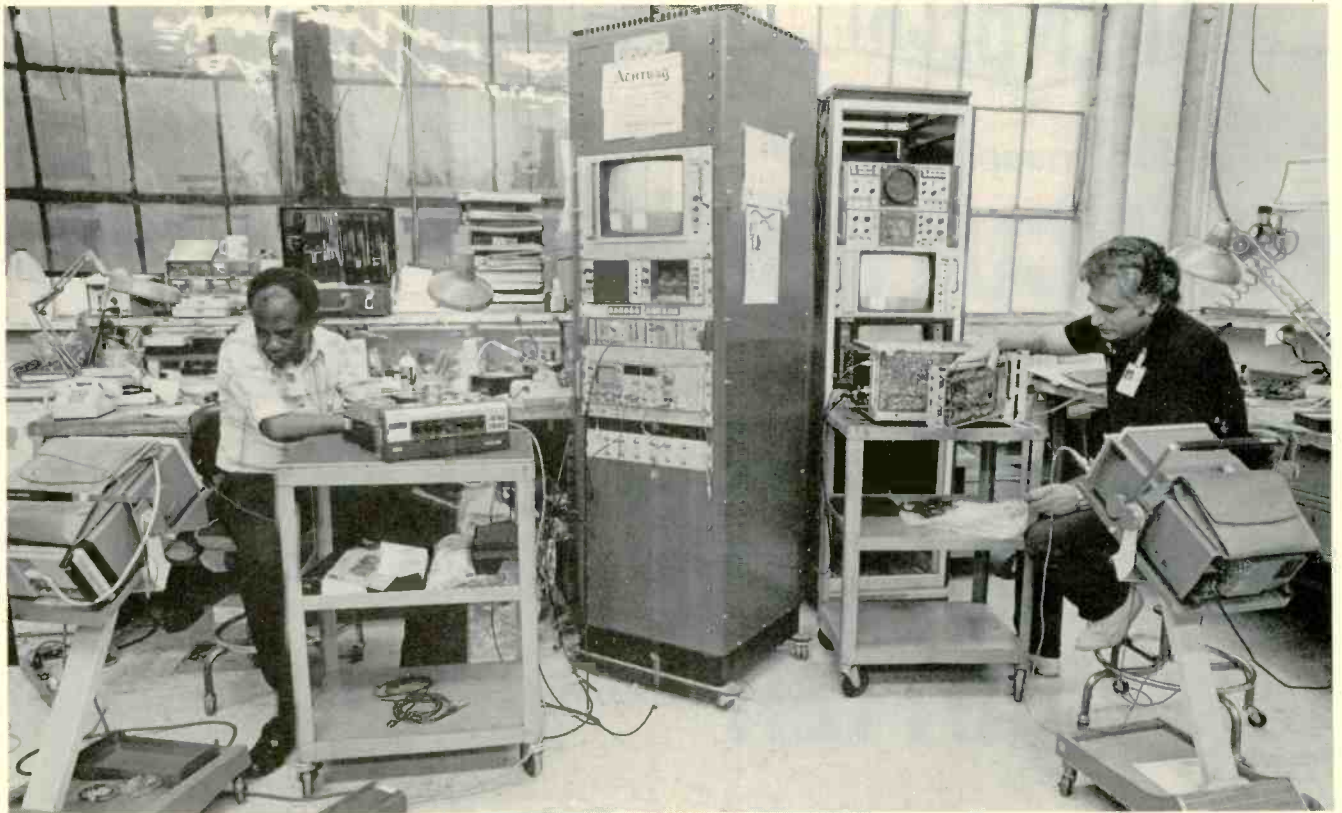
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tion-wide network. The Spanish newsletters for their Latin American trade is translated into English and circulated through the regional offices and the main office as well.

Herb's division also processes bids for equipment from many levels of federal, state and city governments as well as universities and school districts around the country.

When the Audio rental department expanded into motion picture studio equipment, the department at first featured 17.5mm magnetic tape recorders, later 16mm sync tape recorders and shortly after, quarter-inch recorders with sync signal as in the very popular Nagra line of recorders. Every professional microphone was included in this department. As needs grew more towards the video end of the business, production audio mixers such as Shure FP-31 and the



Yamaha 16x4 became available to their rental clients. They soon maintained the largest inventory of RF Sony and Sennheiser UHF wireless microphones. In the communications area Motorola VF walkie talkies and programmable UHF walkie talkies and repeaters were rented for use in video production. Clearcom and RTS hard wired intercoms were also available for studio or field applications.

The rental operation—audio

Camera Mart's rental departments are divided into specialized areas between motion picture cameras, video equipment, lighting and grip equipment and audio departments. Each department has its own storage area, work benches and separate crews. Each rental department manager and each technician is a specialist in his own field. The service and repair departments are also specialized to correspond with each rental department. In this way each repair technician knows his own department's equipment best. Returned rental gear is checked by the rental department and periodically sent to the repair department for cleaning, any necessary repairs, and sometimes updating modifications.

Video to go

From a very cautious approach to the video market in the mid-seventies by way of half-inch reel to reel to reel portable

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to the film
and video community
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equipment, in less than ten years Camera Mart built up one of the largest video production and post-production equipment rental houses in the country. Aside from sheer numbers and varieties of ENG/EFV video cameras, there are some very sophisticated units such as the Ikegami EC-35 "Electronic Cinematography" video cameras, the Nisus shutter adaptation for sharp slow motion effects, Sony Betacam BVP-3 cameras, and Ikegami HL-95 with Beta adaptation, Ikegami Triax and Multicore systems.

Recorders encompass a full line of broadcast and industrial U-Matics, Betacam recorders and edit decks, one inch portables and studio, as well as "Slo-Mos" with full TBC



and time code support. Super Edit systems for A-B editing in 3/4", Beta and one inch or inter-format with full audio support and list management. Quantel DPE 5000 digital effects came

on board in 1981 just in time to be rushed off to London for coverage of the wedding of Prince Charles and Lady Diana. Camera Mart was the first rental house to have digital effects equipment available for rental outside of a studio.

We light the world

The lighting and grip department at Camera Mart has probably undergone the greatest amount of growth of any department. Occupying more than 10,000 square feet of space at the Fox building on Tenth Avenue, and about the same amount of space at the Astoria Studio complex, their lighting department features more than 2,000 individual light fixtures from 100 watt baby inkies to 10,000 watt brute arcs. Cables, tie-ins and distribution systems measure more than 200,000 feet. Portable dimmer "six-packs" are available up to 96 channels. They have the largest inventory of Elemack Cricket and Spyder hydraulic camera dollies, Matthews Tulip cranes, Elemack Jonathan Jib and Mini-Jib boom arms, and the Arriflex Cine.Jib are among the various specialized camera support systems.

Field generators are available from 500 watt portable units up to 900 watt truck mounted power plants.

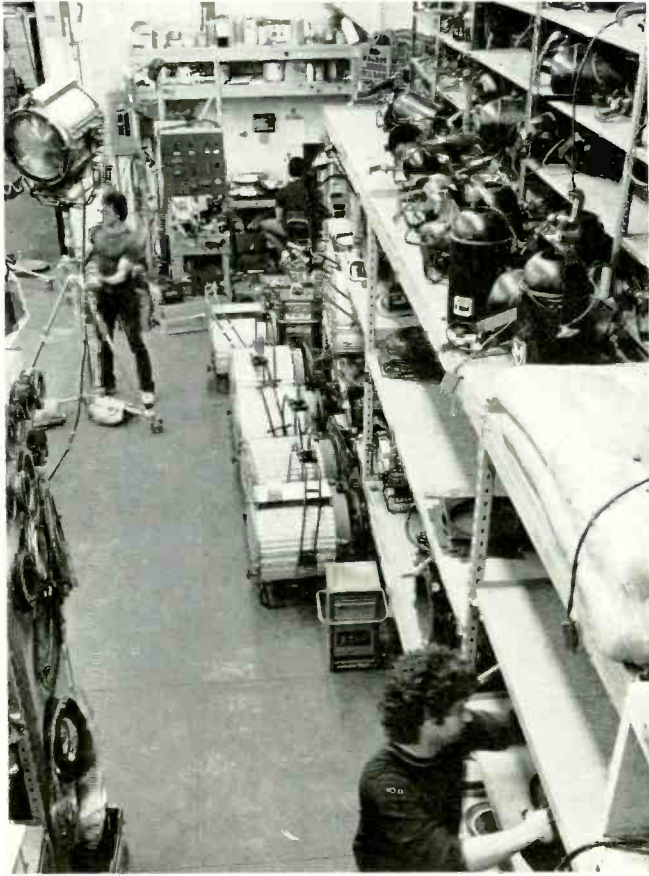
The capabilities of this department can be readily understood when you can visualize lighting the vast reaches of Madison Square Garden for the Democratic National Convention, supplying part of the lighting for "The Wiz" and *all* of the lighting for the "Cotton Club," both pictures said to have had the greatest amount of lights for any movie made in New York.



Salutes

The **Camera Mart, Inc.**

for past, present and future successes



Steve Gordon, manager of the lighting department, and Bernie Grubman who manages the grip department said, "Having the main lighting department on the Fox Stages and the "Annex" in Astoria Studios, and their fleet of seven location lighting and generator trucks ready to roll, lets us handle anything required in real short order."

Hollywood on the Hudson

The expansion of Camera Mart's motion picture rental department into studio production equipment naturally led into the acquisition of sound stages, starting in 1971 with the 5000 square foot stage on West 54th Street, and later a large one on West End Avenue, until the purchase of the Fox Studios complex on Tenth Avenue and West 54th Street. Rescuing this venerable building from oblivion in a dramatic 12th hour move, as it was about to be sold as a storage warehouse, it became once again a vital part of the New York production scene.

Renovations included new stage floors, new air condi-

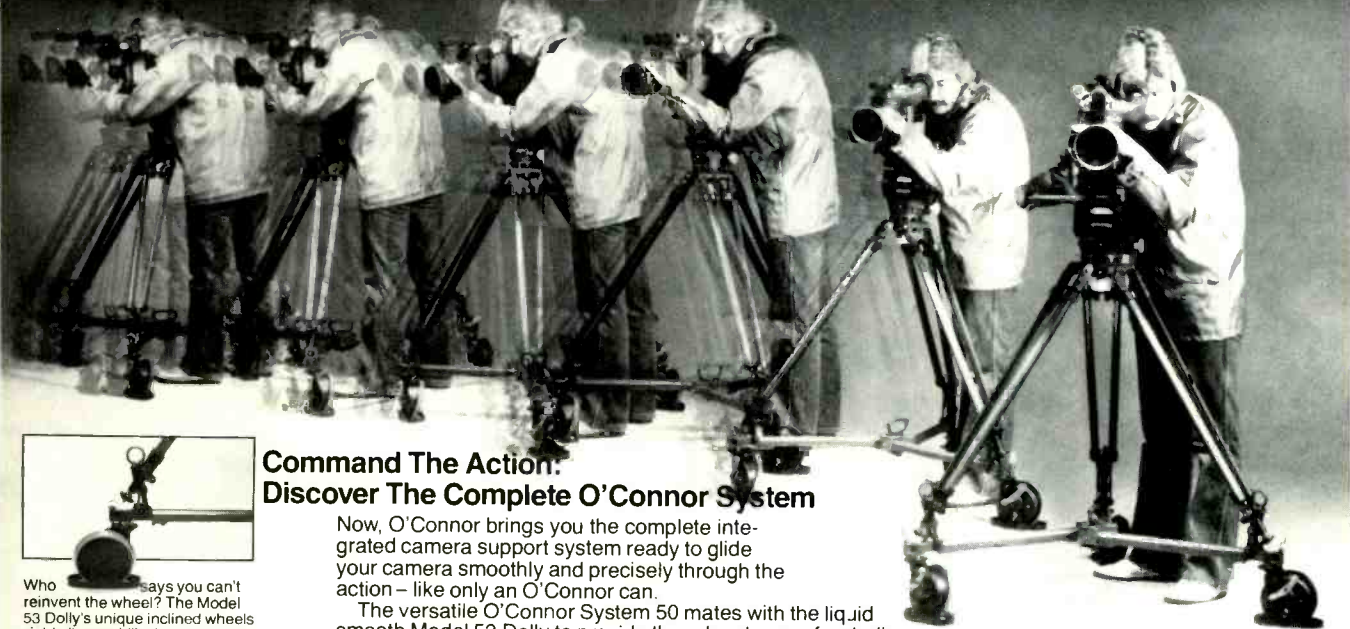
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tioning and heating plants, improved dressing and make-up rooms. The main stage, one of the largest in Manhattan, has a swimming pool under the floor, built for Esther Williams'

swimming scenes. While many famous movies were made here over the years, since Camera Mart's management, it hosted WNET Channel 13's Auctions for several years. as

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well as their prestigious production of "The Adams Chronicles" for the Bi-Centennial.

Also, Best of Families, Kramer vs. Kramer, Starting Over, Still of the Night, Sophie's Choice, Heartburn and some scenes from The Wiz and All That Jazz. Notice that five of these films starred Meryl Streep and two of them were Academy Award winners. On features or commercials, Camera Mart provides the lighting and grip equipment, and in some cases, the motion picture or video cameras as well. "When people need our stages," quotes Cindi Becker, the stage booking manager, "they become part of our Camera Mart family. We're only too happy to get involved with them and help in any way we can. Productions can cost thousands of dollars every minute, so if we can help them save time, we're saving them money. That's why they like working here."

Cindi is no stranger on the sets and handles all the stage details while their rental department coordinates the equipment needs.

Every operation in Camera Mart that involves some form of paper work procedures is fully computerized, from generating sales invoices or rental contracts right on down to mailing lists of their clients. Their main frame Data General computer and twelve accessory terminals together with six IBM PC's for individual department use, all under the watchful eye of their controller, Bea Harris, help keep up with and control all the various elements of the Camera Mart operation.

Summing it up

According to Chick and Paul, their philosophy for Camera Mart has been to rely on their many years of experience, to acquire the most capable personnel in every area, to provide the client with his needs and within his budget requirements, and to provide quality and service at the same time. That's the bottom line. And Camera Mart does not concentrate only on the major broadcaster or upper level corporate clients. They encourage newcomers to the industry by sponsoring awards and scholarships in film and video university programs. They have hosted many seminars to introduce new products or to facilitate retraining of motion picture people for the video market.

"After all," said Chick, "today's beginners are tomorrow's winners. It helps us keep up with the changing scene, new people, new products, new ideas. We let our managers participate in making decisions. They are in constant contact with the client so we all know first hand which way we are going."

Concludes Paul, "We've grown with our clients and we've grown with the industry as well. We're proud of our people and we're proud of the role Camera Mart has played in providing the service and facilities as we have done over many years. We're in an exciting industry in which the technology is constantly changing, and we hope to be part of it for many years to come."



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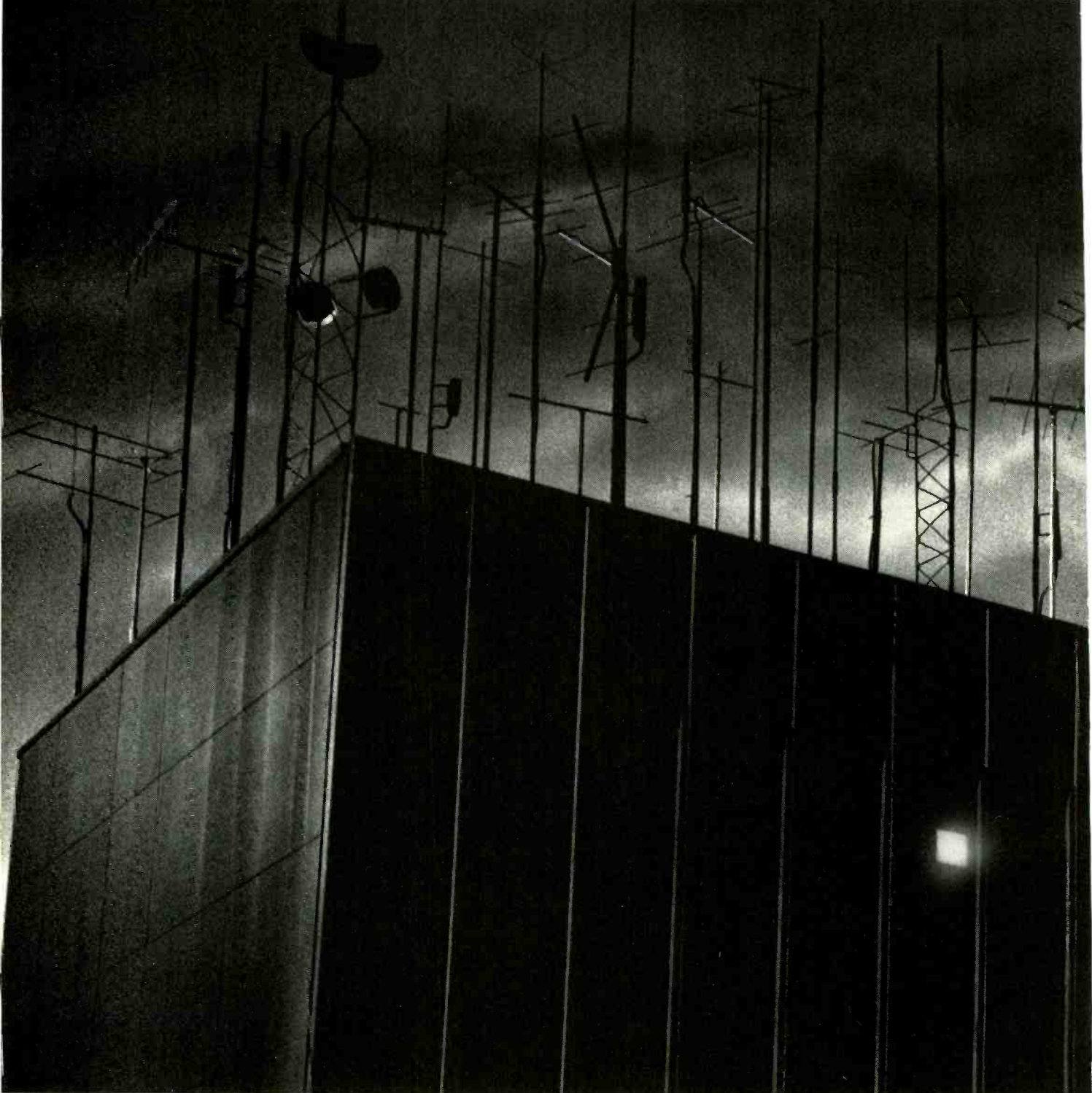
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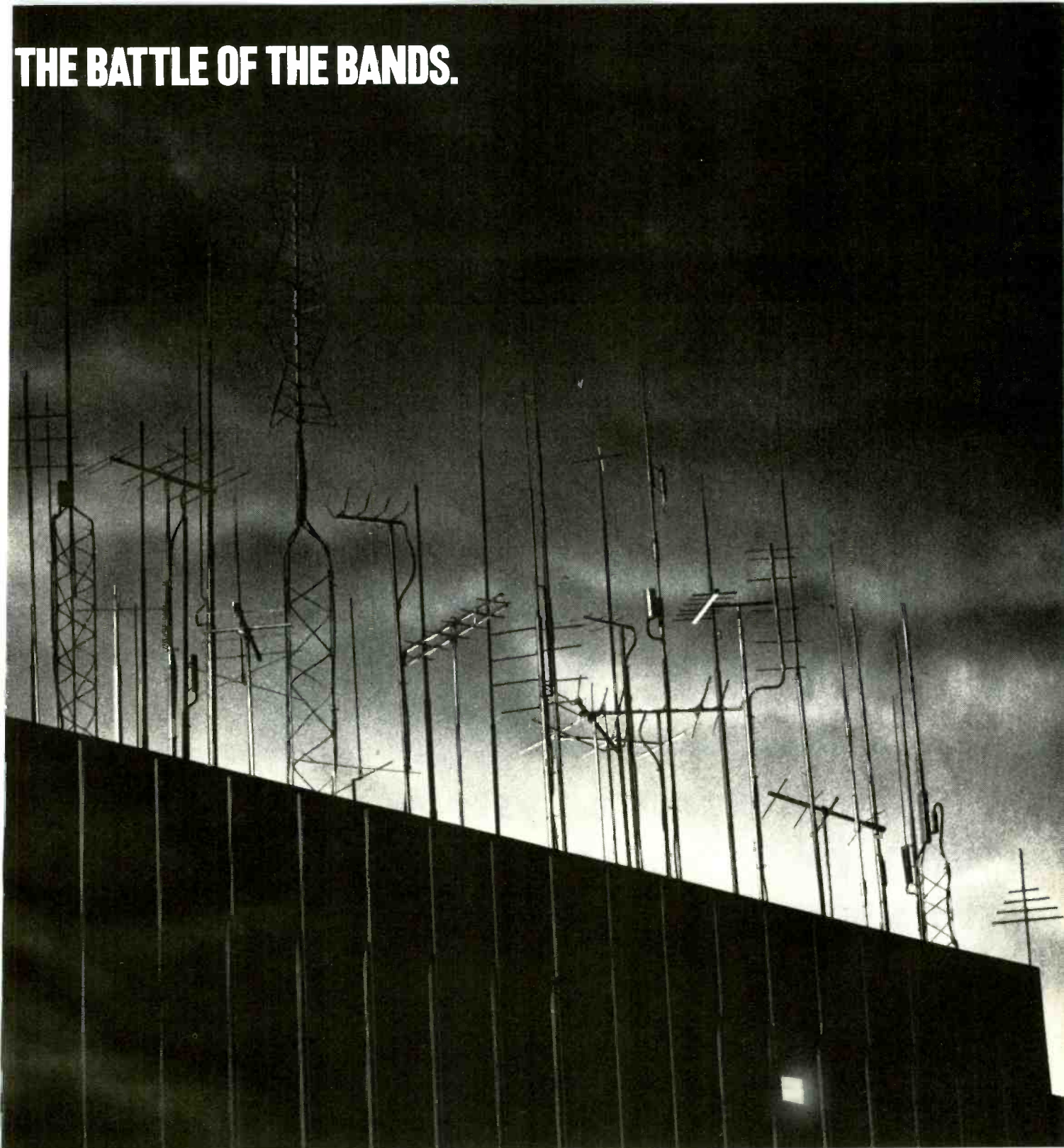
Other wireless microphones are pre-tuned to just one channel. Each electronically synthesized Sony VHF wireless microphone, on the other hand, gives

you 48 channels—48 opportunities to get on the air without interference. With a mere push of a button.

In fact, with as few as 4 Sony wireless microphones and a tuner, you can reach 168 microphone channels. And the Sony Wireless System makes it possible to use up to 13 microphones in the same place at the same time. Also, Sony's tuner gives you an easy-to-read LCD display. Which is an indispensable asset when you happen to be in a big hurry.

In addition, Sony's wireless microphones won't leave you wincing at poor dynamic range. Thanks to a companding technique which yields a dynamic range

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The Sony system is also designed to withstand the rigors of live recording. Besides being lightweight, it's also extremely sturdy. Including everything from the microphones, to the body pack transmitter, to the tuners, to the shock-resistant portable cases and rack-mounting brackets.

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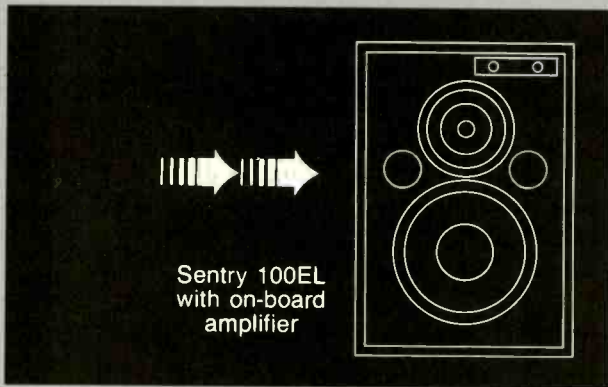
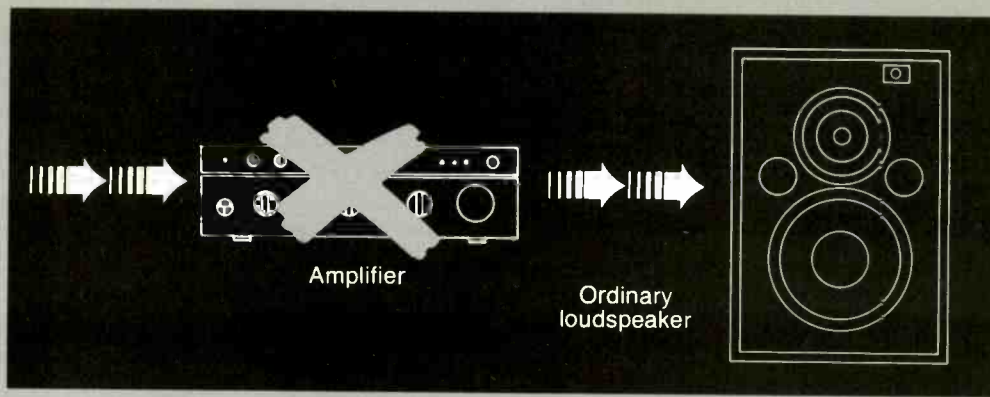


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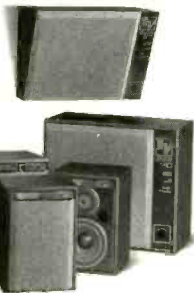
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The SAP Channel's Creative Potential

TV broadcasters are starting to use the Secondary Audio Program of MTS to serve Hispanic viewers and other untapped audiences.

By Judith Gross

MTS has begun a revolution in TV viewing which is finally in full swing. But when stereo TV burst upon the scene two years ago, it brought with it the potential for other multichannel programming, in the form of the SAP—or secondary audio program channel.

Most of the 250 TV stations estimated to be equipped for stereo bought SAP generators along with TV stereo exciters. And now a small handful have begun SAP programming to serve segments of viewers that have been largely ignored, and also to promote their stations as being on the cutting edge of the technology.

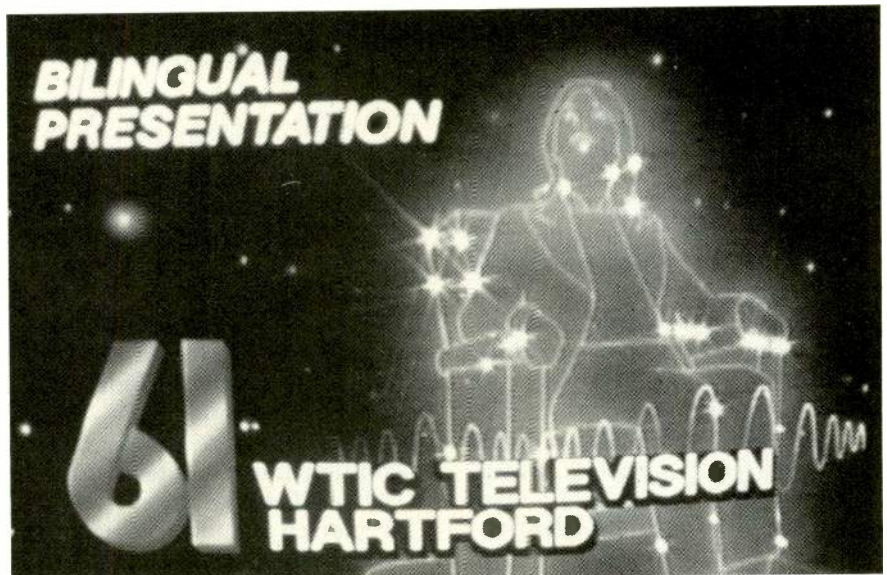
SAP technology

The stereo TV signal is achieved using the main audio channel and a subcarrier at 2 H or 31,468 Hz. The L+R (mono) is on the main channel, and the L-R (stereo) is broadcast on the subcarrier which an MTS decoder picks up.

The SAP channel is broadcast on a subcarrier at 5 H, or 78,670 Hz. There is one other channel in MTS, the Pro channel, mostly used for cueing during remote broadcasts. It's broadcast on a subcarrier at 6.5 H or 102,000 Hz. Like the stereo signal, a generator creates the SAP and Pro channel subcarriers and an MTS decoder picks up the subcarrier information.

Spanish and X-rated TV

Innovative uses of the SAP channel have been pushed along to date mostly by independent TV



A rotating viewer wearing SAP headphones is the futuristic logo for SAP broadcasts on WTIC, Hartford.

stations. Independents were quick to embrace MTS as a way to get a competitive edge in their markets, and currently they are outnumbered only by NBC affiliates in stereo broadcasting.

Hartford, CT, was one of the first markets where stereo TV made its debut, and now five out of six stations in the market have converted to MTS. Independent WTIC, which was technically the first station to broadcast stereo in its market when it signed on in 1984, is now the first in the market to do regular SAP programming.

WTIC uses Modulation Sciences equipment for stereo and the SAP channel, and the station began broadcasting an audio program guide about a year ago, in English, which gave information about

upcoming shows. Then, last September, the station started its Spanish-language broadcasting, airing syndicated reruns, selected movies, and whatever else happens to be available in Spanish. In order to do this, notes station president Arnold Chase, WTIC had to become "a pioneer" of sorts.

"Syndicators generally have two divisions that handle domestic and foreign distribution, which have little to do with each other," says Chase.

"We wanted the foreign-language, or Spanish version of the show, but there were problems."

For one thing, the English-language syndicated versions are shortened so more commercial spots will be available. This is usually done by clipping out some ex-

The SAP Channel

traneous portions of scenes. But the foreign-language versions are the original, uncut versions of the shows and are generally longer in length. If a station ran the English syndicated version with the audio track of the foreign-language version, the Spanish audio would be out of sync with the video.

"What we did, in effect, was to find a way to create a foreign-language syndicated version of the show's audio, the way syndicators do with the original English-language version," says Chase.

Editing is done with a scene-for-scene matchup of English and Spanish versions of the show using Ampex VPR 3 machines and a split-screen technique. The starting point of each scene is matched exactly and dialog is clipped accordingly. Then WTIC has a professor of languages review the program to make sure there are no dialectical differences that might cause problems.

WTIC is broadcasting about an hour a day of bilingual programming, but Chase says there are plans to increase that amount, limited only by the amount of foreign-language versions of English-language sitcoms that are available. Up until quite recently, syndicators weren't paying much attention to the potential for bilingual shows, but, ironically, many of them are starting to see the chance for extra sales and may offer foreign-language versions as packages separate from the English-language shows.

Movies in a new dimension

Chase estimates that Hartford has a 40 percent Hispanic population, and that the market is ripe for bilingual entertainment.

But the station is not limiting its use of the SAP channel to Spanish programs only. Chase says WTIC decided that there may be another segment of the viewing public who could benefit from the SAP, specifically those with adult tastes in entertainment. WTIC also uses the SAP channel to broadcast uncensored audio of movies with language that most



Miami's WCIX uses a slide with a Spanish letter that does not exist in the English language to indicate a bilingual Spanish broadcast can be heard on the SAP channel.

viewers might find offensive. Those who want "family" viewing can stay with the main audio channel; those who prefer the uncensored version just switch on the SAP audio.

WTIC is experimenting with one additional use of the SAP channel, for surround-sound movies. Most recent movies have been encoded with surround-sound information, and the station is using a Dolby MP decoder to retrieve the information and pass it through to the SAP channel. To hear a good approximation of surround-sound, a viewer should actually hook up an additional MTS/SAP decoder and two extra speakers, in addition to listening to the main channel audio in stereo. Such MTS/SAP decoders with speaker combos are becoming a featured consumer item, and could also be used by Hispanic viewers who don't want to buy a completely new TV set.

All of WTIC's movies can be heard with uncensored soundtracks, if required, and surround-sound is available for films that have been encoded for it. And in addition to running bilingual syndicated shows, WTIC has also begun dubbing Spanish tracks for independents in other markets who want to follow suit.

Sitcoms and newscasts

Two other independent stations are using the SAP channel for

Spanish-language audio, and they are both located in areas with substantial Hispanic populations.

KTLA, Los Angeles, a strong independent station recently purchased by Tribune, is in the heart of an area with a 36 percent Hispanic population. KTLA is airing about 17.5 hours of bilingual programming a week, in addition to its stereo programming. KTLA also uses Modulation Sciences equipment.

WCIX in Miami is another independent in an area with about a 46 percent Hispanic population. The station is broadcasting about three hours of bilingual programming a day, in addition to its stereo. WCIX uses Orban's Optimod stereo generator with a SAP module.

Like WTIC, both stations began their Spanish audio broadcasting with syndicated shows. WTIC is dubbing Spanish audio for WCIX, but KTLA is obtaining its own.

KTLA director of engineering Ira Goldstone reports that the station first secures the foreign-language version on 16 mm, then edits a one-inch video English version of the same show. A time-coded U-matic cassette is made of the edited version, and that is sent, along with the 16 mm Spanish version, to Rick Chase Productions, where the Spanish audio is made to match up with the edited English version. The station gets back its U-matic cassette plus a time-coded ¼-inch audio tape with the edited Spanish-language track. Goldstone then synchronizes the audio tape time code to the videotape time code, looping it through a vertical interval time code generator. The English audio ends up on tracks one and two (for stereo), the Spanish on track three, and the time code in the vertical interval, all on a one-inch final version for air.

WCIX and KTLA are also broadcasting their newscasts in Spanish on the SAP channel. Steve Bell, KTLA's senior VP and GM, reports that it sounds "very much like a United Nations translation."

At KTLA, a full-time translator prepares a script in Spanish,



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Audio Engineering & Production

The SAP Channel

which is put into the teleprompter and read by the translator during the newscast. At WCIX, Mike Rodriguez, who is part of the regular staff for an all-Spanish public affairs show (broadcast in Spanish over the main audio channel) provides a live, simultaneous translation of the English-language script right off the teleprompter.

Is anybody listening?

All three stations are spending considerable time and money to serve a newly-recognized audience with a technology that is just beginning to find its way into viewers' homes. But there is evidence that viewers are starting to pay attention to the SAP channel.

In Hartford, electronics dealers have been using it as an added inducement to buy a stereo set. WTIC's Chase points out that it's difficult for dealers to sell stereo TVs with so little true and well-separated stereo TV programming

available. When WTIC began SAP broadcasting, dealers started to switch-on the SAP to demonstrate its potential.

"One dealer bought advertising on our program guide," notes Chase, "and this forced his competitors to do the same, since they would use our SAP program guide to sell their sets and didn't want a potential customer to hear only a rival's commercial." Chase also reports that a recent survey done by the station showed a stereo TV set penetration of 15 percent in the Hartford market.

WCIX decided to encourage SAP listening by offering SAP decoders that receive only the station's signal, not other MTS stations as do stereo TV sets. Johnson Electronics is manufacturing the SAP decoders for the station, and a local distributor is selling them, at a cost below other MTS decoders and TV sets. Chief engineer Bernard Wimmers says the sta-

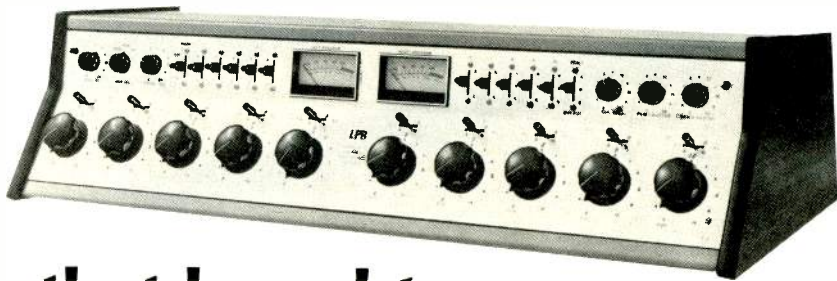
tion began with a trial offering of 200 special SAP decoders, but if they sell well he says there will be more.

All three stations have logos for their bilingual programs, and KTLA, for one, has been doing some promotion to educate the Hispanic community about the existence of the SAP channel.

But one untapped area is that of Hispanic advertising. WTIC initially sold its program guide, and has also run safety announcements in Spanish for a utility company. Chase also reports that McDonald's is interested in running commercials in Spanish.

"But right now we aren't charging advertisers extra dollars," says Chase, although he admits the future potential is there. He also points out that with the extra staff that would be needed for translations in order to produce commercials, both in-house and outside, there is an increased op-

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portunity for bilingual employment in TV.

WCIX would like to run Spanish-language commercials, but chief engineer Wimmers says that with the one head on the station's current Ampex ACR 25 cart machine, it is not technically possible. He says the station will probably purchase a Merlin VISA to make commercial play on the SAP channel possible.

Laying the groundwork

All three stations are eager to increase their bilingual programming on the SAP channel, and WTIC also hopes to add a newscast.

The Hartford station's innovation with dubbing foreign-language tracks and with using the SAP in a variety of ways may encourage other stations who have been concentrating mostly on the stereo aspect of MTS to do the same. One of the problems seems to be the availability of Spanish programming from the syndicators. Paramount has a movie package in stereo, but most program syndicators appear undecided about how to handle this new-found demand.

"I'd run Spanish programming sign-on to sign-off if I could," says KTLA's Bell, "but syndicators don't know what they want to do about this yet."

For the time being, the stations who are pioneering the SAP are laying the foundation for future profits of their own, in the dubbing that is already making money for WTIC, and in the added advertising resources. Yet most of them are going to the extra time and expense for two other reasons: to be the first with a new technology, and to serve a long-ignored audience.

"I can't understand why other areas aren't doing this, and why advertisers aren't going after it," wonders WTIC's Chase.

KTLA's Bell concurs, adding that Spanish-language broadcasting is more important than ever, since the SIN stations have had their licenses pulled.

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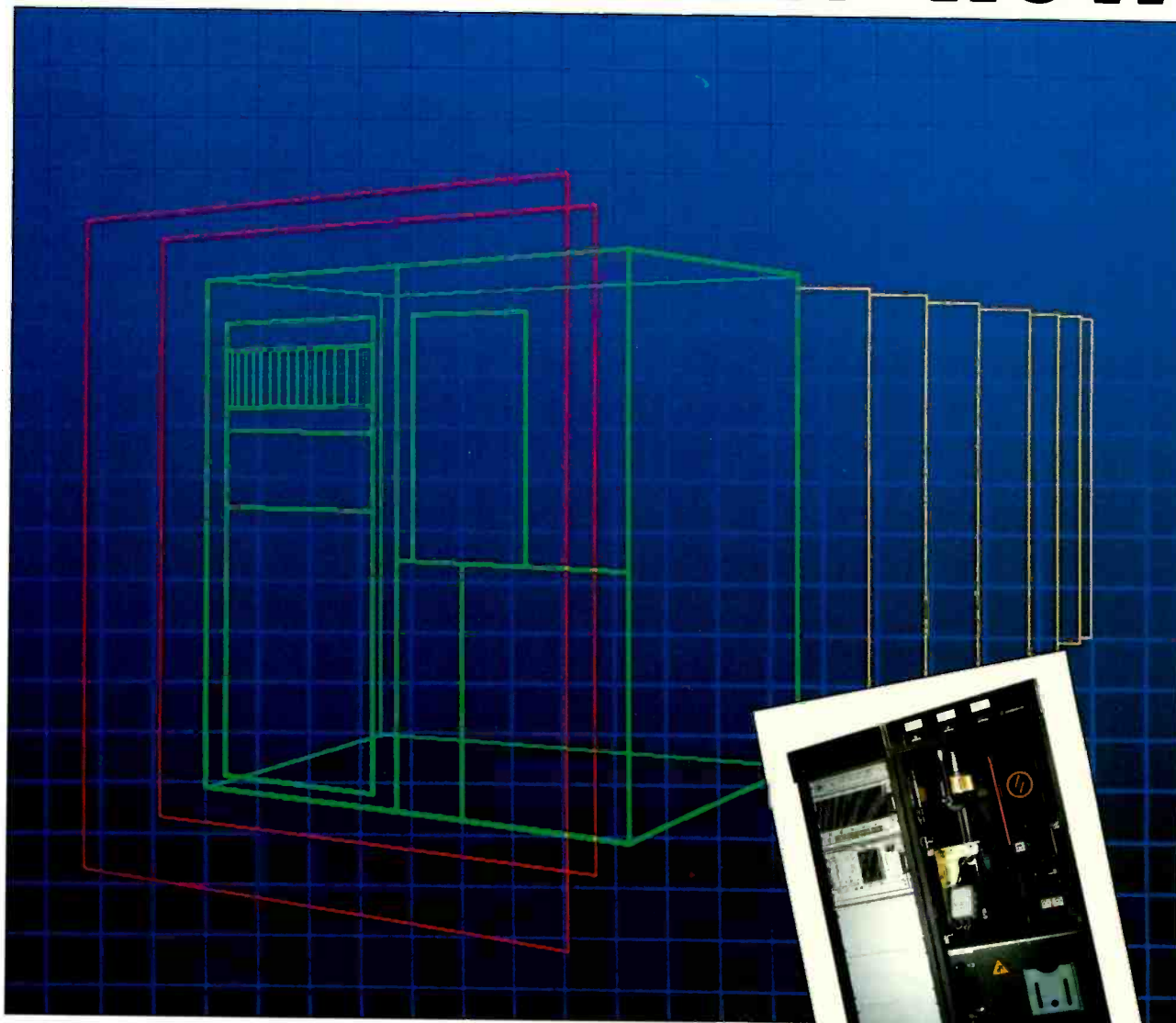
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The Increasing Importance of SNG

As SNG continues to grow in importance, it may become a top priority in many stations' funding plans.

By C. Robert Paulson

Hurricane Gloria's passage up America's eastern seaboard last year was remarkable for more than the wreckage it left in its wake. Every station in each east coast ADI ravaged by Gloria rented or tied in to somebody's fixed or mobile C-band or Ku-band uplink terminal in order to relay reports from the nearest storm-lashed coast.

Hurricane Gloria provided evidence, if it were needed, of the increasing competitive importance of satellite newsgathering for memorable TV news broadcasting. Proof of the market opportunity's emergence was visible before Gloria, however, in the RTNDA's Nashville conference parking lot, which was filled with uplink trucks.

SNG is the latest issue to be argued in news department budgeting discussions. The next year or two may see SNG rise above the importance of newsroom automation in many stations' capital equipment funding plans.

What are the reasons for this? SNG represents a comprehensive and manageable technology. It extends the radius of coverage of a station's news department far beyond its terrestrial microwave and even its helicopter relay link ranges. SNG also allows a news-gathering network to be set up among regional and nationwide stations. Regional stories can then be fed to the network.

The cost

A realistic capital equipment

budget for getting into SNG appears to be around \$500,000. A basic system might be obtainable for half this; a top-of-the-range installation might cost \$1 million. For that outlay, the station acquires a remote news event pickup capability that is straightforward in its operation. From the station's news control room, communications channels are available for cueing

and direction of the production crew, talent, and IFB via the assigned transponder.

When the uplink time window is closed, establishing and maintaining two-way command and control communications is more problematic. Satellite channel operators offer no ready solutions. The few who do, often provide pre- and post-uplink communications



SNG vans await communications. (Photographs courtesy Hubcom.)

Table 1. SNG System Communications Channel needs matrix.

SNG truck circuits to	Circuit types	Travel	Setup	Transmit
Home base	Technical	Occasional	Random	Continuous, via bird
	Production	Seldom	Random to dedicated	Continuous, via bird
	IFB	No	Perhaps to absolutely	Continuous, via bird
	Min - Max	1 - 1	2 - 4 +	3 - ? +
Satellite Service Technical Operating Center (TOC)	Technical	No	Random	Continuous, via bird
	Production	No	No	No
	IFB	No	No	No
	Min - Max	0 - 0	1 - 1	1 - 1
Field crew	Technical	No	Continuous	Continuous
	Production	No	Continuous	Continuous
	IFB	No	Perhaps, for rehearsal	Continuous
	Min - Max	0 - 0	3 - ? +	3 - ? +
Total Circuit needs to Homebase/TOC		1 - 1	3 - 4	3 - ? +
to Field crew		0 - 0	3 - ? +	3 - ? +

incompatible with other systems. There appears to be no manufacturer who is promoting a systems solution to this problem.

Uplink truck vendors at the RTNDA, however, see a number of viable alternatives—telephone, cellular radio, customers' own radio, band-edge SCPC circuits, or other communications satellites.

Channel needs

SNG communication channel needs are listed in Table 1. "Travel," "Setup," and "Transmit" are appropriate descriptions for the operations time periods. The length of each period is independent of the lengths of the other two.

During these periods, a varying number of voice and sometimes data links must be established and maintained between the following points: SNG truck (not always a truck); the homebase downlink terminal site; the technical oper-

ating center of the satellite network (or bird or bird transponder) being used; and the field crew whose links may have to be made via a production truck because of terrain problems. Figure 1 illustrates the options that are available to the SNG operator.

Voice (and data) circuit type needs vary with time period. One circuit is needed during the travel period. These may stabilize at two (or three) during the transmit phase, but they may also rise to a level of five or six during the setup period and stay at that level during the transmit time.

Thus, there is a minimum requirement at all times that at least one channel be available to facilitate planning and coordinating communication as well as to perform the actual transmission. This need appears not to be recognized by some uplink vendors, who claim that no circuits are really necessary during the travel and

most of the setup phases.

Routing preferences

How are these circuits—perhaps up to six of them—to be used? The following sequence shows how the needs build up.

First, the truck is parked and deployment of the equipment begun. This is the "setup" period. One dial-up circuit must be opened immediately from the truck to the outside world. Regardless of how the connection is made, the phone must have dial-up and disconnect control at all times. Dialing should be by tone and not pulse, if possible.

After the technical details of the parking location and the uplink have been cleared, a second, similar dial-up circuit will usually be needed for production traffic. As the "transmit" period nears, a third circuit becomes desirable, for IFB.

Stations with a budget sufficient for both SNG and newsroom automation will eventually require an additional dial-up production circuit for two-way Half Duplex data transmission. Scripts, archived stories, relevant breaking stories off the news wires, etc., will be sent to the truck. Reporters will file copy on current or upcoming stories back to the stations using lap-top portable personal computers.

On big, fast-breaking news events and location spectaculars such as sports and conventions, one production circuit will often need to be established early and then held permanently open during "setup" and "transmit." This brings the number of communications circuits needed to five: 1. coordination; 2. homebase control room to camera/sound; 3. program producer to field producer; 4. news anchor to field reporter (two-way intercom changing to IFB some time before transmit; and 5. optional extra needs.

In order of desirability, the circuit routing preferences are as follows: 1. nationwide-accessible cellular radio; 2. narrowband MCPC satellite links; 3. hard-wired phone extensions; and 4. radiophone extensions.

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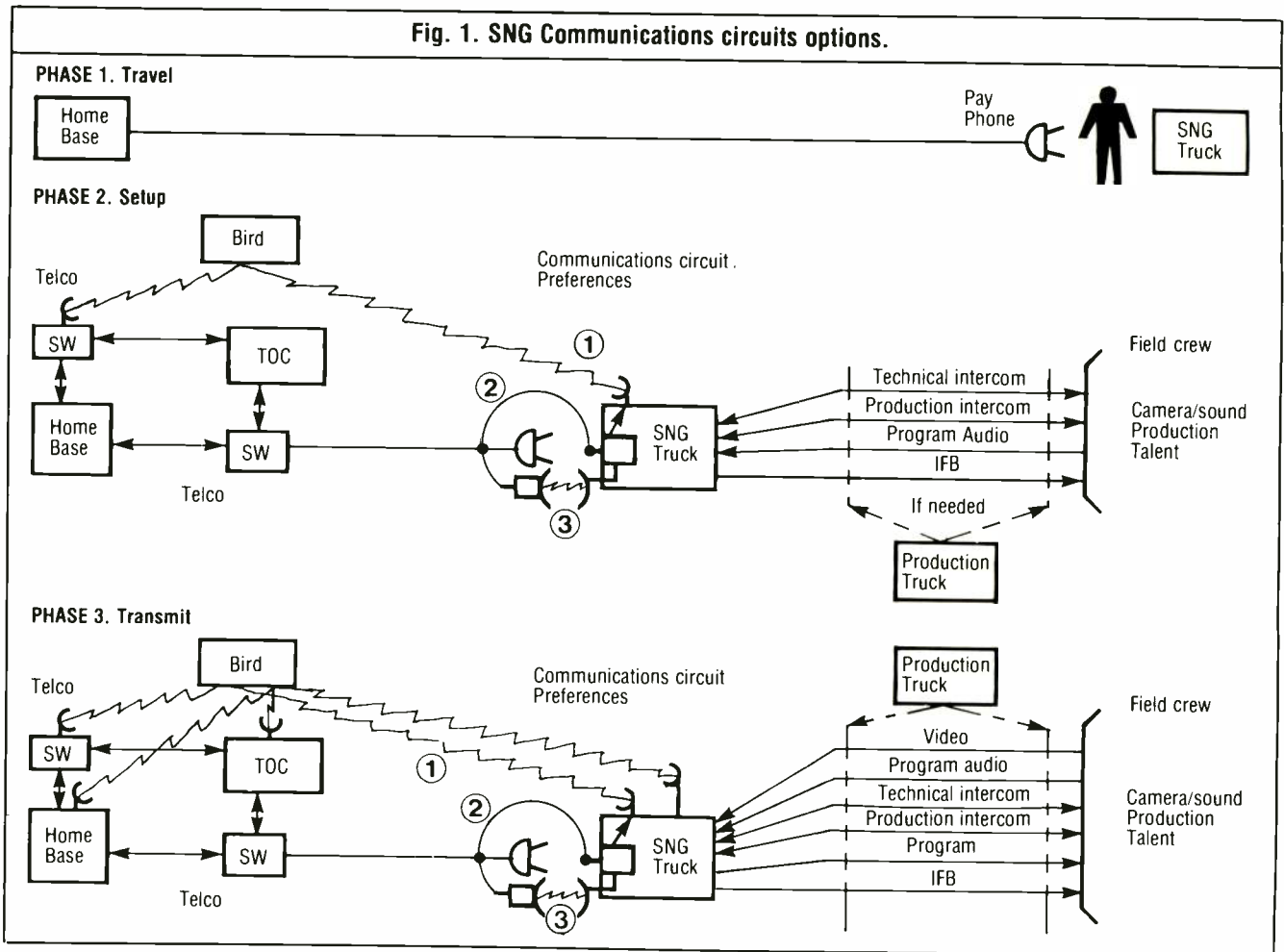
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Fig. 1. SNG Communications circuits options.



Cellular radio

A nationwide cellular radio network might be the ideal system for SNG communication. This system could provide multiple dial-up circuits as needed, regardless of whether the SNG truck was rolling or parked.

The feasibility of using a cellular radio network depends on a number of problems being solved. The present frequency incompatibility from city to city within an ADI must be eliminated. The outlying reaches of the SNG origination area must be within range of the cellular radio transceiver site.

In addition, cellular radio represents an enormous cost commitment, even with only limited use. One station that recently installed cellular radio in its general manager's car and in one mobile unit experienced an increase in its monthly communications bill of more than \$1000. Equipping an uplink truck and other ENG vehi-

cles with cellular radio could increase news operation communication costs by \$50,000 annually.

Narrowband satellite links

Until cellular radio costs fall dramatically, the best alternative is to be found in narrowband links. GTE's Newsexpress multichannel service has been in operation since June of last year, downlinked to its telemetry, tracking, and control center, which interconnects with the GTE Sprint long distance network.

Narrowband satellite communications services, however, need to agree on a standard for the MCPC processor-to-transmitter interface and channel performance specifications on S/N ratio, distortion, error rate, group delay, etc.

Hardwired phone extensions

In the absence of satellite-connected circuits for SNG com-

munication, finding a telephone with modular connectors is the next best alternative. This approach only provides one circuit, however.

Radiophone extensions

The additional circuits needed can be provided using a phone-terminal-compatible radio link as a supplement to hardwired phone extension circuits. Here, the missing prerequisite for success is the lack of a single-channel, two-way, full duplex voice-bandwidth radio system. Each must be separately tunable to freely available, lightly loaded, interference-free circuits in bands available to broadcasters. Each must extend dial-up control from the nearest dial-up telephone to the local telco network to a standard phone in the truck. There can be no restrictions or special requirements for picking up that phone and dialing anybody anywhere.

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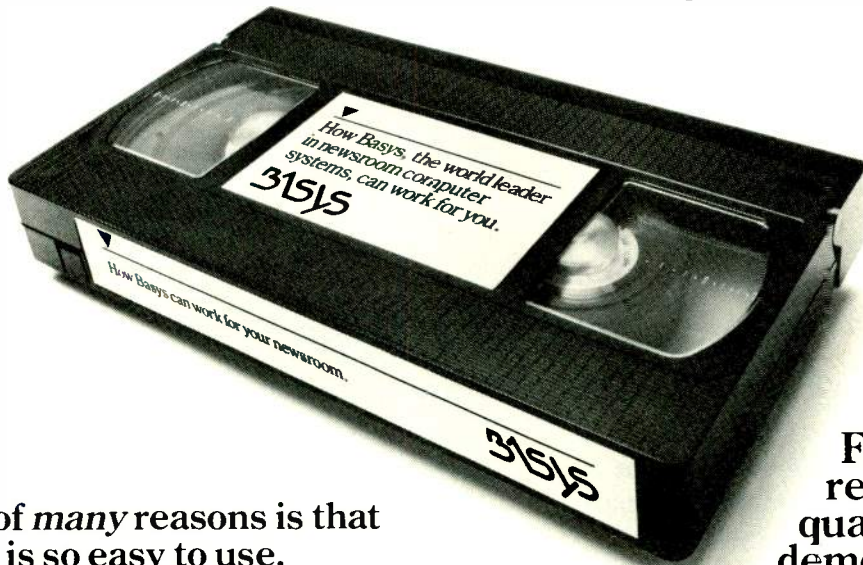
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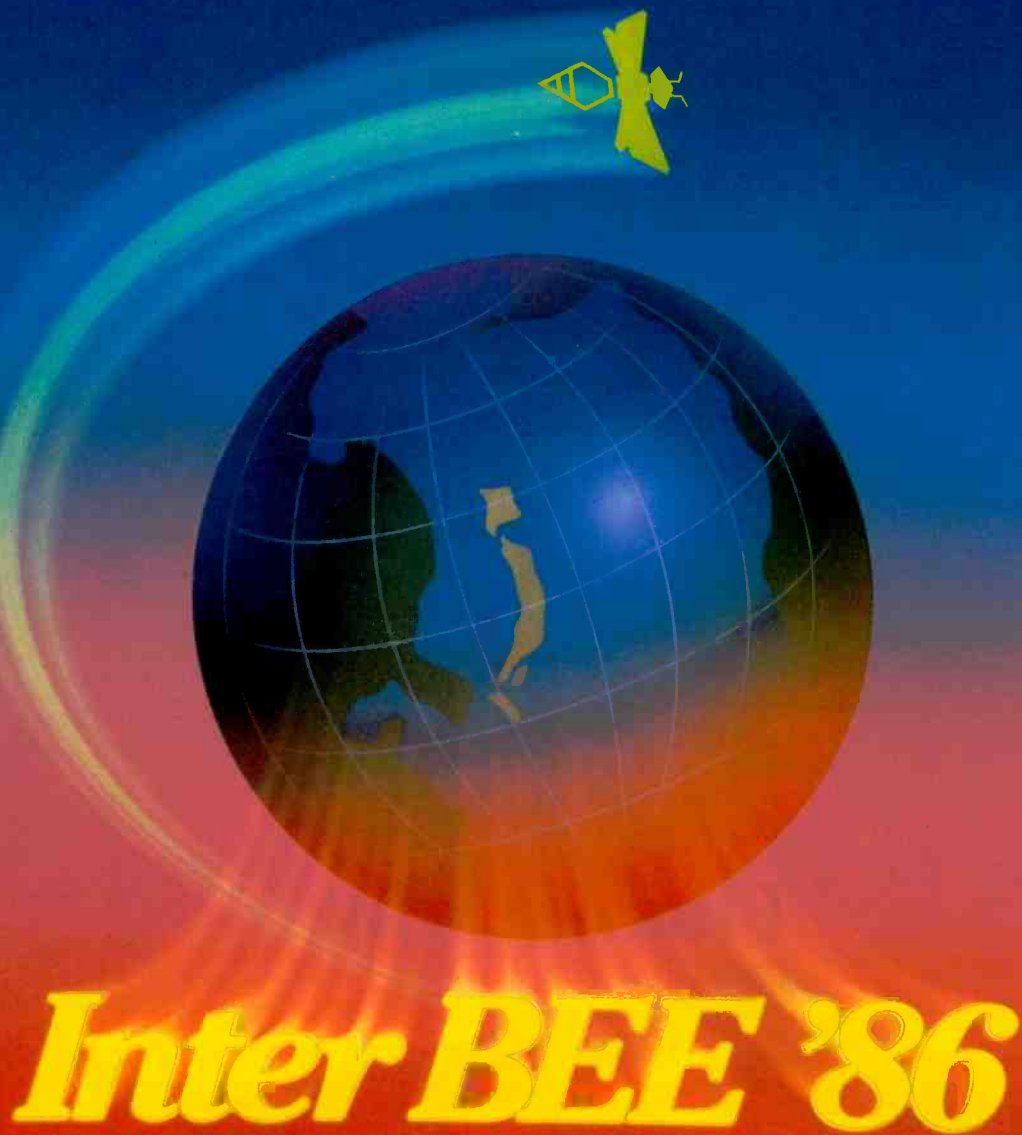
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Regional TV Links Local Kentucky Residents

Hazard may be small, but the rewards are great for the builders of WYMT, a regional TV station in eastern Kentucky.

By Robert A. Speaks

Hazard, KY, is a thriving but tiny community of about 5500 people, nestled in the mountains of eastern Kentucky. An unlikely place to locate a full-fledged, 16,000-square-foot television station—but that is exactly what Kentucky Central Television did in building WYMT-TV (“We’re Your Mountain Television”). Unusual, also, was the construction schedule—134 days from June 7, 1985, groundbreaking to October 19 sign-on, in the face of terrain obstacles that would daunt a flatlander.

One might ask, “Why invest upwards of six million dollars to put a new television station in a community the size of Hazard?” Kentucky Central Television executive VP Ralph W. Gabbard, citing Hazard’s central location in the eastern Kentucky mountains, says WYMT was conceived as a regional station, covering more than 25 counties with 1330 kW ERP. The new station is affiliated with Kentucky Central Television’s WKYT in Lexington; the TV station division is part of Bluegrass Broadcasting, Inc., which also operates a chain of radio stations in Kentucky, Georgia, and Florida.

Gabbard’s research indicated that residents of the target area, with little or no broadcast communications link to the rest of the state, were hungry for local and regional news and sports as well as for



An extensive microwave network links WYMT’s master control with that of sister station WKYT in Lexington.

localized weather information. Previously, their primary television fare came from outside the state; the area has been on the fringes of TV markets in West Virginia and Tennessee, in addition to the Lexington, KY, market. Some Kentuckians so identified with out-of-state media that they even thought their governor was Jay Rockefeller (West Virginia) or Lamar Alexander (Tennessee). Over and over, the researchers heard, “This [WYMT-TV] will make us feel like Kentuckians again.”

Goin’ across the mountain

The mountain location, however, created its own set of problems in building WYMT. WKYT-TV director of engineering Hal Schumacher and chief engineer Chas Callaway, who collaborated

in the design of WYMT, say the biggest hurdle to overcome was the topography of eastern Kentucky.

The WYMT-TV studios are located in a “holler” (valley, that is) between two small mountains, out of sight of the 1000-foot-plus tower located atop a 2000-foot mountain about five miles away. It was necessary, therefore, to bounce the station’s signals by microwave off a passive reflector on one of the small mountains in order to reach the tower and transmitter. To connect WYMT with sister station WKYT, about 100 miles to the northwest, a second tower was erected on a mountain 54 miles away in the gen-

About the Author:

Speaks is director of news development for WKYT-TV, Lexington, KY.

RF Engineering

Regional TV

eral direction of Lexington. There, two microwave receivers and transmitters give the signal the final boost to complete the hop to and from Lexington.

The two-way microwave path, built with M/A-Com equipment, links WYMT not only with WKYT but also to a live bureau in the state capital of Frankfort (30 miles west of WKYT) and to another live bureau in what is known as the Big Sandy region of far eastern Kentucky, about 65 miles east of Hazard. Named after the Big Sandy river, the region includes the communities of Pikeville, Prestonsburg, and Paintsville. The link further enhances the "Kentucky connection" so desired by the people of the mountains. To add the Big Sandy bureau and its four-county responsibility to the microwave network, fiberoptics link the bureau office and studio to its tower on yet another mountain, permitting live inserts in the newscasts of both WYMT and WKYT.

Up-to-the-minute news and sports reports, both live and taped, thus are available to both primary stations, not only from the in-house and roving news crews but also from the bureaus serving them.

Upward struggle

The terrain affected construction in another, even more direct way. At the transmitter site high atop Buffalo Mountain, where one looks down upon the morning fog and clouds, the heavily wooded mountain peak itself had to be reconfigured by bulldozers to permit construction of the transmitter building and tower. Therein lay another unique challenge. Can you imagine backing a loaded concrete truck 1000 feet down a freshly bulldozed path (with slopes as steep at points as 40-plus degrees) to pour the anchors for the tower guy wires—and then having to winch the truck back up the slope because it couldn't make it on its own? A slight miscue could have sent truck and driver hurtling several hundred feet straight down. Mountain construction *does* present its special problems and challenges. Also, it's a rare day when some degree of breeze is not blowing. WYMT could



WYMT engineer brings in a microwave feed from WKYT.

have been on the air several days sooner if the crew from World Tower, Inc., had not been forced to wait for a period of calm to hoist the antenna aloft.

Construction crews and engineers, with supervisor Tom Bennett overseeing, often worked around the clock and beyond, stopped for a few hours' rest, and then returned to retackle the job. Their labors resulted in the installation of a 45-foot SWR waveguide antenna surrounded by a radome three inches out to virtually eliminate RF burn, and capped by a lightning-arresting umbrella. Housed at the base of the tower is a Comark 60 kW transmitter that, based on advanced study at the 1985 NAB convention, proved to be the best marriage of quality and value. For the transmitter building and the control rooms at the station, a Roscor studio package provided all electronic equipment (except the transmitter itself), the lighting, equipment racks, and off-air demodulators.

Sisterly cooperation

The sister-station relationship of WYMT and WKYT is greatly enhanced by the two-way microwave network. Besides enabling the exchange of programming and news reports, the network connects the systems department computers of the two stations, links their telephone systems, and permits an RTS intercom between the two master control rooms. (The business com-

puter is an IBM System 36, based in Lexington, that was upgraded with additional capacity and terminals in Hazard. Software is by Columbine.)

As a bonus, the microwave system also links newsroom terminals at WYMT and the Big Sandy bureau with the computerized newsroom at WKYT and the Frankfort bureau. With a news staff of 16 (out of about 50 employees), WYMT is one of the smallest television newsrooms in the country to be computerized. Its ColorGraphics NewStar system supports three terminals in the Hazard newsroom and one in the Big Sandy bureau.

Local news effort

Local news, of course, was one of the main reasons for WYMT in the first place. While the station picks up much of its daily schedule from WKYT, it is programmed separately for the afternoon news lead-in period of 4:00 to 5:30 p.m. From 5:30 to 6:00 p.m. the station picks up half an hour of WKYT's newscast, with a Kentucky-wide orientation. WYMT's own local news airs 6:00 to 6:30 p.m., with a late newscast from 11:00 to 11:30 p.m.

"It's expensive, but it's the main reason the station has been accepted so quickly as a regional station," Gabbard states.

To support the programming effort, the station built two 40-foot-square studios in its Hazard facility: one for production and one for news. They are served by a shared master control room with a Grass Valley Group 100N production switcher and an Image Video combined routing system and master control switcher. Like many stations in smaller markets, WYMT relies on 3/4-inch videotape for news and on-air use. The 10 Sony Type 5 U-matic decks are controlled by an Alamar automation system that Gabbard calls "a marvelous piece of equipment."

Other control room equipment includes an Abekas still store, Chron character generator, Ramsa audio board, and Ikegami monitors. ADDA frame synchronizers and Tektronix test generators and video processors round out the complement. The station

also has Scientific-Atlanta satellite receivers for CBS network reception.

Ikegami ITC-730 cameras are used both in the studios (with conversion kits and Q-TV teleprompters) and in the station's mobile vehicles. Studio lighting is by Mole-Richardson.

Because of the mountainous terrain, none of WYMT's six mobile units—four of which are four-wheel-drive—carries microwave equipment. Each is equipped with an Ikegami ITC-730, a Sony recorder, a light kit, batteries, and gear for location recording.

Going the distance

The entire project hinged on one word, commitment, starting with Bluegrass Broadcasting president and board chairman H. Hart Hagan's commitment to broadcasting and to the viewers who would thereby be served. That commitment has resulted in two television stations that can now deliver audiences across two-thirds of Kentucky.

Gabbard, as executive VP of the television group and general manager of both WKYT and WYMT (Dave Roederer is on-site manager at WYMT), committed the new station to first-rate quality.

Just as important was the commitment on the part of the mountain-area viewers and business community, who so avidly sought television tailored to their unique area. When WYMT-TV was still on the drawing board, Gabbard optimistically projected he would be able to recoup the multimillion-dollar investment in perhaps five years. Since the station went on the air, however, newscasts are already sold out three to four months in advance, and late-evening newscasts have been expanded to accommodate commercial requests. The "recoup" projection has been revised downward to somewhere between two and three years.

And who knows...in the foreseeable future, there might even be a statewide network that could well have the call letters and slogan: "WKYT...We're Your Kentucky Television!" **BM/E**

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- **TV Engineering & Production**

Mobile Production examines the latest equipment and production trends affecting mobile television systems.

- **RF Engineering**

Satellite Links discusses the expanded role of satellite links—both C- and Ku-band—at U.S. broadcast installations.

- **Broadcast Management**

Parking that Pays—Mobile Use Options looks at profitable alternatives, such as leasing for long-term use as an outside control room.

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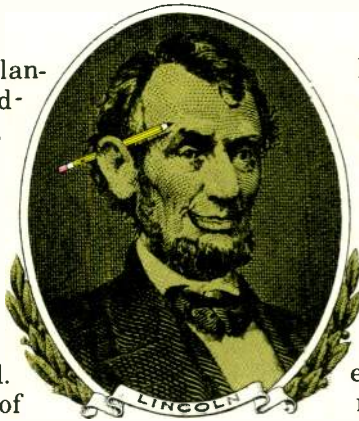


BM/E's April 1986 Issue
The best editorial for our readers

Planning to Save Taxes All Year Long

Broadcasters should research tax laws when planning their yearly fiscal budgets.

By Mark Battersby



There are two basic types of tax planning. With one system, the broadcaster, or his or her tax adviser, researches the tax law to find out whether, and to what extent, tax liability has been incurred on transactions concluded during the year. Another method is to find out in advance what tax liability will result and then construct and plan the transactions so that taxes are reduced.

Tax planning, in brief, is a process of reviewing various tax options in order to determine when, whether, and how to conduct various business and personal transactions so that income taxes will be eliminated or at least minimized. If done after the fact, the question is merely how best to treat them for tax purposes.

The best method

When concentrating on tax planning for your broadcast operation, there are several areas that you might wish to consider during the course of the year or before filing your next income tax return. For instance, a basic tax planning question relates to which is the "best" method of accounting to use.

A cash-basis broadcaster reports income and deductions as received or paid. An accrual-basis taxpayer reports these items as they fall due.

Any broadcaster whose business transactions during the year are many and complex will usually find the accrual method more desirable, because expenses are customarily deducted in the year in which the income to which they relate is reported. For other broadcasters, the accrual method will not necessarily result in more effective equalization of income than will the cash basis, and may, in fact, even create unnecessary accounting headaches.

In selecting the accounting method, one disadvantage of the accrual-basis should be considered—it is more difficult to shift items of income and expense from one year to another. The cash-basis broadcaster may be able to collect advertising revenues, interest, and other obligations in advance or put off payment until a later year. He can control expenses to some extent by accelerating or deferring payment for items such as advertising, supplies, repairs, interest, or taxes.

Control of this sort is not nearly so easy in the case of an accrual-basis broadcaster. Such a broadcaster can, however, defer income by shipping and invoicing as little as possible during the closing days of a year in order to reduce income for that year. Or, expenses can be accelerated by requesting the delivery and billing of supplies, etc., before the end of the year.

The accounting dilemma

Obviously, picking a suitable accounting method can be something of a dilemma. Both the cash-basis and accrual methods provide a number of advantages that appeal to broadcasters. The use of the cash basis method will usually result in a deferral of income for tax purposes, while use of the accrual method will result in a more accurate matching of revenue and expenses for financial reporting purposes.

Fortunately, the Internal Revenue Service has offered a solution to this dilemma by ruling that any taxpayer may use both the cash-basis and accrual methods of accounting so long as the books on the accrual method are reconciled with the broadcaster's cash-basis records used for tax reporting purposes.

Whether the two sets of books permitted by the IRS are employed or not, there are a number of steps which can be used to help reduce your tax bill. What's more, it is never too late or too early to take advantage of many of these so-called "loopholes."

Broadcasters who sustain net operating losses have two options as to how the loss can be applied. They may either carry back the loss three years and then carry over the loss 15 years; or choose to

forego the entire three-year carryback period and deduct the loss entirely over the 15-year carryover period.

This choice can be a difficult one to make mainly because second guessing is not allowed. The election must be made on the tax return for the year in which the loss occurs, and once the election is made it cannot subsequently be revoked.

Since it is only good business sense to try and figure out why the loss was incurred, it should be

Investment Tax Credits, Past and Future

Although president Reagan proposes to completely eliminate the investment tax credit, the latest tax proposal passed by the House of Representatives merely reduces the total amount of investment tax credit that can be claimed in excess of \$25,000 to 75 percent, from the old 85 percent of taxes levied.

However, regardless of which version, if any, finally becomes law, one thing is certain—the investment tax credit can help reduce the cost of last year's acquisitions. According to some experts, the tax credit may also help reduce the out-of-pocket expenditures for equipment acquisitions during at least the first six months of 1986—or the entire year.

What is this cost-cutting benefit hidden in our voluminous tax law? Quite simply, our lawmakers and the IRS will permit every station to reduce its tax bill by an amount equal to 10 percent of any qualifying equipment placed in service during the tax year. This savings is accomplished by a direct reduction of the tax bill rather than by a tax deduction which merely reduces the income upon which the taxes are imposed.

Obviously, claiming the tax credit is not quite that cut-and-dried, but it is relatively simple. First, the broadcaster must acquire equipment—either new or used. The equipment must be depreciable and cannot be land, a building, or structural improvements to that building. Furthermore, only \$125,000 of the cost of used property qualifies.

One hundred percent of the cost of newly acquired property (including not more than \$25,000 of used property) with a life in excess of five years and 60 percent of the cost of three-year property qualifies for the 10 percent investment tax credit. Naturally, the ever-vigilant IRS will require a payback, or recapture, if the property for which the credit claimed is disposed of earlier than estimated.

Once the qualifying property is placed in service and allocated to the various property categories (three-year, five-year etc.) the credit is computed. If the full 10 percent investment tax credit is elected, one-half of the amount of the credit claimed on the tax return must be used to reduce the basis or book value of the underlying property or equipment.

Thus, the acquisition of a new camera for \$10,000 qualifies for a \$1000 investment tax credit. As a result of claiming that credit, however, the amount available for depreciation purposes must be reduced by half of the credit, or \$500. In other words, the depreciation

writeoff is computed on \$9500 rather than the full \$10,000 cost.

As an alternative to reducing the basis or book value of an asset, our lawmakers have simplified matters by permitting a reduced tax credit to be claimed in lieu of that basis reduction. Generally, the tax credit is decreased by two points.

Instead of reducing an asset's basis, the station may elect to reduce the regular investment tax credit percentage by two points. Thus, the reduced credit is eight percent for recovery property other than three-year property and four percent for recovery property that is three-year property.

The basis or book value of qualified films and videotapes must also be reduced by 50 percent of the claimed investment tax credit unless a reduced investment tax credit is chosen. However, the basis reduction is computed in a special way—a portion of the investment tax credit is attributable to contingent amounts paid for residuals and participations.

The tax rules are quite specific about what property is eligible for the investment tax credit. Fortunately, these rules cover most equipment within their convoluted confines. According to those rules, for instance, the tax credit is available only for expenditures on either so-called "recovery property" or other depreciable or amortizable property having a useful life of three years or more that is:

- Tangible personal property (other than (a) air conditioning units, (b) heating units and (c) certain boilers fueled by petroleum or petroleum products and failing to meet special qualifications).
- Other tangible property (not including a building or its components) used as an integral part of (a) manufacturing, (b) extraction, (c) production, or (d) furnishing of transportation, communications, electrical energy, gas, water, or sewage disposal services.
- Elevators and escalators.
- Research facilities.
- Qualified rehabilitation expenditures.

It appears that the investment tax credit will be around for at least the near-future and doubts about claiming its benefits can substantially increase the actual out-of-pocket cost of badly-needed equipment acquisitions. It is, admittedly, difficult to plan long-term equipment acquisitions with the uncertainty of the future of the investment tax credit, but short-term planning should definitely include it.



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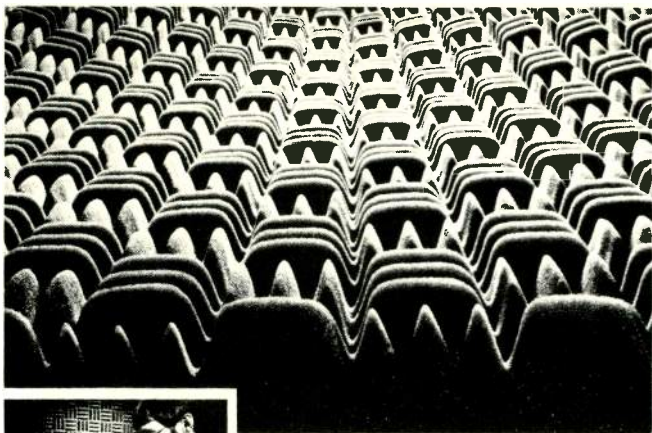
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relatively easy to predict a reoccurrence. The choice of foregoing the three-year carryback should be made if the broadcaster expects to correct the conditions which created the loss and hopes to realize higher amounts of income in the near future.

If the loss was sustained because of long-term conditions and the broadcaster had taxable income in the carryback period, it then may be advisable to opt for the three-year carryback and 15-year carryover period so that the loss can be deducted to the fullest. The infusion of working capital resulting from carryback refunds will also be welcome if future prospects are less than rosy.

On a somewhat more pleasant note, any equipment or fixtures acquired by the station during the year offer several options. First, should 10 percent of the cost be used to reduce the tax bill? Should the broadcaster take a smaller investment tax credit in exchange for a larger depreciation writeoff this year and for several years down the road? Or, should he/she forego the tax credit and the depreciation writeoff and elect to deduct up to \$5000 (\$7500 for 1984) of those purchases as an immediate expense?

A few facts

There is no cut-and-dried answer to this welcome problem. The solution depends upon the needs of the particular broadcast operation. A few facts might help, however.

Under our tax laws, a credit against taxes is allowed for qualified investments in certain depreciable personal property. In the case of most ACRS recovery property, 100 percent of the investment qualifies for the 10 percent investment tax credit; for three-year recovery property, only 60 percent of the investment qualifies for the tax credit. Naturally, the investment tax credit may not exceed tax liability, although unused credits may be carried back and forward. In addition, the regular tax credit may not exceed \$25,000 plus 85 percent of the tax liability over that amount.

In the case of most stations' equipment or fixtures, the basis or book value must be reduced by 50 percent of the claimed tax credit. As an alternative to reducing the basis, an election may be made to decrease the investment tax credit percentage by two points (i.e., four percent instead of six percent in the case of three-year property and eight percent instead of 10 percent for other property).

Where the broadcaster reduces the basis of property by 50 percent of its investment tax credit, the reduction affects the computation of ACRS deductions (lowers the deductible amount for depreciation purposes) and the computation of gain or loss upon ultimate disposition of the asset (increases the gain, decreases the loss).



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As a third option, a station can decide to treat the cost of the new or used equipment or fixtures as an expense rather than a capital expenditure, and is allowed to deduct such costs in the year in which that property is placed in service. For property placed in service in 1982 and 1983, a maximum of \$5000 may be expenses. In 1984 and 1985, the limitation is raised to \$7500. For tax years beginning in 1986, the maximum deduction is \$10,000.

Disposition of assets

One area where there seems to be confusion is that of the disposition of assets. Most of us are aware that the taxation of gain and losses realized or sustained on dispositions of capital assets are governed by special rules that provide considerable tax benefits to those taxpayers who structure their transactions to take advantage of these rules.

Unfortunately, a quick reading of the tax rules reveals that capital assets do not include most inventory items, stock in trade, depreciable business property, or real estate used in a trade or business. Unlike stocks and bonds, these assets are not treated as capital assets and do not qualify for preferential capital gains treatment.

A unique exception exists for sales of know-how which can qualify as capital gains. Any transfer of unpatented technology—"know-how"—can qualify as a sale, and thus, for capital gain treatment.

If the securing of capital gain treatment is important in a transfer of know-how, professional advice should be sought. And, while seeking that professional assistance, it might benefit the average broadcaster to inquire about the changes in estimated tax credits.

IRS penalties

Effective January 1, 1984, if any taxpayer is entitled to a refund and decides to credit that overpaid amount to his or her estimated tax liability, the IRS will not accept the credit until the tax return is filed.

Put another way, a broadcaster with an extension of time to file a tax return might, in the past, have ignored the first quarterly installment of estimated taxes secure in the knowledge that it would be covered by the previous year's overpayment. Now, however, the IRS will assess penalties and interest running from the due date for the missed quarterly installment until the return is actually filed and the overpayment actually credited, despite the fact that the money remains in their hands during the whole period.

Tax planning, both before and after the end of the tax year, can create benefits far beyond the value of the time invested. But, the time to think of taxes—and to plan—is all-year-around, at least if you wish to keep your tax bills to a minimum. BM/E

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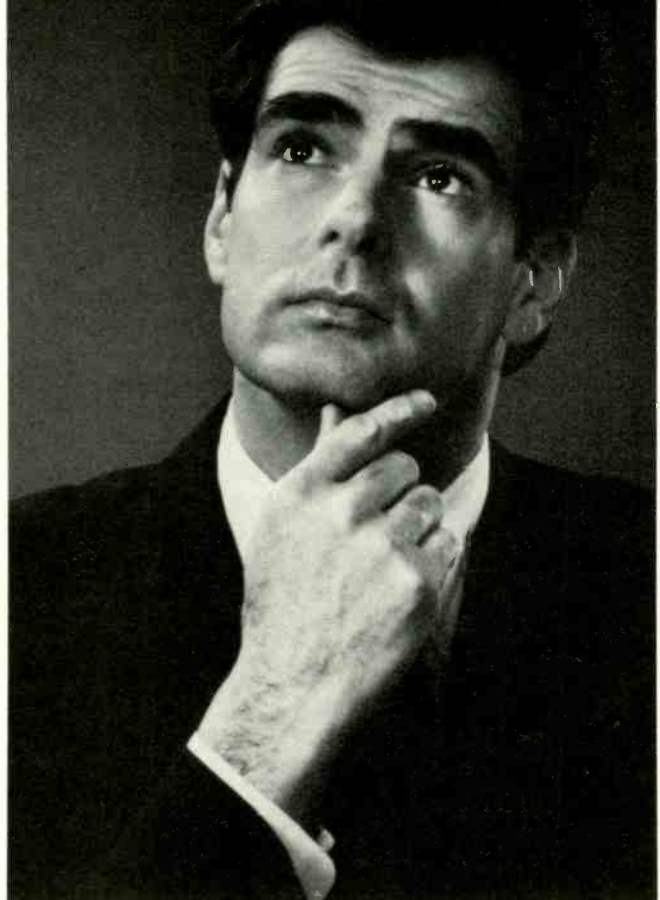
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The Fairness Doctrine

By Harry Cole, FCC Counsel

One of the most venerable "public interest" requirements of the Communications Act may be heading for a fall some time this year. This may be the year that the broadcasting industry says good-bye to the Fairness Doctrine. But, as has increasingly been the case in this deregulatory era, the scenario by which the doctrine may be eliminated might very likely diverge from what might otherwise have been expected.

First, let's get our bearings. The Fairness Doctrine is a creation of the Congress. In Section 315 of the Communications Act, Congress included the apparently innocuous requirement that broadcast licensees "afford reasonable opportunity for the discussion of conflicting views on issues of public importance." From this legislative acorn a vast administrative oak tree grew during the course of the 1960s and 1970s. Public interest groups and special interest groups perceived in the language of Section 315 a guarantee of broadcast time during which they could air their own particular views. Many broadcasters were not inclined to allow their stations to be treated like the equivalent of a soap box in a public park, available for any and all to preach from. These conflicts between the licensees, on the one hand, and, on the other, the groups and individuals who were denied time by the licensees, led to the development of a significant number of policies relating to the implementation of the Fairness Doctrine, as it came to be called.

As a general rule, the Commission's enforcement of the Fairness Doctrine has been relatively easy to live with for broadcasters. The Commission merely requires that each licensee provide some coverage of the various sides of "controversial issues of public importance." Such coverage can include news reports, public affairs or documentary shows, interview programs, editorials, and the like. Except in very unusual circumstances, no particular group or point of view is guaranteed air time; that is, just because a certain group may fancy itself the primary exponent of a certain point of view on a "controversial issue," that group can lay no absolute claim to broadcast time for itself. While a station may choose to cover the group's activities during, say, regular news reports—or even to offer it time during interview shows or for editorial replies—the station is not technically required to do so. Instead, for instance, the station could theoretically avoid direct coverage of the group simply by addressing the underlying in a general fashion, with third-person reports

on the various factors or policies involved in the issue.

Broad discretion

While a couple of cases have held that the Fairness Doctrine imposes a specific obligation on broadcasters to cover "controversial issues of public importance," the Commission has thus far accorded licensees broad discretion in defining that term. Most any issue which appears in initiatives or referenda—proposals to require the use of returnable bottles is a classic example—fall within the definition of that term, as do some of the more obvious controversies of our time (i.e., abortion, capital punishment, etc.). But when it comes to local squabbles, the FCC will usually defer to the broadcaster's judgment as to whether any particular issue is either so "controversial" or so much a matter "of public importance" that coverage is mandated. This deference also applies even when one side of an issue appears to have been treated by a station. For example, if a disc jockey tells a joke which casts some ethnic or racial group in a negative light, the FCC normally sides with the licensee if the licensee concludes that the telling of the joke does not give rise to any Fairness Doctrine obligations because no "controversial issue of public importance" is involved.

Despite the FCC's usual "hands-off" approach to Fairness Doctrine matters, the broadcast industry has historically railed against any encroachment on their power of editorial control. The broadcasters' primary attack on the Fairness Doctrine has generally been grounded in First Amendment considerations. After all, so the argument goes, newspaper owners are not (and, according to most constitutional experts, could not be) statutorily required to be fair in their coverage of issues, since the First Amendment prohibits governmental infringement of freedom of the press. If the broadcast media are but another form of the press, should they not be entitled to the same First Amendment protections?

This sounds like a pretty good argument. Unfortunately, the Supreme Court disagreed in the famous case of *Red Lion Broadcasting Co. v. FCC* in 1969. There the Supreme Court concluded that broadcasters are different from print publishers in that broadcasters use scarce radio spectrum which belongs to the public, while print media do not use any such scarce public resource. Under the Constitution, Congress has the power to regulate such scarce public resources. Relying on this "scarcity

rationale," the court held that some narrowly drawn limitations on First Amendment protections, such as the Fairness Doctrine, would be within the constitutional powers of Congress. Thus, the Fairness Doctrine was upheld.

Since the *Red Lion* decision, the Commission has generally enforced the Fairness Doctrine, apparently (and correctly) viewing such enforcement as part of the job description which Congress has given it in the Communications Act. Again, that enforcement has not been especially onerous for broadcasters; it has, nonetheless, been clear that the FCC was intent on making sure that broadcasters respected the fairness obligations set out in the act.

Creature of Congress

However, unlike many regulations which were initiated by the Commission and which, therefore, could be eliminated by the Commission, the Fairness Doctrine is a creature of Congress. That means that only Congress can, as a technical matter, remove it from the books. Of course, even if Congress were not inclined to do that, the federal courts (including, but not limited to, the Supreme Court) could effectively accomplish the same result by declaring the Fairness Doctrine unconstitutional. But as we have seen already, the Supreme Court has already indicated that it thinks that the doctrine is constitutional. Absent some new circumstances, then, the Fairness Doctrine should be unassailable unless Congress decides that it should be modified or eliminated.

The doctrine's end?

In assessing what a court is likely to do, many legal scholars tend to dismiss political characterizations such as "conservative" or "liberal." Nevertheless, the fact remains that the FCC's predominantly nonregulatory approach could receive a more favorable hearing now than it might have 10 years ago. That factor, combined with the record which the Commission compiled in the course of its most recent Fairness Doctrine inquiry, could spell the end of the doctrine. And even if the Court of Appeals is not ready to throw out the doctrine, the Supreme Court might be willing to. The Supreme Court indicated in passing in a decision a year or two ago that the "scarcity rationale" might be ripe for review, and the Commission is certainly willing to provide the context for such review.

Thus, it is possible that the Fairness Doctrine may not be long for this world. Of course, unless and until the doctrine is either repealed by Congress or declared unconstitutional by the courts, it will remain in full force and effect. However, you should not be surprised if, some time in the next few months, you read that the doctrine has become a thing of the past, just another relic of a previous regulatory philosophy.

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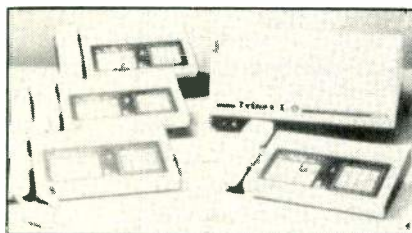
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Business Briefs

Leading off this month's news, **Paltex** has announced that it has acquired **Quantum Audio Labs** of Glendale, CA. As an international company with worldwide sales and service, Paltex will now develop the export market for Quantum.

Editel/LA has a new **Contrast Corrector**, now available to production houses on the west coast. The Corrector zeros in on the gray scale of color-troubled commercials and theatrical prints; once the signal has been corrected, it can be recorded to any tape format. . . . **Pinnacle Productions** of Spokane, WA recently installed an **Aston 4** character generator. . . . Los Angeles-based **Global Video Productions** has acquired a **Grass Valley Model 1680** switcher and three **Ultimattes**. . . . Also in California, **Studio & Remote Video/Films** has introduced the **Ikegami HL-95** into its line of equipment rental.

In other production house news, **Grace & Wild Studios** of Farmington Hills, MI has acquired a **Symbolics 3675** graphics system, which is linked to an **Abekas A-62** digital disk recorder. . . . Dallas Post Production Center now has **the nation's first da Vinci-16** Vector Color Corrector. . . . At Positive Video, a **second Quantel Paintbox** was recently added to the facility.

Action Video Productions, formerly located in Lancaster, PA, has moved into new headquarters at 1828 State St., East Petersburg, PA 17520 (717) 560-0605. . . . As of this month, **ADM Video Productions**, formerly of Long Island, NY, is now located at 40 Seaview Ave., Port Washington, NY 11050 (516) 433-6611. . . . Soundolier has relocated to the Intertech Center in Fenton, MO. . . . Production and post-production house **Eagle Video** has opened its doors at 721 E. State St., Rockford, IL 61104 (815) 963-0963.

Accu-Weather ready-for-air graphics, satellites and radars, plus Accu-Data will soon become available on the **SISCORP** Satellite System. . . . Bogner has received a **dozen orders** for



A Studioline Cable Stereo technician prepares one of the facility's 48 Studer A810 audio recorders for recording of program master tapes.

low-power broadcast antennas. . . . The Armed Forces Korean Network (AFKN) is the most recent recipient of a **Roscor Elite Fleet Mobile Production Unit**. A Roscor TV-14 unit was built around a Ford E-350 heavy-duty chassis which was converted to four-wheel drive for Korea's rough terrain. . . . The **U.S. Army** has taken delivery of 50 Sony JH-110C Series tape recorders. . . . **Studioline Cable Stereo**, a nationwide supplier of premium music programs to cable systems, has purchased 48 Studer A810 audio recorders for use in its Reston, VA facility.

New York City's **VideoWorks** recently completed a 60-second opening for KYW-TV, Philadelphia's daily *Evening Magazine* program. . . . TVC Video has edited **eight promo spots** for Hasbro Toys. . . . Commercial production house **Myers Films** of New York City recently completed work on two spots for Stove Top Stuffing.

Among the personnel changes this month, Bruce Pharr has been promoted to marketing manager, audio tape products, at **Amplex**. . . . Bill Franklin is the new engineering support manager at **Fidelipac**. . . . **Sony** has promoted George Currie to president,

professional audio division. . . . **Lemo U.S.A.** has named William Lee its new applications engineer. . . . At **Dynatech**, Tod Hodgdon takes over as marketing services manager.

Naczinski and Associates, a Los Angeles-based film and videotape production and marketing company, has announced its plans to produce videocassette Video Operating Guides (VOGs) for Zenith Corp. videocassette recorders. The VOG explains how to operate the VCRs, including tips on how to best use the numerous features and CATV hookup options. . . . For the first time in its 18-year history, the **International Television Association** will transmit live coverage of its Video Festival Awards ceremony. The ceremony will take place April 19 at the Loews Anatole Hotel in Dallas, TX. Transmission via a Westar satellite, which can be received by any C-band satellite antenna, will take place at 8 p.m. Central Standard Time.

Aston 4 Video Character Generators have been delivered to production facilities including Pinnacle Productions, Spokane, WA; Alpha-Video, Seattle, WA; National Video Center, New York; and Gateway Studios, Pittsburgh, PA.

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