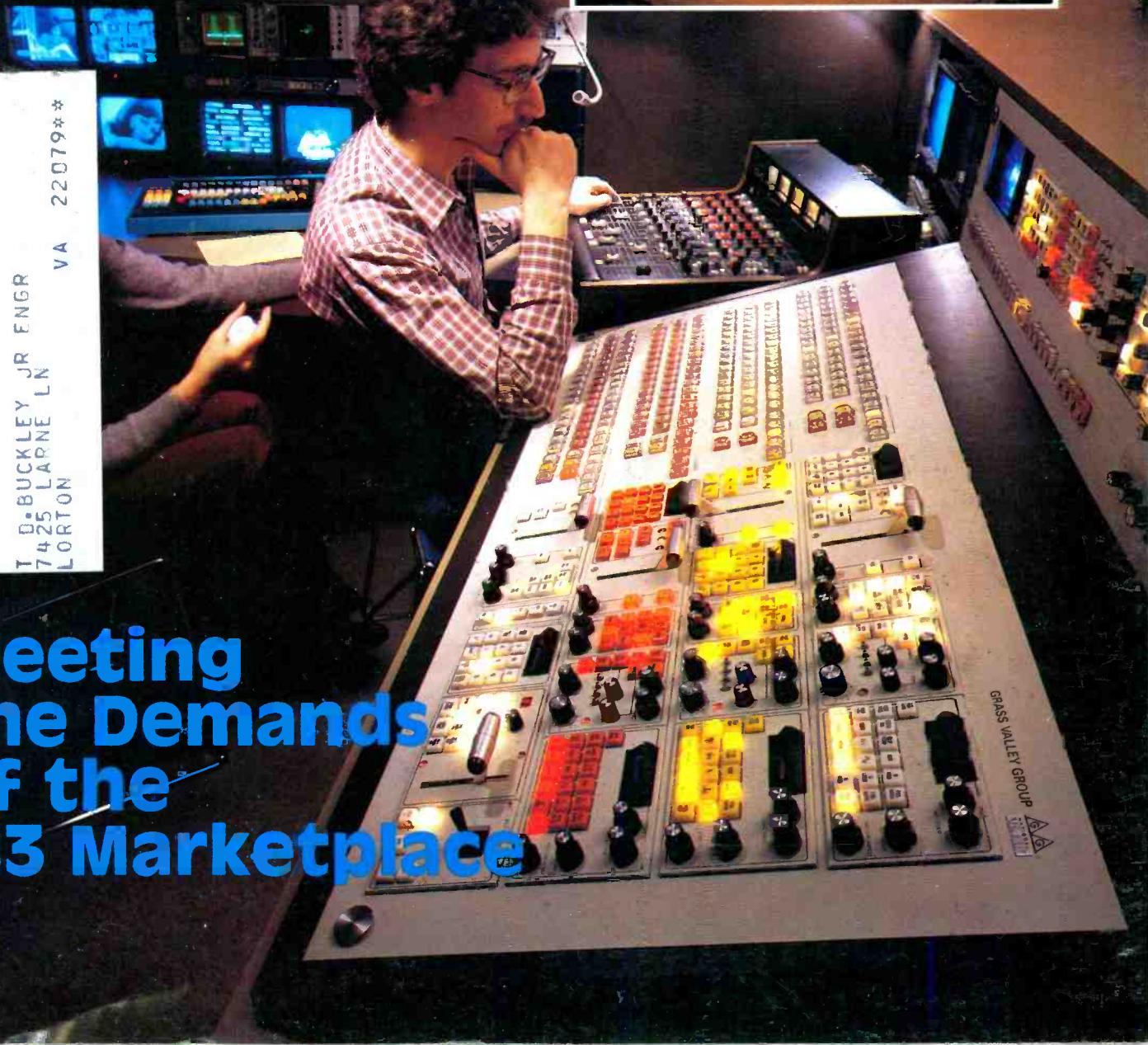


FEBRUARY 1983/\$3.00

BROADCAST COMMUNICATIONS

THE INTERNATIONAL
JOURNAL OF
BROADCAST TECHNOLOGY



Meeting
the Demands
of the
'83 Marketplace

12-61761-34211200183R
010062750

T.D. BUCKLEY JR. ENGR
7425 LARNE LN
LORTON

VA 22079**

SPE 2

GRASS VALLEY GROUP





End slow audio interlock with our Series 50 compact recorder/reproducers. They're designed for demanding production applications like SMPTE control. Built smarter and stronger, with better electronics to make interlock and editing faster.

All three motors—the strongest we've ever put into a compact unit—are included in the microprocessor-controlled servo system for faster and smoother tape handling. Input from five independent photo interrupters and multiple tachs provide a more accurate detection of tension, tape speed and direction, improving external computer control. A single connector delivers all status and remote signals for editor/synchronizer interface and eliminates complicated wiring.

For non-sync recording, two built-in auto locators find critical cues with a single command. Tape location is presented in minutes and seconds, positive or negative.

For easy maintenance and service, all electrical and mechanical adjustments are made from the front and each audio channel is built on its own glass epoxy PCB.

The Series 50 recorder/reproducers are tougher and work harder than any compact machines we've ever produced. Tough enough to bring your audio editing up to speed.

For more information see your TASCAM dealer or write us at 7733 Telegraph Road, Montebello, CA 90640, (213) 726-0303.

Copyright 1983—TEAC Corporation of America

WE JUST BROUGHT SMPTE CONTROLLED AUDIO EDITING UP TO SPEED.

TASCAM
TEAC Production Products

DESIGNED BY POPULAR COMPLAINT.

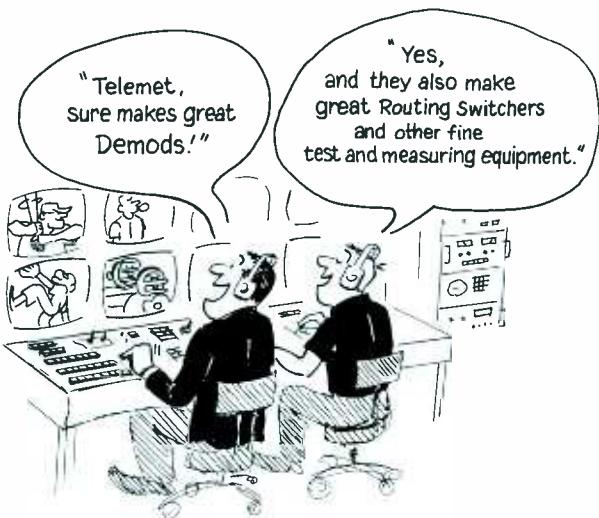
Circle (1) on Action Card

**CMX
IS
OUT
TO
REVOLUTIONIZE
EDITING.**

THE EVOLUTION GOES ON.

BROADCAST COMMUNICATIONS

THE INTERNATIONAL
JOURNAL OF
BROADCAST TECHNOLOGY



Telemet

A Geotel Company

185 Dixon Avenue, Amityville, L.I., New York 11701
(516) 842-2300 TWX 510-227-9850
Eastern Area Office—(914) 279-3231

Circle (3) on Action Card

DON'T GET STUCK IN YOUR OWN TRAFFIC.

The Nidus Broadcast Management System can get you back in the fast lane.

With Nidus computer hardware and software you control the flow. Information is instantly at your fingertips.

Nidus can tailor a system for you. Traffic Management. Sales Management. Financial Management.

You'll receive a new level of decision-making information. And all at a price you'll appreciate.

Call Nidus now for more details
1-800-525-0331

nidus

Systems Company

4090 Youngfield • Wheat Ridge, CO. 80033
1-303-422-6889 • 1-800-525-0331

Circle (4) on Action Card

President & Publisher Michael D. Kreiter

Vice President/Editorial Director Ron Merrell
Vice President/Managing Editor Michael Scheibach

International Video Editor Joe Roizen

Video Production Editor Glen Pensinger

Radio Editor Peter Burk

Audio Editor Larry Titus

Acoustics Editor Eric Neil Angevine

News Technology Editor Phillip Keirstead

Programming Editor Ed Shane

Computer Editor Bryan Boyle

Cable Production Editor Greg Vandervort

Satellite Editor Ruth Macy

Radio Station Editor Robert A. Jones

Facilities Editor Morris Courtright

Foreign Correspondent Mike Townley

Art Director Mary Christoph

Circulation/Business Manager Jean Girardin

Ad Production Manager Debbie Gutschenritter

Association Affiliation

Radio-Television News Directors Association

American Society of Television Cameramen

Broadcasters Promotion Association

Society of Broadcast Engineers

Advertising Sales Offices

Home Office: Debbie Gutschenritter, Ad Production Mgr.
P.O. Box 12268, Overland Park, KS 66212; (913) 642-6611

Eastern Region: Stan Osborn, Vice President/Sales
46 Post Road East, Westport, CT 06880; (203) 226-7419

Charles C. Horner, District Sales Manager
P.O. Box 175, Greenlawn, NY 11740; (516) 757-7863

Central Region: Roy Henry, Vice President/Sales
2469 E. 98th Street, Indianapolis, IN 46280; (317) 846-7026

Western Region: Dennis Triola, Vice President/Sales
2680 Bayshore Frontage Road, Suite 207, Mountain View, CA 94043
(415) 969-3000

Europe: Tomislav F. Marjanović, European Sales Representative
Wilhelmstrasse 52 E, D-6200 Wiesbaden, Fed. Republic of Germany
Tel. (0 6121) 30 26 14

BROADCAST COMMUNICATIONS is published monthly by Globecom Publishing Limited, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208.

All material in this magazine is copyrighted © 1983 by Globecom Publishing Limited. All rights reserved.

SUBSCRIPTIONS: BROADCAST COMMUNICATIONS is mailed free to qualified persons. Non-qualified subscriptions in the United States are \$36 for one year. Subscription rates outside the United States are \$50 for one year. Back-issue rate is \$5.00. Allow 8 weeks for new subscriptions. Allow 8 weeks delivery for change of address.

Controlled postage paid at Shawnee Mission, Kansas, and additional offices.
(USPS 536830)

 Member, Business Publications Audit of Circulation

Postmaster: Please send 3579 forms to P.O. Box 809, Mineola, NY 11501.



Globecom Publishing Limited

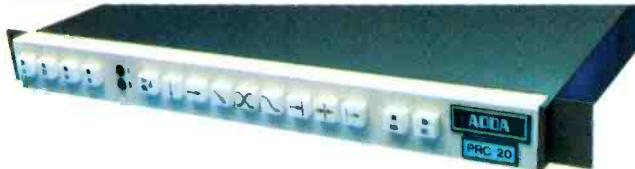
ADDA CORPORATION



Try This on Your TBC.

When we set out to design a dual-channel time base corrector, we knew we had an exciting opportunity. The AC 20 would be more than a superb, economical TBC; it would be the basis for a system that could incorporate production functions normally found only in separate stand-alone units. For instance, a 2:1 Production Remote was a natural.

The AC 20 gives you two channels of digital time base correction in just seven inches of rack height, saving space, maintenance, capital cost, cooling, and power. The Production Remote gives you digital switching effects at very little extra cost.

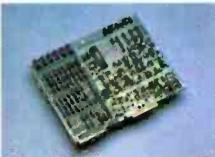


In fact two channels of time base correction with 2:1 digital effects are priced at only \$18,950.

Two of the effects are shown above: Corner Wipe, and Push Off. You also get Vertical Wipe, Vertical Interval Cut, Fade/Dissolve, Push On, and Pull Off, plus Reverse and Mid-Stop controls and a choice of four transition speeds. Not bad for a TBC.

This means that with three VTR's and an AC 20 (with the

Production Remote option) in an editing suite, your ENG post-production crew is ready for A/B-roll editing with digital effects, some of which have only been seen on upscale switchers until now. No need to tie up your production switcher. And you can remote the AC 20 to your editor, if you like.



A complete video channel is on a single board.

The AC 20 works with 3/4-inch and 1/2-inch V-locked, unsegmented VTR's that accept derived 3.58 MHz feedback. It uses a 16-line store, eight-bit technology, and fourth-harmonic sampling to produce a broadcast-standard output. Its digital circuitry assures that the output signal is the same quality as the video input signal. It is virtually transparent. And it is modular; you can start with a single correction channel and do cuts-only editing; you can add a second channel and move up to A/B rolls. You can add the Production Remote for digital transition effects. And that's just the beginning. The AC 20 TBC is the first of a new family of products that will have a significant influence on the future of broadcast production equipment.

The bottom line: Two TBC's plus 2:1 digital effects. At less than a fifth the cost of separate stand-alone production units.

Affordable Excellence

ADDA CORPORATION

130 Knowles Drive
Los Gatos, California 95030
(408) 379-1500

BROADCAST COMMUNICATIONS

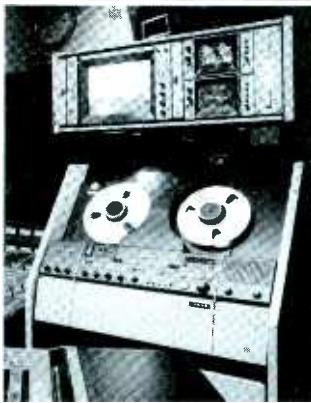
THE INTERNATIONAL
JOURNAL OF
BROADCAST TECHNOLOGY

42**NAB '83: The Best and the Brightest**

Troubled by growing competition, broadcasters will gather in Las Vegas to discuss the issues and see the world's largest exhibit of broadcast equipment and services. This is a sneak preview of the sessions and exhibitors.

52**The Agony and Ecstasy of Selecting Equipment***Herb Ohlandt*

National Video discovers that the joy of building a new production/post-production plant is offset by the challenge to select equipment that matches their clients' needs.

**Departments****28 Televiwew**

Satellite editor Ruth Macy looks at the problems and potential of STV.

32 News Directions

The use of satellites in news coverage has a fairly short history, but satellites are rapidly becoming part of everyday news operations, according to Phillip Keirstead.

34 Sound Ideas

Eric Neil Angevine, acoustics editor, comments on the importance of maintaining safe sound levels at the station.

39 Program Guide

Programming editor Ed Shane is singing the first-quarter blues over declining advertising revenues during the early days of '83.

40 Radio: Loud & Clear

Facilities editor Morris Courtright reviews the development of audio equipment designed to make radio "loud and clear."

8 On-the-Air**10 World Update****16 RTNDA Newsline****21 Supplier Showcase****23 Newsmakers****27 Technology Hotline****73 SBE Monthly Log****74 Product Premiere****78 Professional Cards****78 Advertisers Index****61****AM's Future Needs More Than Stereo***John Shepler*

There's more to AM stereo than settling on a standard system. This article explains how manufacturers and station engineers can assure AM's future with or without a standard.

64**High on Low-Power***Molly Pauker*

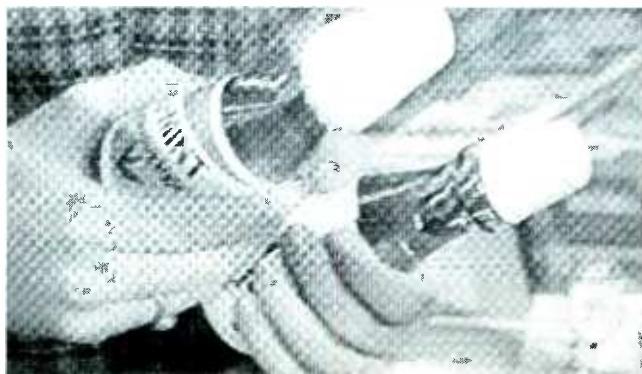
An insider's view on how the FCC sees the development of low-power TV, with comments on how the application processing logjam will soon be solved.

67**Please... No More Chase Scenes!***Richard Rudman*

The Society of Broadcast Engineers and the FCC are cooperating on project "Golden Rule" to solve conflicts of remote-site frequency coordination. Includes a list of national coordinators.

70**Viewer Alert***Donato Pietrodangelo*

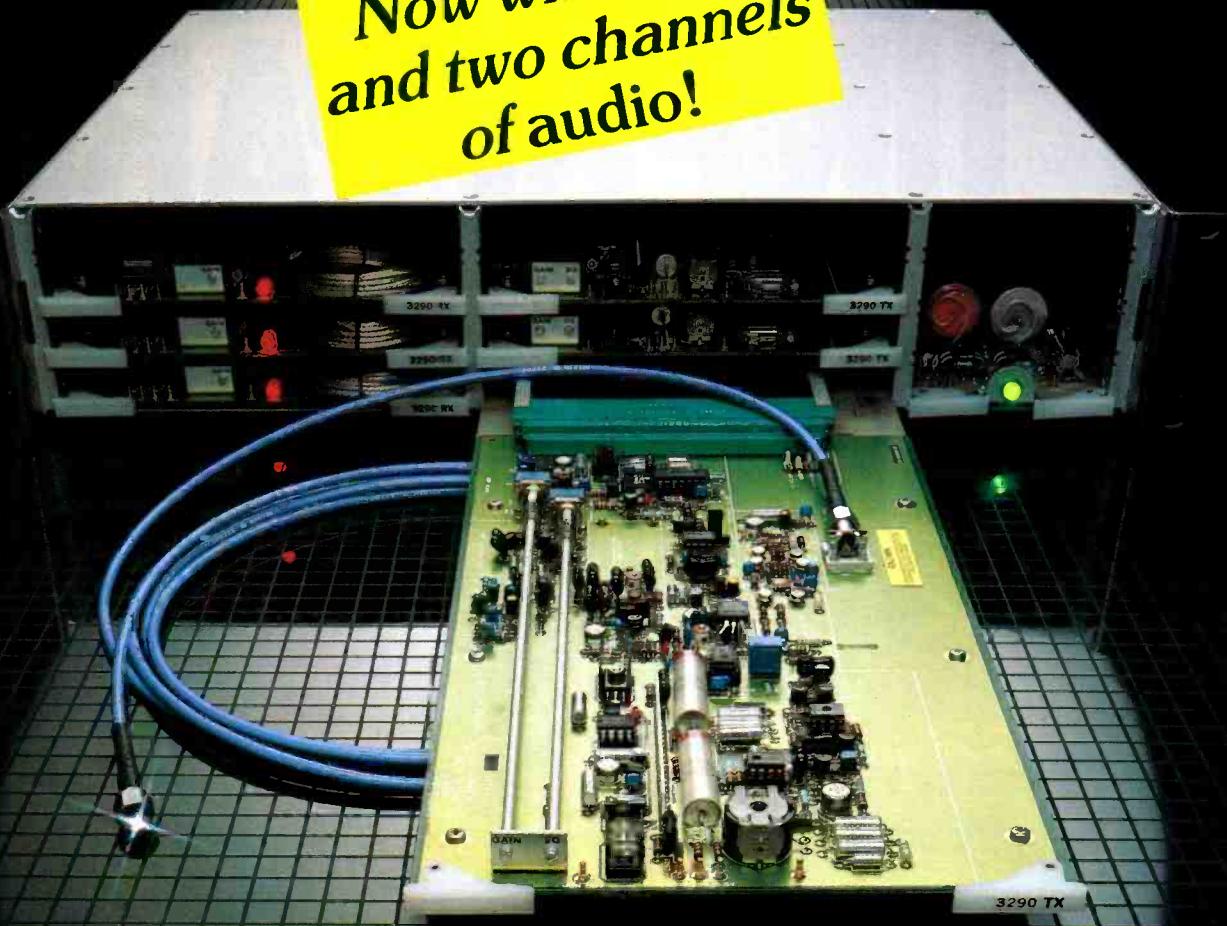
Florida's state health department supplied broadcasters with information that was vital to viewers during the Tylenol scare. The author shows how state agencies can cooperate with broadcasters when their needs are known.



Cover—National Video discusses their technical considerations for selecting equipment beginning on page 52. (Cover photos by Robert Wolsch Designs)

AN EVOLUTIONARY MILESTONE IN TV SIGNAL DISTRIBUTION.

Now with data
and two channels
of audio!



Broadband analog signals can now be reliably and cost-effectively transmitted over fiber optic cables, opening the door to levels of system performance and capability simply not possible with conventional metallic cable systems.

Developed by Grass Valley Group—the undisputed world leader in video switching and distribution equipment for television broadcasting and production, Wavelink equipment is already in use internationally.

Present applications in the TV broadcast and production industry include interconnection between studios, transmitters, satellite earth stations, buildings, remote facilities and microwave stations.

Our extensive experience will assure you a Wavelink system designed to fit your exact needs. Call on our worldwide sales and service network to help you discover the fiber optic advantage.

wavelink

FIBER OPTIC COMMUNICATIONS

THE GRASS VALLEY GROUP, INC.®

P.O. Box 1114 • Grass Valley, California 95945 USA • Tel. (916) 273-8421 • TWX 910-530-8280
A Tektronix Company

THE ONLY 1-INCH THAT WON'T UNPREPARED

Sometimes success can be a mixed blessing.

Because as your business grows, it usually outgrows your equipment. Which could leave you with the extremely costly prospect of having to replace your entire system.

Fortunately, there's an alternative: the Sony BVH-2000—the only 1-inch video system that can be tailored to fit your present applications and

budget, then retailored as your needs change.

For example, any of three different recorder control panels can be incorporated, ranging from a basic model to one with virtually every feature and function currently available to 1-inch video users.

Various remote-control connectors allow you to alter the system's configuration as the need arises, and various circuits and modules—including an op-



VIDEO SYSTEM LEAVE YOU FOR SUCCESS.

tional time base corrector—plug directly into the BVH-2000 recorder.

What's more, you can interface directly with other Sony formats, such as U-matic® and Betacam™ and the BVH-2000 can be easily integrated into any existing Sony 1-inch system.

All of which enables the BVH-2000 to simplify one of the most complicated processes in the broad-

cast industry: the transition to success.

To find out how the BVH-2000 can help you deal with both your present and future needs, call Sony in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 841-8711; in Atlanta at (404) 451-7671; or in Dallas at (214) 659-3600.

SONY
Broadcast



ON-THE-AIR

RON MERRELL

The vote is still out on election coverage

Elections come and go. And when the dust settles and we once again realize that a platform is something to run on, not stand on, the broadcast industry wins and loses. It wins the ratings and loses in the marketplace of ideas. The rap is that the industry reports the East Coast results so early that the West Coast stays away from the polls if it sees a definite voter trend in the making.

The monster-sized computers of yesteryear started this syndrome when they were used by the networks to predict the results with only a small percentage of the votes cast. Candidates were declared winners, while a stunned audience of would-be voters questioned how 10 percent of the vote could yield a winner. But the computers were correct often enough to make them believers.

Even in some local elections on the East Coast, winners were predicted with such speed that voters could see their votes as meaningless.

On the flip side, local issues and lesser local candidates were never on the computer, so concern over these issues and their local government should have been enough to get voters to the polls, regardless of how the national vote was going.

Detractors argued that late-in-the-day voters or West Coast voters might go to the polls to vote on local issues and politics; but armed with up-to-the-minute national reports, they would join the bandwagon rather than go down with a loser.

Reform is needed, but the problem doesn't lie with the broadcast industry. Broadcasters have refined the art of election coverage, but they were working within the system. If all polls opened and closed at the same time, and maybe on a day when voters had equal-time access to the machines, we could get on with the business of covering the election news.

Its convention time again

The NAB convention returns to Las Vegas, with business set to get under way April 10. When the exhibits and sessions close three days later, the industry will have set several new records.

The convention center has been enlarged, and this will allow more exhibitors to display their wares. And it will mean that finding your way through the booth maze will be all the more difficult.

At a time when new delivery systems are introduced almost like clockwork, the new equipment will be in the spotlight. The fact that the economy isn't expected to make a quick recovery, coupled with the growing competition, forces programming and signal quality to the footlights.

Across the industry, the growing feeling is that if you intend to stay in the business, you've got to gear up to stay ahead of the competition. The question of "Can I afford to buy it?" has been replaced with "Can I afford *not* to buy it?"

Session attendance will be especially high this time around. The emphasis is on "An Industry in Transition." Registration will set a new record; and this means that if you plan to attend, it's time to get registered. If you don't have the registration forms yet, call in your request to (202) 293-3526.

Land mobile's appetite

Comments are being accepted on an FCC rulemaking that, left unanswered, might allow land-mobile interests to grab off UHF frequencies long thought the domain of UHF broadcasters. The deadline for comments is March 10. The private Radio Bureau submitted a report that claimed a general shortage in land-mobile spectrum space. This report was chewed up in a land-mobile usage analysis by the consulting firm of Dale N. Hatfield Associates. The analysis concludes that technology, not spectrum grabbing, is the answer.

This is a case where spectrum management needs broadcaster input. If the FCC is intent on listening to the marketplace, the commissioners will listen to the Broadcast Bureau, but pay special attention to those who have established a record of public service on the UHF frequencies. Surely the industry will respond, and hopefully the FCC will recall the rulings that attracted broadcasters to UHF in the first place.



To pay or not to pay

Last August, a landmark court decision was handed down that judged blanket music license fees for television illegal and anticompetitive. As expected, BMI and ASCAP appealed the verdict, and the result puts the industry in limbo.

Now the judge in the current case has decided that this month the license fees that TV stations pay to ASCAP and BMI will be rolled back to the 1980 levels—a reduction of 20 to 30 percent. The amount will vary according to station revenues, from station to station.

The immediate relief is greeted with mixed emotions. Stations could end up recovering fees paid as far back as 1974. But that's not likely. While insiders are optimistic, if the BMI and ASCAP appeal is upheld, broadcasters will be liable for their temporary relief.

Down with one-way streets

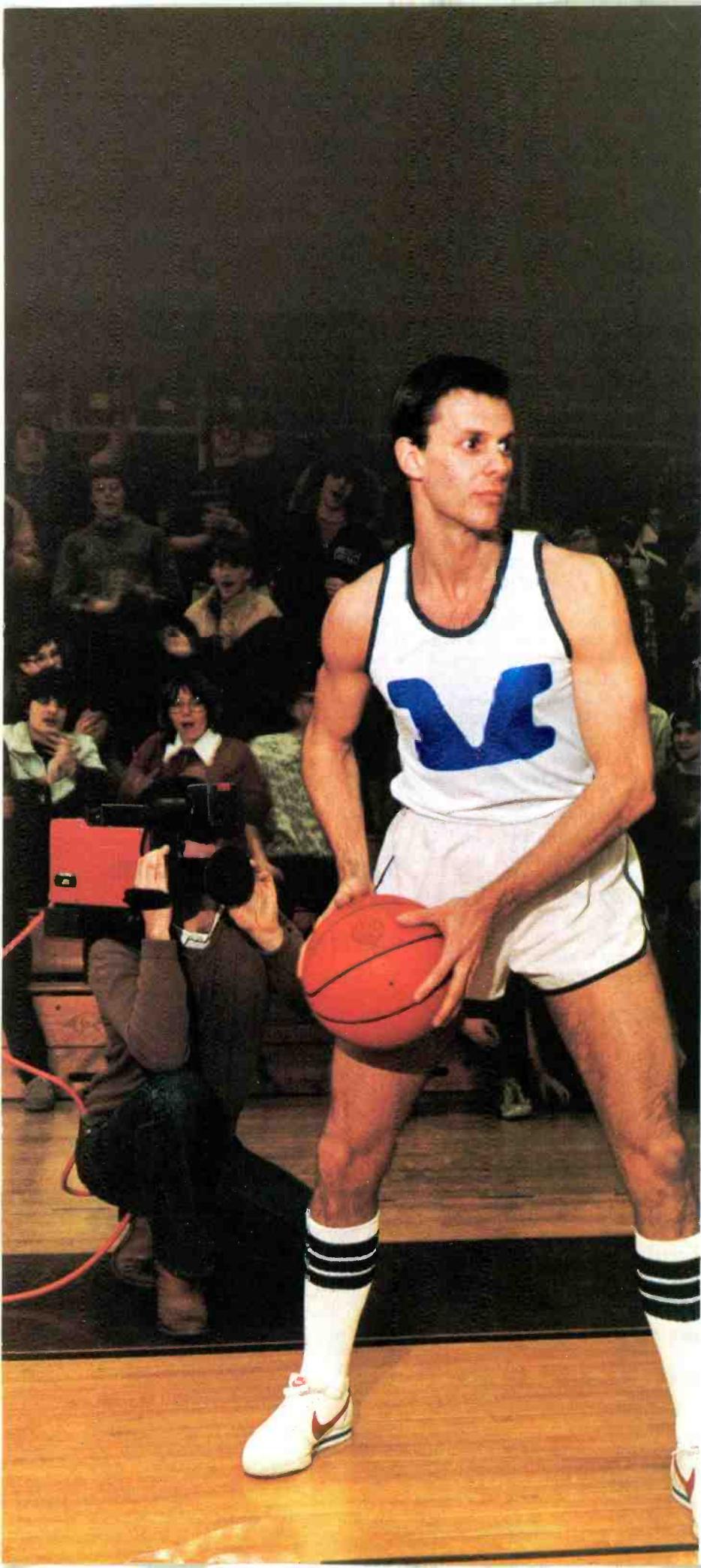
The marketplace isn't a one-way street, even though the FCC may see it that way. Cable-network common ownership is a case in point.

In comments filed with the FCC, the NAB took another shot at breaking the ban on common ownership, basing its arguments on substantial, detailed records supporting this position. It's a position favored by the FCC's own Office of Plans and Policy, the special FCC Network Inquiry staff, and the Justice Department.

The NAB insists that the high level of competition that exists now in cable would continue after lifting the rule. If the networks are allowed to become cable system operators, they will have to propose multiple channels of diverse programming.

Network affiliates themselves are looking for program alternatives. The shift will promote new programming as local stations opt for ad hoc satellite networks. Removing the network ban will fuel the affiliate programming search, while allowing the networks to add, through cable, to the viewers' growing choices.

Will the public interest be served by lifting the ban? Yes, especially at a time when the programming revolution can take advantage of the technology. **BC**



Midwest and JVC put you where the action is!



JVC Provides Rugged Quality and Dependability. Midwest Gives Them To You Fast... And For A Great Price!

JVC cameras, recorders and editors are famous for their reliability and their ability to take the bumps and jolts of mobile unit installations. That's why they're the choice of so many cable companies.

If you need a mobile unit that can take the punishment that on location productions dish out, you need to talk to Midwest about their complete line of JVC equipped units. Midwest maintains an in-depth stock of the full JVC line.

Let Midwest put you where the action is, with rugged JVC production equipment in an M 1 or an M 20 mobile unit.

For information on the complete line at Midwest, call toll-free today.

1-(800)-543-1584

Circle (7) on Action Card



**MIDWEST
CORPORATION**

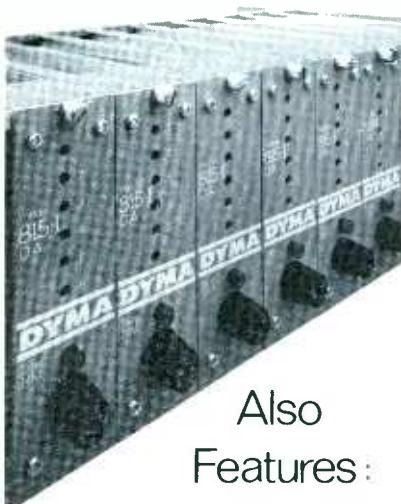
**One Sperti Drive
Edgewood, KY 41017**

Circle (7) on Action Card

Authorized Distributor
for JVC Products

Dayton, OH 513-298-0421
Cincinnati, OH 606-331-8990
Columbus, OH 614-476-2800
Cleveland, OH 216-447-9745
Pittsburgh, PA 412-781-7707
Detroit, MI 313-689-9730
Indianapolis, IN 317-251-5750
Louisville, KY 502-491-2888
Lexington, KY 606-277-4994
Nashville, TN 615-331-5791
Charleston, WV 304-722-2921
Virginia Beach, VA 804-464-6256
Washington, DC 301-577-4903
Charlotte, NC 704-399-6336
Atlanta, GA 404-457-4300
Miami, FL 305-592-5355

highest headroom



Also Features:

EASY INSTALLATION: wire-seizing connectors.

STATE-OF-THE-ART MSI DESIGN.

OUTSTANDING PERFORMANCE.... exceeds specifications for FM broadcast systems. Excellent for distribution of high speed SMPTE time code.

EACH UNIT SEPARATELY POWERED from AC power strip on rack frame.

TEN UNITS PER RACK FRAME... as many as 100 outputs per frame.

TWO MODELS: one-in, ten-out, with common gain and one-in, six-out with individual gain controls.

Ask about the entire DYMA family of audio broadcast products.

DYMA

ENGINEERING

(505) 865-6700

P.O. Box 1535

367 Main S.W.

Los Lunas, New Mexico 87031

Circle (8) on Action Card

WORLD UPDATE

WBBS-TV plans news programs in Spanish

Plans for Spanish-language news programs, to be produced by Hispanic-Americans and telecast over a Hispanic-owned and operated television station, have been announced by WBBS-TV, Chicago.

In addition to the news broadcast in Spanish, WBBS has begun telecasting each weeknight from 10:30 p.m. to approximately 1:30 a.m. what station president Marcellino Miyares describes as "the finest Spanish novelas" and feature-length motion pictures in Spanish.

WBBS' antenna, one of the two located atop the Sears Tower, was constructed last February. Installation of the station's transmitter on the building's 101st floor was completed in April. Since then, the station has been constructing its studio facilities in the Sears Tower and preparing for its Spanish-language programming format.

A top-flight news team will report the news utilizing two minicams and a mobile unit to provide daily, on-the-scene, minicam coverage in Spanish.

Miyares said WBBS will report everything of interest to the Hispanic community, including day-to-day coverage of neighborhood, city, state, national, and international news stories.

"In the highly competitive world of commercial television," Miyares said, "we are proud that we, a minority, have brought this station into existence and have proceeded step-by-step toward its development by constructing a television antenna which, at 1,707 feet, is the highest and most powerful UHF signal in the world; by installing our transmitter; by constructing our studio; and, now, by providing news and entertainment in Spanish."

BPA seeks entries for annual awards

The Broadcasters Promotion Association is calling for entries in the 1983 International Gold Medallion Awards competition. The contest is open to all radio and television stations, program

distributors, networks, and cable companies. Entries should have appeared for the first time between February 16, 1982, and March 1, 1983. Entrants need not be members of the BPA as long as the entry promotes or contributes to the image of a radio or TV station, network, program distributor, or cable company. Entries must be received by March 1, 1983; and winners will be announced June 25th at the annual BPA seminar in New Orleans.

This year, the categories have been adjusted to accommodate the wishes of the BPA membership determined from a survey taken after completion of the 1982 competition. The campaign categories for TV stations have been expanded so that material created in-house will not compete with that conceived by an advertising agency. Syndicated material, network spots, and ads localized by a station will also be judged separately from station-created material.

Entry fees are \$45 for BPA members and \$75 for non-members. Entry forms can be obtained through the BPA office, 248 W. Orange Street, Lancaster, PA 17603.

Satellite system planned for radio networks

Installation is under way on a regional satellite communications system for radio. The system is unique because it will utilize only a portion of one transponder on the satellite, thereby providing a more reliable and better-quality signal at a cost saving over the current line system.

The system is being constructed by Interstate Communications Inc. (INTERCOM) for its Louisiana network and Mississippi network. Both networks operate independently within their state boundaries, providing live news and information programming to their radio station affiliates.

According to INTERCOM president Tim Patton, "The system is comprised of two uplinks—the first to be installed in the cities of Baton Rouge, Louisiana, and Jackson, Mississippi—plus a total of 89 downlinks in both states."

This cost-effective and efficient system of transmission is the brainchild of INTERCOM's vice president of technology, Rhett McMahon. Mc-

Continued on page 14



VIDIFONT® GRAPHICS V. The excitement radiates through your creative staff. Reaches out. Grabs your audience. Vidifont Graphics V™ refines the art of electronic graphics. From often-needed name supers to story highlighters to full animated sequences. Imagine the added impact!

You start with distinctive graphic composition capabilities. With digitizing tablet or keyboard, design and create character fonts, logos, weather symbols and other graphics.

Add color. Over 4,000 colors for those multi-colored characters, extended edges, banners, backgrounds and graphics you could never before create in-house.

Now get things moving. With animation, color cycling and mix effects, including wipes, fades, mixes and merges. Our multiple plane frame-store means freedom of movement for rolls, crawls, character-by-character ripples and diagonals and full-screen animations.

Graphics V is a multi-channel system that welcomes simultaneous multiple-user access. Two high resolution channels and six off-line entry channels provide enough operating positions to custom fit your needs, including elections and other special programs.

For all its features and flexibility, Vidifont Graphics V is user-friendly. In the studio or on the road, operation is easy and efficient. Real-time productivity is the result.

Call or write Thomson-CSF Broadcast, Inc., 37 Brownhouse Road, Stamford, CT 06902. Tel. (203) 327-7700. TWX: (710) 474-3346.



THOMSON-CSF BROADCAST, INC.

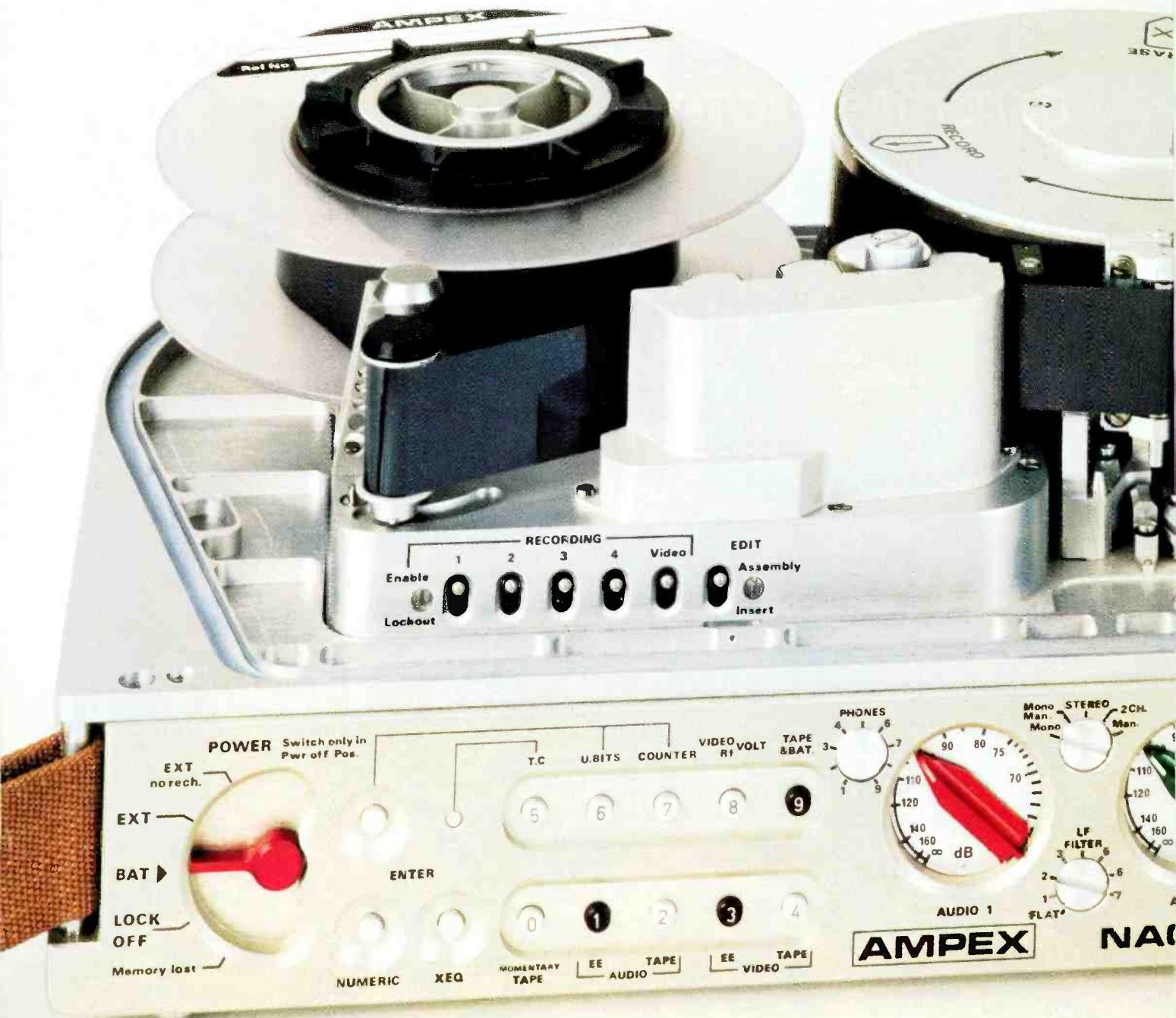
Circle (9) on Action Card

Generate excitement!



A NEW PORTABLE “C” VTR THAT WEIGHS JUST 15 POUNDS.

NOT 45.



The revolutionary VPR-5.

We've started a VTR revolution by combining our talents with those of Kudelski SA, an innovator in audio technology, to create the Ampex Nagra VPR-5. At 15 pounds (including 20-min. reels, battery and cover), the VPR-5 is the world's lightest most portable one-inch Type "C" VTR.

VPR-5 is as small as a briefcase, yet it delivers the quality and editing capability demanded from any full performance C-format VTR.

Our VPR-5 measures only $17\frac{1}{2}'' \times 8\frac{1}{2}'' \times 5\frac{1}{2}''$.



And it features: dual microprocessors, two high-quality audio channels plus a SMPTE/EBU time code channel, dual-cue editing for studio-type control of playback review and other edit-related functions, unique LCD display of VU and PPM levels, an audio confidence playback selector independent of the video, and a rugged aluminum alloy casing.

VPR-5. It's ready to go when you are. For more information, contact Ampex Corporation, Audio-Video Systems Division, 401 Broadway, Redwood City, CA 94063 (415) 367-2011.

**SETTING
THE FASHION IN
BROADCAST VIDEO**

AMPEX

Ampex Corporation • One of The Signal Companies

Circle (10) on Action Card



Mahon is quick to point out he has been helped by Satellite Systems Corporation, which is assembling the package; and Modulation Associates, which is manufacturing optimized components designed to send and receive the smaller signal, using only a 10 dBw space segment on the transponder.

Patton estimates that the uplinks will cost half of those being purchased by national nets, which are using full transponders of space on their satellites.

Teleconference workshops planned

The Public Service Satellite Consortium will conduct three workshops in 1983 entitled "How To Video-Teleconference Successfully." The first workshop will be held March 21-22 at the PSSC technical center in Denver, Colorado.

The workshops are designed for those who want to know more about teleconferencing—from budgeting and selecting a network, to choosing a producer and on-camera talent. PSSC conducted four workshops on video-tele-

conferencing during 1982 and three in 1981.

Individual sessions will address the elements making up a successful video-teleconference, including program development, interaction, promotion, audience preparation, networking, and ground systems. A closed-circuit telecast simulating a teleconference will feature on-camera talent discussing costs and budgeting for an event.

The sessions will be conducted by various PSSC staff members, including Helen Lauck, director of the PSSC National Satellite Network; Polly Rash, director of marketing; Mary Roybal, manager, operations support; and Lee Lindblom, network specialist.

Two other workshops will be held May 25-26 in Washington, D.C., and July 19-20 in San Francisco.

Hotel reservations must be made separately, but PSSC has arranged for hotel facilities in each city. Each workshop will cost \$395 per person, with a \$50 discount for PSSC members. Those who wish to register or obtain more information about the workshops should contact the PSSC marketing department, corporate headquarters, 1660 L St., N.W., Suite 907, Washington, DC 20035; (202) 331-1154.

PSSC is a non-profit international organization that provides satellite and other telecommunications-related services to organizations in the field of law; health and medicine; education; library science; religion; and government. A wholly owned subsidiary, Services by Satellite (SatServ), offers similar services to corporate clients.

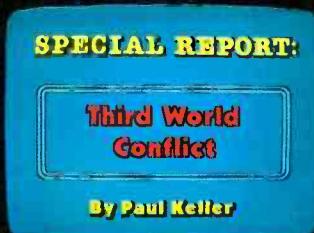
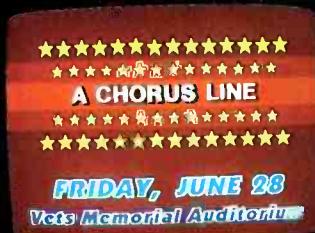
CAB calls for new legislation

Private broadcasters are recommending fast action by the Canadian government to overhaul obsolete broadcasting and copyright legislation so that the country's broadcasting system can cope with the communications revolution.

The Canadian Association of Broadcasters made its recommendations (covering radio, television, and cable) in a policy paper sent to Communications Minister Francis Fox. The CAB describes its paper as "policy and legislative recommendations" under the title "A Broadcasting Strategy for the Future."

CAB chairman Don Brinton, president
Continued on page 16

7200 COMMUNICATOR



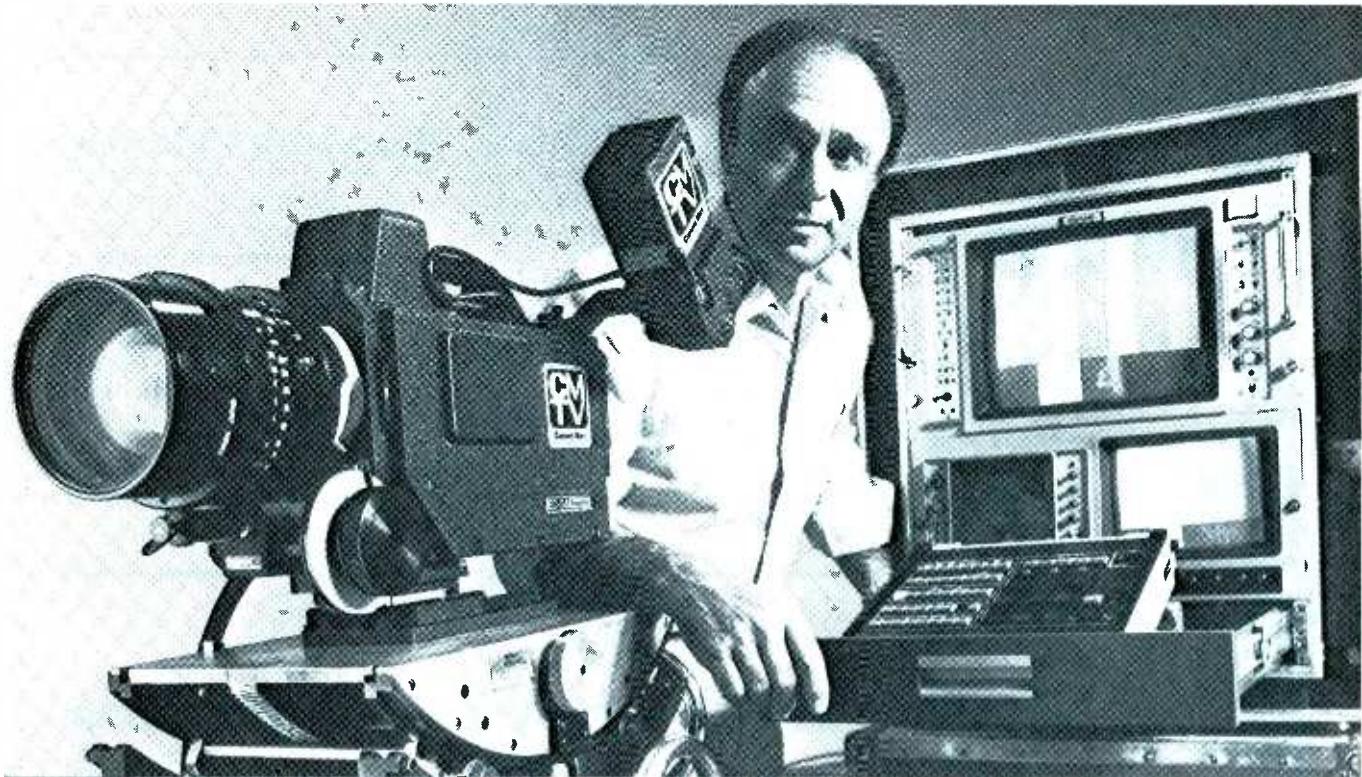
Certainly our 7200 Communicator produces high-resolution, proportionally spaced characters from a multitude of undistorted standard and special fonts. Instant italics, font intermix, animated graphics, and auto sequence are also included. These are all features you would expect to find in any Broadcast-class Graphic Generator.

What wouldn't you expect? How about a choice of 32,768 background and character colors, a 100-line resident text memory, four 128-character resident fonts. How about a full-screen status/preview display and a basic PROM alternative to RAM/disk memories.

What you will come to appreciate the most, however, is that our imagineering has made the operation and maintenance of the 7200 simplified.

LAIRD TELEMEDIA INC.
2424 SOUTH 2570 WEST • 801 972-5900
SALT LAKE CITY, UTAH 84119

Circle (11) on Action Card



"Although I still do most work on film, I now welcome the opportunity to work with tape. Thanks to the Ikegami EC-35."

Adam Holender—ASC

"I can hardly describe myself as a tape expert. Some years ago I had less than favorable experiences with tape, and since then I have pretty much stayed away from it. After I attended the Ikegami EC-35 camera seminar at Camera Mart, however, I decided to try tape again, and for the first time I felt comfortable with it.

"In the production of television commercials, which I direct and photograph, tape is usually requested when it's a matter of expedience, and finished spots have to be delivered to the networks fast. Now, I believe, with this new available technology, the visual quality does not have to be compromised.

"I have used the EC-35 in the studio and on location. My approach was quite simple.

I decided to ignore the fact that I was dealing with tape, and work as if I were using film. That meant a film camera crew, a gear head for the camera, and the lighting I would have used for film. It all worked well, and it was particularly helpful to have color control of the image being recorded, right then and there, on the set. It felt much like having the benefit of a trusted laboratory timer in the usual post production on film, only with the Ikegami system one could see the quality of the answer print on the monitor before shooting.

"Although I still do most work on film, I now welcome the opportunity to work with tape."

See how the Ikegami-EC-35 System can change your attitude towards tape. Call today for a test demonstration.



The Camera Mart, Inc.

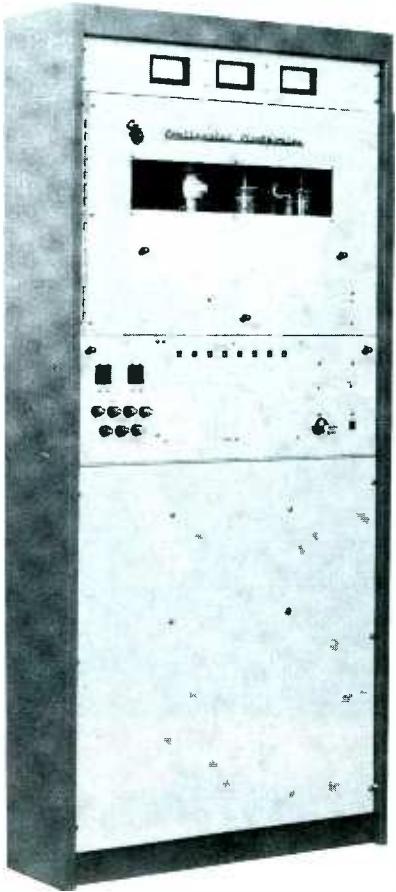
456 West 55th Street, New York 10019 • (212) 757-6977 / Telex: 1-2078

Video Department: 800 Tenth Avenue

Sales • Service • Rental

Ask About Our Long Term Lease and Lease/Purchase Options.

Circle (12) on Action Card



Continental's 1 kW AM Power Rock: a sound winner that's ready for AM stereo.

Tough market or not, the Power Rock is designed to give you the best signal around. Listen to the loud, clear signal, and you know you have a winner. The Power Rock is ready for AM Stereo and accepts sophisticated audio. Conservatively-rated components give you an extra margin of safety for steady and reliable on-air performance.

For information, call 214/381-7161
Continental Electronics Mfg. Co.
Box 270879 Dallas, TX 75227

Continental 

<input type="checkbox"/> Send me 1 kW AM Power Rock brochure	
Name _____	
Station _____	
Address _____	
City _____	
State/Zip _____	
Phone (____) _____	
<small>© 1982 Continental Electronics Mfg. Co./4966</small>	

Circle (13) on Action Card

dent of CanWest Broadcasting of Winnipeg, noted that work by the association's internal committees has been under way for nearly a year to prepare and refine its policy recommendations to the Canadian government.

With respect to television, the CAB paper recommends the creation of incentives, rather than more stringent regulations, to enhance Canadian production. It also insists that broadcasters must have exclusive rights to exhibit certain programs in their licensed service areas, if they are to generate the revenues needed to finance expensive new productions.

Business Hotline

SONY BROADCAST—CFTO-TV of Toronto, premier station of the CTV Television Network, has placed a major order for Sony Broadcast's Betacam system. The station has opted for the BVW-3 three-tube version of the Betacam integrated camera/recorder. Ten units will be delivered in an initial order, and an option on further units has been requested. The integrated camera/recorders, with their associated player units, will be phased into service this month.

RTNDA NEWSLINE

Salary survey reveals surprises

The annual RTNDA survey of salaries in radio and television news contained some surprises this year. For instance, salaries of radio news directors in markets of most sizes were up considerably, but pay for other radio news staff categories changed little. And starting salaries do not seem to vary much in small, medium or large markets. Only in the major markets (ADI 1-25) are the lowest-level salaries much greater. The survey is conducted each year by the chairman of the RTNDA Research Committee, Vernon A. Stone, director of the School of Journalism at Southern Illinois University. This latest survey was conducted in the summer of 1982, and produced responses from 450 television and 350 radio stations.

Among the other highlights of the survey:

- The median salary figure (the middle figure in the distribution range) for all TV news directors, nationwide and all market sizes, was \$565/week, up 13% from last year. The major increases came in the larger markets, ADI 1-25, where the median salary went up 25%.
- TV news salaries generally moved ahead in the top-100 markets, held steady or gained slightly in ADI 100-150, and slipped a bit from 1981 in smaller markets.
- The highest paid anchorperson at a typical ADI 1-25 station was making 12% more in 1982 than a year earlier. Increases of 8-10% were typical for ADI 26-150, but in smaller markets there was a drop of 8%.
- A TV news operation's typical highest salary was more than double the high for radio—\$745 for TV, \$338 for radio.
- The lowest salary in a newsroom varied little by types of operations. The median was \$205 for television and \$210 for radio. And the median range across all-size markets was minimal, from \$200 to \$225.
- The size of the TV news staff had a great effect on salary levels. Median salaries increased considerably at each level: 10 or fewer, 11-20, 21-35, and over 35.
- Radio news directors in medium markets (50,000-250,000 population) made little more than those in small markets (under 50,000)—\$261 vs. \$250 medians. But salaries were typically about one-third greater in large (250,000 to 1 million) markets—\$351 a week. They were roughly two-thirds greater still in major (more than 1 million) markets.
- Regionally, differences were neither great nor consistent. As in other RTNDA salary surveys, the area of the U.S. surveyed was far less a factor than was market size, although news camerapersons typically earned \$35-\$65 a week less in the South than elsewhere.

"The annual salary survey is one of the most widely used products of our research effort," says RTNDA executive vice president Ernie Schultz. Copies of the full report can be obtained by writing Schultz at the Washington office of RTNDA at 1735 DeSales St., NW, Washington, DC 20036.

SUPPLIER SHOWCASE®



The Comad CJF-1 Prewired Audio Jackfield.

If you've counted the jacks in the photo, you've discovered the total price of the CJF-1.

Not bad for a 24-position prewired jackfield.

Shielded, twisted-pair wire connects the 24 ADC tip-ring-sleeve jacks to a swivel-mounted terminal block with room for 120 connectors.

The standard single unit rack mounting strip is hinged on the left side for easy access to the wiring.

Four different lengths of cable harness are available, so that up to four separate terminal blocks can be neatly mounted into a pair of optional mounting bars.

If 24 jacks isn't enough for you, the 48-jack CJF-2 jackfield with a normalized wiring configuration is also available. Its price is \$495. (We'll let you figure out the cost per jack.)



Comad, Inc.
P.O. Box 10667
Pensacola, FL 32504
904/434-9782

Circle (14) on Action Card

New from Moseley MRC-1600



\$3695.00

The MRC-1600 Microprocessor Remote Control offers microprocessor flexibility and sophistication in an economical and dependable package for general AM-FM remote control applications. It comes equipped with 16 status inputs, 16 telemetry inputs, 16 raise command outputs and 16 lower command outputs. Each command output is relay-isolated. Adapting the MRC-1600 to current system interconnections is easy. Plug-in modules can be ordered to accommodate almost any interconnection system, from standard 2-wire or 4-wire telephone lines to FM subcarriers, subaudible telemetry, or a custom combination of any of these.

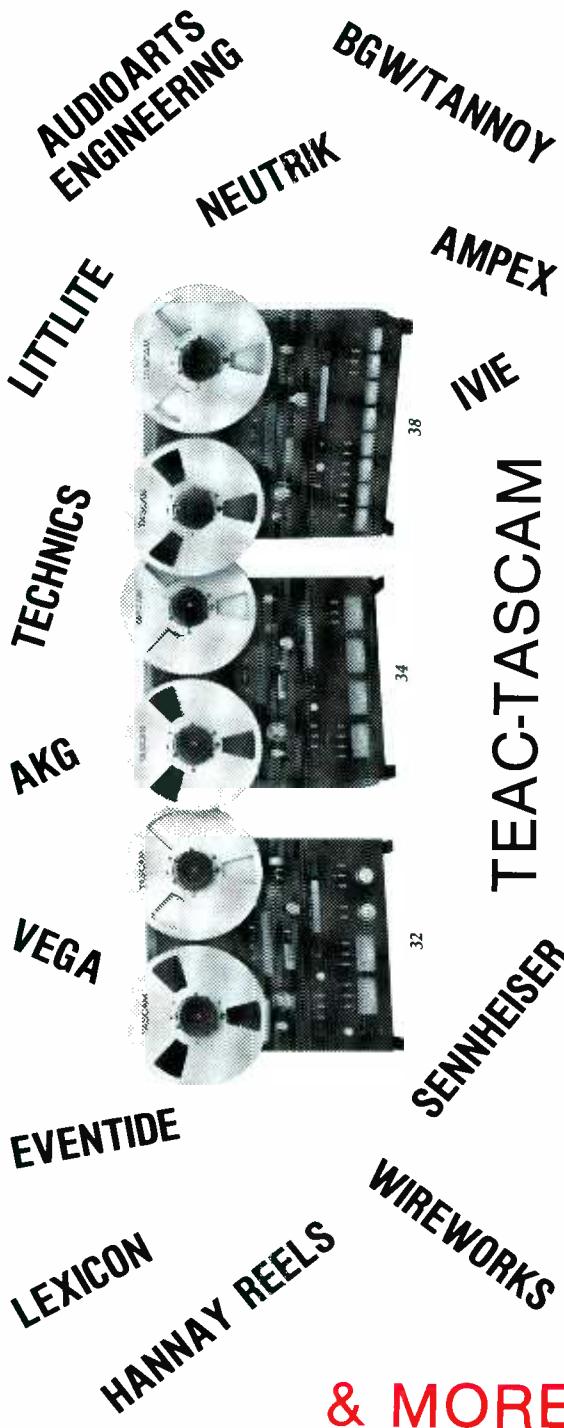
The MRC-1600 front panel is simple to operate and easy to understand. All status channels are displayed simultaneously on a set of 16 LEDs. Alphanumeric LEDs give readouts of selected channel number and telemetry data while 8 color-keyed LEDs indicate system operation mode, alarms, etc.

Northeast Broadcast Lab., Inc.
P.O. Box 1176 • 15 Charles Street
South Glen Falls, NY 12801
(518) 793-2181

Circle (15) on Action Card

FitzCo
SOUND, INC.

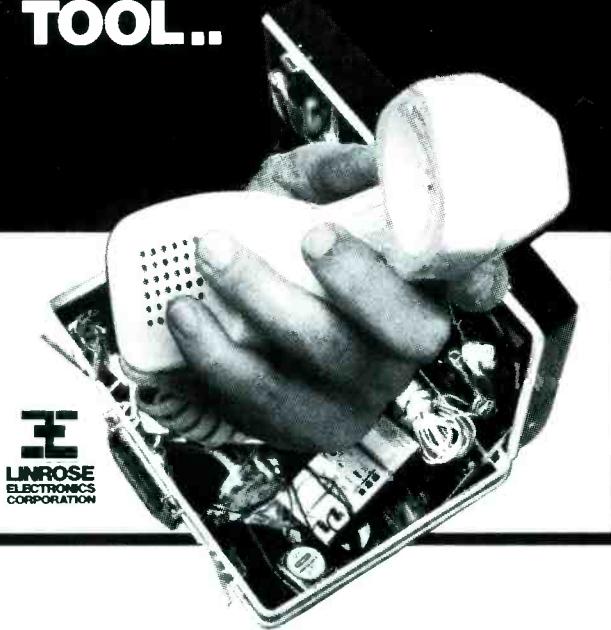
204 N. Midkiff
Midland, Texas 79701
(915) 684-0861



Circle (16) on Action Card

SUPPLIER SHOWCASE®

**COMMUNICATION
IS YOUR GREATEST
TOOL..**



**LINROSE
ELECTRONICS
CORPORATION**

•DEPENDABILITY •SERVICE •PRICE

202W Nakoma •San Antonio, Texas 78216 Collect (512) 342-8849

PROFESSIONAL EQUIPMENT FOR BROADCASTING PROFESSIONALS

Circle (17) on Action Card

MIC SALE MIC SALE MIC SALE



**EV-SHURE-AKG-BEYER-SENNHEISER
BEST MIC PRICES**

120 PRODUCT LINES FOR THE PROFESSIONAL
TOLL FREE IN 50 STATES **800-356-5844**

FULL COMPASS SYSTEMS

IN WISCONSIN

(800) 362-5445

LOCAL

(608) 271-1100

6729 SEYBOLD RD., MADISON, WI 53719

Circle (19) on Action Card

**SHANE
MEDIA
SERVICES**

7703 Windswept
Houston, TX 77063
713-461-9958

- Market Positioning Analysis*
- Programming and Music Consultation*
- Seminars for Management Professionals*

Circle (18) on Action Card

**Television
Studio
Engineering**

Spectrum Series
Design & Engineering
Equipment Purchase
Installation Supervision
Personnel Training

If you ever wished there was an experienced video engineer, independent from all manufacturers, who would help install your studio from concept to "Cameras on" cost effectively... now there is.

(414) 462-7010

P.O. Box 25510
Milwaukee, WI 53225

Video Ink

VIDEO ENGINEERING & WRITING CONSULTANTS

Circle (20) on Action Card

BROADCAST COMMUNICATIONS/FEBRUARY 1983

NEWSMAKERS

Phillip O. Keirstead, news technology editor of BROADCAST COMMUNICATIONS, and associate professor of journalism at Florida A&M University, is the recipient of the 1983 Distinguished Alumni Award, presented by the alumni association of the Boston University School of Public Communication.

Richard Fraim is the new vice president and general manager of KNTV-TV, Landmark Communications' ABC affiliate in San Jose, California. He succeeds Charles Bergeson who becomes vice president of Landmark Broadcasting, with responsibility for specific projects.

Valerie Schulte has been named assistant general counsel of the NAB. Schulte joined NAB in 1980 as an attorney in the legal department, and had previously been with the Washington office of the Wall Street law firm of Cadwalader, Wickersham & Taft since 1976.

Thomas Olson has joined the sales staff of Katz Independent Television Sales in Chicago, and has been assigned to the Lancers Team. Prior to joining Katz, Olson was an account executive for radio station WFYR in Chicago.

Clare Simpson has been named vice president, program development, of United States Satellite Broadcasting Company, the direct-broadcasting satellite company of Hubbard Broadcasting. Simpson is a television executive with extensive programming experience, including network, advertising agency, and independent production.

Dante James has been named executive producer for WHMM-TV of Washington, D.C. James was promoted from technical operations manager, a position he has held for the past year.

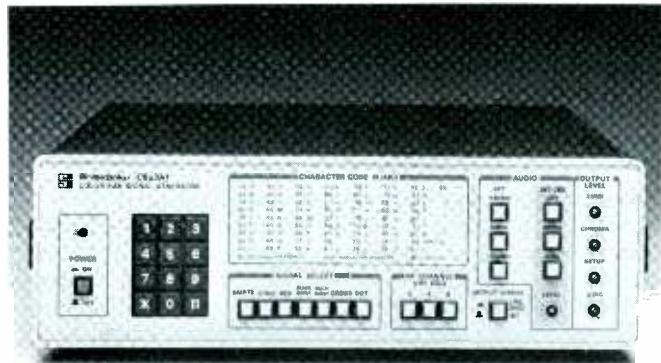
Mike Hurdelbrink has joined WJLA-TV, Washington, D.C., as production manager. In this position, Hurdelbrink will be responsible for the day-to-day activities of the production department, overseeing the directors, associate directors, and floor directors.

Helen Stanton has been named marketing manager, distribution division, of National Public Radio. Stanton will be responsible for marketing NPR's excess satellite capacity to a wide range of customers in both the broadcast and non-broadcast fields.

Al Albert, sportscaster, is now on the full-time staff of USA Cable Network following his resignation from WNBC-TV in New York. In addition to continuing his duties as play-by-play man on USA's Thursday Night NBA series, Albert's expanded cable activity will include regular positions as commentator for Big East basketball and Friday Night Boxing from Atlantic City, as well as appearances on the network's NHL and Major League Baseball games of the week.

Lee Hedlund, manager of electronic recording equipment engineering for RCA's Commercial Communications Systems division, has been elected a Fellow of the Society of Motion Picture and Television Engineers. Since joining RCA in 1959, Hedlund has held engineering and engineering management positions on projects for the first all-transistorized videotape recorder, and most recently the TR-800, RCA's one-inch helical-scan type-C videotape recorder.

THE TRUE MEASURE OF PERFORMANCE



ASACA/SHIBASOKU CB53A1 Color Bar Signal Generator

The CB5 3A1 combines a color bar generator and character generator in one versatile instrument you can take right into the field for remotes and on-location shooting. It generates SMPTE and Y/REF color bars, plus red bar, black burst, multiburst, cross-hatch and dot signals. Standard NTSC sync signals and the gen-lock function are built-in.

You can insert character information into each signal using a special keyboard with Random Access Memory that retains the signals even if your power is lost. The CB5 3A1 gives you a total of 31 character spaces on 2 lines.

- Black burst output.
- Selectable black or white color background.
- External or internal switching for video and audio signals.
- Output range of +8 dBm ~ -50 dBm for 400 Hz and 1 kHz audio signals.
- RF signal on USA channels 3, 4 and 6.
- AC-DC operation.
- Available in NTSC; PAL B, M, N; and SECAM systems.

Measure your performance with the best.
ASACA/SHIBASOKU CB5 3A1. The color bar signal generator with character.

For complete specifications, write:



ASACA/SHIBASOKU CORP. OF AMERICA
12509 Beatrice Street, Los Angeles, California 90066
Sales, Service: (800) 423-6347 • (213) 827-7144

Circle (33) on Action Card

Peter Murray, formerly vice president of communications for WETA, Washington, D.C., has been appointed vice president and general manager of WETACOM, WETA's profit-making subsidiary. WETACOM was formed in January 1980 to provide additional revenue for the station, utilizing the station's existing resources. Murray, who joined WETA in April 1982, was previously senior vice president of Avrett, Fischer & Free in New York City.

Bob Speaks was recently named news director for WKYT-TV, Lexington, Kentucky. Speaks, who had been assistant news director for the past five years, will be in charge of the daily operation of the news department. He succeeds Ken Kurtz, who was promoted to vice president of news last spring.

Steve Steinberg has been elected vice president of WHAS, Louisville, Kentucky. Steinberg has been director of broadcast services, responsible for engineering for television, AM radio, and FM radio; TV promotion, production, and art; WHAS building and plant operations; the Satellite News Channel uplink; and many other station operations.

Don Schiel, a long-time Minnesota broadcaster and management consultant, is the new manager of the Minnesota News Network. In his new position, Schiel will be in charge of affiliate relations and sales for MNN, a new radio network for commercial stations being developed by Minnesota Public Radio. Schiel was most recently sales and marketing coordinator for Sorenson Broadcasting Corporation.

Evans Mirageas has been appointed producer at radio station WFMT, Chicago. Mirageas' primary responsibility will be the preparation of the nationally-broadcast weekly series, *Lincoln's Music in America*.

Tore Nordahl has been appointed deputy chairman and will take charge of special assignments for Neve's British parent company. Barry Roche, as executive vice president, will take charge of day-to-day running of Neve's North American operation.

Kay Heitman has taken the newly-created position of administrative assistant to the president at Convergence Corporation. Her new responsibilities include managing computer data programs for corporate forecasting, planning, budgeting, and sales; and overseeing all corporate standard

operating procedures. She will also do research and special projects for the president on an ongoing basis.

Paul Bergquist has joined WFLA-TV, Tampa, Florida, in the position of computer editor. Bergquist brings with him 11 years of experience in the Tampa market and will direct the operations of WFLA's recently completed, computer-assisted production editing suite.

Richard Plotkin was named general manager of WSNS-TV, Chicago. Plotkin has been associated with the station since it signed on the air in 1970, first as producer/director, and later as production manager, manager of programming and production, and most recently, general manager.

Business Moves

Bill Winslow, former inside sales representative in North Supply Company's CATV department, has been promoted to CATV product marketing manager. Winslow will be responsible for North Supply's line of cable-television products.

Gordon Hawks is the new Altec district manager for central-eastern territory #6. In this position, Hawks will be working with Altec contractors and dealers in Michigan, Indiana, Ohio, Kentucky, West Virginia, western Pennsylvania, and western New York.

Tony Satariano was appointed eastern regional sales manager for Crown International. In his new post, Satariano will work with the manufacturers' representative organizations in sales and related sales activities for Crown hi-fidelity, pro-sound, and PZM® microphone divisions in a region including the states east of the Mississippi River, except Wisconsin and Illinois.

James Phoenix is the new manager, engineering administration, for Audiotronics Corporation. Phoenix will be responsible for the coordination and scheduling of engineering projects, documentation, RFQs, and other related administrative support, as well as maintaining liaison with other departments, safety agencies, and customers.

Richard Sanford has been appointed northeast regional manager for RF Technology of South Norwalk, Connecticut.

Continued on page 26

10 ON THE FLOOR*

*Or anyplace else.

bti broadcast technology, inc.

33 Comac Loop, Ronkonkoma, NY 11779 • (516) 588-6565

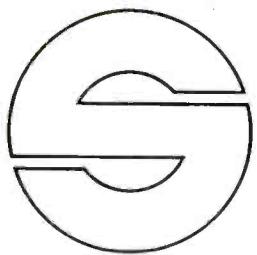
Go from 1 to 10 in 30 seconds.

BTI's DA 7111 distribution amplifier guarantees you high performance and fast starts. Plug it in and you're in business, no soldering iron, no screwdriver. Adapts to all types of equipment.

Unique in its class, the DA 7111 features:

- 115/230v AC self-powered operation
- Transformer isolated input and outputs
- Full range input level control
- 20 dB trim controls for each output group
- Input loop-through
- 1/4" phone jack monitor on front

Built to last, the DA 7111 is just one of a family of quality distribution amplifiers and other fine equipment from BTI...the concern for audio excellence.



sachtler

THE PERFECT HEADLINE

for your ENG- or EFP-camera

sachtler camera supporting systems

offering

Dial-in – up to seven – steps of drag,
independently adjustable for pan and tilt,

built in compensation for center of
gravity displacements,

camera-adequate or dynamic counter-
balancing, adjustable on the spot
for all your possible requirements,

extreme positive, operational locks,
not effecting camera orientation
when operated,

a leak-proof by design fluid system
with guaranteed (for years) trouble free
operation,

an all-in-one piece unit for easy handling
and transport,

that is available when and where you need it
worldwide.

Its the Sachtler headline offering all
these features, dont ask for less!

Call on your nearest Sachtler dealer
or write to

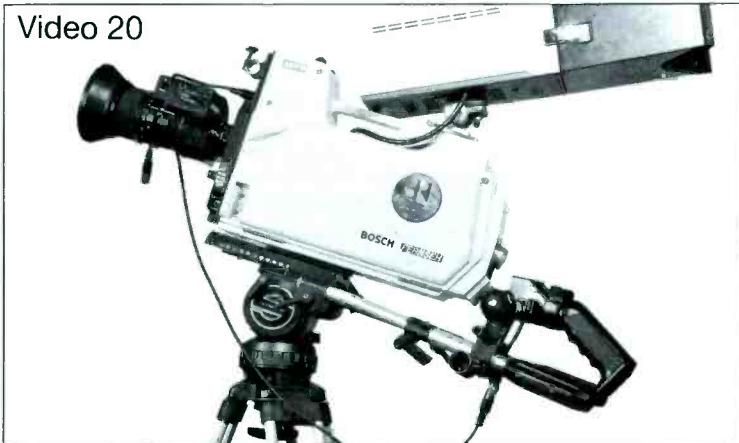
Sachtler Corporation of America
400 Oser Avenue, Hauppauge NY 1178/8
Phone (516) 2310033, Tx 140170,

a subsidiary of Sachtler GmbH
Dieselstr. 16
D-8046 Garching/München
Phone (89) 3204041, Telex 5215340

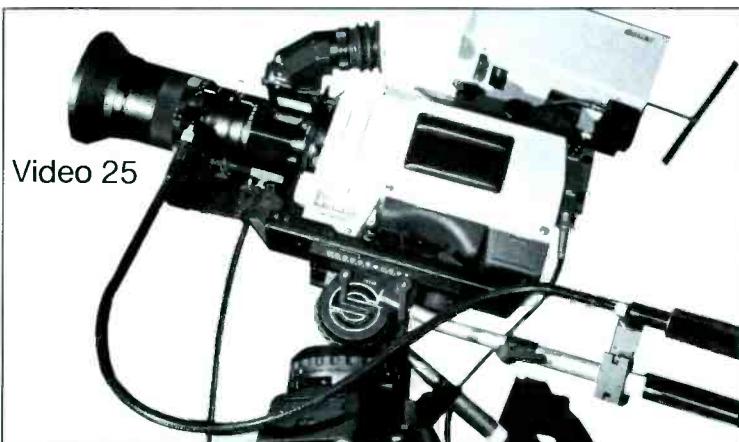
Panorama



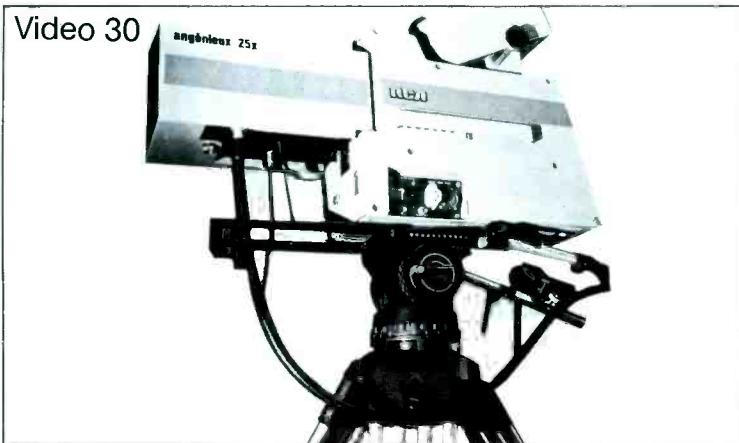
Video 20



Video 25



Video 30



ticut. Sanford will represent RF Technology in sales of microwave systems in the northeast.

Kirk Paulsen has taken the position of video rental coordinator in the Chicago office of Victor Duncan. Paulsen will be responsible for processing and coordinating all video-equipment rental orders. Also at Victor Duncan, John Duty has joined the staff as a sales representative in the Chicago office.

David Alvarez has been promoted to vice president of marketing for the Satellite Communications division of Microdyne. Alvarez has been with Microdyne for 11 years, and was promoted from his position as director of marketing.

Frank Russomanno was named market development manager of commercial and educational markets for 3M's Magnetic Audio/Video Products division. In his new position, Russomanno will have a major role in developing long-range planning for these commercial and educational markets, in addition to supervising short-range planning.

John Nagy has been promoted to associate with Rees Associates of Oklahoma City. Nagy joined Rees Associates this past June and has been responsible for client development, marketing, and sales management with the firm. Nagy has also been named facilities editor of *LPTV* magazine.

Robert Dix is one of six new district managers for Cetec Broadcast Group, responsible for sales of Cetec radio pro-

gram and station business automation systems, and studio consoles. Dix will cover the mid-Atlantic and southeast districts, and John Schneider continues to serve the northwest states and Alaska. Alan Winkler is manager for the northeastern U.S.; Dick Lamoreaux covers the north-central territory; and Tom Butler has responsibility for the south-central area, including Missouri, Arkansas, Louisiana, and Texas. Tony Mezey has taken over a southern-Pacific district that includes California, Arizona, and Nevada.

Frank Alioto has been named national marketing manager, ESP Systems, at ADDA Corporation, Los Gatos, California. In his new position, he will be responsible for the company's digital still-store products' marketing activities.

David Acker was selected as president of For-A Corporation of America by the company's board of directors. Acker, a founder and past president of Microlite, recently established Datra Inc., a technical consulting company to the broadcast industry.

Hiroaki Minoshima has been named president of Fujinon, a leading manufacturer of broadcast and closed-circuit television lenses and optical systems. Minoshima joined the parent company, Fuji Photo Optical Company of Japan, in 1954 as manager of the accounting division. He transferred to Fujinon in 1977, where he served as executive vice president until his recent promotion. As president, he will be responsible for the company's five divisions; regional service centers; and West Coast subsidiary, Fuji Optical Systems. He replaces Fred Nakajima, who recently resigned. **BC**

A GRAPHICS AND ANIMATION SYSTEM THAT GATHERS ALL THE WEATHER...

before the Weatherman even arrives at the studio.

TRITON X

It's all here. And it's all automatic.

The Triton X Graphics & Animation System is the complete single-source meteorology machine.

It'll gather radar, satellite, national weather circuit data or special weather packages...all in real-time...all the time. And Triton X updates the weather information, archives it, animates it, or manipulates it any



way you want... automatically.

The Triton X display is always perfect too—no jaggies, never. That's just on its own. You should see what Triton X can do with a little encouragement. Give us a call today and find out how affordable Triton X can be for you. And tell your weatherman he can sleep in...Triton X is covering for him.

Kavouras INC

800-328-2278

Federal Aviation Building, 6301 34th Ave. So., Minneapolis, MN 55450
In Minnesota call 612-726-9515

TECHNOLOGY HOTLINE

AM stereo gets a new receiver

A Kahn Communications spokesman has announced the formation of Kahn Consumer Products. Although the new corporation is not a subsidiary or division of Kahn Communications, it will be licensed to use certain trade secrets of Kahn Communications.

The new company will develop and market consumer products, especially in the field of radio receiving devices. Its first product is an AM-stereo/FM-stereo tuner, with emphasis on the design of a quality AM section. The tuner will be equipped with a decoder for AM stereo signals using the Kahn/Hazeltine stereo system now in use by a limited number of broadcasters.



Commenting on the formation of the new company, Leonard Kahn said it was of great importance to the AM broadcasting industry that initial AM stereo receivers have superior performance characteristics so as to best introduce the new stereo system.

Kahn Consumer Products also plans to develop a top-of-the-line tuner which will incorporate the patented asymmetrical sideband selectivity and provide 8 to 10 kHz audio frequency response. This kind of response will be needed for any AM stereo receiver if stereo is to benefit the AM segment of the industry. (516-222-2221)

More detailed info on HDTV

Visual Information Institute has compiled a primer on applications for high-definition television. While

the booklet deals mostly with non-broadcast uses, it includes basic information that broadcasters and manufacturers should understand.

Included are sections on the scan rate, the scan process, EIA standards, and other relevant topics. There is also technical information on test patterns, video and synchronizing signals, and the new VII proportional standard.

For more information, contact J. Susan Anderson at VII, P.O. Box 33, Xenia, OH 45385. (513-376-4361)

One pack to go for combo cameras

The latest on combo cameras is not what you'd expect. No new standards or agreements among the proponents. Instead, the latest development, and one that should surface at the NAB convention in Las Vegas, is a slip-on recorder pack that fits on a number of ENG-type cameras, even though this addition was never considered in the original camera design. One unit is available through Cinema Products; the other through PEP Inc.

Speech synthesis and phone calls

A new magazine is on the market, and it shows just how specialized a magazine can be. The new magazine is called *Speech Technology*. Devoted entirely to synthesis and recognition technical developments and applications, *ST* recently used an article that challenges our telephone technology.

The article questions whether or not our conventional circuit-switched telephone system is on the way out. According to the writer, two-thirds of the system's capacity is wasted, because there are silent periods between utterances, and only one person talks at a time. A good way to fill the empty time slots is to digitize speech and then use computers to send it in short packets interleaved with packets from other users.

Sounds a bit confusing, but it's in-

teresting from an economic standpoint, because the cost of the computer memory and switching needed for packet routing has fallen 30 times faster than transmission costs in the last nine years.

Speech Technology is published quarterly at 525 East 82nd Street, New York, NY 10028; telephone (212) 680-6451.

Robotics, the Japanese, and you

According to a new study by Frost & Sullivan, 10 years after the U.S. pioneered reprogrammable, multi-purpose industrial robots (in 1962), the Japanese started exporting their own versions. Aggressive automation of their homeland factories created the demand to fuel the robotics technology boom in Japan.

Today, Japan enjoys a 2 to 1 lead over the combined industrial robot production of the U.S. and Europe, according to the study. On the factory floor, this has meant improved reliability, quality control, and flexibility in small batch production, as well as improved cost curves overall. (212-233-1080)

New connects across the border

American Satellite Company (ASC) has reached an operating agreement with the TransCanada Telephone System (TCTS), making it the only U.S. satellite carrier ready to provide transborder satellite communications services into Canada.

Under terms of the agreement, TCTS and ASC will make available voice, data, facsimile, and video teleconferencing to business users in both countries. Other standardized transborder service will be jointly developed and implemented by ASC and TCTS at a later date.

This agreement, along with the recently-signed American Satellite/Telesat Canada "umbrella" agreement, marks the final step in the implementation of transborder satellite service between the two countries. (301-251-8399)

STV still has promising future

Though the cloud hovering over the subscription television industry has grown somewhat darker of late, with both December's Benitez-Hearns fight and live Who concert yielding disappointing pay-per-view penetration figures—and Cox's 10,000 subscriber St. Louis STV operation shutting down this month—several factors may yet rescue the over-the-air STV industry from the jaws of such demons as signal pirates, cable and MDS operators, and an uncooperative economic climate.

One such factor is adult programming. There is no mistaking the fact that hard-R movies are a powerful subscriber draw. John Boler, whose Bemidji, Minnesota, low-power TV station programs both commercial and subscription fare, reports that when he added an adult tier (at \$6 per month) to his first tier (at \$15.85 per month), 94% of his subscribers took the adult tier.

Adult programming frequently is not available on cable systems. While some cable operators prefer to retain for their systems a "home and family" orientation, others are fearful of incurring the wrath of city officials. In many cases, there are simply not enough channels on the cable system. Whatever the reason, STV operators have a clear opportunity to fill this programming void.

STV also has the potential to use the new technologies to its own advantage. STV will play a key role in the development of low-power TV, for instance. Subscription television is what the people want, says Boler, who maintains that he would be in the black within a month if he changed his station over to a subscription-only operation.

Similarly, STV can play a major role in the development of DBS. If an STV operator has already done all of the "ground work"—marketing, installations, maintenance, subscriber bill-

ing—why should a DBS operator do it all again, asks industry analyst Paul Kagan. A more logical scenario, he argues, would have the DBS pay programmer deliver the signal to the STV broadcaster for subsequent distribution to homes. "If you're a DBS operator and you affiliate with an existing STV operator and get 100,000 subs, that's a lot better than going in with no subs,"

Telecommunications and Information Administration in the Department of Commerce. But, he adds, STV operators can and should seek joint ventures with cable operators. A successful STV operator, says Geller, should be able to convince the local cable operator that the addition of a popular STV service to his system would be a major plus.

The recent decision of the Copyright

Royalty Tribunal to increase substantially the fees cable operators must pay to import distant signals also may help STV operators get their signals on cable systems. Cable operators may be more inclined to go for a piece of the STV action than suddenly to pay upwards of 300% more for the same distant signals they've been receiving all along.

Because low population density will

render many rural areas uneconomical to wire, many areas of the country will remain uncabled permanently. Under the FCC's complement-of-four rule, 133 TV markets serving 25% of all U.S. TV households don't qualify for an STV station. With the deletion of this rule, these rural markets now qualify, and STV operators would be well advised to get in there early, ahead of DBS.

According to many industry experts, the real key to STV's survival is multichannel capability, which will enhance subscriber satisfaction (you don't have to stop the movies in order to show the basketball game) and enable STV to compete effectively against other multichannel program delivery systems, such as cable, MDS, SMATV, and DBS.

There are many ways in which an STV operator can achieve multichannel capability. First and foremost, according to Geller, is to reach cooperative agreement with other STV operators in the same market. This will increase program variety and reduce duplication;

Continued on page 30



says Kagan. How else can an STV operator convince a DBS operator to use the existing STV outlet? "Show them your trucks," he advises.

Throughout the 1980s, many lucrative pay-TV markets will remain uncabled. A large city that is many years away from cable television may not be a ripe source of income for the long-term, but it can be blanketed quickly by an STV signal and substantial revenues can be generated over the short-term. More important, by building a substantial subscriber base, an STV system in a pre-cabled large city can assure itself good bargaining position when it comes time to convince the cable operator to carry the STV service.

Currently, STV has no right of access to a cable channel, although there is a petition before the FCC that could force cable systems to lease channels to STV operators. This petition "probably won't go anywhere" under the current unregulation-minded FCC, concedes Henry Geller, a foremost authority on the communications industry and a former administrator of the National

OPTIMOD-TV MODEL 8180A

TV Audio Revolution.

There's a revolution going on. TV broadcasters are competing with VCR, videodisc, premium cable, and other services for the eyes and ears of a mass audience that's becoming more aware of good sound. In this audio war, '60's processing technology doesn't cut it.

Enter OPTIMOD-TV. It's the same second generation OPTIMOD-FM sound that's sweeping the country, with enhancements to adapt it to the specific needs of TV broadcasters. Smooth multiband compression teams up with our patented "Smart Clipper"™ and FCS overshoot corrector to create a tightly bandlimited, peak-controlled output that stays out of the video and is ready for TV stereo. And stereo processing is supplied standard.

The processor rides gain and peak-limits with remarkable subtlety, achieving superior consistency, openness, and naturalness on the finest master-quality audio or the poorest 1mm optical film.

OPTIMOD-TV gives you the potential to bring your audio up to the same quality as your state-of-the-art picture. Processing is no longer the limiting factor. So plan your audio strategy for the great war of the '80's around OPTIMOD-TV Model 8180A. Your Orban broadcast dealer can tell you more. Or contact us. Toll Free (800) 227-4498. In California (415) 957-1067 for more information.

Orban

Orban Associates Inc.
645 Bryant St.
San Francisco, CA
94107



NEW FM AND TV FIELD STRENGTH METER **FIM-71**

- Accurate — Direct Reading — Volts or dB ■ 45 MHz to 225 MHz — Continuous Tuning ■ Peak or Averaging Detector (switch selectable) ■ Wide or Narrow IF Bandwidth (switch selectable) ■ 20 dB or 60 dB Meter Range (switch selectable)
- AM or FM Demodulator (switch selectable) ■ Calibrated Dipole Antenna, Mounted on Case for Near-Ground Measurements or Removable for TASO Measurements ■ 140 dB Measurement Range (1 μ V to 10 V) ■ 4½-Inch, Mirrored Scale, Taut-Band Meter
- Front Panel Speaker
- Recorder Output
- Rugged, Portable Package ■ Calibrated Signal Generator, 45 MHz to 225 MHz
- Battery or External Power ■ Use as Signal Source/Selective Voltmeter for Insertion Loss Measurements of Filters, etc. ■ Measures FM Harmonics to -80 dB



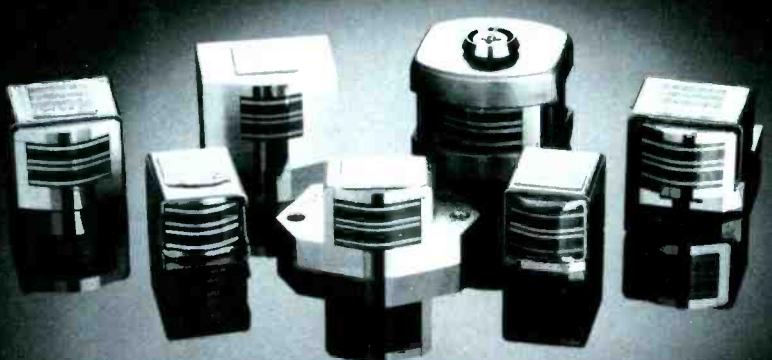
CONTACT US FOR DETAILS.

POTOMAC INSTRUMENTS

932 PHILADELPHIA AVE.
SILVER SPRING, MD. 20910
(301) 589-2662

Circle (26) on Action Card

**There's Nothing Better
Than The Best**



AMPEX MCI MINCOM OTARI REVOX SCULLY STUDER TECHNICS

Saki's glass-bonded, Ferrite heads provide unsurpassed quality in any size or model



SAKI MAGNETICS, INC.

A CALIFORNIA CORPORATION

8650 Hayden Place, Culver City, CA 90230 213 / 559-6704 (TWX-9-0-328-6100)

TELEVIEWS

"...STV will find its greatest opportunities in the uncabled, rural markets recently opened to STV."

and, at the same time, consolidate the subscriber base. Dallas, a city in which three separate STV stations carved up the market and where currently only two survive (one with approximately 60,000 subscribers and the other with 25,000) is described as a missed opportunity for a successful multichannel STV operation.

Multichannel capability also can be achieved by obtaining a low-power television station and/or MDS operation in the same market. According to Geller, there are no ownership restrictions that would prevent an STV operator from acquiring these other outlets. Programming a public broadcasting station also may be a possibility. The FCC is currently considering whether or not to allow noncommercial educational TV stations to be used for subscription television operations as a means of generating additional revenue.

Technological advances may also enable multichannel STV operation. Recently, General Electric introduced a prototype of its Comband system for squeezing two video-plus-audio signals onto a single 6 MHz channel with no visible deterioration of signal quality. GE hopes to make the Comband technology commercially available by 1984.

While such factors as the addition of multichannel capability, adult programming, and the forging of new, mutually beneficial relationships with alternate program delivery systems may help to offset STV's problems with piracy, cable competition, and pay-per-view, it does not appear that STV will be the growth medium of the '80s. Survival rather than expansion will be the hallmark of success.

Where STV will find its greatest opportunities will be in the uncabled, rural markets recently opened to STV as a result of FCC deletion of the complement-of-four rule and in low-power TV. By 1986, hundreds of low-power stations will be on the air; by 1990, the number likely will be in the thousands. Indeed, it is just conceivable that STV may be the growth medium of the '90s.

BC

Ruth Macy, satellite editor, is the founder and president of TeleWords, a Santa Monica-based editorial consulting firm serving the communications industry.

WHY ARE LEDDICONS[®] WORLD LEADERS?

Higher resolution is an important reason, but did you know that EEV 30mm Advanced P8430 series Leddicons feature all these advantages?

- * Integral, variable light bias for minimal picture smearing under low light conditions
- * Unique anti-microphony mesh
- * Direct plug in replacements - no camera modifications

LEDDICONS are BETTER LONGER
Proven everyday throughout the world.
Specify Leddicons for replacements and
your new camera - Available NOW.

Please send me my free World Broadcast Systems Map, Brochure and full technical details of Leddicons for my application.

Name

Position

Company

Address

.....

Application

109A



EEV, INC.

7 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-6050, Telex: 646180

In Canada : EEV Canada Ltd., 67 Westmore Drive, Rexdale, Ontario M9V 3Y6, 416-745-9494, Telex 06-989363

In Europe : English Electric Valve Co. Ltd., Chelmsford, Essex CM12QU, England, Tel. 0245 61777, Telex 851-99103

See us at NAB—Booth #1335

NEWS DIRECTIONS

PHILLIP KEIRSTEAD

Satellite use still relatively new

We keep talking about the rapid pace of technological change. Every so often we're inclined to stop and ask ourselves if we're just getting caught up in some promoter's enthusiasm.

Then we go to Milwaukee to attend the SPJ/SDX convention, and hear Robert Wold tell us that the use of domestic satellites only dates back to 1975. (He says the first use occurred in July 1975, and the first commercial program—a baseball game—was transmitted on August 9, 1975.)

Wold gave the delegates somewhat of a status report on domestic satellites. He says we now have a great deal of capability suspended above us, even though some of the older satellites are approaching retirement. The catch, says Wold, is that full-time transponders are in short supply on the best satellites in terms of age and number of receivers.

The other problem faced by the people who use satellites is the lack of downlinks and uplinks in the right locations. Wold says there are about 300 downlinks in place at TV stations or tied to stations by local loops. By the end of this year, says Wold, over 500 commercial TV stations will have downlinks.

Uplinks—which are expensive—are still rare. Wold says there are six transportable uplinks in the U.S., two of which belong to his company.

He anticipates growth of the uplink population, and says SNG (satellite news gathering) is the coming thing. "When a story is happening with local interest," says Wold, "more and more stations are going after it."

He points out that American stations have done local stories from Washington, D.C.; EPCOT in Florida; The Vatican; Mexico; and China. He expects to see increased use of transportable uplinks by local stations.

John Tagliaferro of Hughes Television Network told the Society of Professional Journalists gathered in Milwaukee that electronic information will evolve to the point where consumers have the same access on their television as they currently have from a newspaper. He says we will be able to find what we want to hear/see when we want to hear/see it in the order in which we wish to hear/see it.

The SPJ/SDX convention also fea-

tured a panel on the use of satellites by local stations.

The all-star cast included Ed Godfrey from WAVE-TV in Louisville, the RTNDA president-elect; Jack Hogan from WZZM-TV in Grand Rapids, a past RTNDA president; Dean Mell from KHQ-AM/TV, Spokane, the incumbent RTNDA president; and Paul Davis of WGN-AM/TV, Chicago, another past president.

Davis gave the major-market slant when he said: "To us, a satellite is one way of doing business." WGN picks up from CNN, INN, and other sources. The station sent a crew to Vienna, Austria, during the height of the Polish labor crisis. Chicago has the second-largest concentration of people of Polish descent in the country, and so the story was a natural. Davis also pointed out that the transmission cost for the Austrian feeds was well within reason.

Another speaker reminded delegates that satellite transmission is not costed-out on the basis of distance. As a result, satellite transmission becomes a big money-saver over Telco facilities when we need to send a signal over a long distance. On short hops, telco may be equal or even cheaper.

Davis said there is a "glut of transponder space," except when you need it. He thinks we will soon have a 24-hour newsfeed or news transmission service available for use by TV stations.

WGN's news director wrapped up his presentation with this thought: When we consider ordering satellite time, we must ask ourselves, "is what we put on it worth it?"

Ed Godfrey finds satellite transmission less attractive. One of the risks he sees is a situation where a group broadcaster finds the economy of satellite distribution attractive and then sets up a two-person bureau in Washington to cover the capital for six or seven stations.

Jack Hogan says WZZM-TV has a downlink which it uses to receive the UPI high-speed wire. Hogan is a technology conservative, pointing out the problems in utilizing a live ENG van frequently enough to justify its costs in Grand Rapids. He fears jumping into satellite news coverage for the same reason.

RTNDA president Dean Mell re-

counted the trials and tribulations of getting into satellite reception. It seems that KHQ has a downlink, but it's still in the packing crate. The station has had trouble finding an interference-free location close by where they can erect the downlink. A site has been found, but it's publicly owned, and now KHQ is slugging its way through paperwork in order to buy a little piece of public land.

Mell is looking forward to getting the downlink operational. He says one of the cost savings would be the elimination of air freight bills for tapes which are flown in as part of a tape exchange which already exists among area stations. He says the average tape eats up \$42 in shipping charges. Of course, says Mell, the effectiveness of tape exchanges will continue to be limited until more uplinks go on line.

Mell worries about security. He wonders if his competition will be inclined to monitor satellite traffic in an effort to find out what he is up to.

In the prediction department, Mell thinks new services will be offered to stations as downlinks become common. He foresees a service which can set up a prearranged interview by satellite with a member of Congress. Perhaps, says Mell, we will be getting video handouts by satellite.

Says Mell: "I'm frankly more excited about microwave. It is a technological advance I can use now."

Wayne Godsey chaired the panel. A few months ago he moved from news director to vice president and general manager of WTMJ-TV in Milwaukee.

Godsey says WTMJ has one downlink and is getting a second. The first downlink is heavily dedicated to bringing in news from the Cable News Network. Godsey says his station uses a lot of CNN material because it is fresher than what the station receives from NBC. Overnight WTMJ uses CNN. As Godsey put it: "One dish brought a new overnight news service to Milwaukee."

He figures the second dish will more than pay for itself in reduced program and shipping charges over the backpay period.

BC

Philip Keirstead, news technology editor, is on leave as an associate professor of journalism at Florida A&M University and is serving as a Fulbright lecturer in India.

The brightness you need to show it big

General Electric Professional Large Screen Video Projection

With General Electric's exclusive sealed light valve and sealed Xenon lamp system, in both color and monochrome General Electric Professional Large Screen Videc Projectors, you can depend on sharp pictures from 2 to 25 feet wide. New high brightness models allow the room lighting viewers need to take notes and refer to written material.

The color projectors reproduce every color accurately, with the convenience of inherent color registration. General Electric's exclusive single gun, single optical path light valve system eliminates the need for manual color convergence.

Portable and flexible, the projectors are being used for a wide variety of applications, including front and rear projection. Our applications experts will tell you whether yours can be added to the growing list, which includes:

Education: Medical, dental, engineering, computer science instruction.

Business: Sales meetings, industrial training, product presentations, real-time display of computer-generated data, teleconferences.

Aerospace and Defense: Situation displays, simulator training.

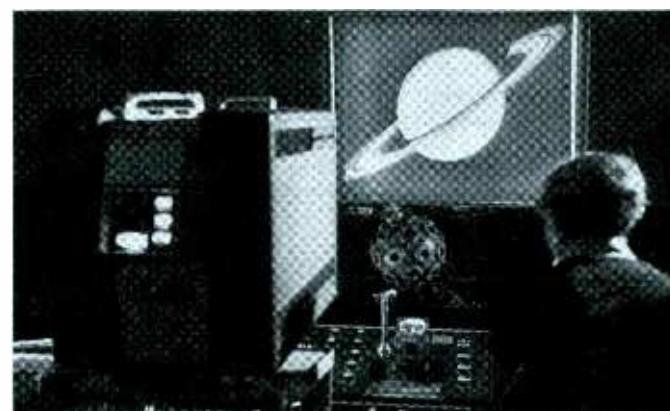
Entertainment: Theatre television, closed-circuit TV events, overflow crowds, special effects.

Television Production: Backgrounds for news programs, special effects, data display, program previewing.

Call or write: General Electric Company, Projection Display Products Operation, Electronics Park 6-206, Syracuse, NY 13221. Phone: (315) 456-2152.



NEWS BACKGROUND at WTMJ-TV, Milwaukee, is displayed rear screen by General Electric projector.



SELL-OUT CROWDS at Fiske Planetarium, Boulder, watched live NASA transmission presented by General Electric projector.

GE Professional Large Screen Television Projector Specifications

COLOR PROJECTORS

Model	Light Output in Lumens			Resolution* in TV Lines per Picture Height		Input Power Req.		Scan Standards***	Video Input**
	Open Gate Min.	Modulated TV, Min.	Modulated TV, Typ.	Min. Horiz.	Min. Vert.	Max. Watts	Max. Volt-Amps		
PJ 5000	500	250	325	750	300	900	1350	525 li./60 fps; 625 li./50 fps	(1)
PJ 5050	1000	500	650	750	300	1100	1550	525 li./60 fps; 625 li./50 fps	(1)
PJ 5055Δ	2000	1000	1300	750	300	1750	2600	525 li./60 fps; 625 li./50 fps	(1)
PJ 5800	500	250	300	750	600	900	1350	875 lines/60 fps	(2)
PJ 5850	1000	500	600	750	600	1100	1550	875 lines/60 fps	(2)
PJ 5855Δ	2000	1000	1200	750	600	1750	2600	875 lines/60 fps	(2)
PJ 5100	500	250	300	750	650	900	1350	1023 lines/60 fps	(2)
PJ 5150	1000	500	600	750	650	1100	1550	1023 lines/60 fps	(2)
PJ 5155Δ	2000	1000	1200	750	650	1750	2600	1023 lines/60 fps	(2)

MONOCHROME PROJECTORS

PJ 7000	900	600	750	800	400	900	1350	525 li./60 fps; 625 li./50 fps	(3)
PJ 7050	1500	1000	1250	800	400	900	1350	525 li./60 fps; 625 li./50 fps	(3)
PJ 7055	3000	2000	2400	800	475	1100	1550	525 li./60 fps; 625 li./50 fps	(3)
PJ 7800	900	600	750	800	650	900	1350	875 lines, 60 fps	(3)
PJ 7850	1500	1000	1250	800	650	900	1350	875 lines, 60 fps	(3)
PJ 7855	3000	2000	2400	800	650	1100	1550	875 lines, 60 fps	(3)
PJ 7100	900	600	750	800	750	900	1350	1023 lines, 60 fps	(3)
PJ 7150	1500	1000	1250	800	750	900	1350	1023 lines, 60 fps	(3)
PJ 7155	3000	2000	2400	800	750	1100	1550	1023 lines, 60 fps	(3)

*Resolution measurements made with wide-band monochrome video input. **Video Input Key (1) NTSC or RGB Standard, NTSC/PAL/SECAM Switchable as Option, (2) RGB, (3) Wide-Band monochrome. ***For use at other scanning rates, contact General Electric Projection Display Equipment Operation for special application/model information. Projector line voltage 105 to 132v or 190 to 260 volts 50/60 Hz except those marked (Δ) above, which are 190 to 260 volts 50/60 Hz only.

GENERAL ELECTRIC

Circle (29) on Action Card

SOUND IDEAS

ERIC NEIL ANGEVINE

The facts about hearing loss

I had intended to start this year discussing the acoustical problems associated with local origination. I'll start this series next month. But this month I have another topic on my mind which I've wanted to write about for some time, but I never got around to it.

The subject foremost in my thoughts right now is noise-induced hearing loss. In my practice as a consultant, I get involved in many industrial projects where noise level (or noise exposure) is regulated by the Occupational Safety & Health Act (OSHA). The Department of Labor, under the terms of OSHA, has established a regulation which limits noise exposure to the equivalent of eight-hours exposure to 90 dBA. A 5 dB increase in level is allowed for each halving of the exposure time. But what does all this have to do with broadcasting?

"Oh, yes," you think, "here comes the pitch about kids and loud music." While that is an example, it's not the real issue. Those of us with teenagers probably find ourselves periodically telling the kids that they should turn the level down, for all sorts of reasons. For those without teenagers, it probably hasn't been too long since their own parents were giving them the same message. But how serious is it?

That's hard to say. In general, it is not the loudness (or sound-pressure level) of sound which causes hearing loss. OSHA is correct in regulating noise exposure. If you (or your children) want to listen occasionally to a selection at elevated levels, it is probably okay. Note, for example, that OSHA allows exposure to sound levels as high as 115 dBA for 15 minutes per day. But there is evidence also that some people will still experience noise-induced hearing loss when exposed slightly below the limit of the OSHA standard. You, or your chil-

dren, should not make a practice of listening to music at levels above 90 dBA.

But I did not set out to write about you and your children. What I am really concerned about is your staff! Who listens to more music on a daily basis than an on-air radio personality? This is not a casual comment. I know of at least one disc jockey from one of my

can't we accept a minor amount of noise-induced hearing damage? I say no. Along with an increased hearing threshold comes a phenomenon called recruitment. When the threshold of hearing is increased, the ability to hear louder sounds does not change. But since sounds below the threshold are inaudible, this alters the ability to judge loudness. Your staff must realize that

the very tools they need to do their job are endangered by high monitoring levels.

There is one complication which involves your personnel, your children, and even yourself. When music or other program material is monitored through headphones, the listener loses not only spatial orientation (it is no longer possible to identify the source as being in front or in back) but also the sense of

loudness. Sound levels well in excess of 90 dBA seem much less when heard through headphones.

Don't get me wrong. I'm not against headphones. I have a pair for my stereo and bought my boys walk-around radios for Christmas. But everyone should learn to use them with care.

It is not difficult to physically limit monitoring levels, even for people using headphones. But it should be done before it is too late. In passing, I should note that OSHA expects all employers to protect their employees from exposure to excessive noise. Although I do not know of a broadcast station, recording studio, or nightclub that has been inspected by OSHA, it is within their power.

One last word of advice. Exposure to excessive noise is not limited to an individual's work place or to music. Many of us have hobbies which expose us to excessive noise. Shooting, woodworking, and motor sports are only a few examples of noisy hobbies.

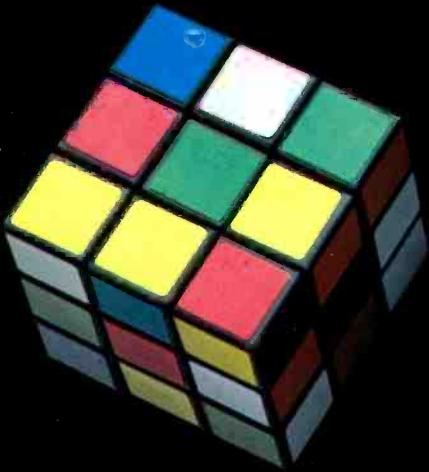


clients' stations who, after 20 years in the business, has suffered a hearing loss similar to those experienced by workers in industry.

The chief engineer at another station reports that his technicians have reported to him on the characteristics of the background (electronic) noise in their equipment. When you stop to think about it, the ability to discern characteristics of noise with a signal-to-noise ratio of more than 60 dB requires signal levels of 90 dB or more.

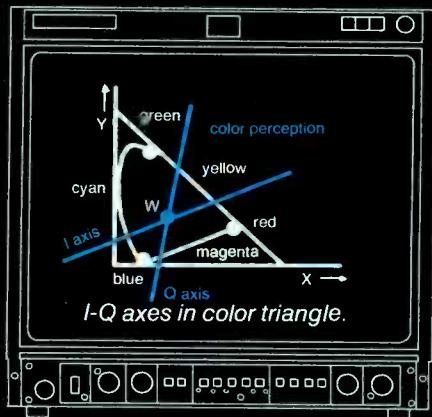
Your staff, just like me teenagers, are listening to music at high levels because it "sounds better." And just like many people I meet in industry, they don't think they will suffer hearing damage from it. A colleague says that "maturity is recognizing that it can happen to you." If this realization is brought on only after it happens to you, it is too late.

But don't we all suffer a little hearing loss as we get older? Sure we do. Then



SMART

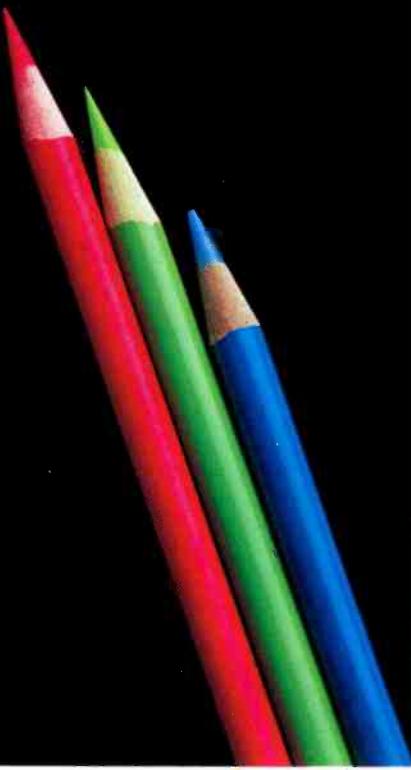
Asaca/Shibasoku's new high resolution monitors have the capability to deliver color performance other monitors simply cannot produce. Using R-Y, B-Y decoding no longer meets the demands of today's professional standards.



The Asaca/Shibasoku monitor like the human eye resolves certain colors best; reds, oranges, yellows, and flesh tones. The I-Q decoding system enables the monitor to display these colors at a higher resolution using wide band demodulation of 1.3 MHz rather than 0.5 MHz as in R-Y, B-Y systems.

We cared enough to give you a monitor with the I-Q to reproduce the best possible pictures. We know you're smart enough to buy it.

SHARP



COLOR

FEATURES

- 20" and 14" models available—high resolution delta CRTs.
- I-Q wide band demodulation system.
- Complete board interchangeability between models.
- Switchable high performance comb filter and aperture correction.
- Multi-standard capabilities (NTSC, PAL, SECAM) on all models. Switchable from the front panel (20" model). No adjustments necessary because of digital sync circuitry.
- Dynamic focus insures perfect focus on all areas of CRT. Adjustable from the front panel.
- Special feedback circuits guard against color changes due to variations in temperature.
- Active convergence—40 controls allow precise adjustment on all areas of CRT.
- Pulse cross with expanded vertical blanking interval.
- OPTIONS... Built-in color bar or cross hatch patterns. Built-in safe title marker generator. Multi-standards, RGB inputs.
- TWO YEAR WARRANTY ON ALL PARTS AND LABOR INCLUDING THE CRT.

ASACA**ASACA****ASACA**

ASACA/SHIBASOKU CORP. OF AMERICA

12509 Beatrice Street Los Angeles, CA 90066 (213) 827-7144 (800) 423-6347

The new Philips LDK 6

The first "total" automatic camera.

Only the LDK6 provides 100% automatic control for all primary and secondary setup adjustments...plus it has multiple diagnostic systems and many other automatic and operating features.

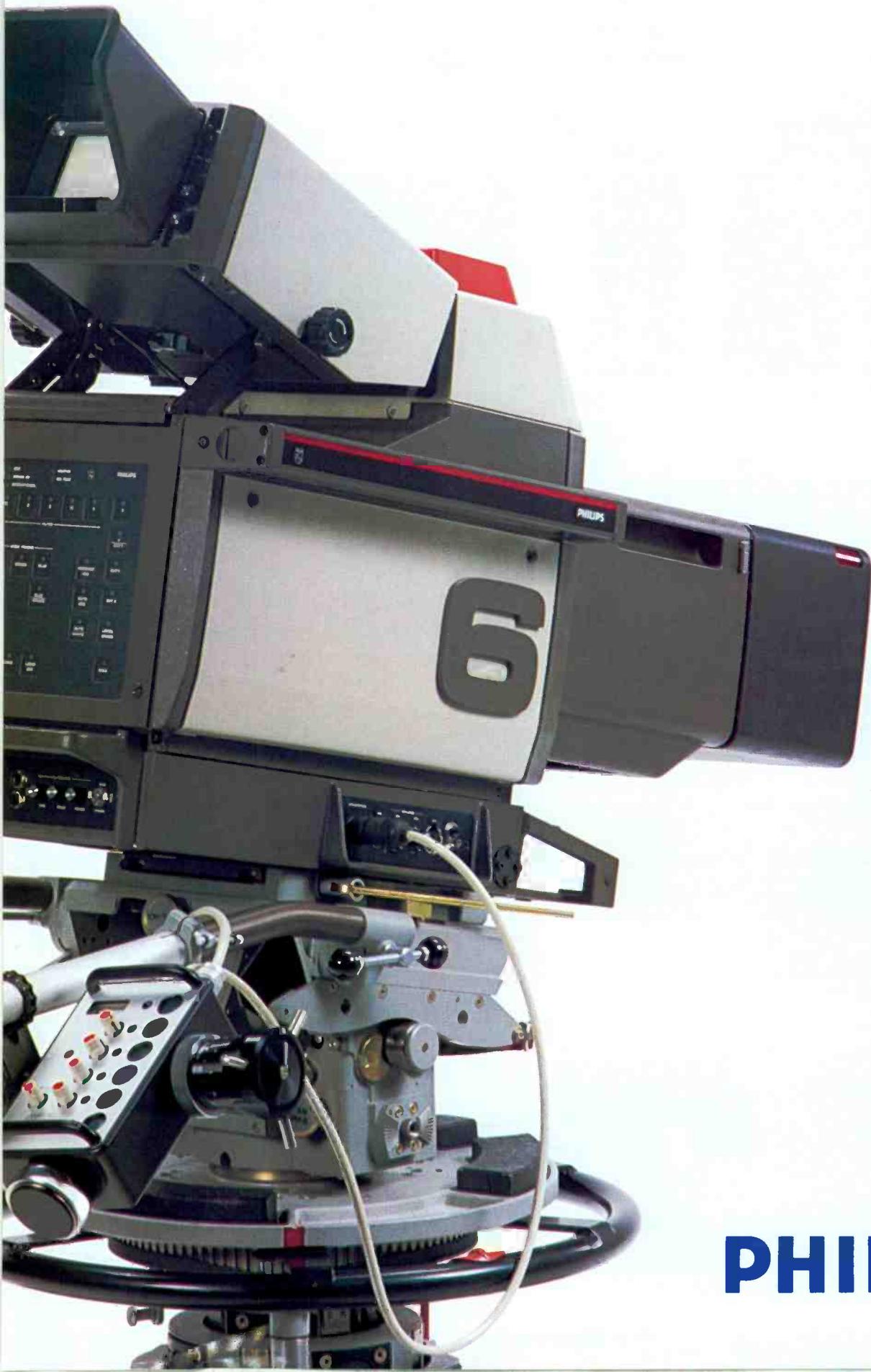
The LDK6's advanced design provides unprecedented reliability and flexibility. It launches a new era for broadcast and production.

If you are interested in the most advanced studio/field camera available today, and the best investment for the '80s...put yourself behind the LDK6.

Call or write for details.
Philips Television Systems, Inc.
900 Corporate Drive
Mahwah, New Jersey 07430
201-529-1550

Circle (31) on Action Card





PHILIPS

The Quantel DLS 6030.



Every other way to store stills is obsolete.

Introducing the state-of-the-art in electronic still-storage—the Quantel DLS 6030 digital library system.

Obviously it stores still pictures. Up to 800 on each small Winchester disk drive. And with the quality that is a hallmark of Quantel. But the DLS 6030 goes far beyond still-storage.

It is the only electronic still-store with production effects capabilities. So now you can compress still pictures to any size. Crop them to remove unwanted material. Position them anywhere you want. Put borders around them. And dissolve from one shot to the next.

You can even build up totally new pictures—composites or montages—from existing material.

And you can always retain your "originals" in their pristine state.

The DLS 6030 lets you browse through its disk library to select the pictures you need, and gives you unprecedented facilities for on-air editing, previewing, and presentation.

Off-loading? You can dump all the pictures—in digital form—onto

standard videotape. Then reload at the remote site via any VTR. The transfer is digital, so there's no generation loss.

Because Quantel's technology is leading-edge, the DLS 6030 is small—about one-quarter the size of still-stores using older technology—and draws far less power. So it's ideal for mobile operations as well as the studio.

There's nothing else like it. See for yourself. Call your local MCI/Quantel representative. Or get in touch with us directly at 415/856-6226. Micro Consultants, Inc., P.O. Box 50810, Palo Alto, California 94303.



MCI/QUANTEL
The digital video people.

PROGRAM GUIDE

ED SHANE

Singing the first-quarter blues

First-quarter blues is bad enough. First-quarter blues is sung in a minor key to the tune of safety messages presented by local advertisers.

"Jim's Tire and Auto reminds you not to cross against the light. For the best tire deal in town, ask for Jim personally."

Half the revenue goes to the station. The rest goes to a sales packager or to a local charity who makes the advertiser contacts.

Fifty percent, after all, is better than no percent. A thousand percent better.

Worse than first-quarter blues is first-quarter blues in a limited economy. There are some markets where first-quarter blues will be sung during the second quarter, too.

The long-time staples of radio sales efforts are less effective in securing today's buy. Trips to Acapulco ("It's all a trade!"), tickets to the concert ("I know Neil's drummer!"), and other "perks" may not be enough in 1983.

The age of *marketing* has arrived at radio. It's been trying to seat itself for some time, but radio was either resisting or too steeped in old habits to notice. A nervous economy is making sales and programming personnel sit up and take notice.

Gone is the age of selling. The '60s' image of the huckster with a diamond ring and a roll of hundred-dollar bills has faded from most sales departments. (Calling them "account executives" was a prelude to the *marketing* age.)

While the "salesmen" of the past alternated cigars with martinis, the program directors of that same day were closer to the listener—"in touch with the street," we'd say.

Program directors were closely aligned chronologically and philosophically with the audience, especially in that post-Beatle wonderland of love and rock 'n roll.

As the '70s surrounded radio, research and formula surrounded radio programmers.

The marketing dimension arrived, and account executives were the first to respond. They were young and hungry creative types who understood the media environment. They were "in touch with the street"—which by the '80s meant with the advertiser who had grown up in the audience of that street-

side programmer of the '60s.

Marketing is a team function. The program director is a vital part of the team. So is the listener, by the way, just as the consumer is part of the marketing of colas or cold remedies.

The best time for the program director to become part of the marketing team is now. Now while times are bad and the advertising dollar may be thin.



The marketing age does not allow an "I make the product, you go out and sell it to somebody" attitude.

The marketing dimension requires what sales people call "the consultative sell." It draws on the full complement of the salesman's company (including you), and it aims for involvement with the client's *profit potential*. Instead of "Advertise your widget store on the radio station," the consultative sales approach is, "Let me help you increase your widget sales by 10 percent."

Where does the program director fit in? Here are a few suggestions:

- Help account execs find sales opportunities that no one knew existed. Special features that you've taken for granted as good programming may also turn into sales packages or promotional opportunities for a client. (See "Radio Specials," BC, January 1983.)

- Keep the lines of communication open. Make sure your planning is far enough in advance, and that you have a

systematic way of getting information to the sales staff about programs, promotions, and other station activity.

- Use your creative juices to develop spec spots. The first objection I always hear about spec spots is that they take too much time. The second is that the client always wants them done over. Each objection is valid; but each must be overcome, because spec spots are an excellent way to sell. We're in the *sound* business after all. A sales person should have a piece of sound to use.

(And, yes, the client will want the spot done again, because the sales person could hardly anticipate the whim of a new client. A simple rule: if he likes it, do it over *when* he buys it and not *until* he buys it.)

Recently at KTRH, a concentrated attack on direct accounts with spec spots in hand resulted in *more than 50 percent* of the calls going to closing. These were new clients and new to radio. It takes some research time before you write and produce spots, or the time truly is wasted.

- If your station does research of any kind, share it with sales. You don't have to give your secrets away, but it is important for account execs to have information they can relate to a client's customers. His customers are the same as yours.

The day is coming when radio clients are going to demand useable services coupled with an advertising buy. Instead of a trip to Acapulco, a client might be sold with an analysis of product recall in your marketplace—developed by *your research procedures*.

Wouldn't it be nice to be a program director who could provide information to the sales staff on the effectiveness of a client's TV campaign? The account exec lures the new advertiser with *data* instead of concert tickets or trade-outs.

So many broadcasters have said recently that the next few years are going to be a matter of "the survival of the fittest" that I've begun to take it to heart. Survival means revenue. That's why programming columns need to concern themselves with sales in the marketing age.

BC

Ed Shane, programming editor, is program director of KTRH, Houston, and an independent programming consultant.

Advances bring new challenges

BY MORRIS COURTRIGHT

Some of the most familiar numbers to broadcast engineers have been ones like 12AX7, 12AU7, 6SN7, 6J6, and 0D3. Those who remember probably also recall many a scorched finger replacing vacuum tubes in a hurry to get the signal back on the air. Then there were the days when commercials and public-service announcements came from a big disc called a transcription; the transmitter carrier frequency had to be "tweaked" periodically during the shift; and repeater coils put a definite bandwidth limitation on all the phone lines. Those were the good old days, when teletype ribbons seemed to be packed in axle grease.

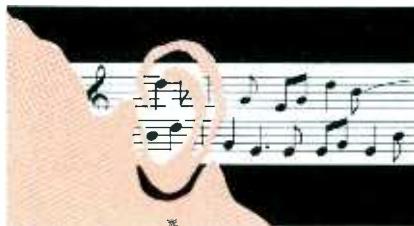
Today a stage of amplification is a microscopic dot on a chip, power-supply voltages are a few volts instead of hundreds of volts; AM response curves can be plotted out to 20,000 Hz instead of 7,500 cycles per second; and in some stations, everything is solid-state from the microphone input to the transmitter output.

Yes, technology has changed, is still changing, and broadcast engineering has changed along with it. It is interesting to note some of the unexpected results of changing technology, such as the time not too long ago when some of the first video terminals were installed in a major computer center and technicians used to working with voltages of ± 40 volts developed an immediate respect for CRT voltages of 25,000 volts.

It is even more interesting to note that even though broadcast technology has advanced by leaps and bounds, many of the old problems still exist, particularly in radio, and require even more attention than before. There are many various devices to stabilize or correct turntable speed, but the stylus and records still wear. Microprocessors control the functions of cartridge machines, but head alignment and tape travel is still a major key to quality and stereo phasing. Audio processors and graphic equalizers can do wonders in improving source material, but do little if original recording levels are not within reasonable limits or the material contains random background noises. In fact, improving technology demands that even more critical attention be paid to these mundane problems that

have been around for years. Thus, while technology changes have vastly increased equipment capability and reliability, they have also created a greater need to pay attention to basics.

Broadcast engineers working in television have become adjusted to ENG equipment for bringing live coverage direct from the scene, character generators and special effects



for dramatic video impact on the screen, and even weather computers to liven up the forecasts.

Computers have invaded the business office and microprocessors are sneaking in all over the place. Not many engineers even have a slide rule, let alone remember how to use one. In spite of all these dramatic advances, broadcast engineers working in radio still have the same goal: the best possible on-air audio signal. In short, "radio, loud and clear."

Ranging from the so-called "peanut whistle" stations to the clear-channel giants, radio has only one product to attract an audience: an audio signal. No subtitles, graphics, or other visual aids; only clear, understandable audio. Thus, in spite of all the technological advances, there is a need to pay even more attention to the same old basics to ensure the best possible signal. Old hat? Probably to many of you! Flying a light airplane in marginal VFR weather can also be old hat. But it can also be near disaster unless you pay attention to the basics.

Over the past few years there have been many subjects bandied about and touted as the salvation of radio. Look at AM stereo and try to buy a receiver! How about 9 kHz spacing, breakup of the clear channels, reduced FM separation distances, and allowing daytimers to use PSA power in the evening? While these seem to have faded into the background, radio continues to expand and improve. Regardless, radio con-

tinues to provide a basic communications and entertainment service to those vast areas of our country not blessed with television coverage, cable systems, or the many other video services taken for granted in urban areas. Even though DBS portends dramatic changes for video services, low-power television is about to come out of the starting gate, and satellite receive systems are becoming common, radio is—and will remain in the foreseeable future—a basic mass communications service, even in the urban areas with a multitude of video services.

Thus, it was felt that a series of articles that looks at the various parts of the audio chain, the progress and improved capabilities over the years, the basics that still apply, and perhaps even reminisces a bit about the "good old days," would be of interest. For purposes of this examination of radio, the audio chain will be broken up into five general categories: program origination, control, routing, transmission, and quality. The final on-air product will, of course, be no better than the weakest link in the chain, and hopefully these weak links can be identified.

However, rather than being a series from some self-proclaimed "oracle," it is preferable that your experiences, comments, suggestions, questions, and even reminiscences be shared with other broadcast engineers. So, correspondence from the reader is not only invited, but strongly encouraged. Let me know what you would like to read about, or what you would like included in these articles. Old timers, share your knowledge and early experiences with our newer fellow broadcast engineers. You bright new guys can probably bring out some new techniques and methods of solving old problems.

Technological advances have brought, and are still bringing, sweeping changes to radio, but the basic task of producing high-quality audio is still in the hands of the engineer. Let's share our efforts to make it Radio Loud and Clear.

BC

Morris Courtright is facilities editor. Send your comments and ideas to Radio: Loud & Clear, Broadcast Communications, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208.

Brilliant performer.

NEW
WIRELESS

Model 82
Wireless Condenser
Hand-Held

The Model 82 condenser wireless microphone has been added to Cetec Vega's professional hand-held line. The Model 82 incorporates the popular Shure SM85 condenser element and attractive black windscreens to provide:

- Minimal handling noise, reduced mechanical vibration, and virtually no "boominess" (by means of controlled low-frequency rolloff).
- Clean reproduction of close-up vocals with moderate proximity effect.
- "Crispness" and presence with high-definition midrange.
- Clear, scintillating highs with crisp upper register.
- Cardioid pickup pattern for effective rejection of off-axis sounds.

All Cetec Vega hand-held wireless microphones (including the Model 80 with the Electro-Voice EV-671 dynamic element and the Model 81

with the Shure SM58 dynamic element) have an attractively contoured black case with internal antenna.

Used with Cetec Vega professional wireless receivers, the FM systems operate on any crystal-controlled frequency between 150 to 216 MHz, at a range up to 1000 feet or more. Transmit-to-receive frequency response is almost perfectly flat from 100 Hz to 12 kHz with gentle rolloffs to 40 Hz and 15 kHz. Total harmonic distortion is typically 1/2 percent. System dynamic range is 90 dB when "Dynex" (transmit compression and receive expansion) is incorporated, with a resulting low noise floor.

Cetec Vega hand-held wireless microphones are newly redesigned for 20 to 30 percent additional battery life, using a commonly available 9-volt alkaline battery (Duracell recommended). Microphone sensitivity is easily adjustable with an audio

gain control on the bottom, with an adjacent LED indicator to verify optimum setup. Power and audio on/off switches are also conveniently located on the bottom.

Write or call for further information and location of your nearest dealer: Cetec Vega, P.O. Box 5348, El Monte, CA 91731. (213) 442-0782 TWX: 910-587-3539

In Canada: A.C. Simmonds & Sons Ltd.



Cetec Vega

Division of Cetec Corporation

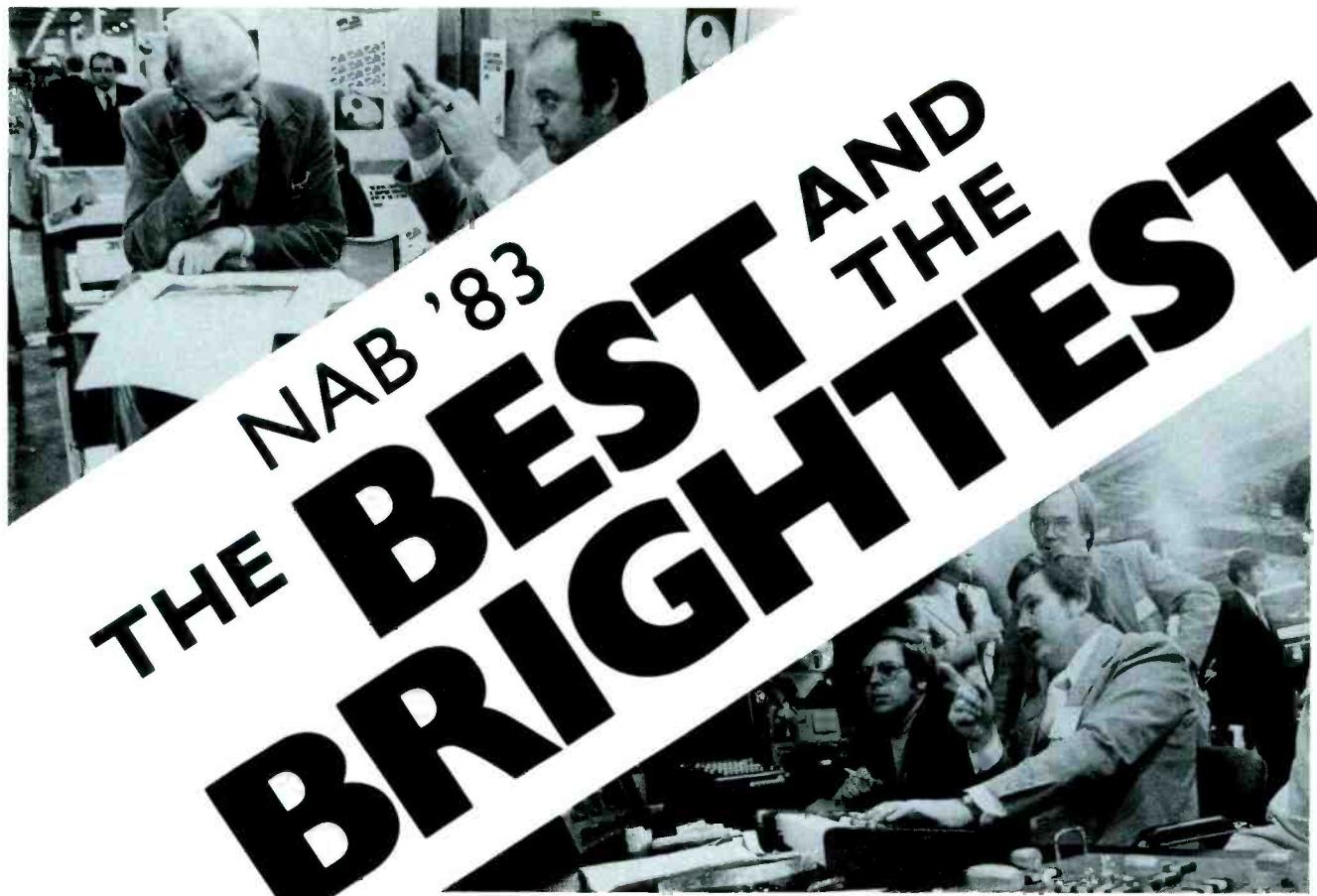
MODEL 80



MODEL 82

MODEL 81

Circle (34) on Action Card



THE NAB '83 THE BEST AND THE BRIGHTEST

The NAB electronic supermarket will be open for business in Las Vegas from April 10 to 13. Touting such general-emphasis areas as "The Name of the Game is the Bottom Line," and "Keeping Pace with the State of the Art," the NAB convention slogan of "An Industry in Transition" couldn't be more appropriate.

Faced with increased competition from the new media, traditional broadcasters will find their competitors in attendance as well. NAB always has been the melting pot for the communications industry. This year they'll be joined by applicants, CP holders, and the new operators of low-power television.

It was just last month that the publishers of *BROADCAST COMMUNICATIONS* launched *LPTV: The Magazine for Community Television Broadcasters*.

In the introductory issue, *LPTV* magazine called for those entering and those already committed to low-power to attend the convention.

The only national magazine reaching all applicants, CP holders, and licensees, *LPTV*'s editorial thrust is that low-power television is a complementary rather than a competing service. Just how complementary low-power television is will likely surface in the NAB's first session on low-power.

On the equipment side, the convention will benefit from the expansion of the Las Vegas Convention Center that's

taken place since the last NAB convention in Las Vegas. The exhibition area will be jammed, even with the expanded space, by a record-setting number of exhibitors.

Those who make it off the floor of the exhibit area will find that the session schedule presents a very real problem: since virtually every session is on target with the concerns of the industry, tough decisions will have to be made on which to attend.

NAB '83 is the industry's "best and brightest" convention. To get the most from this information-packed four days, it's important for attendees to plan their agendas carefully. The session descriptions that follow will make that process easier:

Radio

The Golden Management Tool: Cost Cutting—Steven Silberberg (station owner, financial management consultant, attorney, and bottom-line booster) will offer dozens of gutsy, money-saving, cost-cutting tips that he has used with great success.

SCA Spells Money—Learn how to make your bottom line boom by leasing your FM SCA. There's now a new similar process for AM stations for you to learn about too... to give your profit margin a real boost!

Sales Motivation Techniques—Pam Lontos, back by popular demand this year, exudes enthusiasm as she shares

with you her proven sales and management techniques. This session is not to be missed!

Buying, Financing and Selling Stations—This session will give you everything you need to know... from acquiring a station to analyzing net worth. Learn the ins and outs of negotiating prices, understanding the legal angles and tax aspects, and securing lenders.

What Does Deregulation Really Mean?—A candid discussion of the 10 most important FCC rules and policies that directly affect you. Learn what small, medium, and large stations are required to do to avoid violations.

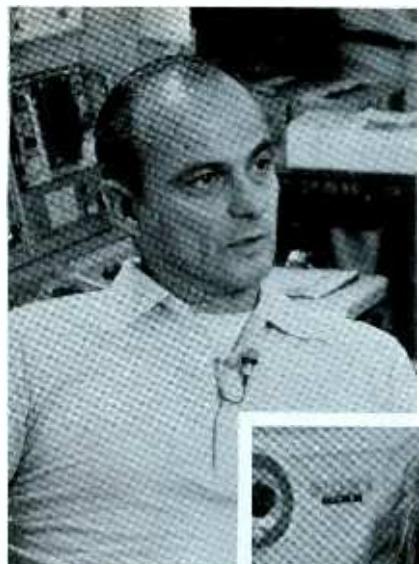
How to Capture More Co-Op Dollars—In this tough-talking bottom-line session, Robert Wilcox, manager, Radio Advertising Service, Armstrong World Industries, will tell you what to do regardless of your market size to generate more co-op bucks.

The 10 Most Common Sales Training Mistakes and How to Correct Them—Chris Lytle shows you how to build your bottom line by training you to train your radio sales personnel... the right way. A super session for markets of all sizes.

Bits, Bytes and What a Computer Can do for You—These days, computers have taken a front-row seat in all areas of radio operation. Learn how to keep abreast of these new developments.

Continued on page 46

Our story; THEIR WORDS.



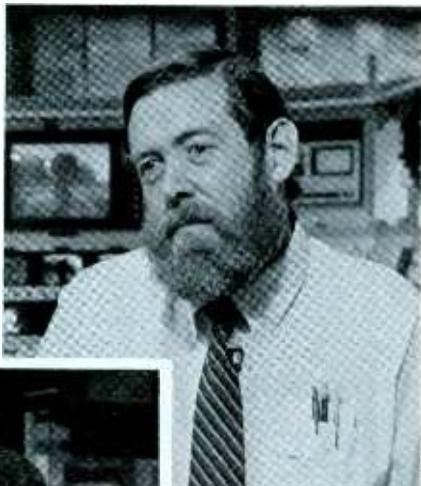
CHARLES



SCOLIS



TRUMBULL



STEVENS

Pictured are tv station personnel in Tucson, Arizona, and San Francisco and Los Angeles, California. All were photographed during location videotaping sessions for a new Grass Valley Group presentation on M200 Modular Automation operation.

On the tape Roy Trumbull of KRON-TV in San Francisco, Marian Stevens at KCOP-TV in Los Angeles, and Catherine Scolis and Harry Charles of KGUN-TV in Tucson (and others not pictured) were questioned

about their station operations, how M200 Automation has affected them, and their views on automated tv broadcasting generally.

See our new tape, "Au-To-Ma-Tion" in your facility, at your convenience. Just call the GVG sales office nearest you.

Ask for users' references, too; there's a tv station near you using Grass Valley Group M200 Modular Master Control Automation.

THE GRASS VALLEY GROUP, INC.®

P.O. BOX 1114 GRASS VALLEY CALIFORNIA 95945 USA • TEL: (916) 273-8421 TWX: 910-530-8280

A TEKTRONIX COMPANY

Offices: *Eastern Regional:* 499 Thornall St, Edison, NJ 08817, (201) 549-9600 • *Southeastern District:* 1644 Tullie Circle N.E., Ste 102, Atlanta, GA 30329, (404) 321-4318 • *Midwestern Regional:* 810 West Bristol St, Elkhart, IN 46514 (219) 264-0931 • *Northwestern District:* 3585 North Lexington Ave, Ste 238, Arden Hills, MN 55112 (612) 483-2594 • *Southwestern District:* 316 Seminary South Office Bldg, Fort Worth, TX 76115 (817) 921-9411 • *Western District:* 1032 Elwell Court, Ste 244, Palo Alto, CA 94303 (415) 968-6680 • *Western Regional:* 21243 Ventura Blvd, Ste 206, Woodland Hills, CA 91364 (213) 999-2303

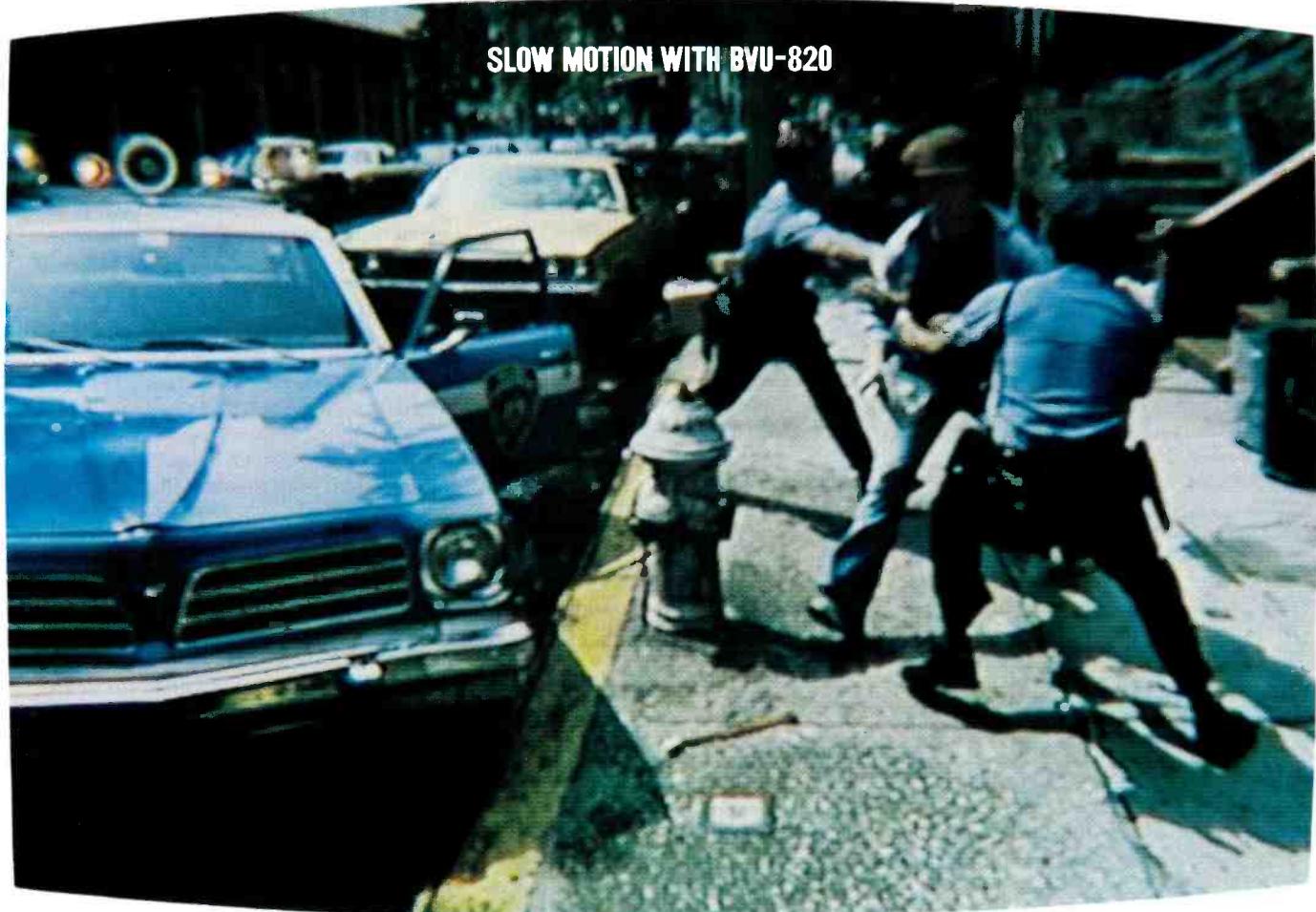
Circle (35) on Action Card



SLOW MOTION WITHOUT BVU-820

**INTRODUCING
U-MATIC
SPECIAL EFFECTS
WITHOUT
SIDE EFFECTS.**

SLOW MOTION WITH BVU-820



Sony, the inventor of the U-matic® format, as well as every link in the chain, has evolutionized U-matic again.

Now, for the first time ever, you can make instant broadcast-quality edits of those dramatic events which call for freeze frame, slow motion, fast forward or reverse, without transferring to 1".

And the implications of this in terms of saving time and money are enormous.

TWO NEW WORDS IN 3/4" VTR'S: DYNAMIC TRACKING.®

At the heart of the new, fully integrated, plug-compatible Sony editing system is the BVU-820 videocassette recorder.

It retains all the outstanding qualities of the BVU-800 series. Including up to 40x play speed in shuttle, which is more than twice as fast as ever before—to stop, instantly, without slewing or breaking up.

But there's one brilliant addition—Dynamic Tracking. Which means U-matic users now have the ability to broadcast special effects—something which, until now, has only been associated with more expensive reel-to-reel broadcast VTR's.

TOTAL FLEXIBILITY AT YOUR FINGERTIPS.

If the BVU-820 is the heart of the system, then the BVE-800 is most assuredly the brain. Not merely because of its 128 multi-event edit memory,

but because of the way it gives you total motion control of three VTR's.

The BVE-800 is expandable and upgradeable and includes full A/B sync roll capability; time code or CTL editing; built-in BVS-500 Audio/Video switcher control logic and something else only Sony can offer:

A price that's at least \$5,000 less than its nearest competitor.

A CHAIN WITH NO WEAK LINKS.

The Sony U-matic editing system features another marvel of Sony technology, the BVT-800 Digital Timebase Corrector.

Without it, the BVU-820 is capable of up to 10x play speed—fully viewable.

With it, it's capable of up to 40x play speed fully viewable, and full play speed in reverse to 3x forward with broadcast quality.

For all the facts on the state of the art, from the people who invented it, call Sony Broadcast in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 537-4300; in Atlanta at (404) 451-7671; or in Dallas at (214) 659-3600.

SONY
Broadcast



ments. It's all here—from computer-run billing services to the latest in programming procedures.

A Day in the Life of a Station Manager—George Burns, management and programming consultant from California, will be sure to entertain and teach you lots in this session. Through heavy participation, role-playing, and play-acting, Burns entertains and keeps everyone on their toes!

Cable Radio—Radio people have an important decision to make: to compete with cable radio or generate income from it. This invaluable session explains how to do both.

Sales Forum—In cooperation with the Radio Advertising Bureau, the Sales Forum will be held all day Tuesday and take you step-by-step through the entire sales game. In the afternoon, there will be split sessions for small- and large-market radio. Monday's presentation will include George Glover and his "Winning Hand for Managers." In case you can't make it to that session, it will be repeated again on Tuesday.

Spanish Language Forum—This session will give you the information on the fastest-growing minority in the country and tips on how to adapt your programming to this important market.

Daytime Radio—The daytimers will all be together to discuss the future of daytime broadcasting, share ideas, and discuss the latest developments.

Television

TV Trends—A sample of 1500 viewers nationwide will share their thoughts and feelings on cable, pay television, new techniques, local news, and network entertainment. Become a better programmer by listening to the views of those that mean the most to your business: your audience.

The Question of Space: Effective Planning of a Broadcast Facility—This two-part session will cover all options regarding facility expansion, be it through building, leasing, or renovating. Determining your long-term options, selling ideas to your business manager, and projecting costs will be covered in the first part. The afternoon session covers every angle of construction, from choosing your designer to achieving maximum energy efficiency. So, if you're expanding or plan to do so in the future, don't miss it!

Effective Management—Jim Hooker, president, Media Sales Training Systems, will offer his insights on unlocking high levels of productivity among broadcast staffs. Employee performance is a direct reflection of management. Learn to motivate employees and commit them to achieving goals for you!

Investing in New Technologies—In this session you will explore and evaluate workshop information including SMATV, MDS, and teletext. The relationship of these developments to the success of your station is a crucial one. Learn how to plan business strategy; estimate profits; and market and invest assets to secure financial stability.

Earth Stations: What Every GM Should Know—In this engineering session for non-engineers, you will be taught about the equipment needed to implement a TVRO or uplink satellite system.

Financial Management for the Non-Financial GM—This session is designed to give the GM a quick overview on evaluating a station's financial position and developing a sound financial plan to carry out the best possible programming objectives.

Crime and the Media—With the increasing incidence of hostage-taking, reporters are often held "hostage" because of their duty to inform the public. This session will delve into the appropriate role of the reporter during such situations.

First Amendment—As our influence as a news media grows, broadcasters remain stepchildren under antiquated First Amendment rules. This session will explore First Amendment issues and the common responsibilities shared by print and electronic media as the gap between them diminishes.

Television engineers

Advanced Television Systems (ATS)—Papers and reports on the engineering and development of production, transmission, and recording will be presented. This session will also include improved NTSC, enhanced 525-line systems, HDTV, and analog component recording systems.

New Technology—Digital recording systems, operational procedures with circular polarization, "loudness" measurement, and control equipment will be the main features of this session.

UHF Transmission System Improvements—This will feature reports on how to make your existing UHF plant more efficient by saving both power and money. Reports will cover improvements in new UHF transmitter design, diplexing two UHF signals in a single waveguide, and progress on the development of the multiple depressed collector (MDC) klystron.

Satellite Technology—At last year's convention, concentration was on satellite systems for radio broadcasters. This year's session will include case studies on satellite receiving terminal installation at TV stations, plans for TV

network distribution, and other timely satellite topics.

Channel 6 and FM Interference—By providing the FCC with long- and short-term recommendations based on a series of field tests, and through the formation of an Industry Committee, NAB seeks a permanent solution to this growing problem. A series of reports on the most recent developments will be presented.

Radio engineers

AM Allocations—This session will present updates on meetings with Canada and Mexico involving increased nighttime power for Class IV stations and post-sunset operation for daytimers using the diurnal curve. The Cuban interference problem will also be discussed.

FM Allocations—A series of reports and study results on several major FCC rulemakings which propose new classes of stations, closer separation of stations, and deregulation and revising FM-SCA transmissions.

New Technology—Discover the latest ideas in sound broadcasting... from improving AM transmission to digital audio systems and satellite transmission.

AM Stereo—This year, several case studies of AM stereo installation will be provided to help plan and complete the transition effectively.

All engineers

Spectrum Management—On Wednesday, prior to the general FCC forum, a special session on the problems of land mobile radio user incursions into broadcast spectrum will be held. Discussions will also cover some ramifications on the new FCC rulemaking proposals and the deregulation process.

Non-Ionization Radiation—Many radiation problems are "perceived" rather than actual. This session will "clear the air" by presenting up-to-date information on the status of pending FCC regulations, EPA, OSHA, and individual communities along with some good hard data on the subject. Experts will be available to answer your questions.

Ham Radio Operators—Please don't miss the 5th Annual NAB Ham Operators Reception! Join your fellow "hams" for the ever popular get-together presented on Monday evening after the closing of the exhibits. All card-carrying "hams" (past, present or future) will be admitted. Why don't you bring along your QSL card for posting! It will be an evening of glad-handing, back-slapping, eyeballing QSLs with plenty of fun, food, festivities, drink, and door prizes.

Special attractions

In addition to a comprehensive schedule of sessions, there will be entertainment by Bill Cosby, and addresses by FCC chairman Mark Fowler and Senator Howard Baker.

And, of course, there will be the exhibit area, featuring approximately 500 companies. The following is the list of exhibitors, as of press time. Be sure to read the March issue for a more complete list of exhibitors, plus a description of their products and services.

NAB exhibitors

ADC Magnetic Controls
ADDA Corporation
ADM Technology
A. F. Associates
ATI-Audio Technologies Inc.
AT&T
Accurate Sound
Acrodyne
Advanced Music Systems
Agfa-Gavaert
Alexander Manufacturing
Allen Avionics
Allied Broadcast Equipment
Allied Tower
Allsop
Alpha Audio
Amber Electro Design

Amco Engineering
Amperex
Ampex
Ampro/Scully
Amtel Systems
Amtron
Andrew
Angenieux
Antenna Technology
Anton/Bauer
Anvil Cases
Apert-Herzog
Aphex Systems
Arben Design
Arrakis Systems
Arriflex
Artel Communications
Arvin/Diamond
Asaca/Shibasoku
Associated Press
Atlas Tower
Auburn Instruments
Audico
Audio Developments
Audi-Cord
Audio & Design Recording
Audio Kinetics
Audio-Technica
Auditronics
Aurora Systems
Autogram
BEI (Beston Electronics Inc.)

FOR MORE INFORMATION on NAB '83, contact:

Convention Registration
National Association of
Broadcasters
1771 N Street, N.W.
Washington, DC 20036
(202) 293-3526

BGW Systems
BIW Cable Systems
The BTX Corporation
B-W Lighting Systems
William Bal Corporation
Basys
Bayly Engineering
Beaveronics
Belden Communications
Belar Electronics Lab
Bell Helicopter Textron
Beyer Dynamic
Bird Electronic
Blonder-Tongue
Bogen Photo

Continued on page 48

SPECIAL UPDATE:

ELECTOR IS NOW THE EXCLUSIVE U.S. DISTRIBUTOR FOR ALL BARCO PRODUCTS.

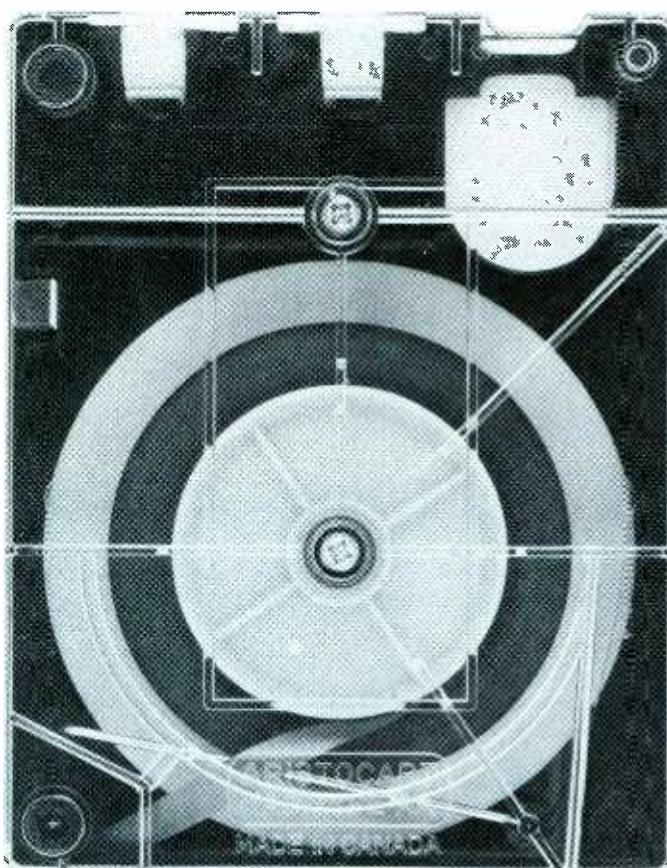
**In The U.S., Elector U.S., 5128 Calle Del Sol, Santa Clara, CA 95050 Phone: 408/727-1506 Telex: 0236/0172335
30 Chapin Road, P.O. Box 699 Pine Brook, NJ 07058 Phone: 201/882-0584 In Canada, Electro & Optical Systems Ltd.,
31 Progress Court, Scarborough, Ontario M16 3VS Phone: 416/439-9333 Telex: 021/06525431**

Circle (36) on Action Card

Bogner Broadcast
 Bosch (Fernseh)
 British Videotex
 Broadcast Audio
 Broadcast Cartridge Service
 Broadcast Electronics
 Broadcast Microwave Services
 Broadcast Music Inc.
 Broadcast Programming Int'l
 Broadcast Systems
 Broadcast Technology
 Broadcast Video Systems
 Bush & Millimaki Services

CBS Radio News Service
 CEI-Panavision Electronics
 CMC Technology
 CMX Systems/Orrox
 CSI Electronics
 Bryston Manufacturing
 Cablewave Systems
 California Microwave
 Calzone Case
 Cambridge Products
 The Camera Mart
 Canford Audio
 Canon USA

Cat Systems (Soll Inc.)
 Ceco Communications
 Central Dynamics
 Centro
 Century 21 Programming
 Cetec Broadcast Group
 Cetec Vega
 Chase Media
 John Chiles Inc.
 Christie Electric
 Chyron
 Cine 60
 Cinema Products
 Cipher Digital
 Circuit Research
 Clear-Com Intercoms
 Colorado Video
 Cinemills
 Colorgraphics Weather Systems
 Colortran
 Columbine Systems
 Comark Communications
 Comex
 Comprehensive Video Supply
 Compucon
 Computer Concepts
 Computer Graphics Lab
 Comrex
 Comsearch
 Comtech Data
 Concept Productions
 Conrac Division/Conrac
 Continental Electronics
 Continental Recordings
 Control Video
 Convergence Corporation
 Cool Light Company
 Corporate Comm. Consultants
 Crosspoint Latch
 Crown International
 Custom Business Systems
 dbx Inc.
 Peter Dahl Company
 Data Communications
 Datatek
 Datatronix
 Datatron
 Datum
 Delcom Corporation
 Delta Electronics
 Deltamod
 DeWolfe Music Library
 Dictaphone
 Digital Video Systems
 Di-tech
 Dolby Laboratories
 Dorrough Electronics
 Drake-Chenault Enterprises
 Dubner Computer Systems
 Dynamic Electronics
 Dynair Electronics
 Dynamic Technology
 EECO
 EEG Enterprises
 EEV
 EG&G
 EMCEE Broadcast Products
 E-N-G Corporation
 ESE



A
R
I
S
T
O
C
A
R
T

no other NAB cartridge meets these exacting standards

We designed the ARISTOCART cartridge 10 years ago. Its features have been widely copied but it continues to outperform competing products because we alone take the trouble to check each unit we ship for phase stability and frequency response in conformity with NAB specifications.

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.



MANUFACTURED BY ARISTOCART DIV. WESTERN INTERNATIONAL COMMUNICATIONS LTD.
 505 BURRARD STREET, VANCOUVER, B.C., CANADA V7X 1M6 TEL: (604) 687-2644 TELEX: 04-54639

Eastman Kodak
Echolab
Eigen Video
Elcom-Bauer
Elector
Electro Controls
Electro Impulse Lab
Electro-Voice
Emcor Products
Enstrom Helicopter
Enterprise Electronics
Environmental Container
Eventide Clockworks
Excalibur Industries
Faroudja Labs
Farrtronics
Fidelipac
Film/Video Equipment
Firstcom Broadcast Services
Fitzco Sound
Flash Technology
For-A Corp. of America
Fortel
Fort Worth Tower
Fostex Corp. of America
Frezzolini Electronics
Fuji Photo Film USA
Fujinon
Gagnon LaForest Inc.
Garner Industries
General Electric
Generic Computer Systems

Glentronix
Gorman Redlich
Gotham Audio
Graham Patten Systems
Grass Valley Group
The Great American Market
David Green, Broadcast
Consultants
Grumman
HEDCO
HM Electronics
Hallikainen & Friends
Harris Corporation
Harrison Systems
Karl Heitz
Hitachi Denshi America
Howe Audio
Hughes Helicopters
IGM Communications
ISI (Industrial Sciences Inc.)
Ikegami Electronics
Image Video
Inflight Services
Innovative TV Equipment
Inovonics
Interactive Market Systems
Interand
Interface Data Systems
Interface Electronics
Integrated Sound
International Tapetronics
International Video Corp.

JBL James B. Lansing Sound
JVC Company of America
Jam Creative Productions
Jamieson & Associates
Jatex
Jefferson Data Systems
Jenel
Jensen Tools
Kahn Communications
Kaman Sciences
Kavco
Kavouras
Kings Electronics
Kliegl Brothers
Kobold of America
LPB
LTM Corporation
L-W International
Laird Telemedia
Larcan Communications
Leader Instruments
LeBlanc & Royle
Leitch Video
Lemo USA
Lenco
Lexicon
Lightning Elimination
Listec TV Equipment
Logitek Electronic Systems
Lowel-Light
Lyon Lamb Video Animation

Continued on page 50

**SPECIAL
UPDATE:** **3/37-CTVM3/51**

**THERE IS
ONLY ONE SOURCE
FOR BARCO
CTVM MASTER
BROADCAST
MONITORS...
ELECTOR.**

In The U.S., Elector U.S., 5128 Calle Del Sol, Santa Clara, CA 95050 Phone: 408/727-1506 Telex: 0236/0172335
30 Chapin Road, P.O. Box 699 Pine Brook, NJ 07058 Phone: 201/882-0584 In Canada, Electro & Optical Systems Ltd.,
31 Progress Court, Scarborough, Ontario M16 3VS Phone: 416/439-9333 Telex: 021/06525431

Circle (38) on Action Card

McCurdy Radio	The Musiworks	QEI
McInnis-Skinner	NEC America	QSI Systems
McMartin Industries	NTI America	Q-TV/Telesync
3M/Magnetic A/V Products	Nady Systems	Quad-Eight Electronics
3M/Scotchcart	Nagra Magnetic Recorders	Quanta Corporation
M/A-COM Video Systems	Nautel Maine	Quantum Audio Labs
MCI (Div. of Sony)	Network Production Music	Quickset
MCI/Quantel	Nortronics	RCA
Magnasync/Moviola	Nurad	R.F. Technology
Magnum Towers	Nytone Electronics	RTNDA
The Management	OKI Electric Overseas	RTS Systems
Marconi Electronics	Oak Industries	Radiocom
Marconi Electronic-Instruments	O'Connor Engineering	Radio Computer Services
Marti Electronics	Olesen	Ramko Research
Mathews Studio Equipment	Omnimount Systems	Rank Cintel
Magnavox AM Stereo	Orban Associates	R-Columbia Products
Maxell Corp. of America	J. Osawa & Company	Real World Technologies
Merlin Engineering	Otari	Recotec
Micromix Audio Products	Otis Conner Productions	Rees Associates
Micro Communication	PEP Inc.	Research Technology
Micro Control Associates	Pacific Recorders &	Roh
Microdyne	Engineering	Rohde & Schwarz
Microtime	Panasonic	Rohn
Micro-Trak	Perrott Engineering Labs	Rosco Laboratories
Midwest Corporation	Peters Productions	Ross Video
Minolta	Phelps Dodge	Rupert Neve
Mole-Richardson	Philadelphia Resins	Rusco Electronics
Keith Monks Audio	Philips Test & Measuring	Sachtler Corp. of America
Moseley Associates	Porta-Pattern	Saki Magnetics
Motorola	Potomac Instruments	Howard W. Sams Company
Multi-Track Magnetics	Precision Echo	Satt Electronics
Music Dir. Programming Service	Procart	Scientific-Atlanta

Save That Audio Track with the UREI 565T

Unwanted and unexpected noise can ruin an audio track! There is a way to eliminate much of the noise and save your track with the UREI 565T "Little Dipper" filter set.

This active filter set was designed with the aid of a computer to let you remove extremely narrow bands of the audio spectrum. The result is easy elimination of coherent noise such as AC hum, sync leakage, etc. with no apparent effect on the sound quality of music or voice!

The 565T's four separate, continuously tunable cascaded filters also help eliminate much of the semi-coherent noise that can sneak into an audio track like camera noise or the buzz from lighting. Even noises from subways, jet aircraft, tape hiss, etc. can be greatly reduced!

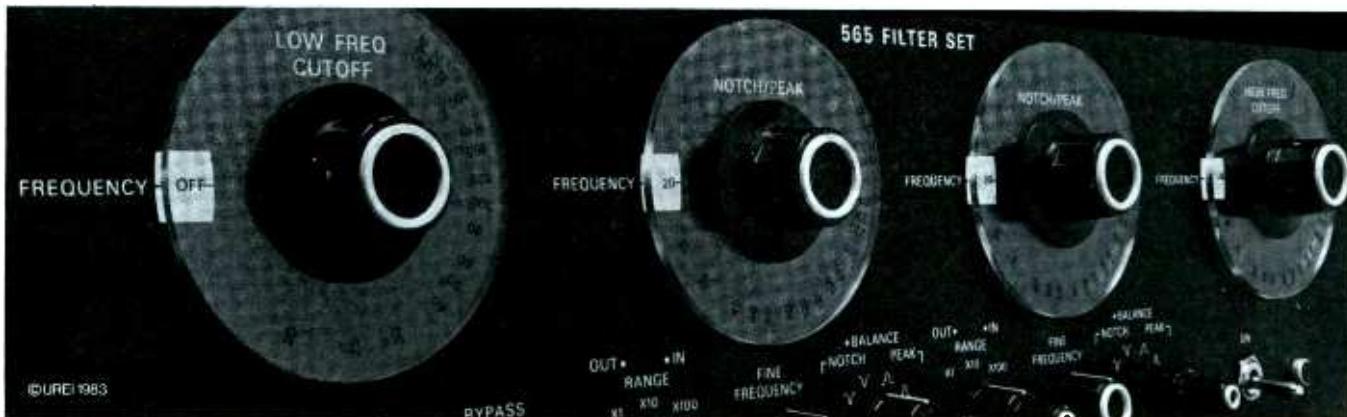
Make the UREI 565T a standard tool in your post-production. It's ready to save your tracks!

For more information on the 565T and other UREI signal processing

equipment, see your authorized UREI sound professional or contact:

UREI From One Pro to Another

United Recording Electronics Industries
a URC Company
8460 San Fernando Road
Sun Valley, California 91352
(213) 767-1000 Telex: 472 0889 UREI SNVY
Canada: E.S. Gould Marketing, Montreal



Scribe Recorders
Sennheiser
Sescom
Sharp Electronics
Shintron
Shively Labs
Shook Electronic Enterprises
Shure Brothers
Sigma Electronics
Singer Broadcast
Skotel
Solid State Logic
Sono-Mag
Sony Corporation of America
Soundcraft Electronics
Sound Genesis
Sound Technology
Spectrum Planning
Stainless
Stanton Magnetics
Stantron
Station Business Systems
Stephens Electronics
Storeel
Straight Wire Audio
Strand Century
Studer Revox America
The Superior Electric Co.
Sylvania Lighting
Symetrix
System Associates
Swintek Enterprises

TDK Electronics
TESS (Knowledge Industry Publications)
TFT Inc.
TVI
Taft Broadcasting
Tamron
William Tanner Company
Tascom (Div. of Teac)
Teccom
Tektronix
Tele-Cine
Telemet
Telescript
Telesource Comm. Services
TV Equipment Associates
Telex Communications
Telfax Communications
Tennaplex
Tentel
Theatre Service & Supply
Theatrical Services
Thermodyne International
Thomson-CSF Broadcast
Thomson-CSF Electron Tube Div.
Tiffen Manufacturing
Toby Arnold & Associates
Townsend Associates
Trident
Trompeter Electronics
True Time Instruments
Turner Program Services

Tweed Audio USA
UMC Electronics
UREI
U.S. Tape & Label
Ultimatte
Unidyne Direct Mail
Uni-Set
United Media
United Press International
United Research Lab
Ursa Major
Utah Scientific
Utility Tower
VSC Corporation
Valentino Inc.
Varian Associates
Video Associates Labs
Video Data Systems
Videomedia
Videotek
Vital Industries
Ward-Beck Systems Ltd.
Wavetek Indiana
Weathermatation
Western Union
Wilkinson/Television Technology
Winsted
Wireworks
Wold Communications
Wolf Coach
Frank Woolley & Company
World Tower

BC

**SPECIAL
UPDATE:** **BARCO
CM SERIES
MULTI-PURPOSE
BROADCAST
MONITORS....
AVAILABLE ONLY
FROM ELECTOR.**

In The U.S., Elector U.S., 5128 Calle Del Sol, Santa Clara, CA 95050 Phone: 408/727-1506
Telex: 0236/0172335 30 Chapin Road, P.O. Box 699 Pine Brook, NJ 07058 Phone: 201/882-0584
In Canada, Electro & Optical Systems Ltd., 31 Progress Court, Scarborough, Ontario M16 3VS
Phone: 416/439-9333 Telex: 021/06525431

Circle (40) on Action Card



National's Studio 3 control room set up for a music mix for a video assignment. (Photo courtesy of Robert Wolsch Designs)

The agony and ecstasy of selecting equipment

BY HERB OHLANDT

In 1977, National Video Center/Recording Studios was celebrating its 18th anniversary as a resident in a New York City office building. At that time, National was a video and audio production/post-production house working on overload—cramped quarters, cables everywhere, inadequate air-conditioning, and few client amenities. After a lengthy search for more appropriate quarters, National's co-owners, Hal Lustig and Irv Kaufman, made a bold management decision to move to an almost ideal location at the former West Side Airlines Terminal on West 42nd Street and 10th Avenue.

In April 1981, the "new" National came "on-line." As chief engineer, I readily admit that conceiving, building, and implementing this state-of-the-art facility has given me great personal satisfaction. However, the thrills and ecstasies have not come without difficulties and agonies. Real estate, financing, and construction are important aspects of the National story that warrant a separate discussion. System considerations and equipment selection are crucial factors to be considered in developing a first-class facility for clients and staff alike.

The spectrum of clients patronizing any major video/audio production/post-production facility ranges from those whose knowledge of technology is so limited that they virtually give engineers carte blanche, to the sophisticates able to specify the latest digital-effects development in no uncertain terms. Consequently, to succeed in such a complex marketplace, it is essential for a facility to continue to keep one step ahead on the latest technology and to provide the most efficient service.

The responsibility for new equipment recommendations can be one of a chief engineer's most enjoyable duties, as well as one of the most agonizing. You should never underestimate the risk involved in spending millions of dollars on equipment in this constantly accelerating world of chip and semiconductor development: an expensive piece of hardware might well become a white elephant even as it is delivered!

Equipment selection

In choosing equipment, there are several major questions management must consider. Assigning relative importance to these criteria may be next to impossible. Often a comparison sheet of possible choices can have as many twists as a Rubik's Cube has combinations. In the end, it usually comes down to equal measures of intensive analysis and gut instinct.

Continued on page 54

40 to 1

Canon PV40 x 13.5B IE: THE OLYMPIAN

Canon moves you a giant step forward with a 40X broadcast quality zoom lens. An incredible new lens that allows you to cover a stadium at wide angle or fill the frame with the quarterback's eyes.

Never before has a single lens provided this much flexibility and sensitivity, with remarkably little change in effective aperture throughout its entire 13.5mm-540mm* range. Built-in extenders let you go all the way to 1080mm and each lens is diascopic-equipped for modern microprocessor-



controlled cameras.

We call it The Olympian. Not only because it is ideally suited for sports coverage but also because of the dedication and team effort required of our optical and electronic engineers in making this lens a reality.

Enlarge a dollar bill forty times and it covers an area twenty feet long and eight feet wide. Now think about what you could do with the Canon PV 40 x 13.5B IE

*1" cameras. Also available in 30-mm plumbicon.



Canon®

Optics Division

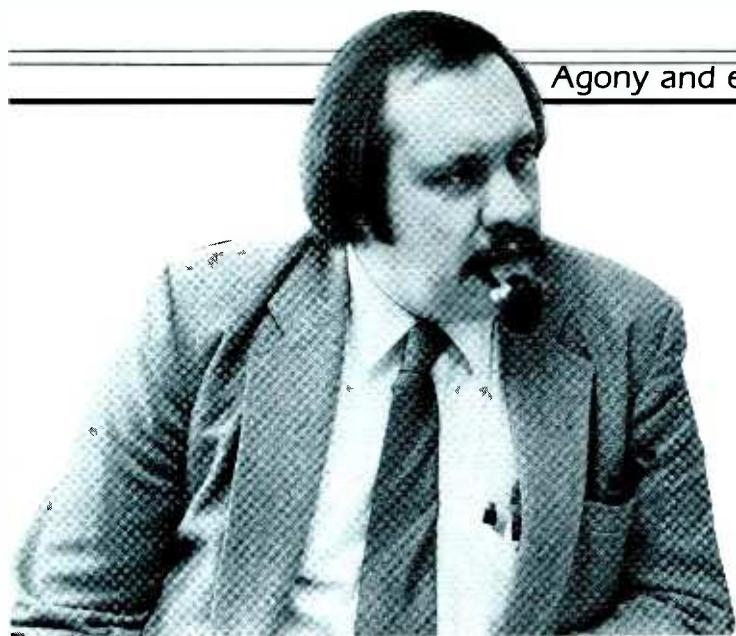
Canon USA, Inc., Head Office: One Canon Plaza, Lake Success, N.Y. 11042 (516) 488-6700

Dallas Office: 11311 Stemmons Freeway, Suite 1, Dallas, Texas 75229 (214) 620-2641 Chicago Office: 140 Industrial Drive, Elmhurst, Ill. 60126 (312) 833-3070

West Coast Office: 123 Paularino Avenue East, Costa Mesa, Ca. 92626 (714) 979-6000

Canon Canada, Inc., 3245 American Drive, Mississauga, Ontario L4V1B8, Canada (416) 678-2730

© 1982 Canon U.S.A., Inc.



Agony and ecstasy

NATIONAL'S HERB OHLANDT:

“To succeed in such a complex marketplace, it is essential for a facility to continue to keep one step ahead of the latest technology.”

(Photo by Howard Sherman)

The first, and seemingly foremost, question is, what are the clients asking for? After all, the independent post-production facility can only exist as long as clients continue to come through the door. But very often, the most-sought-after piece of equipment is not the best from either the operating or engineering staff's point of view.

What does the production staff want from new equipment? Obviously, they want to please their clients and improve results with less effort. Staff engineers hope to increase techniques for creative expression; they expect the equipment to function logically for organized operation, and to be easily programmable.

What are the engineering staff's concerns? They prefer compatibility with current equipment, easy installation, low failure rate, and built-in diagnostics for convenient repair. Engineers prefer equipment whose failures are of a hardware rather than a software nature, and further, opt for equipment from manufacturers with established reputations for engineering support.

Another major question is one of cost. Can this piece of equipment pay for itself? How soon can it pay for itself? Often, the most expensive device is clearly the best, but is it worth perhaps *twice* the price of the next contender? Clients may be clamoring for a machine that simply does not fit a firm's budget. Can a substitute be successfully marketed to a critical clientele?

Another important, yet unfathomable factor is, what does the future hold for the equipment in question and for the entire industry? What are the amiable sales people hinting at? What are the NAB rumors? If a device is "in the works," will it be completed by the target date? Is it advantageous to risk purchasing a first production run which sometimes is no more than an engineer-

ing prototype? These are the areas where intelligent analysis must be tempered by gut instinct.

Routing switcher

The initial size of our proposed full-service facility (three editing suites; telecine transfer; inter-format duplication; two television/film soundstages; insert audio; and extensive audio services) dictated the installation of an expandable routine switcher. This "big ticket" item had previously been considered an unnecessary luxury for a post-production facility since, by itself, a routing switcher produces no income. But without it, plant operation costs can soar. A pulled patchcord or an intermittent audio jackfield can prove very costly in the course of everyday business. Improved signal quality and rapid equipment configuration provide client satisfaction, but are difficult to measure in dollars and cents.

Since clients have no direct contact with the routing switcher itself, it must be selected primarily on the engineering requirements. How many audio levels are desired? How many inputs and outputs are required for today and for tomorrow? What signal degradation will occur? How flexible are the routine switcher's control panel options? What is the reliability of the specific routing switcher? Can the unit accommodate a remote machine control system? How quickly will the manufacturer respond when an emergency occurs?

For National, the criteria cited were best met with a system with video and two levels of audio in the initial 30-in/40-out configuration, expandable to 50-in by 70-out. The system as purchased is expected to provide primary distribution capability for an anticipated growth of the facility well into the mid-'80s. Facility expansion beyond that point will have different needs as digital signal transmission and high-

definition television (HDTV) become standard for the industry.

Incidentally, this is one of those cases where the most expensive was not even close to being the best.

Videotape machines

Videotape machine expansion for National's enlarged facility followed a more natural path. A pace setter of the one-inch revolution (having purchased Ampex machines in July 1977), National has had excellent experience with the Ampex VPR series of machines. Currently, a dozen Ampex 1-inch machines service primary aspects of the facility. Quad machines were retained to handle two-inch format requirements of broadcast distribution and, of course, we also have $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch machines.

Computer editing systems

As essential as the choice of tape machines or computer editing systems might be, the two most important pieces in today's post-production suites are the video switcher and the digital-effects equipment selected to complement it. Factors to consider include drift-free performance, allowing near perfectly matched busses for ease of match-frame edits; simplicity of operation; flexibility in function assignment; quality of keys; precision and variety of wipes; manufacturer support; potential for hardware and software upgrading; and client image.

For National, the Grass Valley Group 300 Series switcher and Mark II provided an opportunity to obtain a new generation switcher with maximum interface to its companion digital video effects. Clients often request a specific visual effect(s)—from flipping and turning an image or moving insets of scenes to various sections of the screen, to employing eyecatching decaying images or superimposing laser visuals over live action. The digital video effects unit was installed at the original National in September 1980 as a stand-alone package. It was mated with the GVG 300-3B switcher at the new facility, and both of these "firsts" for the East Coast market have been

well received by clients.

The competition

It is important to acknowledge the influential role competing facilities play in making equipment decisions. It is easy to buy with an "us too" philosophy: most clients are accustomed to certain brand names; operator talent may be more easily attracted; incorrect decisions are far less noticeable. Choosing a current industry favorite provides safety in numbers.

However, to be an industry innovator, to keep one jump ahead of the competition, to squeeze out an extra year or two of useful life, and to provide an exciting environment for both clients and staff, equipment selection must be approached cautiously, but with a pioneering spirit.

Innovative choices require the unit to have obvious advances in overall quality and capability. A unit rushed to market to take advantage of a gimmick capability may be a poor choice against a more refined box whose projected lifetime may be significantly longer. Facilities have fallen into serious financial difficulties, resulting from ill-advised equipment choices. Those white elephants are expensive to feed!

A solid support structure

Essential as major equipment is, its value can be severely limited without a solid support structure. Maximum quality multi-generation tapes can only be produced with proper system design. Full bandwidth video distribution amplifiers (DAs) with proper equalization are essential to minimize signal degradation faults such as short- and long-term streaking, frequency response errors, and differential phase and gain. Audio signal paths should also remain essentially transparent to the signal, while eliminating hum and providing sufficient fan-out capability.

A basic concept of National's facility design is for all in-house source feeds to be channeled through master control for timing, equalization, and ease of distribution. All video feeds are "zero" subcarrier to horizontal (SCH) phased at the video quality control rack and then distributed to various points of use. All audio feeds are similarly DAed, with level and phasing checks performed at the audio quality control rack. Low-impedance, voltage-type fan-out distribution is then used for transmitting audio to various in-house destinations.

All video feeds to a switcher, whether direct from a DA or arriving via the routing switcher, are phased within two degrees with levels within two IRE units. All audio feeds arrive at mixtures

in-phase, with levels within 1 dB of reference, and with isolation of over 60 dB from other outputs of the same DA. This eliminates problems that frequently occur when feeds are muted.

The National system design provides for expansion to 80 dual audio sources with clip-point headroom of greater than +26 dBv. Each of the 160 sources has a fan-out capability of 12 or more loads. All control-room video switcher outputs are passed through proc amps which are maintained with constant SCH relationships in order to essentially eliminate the possibility of those notorious H shifts which frustrate many an editing session.

Another area of the support system that requires attention is pulse and test signal distribution. To minimize large numbers of delay lines located at each piece of equipment, it is necessary to provide several steps of horizontal timing to accommodate the different equipment delays. At National Video Center, three steps of delay (zero reference, 850 nsec. later, and 1250 nsec. later than reference) have proven sufficient to accommodate studio cameras, title cameras, character generators, tape machines, and switchers. Stability of the pulse distribution system is essential to maintain the desired constant SCH phase plant.

The primary house sync generator must be a source of complete confidence by providing day-in/day-out reliability and consistent generation of pulse widths and timing relationships. House color bars, cross-hatch, and black burst must always be available as reference standards. A combination of Leitch Video products and Grass Valley pulse DAs have provided a solid framework for pulse and test signal distribution.

Character generators

Until recently, equipment selection in the area of character generators was fairly uncomplicated. The heavy workload of the Chyron we brought over from National's original facility dictated the purchase of an additional unit. As indicated previously, National's equipment selection philosophy is one of conservative innovation. We try to buy a unit when it reaches a new plateau of quality, sophistication, and capability. The technology behind character generators and graphic-arts devices is advancing explosively at the present time. Currently, no specific unit can provide assurance that it will not be relatively outdated in just a few months.

Manufacturers with the most advanced units are running at top speed to keep their positions at the head of the pack. Character generators are evolv-

ing into graphic production devices with artist-like capabilities. Painting-style graphics systems are including character generation and limited animation routines. It is only a slight exaggeration to say that National is awaiting "the box" that will eventually do it all, including frame-by-frame cel animation with full "in-betweening" capabilities.

To fill the need for more character-generator capability now, National selected the BEI CG-2000 unit. Delivered with hundreds of font styles and sizes, it has a resident font compose unit that permits unlimited font additions. Its high-quality letter capability and very modest price were definite advantages.

Studio cameras

Studio cameras are another high-expense item for a production facility. Two companies, recipients of Emmy Awards in the past year for their role in the development of computer-control of cameras, have moved camera technology to a new level of sophistication. In addition to intensive "spec" comparison of the units under scrutiny, consideration must be given to manufacturer experience and reputation, the manufacturer's approach to solving the technological trade-offs that inevitably occur in camera design, and the ergonomics of the operator controls.

A particularly influential factor in this decision was the capability of the camera to accept the Amperex 78Q tube which retains certain 30mm tube format benefits while gaining certain advantages, especially lower lag that results from scanning as a 25mm format tube. This aspect of performance becomes increasingly important as lower light conditions on the set become more commonplace.

The agonies of equipment decision-making fade in the light of the finished product—a full-service, state-of-the-art production/post-production facility that gives staff and clients as much satisfaction as its chief engineer—almost.

Editor's Note: Long live engineering philosophy! That's why we have so many different equipment design approaches to the same engineering problems. Despite the choices, Ohlandt's system design considerations for National Video should serve as reminders for those in search of new products at the NAB convention this year. **BC**

Herb Ohlandt is the vice president of engineering for National Video Center/Recording Studios, an audio/video production/post-production complex in New York City.

New telecines arrive with perfect timing

The past five years have been a renaissance in the use of film for TV broadcast. More than 70 percent of prime-time network shows continue to be film-originated, and approximately the same percentage holds true for regional and national commercials. Now, with the emergence of alternate video distribution media, such as pay and cable TV, and even home disc and cassette players, the demand for film-originated software is accelerating.

These film productions have bene-

fitted from the recent availability of three radically different telecine units: Rank Cintel's MK3B and MK3C; Fernseh's (Robert Bosch's) FLD 60; and Marconi's B3410. Both bypass the techniques of the traditional vidicon telecine to produce an extremely sharp, brilliantly colored film image on video.

But why film at all in the video medium? Isn't EFP going to blow film out of the water? Some people like to get into aesthetic arguments about the "film-look" and the "video-look"; but

the fact is, there are some very practical reasons for using film in many production situations.

For one thing, film equipment handles some environments better than videotape equipment does. Steve Michelson, of One Pass Film and Video in San Francisco, notes that his company does a lot of shooting on offshore oil rigs for an industrial client. Michelson says he has no intention of ever subjecting his EFP equipment to the salt spray and humidity typical of that kind of shoot.

For another thing, film handles extreme contrast ranges better than video. When it is used for origination, it, in effect, compresses extreme contrast ratios in a sequence, making the scene easier to televise. Bill Hogan, of Ruxton Ltd., a Burbank postproduction facility, describes a typical situation: "Often, film guys will have low light in an interior with bright sunlight outside. They're used to having the windows burn out. No big deal. But if you tried that in video, it wouldn't work. The windows wouldn't just burn out, they'd add flair to the entire image." Some lighting situations easily accommodated with film can't be duplicated with a video camera.

In addition to film's greater latitude, there are new motion picture emulsions which are more sensitive to low light than the best Plumbicon or Saticon video cameras. In 1982, Eastman Kodak Company introduced Eastman color high-speed negative film 5293/7293, which gives consistently good results even in "single-digit" footcandle readings. While the film is rated for an exposure index of 250, cinematographers have found that it has a remarkable range of latitude. As one ex-

Continued on page 58



Excalibur chief engineer Steve Schwartz and vice president of sales Jack Mauck discuss a transfer.

THE WORLD'S ONLY FULLY DIGITAL TELECINE IS NOW IN AMERICA!

It's the MARCONI LINE ARRAY TELECINE B3410—the telecine that not only delivers a new standard of quality for film-to-tape transfers but can appreciably add to your productivity and profits!

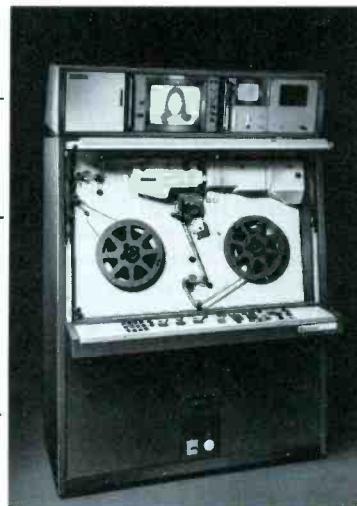
The reasons are simple. The Marconi B3410's fully digital processing and CCD image sensors deliver an extraordinarily true video picture. And the Marconi B3410 does not require time-consuming tweaking, day-to-day adjustments and set-up arrangements that rob you of valuable hours of productive work.

The Marconi B3410 delivers full performance within two minutes from the time you switch on. Moreover, there is no registration

drift and no tubes to replace. It interfaces with all available color correctors, converts into all international standards and—by its very digital nature—is designed to have an exceptionally long life.

And, because the Marconi B3410 is distributed and supported by A.F. Associates—America's largest designers and builders of video systems—there is no lack of engineering backup and spares on both the East and West coasts!

For more information on specifications, costs and delivery, contact Richard Lunniss in New Jersey (201) 767-1000 or Noel Parente in California (213) 466-5066.



THE MARCONI LINE ARRAY TELECINE B3410

Now in America and only from



100 Stonehurst Court, Northvale, NJ 07647
1438 N. Gower St. Box 47, Hollywood CA 90028



Fernseh engineering services manager K. Jayaraman shows one of the boards (a servo controller) from the FDL 60.

that ran at 24 frames/second. It used what was called a "jump scan" technique to emulate the 3:2 pulldown of a conventional telecine projector. In effect, there were five fixed raster positions along the film path on the CRT. Today, all Rank MK3B and MK3C machines in the U.S. use Rank's "Digiscan" technology; and all but three of the original machines have been converted to Digiscan. This permits a wide and nearly continuously variable range of film speeds, which makes the arithmetic process much more complex than the simple 3:2 pulldown.

Light from the raster is passed directly through the film, after which it is broken up by dichroic mirrors and sent to three photomultiplier tubes. The signals from the three tubes are amplified and processed for color correction and sent to the frame-store device.

The Fernseh and Marconi units are different from Rank in their operation because there is no raster involved in the pickup process. The light comes from a DC-powered tungsten-halogen lamp, passes through the film and then through a slit, which is the only aperture necessary for line scanning instead of frame scanning, thus permitting absolute picture alignment and stability; important factors in transferring 16mm and titling. On the other side of the film are the usual dichroic mirrors and three CCD pickup devices. Each of these is an MOS IC with a linear array of 1024 individual sensors. The sensors respond with a voltage proportional to the light falling upon them.

In a process analogous to scanning a line of video, the outputs of each of the 1024 sensors for each primary color are clocked out in sequence, processed for color correction, and digitized in a frame-store device.

The Fernseh and Marconi units differ in that the Fernseh is a hybrid unit, while the Marconi is totally solid-state.

An interesting Marconi feature of the video processing is an automatic "de-patterning" system, giving the picture a particularly clean and uniform background. Operating each time power is applied, or by pushbutton, and with no film in the gate, the system detects any fixed background pattern resulting from small sensitivity variations in the sensor arrays, from dust particles on optical surfaces of slight illumination non-

ample, a scene for *Hill Street Blues* filmed on this stock was lighted by only two candles. Cinematographer Bill Cronjager, ASC, estimates that the exposure index was equivalent to 1500.

The objective in that case was to help establish a specific romantic mood which would have previously required the use of very sophisticated lighting techniques. There are many other examples, both in the production of TV programming as well as commercials where the high-speed color negative is creating opportunities to achieve looks and to work at locations under conditions which previously might have been beyond practical or budgetary reality.

It used to be that video offered a presumed time advantage which was a consideration on tighter deadlines. Also, with anticipated developments in speeding up electronic editing through the application of new microprocessor and allied technologies, video post-production promises long-term cost benefits.

To a great extent, these considerations have been proven moot by the emergence of the new generation of film-to-video transfer equipment from Fernseh, Marconi, and Rank Cintel. So gentle are they, in fact, that producers commonly trust them with their original negative stock. They shoot the film, develop it, and can put it right on the telecine for transfer to tape, and do all their editing on tape.

Jerry Bernstein, senior vice president and general manager of EUE/Screen Gems in Burbank, says that some 95

percent of the commercials produced by his firm are originated on color negative film. Generally, rough cuts are done on workprints, which are organized into A and B rolls. Then, the film is transferred to video for final post-production. However, on very tight deadlines, it is common practice for this and other production companies to shoot and process film one day; and transfer, edit, and distribute it the next.

The key lies in the gentle way that the new generation of telecines handle film, which is much the same as the way tape is handled in a VTR. The film is carefully servoed to maintain an even tension and it is pulled through the film gate at a steady rate. Scanning is accomplished by a flying spot raster on a CRT in the Rank, and by clocking data out of a linear array of CCDs (charge-coupled devices) in the Fernseh and Marconi units. In both cases, the scan is much faster than U.S. standard 15,750/60 Hz. This allows the data to be clocked quickly into an integral frame-store device, from which it can be read out at any desired rate.

In detail, this is what happens in the two machines: In the Rank machine, the light source is a raster on a CRT. The raster is written as the film is pulled past it. Obviously, this raster is a little more complex than a conventional raster on a TV display. It has to change in the vertical direction to compensate for the speed of the film being pulled past it.

When Rank first introduced the MK3 in 1976, it was a purely analog device

Steve Schwartz (at right), Excalibur's chief engineer, holds the scanner assembly for the Fernseh telecine in one hand. Alignment of the Rank, Fernseh, and Marconi units is strictly mechanical, simplifying maintenance.

uniformity. The data is stored and is used to correct the video, eliminating the pattern.

To many engineers, the appeal of both the Fernseh and the Rank telecines is their simplicity compared to conventional studio floor cameras. Convergence is purely mechanical on the Fernseh and Marconi units, and nonexistent on the Rank; there are no optics to be focused; and frame rate conversion, though complex, is locked in silicon. It either works, or the chip is bad. On the other hand, the price is comparatively high.

The price, particularly considering the impossibility of optical multiplexing, is probably what has kept most networks and broadcasters from using either machine directly on air.

In the U.S., almost all of the 95 Rank MK3 and the 15 Fernseh FDL 60 units are in postproduction houses or film labs, and there are a number at PBSs, too. Marconi's B3410 is newer to the U.S. market. Recent sales include Cine Magnetics in New York, Video Dubs in Chicago, and Joe Bluth Video Systems in Los Angeles. Although a good portion of the transfers are commercials



and films for broadcast, a large and growing market segment is the transfer of feature films to cassette and disc. This is one of the applications where continuous multi-speed has become important. Often, certain scenes will be speeded up just a little during the conversion process in order to make a movie fit onto a fixed-length cassette or disc.

Interestingly, for disc recording, these machines provide an output signal that flags each third frame, the one that contains portions from two film frames. Disc players are programmed to

recognize this flag and to avoid still-framing on this frame.

Another interesting development, brought about by the variable-speed capabilities of the new telecines, is the growing use of equipment that films at a 30 frames/second rate. Even with digital systems, if you want to show material that was originated at 24 frames/second on a 30 frame/second television system, you have to incorporate portions of two film frames in every third video frame. It may be as simple as even field/odd field, or it may be more involved, but it's something that persists as long as the two frame rates differ. The consequence of this 3:2 problem is that smooth filmed pans can look jerky in video. To some people, such as ad agency executives with automobile company clients, this can be objectionable.

Because these units offer a frame rate of 30 frames/second, it became appealing to some filmmakers to shoot at that speed. It requires special equipment and it uses more film, but many feel the expense is worth it. In fact, 30 frames per second is becoming more popular for many kinds of production. Shooting was recently completed on an *Andy Williams Christmas Special* that will be aired in 1982. The entire program was shot at 30 frames/second on the 16mm version of the new Eastman color high-speed negative film, and it was transferred to tape at that rate by Ruxton Ltd. of Burbank.

This use of 30 frames/second promises to be an exclusively American development. In other parts of the world, where line frequencies and TV field rates are 50 Hz, TV broadcasters simply run their films at 25 frames/second.

Continued on page 60



In One Pass's film transfer control room, Jack Murray makes color corrections on a scene. The Dubner system he is operating permits him to pick out a single item in a scene by its color and modify that color as much as he wishes without affecting the rest of the scene.

Progress by Design



Videotek's state-of-the-art TSM-5A* Waveform Monitor and VSM-5A* Vectorscope reflect this on-going commitment, with such innovative features as Internal Graticule CRT for precise parallax-free signal analysis, and Non-Glare Shields to eliminate distracting ambient light. TSM-5A also includes selectable 1H mode for easy one-line viewing, and 0.5 μ s/div. scan rate for the most accurate time-base measurements.

Now that's Progress
...by Design.



VIDEOTEK
INC.

*Available in PAL Standard

125 North York Street, Pottstown, PA 19464, (215) 327-2292, TWX: 710-653-0125
9625 North 21st Drive, Phoenix, AZ 85021, (602) 997-7523, TWX: 910-951-0621

Circle (43) on Action Card

We stand out from the crowd.

Thanks to the unique design of the patented Beau pancake motor, our Type 100 Recorder/Reproducer gives you space economy (it's only 3 5/8" high and stackable) and power economy, too. Also cool-running and compact, there's the inexpensive BeauCart II Reproducer.

Simple design means greater efficiency. Our versatile Model SFE-1 Automatic Splice Finder and Bulk Eraser combines two machines in one.

A common-sense approach makes Beau-Master Stereo Console and its companion Beau-Pro easy to operate—with the performance you demand.

Simple functional design makes UMC stand out from the crowd.



UMC Electronics Company
460 Sackett Point Road
North Haven, Connecticut 06473
Phone (203) 288-7731

UMC[®]

Outside Connecticut, toll free, (800) 243-6178 Visit Us at NAB Booth #114

Circle (44) on Action Card

New telecines

Another European practice that is considerably different from that found in the U.S. caused Fernseh some consternation when they first introduced their FDL 60, according to K. Jayaraman, Fernseh's engineering services manager. With its digital system, it was no trouble for the German machine to correct anamorphic images, such as Cinemascope. But, asked U.S. transfer houses, what do you do to pan back and forth across the frame? (Conventional telecines use a mirror arrangement.) The question was somewhat surprising to the engineers from Darmstadt. In Germany, it seems, Cinemascope features are broadcast in their full aspect ratio, with black boarders at top and bottom, an option that FCC standards do not permit in this country. Robert Bosch engineers immediately set to work on a pan and scan option that is now available on all FDL 60s.

For the near future, the motion picture industry's attention is centered on methods of matching film frames to SMPTE time codes. The objective is to be able to shoot scenes for a production; place the raw negative stock in a telecine and transfer the images to tape; edit the tape; and then use the time code from the edited tape to edit the film for theater distribution.

The question is, who will be the first to market these images? The networks have the money, but they may be content to continue buying tapes from transfer houses. Or will they just buy the transfer houses? On the other hand, the independents, many of whom specialize in feature-film programming, could derive a considerable promotional advantage from running their films on the new machines. They can make even a grade B black-and-white detective film look like an art-house special. It's a classic opportunity for "selling the sizzle."

In any event, it can't be much longer before somebody sees a marketing advantage in using these units on the air, as well as tools for transferring film-originated programs (such as documentaries, magazine shows, and even local commercials) to video for postproduction. An Eastman Kodak Company spokesman points out that there are approximately 100 labs processing Eastman color negative films in all parts of the country. This makes it feasible for stations everywhere to emulate the film look that is the mainstay of most national and regional commercials and prime-time network programming even on tight deadlines. With the evolution of new telecine technology, it is becoming clearer than ever that film will be around for a long time as an important part of television.

BC

AM's future needs more than stereo

BY JOHN SHEPLER

The impending doom of AM broadcasting has been predicted for many years. However, this pioneering medium remains profitable and vigorous despite the onslaughts of FM stereo, television, cassette tape, and economic hard times. Today there is certainly a demand for AM radio, but how about 10 or 20 years from now? Will AM still be considered a "modern" broadcast medium? More importantly, what can AM broadcasters do to improve their long-term prospects for growth and prosperity?

In this article we'll take a look at the technical problems that threaten AM stations and examine the reasons for these problems and how they may be solved. Especially important is the issue of AM stereo which is forcing broadcasters to make major investments in a very nebulous and risky environment.

The quality myth

For a decade or so AM broadcasters have seen their share of the listening audience slipping away to FM stereo stations with less power and smaller budgets. The usual reason given for this is that the AM medium is inherently inferior to FM in terms of audio quality and coverage. The real truth is that we have been conditioned to think of AM as old fashioned and feeble. FM is promoted as a high-technology product. Both broadcasters and receiver manufacturers have made major mistakes that inadvertently allowed this

myth to become reality.

On the one hand, too many AM broadcasters have always considered themselves "low-fi" and refused to invest in high grade audio equipment since that would obviously be a waste of money.

Even more tragically, receiver manufacturers have short-circuited the efforts of even the best stations by building receivers with narrow bandwidths and high distortion. The manufacturers justify this by pointing to the low quality of many AM signals and to the need for suppressing certain types of noise and interference that are inherent to the AM medium. Other reasons may include the gimmick factor of FM stereo and the brainwashing of receiver buyers to believe that the AM band is old fashioned and suitable only for news and talk formats.

You can see why the doom of AM could become a self-fulfilling prophecy. If receiver manufacturers continue to skimp on their AM sections while improving and promoting FM stereo and cassette playback, AM broadcasters will continue to lose their audiences and thus their revenues. As money gets tighter, budgets for equipment and engineers will be reduced and the quality of AM audio will get worse. This can only accelerate the exodus of listeners to FM and drive profits and air quality lower and lower until nothing is left.

This is the nightmare of every AM station owner and to some extent that nightmare is coming true. This is also

why AM stereo is such an emotional issue. Many AM operators believe that AM stereo is their only hope for survival. Nearly all are outraged over the wishy-washy FCC decision that allows competing systems. Worse yet is the agonizing wait for a clear indication of which system will dominate the marketplace and become the universal standard.

What's wrong with AM radios

Would you believe that the inherent fidelity of AM and FM are nearly equal? In fact, under the right conditions it would take a very critical ear to distinguish the two. There is no scientific reason why AM should have less fidelity than FM. AM and FM are simply different methods of modulation or the process of using a high frequency radio signal to carry the audio from studio to loudspeaker. Mathematically, there are no fidelity limits to either system. Traditionally, there are.

The real limit to AM fidelity is the spacing of AM channels by 10 kHz. To avoid audible interference effects, it is necessary to filter the received audio to eliminate the adjacent channel carriers. A simple notch filter will do this quite nicely. In strong signal areas, an AM station could have as much as a 20 Hz to 20 kHz response with only the frequencies around 10 kHz missing. Now an AM station could have audio that rivals the best tape decks and records and actually have better fidelity than an FM

Continued on page 62

station which is limited to 15 kHz maximum for each channel.

In practice, a receiver could be designed to roll off the high frequencies above 9 kHz to eliminate the adjacent channel interference in weaker signal areas. The difference between 9 kHz and 15 kHz is really very subtle. The real reason that AM sounds muddy is that all receivers start rolling off the high notes at 2 or 3 kHz. This provides a cheap method of filtering noise such as

static and interferences from stations at night. Home stereo receivers show this effect dramatically since the FM sections are carefully engineered while the AM circuit is a virtual carbon copy of the cheapest car radio or portable design.

The noise problem on AM is harder to deal with than the fidelity limits. Unfortunately, much manmade electrical noise and natural static is amplitude modulated just like an AM radio signal.

FM modulation is less subject to this type of noise. The FM broadcast band is also located in the VHF part of the radio spectrum which is much quieter than the medium wave AM band. These two quirks make FM noise-free with no help from the receiver people.

AM radios can be made much more noise resistant with a few circuit improvements such as:

1. Add a tuned RF amplifier stage to boost the weak incoming signal.

2. Add a shielded directional loop antenna to home receivers.

3. Use wider-band IF stages but with sharp cutoffs. This is much easier to do today with ceramic filters in place of IF cans.

4. Use synchronous detection which locks onto a particular signal and rejects all others. FM receivers have used PLL chips for years. Why not AM too?

5. Add sharp notch filters for 10 kHz in the audio path. Perhaps sharply filter all frequencies above 9 kHz.

6. Consider varying the bandwidth of the receiver depending on the strength of the received signal. This idea has been pushed by a number of broadcast people but rejected by the manufacturers. The system isn't perfect but preserves the high fidelity of local stations while making distant stations easier to receive. Then again, perhaps distance isn't all that important with the breakup of the clear channels. Perhaps AM receivers just need a muting circuit that quiets the audio when the signal is too weak.

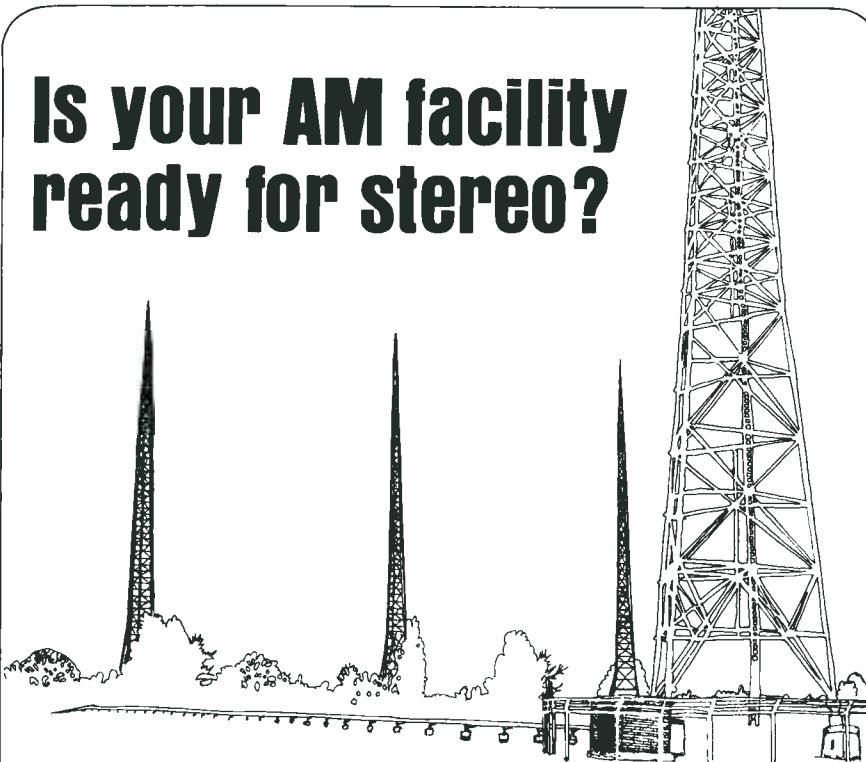
7. Tuning needs to be improved so that it doesn't drift with temperature, etc. FM receivers have AFC. Why not AM?

8. Static noise can be reduced by using a "noise blinder" circuit that is familiar to all ham radio operators. No new technology needed.

These suggestions simply relate to the noise problem which many manufacturers use as an excuse for poor AM fidelity. The fact is that this problem should be relatively easy to overcome with fairly simple circuitry. If these circuits were incorporated on a single IC, the improvement would be dramatic and the cost would be low. It's just a matter of motivation.

Before we leave the fidelity question I should point out that AM receivers have terrible distortion figures. Five percent or more is not uncommon in a receiver that boasts FM distortion of much less than one percent. This is part of the reason AM stations sound less distinct than FM stations. The cure is to use a better detector circuit in the receiver. In fact the synchronous detector described above could help solve both the noise and distortion problems.

Is your AM facility ready for stereo?



This equipment will help answer that question.



RG-3

The **Receiver/Generator** combines a two-watt RF output and a correlation detector circuit that virtually eliminates interference problems. The RG-3 can be used in conjunction with any conventional impedance bridge for bandwidth measurement.



OIB-3

The **Operating Impedance Bridge** measures the impedance of networks, radiators, and the like while they operate under signal generator power or full transmitter power. VSWR as well as complex impedances of up to $1,000 \pm j900$ ohms can be measured.



TCA

The **TCA Ammeter Systems** provide accurate, modulation-free, temperature stable antenna current measurements without interrupting the RF circuit. The FCC requirements of 2% accuracy is guaranteed over the entire range of broadcast frequencies.

DELTA ELECTRONICS

5730 GENERAL WASHINGTON DRIVE
P.O. BOX 11268 • ALEXANDRIA, VIRGINIA 22312
TELEPHONE: 703-354-3350 TWX: 710-832-0273

Celebrating 20 years as the leader in RF Instrumentation.



Circle (45) on Action Card

What's wrong with AM stations

Up to now I've been giving the receiver manufacturers a pretty hard time. They deserve part of the blame but certainly not all of it. After all, it is considered good business practice not to waste money building something that people don't want to buy. The receiver manufacturers figure that the public, and even most broadcasters, are quite satisfied with the performance of AM radios. They have heard no great public outcry for better AM sound. They consider it a dead issue. Both McKay-Dymek and Heathkit have introduced high-quality AM receivers, but these are most often found as monitors in broadcast stations.

A real bottleneck to AM quality is often the local broadcaster himself. Several times I have heard station managers say: "That old phono cartridge is good enough. After all, this is only an AM station."

That attitude has got to go. Right now AM needs all the help it can get. Top quality equipment will sound better on the air than you might expect. A high performance audio processor can also compensate for some of what is lost in the receiver although this is nearly as difficult as shoving an elephant through a keyhole.

At any rate, you can at least sound better than your other AM competition.

Transmitters and antennas are also problem areas for good audio performance. If you have an old antenna farm, your system may need to be "broadbanded" by changing the design and tuning somewhat. Your antenna consultant can check the last antenna proof and tell you quickly if this is necessary.

Old transmitters may still put out a signal but they probably don't have what it takes for a great sound. If you want loudness and fidelity, you will have to ante up for a new model. Switching to stereo will also necessitate a better transmitter.

How stereo can help or hurt AM

One of the secret hopes of enlightened AM broadcasters is that the adoption of AM stereo will be the incentive that receiver manufacturers need to upgrade their AM circuits. I hope they are right. Since the addition of stereo provides a new sales feature for the receivers, it would help justify the sudden increase in price. It's also a golden opportunity to make all present receivers obsolete, which is another terrific sales ploy.

Unfortunately, the decision is not clear cut. First, a common system must be chosen; then enough broadcasters must be transmitting stereo signals to justify the fancier receivers. The stakes are high. The wrong decision could cost

a broadcaster thousands and a manufacturer millions of wasted dollars. Nobody wants to be first. The danger is that the manufacturer may test the waters with receivers that have the bare minimum of circuitry needed to decode one or more of the present systems. If the present wishy-washy situation persists, it could be years before a leading system emerges and by then the marginal receivers could become the defacto standard.

Poor AM stereo would be worse than none at all. The public could become convinced forever that AM is an inferior medium and the deterioration would continue. What's worse, some of the systems can reduce your coverage area and loudness, which further erodes a dwindling audience. The gimmick factor alone won't be strong enough to save AM.

On the other hand, a good AM receiver combined with a good incoming signal will add new life to the AM band. One of the nice features of AM signals is that they gradually fade with distance rather than dropping out completely like FM. AM can also roll over hills and around buildings that block higher frequency FM signals. Urban areas especially have a strong need for high quality AM signals.

Action for AM broadcasters

If you are concerned with the present AM situation and want to take positive action, there are many things you can do.

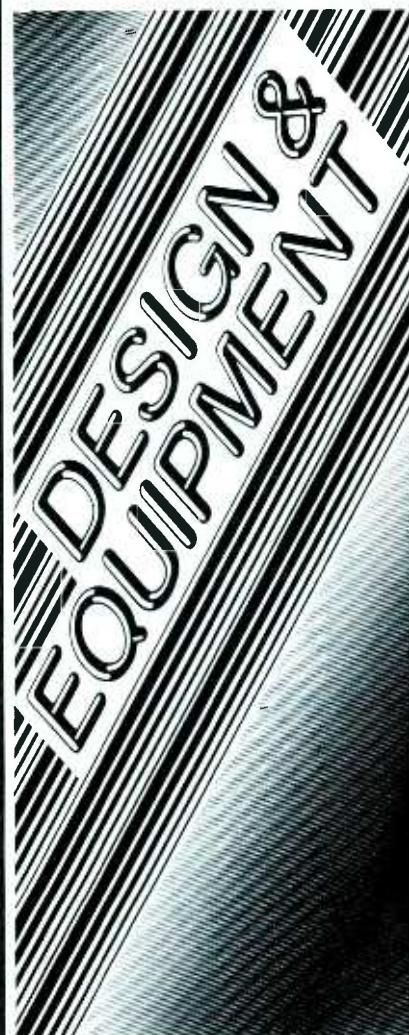
First on your list should be to upgrade your own operations so that you have a model signal. Then start promoting the fact that you have better audio. Let the industry know you are setting the standards for other broadcasters. Let the manufacturers know that AM stations are now transmitting quality audio that will make the receiver improvements sound dramatic. One way to do this is to encourage some of our professional broadcast associations to apply the pressure. Of course, we can individually be very vocal. But there is strength in numbers. Anyway, representing you is what your associations are paid for doing. But nothing will happen if we all go around the station mumbling about the lack of action. You'll have to make it happen.

Editor's Note: This ending is a strong call to action. You can invest now or pay later. Either way the industry will reflect the consensus. There is still time to get involved. Your opinion is important, but your actions will speak loudest.

BC

John Shepler is a technical consultant.

CONTROL ROOM — and — PRODUCTION ROOM



Our experience in Audio facilities for both production and recording allows us to offer you acoustic control booths that maximise production capabilities and efficiency. Our background in professional equipment allows you the choices you want to keep your facility ahead of the competition.

**EVERYTHING
AUDIO**

16055 Ventura Blvd., Suite 1001,

Encino, CA 91436

(213) 995-4175

In Orange County call (714) 870-6632

Circle (46) on Action Card

HIGH ON LOW-POWER

The view from the FCC

BY MOLLY PAUKER

Molly Pauker was into low-power television long before it was in the language of the technologists. As one of the key people involved in writing the FCC's low-power TV rules, she is in a position today to deliver poignant comments at a time when they are needed most.

This article is an insider's view of where low-power TV stands, with advice on how to sort through fact and fiction.

Hello, I'm Molly Pauker. I was into low-power television before low-power television was cool. Actually, I believe many out there think low-power isn't now and never will be "cool." But these same types scoffed at FM radio and UHF-TV. And today they have to admit that FM has virtually overtaken AM, and UHF stations are flourishing in many markets.

The jury may still be out with respect to low-power TV, as well as a host of other new technologies, including direct broadcast satellites, multichannel MDS, and teletext. The low-power applicants, permittees, licensees, and equipment and program suppliers hold the keys to the success of this promising new technological innovation.

For many seemingly endless months, it appeared that the government would continue to put insurmountable barriers

in your way. In 1978, the FCC instituted a two-year inquiry. Then in 1980, it began accepting and processing interim applications. But in early 1981, after being deluged with applications, the commission "froze" the application process, refusing any but those from very rural America. Fortunately, it was not long until, in March 1982, the FCC approved final rules for the new low-power television service. The commission's favorable action on the Report and Order signaled a new era for low-power TV as an officially authorized video service. Of course, the struggle to get applications processed has not and will not be resolved overnight.

Where do we stand today? In a few weeks, the commission will consider the staff's recommendations on the several pending petitions for reconsideration of the Report and Order. These petitions seek, among other things, relief from the stringent major change rules that were adopted in the Report and Order. After reconsideration, parties may take the low-power rules to the Court of Appeals. The pendency of an appeal, however, does not mean that the commission will cease processing applications, unless the court imposes a stay on the entire proceeding pending the outcome of the appeal.

With respect to the applications themselves, there have been several

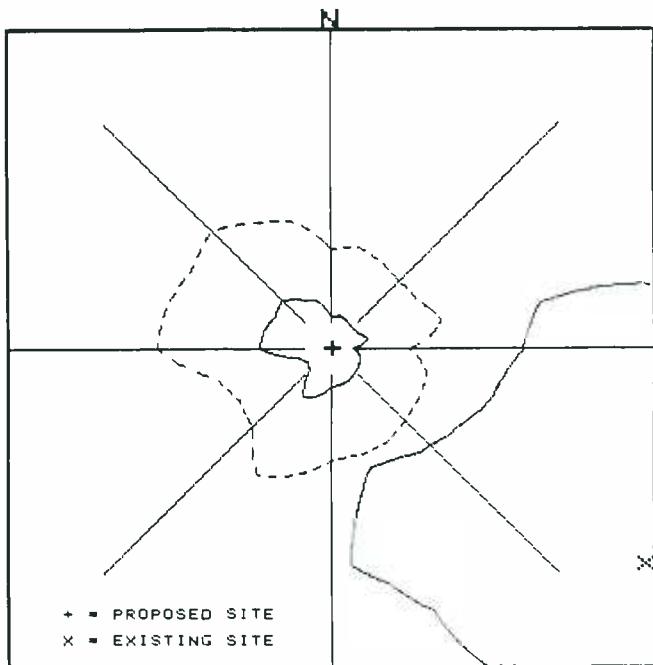
promising developments. The reorganization of the Broadcast Bureau into the Mass Media Bureau included the creation of a new Low-Power Television Branch, whose sole function is to facilitate the emergence of the low-power TV and TV translator service. New staff, both legal and technical, have been added to get applications processed. Also, as part of a special supplemental budget request effective in October 1982, Congress authorized the acquisition of a new minicomputer, to be used exclusively for low-power processing. Programmers believe that the computer can be operational by the end of March 1983. It could be May or so, however, before all bugs in the program are ironed out.

Computerization should speed up considerably the many technical aspects of processing. But human hands must touch every application, from opening the envelope, to inserting the copies in the folders, to putting relevant data into the computer; human skills are necessary and cannot be avoided. I point this out by way of warning: don't expect the FCC's much-heralded computer to process applications by magic. Don't forget that the commission is facing literally thousands of applications, and that one application may interfere with another many miles from the

Continued on page 66

CONFUSED? At Compucon, We're Not

LOW POWER TELEVISION



CONTOUR PLOT

Using actual protected contours for land mobile and licensed full service stations, Compucon can accurately define your optimum system configuration.

- Computerized Channel Search
- Prohibited Contour Overlap Analysis
- Market Research
- FCC Application Preparation
- MX Conflict Resolution

The Commission has now defined the Rules for low power television and established the guidelines for processing applications.

But —

How do the FCC Rules apply to your specific needs?

How can you avoid conflicts with thousands of existing full service and translator stations?

Which system configuration will provide optimum market coverage and enable you to squeeze into a congested interference environment?

Where are the best markets?

What are the alternatives for resolving mutually exclusive pending applications?

Compucon has the answers to these questions.

We have the engineering resources, advanced software systems, and market research capabilities which give Compucon a unique ability to provide fast and accurate answers.

We are prepared to help you establish a successful LPTV station. Call Compucon today to find out how to put our expertise to work for you.



Compucon, Inc.
P.O. Box 401229
Dallas, Texas 75240
214/680-1000

Circle (47) on Action Card

transmitter of either. Applications will be processed in "daisy chains," or mutually exclusive groups, that run hundreds of miles and could include over 50 separate applications.

This brings me to another positive development. The FCC is reaching the conclusion of a rulemaking designed to implement what is hoped will be a workable and efficient lottery system of choosing among mutually exclusive applicants. Congress's lottery proposal includes a preference for minority applicants and applicants who already own few or no other telecommunications properties. The commission is expected to approve final rules for the lottery this year, at around the same time that the computer begins to identify the mutually exclusive groups of applications.

I relate all of these developments to assure you that the FCC has its low-power TV act together. By spring, the commission should be issuing construction permits at an increased rate.

If you are an applicant and want to ensure the ultimate success of your low-power television operation, here are a few suggestions:

- Inform yourself about competing

interests in UHF spectrum for land mobile uses;

- Find out which other applicants may be mutually exclusive with your application and talk to them about settling the exclusivity;

- Survey your market to find out what your prospective audience would like to see and who your prospective advertisers might be;

- Decide on programming that meets the needs and interests of your market; find out what programming is available; talk to other low-power applicants about possible networking;

- Talk to the cable operator in your market about carriage;

- Make sure your application is complete and accurate, so that the FCC is not delayed in processing it;

- Above all, be patient until you get your grant and be prepared to go forward when you get it.

A few don'ts are also in order:

- Don't expect too much of the FCC; remember, the commission must treat equally the many thousands of applications like yours;

- Don't get involved in low-power TV purely for speculative purposes; the filing of disingenuous applications

merely serves to clog and delay our processes, with the result that no applications are granted;

- Don't make an agreement to settle a mutually exclusive situation without getting commission approval of the agreement; and keep in mind that present rules prohibit the sale of an application for more than the actual expense incurred in prosecuting it;

- Don't sell a construction permit for more than actual expenses incurred; this also violates FCC rules;

- Don't begin construction before you have your construction permit;

- And, finally, don't get involved in low-power TV without planning ahead and knowing how you want to structure your business and where you want to go.

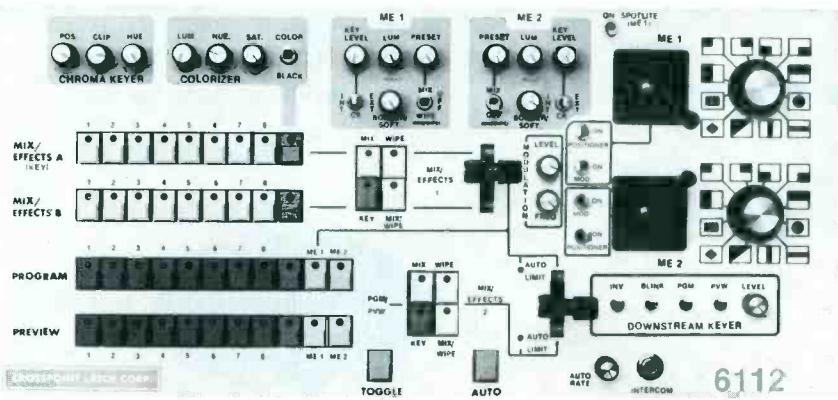
It will be very gratifying to the FCC, which has spent so many months trying to pave the way for this new video service, to see it take off and flourish. I am confident that this can be a reality, in the hands of the daring and innovative entrepreneurs who have chosen to take up this singular challenge.

BC

Molly Pauker is legal counsel to the Broadcast Bureau of the FCC.

THE 6112 IS BY FAR THE MOST ADVANCED SWITCHER IN ITS CLASS. NOTHING ELSE EVEN COMES CLOSE

Complete a mix or wipe on a 6112 (or any of our switchers for that matter), and there is **ABSOLUTELY** no COLOR CHANGE or HORIZONTAL SHIFT, we mean just that, absolutely none. That is because the 6112 has a blanking processor which replaces the sync and burst on all incoming video signals with a constant amplitude internally generated signal; completely eliminating the continuous problems caused by small drifts in your cameras and TBC's. You never know the value of a blanking processor until you own a switcher that does not have one.



- TREMENDOUS PRODUCTION CAPABILITY
- EASE OF OPERATION
- TWO FULLY INDEPENDENT MIX-EFFECTS SYSTEMS
- AUTOMATIC MIX AND WIPE

- DUAL BACK PORCH CLAMPS
- ROCK STABLE CIRCUITRY
- DOWNSTREAM KEYER
- TWO ADDITIONAL KEYERS

MODEL 6112 NTSC \$7950 PAL \$8950.
Chroma Keyers Encoded or RGB \$1050.
(Encoded chroma keyer not available in PAL)

CROSSPOINT LATCH has the largest selection of compact switchers. All of them have blanking processors. Ask your local dealer for our very informative booklet "VIDEO POST PRODUCTION" which will be mailed to you free.

OPERATE THE 6112 DIRECTLY FROM THE EDITOR KEYBOARD

The 6403 allows the 6112 to interface directly with most editors. No modification to the editor is required.

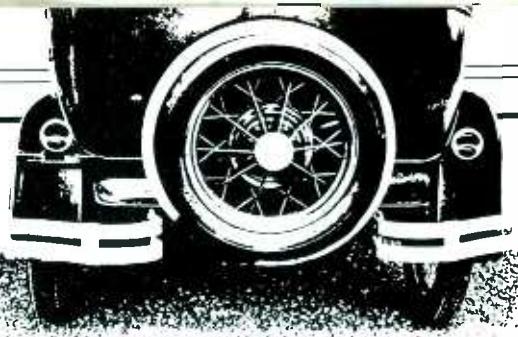
Under 6403 control the 6112 accepts commands such as duration times, pattern type, bus selection etc., directly from the editor keyboard. The 6403 also provides additional capability of accurate start and finish, size and position of pattern transitions.

Audio follow or split audio capability is provided by the 6800 mixer which has separate level controls for each stereo input. The 6803 can be driven either directly by the editor or via the 6403 interface unit.

DELIVERY WITHIN TWO WEEKS

CROSSPOINT LATCH CORP.

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



Please... no more chase scenes!

BY RICHARD RUDMAN

Some remotes remind you of the Keystone Cops. The clamoring cops and the wild chase scenes of old took place at remote sites in Southern California. But it's a not-so-funny scene that won't occur again in that region on current and future broadcast remotes.

The problem stems from local stations chasing around the available frequencies, looking for a spot to handle their remote coverage. Enter the out-of-town stations. It's enough to drive you right to frequency coordination. And that's the idea.

Operation "Golden Rule," a nationwide program to reduce interference to ENG and RENG activity, was unveiled this month by the Society of Broadcast Engineers. The SBE, which first identified frequency coordination as a national project in 1982, has appointed Richard A. Rudman, engineering manager of Group W's KFWB in Los Angeles, as the chairman of this SBE project.

Serving on the SBE Frequency Coordinating Committee (SBEFCC) with Rudman are eight broadcast engineers who have demonstrated technical and management leadership in broadcast operations. The committee includes Elmer Chancellor, WEHT, Evansville, Indiana; Vir N. James, Vir James Con-

sulting, Denver, Colorado; Ross Kauffman, WCVB, Boston, Massachusetts; Michael LoCollo, ABC; Martin Meany, NBC; Robert O'Connor, CBS; Robert Van Buhler, KDKB, Phoenix, Arizona; and Ben Wolfe, now a consultant residing near Washington, D.C.

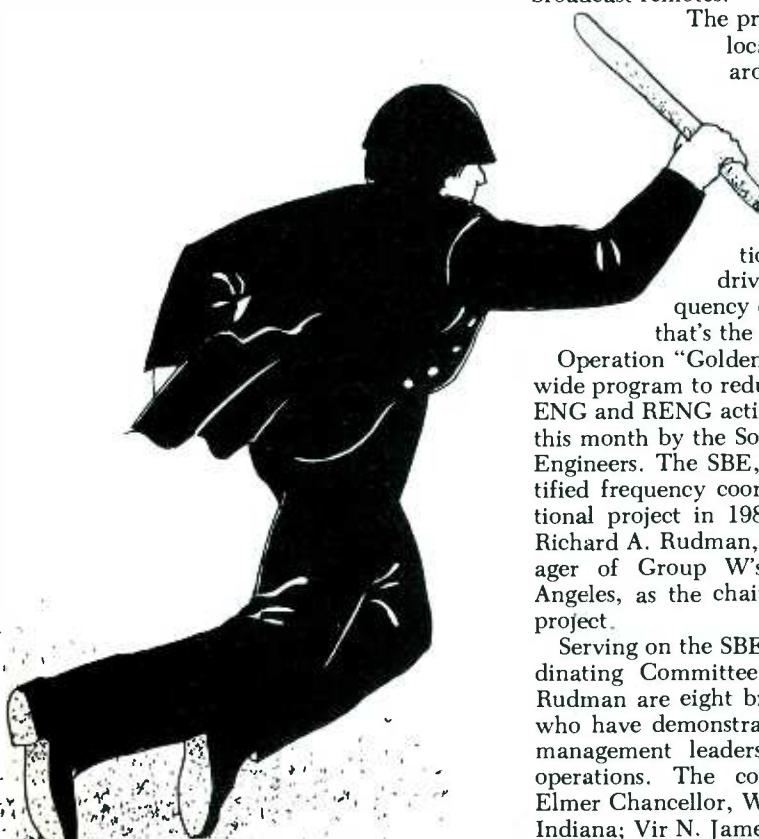
The SBEFCC members from the three networks have distinguished themselves in many aspects of frequency coordination. LoCollo has headed coordinating efforts for political conventions, and the Lake Placid Winter Olympics. He is now in charge of ABC's 1984 Olympic RF coordination in Los Angeles.

Meany has been involved in RF coordination for NBC for many years. He has chaired and served on several industry technical committees during his broadcast-engineering career.

O'Connor has also served as chairman and member of many industrial technical committees. In 1976, his actions in holding a series of meetings in CBS markets across the country led to the formation of the Southern California Frequency Coordinating Committee (SCFCC).

Frequency coordinators from many parts of the country attended the October SBE chapter-chairmen's meeting in St. Charles, Missouri. Most said their markets experience interference from outside broadcasters who come in to cover various events. According to Rudman, this issue formed the focus for Operation "Golden Rule," an unprecedented national cooperative effort

Continued on page 68



No more chase scenes!

among broadcast engineers and operations-level personnel.

"Operation 'Golden Rule' is a direct response to this concern. The message of 'do unto others' is the very spirit of effective frequency coordination," said Rudman. He outlined how the FCC has changed their rules so broadcast frequency coordinating at the local level and "Golden Rule" can succeed.

During 1982, the FCC rewrote procedures for short-term operations away from licensees' home markets. Part 74.24 now makes possible operations up to 30 days away from home without prior FCC notice. Broadcasters must follow some FCC rules to qualify for this privilege:

- The licensee must make sure they do not interfere with stations in the region of intended operation.

- Part 73 station call letters must be used instead of Part 74 call letters during such operation.

- Short-term operation shall not exceed 720 hours annually per frequency.

- Antennas for such operation must not increase the height of the man-made structure, or natural formation they are attached to, by more than 20 feet.

- Certain frequencies shared with other services may not be available for short-term operation.

- Part 74 frequencies subject to agreements with Canada are subject to additional restrictions on availability,

power, and direction of radiation. (Consult a current copy of Part 74 for details.)

- Cable TV Relays (CARS) licensees shall always be given advance notice before such operation commences.

- Restrictions apply to all frequencies near FCC monitoring stations, specified quiet zones, and other installations. (Approval for short-term operation in these areas is coordinated through the local FCC engineer-in-charge.)

Rudman also said that Part 74.24(g) lists an FCC phone number for information on "active frequency coordinating committees" between 8 a.m. and 4 p.m. EST. The number for the

FREQUENCY COORDINATION SORTED BY STATE

Location	Person Resp. for Coord.	Phone	Address	City, State	Zip	Ch.
AL, Birmingham	John Bridges	205-942-7800	WZZK 530 Beacon Park West	Birmingham, AL	35209	68
AZ (State)	Robt. Van Buhler	602-897-9300	AFCC-Box 25341	Tempe, AZ	85282	09
CA, Fresno	Ivan Dahl	209-237-2424	KSEE/P.O. Box 12907	Fresno, CA	93779	66
CA, Los Angeles	Howard Fine	213-460-3411	SCFCC P.O. Box "SCFCC"	Mt. Wilson, CA	91023	47
CA, Northern	Paul Brown	916-222-4455	KVIP AM/FM - P.O. Box 1359	Redding, CA	96099	83
CA, Orange County	George Murray	714-832-2950	KTBN 18922 Mt. Cimarron	Fountain Val, CA	92708	77
CA, Sacramento	Bob Hess	916-927-1313	KOVR 1216 Arden Way	Sacramento, CA	95815	43
CA, San Diego	Lee Bellwood	619-237-1010	C/O KGTV, P.O. Box 81047	San Diego, CA	92138	36
CA, San Francisco	Joe Berinni	415-441-4444	KRON-1001 Van Ness Avenue	San Francisco, CA	94109	40
CN, Conn. Valley	Edward Nelson	203-243-4756	Univ. Of Hartford, Ward Tech. Col.	W. Hartford, CN	06117	14
CO, Denver	Charles Waltman	303-234-9500	5350 West 20th Street	Denver, CO	80214	48
CO, Grand Junction	Chuck Hendrickson	303-248-1436	Mesa College	Grand Junct., CO	81501	81
DC, Washington	Otto Klaus	301-467-3000	WBAL-3800 Hooper Avenue	Baltimore, MD	21221	37
FL, Jacksonville	Steve Flanagan	904-399-4000	WJXT-TV 1851 Southampton Rd.	Jacksonville, FL	33207	07
FL, Tampa Bay	Ralph Beaver	813-247-7625	WRBQ/5510 Gray Street	Tampa, FL	33609	39
GA, Atlanta	Ernie Watts	404-763-1897	WTBS-1050 Techwood Dr., NW	Atlanta, GA	30318	05
HI (State)	Robert Palitz	808-946-2869	KKUA 765 Amana Street	Honolulu, HI	96814	63
IL, Chicago	Jim Burns	312-951-3352	WBBM-TV 630 N. McClure Ct.	Chicago, IL	60611	26
IL, Quad Cities	John Hagman	319-383-7000	WOC-805 Brady Street	Davenport, IA	52808	65B
	Tom Mikkelsen	309-764-9694	WQAD-3003 Park 16th Street	Moline, IL	61265	65C
	Wes Hoots	309-786-5441	WHBF-231 18th Street	Rock Island, IL	61201	65A
KS (State)	Glenn Bell	316-265-5631	KSNW-P.O. Box 333	Wichita, KS	67201	03
KY, Louisville	Bill Bratton	502-582-7840	WHAS-P.O. Box 1084	Louisville, KY	40201	35
LA, New Orleans	Hugh Burney	504-529-4444	WWL-1024 North Rampart Street	New Orleans, LA	70176	72
MA, Boston	Ross Kauffman	617-449-0400	WCVB/5 TV Place	Needham, MA	02192	11
MD, Baltimore	Otto Claus	301-467-3000	WBAL-3800 Hooper Avenue	Baltimore, MD	21211	46
MI, Southeastern	Russ Harbaugh	313-642-6226	Browne Assoc-525 N. Woodward	Bloomfield Hts, MI	48013	82
MO, Kansas City	Jack E. McKain	913-677-8181	KCMO/4500 Johnson Drive	Fairway, KS	66205	59
MO, St. Louis	Mel Hart	314-966-4263	936 Donatos Drive	Des Peres, MO	63131	55
NE, Holdredge	Damian Centgraf	308-995-5541	P.O. Box 561	Holdredge, NE	68949	87
NE, Omaha	Gale Totten	402-592-3333	KMTV-10714 Mockingbird Drive	Omaha, NE	68127	74
NY, New York City	Larry Solow	212-975-3115	CBS NET-51 W. 52nd Street	New York, NY	10019	15
NY, Northeast	Andy Yakovitch	518-436-4822	WTEN 341 Northern Blvd.	Albany, NY	12204	58
OH, Central	Bill McCord	614-421-1714	2470 N. Star Road	Columbus, OH	43221	52
OH, Northeastern	Ed Miller	216-431-5555	WEWS/3101 Euclid Avenue	Cleveland, OH	44114	70
OK, Central/West	Dennis Orcutt	405-478-0444	KOFM-P.O. Box 14806	Oklahoma, Cy, OK	73114	85
OK, Tulsa	Richard Hardy	918-622-1430	3239 South 90th E. Avenue	Tulsa, OK	74145	56
OR, Mid State	Ted Hicks	503-485-5846	KUGN Radio 4222 Commerce Street	Eugene, OR	97402	76
PA, Central	Thomas Walker	717-238-1402	WTPA-FM P.O. Box 104	Harrisburg, PA	17108	41
PA, Northeastern	Charles Sakoski	717-823-3101	WBRE-62 So. Franklin Street	Wilksbarre, PA	18703	02
PA, Philadelphia	Larry Will	609-292-5252	NJPTV, 1573 Parkside Avenue	Trenton, NJ	08625	18
PA, Western	Jack Civitek	412-392-2200	KDKA One Gateway Center	Pittsburgh, PA	15222	20
SC, Greenville	Jerry Massey	803-271-9200	WFBC-505 Rutherford Street	Greenville, SC	29602	86
TN, Memphis	Chris KARB-Radio	901-320-1356	WHBQ/483 S. Highland	Memphis, TN	38111	61A
	Pat Lane (TV)	901-458-2521	WKNO/Memphis St. U., Box 80,000	Memphis, TN	38152	61
TX, Dallas	Josh Socolof	214-688-1133	Texas State Nets, 8585 Stemmons	Dallas, TX	75247	67
TX, El Paso	Carl Bohner	915-532-5421	KTSM-801 N. Oregon	El Paso, TX	79902	38
UT, Salt Lake City	John Dehnel	801-237-2500	KSL-145 Social Hall Avenue	Salt Lake City, UT	84111	62
VA, Richmond	Gerald Hilton	804-233-5461	P.O. Box 12, WWBT-TV	Richmond, VA	23201	60
VA, Tidewater	Ted Hand	804-482-5439	16-B Battlefield Woods Ct.	Chesapeake, VA	23320	54
WA, Seattle	Bob Plummer	206-223-4000	KOMO-100 4th Avenue North	Seattle, WA	98101	16
WA, Tri Cities	Jim Bradley	503-276-2281	Northwest Monitoring-P.O. Box 1042	Pendleton, OR	97801	51
WI, Milwaukee	David Janzer	414-276-2040	13515 Nicolet Drive	New Berlin, WI	53151	28

FCC Auxiliary Service Branch is (202) 632-7698.

As part of this streamlined procedure, local committees were asked to identify themselves to the FCC. The Southern California Frequency Coordinating Committee did just that. In a letter to the FCC last March, it outlined the region they coordinate, gave several telephone numbers, and provided a mailing address.

Rudman said the SCFCC letter also proposed prior coordination to avoid both creating and experiencing interference related to sports, spot-news coverage, and other short-term events that traditionally have caused problems.

The FCC allows for no prior notice in some cases. The Part 74.24(g) test is an "unanticipated need." This contrasts with short-term broadcast needs that usually can be planned well in advance.

The letter reads: "Since the SCFCC believes licensees must already own or rent equipment used for the unanticipated need mentioned in 74.24(g), we encourage all licensees eligible to preregister with us [SBE] by supplying all appropriate information."

Rudman said the SCFCC's sugges-

tions were based on progress since 1976 that has minimized interference to local broadcasters. While interference has not been eliminated, it has been reduced dramatically.

Most of the credit for success in Southern California is due to RF coordinators for licensees nationwide who are sensitive to the problem. They have taken pains to coordinate before operating in the SCFCC region, and to make field crews sensitive to the need to protect the local stations.

The FCC's lead in Part 74.25 will now be supported by the SBE National Frequency Coordinating BROADCAST COMMUNICATIONS is publishing the first national listing of coordinators in cooperation with the SBE. It contains listings for over 50 coordinating entities.

The SBEFCC is sending a copy of this list to the FCC, in keeping with the provisions of Part 74.24. Broadcasters should also keep a copy handy to assist them in planning successful field operations.

BROADCAST COMMUNICATIONS will provide space to update and expand this list. BC also grants reprint rights to any

interested parties provided acknowledgement is made.

The SBE National Frequency Coordinating Committee thinks once this information is widely disseminated, work done in regions like Southern California will have more meaning.

If you walk through some of the hilltop sites in Southern California, you can see many site managers still do not require cavity filters, circulators, and reject loads on transmitters. Many engineers still do not realize cavities ahead of their receivers can make their systems work better. "Do unto others" can be extended to others who cause interference to all spectrum users.

Rudman and the SBE believe Operation "Golden Rule" will give broadcasters a planning tool they have needed for some time. Once this tool is in use, they say engineers and field crews will find it much easier to "do unto others" so everyone can operate with less interference.

If this plan succeeds, the SBE already has its next frequency-coordinating goal in mind. They intend to extend "Golden Rule" to other services such as land mobile and private-radio common carriers.

BC



Stereoize your audio for \$399!

Whether you're an AM station going stereo or an FM needing to create a full stereo format, we have the \$399 solution to your problems. The new Orban 245F Stereo Synthesizer creates a seductive sense of stereo space from any mono source material.

You can convert mono records ("oldies"), agency spots, promos, remotes, and even DJ mikes to pseudo-stereo in a dramatic, pleasing way. You'll also be delighted at the 245F's full mono compatibility with FM or any AM stereo system: No phasing on mono radios!

To "stereoize" your complete format instantly, use the Orban 245F Stereo Synthesizer. Call or write for further details.

orban

Orban Associates, Inc. 645 Bryant St.
San Francisco, CA 94107 (415) 957-1067
Telex: 17-1480

Circle (49) on Action Card

VIEWER ALERT

BY DONATO PIETRODANGELO

**Florida broadcasters
and the state health
agency cooperate to
keep viewers
informed during
recent Tylenol
tampering scare.**

The nation reeled in the wake of seven Tylenol related deaths last October, as the original killings spawned "copy-cat" incidents of product tamperings throughout the country.

The Chicago deaths and the deadly imitations that followed topped broadcast and print news reports for weeks.

Ironically, in Florida, the bizarre public-health crisis may have marked the beginning of a better working relationship between the state's health agency and Florida broadcasters.

Like other states, Florida was plagued with the consumer terrorism of imitators: a Clearwater visitor received second-degree burns after using mouthwash spiked with muriatic acid; a Jacksonville construction worker was burned after he gulped a bottle of cola laced with hydrochloric acid; a Juno Beach policeman was hospitalized after drinking a carton of orange juice that had been injected with insecticide.

In response, the Florida Department of Health and Rehabilitative Services mounted a statewide public-education campaign to help prevent the growing fear from escalating into wholesale public panic.

The education campaign stressed individual action. Broadcast and print materials developed for the campaign told consumers they could help protect themselves against tainted products by selecting items packaged in sealed cartons or bottles and by inspecting products before purchase.

In addition to distributing spots for public-service air time, the campaign was designed to promote the greatest amount of news coverage possible on the product-packaging message.

Because Halloween—increasing the likelihood of yet more incidents—was only a week away, a break-neck production schedule was set. Two television public-service announcements (30 and 60 seconds); five radio public service announcements; television and radio news actualities; a one-quarter page print ad; and a camera-ready story for weekly newspapers were produced in-house and distributed for a kick-off—in seven days.

The first step toward a better working relationship between the state's health agency and Florida broadcasters was taken during video production. Much to its gain, the agency did something a commercial production company might not have done: it encouraged interested television crews to be on location during the PSA videotaping and it made dubs of the unedited PSA tape available to any reporter who asked.

Florida's public-awareness campaign had already received national attention because, reportedly, it was the only one in the country. Therefore, there was substantial interest in a new element to an old—but still important—story.

Taping was done on location at a drug store and at the agency's headquarters offices in Tallahassee. NBC sent a producer from Miami to shoot the drug store segment with a local crew. ABC used a freelance crew and CBS was fed the story by its local affiliate. Dubs of the unedited video were made available to WTWT/Tampa; WECA/Tallahassee; and the Capitol News Service, which represents six stations throughout the state.

That evening the story—using the PSA video—ran in all of Florida's 10



Consumer comparing products to check for untampered seals. (Photos courtesy of Florida Department of Health & Rehabilitative Services)

media markets. Best estimates indicate that approximately half of the state's 40 commercial TV stations used the material.

For the state agency, the precedent was important. It demonstrated to the reporters that the agency's public-information office could provide usable, broadcast-quality video—that was news and in no way self-serving. For the agency, it showed that reporters were receptive to using its video on public-service news items, provided the material was unedited and offered with no strings attached.

When the campaign was kicked off, distribution of the materials took the approach one step further: a satellite feed. This was the first for any of Florida's state agencies and, reportedly, one of the first times any state agency in the country used a satellite feed for PSA and news material. Because of the urgency and timeliness of the material, the public-service announcements, as well as interviews with health experts, were uplinked from Tallahassee to stations throughout Florida. Almost simultaneously, news actualities were fed by telephone to radio stations throughout the state.

Two days prior to the satellite feed, commercial stations in Florida were sent a TWX informing them of the transmission and asking them to notify Tallahassee if they could not downlink the material and needed it by courier.

The notice was sent to the attention of both news and public-affairs directors, since the PSAs were being transmitted as well as the interviews with the agency head, the state health officer, and the state pharmacy coordinator. This latter material was intended for editing into local news stories or use in feature programs.

The product-packaging material was uplinked at 4:30-4:45 p.m., following the daily newsfeed to Westar III by the satellite division of WCTV, the Tallahassee CBS affiliate. About 20 stations downlinked the material while some 20 others received it by courier.

Transmitting the material by satellite solved problems before they were able to develop. For example, the assignment editors for WJKS/Jacksonville and WCIX/Miami, unaware of the feed, were looking for local experts to interview on the campaign. Since the campaign was being directed from Tallahassee, there was no one local to go on camera. Both editors called the health agency's public-information office and were reminded of the 4:30 feed. WCIX received the feed and used it in its evening newscast; WJKS, not having a downlink, arranged to receive a tape of the transmitted material from another Jacksonville station.

In addition to the video material, the Department of Health and Rehabilitative Services produced three radio news actualities—using the same experts—and fed them by telephone throughout the state. The material was individually fed to 36 stations and the Florida Network. The latter incorporated the material into regular news programs to 70 stations the following day. In addition, two taped versions of the PSA (30

and 60 seconds) were furnished to 26 radio stations; two taped Spanish versions were mailed to three stations; and five different local announcer scripts were mailed to all 280 Florida radio stations.

To complete the video PSA saturation, a Spanish version was produced the following week and sent to WLTV, Miami's Spanish-language television station.

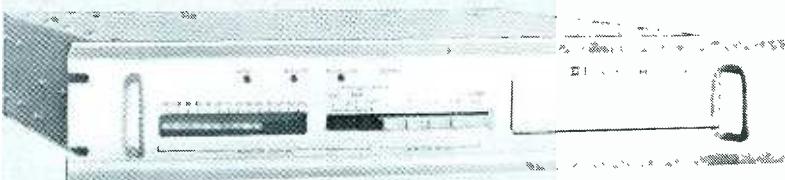
The product-packaging campaign was an important milestone in Florida. It proved that credible, agency-produced video would be used and thereby increase the likelihood of news coverage on an issue. Larry Wallenstein, news assignment editor for WCIX/Miami, typified broadcaster reaction. "A lot of our news stories relate to state government. So when the state is willing to provide those people or situations to us on a non-political-type situation, it's valuable," he said. Wallenstein went on to say that use of the satellite was "sensational," since WCIX, an independent, does not have a Tallahassee bureau.

Paul Henkemeyer, assignment editor for WJKS/Jacksonville, noted one shortcoming of the pretaped interview was that it took away some of the individual personality a station can provide by asking its own questions. However, both he and Wallenstein said they would welcome video they could use as "B-roll" to accompany a news story coming from Tallahassee. In effect, it would provide them with a video press release.

Can other states adopt the approach used by Florida and provide broadcast materials that will expand coverage of legitimate government news? Yes. The Florida agency produced this campaign

Continued on page 72

The New FS-30 Stereo Generator SEPARATES The DB from the Noise!



Stereo Separation: 55dB typical, 30-15,000 Hz

FM Noise: 85dB below 100% modulation

THD and IMD: .03% or less, 30-15,000 Hz

First to specify TIM: 0.1% or less!

Linear, delay equalized audio lowpass filters for minimum overshoot without the use of clippers or other non-linear devices.

Teamed-up with the widely acclaimed FX-30 FM Exciter, the digital FS-30 provides your station with the best performance available based on published specifications of competitive units.

BE **BROADCAST**
ELECTRONICS INC.

For more information,
call or write

4100 N. 24th ST., P.O. BOX 3606, QUINCY, IL 62305-3606, (217)224-9600, TELEX 25-0142

Circle (50) on Action Card

COMING IN MARCH NAB '83 SPECIAL EDITION

Your Personal Guide to the Convention

Featuring a complete list of exhibitors, with descriptions of their products and services. Plus, the complete conference agenda, and a preview of special events.

Viewer alert



English-language narrator offers advice during a public-service announcement.

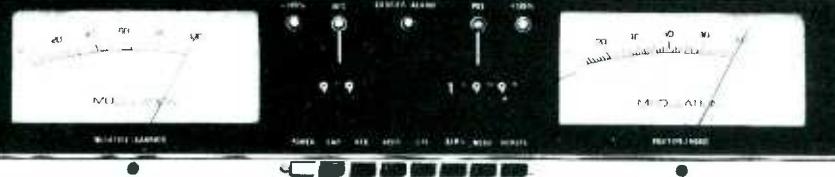
with six professionals in only seven days. These same people are also responsible for all audio, video, graphic, and publication services for a 35,000-employee state agency—one of the largest human services agencies in the nation.

Audio and video broadcast-quality materials were produced with equipment costing less than \$35,000. With minimal coordination, agencies within a state could pool their resources to purchase equipment to be operated by one crew on a cooperative basis. In conjunction with the governor's office, the Florida health agency will be providing video services to other state agencies on a time-available basis.

Cooperative efforts will benefit both broadcasters and government agencies by increasing the information flow to the public which, in the end, will be the greatest benefactor of all.

Editor's Note: This great example of state agency/broadcaster cooperation should be brought to the attention of other state agencies in other states. It's a point best made by broadcasters, because state agencies don't always understand your needs or your desire to use materials or information such agencies could provide. Send a copy of this article to your state agency. If you get positive results, keep us informed. Write to: The Editor, Broadcast Communications, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208.

When accuracy Counts...Count on Belar for AM/FM/TU MONITORS



BELAR
AM MODULATION MONITOR

BELAR CALL ARNO MEYER (215) 687-5550
ELECTRONICS LABORATORY, INC.
LANCASTER AVENUE AT DORSET, DEVON, PA 19333 • BOX 826 • (215) 687-5550

Circle (51) on Action Card

Donato Pietrodangelo is information director at the Florida Department of Health and Rehabilitative Services, and an adjunct instructor in the College of Communication, Florida State University.

SBE MONTHLY LOG

CALIFORNIA

SAN DIEGO (Chapter 36)—A demonstration was given on the Tektronix portable waveform monitor, oscilloscope, and vectorscope (model 380). There was also a discussion of basic TV waveform by Bill Montgomery, sales engineer. New officers are Leroy Bellwood (KGTV), chairman; Richard Large (KUSI-TV), vice chairman; Jack Rabell (KSDO-AM/FM), secretary; and Dwain Keller (Skaggs Video), treasurer.

COLORADO

DENVER (Chapter 48)—Following a business meeting, members drove to Ft. Collins for a tour of stations WWV, WWVB, and WWVL. Special thanks to Dave Howe for arranging the tour.

FT. COLLINS (Chapter 50)—Member Tom Meyers of the University of Northern Colorado discussed the results of some research on lubrication. He explained what oils and greases were acceptable and what were not.

DISTRICT OF COLUMBIA

WASHINGTON (Chapter 37)—Tom Keller, NAB vice president/engineering, discussed multichannel TV audio. Keller is chairman of the EIA Multichannel TV Sound Committee.

FLORIDA

CENTRAL (Chapter 42)—Bob Beachy of General Electric discussed battery theory and practice for ENG-type equipment and support.

ILLINOIS

CHICAGO (Chapter 26)—Bob Gorjance of Harris Broadcast Equipment discussed AM stereo, where the industry is going and how the Harris system

operates. Also included was a tour of the extensive Allstate A/V facilities.

INDIANA

INDIANAPOLIS (Chapter 25)—This month's meeting was the traditional social evening at Beef-n-Boards Dinner Theatre for members and guests.

KENTUCKY

KENTUCKY (Chapter 35)—Jerry Rosenblatt, regional sales manager for Scientific-Atlanta, presented a program on satellite communications.

MICHIGAN

SOUTHERN (Chapter 82)—John Rose, sales engineer, Panasonic Co., discussed the various camera component recording systems that are now on the market. He compared the different systems and described the advantages and disadvantages.

MINNEAPOLIS

MINNEAPOLIS/ST. PAUL (Chapter 17)—Chapter members brought their personal computers to demonstrate their applications in broadcast engineering. Many programs were exchanged; and many members were unaware of how powerful a microcomputer can be, particularly with respect to figuring parameters of AM direction antenna systems from scratch.

MISSOURI

KANSAS CITY (Chapter 59)—Christopher Kreger of the Harris Corporation discussed the SX Series AM transmitters.

NORTH CAROLINA

CHARLOTTE (Chapter 45)—Neil Matisson conducted a tour of the new *Wall*

Street Journal satellite facility in Charlotte. The tour included watching the downlink of the next day's *Wall Street Journal*, the making of the negative plates, and press printing.

SOUTH CAROLINA

GREENVILLE AREA (Chapter 86)—Bob Cauthen of Southern Coastal Marketing demonstrated the Ampex ATR 800 audio recorder and the new Phasemaster stereo cartridge unit.

TEXAS

NORTH (Chapter 67)—Glen Rose, senior product manager of Ampex, demonstrated the VPR 80 videotape machine. He gave a slide presentation on the new Nagra/Ampex VPR 5 miniature videotape machine introduced recently.

VIRGINIA

TIDEWATER AREA (Chapter 54)—Jim Burger of Harris Video Systems gave a talk on the new IRIS II video still store.

WISCONSIN

FOX VALLEY (Chapter 80)—Ron Yokes presented an update on RCA's M-format video equipment.

CERTIFICATION NEWS

The SBE Certification exams will be given from June 17 through June 25. All applications must reach the national office by April 29th. This exam session is for all levels of certification, including the new entry-level Broadcast Technologist.

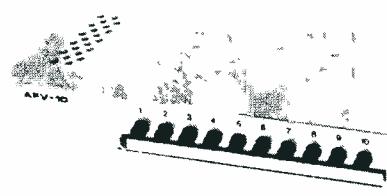
For a copy of the application and Program of Certification booklet, write to the Certification Secretary, Society of Broadcast Engineers, P.O. Box 50844, Indianapolis, IN 46250. BC

- Audio Follow Video
- 2-Channel Audio
- Rack Mount 19" x 1-3/4"
- BNC Connectors - Video
- TRW Multiple Connector - Audio
- Centralab Switches - Interlocking
- Bifurcated Silver Contacts
- Legend Strip
- Unswitched Video Terminated - 75 OHMS
- Unswitched Audio Easily Terminated
- No Signal Loss
- No Signal Degradation
- Cross Talk Better Than -60db
- No Power Required
- Simple Construction - Long Life

THE IDEAL WAY TO SWITCH MONITOR FEEDS

IN A PROBLEM-FREE, ECONOMICAL MANNER.

10 x 1 PASSIVE SWITCHER



LOW COST

\$295.00

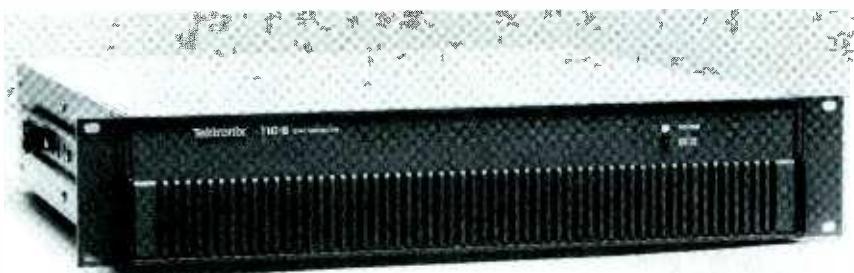
Model AFV - 10



H. M. DYER Electronics, Inc.
48647 Twelve Mile Road Novi, Michigan 48050 Telephone (313) 349-7910

Circle (53) on Action Card

PRODUCT PREMIERE



Frame synchronizer (Circle 102)

TEKTRONIX—Tektronix has entered the studio-operations side of television for the first time in its history by introducing a frame synchronizer with both 10 bits of resolution and accuracy. The new 110-S synchronizer will be competitive in the NTSC market because of its quality and reliability.

The new Tektronix frame synchronizers allow broadcasters to secure a variety of video choices as standard on all units, including signal pass-through or creation of RS-170A sync burst; and, for noisy signals, field or frame freeze, go-to-black, or pass-on-through.

Adaptive or notch decoding, and two-field or four-field memory are

available as options. Including quantizing effects, the 110-S features 1 percent differential gain; 1 degree differential phase; 60 dB signal-to-noise; 1 percent frequency response; and 0.5 percent 2 T K-Factor.

To fulfill a variety of operational needs, Tektronix is introducing a series of frame synchronizers ranging in price from about \$13,000 to about \$18,000. The 110-S synchronizer series, bringing greater benefits to the marketplace thanks to its 10-bit architecture, measures 89mm (3.5 inches) high by 480mm (19 inches) wide by 510mm (20.1 inches) deep; and it weighs 32.7 pounds. Availability for these instruments will be about 12 weeks after

first public showing at the NAB convention in Las Vegas.

The 10-bit architecture introduces negligible quantization error, especially important when the signal will be passed through several frame synchronizers. The 110-S will also track noisy signals such as those which result during a microwave fade. The benefit to users is that important picture segments will not be lost during these periods of operational difficulties.

A key element within the new 110-S synchronizer is its memory. Tektronix's frame synchronizer uses two separate clocks to control "writing to" and "reading from" memory. The "write clock" is gen-locked to the program input signal, and the "read clock" is gen-locked to an external reference signal.

Automatic program control (Circle 106)

TELE-ENGINEERING—The Station Manager™ system consists of a remote-control programming console which can program any number of low-power stations over standard telephone lines.

A centralized switching system is in-

ONE INCH VIDEO TAPE EVALUATOR



at our new low price

The Recortec VTE-101 cleans and evaluates a 90 minute reel in less than 11 minutes. You can now afford to evaluate your tapes before their next use.

- Quick identification of bad tape
- Excellent tape pack
- Diagnostic monitor panel
- Compact table-size cabinet

- Proven safety and reliability
 - A very economical price
 - Accurate end-of-tape sensors
- And the Recortec reputation for quality

RECORTEC

475 Ellis St. Mt. View, CA 94043 USA
TEL (415) 962-0220 TWX 910 339 5022

stalled at the low-power transmitter station. This unit, which mounts in a rack, includes a programmable microprocessor, electronic clock, and switching circuits. The system provides time programming with one-second switch accuracy, to select any one of 24 satellite transponder settings from a frequency agile satellite receiver using BCD code commands.

The Station Manager system features unattended program operation, selection of up to eight different program sources (including any one of 24 satellite services, VCR, character generator, studio camera, etc.), scheduling of up to 1,000 program changes per week, and the capability of inserting local commercials automatically.

Production switcher (Circle 107)

ROSS VIDEO—The new model RVS 524 is a cost-effective, compact production switcher designed for small studios, editing suites, and mobile vans.

Available with 12 or 20 inputs, the 524 offers all the features of the Ross multi-level effects system, permitting the manipulation of up to four video signals at one time without locking up the switcher.

Other features include Ross Transition Preview, interfaces for all major computer editors and digital effects systems, analog key borders, and the Ross Scene Store memory system.

Stereo synthesizer (Circle 104)

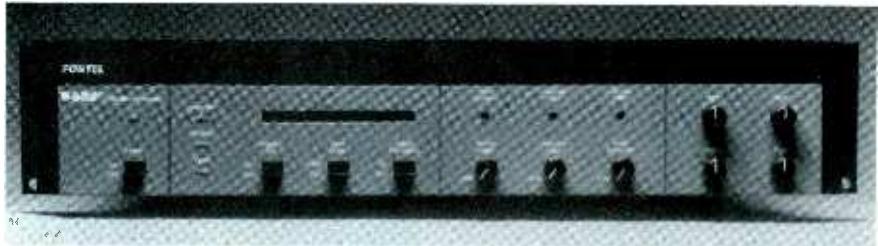
ORBAN ASSOCIATES—Orban announces the availability of the new 245F stereo synthesizer. The 245F is an improvement of the popular 245E version, adding balanced input, output transformer option, RF filtering on the audio inputs and outputs, and AC line filtering.

Orban's patented stereo synthesis technique allows any mono source to be converted to pseudo-stereo with no phase cancellation in the mono original. Mono material such as single tracks in a studio, DJ mikes, mono cart machines, old records, spots and promos, and TV audio can be converted into realistic pseudo-stereo to create a dramatic, compelling spatial effect.

Video error corrector (Circle 101)

FORTEL—Dyna-Trac™ has been added as an exclusive feature to Fortel's Y-688³² Total Error Corrector.

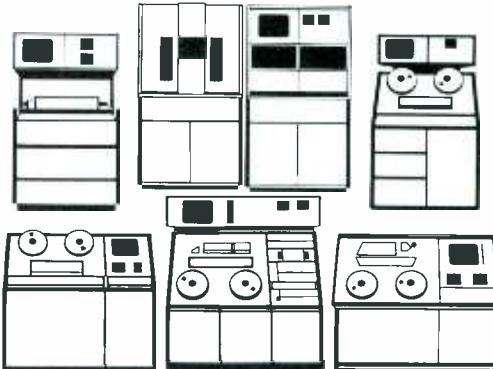
Dyna-Trac allows the Fortel Total Error Corrector to work with the new Sony BVU-820 slow-motion U-matic VTR, delivering virtually perfect full-reverse play speed to 3X forward, in-



cluding stop action. Dyna-Trac allows the delivery of high-quality, detailed pictures from the dub outputs of the Sony 820 instead of less detailed pictures from composite video used by conventional time base correctors.

Picture quality and multi-generation usefulness are dramatically improved using the new corrector.

Continued on page 76



Making the best better! Merlin Quality Quad Refurbishing:

Most of the thousands of quad VTRs made since 1956 are still operational... many performing better than new. Thanks to Merlin Engineering.

We're dedicated to rebuilding and refitting quad VTRs... no matter what the vintage. Each machine receives individual attention according to customer requirements, but three basic services are available:

Standard Rebuilding Thorough overhaul and parts replacement to return the VTR to original operational condition.

ULTRAFURBISH Complete upgrading of the machine to state-of-the-art performance with the addition of a complete digital time base correction package.

Custom Engineering Development of system design and ancillary equipment to adapt the VTR to specific user requirements.

Customer machine may be refurbished, or in many cases, exchanged to eliminate down time.

MERLIN

1880 Embarcadero, Palo Alto, CA 94303

Call Toll Free — 800-227-1980 (California — Call Collect 415-856-0900)

Circle (55) on Action Card

This new feature is available to all owners of the Total Error Corrector as a field modification, and is now included as a standard feature on all production models shipped since January 1, 1983.

Splice finder/bulk eraser (Circle 103)

UMC ELECTRONICS—The new Beau-cart SFE-100 automatic splice finder offers users of endless-loop cartridge tape, a machine that is both simple and reliable. The all-new opto-mechanical sensing system has many new features that eliminate splice-finding and bulk-erasing problems.

The SFE-100 opto-mechanical sensor relies on a patented mechanical measurement of tape thickness deviation that's combined with an optical system that is precise and reliable.



This new design can detect, without adjustments, an extremely wide variety of tape and splice thickness. It also has separate splice-finding and eraser functions. This assures that valuable pre-recorded audio will not inadvertently be erased during splice finding. The built-in eraser allows carts, cassettes, and open-reel tapes to be erased directly on the splice finder. Once the splice has been found, the SFE-100 will eject the cartridge.

Color video camera (Circle 105)
SHARP—A significantly advanced Saticon II® prism color camera, model XC-800, has been introduced by Sharp.

Its standard of performance, size, weight, and balance make it practical for all operations.

According to Sharp, the Saticon II tubes dramatically reduce highlight sticking, especially objectionable with today's production techniques when panning across bright lights. Up until now, these tubes were available only in cameras in the \$20,000 price range. The XC-800 also boasts higher sensitivity and signal-to-noise ratio, lower power consumption, and other advanced features. Comet tailing is practically eliminated with Dynamic Beam Optimization which boosts beam current only in highlight areas. Two-line image enhancement, including comb filtering, noise coring, and level dependence, produces razor-sharp pictures.

Sharp has managed to produce a compact and lightweight camera without sacrificing weight balance, so critical for holding steady shots. The diecast body was designed to withstand the rigors of EFP/ENG use. And for protection against tampering, H and V centering, color paint pots, and other controls are recessed and mounted under a separate door panel. **BC**

SENNHEISER	
MKH416TU/P48U\$553.-	MD421U.....\$208.-
MKH816TU/P48U729.-	MD441U.....289.-
HMD224139.-	HD414.....50.-
ME88162.-	Other Models ..Call
— Ship & Ins. 3.00 first item + 50c each additional item —	
MICROPHONICS P.O. Box 37, Brooklyn, NY 11204	
(212) 438-6400	

Circle (52) on Action Card

National Sales/Marketing Manager

Expanding manufacturer of video and RF communication products requires an individual to assume the position of National Sales/Marketing Manager. Responsibilities entail calling on major MSO, establishment and servicing of a dealer/distributor network, and the formulation of marketing and sales strategy as part of the company's management team. Ideally the candidate should have a knowledge of the CATV/SMATV, broadcast and institutional, and educational video markets, with emphasis on a strong technical marketing background. The successful applicant will receive above-average renumeration and benefits along with an opportunity for career advancement and equity participation. Please reply with resume and full particulars to the President, Box 50, c/o Broadcast Communications, 4121 West 83rd Street, Suite 265, Prairie Village, KS 66208.

ATTENTION SUBSCRIBERS...

You can renew your subscription by using the Action Card in the back of this issue. And to notify us of a change of address, please send your old label and new address to:

BROADCAST COMMUNICATIONS

P.O. Box 809
Mineola, NY 11501

Please allow 6 to 8 weeks for processing.

Setting A New Pace For The Industry We Pioneered!

...RCA Broadcast Systems

Current 3/4-inch video recording system performance falls below the performance of 3 tube, portable cameras. In developing the Hawkeye broadcast quality camera/recording system, RCA engineers closed the performance gap between cameras and recorders. By developing a new method to record chrominance and luminance on standard 1/2-inch VHS cassettes, they were able to improve overall picture quality while reducing weight and the number of moving parts.

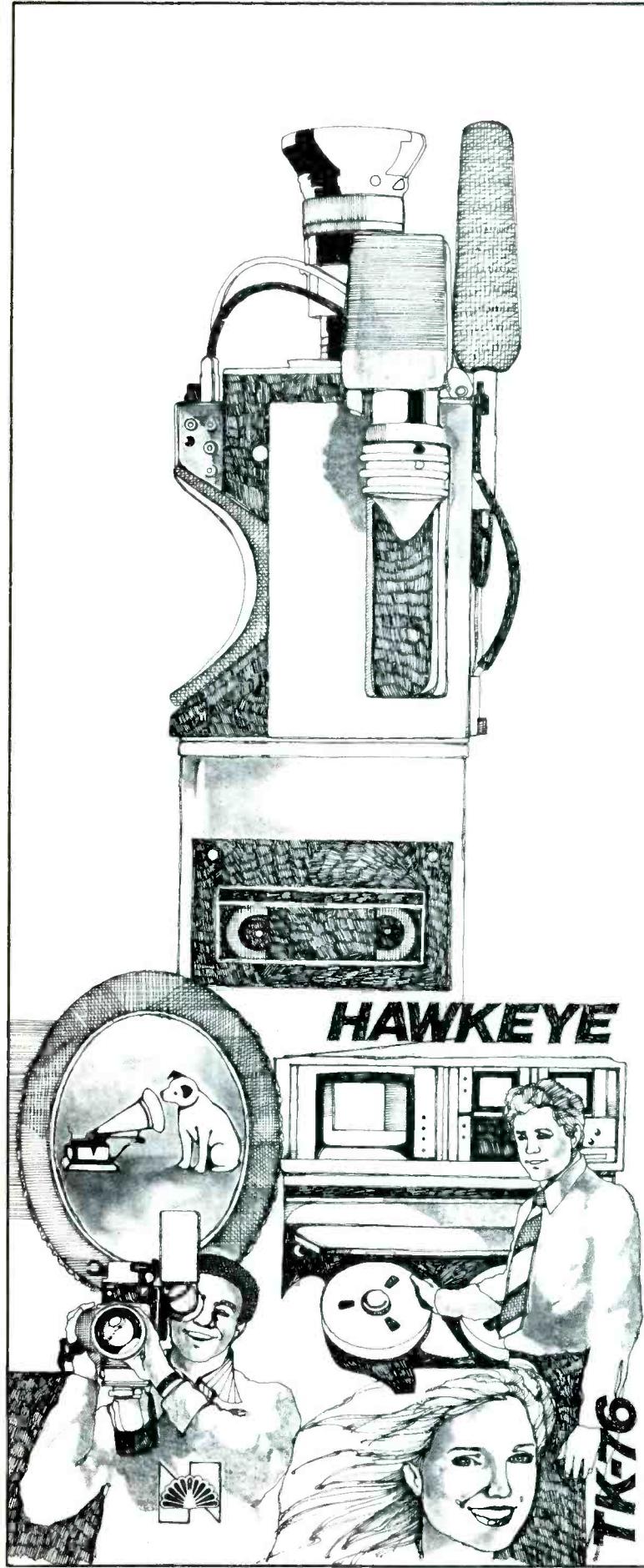
Virtually any picture you encounter on your home screen has been touched by RCA engineering. As America's largest supplier of commercial video equipment, we are involved in every step: studio cameras, portable cameras, video recorders, editing equipment, telecine equipment, transmitters and broadcast antennas. As you read this, we are moving ahead with advanced development programs in digital video equipment and the creation of a completely solid state color television camera.

Our commitment is to continue to set the pace for the industry we pioneered. If you are an engineer who is interested in furthering the development of advanced broadcast technology, we invite you to share this adventure with us. For career details, please write to: **RCA Broadcast Systems Division, Joy K. McCabe, Dept. PR-2, Front & Cooper Sts., Building 3-2, Camden, New Jersey 08102.**

Equal Opportunity Employer

Setting The Pace In Broadcast Engineering!

RCA



PROFESSIONAL SERVICES

SHERMAN & BEVERAGE ASSOCIATES, INC.

Broadcast/Communications Consultants
Box 181, R.D. #2
Medford, N.J. 08055
(609) 983-7070

O. L. Angevine, P.E.

Eric Neil Angevine, P.E.

ANGEVINE ACOUSTICAL CONSULTANTS, Inc.
7349 DAVIS ROAD
WEST FALLS, N.Y. 14170
(716) 652-0282

MEMBER: National Council of Acoustical Consultants

R. L. HOOVER
Consulting Telecommunications
Engineer
11704 Seven Locks Road
Potomac, Maryland 20854
301-983-0054
Member AFCCE

312/352-2275

ROBERT A. JONES CONSULTING ENGINEERS

613 South La Grange Road
La Grange, Illinois 60525

SHANE MEDIA SERVICES

ED SHANE

7703 Windswept; Houston, TX 77063
713-461-9958

ATLANTIC RESEARCH CORPORATION

Jansky & Bailey
Telecommunications Consulting

Member AFCCE



5390 Cherokee Avenue
Alexandria, Virginia 22314
(703) 642-4000

INDUSTRY BLUE BOOK
• Over 3,200 Products
• Home, Commercial, and
Industrial Video
• Satellite Section
• Hardbound \$35.00

ORION PUBLISHING CORP. 1012 Pacific A-1
San Luis Obispo, CA 93401 805-544-3851

SPANISH TRANSLATION SERVICE

Former editor of Spanish-language broadcast magazine will translate your English ads, literature and spec sheets into letter-perfect Spanish. In-depth knowledge of broadcast technical terminology. Reasonable hourly rates.
JUAN ARTAL, 749 REYNOLDS AVE., KANSAS CITY, KS 66101, (913) 281-1027

COURTRIGHT ENGINEERING, INC.

ELECTRICAL AND BROADCAST
MORRIS COURTRIGHT JR., P.E.

Member AFCCE

(602) 973-9558 (602) 783-6380
P.O. Box 39385 1450 W. Arroyo Dr.
Phoenix, AZ Yuma, AZ
85069 85364

Speeches • Brochures • Bylined Articles
News Releases • Advertisements

Tele Words

editorial and public relations services
for the communications industry

Ruth Macy
(213) 394-0454
(213) 451-9851

1011 Fourth Street
Santa Monica, CA 90403

To include your professional business card, please contact Evelyn Silski (913) 642-6611.

ADVERTISERS INDEX

A.F. Associates	57	Dyma Engineering	10	Orban (Pro-audio)	69
Circle (42) on Action Card		Circle (8) on Action Card		Circle (49) on Action Card	
ADDA Corporation	3	EEV Inc.	31	Philips Television Systems	36-37
Circle (5) on Action Card		Circle (28) on Action Card		Circle (31) on Action Card	
Ampex AVSD	12-13	Elector	47, 49, 51	Potomac Instruments	30
Circle (10) on Action Card		Circle (36, 38, 40) on Action Card		Circle (26) on Action Card	
Aristocart	48	Everything Audio	63	Recotec	74
Circle (37) on Action Card		Fitzco Sound.....	21	Circle (54) on Action Card	
Asaca/Shibasoku	23, 35	Full Compass Systems	22	Sachtler Corp. of America	25
Circle (33), (30) on Action Card		GE VIDEO	33	Circle (22) on Action Card	
Belar Electronics	72	Circle (19) on Action Card		Saki Magnetics	30
Circle (51) on Action Card		Circle (29) on Action Card		Circle (27) on Action Card	
Broadcast Electronics	72	Grass Valley Group	5, 43	Shane Media Services	22
Circle (50) on Action Card		Circle (6), (35) on Action Card		Circle (18) on Action Card	
Broadcast Technology	24	Kavouras	26	Sony Corp. of America	6-7, 44-45
Circle (21) on Action Card		Circle (23) on Action Card		Teac (Division of Tascam)	IFC
CMX Systems/Orrox	1	Laird Telemedia	14	Circle (1) on Action Card	
Circle (2) on Action Card		Circle (11) on Action Card		Telemet	2
The Camera Mart	15	Linrose Electronics	22	Circle (3) on Action Card	
Circle (12) on Action Card		Circle (17) on Action Card		Thomson-CSF Broadcast	11
Canon	53	MCI/Quantel	38	Circle (9) on Action Card	
Circle (41) on Action Card		Circle (32) on Action Card		UMC Electronics	60
Cetec Vega	41	Merlin Engineering Works	75	Circle (44) on Action Card	
Circle (34) on Action Card		Circle (55) on Action Card		UREI	50
Comad Communications	21	Microphonics	76	Video-Ink	22
Circle (14) on Action Card		Circle (52) on Action Card		Circle (20) on Action Card	
Compucron	65	Midwest Corporation	9	Videomedia	IBC
Circle (47) on Action Card		Circle (7) on Action Card		Circle (56) on Action Card	
Continental Electronics	16	Nidus Broadcast Systems	2	Videotek	60
Circle (13) on Action Card		Circle (4) on Action Card		Circle (43) on Action Card	
Crosspoint Latch Corp.	66	Northeast Broadcast Lab	21	Ward-Beck Systems	BC
Circle (48) on Action Card		Circle (15) on Action Card			
Delta Electronics	62	Orban (OPTIMOD)	29		
Circle (45) on Action Card		Circle (25) on Action Card			
H.M. Dyer Electronics	73				
Circle (53) on Action Card					



ANNOUNCES THE NEW ERA IN LOW COST EDITING



**Breaking the
price/performance
barrier at
\$6,500.00, price
good through NAB**

**Designed in the
tradition of the
famous Z6000
series of editors**

**Compare these standard features with
any competitive system**

STANDARD FEATURES:

- Distributed intelligence
- 250 event memory
- Animation
- Printer output
- Status display generator
- Frame accurate
- Built in sync generator
- Much more...

OPTIONS:

- List management
- Dual disk operating system
- Off line communications package (an industry first)
- A/B roll & sync roll
- General purpose interface (for external devices)

**FOR THE DEALER IN YOUR
AREA CALL (408) 745-1700**

The Look of Major Market Audio!

In an era of escalating technological innovation Ward-Beck continues to expand horizons for the broadcasting industry. Fulfilling the ever more sophisticated requirements of major television production facilities around the world prompts us to develop increasingly comprehensive designs.

Illustrating the scale of current engineering concepts is this custom 64 input, 24 track console system for the innovative studio complex at *Golden West Television* in Hollywood.



First by Design.

Ward-Beck Systems Ltd., 841 Progress Avenue, Scarborough,
Ontario, Canada M1H 2X4. Tel: (416) 438-6550

