BME's

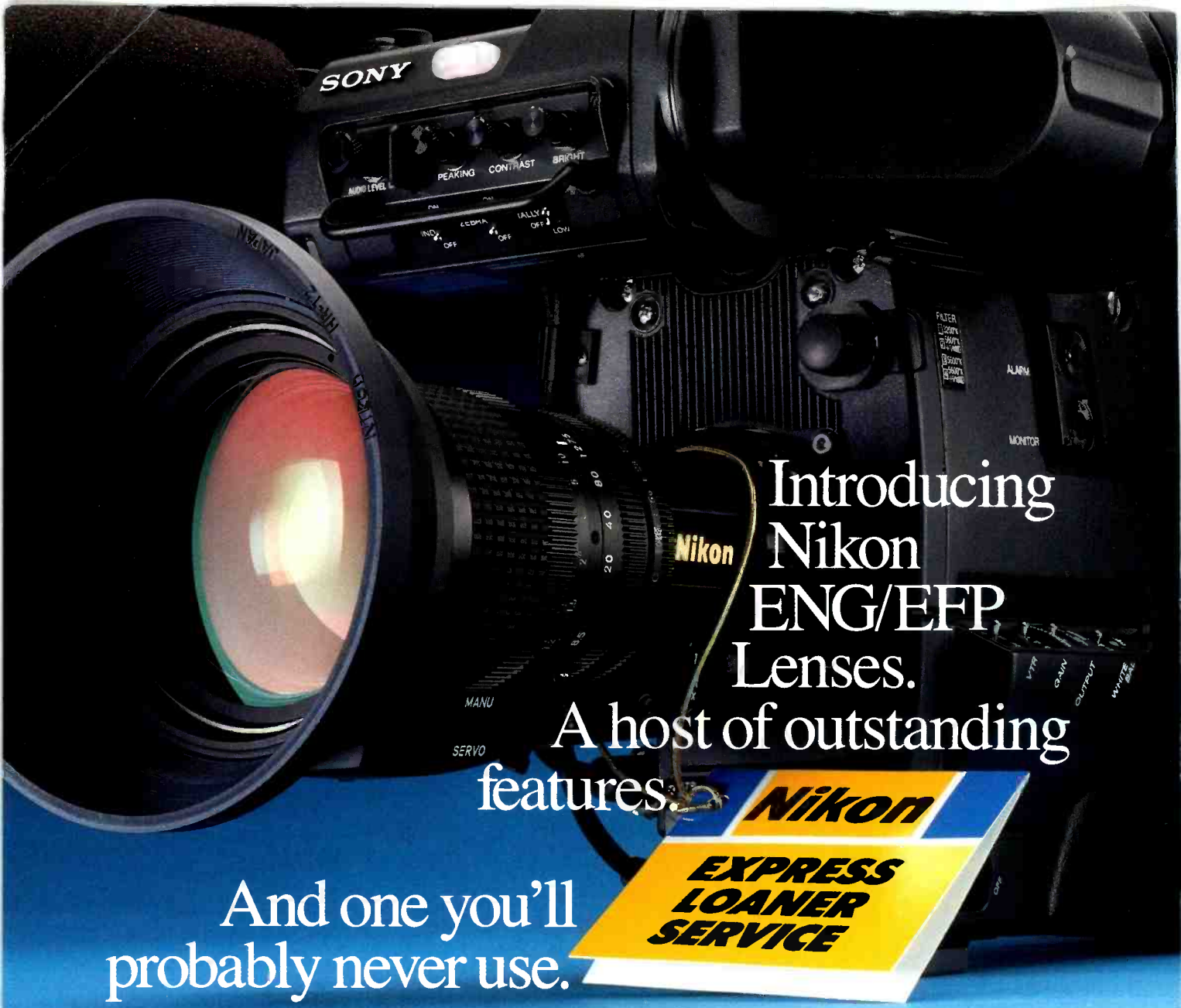
INSIDE: DVE BUYER'S GUIDE; CHOOSING THE MONITOR
PLUS: VHF; HOT TUBES; HOT TECHNOLOGY; STATION BUYING GUIDE PART III

Television Engineering

AN ACT III PUBLICATION $3.00

AUGUST 1990

DVE OPTIONS– BUILDING ON LITTLE BOXES



Introducing Nikon ENG/EFP Lenses. A host of outstanding features.

And one you'll probably never use.

Nikon

EXPRESS LOANER SERVICE

Selecting an ENG/EFP lens for your ⅔" CCD camera is a creative decision. It should be lightweight, responsive and zoom smooth as silk at any speed. Its design should utilize Extra-low Dispersion Glass to minimize chromatic aberration. It should include an anti-reflection coating for improved spectrum transmission ratio. And it should have an advanced design that improves corner resolution and produces a high, flat MTF curve. In short, it should be a Nikon.

But selecting an ENG/EFP lens is also a business decision. And on that score we provide something almost as compelling as Nikon quality – our unique Express Loaner Service. Simply register the Warranty, then in the unlikely event your lens needs service we'll get you a loaner lens overnight. All your investment in equipment and crews is more secure than ever before.

A service like this is remarkable in itself. But not quite as remarkable as our lenses.

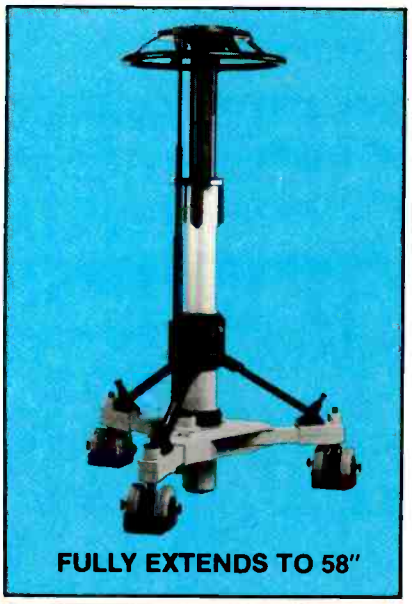
As with all Nikon products, our new ENG/EFP lenses have all our renowned quality, tradition and technology built right in. Our growing line is also fully accessorized, including adapters that allow the use of your entire arsenal of Nikkor 35mm SLR camera lenses for special effects.

To find out more, call or write for our complete brochure: Nikon Electronic Imaging, Dept. D1, 101 Cleveland Avenue, Bayshore, NY 11706, (516) 222-0200 Ext. 324. Or call 1-800-NIKON-US (645-6687) for the dealer nearest you.

Nikon
ELECTRONIC IMAGING

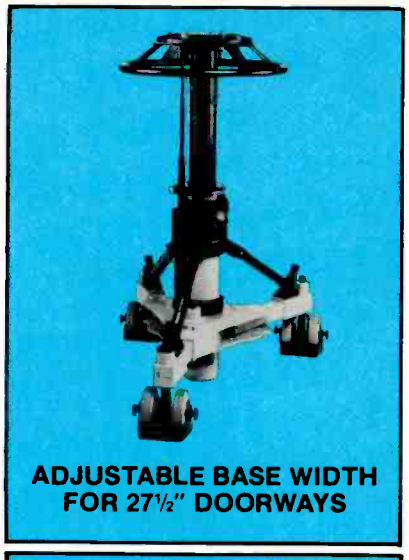
© 1990 Nikon Inc.

Circle 100 on Reader Service Card.



FULLY EXTENDS TO 58"

FULLY RETRACTS TO 26"



ADJUSTABLE BASE WIDTH FOR 27½" DOORWAYS

SEPARATES INTO 2 PARTS FOR EASY TRANSPORT

Classic™ Design Inside / Out.

CAPACITY: 120 lbs.

THE PORTABLE OSPREY

A TWO-STAGE, TWO-PART PNEUMATIC PEDESTAL

based on Vinten's timeless Classic™ design for easy set-up in the studio and out in the field. With features you've come to expect from VINTEN:

- Perfect balance and "on-shot" performance
- Self-pumping action or externally chargeable
- Positive locking wheel brakes
- 5" floating axle studio wheels
- Interchangeable 6" OB wheels (optional)
- Trim weights to maintain full, true counterbalance
- Crab/steer operation

Vinten

275-C Marcus Boulevard, Hauppauge, New York 11788-2001
Telephone: (516) 273-9750 Telex: 640470 Fax: (516) 273-9759

Branch Office:
8115-B Clybourn Avenue, Sun Valley, California 91352-4022
Telephone: (818) 767-0306 Telex: 182686 Fax: (818) 767-0772

Circle 101 on Reader Service Card.

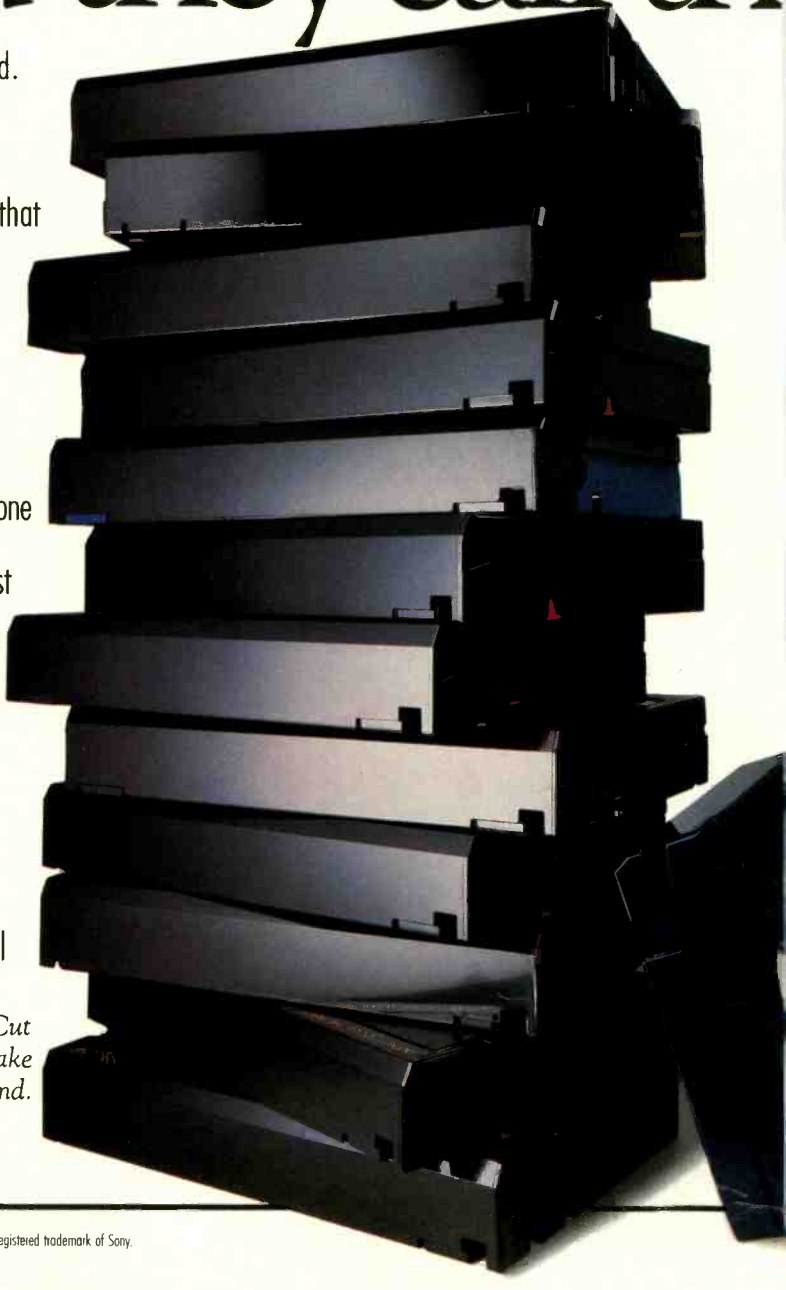
With most cassette systems, make countless manually. And they call th

When you think of automated cassette systems, manual labor isn't usually the first thing that comes to mind. But fact is, some systems can create more work than they eliminate. Especially systems that use what we call a "Variable Cut" method of automation.

Variable Cut systems are kind enough to warn you about potential problems. But you'll have to correct them yourself.

A Variable Cut system allows you to put more than one spot on each cassette. A method of automation which at first may seem quite efficient. But when compared to Sony's advanced multi-cassette systems, a Variable Cut system is actually rather labor-intensive.

To begin with, a Variable Cut system requires you to make dubs manually. With Sony's multi-cassette systems, all you have to do is push a button. And it will automatically make two dubs for you right in the machine. Secondly, a Variable



With a Variable Cut system, you may have to make a lot of dubs by hand.

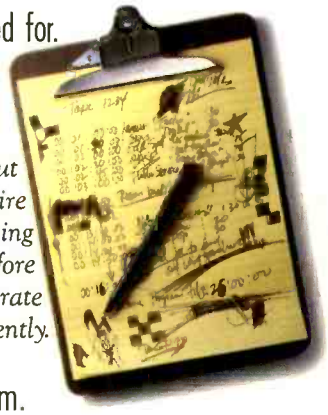
Sony Communications Products Company, 1600 Queen Anne Rd., Teaneck, N.J. 07666. © 1990 Sony Corporation of America. Sony is a registered trademark of Sony.

systems, you have to dubs, devise a filing correct system errors. at automation?

Usually by making more dubs than you bargained for.

Cut system requires you to figure out how to file your spots on your cassettes. Which means you'll have to start working even before your multi-cassette system does. How will you classify your spots? By advertiser? By product type? By running time? In the end, the burden is on you.

With a Sony system, however, tape conflicts aren't a problem. So you won't have to spend all your time and energy correcting them.



Variable Cut systems require you to devise a filing system before they'll operate efficiently.

But with a Sony system, filing is done by the machine. All you have to do is load the source tapes, and the system files them. Automatically.

With a Variable Cut system, tape wear can become a visible problem.

There are many other ways Sony's multi-cassette systems are easier to use than a Variable Cut system. But we don't want to belabor the point. So call 1-800-635-SONY for more information. Because if your multi-cassette system is really working, then you shouldn't be, too.

Lastly, Variable Cut systems tend to have difficulty dealing with tape conflicts. More often than not, their solution is just to flash a warning. Which simply indicates that you'll have to correct the problem manually.

SONY®

BROADCAST PRODUCTS

Have you an eye for quality?

EEV LEDDICON® TUBES ARE FOR YOU.

Add up the facts:

■ UNIQUE QUALITY

EEV's Broadcast Camera Tubes are respected by broadcasters throughout the world for the excellent quality of their color image performance.

■ UNEQUALLED EXPERIENCE

Current EEV camera tube design and production draws on 40 years experience in meeting the needs of the world's Broadcast TV Industry. EEV will continue to develop innovative designs to fully support the broadcasters and their tubed TV cameras for years to come.

■ UNRIVALLED COMMITMENT

EEV's commitment to both excellence in quality and innovation in development is supplemented by its dedication to support its customers both with in stock availability and technical advice to get the best from its product.

if you would like to know more call 1-800 dial EEV

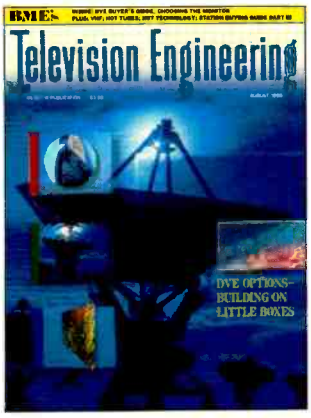
® Leddicon is the Registered Trademark of EEV Lead Oxide Camera Tubes

EEV Camera Tubes

USA: EEV Inc, 4 Westchester Plaza, Elmsford, NY 10523 Telephone: (914) 592 6050 or "Toll Free" 1-800-DIAL-EEV Telex: 6818096 Fax: (914) 682 8922
CANADA: EEV Canada Ltd, 67 Westmore Drive, Rexdale, Ontario M9V 3Y6 Telephone: (416) 745 9494 Telex: 06 989363 Fax: (416) 745 0618
UK: EEV, Waterhouse Lane, Chelmsford, Essex CM1 2QU England Telephone: (0245) 493493 Telex: 99103 Fax: (0245) 492492

Subsidiary of the General Electric Company plc of England GEC

Circle 102 on Reader Service Card.



On the Cover:
Cover art by Micha Riss of M Square Design in conjunction with Associated Images and Video Services Post II. Satellite photo courtesy of Comstock Inc./Comstock
Cover story begins on page 38.

BME's
Television Engineering
AUGUST 1990 VOL. 26, NO. 8

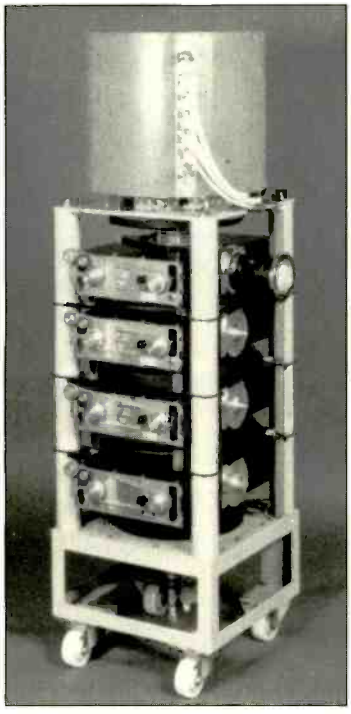
Features

30 Monitoring Monitors
Grade 1 or Grade 2? Getting a clear picture on today's monitor scene means looking at features, cost and your own facility's needs.

38 New Technology Buyer's Guide: Digital Video Effects Devices
Our continuing series of buyer's guides takes a peek at the dazzling capabilities of digital video effects devices.

42 Hot Tubes
New technology promises lower operating costs for UHF stations.

48 Station Equipment Buying 1990
Television Engineering *concludes its exclusive study of purchasing trends among TV stations. This month: the kinds of products they're buying.*



42 *MDSC technology is changing the cost of UHF transmissions.*

38 *Echolab's mouse-controlled Tempest does linear keying.*

30 *Picture-perfect monitoring for the digital-video generation.*

Donald Bell
Audio Technician
KDKA-TV2 Pittsburgh
Westinghouse Broadcasting

Charles Fagan III
Operations Manager
KDKA-TV2 Pittsburgh
Westinghouse Broadcasting

"Auditronics' 900 does just what we need for television audio,"

"and does it OUR way," says KDKA's Charlie Fagan. "Other manufacturers offered consoles, but they'd force us to conform to their way of doing things."

"Auditronics asked, 'What do you need to be able to do?,' and we told them. 'The 900 will do it,' they said. And it does. We wanted to be able to manage our Utah router with simple, one-button commands from the console. The 900 computer does that, and gives us 64 preselect setups, with switching from live-to-live, back-to-back, different studios, different wall boxes, all without missing a cue. And the router interface was a simple five-wire RS-232C hookup to the 900's computer," says Fagan.

"This Auditronics 900 is the best board the station has ever had," says Don Bell. "I especially like its physical layout; everything's easy to reach. It's got all the features I need, and some added touches other boards don't have."

Fagan says, "Auditronics' mix-minus lets us manage up to eight satellite feeds and assign them to any of 20 IFB circuits without tieing up aux sends or sub-groups on the console.

In short, the technicians working our 900 console love it, and when they're happy, so am I."

For information on the Auditronics 900 console Charlie Fagan selected for KDKA-TV2, call toll-free 1-800-638-0977. Do it today.

auditronics inc.

Auditronics, Inc., 3750 Old Getwell Road,
Memphis, Tennessee 38118 • 901 362 1350

Circle 103 on Reader Service Card.

BME's
Television Engineering

Editor In Chief
PETER CARANICAS
Technical Editor
WILLIAM A. OWENS
Senior Editor
JOHN F. KING
Managing Editor
T. GWEN GRIFFITH
Copy Editor
JENNIFER L. GREY
Contributing Writers:
DAN DALEY, JOSEPH FEDELE,
CLAUDIA KEINZLE,
TOM SOTER
Editorial Assistant
ALLAN T. CONYER

Art Director
DON KROGMAN

Production Director
NICK TARTAGLIA
Assistant Production Manager
MARK MATEROWSKI

Group Publisher
KEVIN J. CONDON
Northern District Sales Manager
WILLIAM P. DEY
Southern District Sales Manager
PAMELA S. VAHTER
Western District Sales Manager
DAVID DUNAWAY
Associate Circulation Director
MARIA DI PLACIDO
Assistant to the Publisher
ANNETTE VIERA
Sales Assistants
CHRISTINE RENEE CALI
MANDEA PERME

ACT III Publishing
President
PAUL DAVID SCHAEFFER
Chief Operating Officer
ROBERT C. GARDNER
Senior Vice President & Group Publisher,
Technical Group
KEVIN J. CONDON
Senior Vice President,
Operations and Planning
MARTHA LORINI
Director of Editorial Development
PETER CARANICAS
Vice President, Finance & Administration
SAM SCHECTER
Director of Marketing & Communications
JENNIFER WARE
Director of Circulation
STEPHEN F. WIGGINTON
Director of Manufacturing
CRAIG C. BALICK
ACT III Publishing
401 Park Ave. So., New York, NY 10016
(212) 545-5100 Telex: 64-4001
Fax: (212) 696-4215
Also publishers of:
World Broadcast News
Corporate Video Decisions
Electronic Musician
Mix

ABP VBPA

BME's Television Engineering (ISSN 0005-3201) is published monthly by ACT III Publishing. BME's Television Engineering is circulated without charge to those responsible for television station and teleproduction facility operations and engineering, and to those responsible for specifying and authorizing the purchase of equipment used in television facilities in the U.S. and Canada. These facilities include VHF and UHF TV broadcast stations, cable TV systems, TV networks, corporate TV operations, audio and video recording studios, teleproduction and postproduction houses, consultants, etc. Subscription prices are $36 one year, $50 two years. Overseas: $50 one year, $75 two years. Air mail rates on request. Copyright 1990 by ACT III Publishing, New York City. Second class postage paid New York, NY, and additional mailing offices.

POSTMASTER: send address changes to BME's Television Engineering, P.O. Box 6056, Duluth, MN 55806.

Columns & Departments

11 **Viewpoint**
TV engineers don't just work in broadcast anymore. Our challenge is to serve the information needs of them all.

14 **Update**
Varian Puts TVT and Continental Electronics Up for Sale . . . . Home Shopping Network Buys Varian Transmitters . . . . Crosspoint Latch Files for Chapter 11 Status . . . . Sony's Morita Stresses Software at CES . . . . Amiga 3000 Spurs New Software Development . . . . C-ARDS System Tracks Signal Leakage

22 **ATV Watch**
Rebo's HDTV Paints the Town and Climbs Video Walls

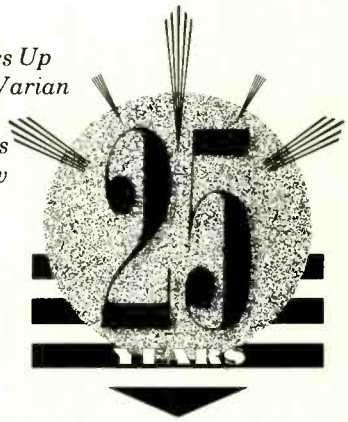
24 **Audio for Video**
SPARS Conference Peers Into the Future of Digital

28 **Smart Solutions**
Television Engineering's *New Column: Innovative Problem-Solving for Engineers. This month: How a New Network O&O Enlisted an LPTV Station To Help Reach "Out-of-Sight" Viewers*

50 **New Products**
This month, Television Engineering *completes its focus on new products uncrated at NAB.*

61 **Advertisers Index**

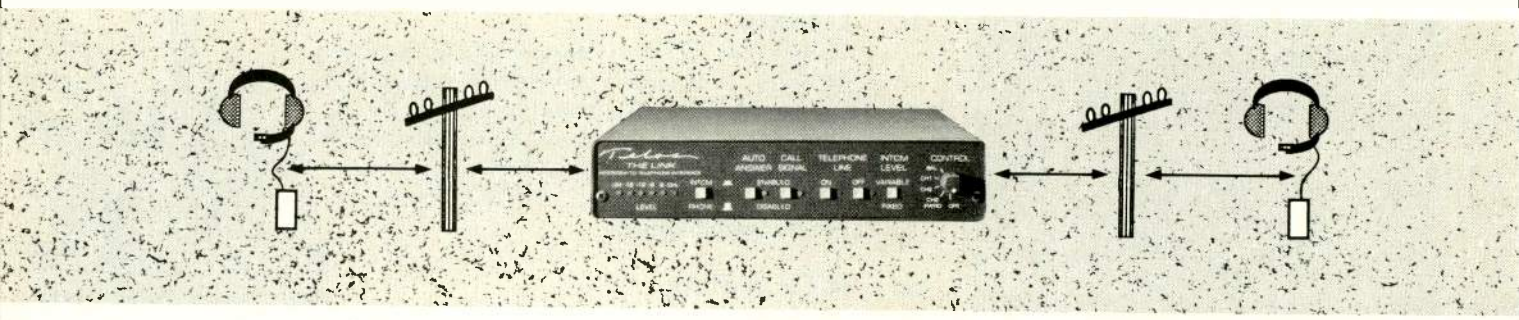
62 **Currents: A Guest Editorial**
The Work of Chief Engineers: We Never Close



Editorial Advisory Board
JAMES BARTEL, Chief Engineer, Post Effects, Chicago
RICHARD EDWARDS, VP/Dir. of Engineering, Guy Gannett Broadcasting, Miami
NEIL FELDMAN, President, Video Post & Transfer, Dallas
ROBERT FREY, Director of Engineering, Pacific Video Resources, San Francisco
PATRICK HOWLEY, President, Post Perfect, New York
STANLEY KRONQUEST, Chief Engineer, HSN Telemation, Seattle
JOSEPH MAHEDY, Chief Engineer, Charlex, New York
KENNETH D. MILLER, VP, Engineering, Capitol Video, Washington, DC
ROBERT MURCH, VP, Engineering, WPIX-TV, New York
WILLIAM NAPIER, Dir. of Engineering, WBTV, Jefferson Pilot Comm., Charlotte
FRED STEURER, VP, Engineering, Pulitzer Broadcasting Co., St. Louis
ROY TRUMBULL, Assistant Chief Engineer, KRON-TV, San Francisco

REMOTE. BUT NOT DISTANT.

Imagine remotes with field and studio crews communicating as if there was no distance at all between them.



Imagine your intercom systems interfacing with dial-up phone lines. With digital auto-nulling hybrids on both the telco and intercom paths for natural, full-duplex communication. Without level and feedback problems. Without installation hassles.

No missed cues. No awkward moments.

This is the Telos Link. The Link connects directly to production intercom systems like RTS and Clear-Com. It means smooth, efficient field operations. Fully-remotable integration. And decidedly improved communications.

Now go as far as you can.
With the Telos Link, it's like no distance at all.

For a ten-day, no-risk evaluation at your facility, contact:

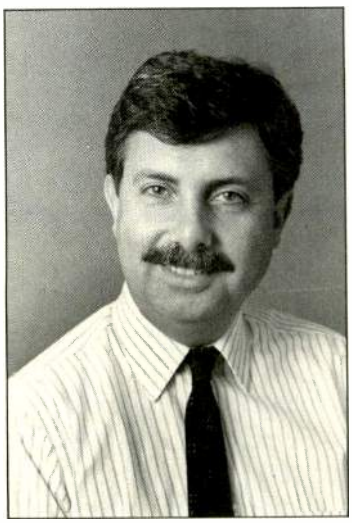
Bradley
BROADCAST

8101 CESSNA AVENUE
GAITHERSBURG, MD 20879
TOLL-FREE: 800-732-7665
MD & DC: (301) 948-0650
FAX: (301) 330-7198

Circle 104 on Reader Service Card.

VIEWPOINT

TV engineers don't just work in broadcast anymore. Our challenge is to serve the information needs of them all.



You're holding the seventh issue of *BME's Television Engineering*, the magazine we launched last February as a spinoff of *BME*. And, a little more than midway into our first year, we're rewarded by solid reader support for what is surely the right idea at the right time.

This magazine's mission is to reach TV engineers wherever they work—and they don't just work in traditional broadcasting. They move around. Thousands of engineers who received their training at call-letter stations have switched over to teleproduction facilities, post houses or corporate TV operations. Hundreds of technical recruits at the burgeoning cable networks like Nickelodeon and Lifetime have migrated from the broadcast networks and from teleproduction. We write for TV engineers in all these environments, focusing on the technical concerns they share.

To that end, we've assembled the best editorial team in the business. So this month, I'll take a breather from opining and give credit where credit is due. This magazine relies greatly on the expertise of technical editor Bill Owens, himself a TV engineer, who brings to our pages the perspective of our readers. Equally valuable is the contribution of senior editor John King, whose computer and editorial savvy give our pages much of their sparkle. Managing editor Gwen Griffith, assisted by Jennie Grey and Al Conyer, keeps our systems running and our grammar clean. And art director Don Krogman has given this publication a look second to none.

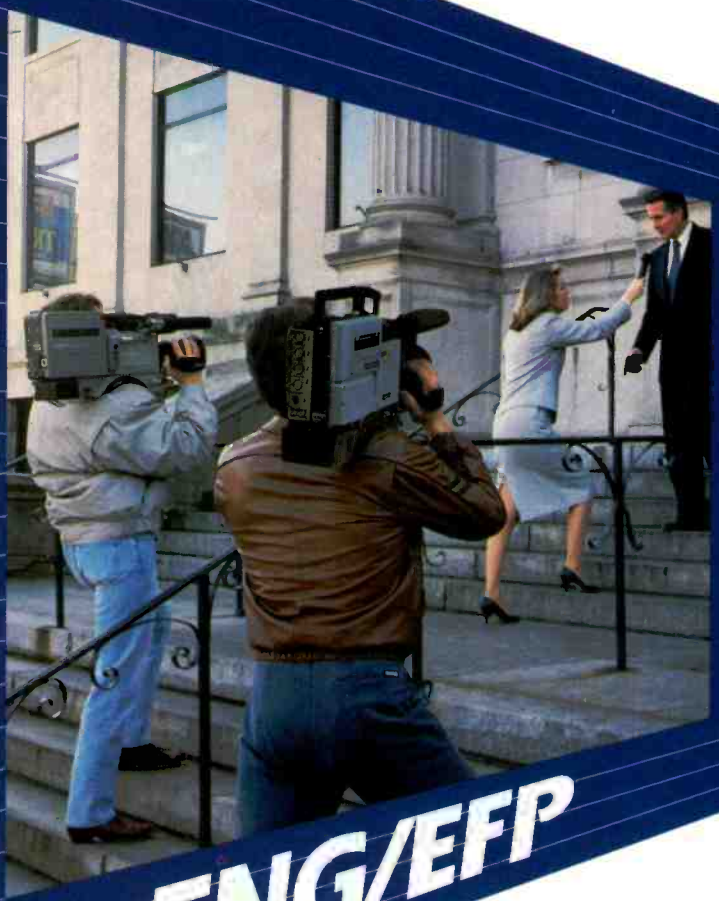
Our freelance writers bring us a wealth of backgrounds. Eva Blinder, an industry expert, preceded me as editor. Dan Daley, our audio-for-video writer, operates his own facility and also writes frequently for *MIX*, our sister audio publication. Tom Soter and Claudia Kienzle have nearly 20 years of television writing experience between them. Jim McBride has covered the NAB as a TV reporter. The members of our Editorial Advisory Board—all top engineers whose names are listed on the table of contents—act as a steering committee to ensure that we continue to respond to the shifting information needs of our readers and the multiplicity of developments in our business.

And what a business it is: fast-paced, financially risky but also rewarding, and increasingly global. Television engineering is at the cutting edge of technology. And television engineering makes possible the instant visual expression that not only communicates change in the world, but also causes it.

We have very exciting editorial plans for the months to come, so keep your eye on us. We're the only magazine in this industry that can claim to be the newest as well as one of the oldest. Rooted in a long tradition of service and involvement, we're aiming our sights on a future that promises to be even brighter than the past. ■

Peter Caranicas
Editor in Chief

Panasonic Has Down To



ENG/EFP

STUDIO

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

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

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

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

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

Video Production A System.

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

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

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

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

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

For more information and your local dealer, call your nearest regional office.
Eastern Zone: (201) 348-7620 • Central Zone: (708) 981-4826
Southern Zone:
Dallas Region: (817) 685-1117 • Atlanta Region: (404) 925-6841
Western Zone:
Seattle Region: (206) 285-8883 • Los Angeles Region: (714) 373-7275

Panasonic
Professional/Industrial Video
Circle 105 on Reader Service Card.

UPDATE

Varian Puts TVT and Continental Electronics Up for Sale .... Home Shopping Network Buys Varian Transmitters .... Amiga 3000 Spurs New Software Development .... Crosspoint Latch Files for Chapter 11 Status .... Sony's Morita Stresses Software at CES .... C-ARDS System Tracks Signal Leakage

Varian Restructures; TVT and Continental Electronics "For Sale"

Citing the need to "match expenses with [marketplace] realities," Varian Associates, Inc. of Palo Alto, CA, has begun what it calls a "repositioning," which will result in the sale of several divisions. Varian will restructure to concentrate on its semiconductor, electron-tube, analytical-instrument and medical-product activities.

The company plans to sell Dallas-based Continental Electronics and its Cambridge, England-based TVT Division. Continental makes AM and FM radio transmitters, antenna systems and support equipment. The TVT Division makes low- and high-power television transmitters. Several minor Varian operations will also be sold. Restructuring costs will show up in a $74 million charge against income for the third quarter—a quarter on which Varian will report a loss.

The sale of TVT would appear to be a positive move for both Varian and TVT. According to Bob Anderman, manager of business operations for TVT in the U.S., the relation of Varian-EIMAC and Varian-TVT may have cost TVT some business.

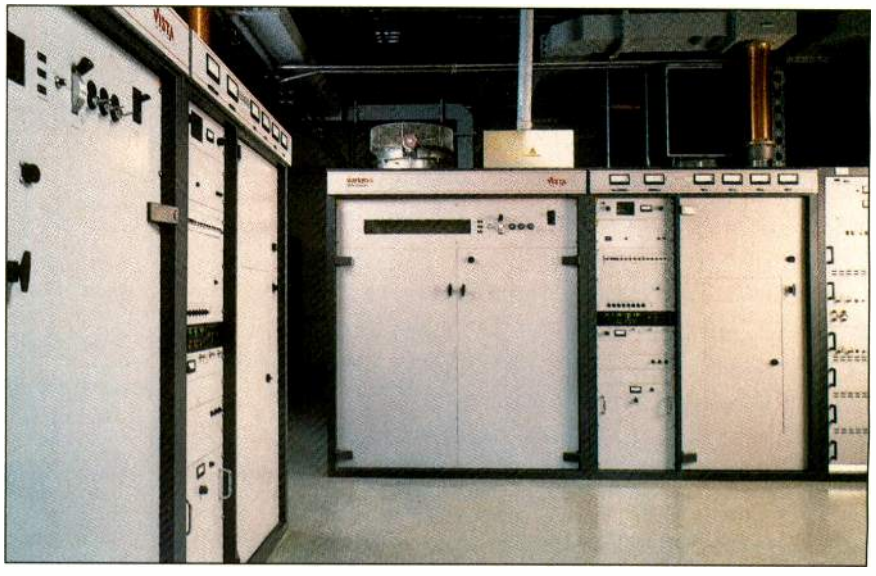
Anderman told *Television Engineering*, "While there never has been a company mandate to sell TVT transmitters with EIMAC tubes, some customers were put off by the relationship." In addition, some transmitter manufacturers have been reluctant to include EIMAC tubes in their transmitter proposals for fear of losing transmitter sales to TVT.

Sales by other transmitter makers are important to EIMAC because of its development of both MSDC Klystron and Klystrode technology. (See "Hot Tubes," p. 42.)

"The sale of TVT was inevitable," said Nat Ostroff, president of Comark Communications, Inc. "Varian is a components company, and very few components companies survive when they try to get into systems." Comark's new generation of transmitters utilize Varian-EIMAC Klystrodes. "It's the old problem of a company competing with its customers—the OEMs that use or specify Varian components," Ostroff told *Television Engineering*. He believes that the sale will create more OEM business for Varian.

To Bob Weirather, director of advanced marketing for Harris Corporation, the sale of TVT represents another sign of market contraction. "It's hard to deny the facts," he said. "There are market segments that each of us addresses, both here and abroad." Harris specifies Varian-EIMAC MSDC Klystrons for their new-generation transmitters. Weirather believes that broadcasters in the U.S. are entering a "replacement" phase, with interest in efficient broadcast technology very strong, presenting solid marketing possibilities.

Brian Akehurst, TVT's Cambridge, England-based manager of marketing, said Varian's sale of the division is "opening up a new opportunity for TVT. [This move will give TVT] the complete freedom to meet our customers' specifications." He pointed out that the current Varian-EIMAC Vista (MSDC) tubes are plug-compatible with those from EEV and Philips, "allowing our customers a



Varian-TVT Vista Transmitter at KVDA-TV, San Antonio, TX, equipped with MSDC Klystrons.

choice of tube options."

The question of who will buy TVT may already have an answer. TVT's managing director, John Wills, has told the British press that the company "will prove attractive" to prospective buyers. According to Akehurst, TVT has a backlog of orders due for delivery over the next two and a half years worth $34–$39 million—the largest order in company history.

While no sales agreement has yet been reached, *Television Engineering* learned that at least one European competitor has held serious negotiations with Varian, and was conducting a due diligence review. According to TVT's Anderman, any sale would be expected to close before the end of Varian's fiscal year in late September.

The European press has reported several companies interested in TVT, including Thomson-CSF, Marconi Communications, Pesa and Telefunken. TVT's Akehurst refused to confirm or deny the names of possible suitors.

To many observers, the purchase of TVT makes the most sense for Spain's Pesa Electronica S.A., for whom it would represent a logical next step in the American market. Pesa recently purchased the video operation of 3M, and announced a joint agreement with Panasonic to supply facilities and technical services to NBC for the 1992 Olympics. Pesa builds low-power transmitters for the European market, and a TVT deal would give the Spanish company a line of high-power products, as well as access to the American market for its low-power line.

Another possible combination would be TVT and Thomson-CSF, the owner of U.S.-based Comark Communications, Inc. With HDTV looking towards the UHF band as a transmission "home," that may be where the bulk of future transmitter business will originate.

Comark has made a commitment to producing only Klystrode-based transmitters, using Varian-EIMAC-supplied tubes. TVT has chosen MSDC tubes for its transmitters, for which EIMAC is also a supplier. Thomson's possible purchase of TVT might be a means of hedging its Comark bet with MSDC tubes.

—*William A. Owens*

Meanwhile, Varian-TVT Sells Transmitters to Home Shopping Network

TVT may be on the selling block, but that isn't stopping Varian-TVT from making big sales. Clearwater, FL-based Home Shopping Network (HSN) has placed orders for $2 million of transmission equipment from Varian-TVT, including one 120 kw and one 240 kw Vista transmitter, each equipped with MSDC Klystrons.

HSN's New York City O&O, WHSE-TV, Channel

Company News

Tektronix has worked out a deal with **Kikusui Electronics Corp.** regarding Tek's claim of patent infringement against the Japanese oscilloscope maker. Kikusui has admitted infringement of five Tek patents and will reimburse Tektronix for litigation costs and a portion of lost profits. Meanwhile, Tektronix licensed Kikusui to continue to sell Kikusui products in the U.S., but Kikusui must pay Tek royalties . . . . **Sony Magnetic Products Company**, as part of its sponsorship agreement with **TBS** for the recently completed Goodwill Games, was the sole source of videotape for TV production . . . . **Cirrus Technologies**, Concord, MA, has completed its purchase of **Broadcast Electronics**, Quincy, MA, which will continue to operate as an independent company under the same management team . . . . **The Society of Motion Picture and Television Engineers (SMPTE)** and the **Audio Engineering Society (AES)** are considering joint sponsorship of future conferences and conventions . . . . One of the developments to watch in the '90s may be the emergence of interactive compact-disc technology. **Capitol Video**, Washington, DC, has teamed up with **Philips** of the Netherlands to introduce the technology to potential users in corporate training, point of information, point of sales and information storage . . . . Phase Two of the expansion program at **Grace & Wild Studios**, Farmington Hills, MI, is underway. Scheduled for completion by early next year, the construction of new post-production facilities aims to make Grace & Wild the largest video facility in the Midwest . . . . **Abekas Video Systems** will soon announce a new president and CEO to replace Yeshwant Kamath. ■

Four presidents meet (left to right): Paul Beckham, Goodwill Games Inc.; Neil Vander Dussen, Sony Corp. of America; R.E. Turner, Turner Broadcasting Company; and John Bermingham, Sony Magnetic Products Company.

68, will receive a 120 kW transmitter for its facility, replacing an existing Pye-TVT unit. The station will also replace its broadcast antenna—the top 45 feet of the Empire State Building system—to permit circular polarization.

Later this year, WTMW-TV will hit the airwaves as Washington, DC's HSN affiliate on Channel 14. Varian-TVT will provide a 240 kw transmitter package for the station.

Both stations will receive a new custom-designed transmitter remote-control and monitoring package. ■

Multimedia Tools Compete for TV Market

Desktop video may start finding its way into more small TV stations as personal computer-based products continue to proliferate.

While the Apple Macintosh and IBM PC-based products battle for the high-end desktop video market, Commodore Business Machines, West Chester, PA, offers a low-end option with its Amiga line and various support products. Recently, Commodore announced the release of its Amiga 3000 machine along with the AmigaDOS 2.0 operating system and AmigaVision authoring software. (Amigas run under MS-DOS with a Bridgeboard option.)

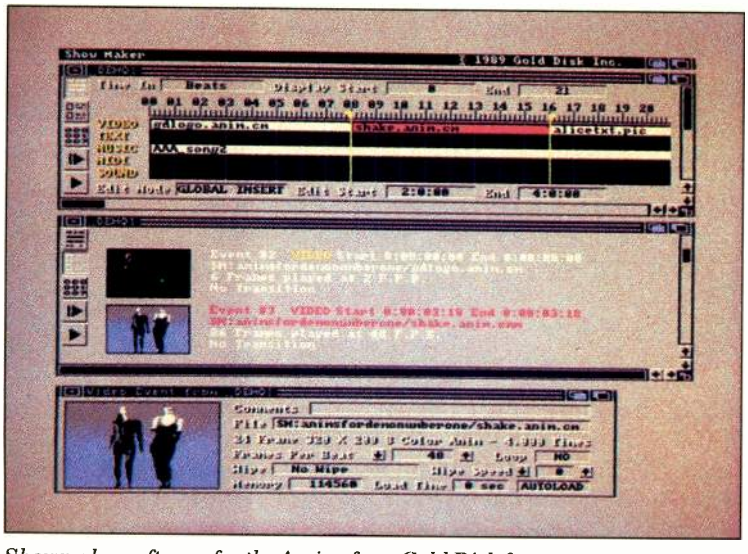
The Amiga line was started in 1985 to develop a market for multimedia use of the personal computer—with the computer as the delivery system for corporate and education presentations. However, Commodore decided to include in the Amiga the ability to output an NTSC video signal so that the image can be integrated into taped productions. Because of this ability, and because the Amiga can do real-time animation sequences and synthesize speech, Amigas have helped develop computerized weathercasts, cable TV programs, and ads.

Right now the Amiga 2500, exhibited in May at the Technisphere show in New York, is the top of the line for video users, but the 3000 will add a 32-bit bus and built-in scan enhancer for the VGA monitor. (Technisphere Corp. is a supplier of TV equipment; they are located at 29 E. 19th St., New York, NY 10003.) Designed to be compact, the 3000 may not easily accept plug-in cards for capabilities such as genlock. Interestingly, a company representative admits the 3000 does not yet have the expansion capability of the 2500; it is expected, however, that Commodore will add such capability to later configurations of the Amiga 3000.

The new Amiga gets a new operating system, AmigaDOS 2.0, designed to ease operation, and AmigaVision, a mouse-driven multimedia authoring system, taps into the multitasking ability of the Amiga by allowing users to run programs simultaneously. The new software is packaged with the 3000, but AmigaVision is also available for earlier Amigas at a retail of $149, and Commodore plans to have a 2.0 enhancer kit for its 2000 machines ready by September.

Cost savings are a big selling point for the Amigas, although picture quality and color capabilities limit its use for on-air presentation. A 16 MHz Amiga 3000 (with 40 Mb) retails for $3,299, a 25 MHz for $3,999, and a 100 Mb model for $4,499.

The Amiga can only produce 16 colors out of a 4,096 color palette. However, Mimetics of Cupertino, CA, sells a card, the FrameBuffer, that allows any 24-bit RGB files to be displayed as video on the Amiga, expanding color capability to 16.8 million. FrameBuffer retails at about $550.



Showmaker software for the Amiga from Gold Disk features automatic storyboard generation.

Mimetics is not alone in producing Amiga-based products. Dave Rasmussen, Mimetics president, says, "There's a lot of software development going on around the Amiga right now."

Gold Disk, Torrance, CA, just announced Showmaker, which product manager David Jones describes as "glue software" allowing the Amiga user to coordinate sources for video presentations. Besides control of external devices (a card is also needed to allow control of a VCR), Showmaker permits previewing and printing of storyboards or presentation cue sheets. Showmaker will work with the Mimetics card. The software retails for $395.

By combining the Amiga with a genlock system and adding Showmaker, Jones sees broadcasters using this configuration to "rough out what they want to do" before sending work on to a post house. Small stations may find even more critical uses for such a setup.

—John F. King

Crosspoint Latch in Chapter 11

Thursday, May 31, marked the end of business for the Union, NJ-based Crosspoint Latch Corporation, a maker of production switchers and support gear, as the physical assets of the company were auctioned to provide funds for payments to the company's landlord and Newark, NJ-based First Fidelity Bank.

Television Engineering could not locate company principals, and the attorney who represented the company in the bankruptcy proceedings, Vincent D. Commisa, of Roseland, NJ, refused to make any comment on the case.

A spokesperson for the Office of U.S. Trustees, the presiding officer in the case, told us Crosspoint Latch filed for Chapter 11 status as a result of action taken against it by First Fidelity Bank. The spokesperson indicated that the company's physical assets had been "abandoned by the company and seized by the bank." A spokesman for the bank, William Tozzoli, refused comment.

Television Engineering spoke to a Crosspoint Latch representative in early March and received no indication of a problem at the company. The company had arranged for a booth at NAB, yet did not exhibit.

For both customers and creditors alike, many questions remain. All company operations have been terminated and the telephone service disconnected. Since many dealers sold the Crosspoint Latch product line, it would appear they are the sole support for the equipment now in the field. The creditors may be in worse shape. According to an attorney familiar with the case who prefers not to be named, "the likelihood of a distribution to creditors is remote."

—*William A. Owens*

Sony's Morita Sells Soft at CES

Using the keynote address at the June Consumer Electronics Show as his platform, Sony Corp. chairman Akio Morita emphasized the need for strong software support of new consumer products—a message that he later tied to the development of high-definition video.

"Hardware and software synergy is fundamental—believe me, I know it now." That ironic acknowledgement of Sony's mistaken over-emphasis on hardware development with Betamax punctuated Morita's emphasis on a strong link between entertainment and electronics.

Morita does see new technology as the driving force, the way digital is driving audio. "The leap from analog to digital technology," he claims, "may be the most profound advance since Edison's cylinders gave way to 78s." Beyond the technical leap, Morita chiefly attributes the success of compact-disc technology to "hardware and entertainment software starting out of the gate to-

People on the Move

Masaki (Mike) Yoshida took a fast track from appointment as VP of **JVC Professional Products Company** in January, 1990 to company president in April. Yoshida has worked with JVC Corp. since 1968, including a term as assistant to the president of JVC's U.S. Professional Video Division, where he directed the installation of its computer system . . . . Charles Ginsburg, the man who spearheaded the development of the world's first practical videotape recorder in the '50s—the **Ampex** VRX-1000—has been inducted into the **National Inventors Hall of Fame** in Akron, OH . . . . Bill Whitlock has been appointed president of **Jensen Transformers,** North Hollywood, CA, after the death of Deane Jensen . . . . Ajay Chopra, co-founder and VP of engineering of **Pinnacle Systems, Inc.**, Santa Clara, CA, has been elected chairman of the board . . . . J. Tracy O'Rourke is the new chairman of the board and CEO at **Varian Associates,** Palo Alto, CA, and James D. Benham has been promoted to general manager of the Electro Optical Sensors Division . . . . **The Weather Channel** has promoted three executives as part of a corporate reorganization. Patrick C. Clark assumes a new position: senior VP of finance & administration, while Stan Hunter is now senior VP of programming & operations, and Raymond J. Ban is now VP, director of operations . . . . Martin Gardner has been promoted to VP and elected to the board of directors of **Nagra USA,** New York City . . . . **Aphex Systems, Ltd.,** Sun Valley, CA, appointed Hugh Wilcox VP . . . . Ed Gordon, with 30 years of experience in satellite, TV and radio engineering and operations, is the new director of engineering at **Varitel Video,** Los Angeles, CA . . . . **Gentner Electronics Corporation,** Salt Lake City, UT, created a new position for Elaine Jones as director of corporate projects . . . . **Powerhouse Studios, Inc.,** Washington, DC, added John F. Reynolds to its audio team . . . . Designer/animator Bud Myrick has joined the graphics production staff at **Henninger Video,** Arlington, VA . . . . John G. Campbell joins **United Media,** Anaheim, CA, as its director of marketing . . . . Karen Daniels, controller for **Editel/Chicago** since 1983, has been promoted to VP/controller . . . . Frank Oakes takes EEV's position of director of business development . . . . **Sony Professional Audio** appointed Clayton Blick marketing manager. ■

JVC President Masaki Yoshida

UPDATE

gether."

He notes that a similar strategy is needed for high-definition video systems (HDVS), his renaming of HDTV—"because to say 'HDTV' is to limit the scope of possibilities for this new breed of entertainment." He says high-definition technology will breed "a new generation of audio visual software" and will offer users "new techniques not possible with conventional tape or even film." Morita also sees "further advances in digital recording and optical media."

—John F. King

In The C-ARDS

Cox Cable, Cleveland, is solving signal leakage problems with the aid of software developed by an unlikely source: the Consolidated Natural Gas Company (CNG). Dubbed C-ARDS, the proprietary software package is tied into a computer-driven radio dispatch.

Originally developed three years ago by the East Ohio Gas Company for measuring gas use and charging customers, C-ARDS consists of a dispatch console, a station controller and truck-based mobile data terminals. The console provides the dispatcher with crew location and job-status information, and can interface with a company's billing records. The station controller uses a two-way radio to connect the console to the vehicles, and the mobile terminals then display printed information. The setup, which can also send and receive work orders, costs $85,000 and can be hooked up with existing radio networks. Outfitting a truck costs $2,350.

CNG reports that C-ARDS has speeded up response to signal leakage. "First, field personnel directly input CLI [leakage] measurements into mobile data terminals," explains Dennis Giancola, marketing specialist, Technical Products Division of CNG. "Automated tracking and reporting eliminates paperwork, and field personnel can take immediate corrective action to solve CLI leakage problems because dispatchers can instantly produce and transmit authorized work orders."

In addition, CNG says that the system will cut down on routine service time since the supervisor knows the exact location of all field personnel and can change work schedules as needed. "C-ARDS is a revolutionary technology that will dramatically improve the way cable companies service customers," remarks Ron Hammaker, general manager of Cox Cleveland, which serves 52,000 customers. "With C-ARDS, we can take care of installation, interruptions of service, and general service in a much more efficient manner." According to Marc Jampole, a spokesman for CNG, in the year Cox has employed the system, it has seen same-day repair service jump from 25 to 75 percent.

"The bottom line is that cable companies have to keep customers satisfied in order to enjoy continued success," Giancola concludes. *—Tom Soter*

Equipment Sales

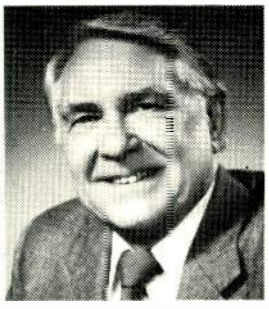
Multivision, Needham, MA, has added two **Chyron** Superscribes and a second **Aurora** 280 to its production facilities, with the objective of establishing a powerful digital animation suite . . . . **Quantel** Paintbox V systems are now in place at NBC and ABC in New York, KHJ in Los Angeles, WBBM in Chicago, Interface Video in Washington, and Musica Video in Houston. Meanwhile, the Stamford, CT-based firm now offers Quantel Care, a hardware maintenance service . . . . Sure Shot Teleproductions and Transmissions equipped its new Sure Shot One mobile production unit with **Canon** J55 X Super Lenses. The Sure Shot One completed 55 network remote productions in its first two and a half months; Sure Shot Teleproductions ascribes a "production edge" to the Canon J55 Xs . . . . **Timeline**, New York City, delivered the first of its Lynx SSL Data Interface units to T.V. South, Southhampton, UK. Meanwhile, Timeline's Lynx Time-Code Modules have been sold to Turner Broadcasting System, New Age Sight and Sound, and Soundscape Studios. And NBC has been added to the list of West Coast purchasers of Timeline's Lynx Keyboard Control Unit . . . . **Varian TVT** is reporting good results for the first of its energy-saving VISTA series of UHF-TV transmitters to go on line at KVDA, a Telemundo affiliate in San Antonio, TX . . . . Complete Post, Hollywood is mixing manufacturers with its recent purchase of an **Abekas** A60 to go with its **Quantel** Paintbox . . . . The Editels of Chicago and Los Angeles, 525 Post, Limelite, Pinnacle Productions, Starfax and Telemation Seattle are some of the facilities that have purchased the **Accom** D-Bridge 122 in order to standardize their encoding process. Accom also says that over 90 DIE 125 digital image enhancers have been shipped worldwide . . . . The BBC Open University Production Centre, Walton, UK, is using six **Convergence** ECS-195 editing systems in their off-line production suites . . . . Video-It, Los Angeles, says it can now do A/B-roll composite digital post-production with the addition of a new **Sony** DVR-18—its third D-2 recorder . . . . Also in the D-2 arena, Edit Masters, a production and post house in Voorhees, NJ, has added two **Ampex** D-2 VTRs....Production Masters installed **Ampex** VPR-300 D-2s. ■

Television Engineering *welcomes your comments and opinions. Write to us c/o Editor,* Television Engineering *magazine, 401 Park Avenue South, New York, NY 10016. You may also fax us at 212-696-4215.*

The Lighthouse National Center for Vision and Aging
Wishes to Congratulate
The

VISION FUND OF AMERICA
&
Its 1990 Honorees

David K. Barnes
Midwest Communications Corp.



William H. Smith
Allied Film & Video

&
Its Officers, Directors & Management Council

Officers

John McPherson Sony Communications Products Chairman	Joseph J. Olewitz Glyn/Net Inc. President	Charles Van Horn ITA Vice President	Eliot A Minsker Knowledge Industry Publications Inc. Secretary	Richard Kelly Cambridge Associates, Inc. Treasurer

Management Council

	Beth Bornhurst Waldenbooks	Daniel X. Boucher Knowledge Industry Publications, Inc.	Donald Buck Video Services Corporation	George F. Currie Panasonic Audio Video Systems Group
Stewart G. Harris Citadel Motivation Inc.	Janet Luhrs International Teleproduction Society	Thomas McCarthy JVC Co. of America	Larry Mincer Chyron Corporation	John O'Donnell Venture Group International, Inc.
James Pagliaro Sony Corp. of America	James Ringwood Maxell Corporation	Alec Shapiro Communications Resource Network	David Shefrin David Shefrin & Associates	Charles Tepfer Tepfer Publishing, Inc.
	Dick Turchen Communications Mktg. & Consulting		Harriet Yassky National Basketball Association	

Board of Directors

Henry Brief International Tape Association	Joseph Cayre Good Times/Kids Classics	Tom Demaeyer VCA Teletronics	Stanley Durwood AMC Entertainment	Herbert Fisher MGM/UA
William B. Follett Good Times/Kids Klassics	James Jimirro J2 Communications	Jules Leni Comprehensive Video Supply	Robin Montgomery Magnus Films	Nick Nishi Ikegami Electronics (USA) Inc.
Robert Pfannkuch Rank Video Services	Peter Pimer Adidas Corporation	Daniel D. Roberts Lexicon	Adriana Shaw Cinergy Entertainment	J. Philip Stack Sony Corporation of America
Joseph M. Swiderski III Swiderski Electronics Inc.	Neil Vander Dussen Sony Corporation of America	Steve Yuhas Panasonic Audio Video Systems Company		

John M. McDonnell, Executive Director, Vision Fund of America

Benita Roumanis, Corresponding Secretary, Vision Fund of America, c/o Knowledge Industry Publications, Inc.
701 Westchester Avenue, White Plains, NY 10604

Rebo's HDTV Paints the Town and Climbs Video Walls

By Tom Soter

Barry Rebo's thoughts on high-definition were always lofty. In 1986, before most people were even aware of the prospect of high-definition television, Rebo had set up a hi-def production truck and studio in New York City. He shot music videos and even a feature film in HDTV. Now, with three affiliated operations—Rebo Research, Rebo High-Definition Studio, and BRT High-Definition Network—Rebo seems to be reaching his high-definition plateau.

But Rebo, who just returned from Japan to pick up the Hi-Vision '90 award for his research company's work in developing U.S. software, is not stopping there. He is now pushing a new project called "Manhattan Music Magazine," a package of 26 half-hour shows being taped in R&B, jazz, country and pop clubs. The series is produced for the international market and is being shot with three Sony HDC-300 cameras and HD-1000 VTRs. The soundtrack is recorded on 24 tracks of two 48-track Sony PCM-3348 digital audio recorders.

"We are making it as high-quality as we can," observes Steve Dupler, Rebo Studio's VP of music, and music producer of "Manhattan Music." "High-definition is coming in this decade, and this is a way to build up a library of programming. You can exploit [the library] in NTSC and other formats, and then re-release it when high-definition is widely available." Dupler says it is not unlike the strategy of 1950s TV producers who shot programs like "Superman" and "The Cisco Kid" in color, even though black and white was the standard. "They had the foresight to look ahead, and therefore increased the shelf life of their programming," he says. "We can do the same, releasing [the tapes] in analog now, and holding onto the hi-def masters for the future."

Rebo Studio is shooting at the clubs using a 45-foot Air-Ride Semi that belongs to Effanel Music (whose principal, Randy Ezratty, was involved in taping the recent "Rolling Stones Steel Wheels" special). The director is Sandy Dorfman, who supervised "Top of the Pops," the BBC music series, for 16 years.

The job is made easier by the three new HDTV cameras which Dupler says are lighter (the head is about 40 pounds) and faster (in the 100–125 ASA range, compared to the 60–80 ASA of the older versions). "With these, you can model the light a little more or stop down and hold your depth of field," Rebo notes. That, combined with the wider aspect ratio of high-definition, translates into fewer camera setups, according to Dupler.

"You can see two musicians interacting in one shot without having to have a camera covering each of them," he says. "It's like looking at a show through a glass window, like you're in the audience."

Rebo is also hoping to set up a "Rebo Software" label by 1993, marketing programs like "Manhattan Music Magazine" on hi-def laserdisc. "There is a lot of interest in laserdisc technology now," he observes. "Basically, it's the best picture quality you can get for home video. It really ties in with things we're interested in here. We want the best visuals and the best audio. With laserdiscs and compact

Barry Rebo introduces Lone Star Roadhouse for his hi-def "Manhattan Music Magazine" series.

discs, you can get both, and we have the added advantage of mastering in high-definition."

Also pushing the high-definition front is Rebo-owned BRT Network's HDTV closed-circuit TV network. Set up in shopping malls across the country, the network's programming will be a mix of advertising, music, sports and other features displayed on HDTV screens placed in common areas. It will carry national and local advertising tailored to the individual demographics of each site. BRT plans to install the system nationally in over 1,000 malls and airports during the next four years.

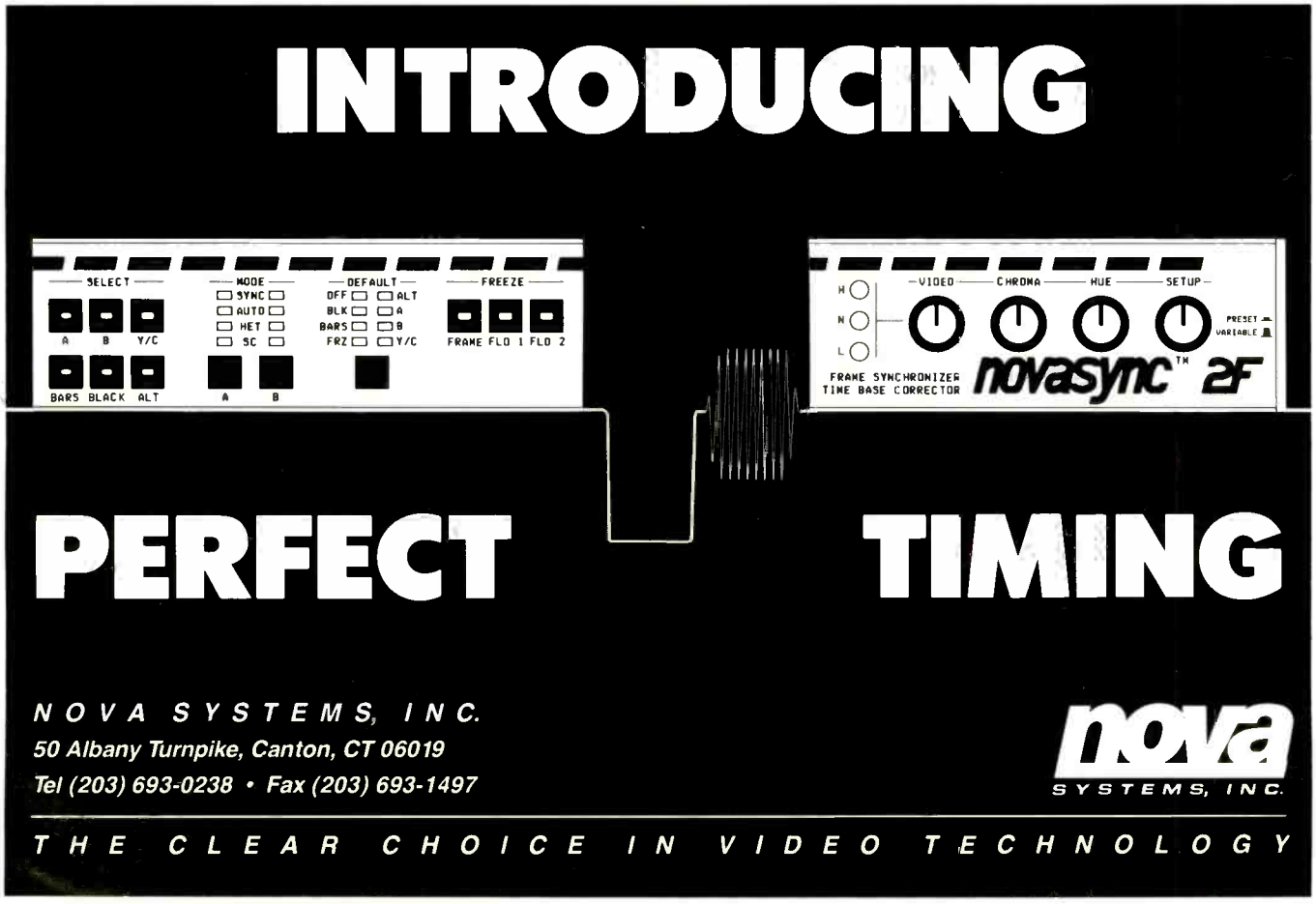
Tina Sharkey, president of BRT Network, says, "High-resolution motion billboards will be retrofitted to the different spaces." She has dubbed these billboards "video walls." "Some will be four monitors by four monitors," she continues, "some two by two, depending on the space and the architecture of the site."

"High-definition is coming in this decade, and this is a way to build up a library of programming." —Steve Dupler, Rebo High-Definition Studio's VP of music, and music producer of "Manhattan Music."

BRT has signed an agreement with NFL Films for its library of sports programming. "Football has national interest," says Sharkey. "It is perfect to link with ads in a point-of-sale environment like a mall."

The commercials can be shot in HDTV or upconverted, she says, and tapes and discs will initially be shipped to the malls. A 10-hour day of programming can be organized according to the different demographic groups that turn up at various times of the day (workers at noon, for instance, and teens in the afternoon). That kind of target marketing makes Sharkey optimistic about success. "The venue gives greater credibility to the product," she says. "Advertisers can tie right into local outlets at the point of sale."

Besides advertisers, HDTV itself may benefit. "We also hope the billboards will show the public at large how sharp HDTV is," Sharkey says. "They may have heard about high-definition, but now they can actually see it." ■



SPARS Conference Peers Into the Future of Digital

By Dan Daley

In the audio world, Nashville is something of a paradox. Although this intensely audio city is characterized by acoustic instrument-dominant country music, digital technology here has kept pace with the other audio power centers. Pedal steel guitars sound just as twangy on 32-track digital tape as they did direct to lacquer. And so, in May, the Society of Professional Audio Recording Services (SPARS) held its symposium on digital technology in the postbellum splendor of Nashville's Hermitage Hotel.

Reflecting the explosive growth in the area of digital recording, especially in disk-based systems, the number of presenters grew from an original six to a complement of 11. They included some familiar names: New England Digital's PostPro (specifically, the new SD version), SSL's ScreenSound, the AMS AudioFile, Studer's Dyaxis system and Lexicon's OPUS. Newer entries included Alpha Audio's DR2, the DAR Soundstation II, Waveframe's Digital Audio system and the Symetrix DPR 100. Both Sony Pro Audio and Otari were also represented.

A look at several approaches taken at the show, along with some of the comments made at the conference, provides an interesting picture of the state of the art.

The two currently available top-end systems that seemed to generate considerable interest were the NED PostPro SD and the SSL ScreenSound systems. NED unveiled its PostPro Sound Design version at the recent NAB show in Atlanta. It combines the multi-track Direct-to-Disk capability of the PostPro with the company's foundation product, the Synclavier R3200, a 32-voice stereo sampling system with 64 Mbs of RAM. The system also has MIDI capability for compatibility with that now-standard audio protection protocol.

Since NED regards itself as the "grandfather of the industry," as NED VP Frank Sullivan told the audience, the company feels both a need and an obligation to participate in standardization of a field in which various storage media prevent compatibility. (For example, non-removable hard disk versus portable optical disks is one format conflict that has developed.) Sullivan stressed the company's inclusion of a Macintosh computer at the front end of the system, reflecting the Mac's dominance in the audio domain. Also, the system's CMX edit list and serial interface are in step with what most manufacturers now support as standard.

Newer entries included Alpha Audio's DR2, the DAR Soundstation II, Waveframe's Digital Audio system and the Symetrix DPR 100.

The standardization sentiment was echoed by other manufacturers, such as AMS president Jim Stern, who noted the acrimony which has characterized digital format standardization in the past. Stern gave as an example the battle for a CD format.

To back up his statements, NED's Sullivan promised to make available the company's SYNCnet protocol specifications to other members of the industry for modification and possible adoption as an industry standard. The SYNCnet language developed by NED allows for control of all workstation functions.

Like the NED system, the SSL ScreenSound workstation is hard-disk-based. The system is designed for recording, editing and mixing digital audio for off-line video and film post-production, and audio-for-video editing. An optional WORM optical disk system is also available for creating and storing library sound effects. A pen and tablet activate the system's myriad functions. The color screen on the ScreenSound system is laid out very much like an audio console, with virtual multi-function assignable faders and other analog console functions such as fader grouping.

While applicable in most post-production situations, ScreenSound is aimed squarely at the film industry, as its handle connotes. The demonstration at the SPARS conference was centered around a few rushes from *Back To The Future III* for which the system took SFX, modified them and synced them to picture. ScreenSound's ADR capabilities were displayed live as another actress replaced Mary Steenbergen's lines in two scenes.

There are numerous installations of both the PostPro and the Synclavier currently in place, as well as the more recent PostPro SD system, and sheer weight of numbers has given NED a prominence in the upper end of the workstation pantheon, with SSL gaining fast in the last eight months (45 ScreenSound systems during that period). Numbers work both ways, however, and the relative expense of both systems (a base price of $129,600 for the PostPro SD and

$106,000—with WORM drive—for the SSL system) contrasts sharply with the less costly (and less comprehensive) systems that are beginning to bunch up the pack.

On the other side of the coin, hard-disk limited-track systems such as the Studer Dyaxis attempt to appeal to the CFO as much as to the chief engineer. Over 300 of the two-track systems have been delivered so far, according to the company, and the Dyaxis 2+2 four-track system is now available. While the system's literature attempts to position it for all conceivable applications, its limited number of tracks, counterbalanced by its Macintosh interface and wide time-code and sync capability, probably make it most attractive to small- and medium-sized jingle and voice-over facilities that have limited expansion capital, but a strong desire to get into disk-based digital audio. The 15-minute two-channel Dyaxis system without a Macintosh computer starts at $10,000; the two-hour 1.2 Gb hard-drive system costs $25,000, also without the Mac. The four-track 2+2 system with 30 minutes per channel starts at $25,000; the two-hour-per-channel system runs about $40,000.

The rate at which digital disk recording enters the industry will vary according to client needs and the abilities of facility owners to finance the transition. While full-function workstations like the PostPro SD and ScreenSound appeal to larger facilities able or willing to invest quickly and deeply in workstation technology, systems like Dyaxis allow studios to get their feet wet less expensively. Tore Nordahl, president of Studer Revox America, predicted that multiple formats—like the Studer Dyaxis—will be around for some time, with two- and four-track systems at first growing fastest.

Audio is no more immune to format conflicts than video is. It's hard to argue with Otari VP John Carey when he says, "Customers will be casting their votes with their dollars." "It's going to be scary," he added, for a while, as this nascent industry shakes itself out. Carey foresees much of this equipment finding its way into studios on a modular basis. "Current [recording] equipment is not likely to wind up in the garbage any time soon," he noted. "There is a need to put digital into studios in stages."

Executives from Studer Dyaxis, NED, Sony Pro Audio, Waveframe and Otari were among the panel members at SPARS May digital audio conference.

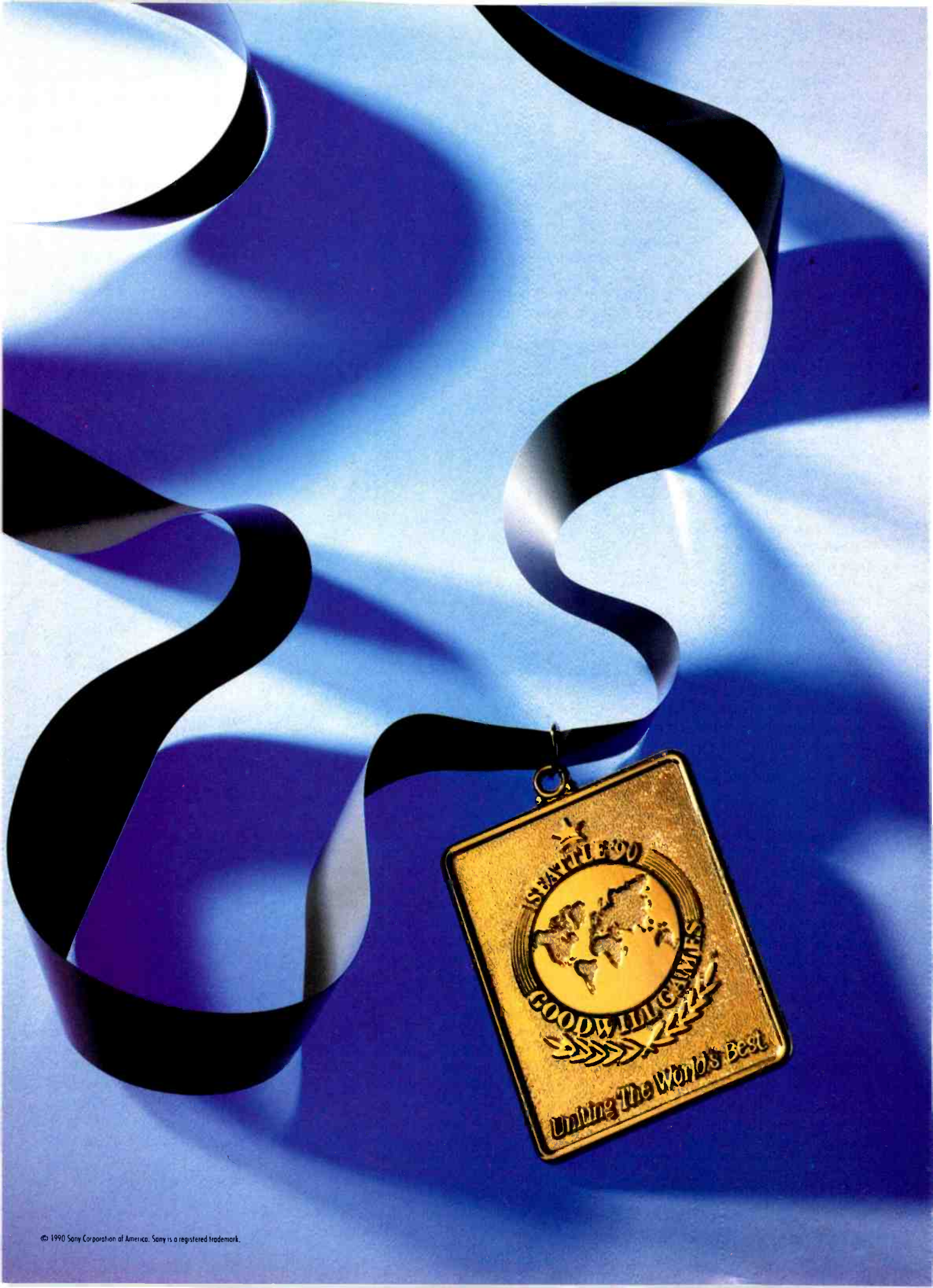
Jeff Bloom, sales and marketing manager for SoundStation II manufacturer DAR listed several areas in which the field will have to standardize itself to one degree or another. The main one was the format for optical drives for storage, which Bloom said will be dependent to a large degree on the types of computer operating systems these disk-based systems employ. Mack Leathurby of Opus manufacturer Lexicon pointed up the dependency of the studio industry on the tacks taken in the future by the computer industry as far as optical disk development goes, although he noted that removable high-density hard drives will also be a factor.

Amidst all this talk of technical specifications, several manufacturers made a point of addressing the human aspect of this technology. Steven St. Croix, system developer for Symetrix's DPR100 (which raised as many eyebrows as it did expectations at the conference) said that "the real-world human has to get into the virtual world." St. Croix wants to see system architecture more openly designed in the future to accommodate unanticipated user demands.

Courtney Spencer of Sony said he believes that human interfaces need to go beyond the computer-oriented tacit limits of the QWERTY keyboard and address audio on more familiar terms, perhaps by using more console-like representations of control surfaces. (The SSL ScreenSound certainly seems to be the most evolved in this department.)

Pete Caldwell, incoming president of SPARS and president of Doppler Studios/Atlanta, commented: "This conference—and the recently heightened level of awareness—gave people a new perspective. For the first time, people became aware of just how different some of these systems are." Caldwell feels that manufacturers must make "a major philosophical commitment [towards] the standardization of information transfer and control." ■

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



© 1990 Sony Corporation of America. Sony is a registered trademark.

ONE TAPE WON'T BREAK AT THE FINISH LINE.

To be a leader in video, you have to run in the fastest lane of all: The path over the tape heads.

Which is why the video leaders of TBS choose Sony professional videotape.

After all, leaders tend to recognize leaders. For example, at the Goodwill Games, the producers and engineers know Sony tape will endure constant still frame editing, shuttling, jogging—and deadlines.

In short, it's do or die. Alternatives which demand a great support team.

With every videotape, Sony gives you responsive sales representatives, technical support and in-depth research that keeps you on the leading edge of video production.

So you're not just buying tape, you're running with Sony. That's why world-class video leaders choose the world-class videotape company.

Sony. The leader video leaders follow.

SONY.
PROFESSIONAL VIDEOTAPE

Circle 107 on Reader Service Card.

Network O&O Enlists LPTV Station To Reach "Out-of-Sight" Viewers

By William A. Owens

Think of it. With the press of one raise/on switch, your station just lost 1.2 million potential viewers. What would you do?

Commercial broadcasters live by the numbers. The higher the number of viewers, the higher the card rates, the higher the income. What management would toss aside 1.2 million potential viewers? CBS did.

After the dust settled in the station-trading/network-swapping deals that savaged the Miami, FL, market last year, WCIX-TV, Channel 6 went from independent to CBS O&O. Yet it had the market's weakest signal, barely viewable in the northern end of the market, home to those 1.2 million potential viewers. It was a situation that clearly did not live up to the image or the intent of CBS—a situation that called for a smart solution.

Born in 1967, WCIX-TV was the result of creative engineering—a station "shoehorned" into the Miami market. Its problems really date back to the sign-on of what is now WCPX-TV, Channel 6, in Orlando, on July 1, 1954. That station, a CBS affiliate, was granted the first of three Channel 6 allocations the FCC would issue to Florida stations. WCTV-TV, the second Channel 6 allocation and another CBS affiliate—assigned to Tallahassee, FL/Thomasville, GA—reached the airwaves on September 15, 1955. WCTV, at the northern end of the state, would pose no problem for WCIX-TV. WCPX, however, broadcasting in the central part of the state, was a different story.

Until 1967, Miami, FL, was an all-VHF market, with three commercial network affiliates plus an educational station. An independent UHF, now WLTV, Channel 23, would change that status on November 15, 1967. Signing on just two years after the implementation of the so-called "All-Channel Receiver Act," which was intended to place VHF and UHF stations on an equal footing, WLTV would suffer the fate of many UHF stations of the era, including low revenues and several changes of ownership.

Rather than apply for a UHF license, the folks who put WCIX-TV on the air sought to squeeze a VHF station into the market, and found Channel 6 to be technically feasible, with some limitations. WCPX-TV, with studio and transmitter then in Orlando, was just far enough away to allow a Channel 6 assignment in Miami if the new station's transmission facility was carefully placed.

But WCPX-TV was not the only limiting factor to be considered. In order to protect WPTV, West Palm Beach's Channel 5 licensee, which had gone on the air August 22, 1954, WCIX-TV needed to locate its transmission plant at least 75 miles distant from that of WPTV. The site finally selected was in Princeton, FL, 19 miles south of Miami.

As an independent, Miami's weak-signalled WCIX-TV was able to concentrate on areas closer to home. As the new CBS O&O, it needed to find a way to break through to 1.2 million Broward County viewers.

The Miami ADI extends from the Florida Keys in the south up to the northern Broward County line, and from the Atlantic Ocean into the Everglades. Most of the population lives in communities hugging the Atlantic coastline. The antenna farm used by most of the local stations is almost dead center in the marketplace. WCIX-TV's transmitter site is approximately 30 miles south of the antenna farm, at the southern end of the ADI.

Florida's complicated weather adds its own little twist to the situation. Although many folks in the Ft. Lauderdale area can't pick up Miami's Channel 6, up at Bithlo, 30 miles east of Orlando, now the site of WCPX-TV's transmitter, it's a different story. According to Bob Diehl, chief engineer of WCPX-TV, on a warm summer night with thermal inversions, once WCPX-TV signs off, WCIX-TV can come blasting through the WCPX-TV demod.

All these factors have contributed to WCIX-TV's intentionally weak signal in Broward County, where approximately 1.2 million of the market's television viewers live. According to WCIX-TV's director of technical operations, Bernard Wimmers, the weak signal problem was complicated by "considerable powerline and FM interference." As an independent, WCIX-TV could concentrate on areas closer to home. As the new CBS O&O, it needed to find a way to break through to those 1.2 million viewers. And so a smart solution was born.

As CBS was preparing to take over WCIX-TV, Skinner Broadcasting was getting ready to put low-powered Channel 27, on the air in Ft. Lauderdale. At 300 feet, with an ERP of 70.3,

Channel 27 covers most of Broward County with excellent signal quality. A deal was struck, and Channel 27 became a full-time satellite of WCIX-TV, retransmitting the entire Channel 6 program schedule (not just CBS programming) into the northern end of the Miami market.

Channel 27's president J. Rodger Skinner told *Television Engineering*: "I know of no other situation like this in the country. This is unique; a full-power broadcaster working with a low-power broadcaster to cover an otherwise unavailable portion of a major market."

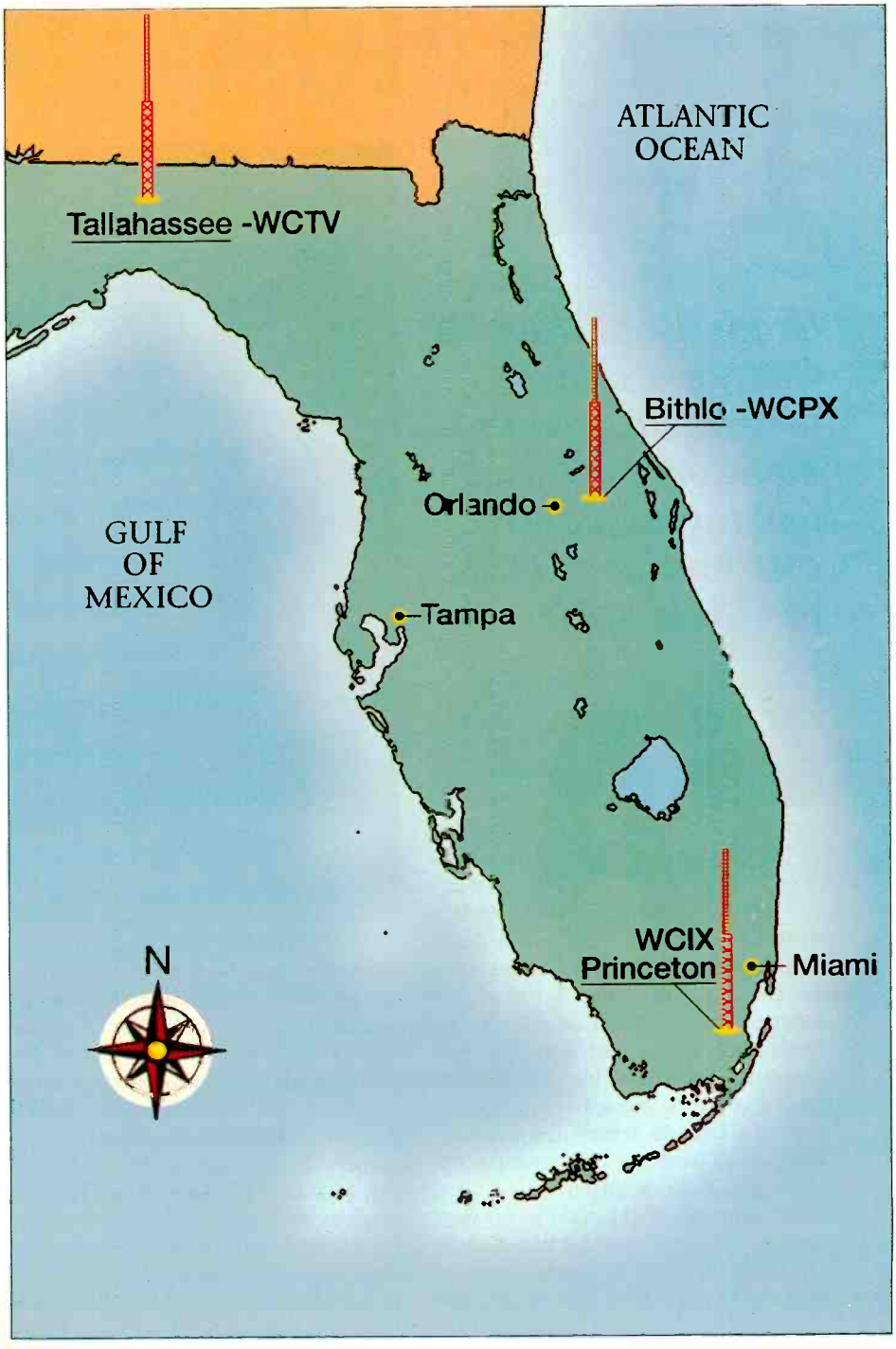
"This is unique; a full-power broadcaster working with a low-power broadcaster to cover an otherwise unavailable portion of a major market." —J. Skinner, Channel 27 president.

Channel 27 receives its "network" feed via microwave from WCIX-TV, and rebroadcasts using twin Emcee transmitters, with one configured as a "hot standby." Because of the excellent quality of the signal, most of the local cable companies have Channel 27 serve as their CBS outlet, rather than trying to pick up the weaker Channel 6 signal directly.

As a "smart solution," this one is working well. According to WCIX-TV's Wimmers, Channel 27 "has been extremely helpful [in providing coverage] in Broward County, with [WCIX-TV's] ratings improved considerably." The satellite has been so helpful that WCIX-TV has applied for its own low-power license, Channel 55, to fill in another viewing gap in the area.

For all concerned, it appears to be a good deal. While neither CBS nor Skinner would discuss the financial arrangement, Channel 27 clearly has solid programming and financial support. WCIX-TV has the additional audience it needs to compete effectively in the Miami market. And the folks in Broward County have crystal-clear over-the-air reception of "Dallas," "Murphy Brown" and "Rescue 911." ■

Florida has three Channel 6 assignments: Tallahassee, Orlando and Miami. The WCIX-TV tower is at the southern end of the Miami market.

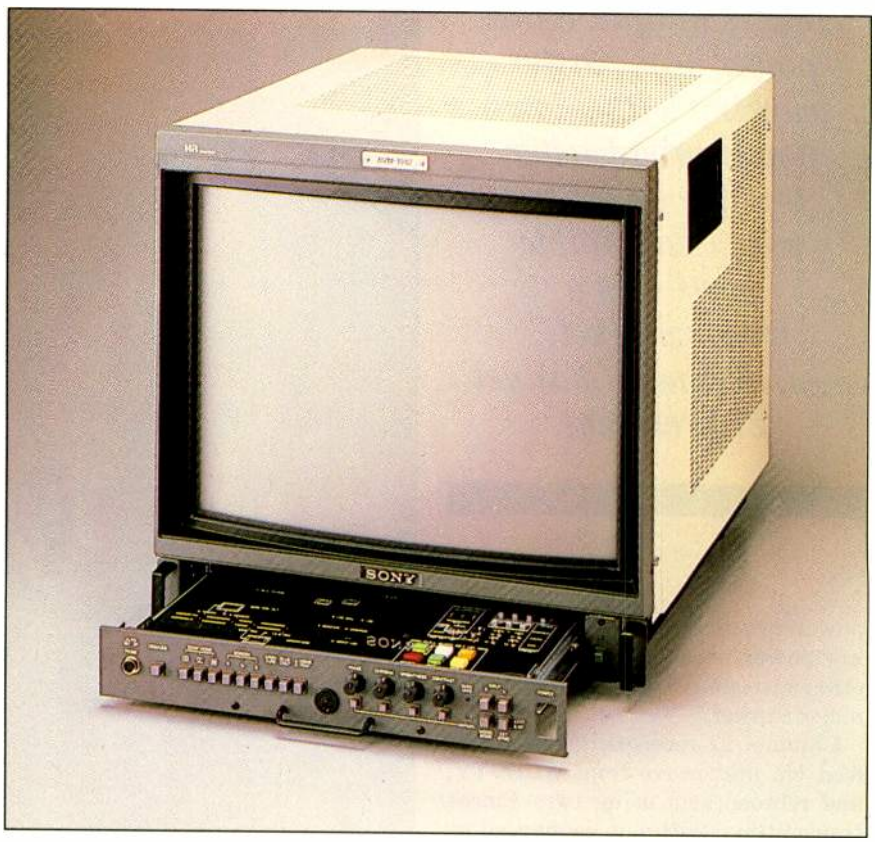


TOM CUSHWA

MONITORING MONITORS

By Claudia Kienzle

Grade 1 or Grade 2? Getting a clear picture on today's monitor scene means looking at features, cost and your own facility's needs.



Sony BVM-1912 19" color monitor features 900 lines of horizontal resolution.

"A monitor tells you the truth, or it is not performing the function of a monitor," says John McClimont, broadcast sales manager for Conrac. "A Grade 1 broadcast monitor has no sound or channel selector, but it can cost $10,000. And the picture can look terrible because you're going to see all the dropouts, the tape tension errors, the accumulated noise from the tape, and the appalling lack of resolution."

Selecting the right monitor for your facility requires careful research of the types available, their features and their cost. Also necessary is a clear understanding of how your monitors are used, be they "engineering" or "production" monitors. The usage determines the quality level necessary, and the price you pay.

"A Grade 1 monitor is one which will accept an encoded signal and display it as is without distorting the picture in any way, so the engineers can evaluate it," says Mark Kogure, product manager of display products for Sony. To qualify for Grade 1, monitors must meet the highest standards of performance and reliability possible with respect to phosphors, black-level stability, and color uniformity. Grade 1 broadcast monitors typically fall into the $6,000 to $10,000 price range.

Grade 1 monitors may be more "monitor" than you need or can afford. For many applications, such as production studio use, or for on-line and off-line editing, Grade 2 monitors

are a good alternative.

"Grade 2 monitors have lower resolution, lower convergence specifications, and many have consumer-grade phosphors," Sony's Kogure says. "Broadcasters use Grade 2 monitors to see the content of the picture." Grade 2 monitors, sometimes referred to as "professional," usually range in price from $1,000 to $3,000.

GRADE ONE

Grade 1 monitors must have SMPTE "C" phosphors coated on the picture tube. These phosphors are held to a tightly controlled tolerance, so that colors on monitor A will match colors on monitor B. "With a SMPTE C phosphor compound, a color will be reproduced accurately on several different monitors, regardless of whether they were purchased at different times," Conrac's McClimont says. In addition, monochrome Grade 1-equivalent monitors, such as the Conrac #2660-C15, will match the monochrome image produced on a SMPTE C color monitor because of the uniform D6500 phosphor compound.

Grade 1 monitors have a high stability in the black level, meaning that the monitor won't drift, which ensures an accurate reproduction of the picture every single time. In addition, all major manufacturers of Grade 1 monitors have some type of feedback system to evaluate the condition of the tube and compensate for it. ASACA/Shibasoku uses a Beam Detection Feedback System in all its monitors. Sony monitors have an Automatic Beam Current Feedback System (A.B.C.).

"The A.B.C. system on the Sony's BVM monitors guarantees color temperature stability by comparing the input to the cathode with the output of the kinescope. This comparative network checks for and compensates for any changes caused by the aging of the CRT," says John Studdert, Sony's manager of broadcast monitors.

Sony BVM 1910s are used at Editel/Chicago. "Consistency, reliability and accuracy are all very important to us," says Mark Adler, chief engineer at Editel. "The 1910 seems to hold up well over time, and seems to be pretty accurate. It doesn't need a lot of adjustment."

Grade 1 monitors usually deliver better than 500 lines of resolution. The pitch of the picture tube, measuring the spacing between the phosphor dots and the aperture openings of the metal grille, will be less than or equal to .32mm for 14" and less than or equal to .44mm for 20". The more phosphor dots there are on the screen, the better the resolution. Color uniformity and luminance must also meet high standards in order for monitors to match.

There are two basic types of CRTs being manufactured for Grade 1 monitors. The most basic difference between the two is that the in-line gun CRT has its three guns configured in a horizontal line, and the delta gun has three guns arranged in a triangle. The in-line gun, found now in most Grade 1 monitors, offers a high degree of resolution and reliability. According to McClimont, "The highest-resolution graphics monitors all have in-line guns." Conrac's Grade 1 color monitors, the 6545-19 (19") and 6545-13 (13"), both feature the in-line gun.

At Modern Videofilm in Los Angeles, ASACA/Shibasoku's delta-gun-equipped 19" CMM 20-11 color monitors are used in the telecine bays and quality-control areas of the facility. VP of engineering Al Hart says, "Our monitors are five years old, and we're facing a tough decision right now. The delta-gun tube is becoming less available because everyone is switching over to the in-line gun. We've looked at monitors with the in-line gun, however, and we have found that the apparent resolution is lower than that of the delta. The manufacturers assure us that new in-line tubes have the same resolution as delta tubes. However, in our applications, we can still see a difference."

MetroLight Studios: An Interactive Solution for Going from RGB to NTSC

RGB monitors are an essential tool for judging the color quality and detail of graphics, special effects or computer animation on video. They generate 1,000-plus lines of resolution, and 256 shades each of red, green and blue for a total of over 16 million hues. However, when the final product is ready for broadcast, it must be encoded to NTSC, meaning 500-plus lines of resolution and limited color possibilities. Making the video signal look as good in NTSC as it does in RGB requires making a number of comparisons, and then alterations to improve the look of the encoded signal.

At MetroLight Studios, a high-end computer animation facility in Los Angeles, a Sony BVM-1910 color monitor (RGB-/NTSC-switchable) is used in conjunction with IRIS-3130 and 4025TG Silicon Graphics workstations. The files, generated on the IRIS, are sent to an Abekas A60 which feeds a bank of NTSC monitors via Faroujda encoders. "Though we look at RGB during the modeling, choreography and test-rendering of the image, we really do have to look at it encoded in NTSC," says Tom McGovern, director of production for MetroLight. "Then we go back to the RGB monitor at the workstation and make the adjustments necessary to improve the picture."

Interactive software, designed in-house by MetroLight, helps compare the RGB and NTSC images and make color changes interactively. "With this system, the RGB image appears encoded in the lower left corner of the NTSC monitor. After you identify the color you want to change by grabbing it with the mouse, you fine-tune it by pushing sliders around until it's the color you want," McGovern says. "Then you just compute with that color." ■

S = Standard
O = Optional
N = Not Available
A = Available

GRADE ONE (Color)			PAL/SECAM	RGB Input(s)	Y/R – Y/B – Y Input(s)	Y/C S-VHS Input(s)	CCIR 601 4:2:2 D 1 Inputs Avail.	Underscan/Normal	Degaussing Auto/Manual	Blue Only/Pulse Cross	Internal/Ext. Sync./Switch	Color Temperature Preset at 6500 K	Lines of Horizontal Resolution	Rack-Mount Kit Avail.	Automatic Set-up	Beam Feedback System	Notes
ASACA/ SHIBASOKU	CM 93A1 CM 95A1	20″ 14″	O	S	S	N	N	S	S	S	S	S	600	A	O	S	Calibration Output Signal
BARCO	CVS 51/IH	20″	S	S	O	N	O	S	S	S	S	S	900	A	S	S	Remote/ Controllable Serial Interface
PANASONIC	AT H1900 AT H1300	19″ 13″	O	S	S	S	N	S	S	S	S	S	600	A	O	S	PAL Only
SONY	BVM 1910	19″	O	S	S	N	O	S	S	S	S	S	900	O	O	S	
IKEGAMI	9 SERIES	19″	N	O	O	N	O	S	S	S	S	S	700	A	N	S	Pulse Delay
CONRAC	6545-19 6545-13	19″ 13″	S	S	O	N	O	S	S	S	S	S	800	A	S	S	PAL Only
GRADE TWO (Color)																	
BARCO	AVM-37	15″	N	S	S	S	N	S	S	S	S	S	625	A	S	N	Only GR.2 With Auto Set-Up
JVC	VM-R190SU	19″	N	S	S	S	N	S	N	S	S	N	600	A	N	N	
SONY	PVM-1344Q PVM-1944Q	13″ 19″	N	S	S	S	N	S	S	S	S	N	600	A	N	S	SMPTE "C" Phos. + A.B.C. Feedbk
PANASONIC	BT-D1910Y	19″	N	S	O	S	N	S	S	S	S	N	550	A	N	N	
VIDEOTEK	AVM-13s	13″	N	N	N	S	N	S	S	S	S	N	450	A	N	N	

This chart is based on information supplied by the manufacturers at the time this article was prepared for publication. For updated specifications, contact manufacturers' reps or dealers.

GRADE TWO

"When it comes to buying big expensive monitors, there's no need (for them) outside your critical monitoring areas," says Karl Renwanz, VP of engineering and operations for WHDH-TV, Boston. Renwanz told us, "[We are] buying much less expensive monitors now than we once did. The revenue stream for television is nowhere near what it once was, and the growth isn't there anymore. You have to be more budget-conscious." WHDH-TV has 10 high-quality Ikegami TM20 monitors in the signal-monitoring areas and control rooms. Renwanz pointed out that his station has an additional 150 lower-cost monitors to serve the station's 21 edit bays and six multiformat machine rooms. He adds, "If you buy 15 high-quality monitors at six grand apiece, that's $100,000. I can't spend that kind of money on monitors!"

A wide range of monitors is available from JVC Professional Products. The JVC VM-R1905U 19″ color monitor offers NTSC, RGB analog, MII, Betacam and S-VHS inputs, and is rack-mountable. "The input selections on this monitor make it very versatile, and at 600-plus lines of resolution, it's perfect for the studio control room to complement your Grade 1 monitor," says JVC's Ellin Everson, manager of advertising and sales promotion. The JVC TM-R14U 14″ color monitor accepts NTSC and RGB analog inputs, has 400-plus lines of resolution, underscan, and is suitable for on-line editing. The JVC TM-2084U 19″ color monitor has 350 lines of resolution, and can be used for off-line editing or to take a feed from a camera.

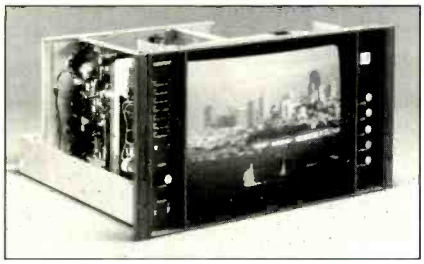
Panasonic markets the BT series of monitors through its Audio Visual Systems Group. These include the BT-D1910Y and the BT-S1900N. Both 19″ and 13″ versions accept composite NTSC, RGB, Super-VHS and Betacam inputs. Both monitors feature 550 lines of resolution, internal/external sync, pulse cross, underscan and blue-only, and are rack-mountable. Panasonic's Terry Gardner, marketing manager, Professional Video, Audio/Video Systems Group, told *Television Engineering*, "These monitors are ideal for studio use and

MONITORING MONITORS

Above: Barco AVM-22 10" and AVM-70 28" color monitors feature auto alignment using the Barco light probe (closeup). Below, top: Conrac 2660 RS15 color monitor; bottom: JVC VM-R140SU.

for dubbing and editing functions."

According to Eric Wahlberg, marketing manager for Videotek, his company's RM-8 8" is widely used by the major networks for ENG news gathering. The AC/DC portable color monitor is TV line- or VTR-selectable, rack-mountable, and delivers 280 lines of resolution. Standard features include video and audio inputs, and blue screen, with pulse cross and underscan available as options. Videotek's AVM-13sv 13" color monitor offers 450 lines of resolution, and two composite video, two audio and a Super VHS input. "The AVM-13sv is well-suited to off-line editing and VTR playback because it has audio, underscan and internal/external sync," says Wahlberg, adding, "The AVM-19s has all the same features, with the 19" screen making it a good choice for playback to large groups."



Jack Mann, marketing manager for Sony's professional display products, says his company's PVM 1342/1344Q and 1942/1944Q monitors are the only Grade 2 monitors offering SMPTE "C" phosphors. Mann told us the benefit to users is compatibility with higher-priced monitors, adding, "Quite often you have to match the picture on the professional monitor with the Grade 1 image, and if you have different phosphors, there'll be differences in the way the pictures look."

In addition to SMPTE "C" phosphors, the PVM 1942/44Q series also has Sony's A.B.C. feedback system.

MONITORING MONITORS

"When people buy higher-cost monitors, they may think about future replacement of the tube when it's worn," Mann says. "But when people look at Grade 2 display devices, they don't think about how long it's going to last or what it's going to look like in two years. With A.B.C. feedback technology, the life of the tube is extended."

According to Mike Faletti, NEC's product specialist, the NEC Pro Systems PM 1971 19″ color monitor "is not a high-resolution or Grade 1-quality monitor, but it will give you a decent picture of what's on cameras 1 and 2. It delivers 450 lines of resolution." Faletti adds that the monitor is a cost-effective choice for previewing a shot, for off-line editing, or for letting clients view production in progress. The NEC #PM-971, a 9″ version, is also available.

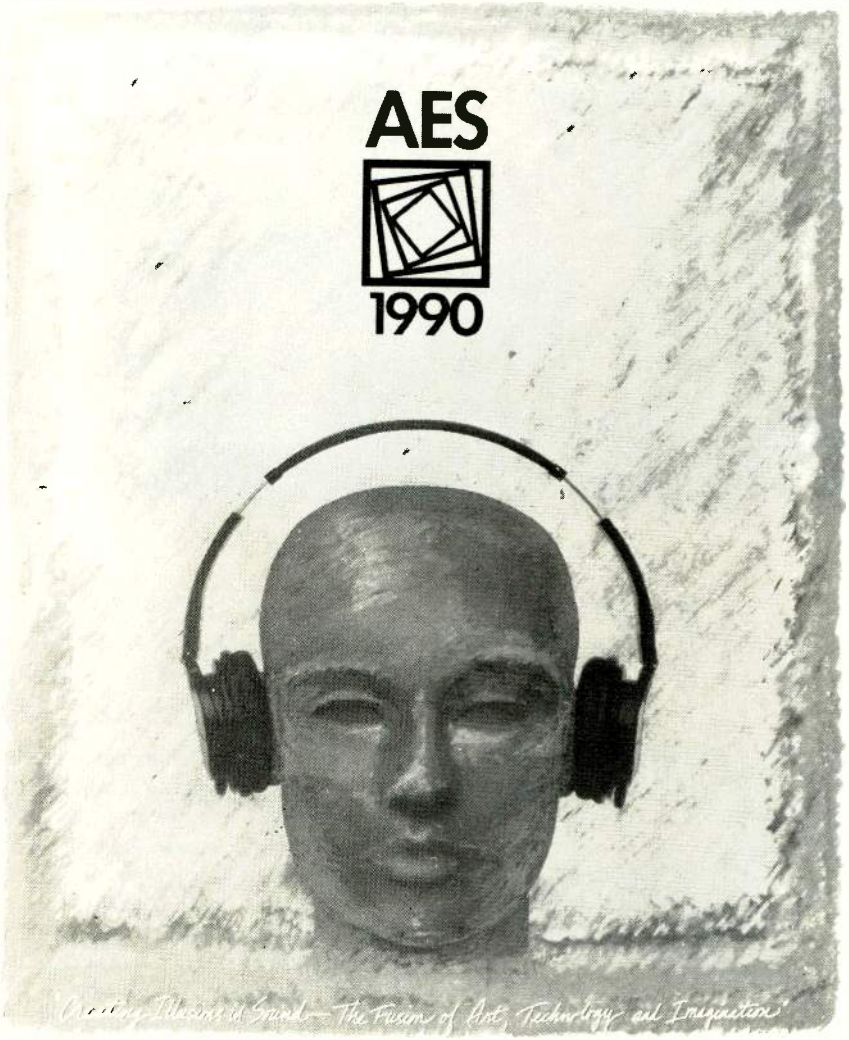
"The Ikegami 16 series [the TM1416R, a 14″ Grade 2 color monitor] has been very reliable for us," says Joe Paciorkowski, chief engineer at WMUR-TV, Manchester, NH. "You can take three or four of those Ikegamis and set them next to each other, and [the picture] looks the same. They're very consistent. And they don't break."

AUTO SETUP

Many of today's high-quality broadcast monitors offer automatic setup as a standard or optional feature. A monitor equipped with auto setup can be aligned in 30 seconds, even by a nontechnical person. The auto setup light probe, which attaches to the screen, reads the color temperature and feeds the information to a storage area in the monitor. If the new information differs from the pre-set color values, the setting is automatically adjusted. "Engineers manually adjust monitors for chroma and phase pots until they get the right relationship between the two," says Sony's Studdert. "Auto setup makes matching all the monitors in your facility a much easier task."

Using the probe and the "calibration output" of the ASACA/Shibasoku (auto setup) CM 93A1, you can align an auto setup monitor directly to a master monitor, even if the master does not have auto setup. "If you use the internal signal generator to set up each auto setup monitor independently, you're referencing it against itself, not against the monitor you consider to be your master," says ASACA's John Clemens, service engineer. "There are going to be variances between each of those different moni-

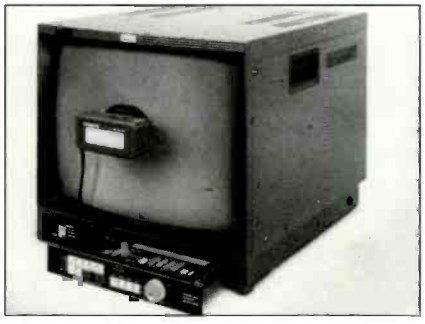
89TH AUDIO ENGINEERING SOCIETY CONVENTION



SEPTEMBER 21-25, 1990 ☐ LOS ANGELES, CALIFORNIA
EXHIBITS, TECHNICAL PAPERS, WORKSHOPS
TECHNICAL TOURS AND MUCH MORE——
At the LOS ANGELES CONVENTION CENTER
AUDIO ENGINEERING SOCIETY 60 E. 42nd Street, New York, NY 10165 ☐ (212) 661-8528 or (800) 541-7299 (except NY)

tors. So the only way to get a true match is to align the monitors directly to the calibration output of the master monitor."

Barco's CVS Series (Grade 1) monitor and AVM Series (Grade 2) monitors offer automatic setup as a standard feature. When customers began to demand auto setup, Barco took the opportunity to design a Grade 1 color monitor that could do more than just show pictures. The Barco CVS has a built-in, menu-driven character generator which displays the status of the monitor's settings, including input source identification. When used in conjunction with Barco's BVRS 16 x 16 routing switcher, the monitor will display the input/output configuration of that router. The monitor's auto setup, the input selectors, and the routing switcher can all be controlled by a Barco SMRC remote-control device.

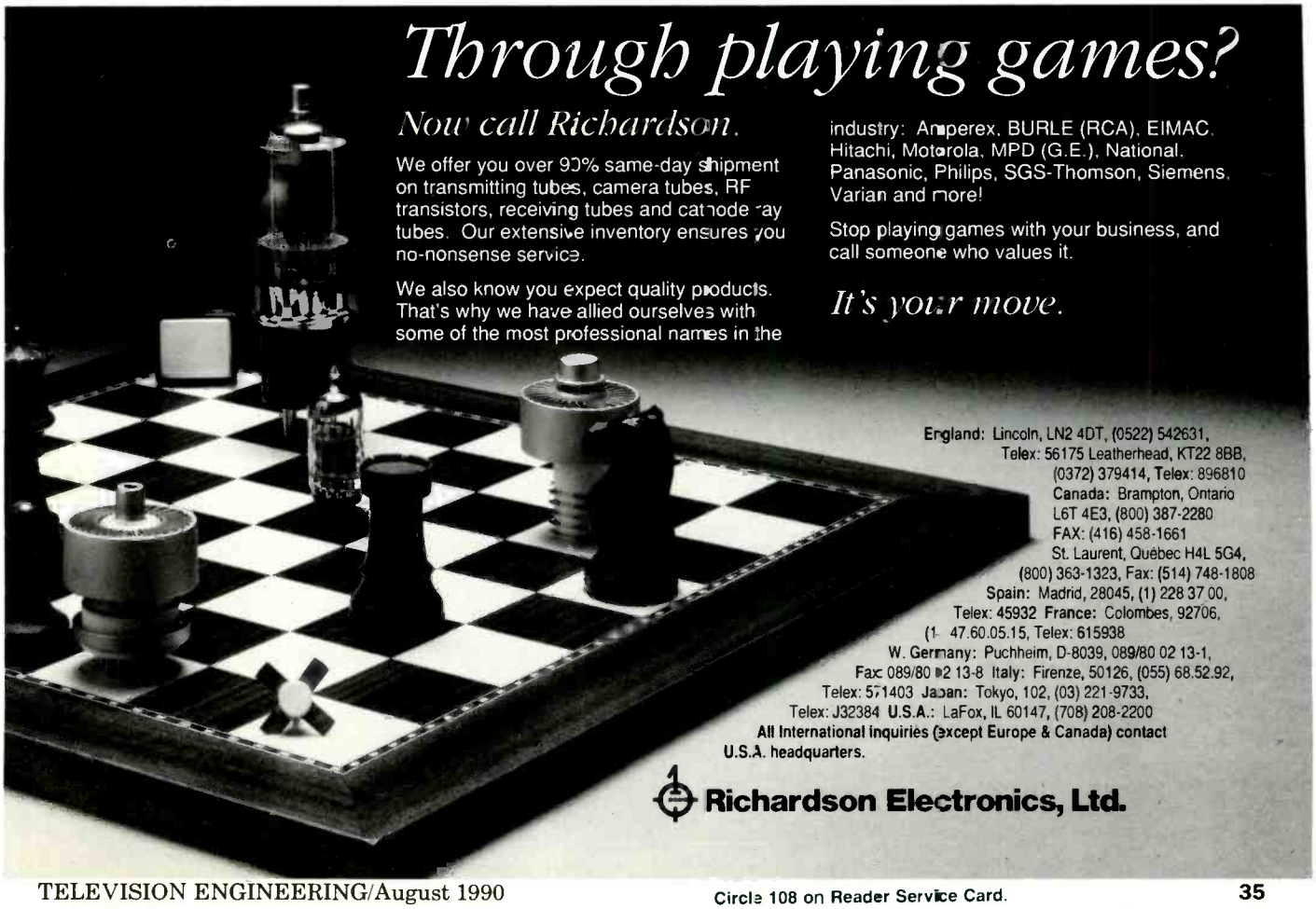


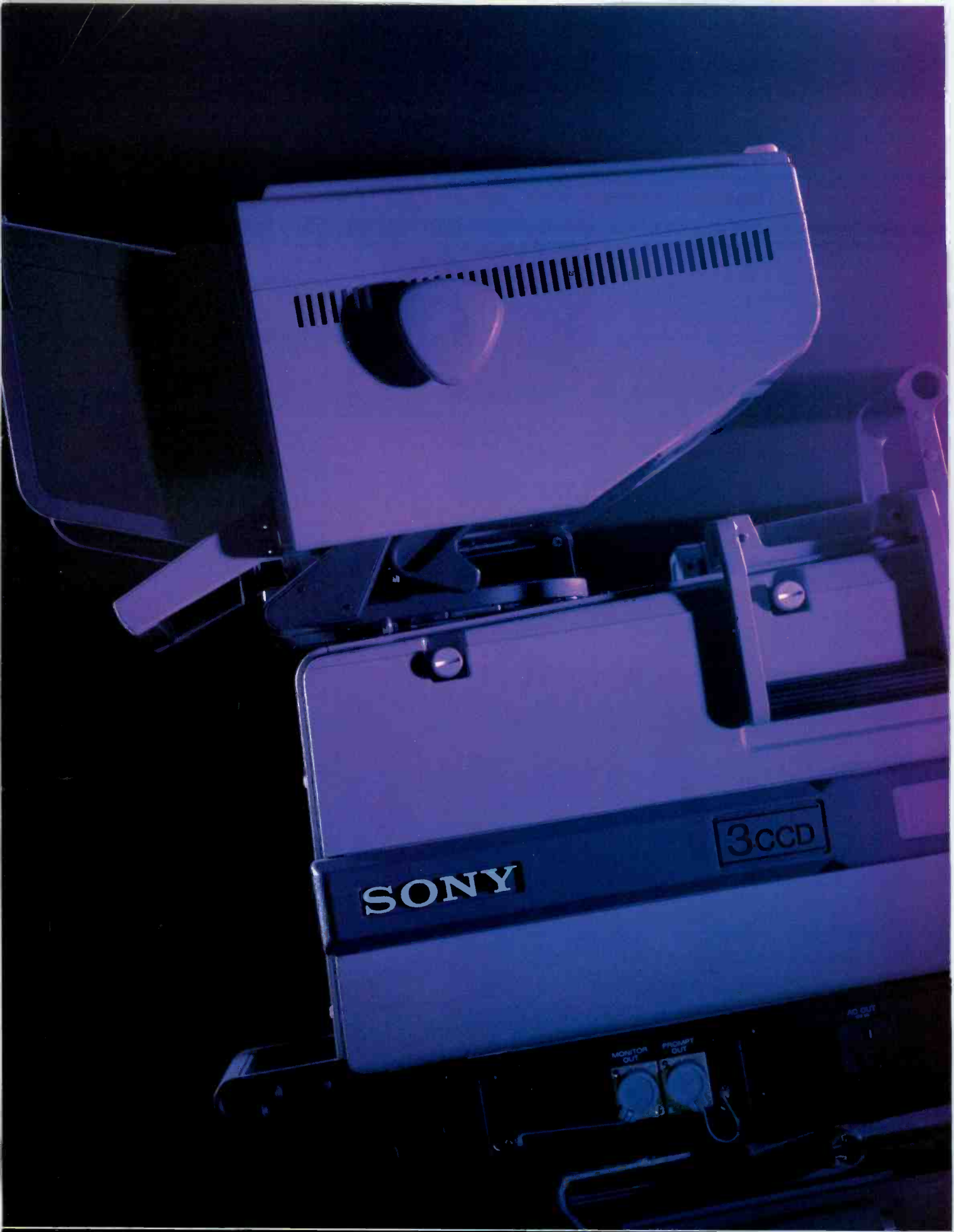
Ikegami Series 15 monitor features auto setup.

A microprocessor "center" provides circuitry boards for the power supply; for NTSC, PAL and SECAM standard inputs; for an RGB amplifier; for D-1 and D-2 (optional) boards; and for (optional) Betacam, Y/R-Y/B-Y or Y/I/Q inputs. Barco customers are able to convert their monitors to D-1 by installing D-1 boards without having to replace the monitor or send it back to Barco.

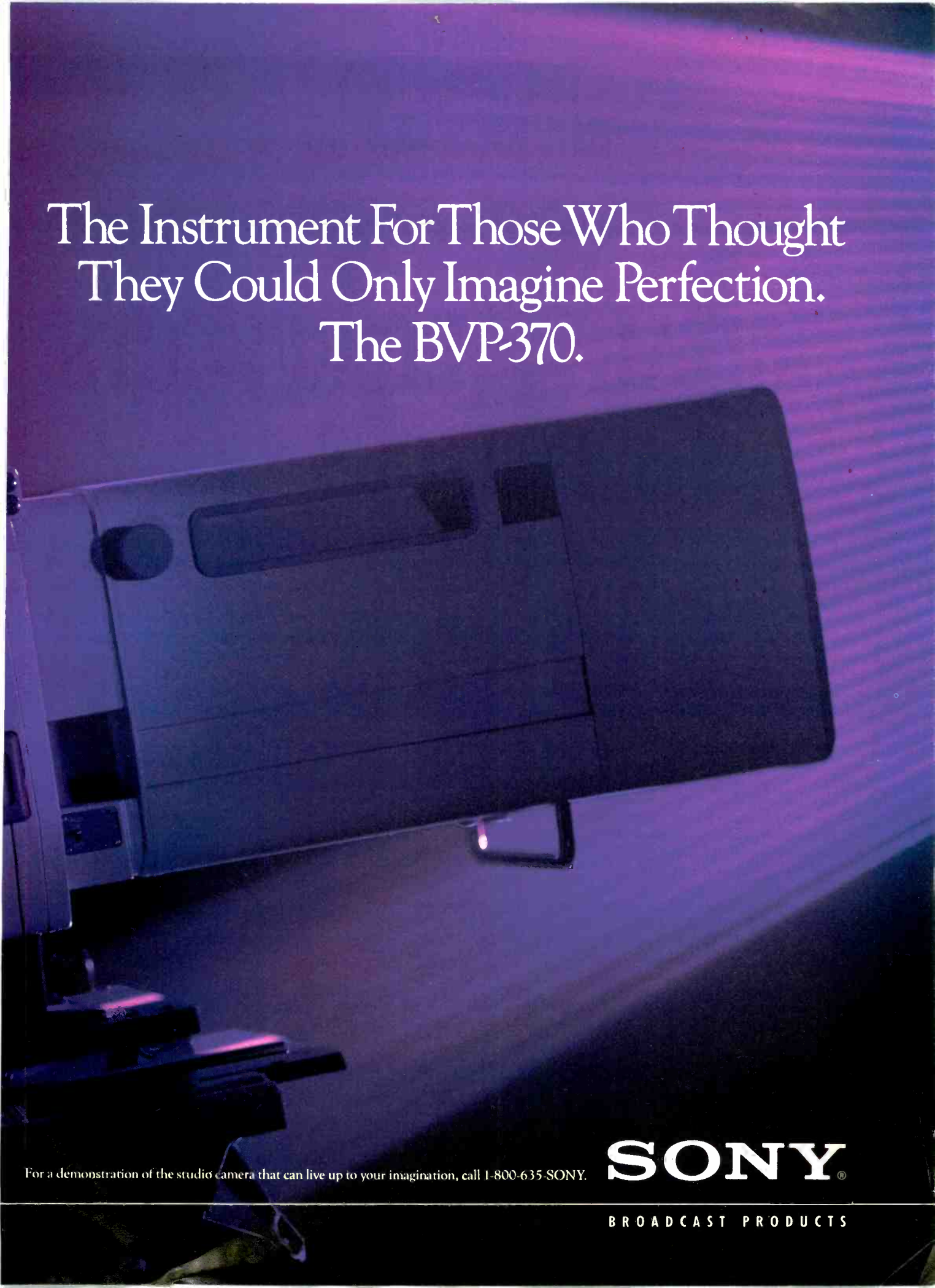
Ideally, when shopping around for a broadcast monitor, you should see a demonstration of the product, preferably using familiar program material. "Someone can put up a beautiful digital color pattern, but you don't know if some kind of processing was used to clean up any noise in the picture," says ASACA's Clemens. "You're looking for a monitor that will be as transparent to the signal as possible, while offering you the best picture quality. Specs are one thing, but seeing the live picture is really another." ■

Claudia Kienzle is a freelance writer and former television producer.





Sony Communications Products Company, 1600 Queen Anne Rd., Teaneck, NJ 07666. ©1990 Sony Corporation of America. Sony is a trademark of Sony.


The Instrument For Those Who Thought
They Could Only Imagine Perfection.
The BVP-370.
For a demonstration of the studio camera that can live up to your imagination, call 1-800-635-SONY.
SONY
BROADCAST PRODUCTS

NEW TECHNOLOGY BUYER'S GUIDE:

DIGITAL VIDEO EFFECTS DEVICES

Our continuing series of buyer's guides takes a peek at the dazzling capabilities of digital video effects devices.

By John F. King

When buying equipment, you may often start with the question, "What do we need?" Establishing needs is the safest way to start most shopping sprees. However, with today's computer chips making it possible to cram many capabilities into one box, you may want to do a little "window-shopping"—to see what some products can do. That way, you may discover more needs, or find out that you can cut costs on achieving current needs.

Digital effects devices fall into the "Let's-see-what-they-can-do" category. These devices provide much of the fun of working with video images, and, in the hands of an artistic and capable operator, can give your video transitions the special something to set your programming or productions apart from the competition. Browsing through the capabilities of these machines can set off many ideas—ideas you hadn't thought of before. And just as importantly, a "live tour" of products will help you cut through product hype to see exactly what you will get for your money.

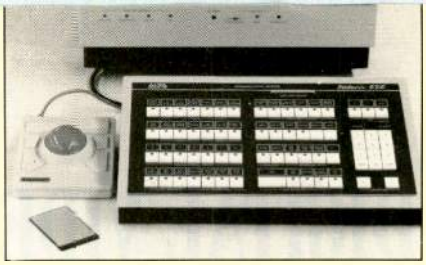
While this guide can provide a good starting point, the only way to know which device fits your needs is to get your hands on one—and play. Then, of course, there is your budget to consider. But, thanks again to the proliferation of those tiny, powerful computer chips, some of today's smaller DVEs can give you a lot of effects for not so much cash. If you need extremely sharp images with outstanding picture quality, though, you'll have to spring for a high-end box that processes pictures in the 4:4:4 or 4:4:4:4 digital domain and includes comb filtering.

The chart that accompanies this article compares 20 products in terms of 13 effects and three key features we chose to identify. When more than one product was offered by a maker, we focused on the two most recent—one from the high end and one from the low end. Effects and features were selected by Bill Owens, our technical editor, who provided a tremendous assist in sorting through the mosaic of product literature on DVEs. The chart does not list options for the devices named, nor do we have enough room to describe all of them. Therefore, it's wise to get in touch with the vendors to find out exactly what is available for each product.

SO MUCH TO CHOOSE . . . .

Shopping for a DVE can be a little like shopping for a car, with so many models and extra features among which to choose. Here, alphabetically by maker, are some of the options offered.

The Abekas A53-D, which can be configured for composite or component digital, has an optional plug-in



board that makes it possible to do warps. A Key Channel option, which provides a full-bandwidth, eight-bit key processor, is also available. At NAB, Abekas introduced corner pinning—which allows you to lift one corner of an image and pin it anywhere on the image—for the A53-D, as well as a Solid Builder option. Both capabilities are possible through SPORT, a package of applications that runs on an external computer.

Alta offers their familiar Pictoris with EDE-Pictoris keyboard upgrade, which adds strobe, rotation, four automatic transitions, five user presets and a datacard for external storage of effects.

The Ampex composite digital ADO-100 can include optional 3D effects, as well as a package of "Image Innovator" effects. There is a component digital ADO-100, as well as a component analog version. In addition, a CCIR-601 digital Video Interface upgrade kit can convert analog ADO-100s to component digital performance, and another kit will upgrade analog composite to analog component. Many options are offered for the high-end ADO-3000, including the Infinity multichannel effects package and the Digimatte key signal manipulator.

The CEL Maurice, which is actually a universal touch-screen controller, can be purchased with one to four channels. If you have a four-channel box, then the DVE software that comes standard with the Maurice allows you to achieve a cube effect, according to a CEL representative. In addition, a still-store box can be added as an option, and the DVE software will let you control the store.

Digital F/X's Composium is actually a workstation that combines DVE capabilities with painting, mixing, storage and editing. Configured as an edit suite, it can include many options and upgrades.

Component versus composite is an issue that the DSC Eclipse 5500CC addresses by providing users with a choice of composite or component inputs and outputs. Digital effects for the Eclipse can be enhanced with the EFE 1000 package, the KYM 200 key manipulation option, the PGT 100 page turning option, or the CVE 200 package of curving effects.

Options for the Echolab Tempest include key channel, digital chroma key, perspective, curving and an extender card.

Electrohome plans to soon have 3D- and graphics-capability upgrades for Jazz.

Hardware options for the For-A 740 are an A/B roll-editing controller and an audio switcher. Dual channel effects are possible for the MF-1000 through the addition of a plug-in board.

An interesting option for the Grass Valley DPM-100 is recursive memory. This extra acts like a still store for one frame, and is useful for montages; it also provides star trail and decay trail effects. A second channel is available, and the DPM-100 comes in several configurations, including component digital. GVG's Kaleidoscope can fit into the Kadenza digital picture processing system. A graphics option and a new Kurl option are available for the Kaleidoscope.

You can add a page-turn option to the Microtime Genesis Act 3, which is available in NTSC, analog PAL and digital PAL configurations. Microtime's newer machine, the Impact, apparently didn't need any optional features to make quite an impact at NAB. Microtime received 4,000 Impact inquiries at the conference, according to a company representative. The 3D Impact can do a three-source cube in a single pass, and, in real time, wrap a video image around an Impact-generated 3D object. Beta units for this midpriced DVE have been delivered, and production models are expected to ship in September.

The Pinnacle 3000E workstation is the NTSC version, and the 3001 is a PAL version. Besides effects possible through the Prizm software, the 3000 offers 32-bit painting and 3D modeling. A Series 40 option adds 3D animation, and a Series 20 option provides still storage. Without Prizm, effects are still possible through the Series 10 option. Pinnacle also markets the 2000 and 2100 series of workstations, which offer effects and can accept the Prizm software.

Quantel offers a Track and Trail package for its Encore HUD (HUD stands for "Heads-Up Display," a control vehicle used on Quantel's Paintbox) that allows various tracking and trailing effects.

Sony's DME-5000 can be combined with its DVS-8000 video switcher, which has a built-in DME control panel. Optional processors for the DME-5000 can make it a four-channel device. With two or more processors, the intersect effect—a calculation of the intersection between multiple pictures in 3D—is provided. An optional wipe pattern generator for the 5000 combines with the squeeze effect to produce a squeezy wipe. For the DME-9000 (also termed System G by Sony), an optional lighting effects package allows movement and adjustable luminance level for three lighting sources.

LITTLE COMPUTERS

Digital video effects devices continue to advance with technology, and are exhibiting the persuasive influence wrought by the personal computer. DVEs, at least on the low-end, are even beginning to look and feel more like PCs.

Consider image control. Most DVEs rely on a trackball, joystick or T-bar attached to a keyboard or panel. The T-bar (or fader bar) may seem the most natural control for broadcasters,

Top left: Sony DME-9000; top right: Pictoris EDE; bottom: screen from mouse-controlled Echolab Tempest.

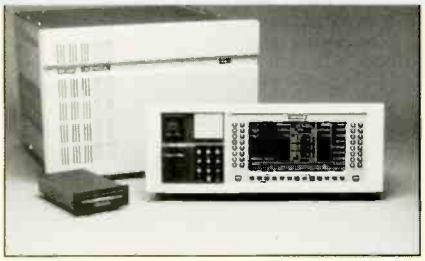
DIGITAL VIDEO EFFECTS DEVICES

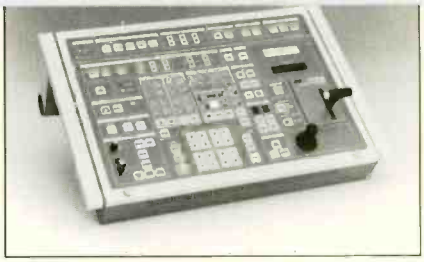
and the trackball and joystick are familiar enough to adjust to easily. Only real computer enthusiasts, it would seem, would want to use a mouse.

However, the DVE really is a picture-manipulation computer, and as its capabilities get more involved, it is breeding the mouse as a more effective means—of both image control and of input. Two of the machines we chart, the hi-end Sony DME-9000 and the mid-range Electrohome Tempest, use a mouse as the standard means of control and input.

Sony's DME-9000 mouse is used to form shapes, and to program shape animations. The Echolab Tempest mouse is used more the way a mouse is used on a personal computer. You can make menu selections with the mouse by positioning and clicking; the selections are bordered around the video image.

	EFFECTS						
Product	**3D**	**Background Color**	**Compression**	**Crop**	**Cube**	**Image Freeze**	**Multiple Pictures**
Abekas A53-D	●	●	●	●	●	●	●
Alta Pictoris			●	●		●	
Ampex ADO-100		●	●	●		●	
Ampex ADO-3000	●	●	●	●	●	●	●
CEL Maurice		●	●	●		●	●
Digital F/X Composium		●	●	●		●	●
DSC Illusion			●			●	●
DSC Eclipse	●		●	●		●	
Ecolab Tempest		●	●	●		●	●
Electrohome Jazz		●	●	●		●	
For-A MF-1000			●	●		●	●
For-A 740S			●			●	●
Grass Valley DPM-100			●	●			
Grass Valley Kaleidoscope	●		●	●		●	●
Microtime Genesis Act 3			●	●		●	
Microtime Impact	●	●	●	●	●	●	●
Pinnacle 3000 with Prizm	●	●	●	●		●	●
Quantel Encore HUD		●	●	●		●	●
Sony DME-5000	●	●	●	●		●	●
Sony DME-9000	●	●	●	●		●	●





Left: Ampex ADO-100; right: For-A MF-1000

Just as some PCs now offer a choice of keyboards, or pen or even voice input, some DVE makers offer options for input and image control. In addition to its full control panel with T-bar and 66 keys, the Abekas A53-D offers a minipanel with joystick and 30 keys. A pen and tablet may be used for input on Quantel's Encore HUD.

Storage is another area. While actual picture storage is a rare feature, virtually all DVEs allow storage of effects or a programmed sequence of effects. Some have internal storage and some, like the Tempest and Impact, use an external disk drive—the same as a computer. Tempest can store both user programs and video pictures (one frame per disk) on 3½-inch disks.

In addition, DVE upgrades are possible through software or through boards that plug into the DVE chassis —the same approach used for PCs. ■

EFFECTS						KEY FEATURES			
Perspective	Rotation	Solarization/ Posterization Mosaic	Strobe	Variable Aspect Ratio	Warp	A/B Switch	Mouse	Picture Storage	Reader Service No.
●	●	●	●	●		●			150
		●		●					151
●	●	●		●		●			152
●	●	●		●		●			153
●	●	●		●	●	●			154
●	●			●		●		●	155
		●	●	●		●			156
●	●	●	●			●			157
	●	●				●	●	●	158
	●	●		●		●			159
		●		●		●			160
		●	●			●			161
	●	●		●		●			162
●	●	●	●	●		●			163
●	●	●	●	●					164
●	●	●	●	●	●	●			165
●	●	●	●	●	●	●		●	166
●	●	●		●		●			167
	●	●				●			168
●	●	●	●	●		●	●	●	169

HOT TUBES

New technology promises lower operating costs for UHF stations.

By William A. Owens

At the end of the movie *UHF*, Weird Al Yankovic's mythical Channel 62 comes to life with awesome power, tower and antenna glowing ever brighter as the forces of good prevail in a rush of electrical energy, saving the station from the "bad guys," and from certain financial ruin.

Of course, that's in the movies. The folks who run real-life UHF stations must also contend with awesome power—awesome power bills, that is. But thanks to the evolution of UHF-tube technology, and some creative engineering, high UHF power costs may soon be a thing of the past, gone the way of two-inch quad tape and image orthicon cameras.

From the beginning of UHF broadcasting, operators have suffered the costs of high power consumption. Many of those original UHF stations sank into a quagmire of financial problems, compounded by the expensive power bills caused by that first generation of Klystron-based transmitters. Improved transmitter efficiency came slowly, rising from the 30-percent range, up through the 40- and 50-percent ranges. With the introduction of mod-anode pulsing, providing full available beam current only when needed, and with annular control electrodes permitting even greater operating efficiency, power consumption has been reduced considerably. Yet until recently, there has been no real alternative to power-hungry Klystron tubes.

Broadcasters today are evaluating new alternatives in UHF transmitter-tube technology, designed for increased efficiency. The two major marketplace contenders in this battle are the Multi-Stage Depressed Collector and the Klystrode. In addition, the old familiar Tetrode would appear to be poised for an expanded role in the energy-efficient world of the future. The first of these new-generation devices are already in the field, and saving operators' money.

MAJOR SAVINGS, MAJOR PLAYERS

In the battle for efficient tube business, the field of players is a small one, and the stakes well worth fighting for.

EEV Inc. has introduced its KSC3360 tube, a four-cavity depressed-collector Klystron, and what it is calling the IOT7360 Inductive Output Tube. According to EEV's Mike Kirk, "The IOT is EEV's enhanced-technology implementation of the Klystrode concept."

Philips Components will shortly be delivering its first PDC tubes to WNUV-TV, Channel 54, Baltimore, MD. Brown Beezer, product engineer at Philips (Amperex), says the PDC, a four-cavity depressed-collector tube, is plug-compatible with the Eimac MSDC.

Thomson-CSF Electron Tubes and Devices Corp. has introduced a 25 kw Tetrode tube, capable of up to 35 kw output in combined amplification service. Its first tubes are already in service at stations in Florida and New York.

Varian-EIMAC is providing both MSDC Klystron and Klystrode tubes. As its exclusive distribution arrangement with Comark ends this month, industry sources expect more widespread implementation of Klystrode technology.

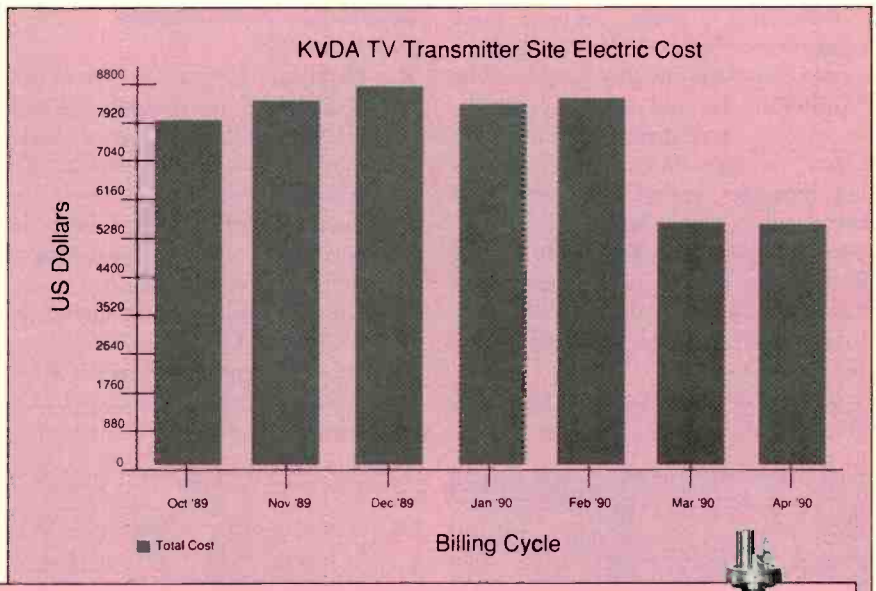
AN OLD FRIEND UPDATED

The most familiar of the "new-gener-

ation" tubes is the MSDC Klystron, a device different from the "old" Klystron only in the design of the collector assembly. Tom Dolan, Varian-EIMAC's Klystron sales manager, says, "The MSDC design came out of EIMAC's research for the NASA space program." Dolan told us that the MSDC technology "represents an excellent means of saving money for a new or existing UHF station."

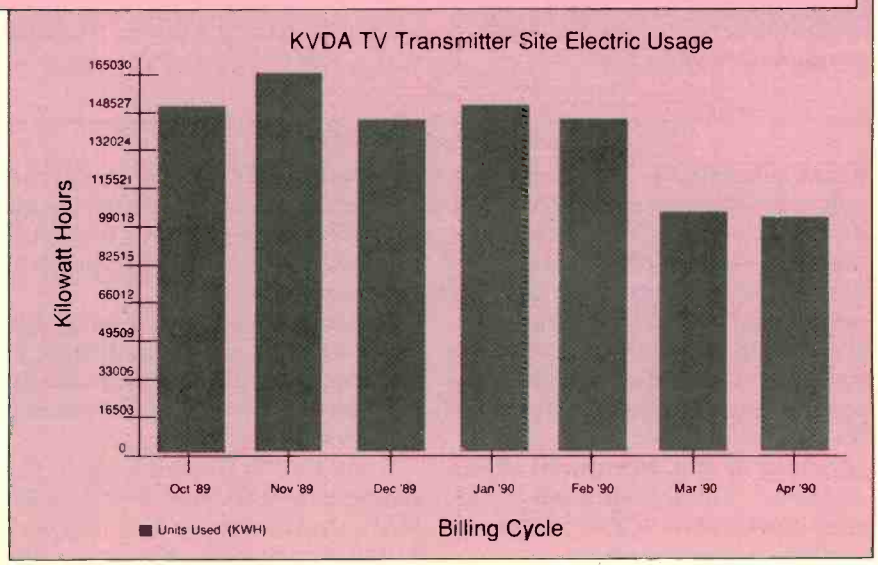
Stations now on the air with MSDC-equipped transmitters are KVDA-TV, Channel 60, a Telemundo affiliate in San Antonio, TX, and WNVT-TV, Channel 53, Falls Church, VA. Also on order are MSDC-equipped TVT transmitters for Home Shopping Network's WHSE-TV, Channel 68, New York City, and HSN affiliate KSLD, Channel 62, Riverside, CA.

KVDA-TV was a start-up station, going on-air for the first time in September 1989. To meet the KVDA-TV's air date, Varian-TVT provided a temporary, non-MSDC transmitter. In late February 1990, the new-generation "Vista MSDC" transmitter was placed on the air. This gave the station operational experience with both old- and new-type transmitters and tubes. A graphic display on these pages shows the cost of electric with the "old" TVT 1790/91, compared to the "new" TVT Vista MSDC-equipped transmitter.



Billing Cycle	Oct '89	Nov '89	Dec '89	Jan '90	Feb '90	Mar '90	Apr '90
Date From	10/17/90	11/15/90	12/18/90	1/18/90	2/16/90	3/19/90	4/17/90
Date To	11/15/90	12/18/90	1/18/90	2/16/90	3/19/90	4/17/90	5/17/90
Units Used (KWH)	156384	165024	143712	157536	144000	108288	102816
Demand (KW)	328	323	354	366	467	268	265
Total Cost	$8011.23	$8466.91	$8744.43	$8368.63	$8491.56	$5744.05	$5688.30
1790/91 Running	X	X	X	X	X		
Vista MSDC Running					X	X	X

EEV Inc. 60 kw water-cooled Inductive Output tube.



According to Roger Topping, chief engineer of KVDA-TV, the drop in power consumption was considerable. "Following the cut-over, we experienced a 32 percent reduction in power costs," he says. Even with the area's low average rate of five and a half cents per kilowatt hour, Topping reports, "The electric bill fell by almost $3,000 per month, while operation has been smooth as silk, with absolutely no off-air time due to transmitter problems."

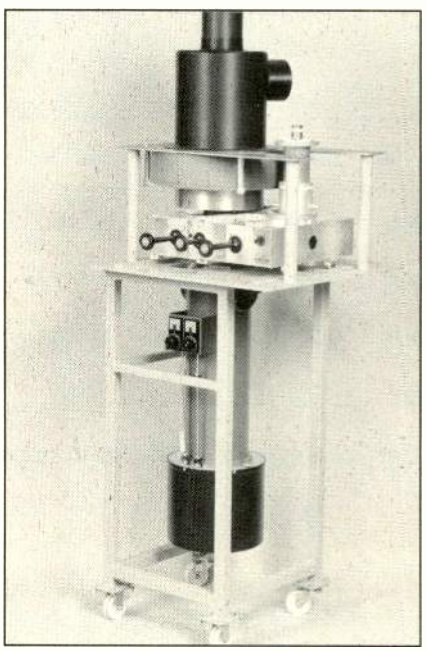
When asked what advice he would give engineers considering power-efficient transmission technology, Topping told *Television Engineering* that prospective buyers should "consider the entire power-consumption picture, not just the figures for the tube itself. Look at the total system's power needs, find out what it takes to run pumps, blowers and all the other support equipment." He also pointed out that one should not forget the cost and upkeep of power-conditioning equipment. Finally, one needs to consider the building HVAC system as another necessary expense.

Tetrode from Thomson-CSF.

TECHNOLOGY COMBINED FOR SAVINGS

The Klystrode represents a combination of Klystron and Tetrode technology. Visualize the accelerator anode, drift tube, and collector design of a Klystron married to the cathode and control-grid structure of a Tetrode, and you've got a pretty good idea of what a Klystrode is all about.

While the Klystrode was developed by Varian-EIMAC, the missionary work in spreading the gospel of Klystrode technology has been done by Comark, under an exclusive sales agreement with EIMAC. As of press time, at least 12 stations were on the air with Klystrode-equipped transmitters, with a like amount in contract or under construction.



Varian-EIMAC air-cooled Klystrode.

Development of the technology has been ongoing, with fine-tuning of tube design continuing as on-air experience has been gained and reliability proven.

According to George Badger, the Klystrode marketing manager for EIMAC, the tube design uses "the most reliable part of the Klystron—the power-dissipation part—and removes it from RF generation." Badger reports that many stations are further extending their operating efficiency through air cooling and combined amplification.

He told us that of the first dozen Klystrode-equipped transmitters in operation, one was air-cooled, and three were designed for multiplexed operation. Of those currently in contract or under construction, eight are air-cooled, and seven planned for multiplexed operation.

High power bills were the reason for selecting Klystrode technology at WTCI-TV, Channel 45, in Chattanooga, TN. Chief engineer Bryan Fuqua told *Television Engineering* that his monthly power bill for the PBS station's transmitter plant dropped by 30 percent after putting his new transmitter on-line. "We doubled our power, replacing an RCA 30 kw with the new Comark 60 kw; cut power consumption and gave our viewers a good clean signal."

Dennis Wallace, chief engineer of Home Shopping Network affiliate WIIB-TV, Channel 63, Bloomington, IN, says, "Running 24 hours a day, seven days a week required a reliable, trouble-free transmitter." WIIB-TV operates a two-Klystrode, 80 kw transmitter running in combined multiplexed configuration. "[I can] take one amplifier down for maintenance and only lose 3 db of signal while the second amplifier remains on the air," Wallace says. With over 12,000 hours on-air, his is the longest-running Klystrode-equipped transmitter in commercial TV service.

John Prather, VP of engineering at WHTJ-TV, Channel 41, in Charlottesville, VA, says his Klystrode-equipped unit "worked right out of the box." He adds, " I wanted a transmitter that would require little maintenance at WHTJ-TV's remote mountaintop transmitter site, while providing a savings in power consumption." Configured for air-cooled, multiplexed operation, WHTJ-TV's transmitter now has about 7,000

hours of air time.

And finally, George Castle, chief engineer of WFWA-TV, Channel 39, Fort Wayne, IN, told us that his dual 30 kw Klystrode-equipped transmitter, configured for combined amplification, performed "beyond all expectations."

HIGH-POWERED DARK HORSE

For the near-term future, the energy-saving solution for high-power UHF broadcasters would appear to be either the Klystrode or MSDC Klystron. But there is another possibility: the high-power UHF Tetrode. Tetrodes are, of course, the backbone of most VHF transmissions. While Tetrode operation on UHF frequencies has a long history of proven reliability, until recently, their UHF applications have been limited to low-power transmission, with power levels up to 10 kw. That limit is being pushed higher every day.

According to Andy Macchiaverna, sales manager, power-grid products for Thomson-CSF Electron Tubes and Devices Corp., the high-powered Tetrode future is just around the corner. Macchiaverna told *Television Engineering* that the Tetrode represents "proven, cost-effective technology." He expects to see "more broadcasters converting to multiplexed Tetrode operation for cost savings in both maintenance and power consumption." Thomson currently makes a 25 kw Tetrode, and Macchiaverna reports that the company will "respond to market demand for higher-powered, efficient broadcast devices."

A number of stations are already operating 25 kw Tetrode-based transmitters, including Fox affiliate WTLH-TV on Channel 49 in the Tallahassee, FL, market, and NBC affiliate WICZ-TV, Channel 40, in Binghamton, NY. Both stations utilize 25 kw Tetrodes in combined amplification (multiplexed) transmitters from Acrodyne Industries, Inc. Joesph Wozniak, sales and marketing manager for Acrodyne, says, "Most broadcasters are looking to save money, both in terms of purchase price and operational expenses. The initial cost, the power efficiency, and the solid-state reliability are prime reasons for broadcasters to look at new technology." Wozniak also notes, "I expect to see Tetrodes at higher power levels available in the not-too-distant future."

Gino Ricciardelli, VP of engineering at NBC affiliate WICZ-TV, Channel 40, Binghamton, NY, says, " I looked at proposed six- to eight-percent increases in my power rate next year, and decided to find a more economical means of transmission." His solution was a Tetrode-equipped Acrodyne, which generates slightly more power than the station's old RCA TTU-30 transmitter, now used only for back-up service. According to Ricciardelli, his power bill "dropped by 40 percent after cutting over to the new transmitter."

TOUGH CHOICES

It is almost impossible to make an objective comparison of the competing technology. If one were purchasing new studio cameras, evaluation would be quite simple; stage a shoot-out. Bring the competitors into the studio, under the same conditions, and feed them into the same monitoring equipment. You buy the one that looks better.

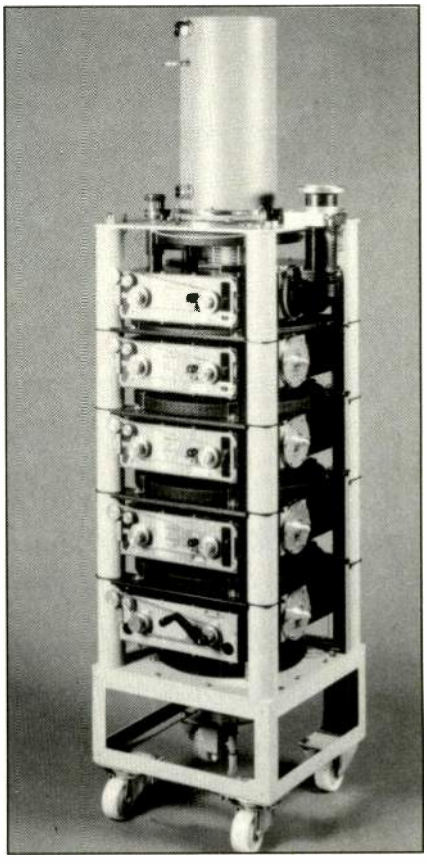
It's not quite the same with transmitter tubes. You can't just pop one in a socket for a few hours and see how it performs. If you're considering a conversion from old technology to new, be it MSDC, Klystrode or Tetrode, you're talking about serious changes, not just a trolley swap. There's really no way of making a comparison test in your own facility.

The manufacturers are quite helpful in this regard, each one providing tons of test data and comparison specs. With a little mathematics, a slide rule or maybe a calculator, you'll find that whatever new technology you chose will pay for itself in reduced power bills.

In preparing this article, we found a great group of engineers out there, guys happy to talk about their experiences with this new generation of transmitter tubes. Off the record, some had, like most pioneers, a bumpy start. To their credit, manufacturers have done everything possible to get the new technology launched and off the ground.

While some proponents of HDTV expect UHF to be the cost saving transmission media, for the near term future, UHF broadcasters must maximize efficiency.

The folks in the UHF world are facing some interesting challenges in the next few years. As energy becomes increasingly expensive, and stations do everything possible to move more revenue down to the bottom line, the on-air operation must be more cost-effective. Efficient technology is now a necessity. ■



Five-cavity high-efficiency/high-gain ABC Klystron from Philips Components.

STATION EQUIPMENT BUYING 1990

Television Engineering *concludes its exclusive study of purchasing trends among TV stations. This month: the kinds of products they're buying.*

By Peter Caranicas

Even in slow years, such as this one, TV stations buy lots of equipment. Exclusive *Television Engineering* research indicates that hardware purchasing in 1990 is about even with last year's numbers, averaging about $621,000 per station.

Where is this money going? What types of equipment, and how much of each type, are stations buying this year? Are they investing in digital recording? Do they expect HDTV to enter their business any time soon?

To answer these and other questions, *Television Engineering* commissioned a scientific survey of TV station spending patterns on hardware, contacting by phone a random sample of 245 buying sites (see box on "Methodology"). We are presenting the results of this exclusive study in a series of three articles.

In May, Part I ("The Decision-Makers") analyzed the key role of station engineers and others in deciding what equipment to buy. In July, Part II ("Budgets") compared the equipment purchasing budgets of stations of different sizes for the years 1988, 1989 and 1990.

This month, Part Three examines 1990 buying intentions for 14 specific categories of equipment. At each station contacted, we asked the principal equipment-purchasing decision-maker—most often the chief engineer—whether his station would "certainly, very probably, probably or probably not" buy at least one item from each of 14 product categories (see Chart 1).

The respondent gave highly detailed answers to these questions. For the purposes of presenting the information in the limited space available here, the answers "certainly," "very probably" and "probably" are combined into the response "likely."

As Chart 1 indicates, VTRs are the item most likely to be purchased this year, followed closely by monitors and ENG cameras. Well over half of all stations intend to make purchases in each of these categories.

The popularity of VTR purchases begged the question of formats. Later in the survey, which consisted of well over 100 questions, we asked stations whether they plan to install digital VTRs this year or within the next two years.

Sixteen percent of all stations were planning such purchases in 1990, and 30% in the combined years 1990/91 (Chart 2). This number is even more striking in the larger markets, with 53% of stations in the 25 largest markets planning digital VTR purchases in 1990/91.

Those stations saying they would

purchase digital VTRs were further asked what digital format they were considering. Fully 86% said it was D-2. Only 5% characterized it as "D-3" or "half-inch digital," 2% said D-1, and 10% didn't know.

Those stations stating they *weren't* considering any digital-recorder purchases were asked why not. Almost two-thirds, or 63%, said digital is "too costly." Over one-third, or 36%, claimed there's "no use" or "no need" for digital recording. And 15% said they were already committed to other equipment and systems. Only 2% said they wouldn't purchase digital equipment because of incompatibility.

At the end of the survey, respondents were asked whether they thought "an over-the-air HDTV transmission system" was likely to be operating with in the next five years or within the next 10 years. While 38% felt such a system would be operating within five years, 84% felt it would be up within 10.

Naturally, the gut feeling of chief engineers isn't what will motivate the broadcast market to adopt HDTV. Questions of standards remain unresolved, and the economics of an individual station becoming involved in high-def remain questionable in all but the largest markets,where cash flow can support the required investment.

Nevertheless, the basic optimism of station chief engineers toward HDTV indicates a positive predisposition to the technology. This is a fertile ground for the growth of any potential system.

Future research to be conducted by *Television Engineering* will continue to monitor engineers' attitudes towards HDTV as part of our overall effort to gauge and predict purchasing patterns for all equipment. ■

Methodology

Television Engineering commissioned the TV research firm Frank N. Magid Associates to conduct an equipment-purchasing survey among television broadcasters in the nation's 150 largest markets. These stations broadcast to 96% of the U.S. population. Magid telephone interviewers reached a random sample of 245 stations in these markets, out of a total universe of 875 such stations. The resulting margin of error is plus or minus 5%, and the survey's findings are projectable to that entire universe of stations.

The researchers asked to speak to the person "most familiar with the station's technical equipment . . . and the purchasing of it." If that person was not available, they set a time to call back. Most of the respondents had engineering titles, with 69% being chief engineers or assistant chief engineers, and 14% directors or managers of engineering. Twenty percent of the respondents worked at stations in markets 1–25, 17% in markets 26–50, 31% in markets 51–100, and 23% in markets 101–150. Twenty-one percent were ABC affiliates, 22% were affiliated with CBS, 20% were affiliated with NBC, 13% were affiliated with Fox, and 23% were independent. ■

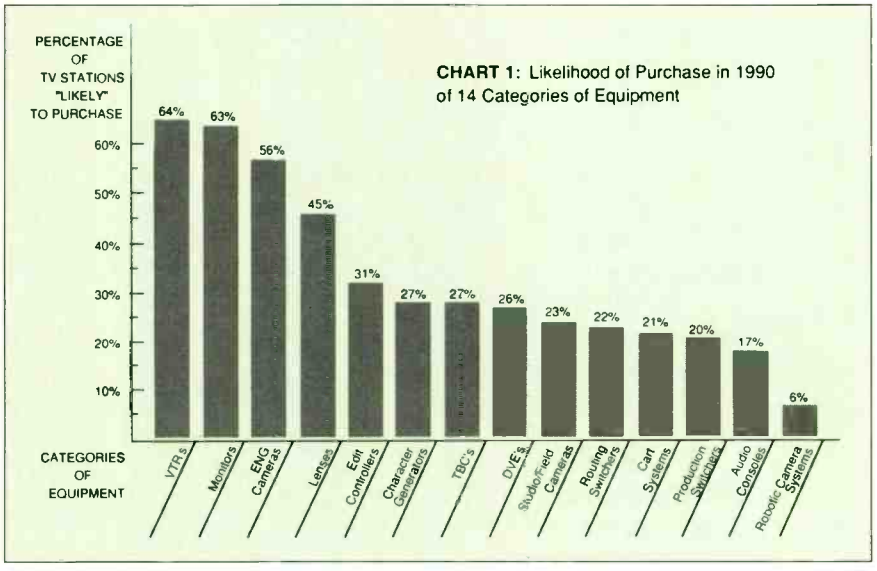


CHART 1: Likelihood of Purchase in 1990 of 14 Categories of Equipment

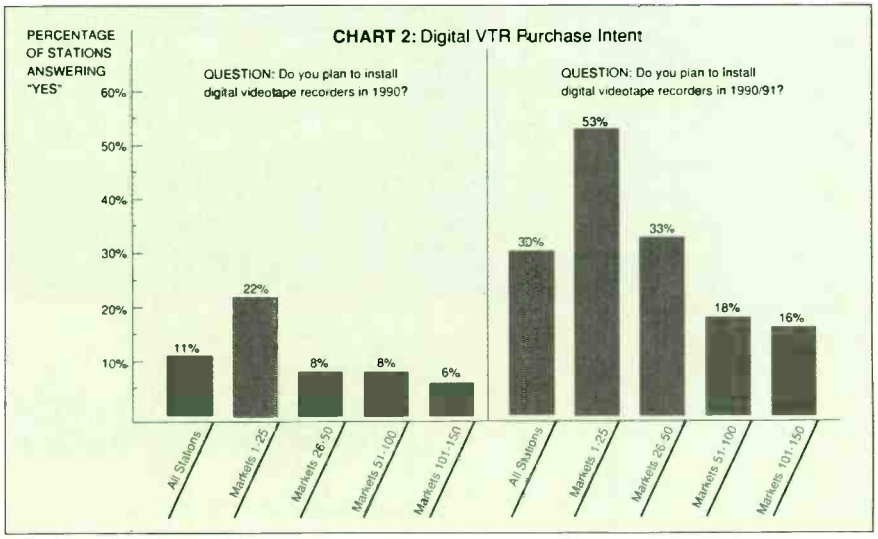


CHART 2: Digital VTR Purchase Intent

ANNOUNCING TELEVISION ENGINEERING'S FOURTH ANNUAL

EXCELLENCE IN ENGINEERING AWARDS

NOMINATIONS ARE NOW BEING ACCEPTED

Television Engineering is pleased to welcome nominations for the fourth annual Excellence in Engineering Awards, which recognize outstanding achievements and contributions made by organizations and individuals in the broadcast and teleproduction community.

This year we will present awards for achievement in the design or operation of Broadcast Television Stations, Teleproduction Facilities, and Mobile Production Trucks.

In addition, we will honor individuals who have made significant contributions to the field of Television Engineering.

For more information, or to nominate an organization or individual, contact Bill Owens, Technical Editor, **Television Engineering**, 401 Park Avenue South, New York, NY 10016, (212) 545-5169.

BMES
Television Engineering

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

New Products

This month, Television Engineering *completes its focus on new products uncrated at NAB.*

FUJINON HR22x18ES HDTV Zoom Lens

Introduced at NAB, this 18 mm–400 mm zoom lens has a maximum aperture of F1.8 constant to 350 mm and F2.0 at 400 mm. Including a built-in 2X range extender and a 5.5 MOD, the lens incorporates Fujinon's patented "floating-group" optics and a built-in microcomputer system with analog-to-digital and digital-to-analog converters. It can communicate B-G and R-G registration information directly to the camera; monitor focus, zoom, and iris positions; and offer real-time corrections for longitudinal and lateral chromatic aberrations and shading. The 26 kg HR22x18ES is about the same size as a conventional one-inch format studio lens, but the company engineers claim they have saved 50 percent in weight and 70 percent in size.

Reader Service #200

AMPEX VPR-200, VPR-250 and VPR-350 D-2 Studio VTRs

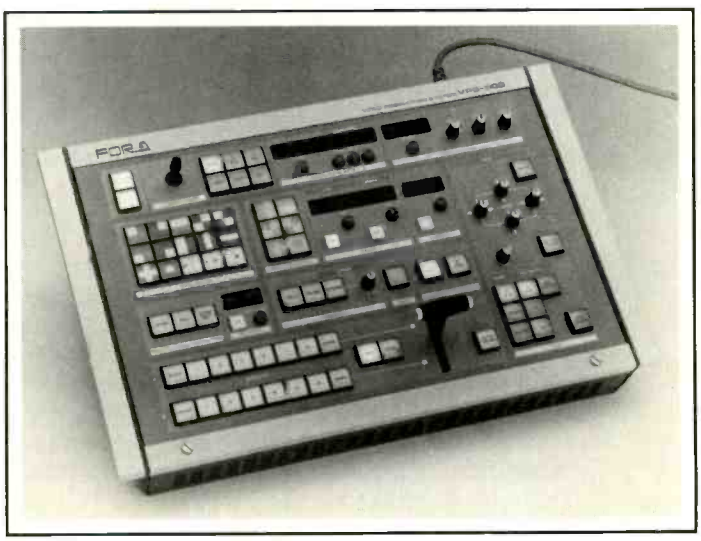
Ampex's new composite digital D-2 machines were introduced at NAB. The 200 supports all three D-2 cassette sizes with playtimes of up to 208 minutes; the 250 and 350 support small and medium cassettes with playtimes up to 94 minutes. Other features for the 200 and 250: full compatibility with the ACR-225 automated cassette system, including ACR-225 control for off-line automatic break tape generation; and a time compression/expansion mode, allowing for recovery of both video and helically recorded digital audio over a range of ± 15 percent. For the 350 and the earlier-released 300, 60 times play shuttle speed is reached in less than one second, enabling a 30-second spot to be re-cued in less than 1.5 seconds; playback lockup is 20 milliseconds. Other features: variable speed playback from -1 to +3 times play; and an animation mode that permits forward and reverse animation. Prices begin at $60,000.

Reader Service #201

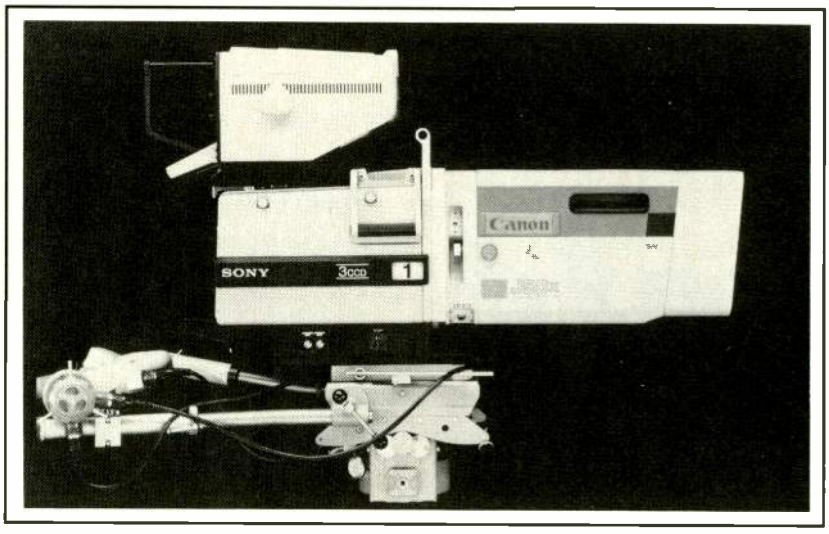
FOR-A VPS-500 Video Production System

Used in combination with FOR-A's A/B roll Editing Controller (EC-740) and Audio for Video Mixer (AFV-500), the VPS-500 provides switching, time-base correction (via two built-in, infinite-range TBCs that function independently), and digital-effects processing. Six Y/C358 or composite inputs are switch-selectable to permit use of S-VHS and U-Matic VTRs and cameras without a transcoder. Other features of the equipment, demonstrated at NAB: AB/effect transitions (12 wipe patterns and three digital slide patterns) generated by a digital Waveform processor; color borders with adjustable width (eight steps); three independent colorizers for background, border and DSK matte; FXM-500 EXTROL Effects Memory, which can store as many as 40 static commands and 20 dynamic effects; and downstream keying with two external key source inputs, one external key fill (RGB), and an internal color matte generator.

Reader Service #202



FOR-A



SONY

SONY BVP CCD Studio Cameras

Sony introduced two CCD studio cameras at NAB: the BVP-370, featuring the 768 Frame Interline Transfer (FIT) imager, providing 700 lines of horizontal resolution and increased dynamic range; and the BVP-270, utilizing the 768 Interline Transfer (IT) CCD imager. Both cameras incorporate Sony's Hole Accumulated Diode sensor to increase dynamic range and low dark current. The 370, designed for studio and O/B applications, and the 270, intended for general studio use, both provide f 5.6 at 2,000 lux, a signal-to-noise ratio of 62 dB, and an electronic shutter with multiple speeds, from 1/100 to 1/2000 seconds. Both also feature automatic setup of all color-balance aspects.

Reader Service #203

ASAHI RESEARCH ARC PRO-200 Videolight/ ARC NC-424 Battery Power Belt

Asahi Research Corp., a maker/supplier of video lights for camcorders, entered the professional market by introducing these two products at NAB. The light, delivering 200-watt illumination, features a glass diffuser for even distribution and a built-in IC-controlled whisper fan for cooling. The battery power belt, constructed of heavy-grain cowhide, provides 24-volt DC power to the Pro-200 for four ampere hours at the 24-volt setting, and 25–30 minutes at the 200-watt setting. Prices: light, $799.95; belt, $629.95.

Reader Service #204

AMPEX Component Digital ADO 100/Component Analog ADO 100

These two new versions of the ADO 100 digital effects system were showcased at NAB. The component digital version is designed for a variety of applications by broadcasters and post houses as a low-cost substitute for a full-featured, multi-channel effects system. The component analog version, announced at SMPTE '89 and shown at NAB for the first time, provides another compatibility option for ADO 100 users. The ADO 100 provides a full-range of 2-D effects, including X, Y and Z rotations; standard Digi-Matte Key Channel to fly irregularly-shaped objects, characters and logos; and optional perspective for 3-D effects. The system is designed to be integrated with an Ampex Vista switcher. ADO-100 prices start at under $20,000.

Reader Service #205

HARRIS 60-Kilowatt Wideband MSDC UHF Transmitter

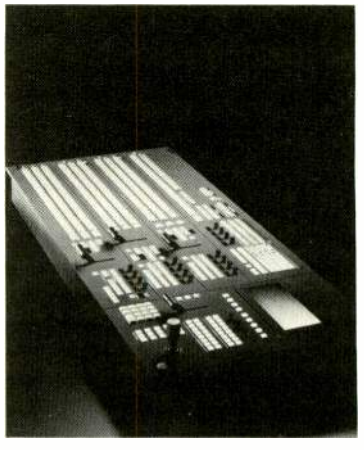
Shown at NAB, this unit uses external-cavity depressed-collector Klystrons, which the manufacturer claims offer nearly twice the AC-to-RF efficiency of pulsed external-cavity Klystron transmitters. The depressed-collector Klystron employs the same RF section and electron gun used in a standard wideband external-cavity Klystron, differing only in the collector stage. Other features: a low-voltage annular ring pulser; multiple high-voltage beam supplies with externally accessible tap switches to maximize transmitter on-air reliability; and a heat exchanger with redundant pumps and fans controlled by separate thermostats.

Reader Service #206

SONY DVS-8000(C) Digital Video Switcher

This NAB-showcased switcher, available in composite and component versions, has 24 primary inputs and two black and two background generators. It has 2.5 mix/effects banks and a downstream keyer. The system can be linked with Sony's DME-5000, and control DME-Wipe patterns that include slide, squeeze, split, turn, page turn and roll. The interface (included) links the 8000 with the multi-effects device, VTRs and editors.

Reader Service #207


SONY

PANASONIC

PANASONIC AJ-D350 Composite Digital VTR

Premiered at NAB as the first in Panasonic's series of ½-inch digital VTRs, the AJ-D350 uses metal tape and features an 8–14-channel coding system. Panasonic says the error-correction format of the AJ-D350 is four times more powerful than that of D-2 recording systems. Its audio recording system utilizes double error correction, field-shuffling audio sector allocation, and guardband editing. The guardband-editing technique first erases the original data, then generates a guardband at the in and out points. A new amorphous head design allows search speeds up to 100 times normal.

Reader Service #208

DV SWEDEN AB DVNR1000 High-Performance Video Noise Reducer

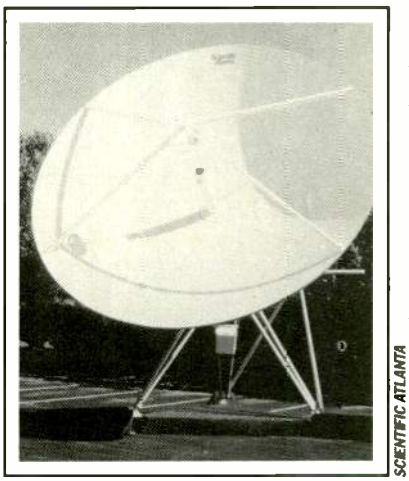
Announced at NAB, the DVNR1000 features up to 20 dB noise suppression; motion-adaptive processing; two-dimensional aperture correction; digital 4:2:2 processing format with 50/60 Hz, 10-bit signal chain; such I/O standards as CCIR 656 (D-1), RGB, YUV, PAL and NTSC, with analog interfaces as plug-in boards; and a flexible bus with six slots.

Reader Service #209

SCIENTIFIC-ATLANTA 8060 Satellite Antenna

Designed for mid-sized uplink and TVRO downlinks, the dual-reflector 8060 has 16 stretch-formed steel panels supported by a steel backing structure. Options for this NAB introduction include motorization, de-icing and lightning protection. The antenna may be used for transmission or reception, for Ku- or C-Band transmission, or domestic/international.

Reader Service #210



SCIENTIFIC ATLANTA

CANON J14a x 8.5B Internal Focusing Standard Zoom Lens

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

Reader Service #211

DYNAIR ELECTRONICS Series 3100 Modular Distribution Amplifiers

This NAB-introduced line of six-output, 30 MHz utility video and pulse-distribution amplifiers can compensate for up to 1,000 feet of Belden 8281 or equivalent cable. They are plug-compatible with the GVG 8500 series amplifiers and will be available in linear and regenative pulse-distribution versions. Prices start at $100 for the 1 × 6 VDA.

Reader Service #212

AMS INDUSTRIES AudioFile Plus

The major elements of this hard-disk editing system upgrade, exhibited at NAB, include: transputer technology to speed up operation; multiple inputs in both analog and digital; four-channel AES/EBY digital I/O; and read/write magneto optical backup/archive subsystem, featuring removable drives.

Reader Service #213

UNION CONNECTOR Modular Power Distribution System

The system, for studio or location work, consists of 100-, 200- and 400-Amp single or three-phase portable distribution boxes, with power ranging from 12 to 250 KVA. The boxes, designed to be carried by one man, contain from 12 to 42 circuit-breaker-protected output circuits.

Reader Service #214

CONVERGENCE PSI Parallel-Serial Interface

Designed for use with the ESC-185 and ESC-985 series edit controllers, PSI will convert a number of VTR series to RS-422 control without software changes. Among the series: KR-M800U, BR-S810/610, BR-S811/611, BR-8600U, PR-8800, VO-5850/5800, VPR-2B, AG-7500/A, AG-6500 and CR-8250. The self-contained PSI—introduced at NAB along with the 185 and 985 controllers—works without the setup limits (such as bump adjust and joystick voltage alignment) of past parallel interfaces.

Reader Service #215

OTARI Diskmix 3 Moving Faders

This upgrade to the Diskmix console automation system allows updates to begin as soon as the fader is touched; provides a seamless transition from update to stored mix; accommodates up to 128 console channels; and stores mixes on a hard disk at the end of each pass. Channel operating modes are selected through push buttons on a fader module, while wide-angle LEDs provide system monitoring. The system, introed at NAB, can be installed on any console that has separate fader panels. Prices begin at $36,900.

Reader Service #216

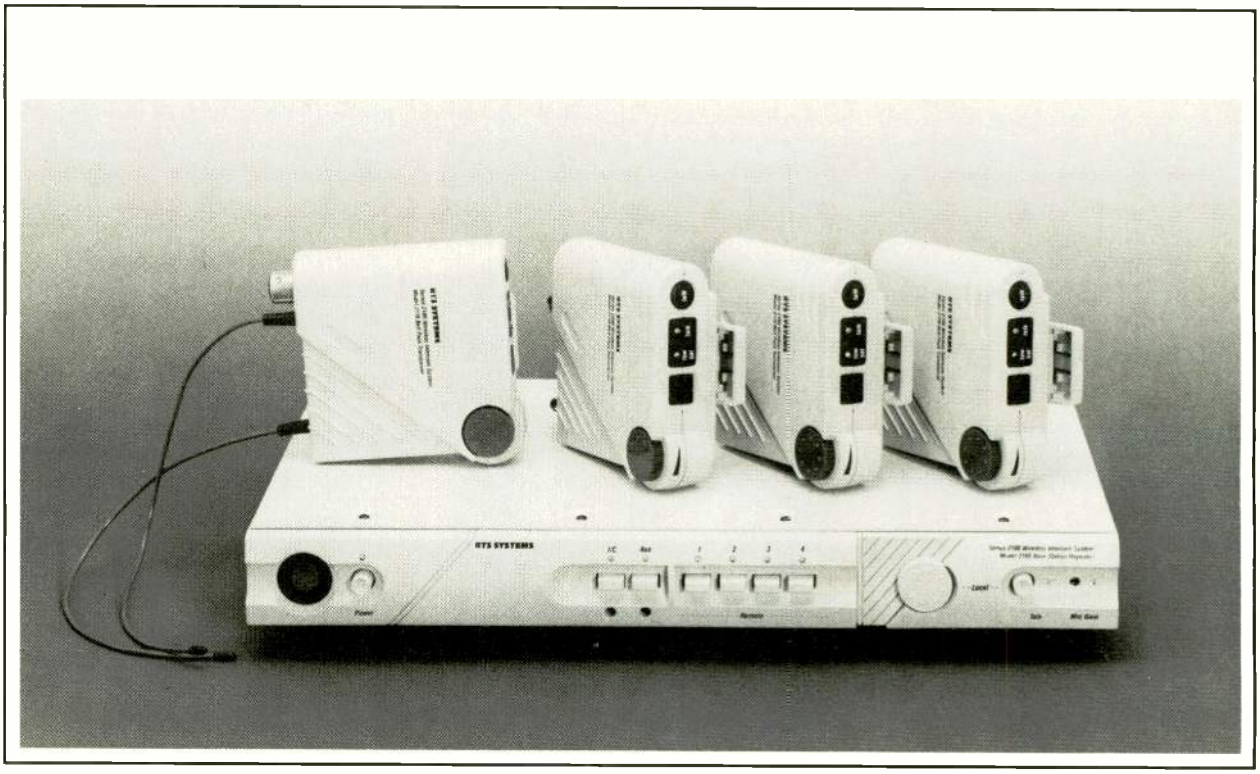
WSI NOWsat and NOWrad Services; NOWvision Upgrade

Two services and one software upgrade were introduced by WSI Corp. at NAB. The NOWsat automatically synchronized radar and satellite imagery service overlays NOWrad multisite radar composites on SUPERsat satellite imagery to show TV viewers the location of clouds and precipitation. NOWrad high-definition radar gradiates 150 colors (within NWS-specified guidelines) to bring out detail. Other NOWrad hi-def radar features: updates every 15 minutes; unlimited and uninterrupted access to 800 radar sites nationwide; 24 hours of archived imagery; full-color

RTS SYSTEMS 2100 Wireless Intercom System

Operating in the high-band VHF range between 150 and 216 MHz with a selection of 10 different frequencies, the 2100 series consists of the bay station (model 2105) and a belt pack (2110). Premiered at NAB, the system features full-duplex operation. Up to four portable stations per base are possible, and for larger systems, two base systems can be linked together for an eight-station network. The 2105, directly compatible with the TW intercom, supports the portables and interconnects with hard-wired intercoms. Prices: 2105, $1,495; 2110, $495.

Reader Service #217



RTS SYSTEMS

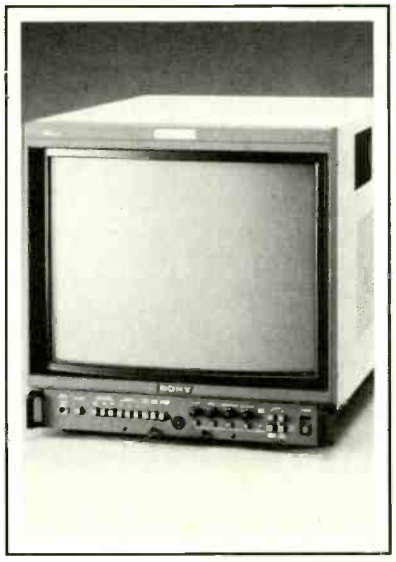
printouts of radar images; and animation capabilities.

The NOWvision weather-graphics display system now offers windows for quicker access to radar composites, and multiple data sources. NOWvision also provides selectable animation rates; 154-image looping capability; 256 colors; hard-disk storage; and NTSC output.

Reader Service #218

SONY BVM-1915 Monitor

Debuted at NAB, the 1915 offers 600 lines of resolution, with a convergence-free CRT that does not require special circuits for precise adjustments. It is equipped with video and component RGB inputs, and an RGB frequency response of 100 Hz to 6 MHz. According to Sony engineering data, non-linear distortion and dynamic gain is less than five percent, and differential variations between RGB screens are less than one percent over a 500-hour period. Maximum brightness is 60 fL.



SONY

Reader Service #222

BENCHER Copymate II Copystand

Designed for 35-millimeter and smaller video cameras, the Copymate II includes a 36-inch fluted aluminum column, light arms mounted in the rear, Quartz lights (the 16- by 20-inch grid baseboard is illuminated with two 300-watt quartz lamps offering 3,200 degrees K lighting), and an optional feature: Light Control (one switch lowers the illumination to "low" for setup and composing or to "high" for exposure.)

Reader Service #223

THOMSON TUBES ELECTRONIQUES TH 563, TH 558, TH 537 UHF TV Transmitter Tubes

On the market for some time, but presented at NAB, these three tubes meet a variety of output needs. The TH 563 features an output power of 35 kW peak-of-sync in separate video amplification and 25 kW peak-of-sync in common amplification. The 558 delivers output powers of 600 kW in the long and medium waves, and 500 kW in the short waveband. The 537 can handle 350 kW in LW and MW bands, and 300 kW in SW.

Reader Service #219

THOMSON TUBES ELECTRONIQUES TH 2426 Ku-Band Earth Station Klystron

This 14 GHz Klystron, shown at NAB and intended for satellite uplinks, has a minimum output power of 3 kW at saturation and an instantaneous bandwidth of 85 MHz. The tube features a permanent magnet beam confinement and forced air cooling.

Reader Service #220

THOMSON VIDEO EQUIPEMENT TTV 1542, Proscan Cameras

Touted as new products for NAB, these cameras serve advanced needs. The TTV 1542 CCD studio/OB camera employs ⅔-inch sensors with low fixed pattern noise and a dynamic lens correction. The Proscan camera, designed for EDTV/HDTV and studio/OB applications, uses the non-interlaced scanning principle, enlarged bandwidth, and 16/9 aspect ratio.

Reader Service #221

telcom research

Introducing the T102 SMPTE/EBU time code generator/reader that interfaces with any Personal Computer which has an RS-232C port. Conventional front panel hardware is replaced by the Electronic Front Panel™ program for easy access to the T102's features. (Requires EGA, VGA or 8514A video adapter)

A low cost, portable time code generator/reader, comes with comprehensive software for tapelogging, edit decision listing, and programming examples for custom applications.

Operates in drop, non-drop frame, 25 and 24 frames per second modes. Lock on to external video or internal crystal generator reference.

TIME CODE

Call Telcom Research for a complete line of full featured time code solutions.

(416) 681-2450

Circle 109 on Reader Service Card.

TIMELINE Lynx Software Modules

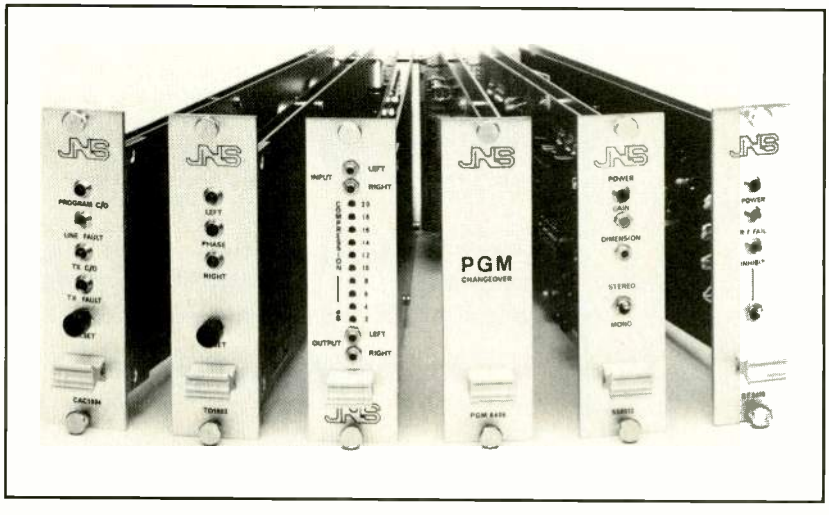
These three new Timeline software products debuted at NAB. The Lynx Time Code Module supports most makes and models of professional audio and video tape recorders; it allows additional operational features for tape synchronization and time-code interface. The Lynx Video Systems Interface (VSI) Module enables audio and video editing systems to control audio tape machines via serial emulation (the VSI module connects directly to the serial machine port of an editing computer). The Lynx VSI Film Module is a version of the Lynx Film Module which integrates sprocketed film machines into computerized A/V editing systems.

Reader Service #224

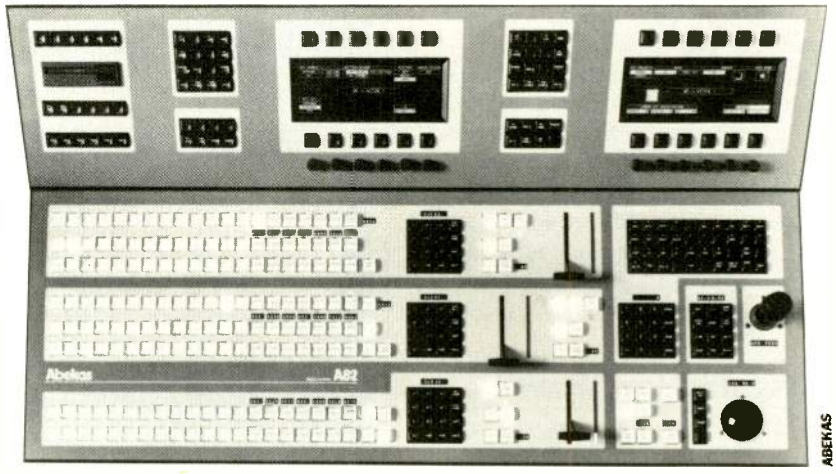
J.N.S. ELECTRONICS 8000 Series Modular Distribution System

Known as "The Frame," this 16-module system—shown at NAB—includes stereo/mono audio distribution amplifier; microphone-to-line amplifier; audio equalizer, with three bands and an adjustable 60 Hz notch filter for hum; a stereo audio limiter with a noise floor of -100 db; stereo validity generator and stereo validity detector; audio failure detector; and video distribution amplifier.

Reader Service #225



J.N.S. ELECTRONICS



ABEKAS

ABEKAS A82 Composite Digital Switcher

Labeled the first all-digital networking switcher by Abekas and spotlighted at NAB, this modular system has D-2 and analog compatibility, 32 primary inputs, and expandable Mix Effects architecture that allows additional switcher modules to be added as more compositing power is needed. Six full chassis and 18 control panels may be integrated on the network. Each Mix Effects system has two full-function digital keyers, using such advanced key-processing techniques as ASPIK (Adaptive Sub-Pixel Intelligent Keying). Other features include framestore capabilities in each keyer and wipe pattern generators with an extensive range of patterns and modifiers; a luminance compositing framestore per keyer; an effects memory system with 800 keyframe capacity; and a comprehensive wipe pattern generator.

Reader Service #226

BTS BRC-2000 Automation Switcher Controllers

This series of switcher controllers, introduced at NAB, provide PC-based control of the BTS TVS/TAS family of signal-distribution and routing switchers. Each system in the series works with a user-supplied IBM AT-compatible computer. The series includes the BRC-2000 Routing Switcher Configuration Editor, the BRC-2100 Routing Switcher Automation Controller, and the BRC-2200 Facility Automation Controller. Each provides support for 16-color CGA/EGA/VGA displays; database techniques that allow the storage of 250 entries per configuration or schedule; and a word-processor style "Schedule Editor" for creating and modifying configuration and schedule files.

Reader Service #227

SONY HMPX Hi8 Videotape

When used in equipment incorporating the Hi8 video system, the HMPX

produces 400-line images. The tape, presented at NAB, employs needle-shaped metal particles, 66 percent smaller than those used in standard 8 mm tape. In a move that Sony claims enhances output through the wavelength spectrum, the tape's uppermost particles are aligned upward.

Reader Service #228

GRASS VALLEY DSK-102 Control Panel

This rack-mounted control panel for the DSK-101 Linear Keyer was demonstrated at NAB and allows luminance and linear keying; four key source and four fill inputs with accumulative latching; key mix and fade-to-black accurate automatic transitions with pause mode; GPI input programming; key invert; and E-MEM System registers. Price: $4,680.

Reader Service #229

UTAH SCIENTIFIC Series 2 PVS Production Video Switcher

An NAB premier, this switcher includes such features as: matrix sizes to 1,280 × 1,280 with eight separately addressable levels; HDTV compatibility; a fully user-reprogrammable system with no down time; full matrix reconfiguration in one vertical interval; redundancy for all critical circuits; and full matrix salvo capability.

Reader Service #230

FOR-A MF-1000 Digital Image Processor

Announced at NAB, the MF-1000 features a built-in infinite-correction-range TBC, compatible with S-VHS, U-matic SP, and other half- and three-quarter-inch VTRs. Among its effects: compression, zoom, positioning, flip and tumble, wipe, mosaic, paint and 16 movement patterns. Its memory allows up to 18 effects sequences of up to 40 movements to be programmed and edited.

Reader Service #231

GLOBAL SUPPORT FOR GLOBAL COMMUNICATIONS

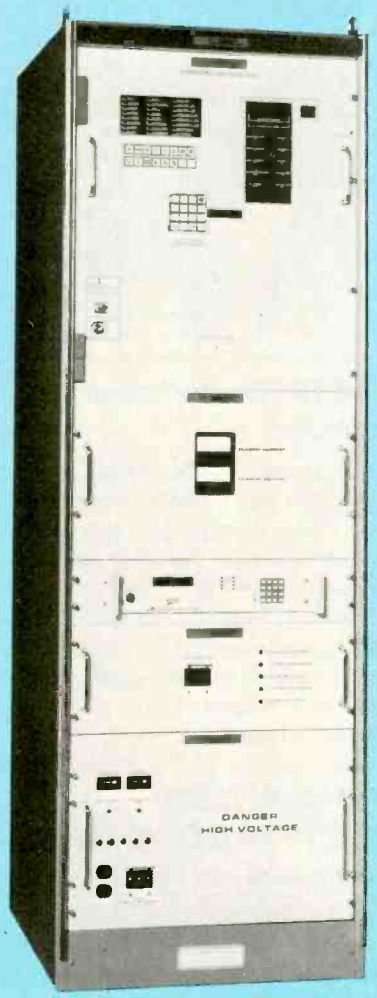
Microprocessor Controlled Klystron High Power Amplifiers

Field-proven and recognized for wide spectrum coverage and consistent, reliable output, MCL's Microprocessor Controlled (and Standard Logic) Klystron High Power Amplifiers (SATCOM C-Band and Ku-Band) are accepted and proven by communications experts worldwide. MCL Series 10000 Klystron Amplifiers are designed to withstand variable environmental and mechanical conditions and are engineered for minimum maintenance and repair.

MCL's SATCOM Series 10000 Amplifier Systems feature a host of standard equipment and options, including:

- full microprocessor (or CMOS Logic) system control panel
- modular assembly for rapid sub-assembly access
- Motorized Channel Selectors available
- RS232, RS422, IEEE488, or Contact Remote Interfaces
- electrical/mechanical "no-step" or SCR AC line regulator drawer
- Beam Supply on casters; all other assemblies on slides
- ruggedization for transportable applications
- and more!

MCL is the leader in the field of amplifiers and allied equipment for the field of satellite communications. MCL offers a complete line of products, at competitive prices, quality-tested and proven to provide *unexcelled performance.*



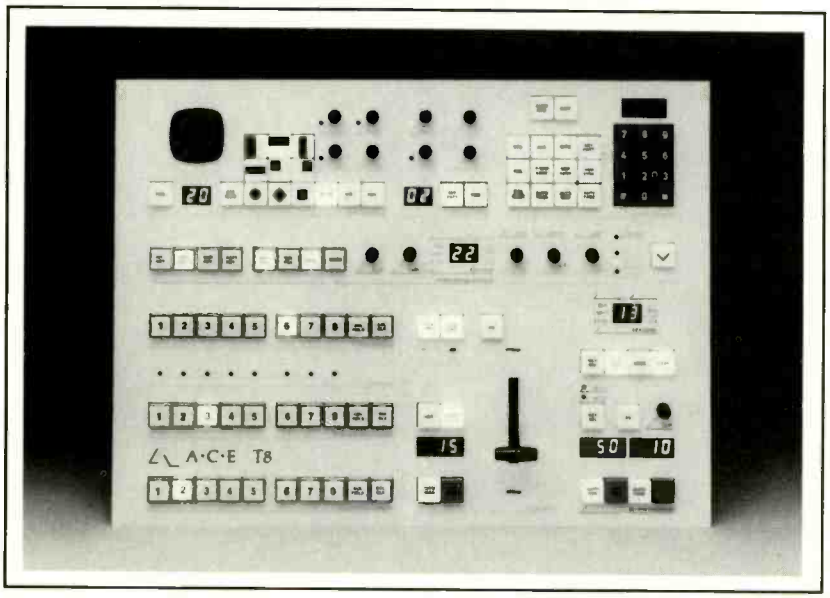
Microprocessor amplifier shown

Write or call MCL today and request your FREE copy of Brochure #1001 (Microprocessor Logic) or Brochure #9009 (Standard CMOS Logic) for details and technical specifications.

MCL, INC.
501 S. Woodcreek Road
Bolingbrook, IL 60440-4999
708-759-9500 TWX 910-683-1899
FAX: 708-754-5018

Manufacturers of TWT and Klystron Amplifiers for Satellite Communications.
24-Hour Sales and Technical Support for Immediate Service Worldwide.

Circle 110 on Reader Service Card.



ACE

ACE T8 Plus Production Switcher

This 10-input control panel, seen at NAB, has four buses and two keyers and offers 89 wipe patterns, including rotary and clock wipes; anti-aliased Linear Key capability; dual pattern generators; full-function linear downstream keyer; and a memory-controlled events system with a 64-event memory.
Reader Service #232

THOMSON TUBES ELECTRONIQUES TH 343 Radio Tube and Cavity

The TH 343 is a coaxial metal-ceramic tetrode with a gain of 17 dB and an operating frequency of up to 120 MHz. Displayed at NAB, it has Pyrobloc grids and is air-cooled.
Reader Service #233

ACCOM D-Bridge 221 NTSC Decoder

This NAB-demonstrated system uses a three-dimensional, frame-based technique to comb the chrominance from the luminance. When needed, the 221 can adapt from frame-comb to line-comb to bandpass modes for the pixels that need it. The decoder is designed especially for decoding Type C, U-Matic, and D-2 video into digital paint, graphics and effects systems.
Reader Service #234

NEW ENGLAND DIGITAL Sound Libraries

NED's four new sound libraries, debuted at NAB, are the string-based Prosonus Library, Vol. II (price: $4,950); the Valentino Sound Effects Library (price: $2,250), with fireworks, sneezing and harbor sounds; the Lucasfilm Sound Effects Library, Vol. I ($2,450), featuring animals, natural elements and machines; and the Sound Ideas Sound Effects Library, Series 3000 and 4000 (price: $1,750), with boinks, zings, pops and horror effects.
Reader Service #235

ACCOM D-BRIDGE 122 Digital Encoding System

This NAB-exhibited system features 10-bit resolution; D-1 input; RGB and analog component input option; D-2 and analog composite output; auto-switching between PAL and NTSC; sync pulse generator; key delay channel; and digital control of encoding parameters.
Reader Service #236

NEW ENGLAND DIGITAL NEDline Communications Network Software

Running on a Macintosh computer and either a 2,400- or 9,600-baud-rate modem with Connect MacNet software, the NAB-sampled NEDline provides updated software news, new product developments, e-mail, Associated Press or *Business Week* wires, and access to MCI Mail and MCI Fax. Connect cost: $75; NEDline annual subscription: $180.
Reader Service #237

SENNHEISER HD 450 Studio Headphone

The HD 450 Studio Stereo Headphone is a supra-aural Open-Aire

ACCOM

model designed for high load impedance. Employing neodymium ferrous magnets that provide a strong magnetic field, the headset uses all field-replaceable parts (driver elements, headband, ear cushions and cable), and is supplied with a steel-stranded 10-foot cable that ends in a strain-relief, quarter-inch phone plug. Frequency response: 20-20,000 Hz. Sensitivity (SPL @ 1 mW/1 kHz): 94 dB. Distortion (THD @ 94 dB SPL): one percent.
Reader Service #238

VIDEOMEDIA Micron Keyboard Editor

Micron, a frame-accurate editing system employing the V-LAN Universal Control Network, contains the functions of two V-LAN receivers, the keyboard and the master-control computer. Features: V-LAN distributed intelligence; SMPTE time code; upgradable to A/B roll; 250-event non-volatile memory; printer port; software downloadable drivers for most transports; sync roll; split edits; GPI interface; and serial and parallel drivers on the same board. Unveiled at NAB.
Reader Service #239

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

The plastic HK-120 modular headset adapter will connect any amplified double-plug headset to a standard carbon headset jack. The HK-106 BNC/XLR adapter, designed especially for temporary audio installations, allows the use of coaxial cable as an audio pair without the danger of the XLR becoming grounded to the shield of the cable. The HK-105 (-M for male; -F for female) adapter is comprised of a standard three-pin XLR connector and the TINI Q-G three-pin connector, providing for the adaptation of the standard XLR connector and cable to the new TINI Q-G connectors.
Reader Service #240

True Y/C Processing

AE61S

Time Base Corrector
with
Full Bandwidth, Y/C3.58/Composite
Input & Output for S-VHS, VHS,
U-Matic and 3.58 MHz sub-carrier feedback.
Optional pixel by pixel
Dropout Compensator

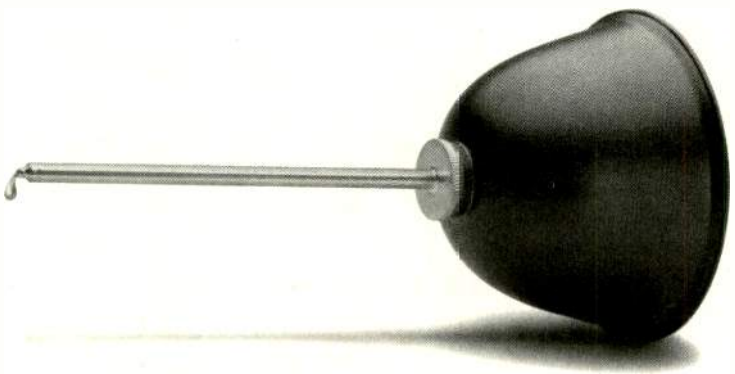
$2,200.00

AE61 with 3.58 MHz Sub-carrier feedback

$2,000.00

HOTRONIC, INC. 1875 S. Winchester Blvd. Campbell, CA 95008 408/378-3883

Circle 111 on Reader Service Card.



SERIES 5000.
THE ALL-IN-ONE ADDITIVE TO KEEP
YOUR BUSINESS RUNNING
LIKE A WELL-OILED MACHINE.

Fine tune your post production operations with the only fully integrated computerized facilities management system. From the receptionist to the shipping clerk, instantly shared information leads to improved customer service. That adds up to a better profit from your investment. Find out more about Series 5000, the solution that helps all parts of your business run smoother, faster, better.

SERIES 5000
From Interface
Computers and software for the business of Post Production.
Interface, 1233 20th Street, NW, Washington, D.C. 20036 Tel: 202-861-0500 FAX 202-296-4492

Circle 112 on Reader Service Card.

Conus moved heaven to Save the Earth

Tim Price
Director
Video Operations
Medialink, NY

When Tim Price of Medialink, the nation's largest distributor of public relations video, needed to coordinate a live broadcast of a 1,000-member youth orchestra/choir in Minneapolis and send it live to the United Nations in New York, he turned to Conus for technical support.

"The production was fantastic. Conus Satellite Services did everything just the way we wanted it. My staff people viewing the large screen at the U.N. told me the pictures looked fabulous and the sound was excellent."

Director, 4 cameras, sound, crew and satellite transmission. The production was picture perfect. And the General Assembly Hall, packed with 3,500 children from around the world, viewing the Kids for Saving Earth program, roared with a standing ovation when it was all done. That's corporate communications at its best.

At Conus, our business is based on one simple principle. We're here to make you look good. And that means we're going to do whatever it takes to produce and deliver a perfect program. Call Todd Hanks or Woody Hubbell at (612) 642-4679, and you can rest assured that you are making the right choice.

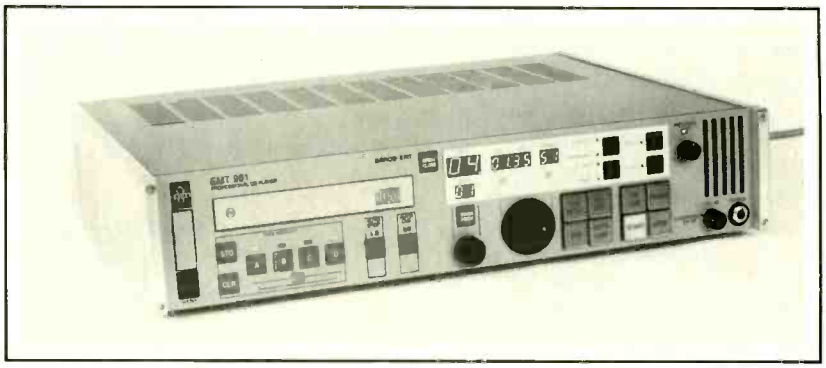
CONUS

Get hooked up with the right people.

Conus Satellite Services
3415 University Ave. • Minneapolis/St. Paul, MN 55414

TARGET *The international sponsor of Kids for Saving Earth™*
Kids for Saving Earth, P.O. Box 47247, Plymouth, MN 55447-0247

Circle 113 on Reader Service Card.



BARCO

BARCO EMT 981 CD Player

This professional unit, unveiled at NAB, features large, illuminated push-buttons, rotary controls and displays. Front-loading, the 981 can be integrated into automated programming systems. Operating functions include edit and on-line modes; cue; auto cue; auto stop; and time-indication modes. Disk drive functions allow access to any location on the disc with tracks, index and time; varispeed within a 10-percent range; and track selection via stepped selection dial. A take memory function stores up to four takes (current position to end of track); and audio outputs include line outputs with 16 bit/four times oversampling, digital filters and D/A converters.

Reader Service #241

SCIENTIFIC-ATLANTA 7530 Satellite Video Receiver

An NAB unveiling, the 7530 features six IF filters to accommodate various bandwidth requirements. It has four L-Band inputs for either C- or Ku-Band satellite frequencies; three synthesized audio subcarrier demodulators for stereo, SAP or other audio services; and user-configurable control and monitor ports.

Reader Service #242

COMARK COMMUNICATIONS CTT-U-30SKA, CTT-U-60SKA, CTT-U-70S UHF TV Transmitters

These 30, 60 and 70 kW transmitters were unveiled at NAB. The 30 kW CTT-U-30SKA and the 60 kW CTT-U-60SKA are both air-cooled, Klystrode-equipped and have a 'Magic Tee.' The 70 kW CTT-U-70S is five-cavity and water-cooled, and uses a Klystron with control cabinet.

Reader Service #243

MICRO COMMUNICATIONS Super Power Isolator

One of several Micro Communications products introduced at NAB, this SPI is designed for HDTV needs. It is a high-power waveguide or coaxial device that stabilizes RF system response and eliminates VSWR deviation, protecting the transmitter from reflections that degrade video performance.

Reader Service #244

CONIFER TELECOMMUNICATIONS Low-Noise Preamplifiers

At NAB, five models of low-noise, GaAs FET, 2.1–2.7 GHz preamplifiers were introduced by Conifer. The GaAs FETs were designed to enhance fringe-area reception, and can be used as microwave line amplifiers.

Reader Service #245

ADVERTISERS INDEX

Manufacturer	Page No.	Reader Service No.
AES-Audio Engineering Society	34	
Auditronics, Inc.	8	103
Barco, Inc.	Cvr. III	114
BTS Inc.	Cvr. IV	115
Conus Communications	60	113
EEV, Inc.	6	102
Hotronics, Inc.	59	111
Interface Video	59	112
MCL, Inc.	57	110
Nikon Inc.	Cvr. II	100
Nova Systems	23	106
Panasonic Broadcast	12-13	105
Richardson Electronics	35	108
Sony Broadcast Products Co.	4-5	
Sony Broadcast Products Co.	36-37	
Sony Tape	26-27	107
Telcom Research	55	109
Telos Systems	10	104
Vinten	3	101

SALES OFFICES

401 Park Avenue South, New York, NY 10016
212-545-5100 Fax-212-696-4215

Eastern States
401 Park Avenue South
New York, New York 10016
212-545-5165, 5164
Fax: 212-696-4215
William P. Dey
Pamela Vahter

Western States
6400 Hollis St. #12
Emeryville, CA 94608
415-653-3307
Fax: 415-653-5142
David Dunaway

Japan/Far East
5-24 Sanbancho
Chiyoda-ku, Tokyo, 102 Japan
(81-3) 234-2161 Telex: J28208
Fax: (81-3) 234-1143
Shoichi Maruyama

CLASSIFIED

How to Place A Classified Ad In Television Engineering

Please type ad and clearly indicate where text is to appear in Capital letters and lower case. All bold words must be underlined. There are 8 lines to the inch and approximately 25 CAPITAL and **bold** letters per line or 32 upper/lower case letters. **Rates:** $8 per line (4 line min.), $10 per line **bold** type, $10 border, $15 screen, $25 reverse, $25 blind P.O. box, $125 per inch display classified (artwork), $75 Professional Card (2 1/8" x 1"). Logos or display advertising must be camera ready (1 column width: 2 1/8", 2 column widths: 4 1/2", 3 column widths: 7"). Frequency discount rates available. Payment must accompany ad. DEADLINE is the 6th of the month, one month prior to the issue date. Call for more information.

Categories Available (check one):

___Business Opportunities
___Duplication/Conversion
___Employment Offered
___Employment Wanted
___Equipment for Sale
___Equipment Rental
___Equipment Wanted
___Maintenance & Engineering
___Parts & Accessories
___Services
___Teleprompting
___Training & Instruction
___Miscellaneous

I am paying by (check one): ___ Visa ___ MasterCard ___ American Express

Name on Card (Please print)_____

Card # _____ Expiration Date _____

Signature_____

___Check or Money Order # _____ Amount Enclosed_____

Mail To:
Robin Boyce, Classifieds Manager, ACT III Publishing/Technical Group Classifieds
6400 Hollis Street, #12, Emeryville, CA 94608
(415) 653-3307, 1-(800)-747-3703, FAX: (415) 653-5142

Please attach your ad copy on a separate sheet, typed double-spaced or printed clearly.

Product Marketing Manager

Digital Video Effects

SONY, an established leader in the Communications products field, has an immediate need for a dynamic broadcast professional to develop, manage and market our Digital Video Effects products. The position would be in **Bergen County, New Jersey.**

The successful candidate should have a broad knowledge of current Digital Video Effects products and industry trends. Further, the candidate will have an understanding of the internal technical workings of digital effects systems. 5 to 10 years experience in both Broadcast and Post-production is desired. B.S.E.E. or equivalent is preferred. Excellent communication skills are needed. Extensive travel is required.

SONY offers a competitive salary and benefits package. Send your resume with salary requirements to: PM/SONY CORPORATION OF AMERICA, SONY DRIVE, MD 1N40, PARK RIDGE, NEW JERSEY 07656.

We are proud to be an EEO/AA employer M/F/H/V. Also, we maintain a drug free workplace and perform pre-employment substance abuse testing.

SONY®

The Work of Chief Engineers: We Never Close

By Joseph Fedele

Dudley Moore once played a movie character who was banished to a sulfur mine where he was to be imprisoned for life as a forced laborer. The sign posted at the entrance to the mine read "We Never Close." I have a sign with those same words tacked up on the bulletin board in my office. Somehow it seems appropriate.

Being the chief engineer of a broadcast facility can sometimes be equated to being the ringmaster at a circus. There is peril at every turn, anything can happen, and the show must go on. We are constantly being asked to perform miraculous stunts, but we rarely receive any additional credit or reward for our troubles.

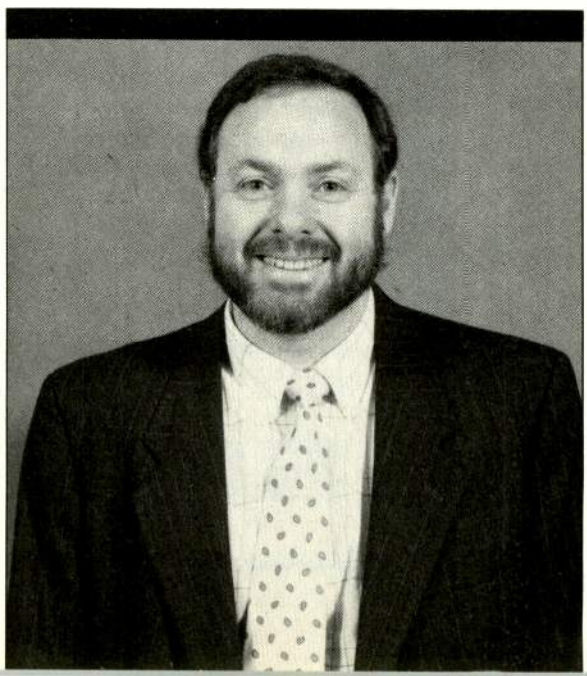
Over the past several years, we have seen a great expansion in the industry as cable TV and broadcasters fight for their market shares. But at the same time, we have also seen the technical staffs of our stations shrink to the bare minimum. We have had our technical budgets slashed and capital purchases limited. We are all being told that we must do more with less and that we must "cut the fat." Sometimes it seems that there is no end in sight to these austerity measures.

Eventually, the fat trimmers will hit muscle and then bone. By the time they realize this, the damage will have already been done. Any physician will tell you that it is unhealthy for a person to lose weight too quickly or too drastically. The same thing holds true for reducing a station's technical resources.

Very often the harmful consequences of excessive cutbacks cannot be detected during the normal day-to-day operations of a station when everything is operating smoothly. These cutbacks will hurt you the most when you are in trouble. A prime example of this is when the transmitter goes off the air and you do not have a pool of available technicians on staff to fix it. At one time, you may have had several reliable people that could help make these repairs, but the cutback in staff has left you dry.

The same holds true for your operating budget. Before the cutbacks, you may have had a good stock of spare parts. As your budget was reduced, you suddenly had to become very selective about the type and quantity of parts you kept on hand. Then one day, your ACRs start to fall apart, and you wait for the overnight emergency shipment of parts that will get you back on the air.

"Over the past several years, we have seen a great expansion in the industry . . . . But we have also seen the technical staffs of our stations shrink to the bare minimum."



The bottom line is that we engineers are expected to "make it work," regardless of circumstances. I regret to say that more stations will probably suffer from the excesses of the fat trimmers and we will be left to pick up the pieces. ■

Fedele is manager of technical operations and chief engineer for WCBS-TV, New York.

BRIDGING THE GAP.

BARCO intelligence—spanning the distance between independent products to create an intelligent system.

The BARCO BVRS Routing Switcher extends the concept introduced by the Emmy Award-winning BARCO CVS monitor; the first broadcast monitor crafted with micro-processor control of every function. Designed to accept any composite or component source, the routing switcher reaches new horizons in flexibility, and can be easily expanded to meet future needs. Used in conjunction with the CVS monitor, the switcher provides an unambiguous on-screen source or "destination" ID, while the monitor functions as a menu-driven remote control panel for the routing switcher.

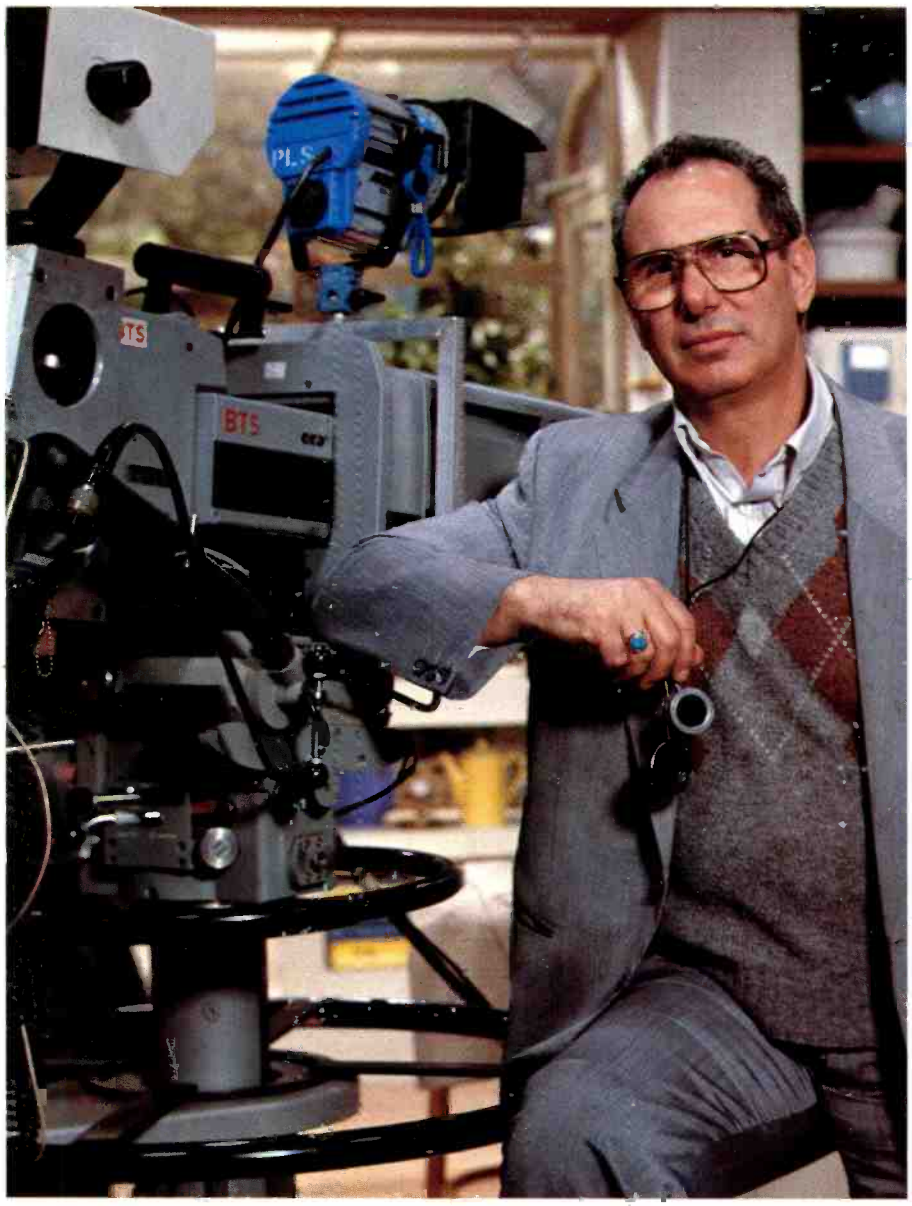
BARCO, Inc.
1000 Cobb Place Blvd.
Kennesaw, Georgia 30144
(404)590-7900
Fax: (404)590-8042

Northeast: (201)729-0710
Southeast: (404)590-7900
Midwest: (708)213-3114
Western: (916)631-8113

Circle 114 on Reader Service Card.

BARCO

INTELLIGENCE RUNS IN THE FAMILY



Name: George Spiro Dibie

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

Current Credits:
Growing Pains
Just The Ten Of Us

Organizations:
President, International Photographers Guild, Local 659, Hollywood; member, Directors Guild of America (DGA); member, Society of Motion Picture and Television Engineers (SMPTE). TV Academy, A.S.L.D. and S.O.C.

Awards:
Winner of three Emmys.

George Spiro Dibie on Production Lighting:
"The most important concept is to follow the source. Windows, doors, lamps...these are the sources of light in a scene. I start from there. To accommodate one camera or multi-cameras, you deal with the feel of the source."

George Spiro Dibie on BTS LDK-90 cameras...

"BTS's LDK-90 video cameras are really the top performers on all of my shoots. They make multi-camera video productions look like film. Tube-type cameras have problems with resolution, hot spots and comet tailing. But thanks to BTS frame-transfer CCD chip technology, I light for my video cameras exactly the way I light for film cameras."

For more details about the high resolution, high signal-to-noise ratio and accurate colorimetry of BTS's CCD chip technology, call us at

1-800-962-4BTS.

BTS LDK-90 studio cameras...for the big shots.

BTS

The name behind what's ahead.™

BTS is Broadcast Television Systems, a joint company of Bosch and Philips. P.O. Box 30816, Salt Lake City, Utah 84130-0816

Circle 115 on Reader Service Card.