TEN REASONS TO CHOOSE THE NEW WESTAR CONSOLES FOR VIDEO/TV/FILM:

1. **NEW DESIGN.** State-of-the-art design for stereo and multitrack production.

2. **EXPANDABLE.** Available from 16 inputs up to 80 inputs, now—or later. The Westar frame is even field-expandable.

3. **AUTOMATION.** IDF Intelligent Digital Faders with three levels of automation. Field retrofittable.

4. **INTERFACING.** Easy interface with video editing systems and TV facilities.

5. **CHOICE.** Easy interchange of three types of equalizers and three types of microphone preamplifiers, in the studio.

6. **FLEXIBLE.** Console layout and patch-bay location may be custom ordered without custom pricing.

7. **COMPUTER CONTROL.** Optional microprocessor controlled input/output stereo routing/mixing switcher.

8. **SUPPORT.** Regional service centers for quick and courteous support. New York City, Nashville, Los Angeles, and Toronto.

9. **MADE IN USA.** Engineered and manufactured in the United States by Quad Eight as a member of the Mitsubishi Pro Audio Group in their new 45,000 square foot Los Angeles facilities.

10. **DEPENDABLE.** Under the $8 billion strong Mitsubishi Electric umbrella, Quad Eight is the most solidly backed of all professional console makers.

For more information, please call or write.

**WESTAR 8000 SERIES**

8100 Series • TV Stereo
8200 Series • Video Sound Post Production
8300 Series • Film Sound

**MITSUBISHI PRO AUDIO GROUP**

DIGITAL ENTERTAINMENT CORPORATION
Headquarters: 225 Parkside Drive, San Fernando, CA 91340 • Phone (818) 898-2341 • Telex 311766
New York: Suite 1530, 555 W. 57th Street, New York, NY 10019 • Phone (212) 713-1600 • Telex 703547
Nashville: 2200 Hillside Road, Nashville, TN 37212 • Phone (615) 298-6613
Canada: 363 Adelaide Street E., Toronto, ONT M5A 1N3 • Phone (416) 365-1899
United Kingdom: 1 Fairway Drive, Greentoft, MIDDX UB8 8PW • Phone (01) 578-0957 • Telex 923003

Circle 100 on Reader Service Card
"We chose Dynamax CTR100 Series cartridge machines for our hometown station WMMS, #1 in Cleveland. Dynamax helps give WMMS the best sound in town."

Gil Rosenwald
Executive Vice President
President-Radio Division
Malrite Communications Group
"Makegood? What's a makegood?"

How soon they forget.
All those people from Anchorage to New York who already use Sony Betacart Systems.
They forget about downtime. They forget about on-air backup systems. And they forget about ad agencies demanding damngood makegoods.
Why?
Betacart is the smart cart machine.
Microprocessors keep constant track of forty cassettes. They maintain system alignment. They run self-check diagnostic routines.
And Betacart's simple operation not only prevents human error, it prevents human boredom.
Technicians at KDNL, St. Louis use their Betacart to put snap into station breaks. For station IDs they shoot logo artwork, add movement with digital effects and air the cassettes through the Betacart. Now there are no more dull title cards at KDNL.
At WDBJ, Roanoke, commercial delivery has improved dramatically. So has the picture quality of the spots.
Carl Guffey, director of operations, reports: "The sales staff is happy, traffic is happy, the engineers are happy and the general manager is ecstatic."

Want to improve your station's commercial outlook?
Put the Gold Standard to work for you.
Call Sony Broadcast at (201) 833-5231.
Professional VHF Wireless for $900 Under

Telex FMR-50 systems have most of the high performance features of the more expensive top-of-the-line wireless microphones and provide a much clearer, stronger and better-sounding signal than competitive units.

All important dynamic range is greatly enhanced because of the system's unique COMPANDER circuit. A special circuit at the transmitter takes the full dynamic range of the audio, compresses it to RF transmission limits, then restores it to its full strength at the receiver. The result is a full dynamic range with greatly improved signal-to-noise ratio.

Because it operates on high band VHF frequencies there is no danger of picking up interference from low band channels such as CB, cordless telephones, garage door openers and electric toys. And, Telex offers a FREE computerized service to assure the selection of an interference-free frequency based on known channel allocations in each operating area.

To read more about why this improved technology transmits a high quality signal over longer distances, write to: Telex Communications, Inc., 9600 Aldrich Ave. So., Minneapolis, MN 55420.

For quick information, call toll free 800-328-3771 or in Minnesota call (612) 887-5550.

TELEX

TELEX COMMUNICATIONS, INC.
9600 Aldrich Ave. So., Minneapolis, MN 55420

Circle 103 on Reader Service Card
One of the world's smallest digital stores.
And one of the largest.
At Camera Mart.

At 12¼ inches high by 19 inches wide—including removable cartridge Winchester disk drive—MCI/Quantel's new DLS 6010 is one of the smallest digital stores in the world.

One removable disk holds 400 pictures on-line and can grow even bigger if more on-line storage is required.

If that's not enough, you can integrate up to seven "Snapshots"—or other DLS 6000 Series units—as workstations into MCI's Central Lending Library (CLL) and store up to 10,000 stills at each workstation and have simultaneous access to 100,000 more from the CLL.

You can even include MCI/Quantel's "Paint Box" as one of the workstations, enabling you to create the finest electronic graphics possible and have them instantly available for on-air use or library storage.

It's new, and, as you'd expect, it's available right now from Camera Mart.

The more you know about video, the more you can rely on Camera Mart.

The Camera Mart, Inc.
456 West 55th Street, New York 10019 • (212) 757-6977
Telex: 275619; FAX (212) 582-2498
305 Vine St., Liverpool, NY 13088 • (315) 457-3703
Sales • Service • Rental

Circle 104 on Reader Service Card
New Scotch
Provides 5 Times the Average

A REAL VALUE
No broadcast cartridge in the world combines long life and performance like the new ScotchCarr® II cartridge. Tape and cartridge design complement each other like never before in the ScotchCarr® II broadcast cartridge. Its revolutionary design eliminates pressure pads, utilizes a non-rotating hub, and now... a new tape! With 5 times the average life of its nearest premium grade cartridge competitor and superior audio performance, the ScotchCarr® II broadcast cartridge is your best value ever.

PERFORMANCE ADVANTAGES
To be successful in today's competitive environment, professional broadcasters need the best. The ScotchCarr® II broadcast cartridge clearly outperforms its premium grade competitors.

The Revolutionary ScotchCarr® II broadcast cartridge design eliminates the excessive audio sideband noise which results from the rubbing effects of pressure pads and the mechanical irregularities of rotating hubs found in conventional cartridge designs.

Some competitive cartridges sound muddy on the air because of excessive phase jitter. ScotchCarr® II broadcast cartridges sound crisp and clean.

The new tape was conceived as an integral part of a complete cartridge system. When used with high quality equipment, such as an ITC "99B" cartridge machine, the ScotchCarr® II broadcast cartridge is capable of frequency response equaling professional reel-to-reel performance.
Results are based upon tests using 3.5 minute length premium grade cartridges and ITC cartridge machines. A cartridge was considered at the end of useful life when it reached a 5 dB frequency response loss at 10 kHz, 5% DIN weighted flutter, or mechanical failure. These criteria represent easily recognizable problems that should result in the cartridge being removed from service.

To order ScotchCart® II broadcast cartridges or request a technical manual to optimize ScotchCart® II performance, contact your local 3M sales office, your professional audio dealer, or call International Tapetronics Corporation/3M at 800-447-0414 or collect 309-828-1381 from Alaska or Illinois. In Canada, call Maruno Electronics Ltd. at 416-255-9108.

International Tapetronics Corporation/3M
2425 South Main Street
P.O. Box 241
Bloomington, Illinois 61702-0241

3M hears you...
ELEVENTH ANNUAL BEST STATION AND FACILITY DESIGN COMPETITION

AM RADIO
- WANN-AM
- KSJL-AM
- WWNR-AM

FM RADIO
- KFOG-FM
- WYAY-FM
- WLLT-FM

AM/FM RADIO
- WNYC
- KIMN-KYGO
- KTAM-KORA

TELEVISION
- WCVB-TV
- WJBK-TV
- KCIT-TV

FACILITIES
- IMAGE MIX
- VIDEO WISCONSIN
- THE POST GROUP

DEPARTMENTS

10 Editorial
People Design Facilities

12 Broadcast Industry News

25 RADIO PROGRAMMING AND PRODUCTION: Radio That Listens to Children
WNYC's Kids America is the only live national daily program aimed at children...
by Judith Gross, Associate Editor

33 TELEVISION PROGRAMMING AND PRODUCTION: Stations "Eye" Storms with Doppler Radar
For stations in storm-prone markets, Doppler radar can be a boon to weather-casters and viewers alike...
by Eva J. Blinder, Senior Editor

92 FCC Rules and Regulations
The Question of Localism

95 Business Briefs

96 Broadcast Equipment

98 Advertisers Index

NEXT MONTH
TRANSMISSION FOR RADIO & TV
SMPTE SHOW REPORT
Put yourself in some good company.

Turner Broadcasting System

NOW

Media General Cable

VIDE O V.I.E.W.

Video Tape Associates

Midwest Communications Corp.
One Sperti Drive
Edgewood, KY 41017
606-331-8990
TELEX 21-4370

Circle 106 on Reader Service Card

Edgewood, KY
606-331-8990
Columbus, OH
614-846-5552
Dayton, OH
513-435-3346
Cleveland, OH
216-213-5910
Pittsburgh, PA
412-364-6780
Indianapolis, IN
317-472-2227
Detroit, MI
313-669-9730
Grand Rapids, MI
616-796-5238

Louisville, KY
502-491-7681
Lexington, KY
606-277-4914
Charleston, WV
304-764-2122
Nashville, TN
615-331-5791
Knoxville, TN
615-487-2456
Bristol, TN
615-968-2289
St. Louis, MO
314-696-3240
Kansas City, KS
913-496-6810
Atlanta, GA
404-675-3733

Virginia Beach, VA
641-464-0556
Richmond, VA
804-762-5700
Roanoke, VA
713-961-2504
Charlotte, NC
704-399-6336
Washington, D.C.
311-577-4850
Miami, FL
301-592-5200
Tampa, FL
813-985-4000
Orlando, FL
305-898-1885
People Design Facilities

In reviewing this year's nominees for BM/E's Eleventh Annual Best Station and Facility Design Competition, a number of points stand clear: The technology of radio and television broadcasting and production is acquired and applied by people and for people: there has been no slackening by people in the industry to seek out and implement the latest in technologies in order to serve their clients and audiences; and throughout the approach to radio and television engineering today, the effort has been placed on the development of environments in which people create the contents of programs. All too often, though, because of esoteric references to technical functions and needs, and descriptions of engineering difficulties, the role that people play seems to fall into the shadows of our machines and buildings.

Because our entrants this year, as in years past, have strived to tell their stories efficiently, laying out in detail their options and choices, we fear that the role they as people played and the roles played by the other people who contributed to the development of their stations and facilities may go unrecognized. This brief statement will hopefully redress that situation in some small measure.

In the past few years we have noticed the increasing frequency of statements by radio and television managers regarding their concerns over the future of this industry. One common theme has been: "where is the new generation of engineers and technicians going to come from?" The lament is that because of the advance of technical sophistication, many young people are finding that other industries, with a common technological foundation, can offer greater financial reward and technical challenge than can our own industry.

This lament is fruitless. The point radio and television communications businesses must emphasize is that there exists the opportunity to work with and for people in the development of what is clearly one of society's most important and exciting areas of human endeavor.

As you consider the entries offered this year, note that all the technological innovation and effort has been applied to the problem of creating environments for creative people to deal with the issue of how to entertain, inform, and communicate through business enterprises whose object is the promotion of a vibrant, vivacious society willing to confront its problems in the light of information rather than in the darkness of the established status quo. Increasingly, our free society relies on the development of new and better ways to bring people together through communication.
Our new lavalier mic makes everyone look good.
Introducing the SM83.

People in news broadcasting have been using the same lavalier mic for a long time. But our new Shure SM83 is out to change all that. It’s just what everyone has been asking for in an omnidirectional condenser microphone.

On-camera talent like the SM83 because its electronics provide for a dip in the mid-range, giving both male and female voices a smoother, more natural sound. And unlike its Japanese counterpart, the SM83 unplugs from the battery pack for easy storage.

Sound engineers appreciate the SM83 because its tailored frequency response requires less equalization. They like its low-frequency rolloff too, which quiets on-air rumbling and mechanical and clothing noise.

Set directors are impressed with the SM83’s neat appearance on camera. The cord exits from the side and disappears from view, running down behind a tie, shirt or blouse.

Production assistants enjoy the SM83’s mounting versatility. It comes with a single clip that works either vertically or horizontally, a double clip that holds two mics, and a universal mount that can be sewed, pinned or taped to clothing.

Repair technicians love the SM83’s easy maintenance. The cartridge is easily accessible by unscrewing the end cap. And cable replacement requires only a screwdriver and tweezers; no soldering is necessary.

Field crews are also big fans of the SM83 because its electronic pack is powered by a standard 9-volt battery or by a mixer’s phantom supply.

For more information on the Shure SM83, the little mic with big advantages, call or write Shure Brothers Inc., 222 Hartrey Ave., Evanston, IL 60204. (312) 866-2553.
HDTV Studio Standard Almost Assured

The last major hurdle facing adoption of a worldwide HDTV studio standard has been cleared with the unanimous approval of NHK’s 60 Hz, 2:1 interlace, 1125-line standard. The 60 Hz standard is now expected to be formally approved in May.

As reported in last month’s BM/E, (see November issue, p. 16) International Radio Consultative Committee (CCIR) Study Group 11 was to hold a last meeting with the express purpose of discussing political and economic factors attached to an HDTV standard.

The meeting involved over 50 countries and broadcast organizations, including the U.S. State Department and the Advanced Television Systems Committee (ATSC), which worked with SMPTE to formulate the U.S. position on technology.

Some European countries, notably France, Britain, and the Netherlands, have not been happy with 60 Hz HDTV since it poses compatibility problems with 50 Hz television systems, especially when looking ahead to questions about transmission. At the last Study Group 11 meeting, the French and Dutch reportedly tried to rally other countries interested in MAC transmission systems, but most countries support the 60 Hz parameters, and all are aware of the advantages of one world TV standard. Thus, in the end, those two countries went along with the majority, and the 60 Hz proposal passed by a unanimous vote.

As for final approval at the Plenary Assembly this spring, the outlook is good. Robert Hopkins, executive director of the ATSC, says he is “quite optimistic,” especially since momentum is gaining and the situation “keeps getting more favorable.” Though the European Broadcasting Union is continuing its studies of how to transmit the standard, he notes that only a few EBU members have trouble with the 60 Hz standard, and even in a worse scenario, he predicts these members will not pull out in May but instead indicate their “nonsupport.”

What makes CCIR passage so delicate is that it requires a unanimous vote. Hopkins says that a small number of CCIR delegates, about four or five countries, could state their reservations without damaging the unanimous position.

Assuming that the 60 Hz studio standard is adopted, the next question for study will be transmission. With the varieties of bandwidth spacing arrangements, and different mediums of broadcast, cable, fiberoptic, and DBS, Hopkins thinks that this issue will take “a good part of the next four years” until the next Plenary Assembly. He also says that there will not be so much of a time constraint since the means of transmission can change, unless, he adds, a transmission standard begins to fall into place.

McKinney’s AM Tour & Deregulation . . .

The AM field continues to brew with activity as the NRBA schedules a notable series of “Town Meetings” between AM broadcasters and Mass Media Bureau chief James McKinney, while the FCC deletes and revises several AM regulations.

McKinney, who has proposed major changes in the structure of AM radio (see last month’s news section), will meet with broadcasters in four cities to speak on his ideas for AM and any proposals the Commission makes by then, and answer questions in an informal environment. The schedule of meetings is as follows:

- January 6, Los Angeles, Beverly Wilshire Hotel.
- January 20, Dallas, Loews Anatole Hotel.
- February 12, Chicago, downtown Marriott.

All meetings will take place from 1:00 p.m. to 5:00 p.m. There is no charge, but the NRBA asks that those planning to attend register by calling (202) 466-2030.

More immediately, the FCC has eliminated and modified several field strength measurement requirements for AM stations with directional antennas. As of January 1, skeleton proofs of performance measurement do not have to

Keith Williams, writer and director, looks on with actor Gabriel Damon at special effects created for Arrival, an HDTV music video about Halley’s Comet that is scheduled for theatrical distribution in January.

It’s A Bird; It’s A Plane — No, It’s HDTV!

Many Americans will catch first sight of Halley’s Comet and HDTV next month when Arrival, a five-minute music “video,” blazes its way across movie screens throughout the U.S. The short is being produced by the American Film Institute with assistance from Sony, Ultimatte, and Grass Valley Group. Sony will loan its High-Definition Video System, which was designed for 35 mm transfer.
If you're looking for a new routing switcher...

...try Di-Tech's Expandable
- In-The-Field - Output Oriented
5850 Series!

More and more industry leaders have been switching to Di-Tech's expanding selection of routing switchers. We design the most reliable switchers to meet every need, every budget and every application. Our newest, the Model #5850 series, features:

- 40x20 Expandable AFV MATRIX with up to 3 levels of audio per input (within the same frame)
- No special IC's or Hybrids
- Serial RS422, RS 232, Coax or Parallel BCD Control
- Numerical and/or alpha numerical single bus control panels
- Numerical and/or CRT X-Y Controllers
- The 5850 can be used to expand Di-tech's current in-the-field 5840 series switcher

Call, write or telex for more information on the 5850 series, or request our free catalog today. Whether it be for radio, television, mobile vans or production studios, Di-Tech has the high quality, reliable, easy-to-operate answer to your present and future needs!

Illustrated below are just a few of Di-Tech's X-Y Master Controllers and Single Bus Control Panels.
be performed due to their “limited value in showing actual antenna performance.” Stations will also be able to set schedules for partial proofs as long as they provide compliance with station authorization. The monitoring point measurement schedule has also been changed from weekly or monthly to quarterly measurements. Design and installation specs for antenna monitor sampling systems have been eliminated in favor of general criteria for sampling systems. The Mass Media Bureau will publish a policy statement detailing those criteria soon.

Finally, in what may be housecleaning before McKinney’s remodeling of AM, the Commission has dropped several nontechnical AM application acceptance criteria. New AMers or those contemplating major changes no longer have to include in at least 25 percent of their coverage an area or population without AM or FM primary service. Principal communities can have more than two authorized local services and an FM channel available, and more than two aural services and FM in more than 20 percent of the area or population. As the FCC commented, “the basic policies regarding AM allocations had not been reviewed for many years.”

**FM Upgrades & More Rules Dropped**

The FCC has proposed allowing upgrades by FM licensees on their current or adjacent channels and also says it wants to drop FM standards for stereo transmission, subsidiary communications transmission, and safety and electrical properties of transmission systems. In addition, the right of an FM station to broadcast despite interference with existing translators was upheld.

The upgrade proposal would allow an FM station to upgrade on its present channel or go to adjacent channels without the Commission having to set aside an equivalent class channel for other parties, as is now required.

In another proposal, the Commission wants to streamline or eliminate three sets of FM standards. Those for FM stereo transmissions (73.322) are no longer necessary, the FCC says, since market competition guarantees stations will maintain sufficient signal quality. Rules limiting interference would be retained.

The marketplace is also considered a sufficient regulator for the second set of standards, on subsidiary communications transmissions. Rules governing allowable forms of modulation for subcarrier operation and crosstalk on the main channel would be deleted.

The third section (73.317) covers safety and the electrical properties of transmission systems. Since few stations build their own transmission systems now and other departments’ safety regulations cover them, the safety rules would be dropped. Emission limitation rules are to stay, but electrical property requirements are no longer needed to prevent interference.

In other FM activity, the FCC affirmed that full-service FM stations do not have to protect existing FM or TV translators, even if local or state laws attempt to do so. The case arose when a county official tried to prevent operation by an FM station at a common antenna site because the station would interfere with translators there.
THE ONLY FULL LINEUP THAT COVERS ALL THE BASES.

SCIENTIFIC-ATLANTA MAKES COMMUNICATION SYSTEMS TURNKEY AND TROUBLE FREE.

The need for reliable and trouble-free systems for video, audio and data satellite transmission increases everyday. To meet this need, Scientific-Atlanta offers the most comprehensive line and has become one of the largest suppliers of high quality satellite products in the world.

Whether uplink or downlink, our earth stations are complete, offering antennas, exciters, receivers, low-noise amplifiers, switching equipment, power amplifiers, plus every accessory.

Ku-Band electronics are now available with the same standard of performance that Scientific-Atlanta has set in its C-Band electronics. And, data communication is available from 56 Kb/s to T-1.

TURNKEY SYSTEM APPROACH.

Scientific-Atlanta can design and install a complete system. Or, we can provide specific components to stand alone or integrate perfectly with an existing system. Such flexibility results in cost-effectiveness because you choose only the features you need. And, once specified, you receive prompt system assembly and shipment.

SINGLE-SOURCE MANUFACTURER.

Scientific-Atlanta is in a unique position to offer responsive and continuous after-sales support. From comprehensive training programs to the fastest possible turnaround for maintenance, replacement parts and repairs.

Our full line of trouble-free products, turnkey system approach flexibility and responsive customer service have gained the confidence of operators worldwide. That's the reason we've supplied more large earth stations than any other manufacturer in the world.
"Explicit Lyrics": Record Rating Code

The debate over rock lyrics has been settled with the recording industry’s agreement to institute a rating system. Records that go into detail about sex, drugs, and violence will have to either provide lyrics or inscribe “Explicit Lyrics—Parental Advisory” on the back cover. Throughout the debates on this issue, broadcasters have not been targeted for pressure to change their programming. In fact, most have received high marks for sensitivity to the issue.

MTV, the cable music channel, is still being pressured to drop some of its more violent videos.

During the debate, many broadcasters expressed their dislike of a code, notably at this fall’s NRBA/NAB radio convention, stating that it will put them under pressure to censor their programming on the basis of the advisory.

The driving force behind the new code was the National PTA and a recently formed group called the Parents Music Resource Center (PMRC), the latter powered by several wives of Washington VIPs. Both pushed for a rating system for record albums and music videos, a requirement that “pornographic” lyrics be printed on album covers, and segmenting of MTV’s videos into early and late night fare. Songs by Prince, Sheena Easton, some heavy metal groups, and a Van Halen video caused the most commotion.

Both groups contacted the NAB, which sent letters to broadcasters about “growing public concern.” NAB president Eddie Fritts said that the association had made broadcasters more sensitive to the issue but that it would never try to intrude on programming decisions.

During the negotiations, RIAA, the recording industry’s association, suggested that records be labelled “Parental Guidance—Explicit Lyrics.” The PTA had asked for “R” ratings.

Cable Technical Rules Deleted

The technical requirements for cable systems’ signal quality have been dropped. Local laws still apply, but the FCC is only keeping guidelines on its books.

Citing the pressure of the marketplace, the FCC said cable systems no longer have to meet its technical quality performance standards. The standards themselves are being retained. Local or state laws may still mandate certain quality levels, but they may not exceed the Commission’s standards since federal law overrules them.

Signal leakage limits for cable may also be relaxed. The FCC is investigating the subject and will ask for engineering data on which to make a decision. Signal leakage rules will stay in effect.

Harris Buys ADDA

Harris Corp. has bought ADDA Corp., the Los Gatos, CA manufacturer of television studio equipment. Terms of the deal were not revealed.

Harris says it will move production for some of ADDA’s product line of TBCs, frame synchronizers, still store and digital video effects systems to Harris’ Video Systems Operation division in Mountain View, CA. Harris also says it will continue to provide parts and service for “selected” ADDA products.
Paintbox™ has become the world standard for video art and graphics. It is the graphics designers' choice because everything that can be done in a traditional graphics studio—and more—can be done on Paintbox. With breathtaking quality, let your creativity run free with Paintbox. Only from Quantel. Paintbox is a trademark of Quantel.
Digital Radio Feed for Live Concert

WGBH-FM, Boston, MA has transmitted what is believed to be the first digital feed of a live concert to radio stations across the country. Twelve public broadcasters were equipped with dbx 700 digital audio processors to decode the satellite feeds.

Both digital and analog feed systems were employed. The sound went from a Studer 169 mixer at the MIT concert auditorium in Boston into two dbx 700s, a VCR and modulator at the institute’s cable TV system, and then on via two microwave paths, one as backup, to WGBH. There, the digital signal was uplinked via WGBH-TV’s master control (the dbx 700 uses video-format signals), the video output going to a Westar IV PBS transponder and the audio to an NPR transponder.

Those stations with Model 700 processors then broadcast the all-Ravel concert.

A Caveat on Call Sign Changes

In a special public notice, the FCC is drawing attention to its rules governing the award of broadcast call signs.

Calls already in use, the Commission notes, are not available until the date on which a station switches to its new letters. Applications for calls that have not yet cleared this process—that means the next working day if the effective date is on a weekend or holiday—are unacceptable. As for impressions that someone can designate an heir to their old calls, the Commission wants everyone to know that such agreements have no effect on who gets the abandoned letters.

The Radio Information Center of New York City, which puts out a kit for stations wanting to find different call signs, says that interest in such changes has remained constant over the past two years, with about seven percent of all commercial stations making the switch each year.

Major Studios Sign with PPV Service

Several major movie studios have signed up for pay-per-view distribution of their first-run movies. Request Television, a PPV service, estimates that it will make available to cable subscribers 120 to 150 films a year as they are released to the home video market, at a price of $4 to $5 each.

Current plans are that two to four movies from one studio will be aired 20 hours a day for half a week. Each studio will have its turn every five weeks. Participating companies include Columbia Pictures, Lorimar, Paramount, 20th Century Fox, Universal, Walt Disney, and Warner Brothers. Request TV hopes that a few years it will generate enough money for studios to open up a PPV release date in advance of the VCR market.

Offerings during the service’s first month, scheduled for the end of November as of presstime, include Bedknobs and Broomsticks, Godzilla 1985, and Police Academy II.

Jeffrey Reiss, the man behind Request and founder of Showtime, said that cable ops now signed with his company reach 110,000 homes, and he expects to reach a million—and a profit—in one year.
At long last a new, reliable source of TV test equipment. One that offers fast, predictable delivery. One with a name all the world trusts—Philips. Four quick examples:

PM5565 Waveform Monitor
Enjoy the luxury of examining one line and one field at a time. On top of this, there’s a convenient front probe input so you can use the monitor as a troubleshooting oscilloscope.

PM5567 Vectorscope
If you want more accurate decoding and the ability to have an external reference from composite video signals, choose our vectorscope.
Both waveform monitor and vectorscope mount side by side, fit all existing hardware and use less power than the competition.

PM5539 Color Analyzer
Take it on a quick trip through your studio or control room and adjust all monitors to the same color temperature in a matter of minutes.
With four different memories, there’s no problem in quickly calibrating four different phosphors.
Variable full-scale, from less than set up to more than reference white, allows measurement of color tracking as a function of APL.

PM5534 Color Pattern Generator
Our universal pattern contains all the signals needed to verify overall system operation—directly from the picture. No wonder virtually every set manufacturer uses our pattern for their TV set alignment.
Of course our TV test equipment line doesn’t end here. Today Philips offers a wide range of equipment including sync and pattern generators, VITS generators and analyzers, and TV modulators and demodulators.

For nationwide sales and service information call 800-631-7172, except in Hawaii, Alaska and New Jersey. In New Jersey call collect (201) 529-3800, or contact Philips Test and Measuring Instruments, Inc., 85 McKee Drive, Mahwah, New Jersey 07430.

PHILIPS
Test & Measuring Instruments

Philips, of course.

PHILIPS

Circle 114 on Reader Service Card
An updated list of Cuban broadcast stations that might interfere with U.S. stations on 107 AM channels has been put together by the FCC. The list also gives calculated location and operating power as of the end of September. Call Wilbur Thomas at (202) 857-3800; there is a fee.

A one-hour training course teaching how to take AM field strength measurements is available on video along with written materials from Ellis & Wiebe. Phone is (303) 367-1626.

The NAB has released a report on interim standards for RF lighting devices to protect AM. It has recommended the standards to the FCC. Contact the NAB's Science and Technology Department.

The FCC has proposed making subscription television and DBS point-to-multipoint services, thus exempting them from broadcast station regulations. The Commission has noted a large increase in unlicensed video transmitters sold to the general public to link VCRs or cameras and TV receivers. Marketing such equipment is a crime, the Commission emphasizes, punishable by a fine and jail term.

Visnews International is providing the first private uplink and editing facilities on-site at U.N. headquarters. V.I.P. Newsmaker Interviews, the local station-to-news figures interview service from Visnews, starts its regular broadcasts the first week in January. A stock photo service is now transmitting its video stills via satellite. The Photo Store is located in Washington, D.C.

Conus has started offering a Ku-band up and downlink package to any station in the continental U.S. for under $100,000. Lease options run about $1750 per month.

The NAB's 1985 Television Financial Report and Market Analysis surveying all commercial stations is now available. This year's response rate is said to be about 69 percent. Cost to members is $40 for the former and $150 for the latter. Call (800) 368-5644.

KVEA(TV), a new Los Angeles independent, says it is the first full-service Hispanic indie in that market.

Coverage of the U.S. Senate is inching closer; the Senate Rules Committee gave its okay to a bill that would institute a three- to six-month test period. The Council for Cable Information, which had been producing and buying time on broadcast television to promote the cable industry, has folded due to conflicting marketing aims.

An NAB survey finds that about three-quarters of responding stations have produced their own alcohol abuse PSAs. MADD and the National Highway Traffic Safety Commission were among the most common source for outside PSAs.

The NAB is holding a one-day seminar on cutting telephone costs. The seminar will take place in Washington.

Neil Vander Dussen has taken over as president of Sony Corp. of America, replacing Kenji Tamiya, who has headed the Sony subsidiary since 1981. Vander Dussen had been in charge of marketing for Sony America.

Phyllis G. Tritsch has retired as head of the 3000-member American Women in Radio and Television (AWRT).
Ampex versatility, long appreciated by over 6100 users of the famous Ampex VPR-2, is part and parcel of its successor, the new VPR-6. But the VPR-6 brings you state-of-the-art performance and even more flexibility with multi-point search-to-cue, comprehensive integral editing, variable speed True-Frame™ playback, stereo audio, serial communications, and precision handling of everything from short spots to two-hour reels.

With hundreds of machines in service worldwide, the VPR-6 delivers a price-performance-reliability package that makes good business sense to broadcast, production and post-production users, either as a stand-alone performer or teamed with the growing family of Ampex Computerized Editors.

Call your nearest Ampex sales engineer for more information about the VPR-6, and its worldwide Ampex support team.

Atlanta (404) 491-7112 Chicago (312) 593-6000
Dallas (214) 960-1162 Los Angeles (818) 340-4000
New Jersey (201) 827-9600 New York (212) 947-8633
San Francisco (415) 367-2295
Washington, DC (301) 530-8600
Canada (416) 821-8840

Circle 116 on Reader Service Card

AMPEx
Ampex Corporation • One of The Signal Companies

Ampedextrous!

True-Frame is a trademark of Ampex Corporation

© 1985 Ampex Corporation
The airwaves are bursting with interference. TV broadcasts, police emergency calls, taxi dispatches, even other wireless microphones. All of which can make a performer look bad, and an engineer look worse. But fortunately, Sony has created an effective alternative to the anxiety of conventional wireless microphones. The VHF Synthesized Wireless System.

TUNE YOUR WAY OUT OF A JAM.

Other wireless microphones are pre-tuned to just one channel. Each electronically synthesized Sony VHF wireless microphone, on the other hand, gives you 48 channels — 48 opportunities to get on the air without interference. With a mere push of a button. In fact, with as few as 4 Sony wireless microphones and a tuner, you can reach 168 microphone channels. And the Sony Wireless System makes it possible to use up to 13 microphones in the same place at the same time. Also, Sony's tuner gives you an easy-to-read LCD display. Which is an indispensable asset when you happen to be in a big hurry.

In addition, Sony's wireless microphones won't leave you wincing at poor dynamic range. Thanks to a companding technique which yields a dynamic range
in excess of 94dB. Well within the realm of wired microphone performance.

The Sony system is also designed to withstand the rigors of live recording. Besides being lightweight, it's also extremely sturdy. Including everything from the microphones, to the body pack transmitter, to the tuners, to the shock-resistant portable cases and rack-mounting brackets.

An arsenal of equipment designed to be invaluable to you in the battle of the bands. And to be an exceptional value as well—about $3,000 for a full-diversity system. A small price to pay to keep a respected engineer's reputation from being at the mercy of a taxi dispatcher.

For more information about the Sony Wireless System, call the Sony Professional Audio office nearest you. In the East, call (201) 368-5185; in the South, (615) 883-8140; in the Central Region, (312) 773-6002; and in the West, (213) 639-5370.
900. 950.

The original ProCam™ Video Cameras that combine high-end production quality with JVC value.

ProCam 900, with its LOC diode gun Saticon® tubes, and ProCam 950 with its LOC diode gun Plumbicon™ tubes. Significant achievements from the acknowledged leader in the miniaturization of electronic components: JVC. Never before has so much performance been packaged into such compact cameras.

These ProCam Video Cameras have earned a reputation for high quality engineering, rugged construction, and value; a reputation enhanced by operating performance, handling convenience, and on-the-job versatility.

Performance features abound, and include, among others, electromagnetic focus and deflection yokes, automatic shift registration at the flip of a switch, 8-bit digital auto-white and -black balance circuits, and automatic beam control. No video cameras in their class are easier to handle. The 900 and 950 are housed in compact, diecast aluminum bodies that weigh in at only 11 1/2 pounds; so they're easily shouldered and carried.

A broad selection of accessories and attachments impart to the 900 and 950 not only a great flexibility in meeting specific user requirements; but also a job-to-job versatility unmatched in their class.

News coverage, documentaries, commercial production, sales meetings, seminars are but a few of the applications for these cameras. In-
Radio That Listens to Children

By Judith Gross
Associate Editor

A female “doctor” with a European accent gives advice, except the call-ins come from children. It isn’t Dr. Ruth, it’s Dr. Rita Book, and the subject isn’t good sex, it’s good reading matter.

“Dr. Rita Book” is one of the regular features on Kids America, the only live national daily radio program for children.

The program started as a local show called Small Things Considered, on WNYC-AM in 1984. In October of this year it went national with funds from the Corporation for Public Broadcasting and additional support from the Helena Rubenstein Foundation. The show is currently being distributed by American Public Radio (APR, not to be confused with NPR) via satellite to eight “test” markets and two other stations.

Broadening the audience of the program, which won WNYC a prestigious Peabody Award, meant a few changes had to be made.

The changing of the name to Kids America was done to give the show a more national appeal and to try to attract an audience beyond public radio listeners, according to APR’s promotion coordinator Diane Engler.

“Small Things Considered was almost an inside joke, a play on the NPR show All Things Considered,” Engler notes. “We are trying to tap into kids who don’t normally listen to public radio.”

The show was also shortened from three hours to 90 minutes, with each special segment lasting a half hour, instead of the hour that was devoted to it before. For call-ins from children, which have always been a main feature of the program, Kids America now has an 800 number, and gets callers from across the country, taking some 230 calls during the 90 minutes compared with the 150 young listeners who would call each day when the show lasted three hours locally.

Everything on the program is done live, to live up to young listeners’ expectations of radio, according to producer Keith Talbot. Each day cohosts Kathy O’Connell and Larry Orfaly are joined by a cast of characters and special guests in the studio to produce what amounts to a very tightly structured format.

“People think we’re being spontaneous, but we do have a format,” Talbot explains.

Guests and segments include a visit from Susan Dias, who makes up songs on the spot as listeners request on “Susan’s Songs”; or Sam, the talking computer, played by Tom Trocco, who gives information on a variety of computer topics.

“Martha’s Mishaps” is a soap opera featuring the “problem of the week,” which listeners are asked to help solve. Talbot stresses the importance of such a feature in a world where “kids are rarely asked for their advice.” Similarly, a weekly opinion poll will ask children tough questions on topics as weighty as weapons in space.

Other imaginative segments include the “Duke of Words” with his weekly spelling bee; pet advice from veterinarian Dr. Mark Burns; “Xeno,” an alien lost on planet earth who gets kids to use geography and logic to help him find his way; the “Mystery History Guest”—a sort of What’s My Line using historic figures; and the ever popular advice from “Dr. Rita Book,” a takeoff of Dr. Ruth Westheimer.

Kids America has been airing from an old studio in New York’s municipal building, but the show is slated to be the first into WNYC’s brand-new facility. There will be two control rooms in the new studio, one for on-air and one to take call-ins. Currently, both call-ins and on-air are done from the same room.

The show airs 6:30 to 8:00 p.m. eastern time, so that even in earlier time zones it becomes an after school experience. The audio is monaural currently, but is scheduled to go stereo at the beginning of 1986.

The lure of music

Talbot points out that in addition to the live aspect of the show, another constant kids have come to expect from radio is music. Kids America regularly gives its young listeners generous doses of music they ask for, and music that they might not otherwise hear.

A segment known as “Radiovision” airs classics such as Vivaldi’s “Four Seasons” and asks listeners to describe images that come to mind. Then there are the request selections. Listeners call in to request songs, and the top three requests are aired toward the end of the 90 minutes, lending an air of suspense to...
the show. At the end of the week, the top five requests for the week are counted down. In the past these have included recent hits by Michael Jackson and Weird Al Yankovic, but the program tries to gently influence requests by playing music children might not hear on a top forty radio station or on MTV. Allen Sherman’s humorous “Hello Muddah, Hello Faddah,” a vintage selection from the 1960s, recently made the number one slot on the countdown, and after being exposed to Beethoven’s Fifth Symphony, young listeners chose it for the number one song over Michael Jackson’s “Beat It” for several consecutive weeks. Talbot says O’Connell and Orfaly play at least one classical selection each evening, and that he hopes to broaden the musical portion even further by including Cajun and other ethnic music.

**Not afraid to phone**

Like the talk shows that have become so well-received on radio, *Kids America* relies heavily on call-ins. Callers are put on the air to answer contest questions or give their opinions, and some past calls have been from listeners as young as four years of age. The program is targeted toward the six to 12 age group, and Talbot says the average caller is nine-and-a-half or 10 years old. Although it’s a wide age range to target, the show tries to recognize the differences between an eight-year-old and a 12-year-old and meet the needs of both.

The call-ins help give children a chance to communicate with each other, and most importantly, according to Talbot, to interact in a unique way with the adult world.

“It’s a vehicle for children to have the first experience they may have talking with an adult outside their family, and we make sure it’s a rewarding one,” he explains. One mother wrote in to say that it helped her child get over a fear of using the phone.

Another “phone” feature that has been added since the show has gone national is the “challenge of the day.” Kids call in with a challenge to other listeners, with questions such as: “How can you remember the names of the planets or great lakes?” The first one to call in with the right answer wins a book.

“All our prizes are books donated by publishers,” says Talbot. The call-ins provide instantaneous feedback to the show, and help determine what works and what doesn’t.

“Everything in the show now is what has worked in the past; we’re applying what we learned in the local show to the national program,” Talbot says.

He believes *Kids America* is starting to get more of a cross section of the country, although he believes the economic and ethnic mix will broaden as the show becomes more widely distributed.

**Test period**

*Kids America* is currently being test-marketed to public stations in New York City, Milwaukee, San Mateo/San Francisco, Buffalo, NY, St. Paul, Boston, Rochester, NY, and Cincinnati.

---

**PERFECTION can now be translated to the TV screen with the Aston 4 Character Generator.** The Aston 4 will create typography to meet your highest design standards without any hint of display flicker (aliasing) or diagonal stair-stepping. Welcome to the world of perfection. Find out more, call today (913) 782-4007.
Professional Signal Processing...

The FOR-A Broadcast Product Group (BPG) is an innovative line of high-end video equipment setting trends in professional broadcast video:

Digital Signal Processors
- FA-430 Time Base Corrector and Image Processor - with Y/C Dub Processing and Image Enhancement, Noise Reduction, Color Correction and Black Stretch
- FA-440 Time Base Corrector - with Video Production Effects
- FA-450 "Universal" Component Time Base Corrector - with Y/R-Y/B-Y, YIQ, RGB, Y/C Dub Component as well as Composite Signal Processing and Freeze Frame
- FA-800 AUTOCOR Frame Synchronizer - with Automatic Video Level Control

Production Switchers
- CVM-500 Component Video Mixer - with Chroma Key and Effects Memory options
- PVM-500 Composite Video Mixer - with Chroma Key and Effects Memory options

Signal Processors
- CE-10 Character and Graphics Effects Generator
- CCS-4300 Color Corrector

Strongly supporting the trend toward post production component processing is the new FOR-A CVM-500 Switcher. The CVM-500 provides multiple source mixing of component format VTRs, RGB cameras, RGB graphic and character generators, and decoded signals. Features include: six inputs plus black and color background, four buses, independent auto transition rates for mix effects, program, DSK and Fade to Black, and three independent colorizers.

These FOR-A BPG products are marketed nationally through a select dealer network which is prepared to provide technical support and service for your broadcast and post-production system requirements. Call or write now for your copy of the FOR-A Broadcast Product Group System Guide.
RADIO PROGRAMMING

Then, APR's Engler says, "We can let the stations know what works in promoting the show, and show them it's a success." Mail and calls have already shown the extent of Kids America's popularity.

During the evaluation period, CPB is also trying to devise a way to measure the program's audience, since Arbitron does not measure radio listeners under 12 years of age.

The "test" period ends in September of 1986, at which time Kids America will go into widespread distribution. Two test markets, Des Moines, IA, and Macomb, IL, are currently airing the show, and APR has gotten interest from other areas as well.

Just for kids

Besides the obvious communications, language, and thinking skills Kids America encourages, the show has been cited by organizations for its creativity, which combines the inherent imagination of a medium such as radio with a realistic view of the world of children. The show and it's cast also believe in having fun, which may explain it's popularity and also why some adults without children tune in.

But Talbot believes children may listen because Kids America is a show just for and about them, the way Sesame Street is for kids on TV: it makes them feel important. Shows just for children are rare on radio; although as Talbot points out, kids listen to radio aimed at general audiences all the time. As a slogan coined by APR explains: "For years kids have been listening to the radio. But now there's radio that listens to kids."

Eliminate Ni-Cad battery pack problems!!
PACO KD-120 can solve problem and give you Maximum performance with the Ni-Cad battery packs.

PACO BATTERY DEMEMORIZER
KD-120

- By connecting with SONY BC-210 or Panasonic AU-B120, KD-120 will automatically switch the charger for quick charge after dememorizing the packs.
- KD-120 trickle charging system will also be engaged after quick charging.
- As the automatic switch to quick charge engages immediately after dememorizing channel one, overall dememorizing charging time is not much longer than charging only.

SPECIFICATIONS:
- MODEL CODE: KD-120
- DEMEMORIZABLE BATTERY PACK: Ni-Cad battery pack 12V 1.5Ah-6Ah
- CONNECTIBLE CHARGER: SONY BC-210, Panasonic AU-B120
- INPUT POWER: AC1213V ±10%, 50/60Hz, 3VA
- CHARGING POWER: Trickle charge 10mA
- DISCHARGE CURRENT: 4mA (fixed current)
- OPERATIONS: Sequential discharge mode
- AUTOMATIC SWITCHING TO QUICK CHARGE MODE AFTER DISCHARGE MODE, THEN TO TRICKLE CHARGE MODE

PACO Ni-Cad BATTERY PACK
DP-1240 12V1.4Ah

PACO ELECTRONICS U.S.A., INC.
714 West Olympic Blvd., Suite 706 Los Angeles, CA 90015

Circle 120 on Reader Service Card

28 BM/E DECEMBER, 1985
LA-KART®

Dual-Channel Has Arrived
At 1/2 The Price!

Multi-Channel Systems Starting at $84,900.00

The new LA-KART Multi-Channel Broadcast Software Package can now address up to 28 VTR's with complete random access. For the past 3 years LAKE'S engineers have responded to the requirements of broadcasters for an automated video cart system with the following features:

1. DUAL CHANNEL
2. MULTIPLE SPOTS ON EACH TAPE
3. COMPONENT PROCESSING FOR IMPROVED SIGNAL
4. CHOICE OF BROADCAST FORMATS: ¾", ½" BETA OR TYPE M, AND 1" TYPE C
5. FAST MANUAL REQUE AND AUTO REVIEW
6. FRAME ACCURATE SWITCHING USING SMPTE CODE
7. STEREO
8. PROGRAM DELAY SYSTEMS
9. ON LINE EDITING PER EVENT OR ELEMENT OF EVENT
10. CATALOG STORAGE OF EVENTS
11. TRAFFIC AND BILLING SYSTEM AVAILABLE INCLUDING COLUMBINE INTERFACE

LAKE
The Systems Company
55 Chapel Street, Newton, MA 02160, U.S.A. (617) 244-6881
© Lake Systems 1985
Circle 121 on Reader Service Card
Video Cassette

<table>
<thead>
<tr>
<th>Brand</th>
<th>Number of Dropouts Per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M-SCOTCH UCA-60</td>
<td>90</td>
</tr>
<tr>
<td>SONY KCA-60K</td>
<td>80</td>
</tr>
<tr>
<td>FUJI KCA-60</td>
<td>70</td>
</tr>
<tr>
<td>AGFA-KCA-60BP</td>
<td>60</td>
</tr>
<tr>
<td>AMPEX BCA-60</td>
<td>50</td>
</tr>
<tr>
<td>EASTMAN KCA-60</td>
<td>40</td>
</tr>
<tr>
<td>AMPEX BCA-60</td>
<td>30</td>
</tr>
<tr>
<td>EASTMAN KCA-60</td>
<td>20</td>
</tr>
<tr>
<td>EASTMAN KCA-60</td>
<td>10</td>
</tr>
<tr>
<td>EASTMAN KCA-60</td>
<td>0</td>
</tr>
</tbody>
</table>

© Eastman Kodak Company, 1985
Six leading brands of ¾-inch broadcast-quality video cassettes were recently tested by an independent lab for a major video publication. When it came to dropouts, Eastman professional video cassettes outperformed every other tape tested. For a reprint of the published test results, write to Eastman Kodak Company, Dept A-3061, 343 State Street, Rochester, NY 14650. And for more information about Eastman professional video cassettes, call 1-800-44 KODAK, Ext 861 (1-800-445-6325, Ext 861), or contact your nearest dealer in Eastman professional video products or your Kodak sales and engineering representative.
Add A Little Magic...

Intergroup Video Systems
Options

Now you can boost the creative power of your production system and cut down the number of generations required to get your final edit. Intergroup options will enhance the production capabilities of your Grass Valley 100, Crosspoint Latch, Panasonic, Shintron, Echolab, JVC or Intergroup production switcher.

The 640 Downstream Keyer
The Intergroup 640 Downstream Keyer provides key edging capability; key borders and drop shadows with edge luminance control and color key outlines. A color matte generator supplies key fill. The 640 also has four inputs standard for key hole cutters with companion video fill inputs to accommodate full featured character generators.

The 2031 Matrix Wipe Generator
Our 2031 Matrix Wipe Generator interfaces with any switcher having an external key input for the mix/effects system. You have sixteen basic wipe patterns to choose from, including random and rotational, and you can create hundreds of different patterns with 2031's pattern modifiers. Wipes can be controlled using either the lever arm or auto transitions.

Opt For Intergroup
Other production enhancing options from Intergroup include stand-alone encoders and RGB chroma keyers, fade-to-black with a blanking processor and a digital pointer generator. Many of these options are contained in our 501(1) rack frame which also houses some of the most affordable audio and video distribution amplifiers in the industry. Call 1-800-874-7590 today and let us add a little magic to your production system.

"Creativity You Can Depend On"

INTERGROUP VIDEO SYSTEMS, INC.
P.O. BOX 1495 / GAINESVILLE, FL 32602 USA
SALES: 1-800-874-7590 / IN FLORIDA (305) 373-8783 / TWX 810-825-2307

Circle 123 on Reader Service Card
Stations “Eye” Storms with Doppler Radar

By Eva J. Blinder
Senior Editor

Hurricanes, thunderstorms, and tornadoes regularly turn the weather into a top news story, and television stations around the country have found that enhancing their news operations can be a potent way to serve viewers. Weather graphics is now an expected part of the news in many markets, and stations routinely have access to satellite pictures and dial-up radar reports from the National Weather Service and other sources.

A purchase of weather forecasting or tracking equipment involves other considerations, however. Will it really add to the station’s weather operation, or will it simply duplicate information already available from other sources? Will station personnel be able to operate and interpret it efficiently? Will it effectively serve the station’s market area?

All these questions are being asked by stations considering owning a Doppler radar unit. Unlike conventional weather radar, Doppler radar can sense and display turbulence, thereby pinpointing the heavy winds of a thunderstorm or tornado. It does this by a patented technique, based on pulse-pair processing, that measures the speed of rain particles relative to each other. For stations in storm-prone markets, such a unit can be a boon to weathercasters and viewers alike.

According to the Collins Avionics Divisions of Rockwell International Corp., manufacturer of the Doppler radar, 26 U.S. television stations have found it worth their while to install Doppler radar systems. Dealers include many of the leaders in the weather graphics and information field: Advanced Designs Corp., Alden Electronics, ColorGraphics Systems, Environmental Satellite Data, and Kavouras.

Beating ground clutter

The New York City broadcast market, on the face of it, would seem one of the less likely places to find a Doppler radar installation. Despite the city’s re-
TELEVISION PROGRAMMING

cent encounter with Hurricane Gloria, severe storms are relatively uncommon compared with areas such as the south and the midwest. In addition, extremely heavy ground clutter makes conventional radar almost useless within the city itself.

Nevertheless, WNBC-TV, the NBC O&O that broadcasts over Channel 4 in New York City, recently installed its own Doppler radar system, which weatherman Al Roker believes is the first weather radar at a New York television station. The egregious ground clutter that blocks most radar’s usefulness is easily overcome by the Doppler system, Roker states.

According to Roker, “The ground clutter pattern in New York City is such that it effectively obliterates about half the viewing area. The basic problem is that the radius of ground clutter can be anywhere from 10 to 25 miles.”

The Doppler radar uses its ability to detect turbulence to screen out ground clutter. If a target does not reach a certain threshold for movement, the radar system identifies it as ground clutter and screens it out of the display. With ground clutter out of the way, WNBC’s radar can indicate areas of rainfall and storms that occur even in heavily built-up New York, as close as one mile to the radar transmitter and out to a 50-mile radius.

The freedom from ground clutter and ability to track storm winds benefited WNBC during the recent attack of Hurricane Gloria, which proved less destructive than predicted but still caused serious damage in portions of the station’s viewing area.

“During the hurricane we were able to show where the strongest winds were within the areas of precipitation,” Roker says. “We were really pleased with it because it showed where the stronger winds were, and also showed that the storm was weakening as it came on shore.” Viewer reaction was strongly positive. “People felt overall that we did a service,” Roker adds. “Some of the newspapers said we were flexing our muscles and that our coverage was overkill, but that was before anybody knew the extent of the damage. But the viewers were calling to thank us. A lot of the people who called or wrote mentioned the radar.”

Roker explains that WNBC’s radar unit is located on top of the RCA building 70 stories above the city—“actually about 30 feet above the National Weather Service radar.” In addition to its special features, it is highly sensitive to regular precipitation, and Roker says he has detected rainfall as far as 230 miles from the station. The Doppler effect is more limited, he says, “but it effectively covers our viewing area.”

Graphics connection

WNBC acquired its Doppler radar through Advanced Designs Corp., which Roker says is working with ColorGraphics Systems to provide an integrated weather system for stations. The station’s seventh-floor weather center includes a ColorGraphics weather graphics computer, the radar terminal, and an interface that allows the computer to operate the radar. The package, supplied by Advanced Designs, lets various weather graphics elements—radar pictures, satellite pictures, and weather maps, for example—for layered, manipulated, and colorized by the ColorGraphics computer. Roker believes his setup is the first in the country to interface a
Over sixty of our new MC-500 series MASTER CONTROL Switchers are in operation at television stations throughout the country, many with full station automation also supplied by Utah Scientific. These customers include some of the country's most prestigious broadcasters. Call or write for our 100% Users List to learn firsthand the many advantages offered by this state-of-the-art product.
TELEVISION PROGRAMMING

weather radar unit with such sophisticated graphics.

"I'm really pleased," Roker says of the system. "Our maps are a lot cleaner. Before, we had a radar map with eight or nine colors, but now we can have up to 256 colors," Roker's background in computer graphics made the system simple to learn. "While this is a little more sophisticated, it's still the same basic principal," he notes. "After a while, it's hard to work without it."

Besides its own radar, WNBC has access to hourly NWS satellite pictures and NWS radar through the Color Graphics unit and surface maps on dedicated NWS NAFAX lines. In about six months, when the NWS begins satellite distribution of the surface maps, the station will install a two-foot satellite dish to receive them and download them directly into the computer.

"Weather is another part of our information service," Roker states. "[Hurricane] Gloria was a perfect example of where the weather became news."

Stormy weather

At WHO-TV in Des Moines, Doppler radar seemed like an obvious choice when the station installed it last spring at the beginning of the severe thunderstorm season. The installation has been plagued with problems, however, as chief meteorologist Mike Lozano relates.

"We had fits with it from the very first day," Lozano complains. Initially the radar itself malfunctioned, which was first suspected and then became graphically clear when a heavy storm occurring near the station failed to show up on the display. Many conversations with supplier Kavouras and with Collins finally produced the correct replacement part, after which "the thing worked fabulously."

The idyll was not to last, however. During the summer while the unit was on the air it took a direct hit of lightning that knocked it out completely. It was sent back to Collins for repair, and a replacement unit supplied by Kavouras also showed some problems. Once the original unit was reinstalled, it started picking up extraneous signals from the lines coming from the station's tower. WHO corporate engineer Vic Landau and chief engineer Chuck Myers identified the problem as impedance mismatch and installed twinax cable, and since then the unit has been operating properly.

WHO also has a Kavouras TridentX weather graphics computer, which is not interfaced to the Doppler radar. Prior to purchasing the Doppler unit the station used Kavouras's RADAC dial-up radar service.

Despite WHO's Keystone Kops experience with Doppler radar so far, Lozano agrees that "when it's working, it works well." He notes that the unit's Doppler range, about 50 miles, is fine for the station's A contour; WHO, however, covers a large portion of Iowa on cable, and the Doppler doesn't reach that far. Nevertheless, he expects it to be a useful addition.

In the world of Doppler radar, it's not always fair weather, but the visibility is clear enough to make a difference to a growing number of stations. This new technology has the potential to let television eye the storm more accurately than ever before.

BM/E
Closed captioning and teletext are only the beginning

How installing the new Leitch VIP 1101N today gives you an edge on tomorrow.

If vertical blanking intervals only meant blanking, you wouldn't need the new Leitch NTSC vertical interval processor. But this isn't the case as you know. You'll see more and more use made of the VBI in the near future.

You couldn't be better prepared than with the new Leitch VIP 1101N. Because this is a fully programmable stand alone vertical interval inserter/deleter it will not become obsolete. This innovative vertical interval processor doesn't generate any insertion test signals. Instead it handles with remarkable ease and accuracy a number of external insertion signals. The VIP 1101N is easily programmed even from a remote location. It provides complete protection for the VBI and the all important program signal.

Behind this capacity and flexibility is a combination of advanced techniques -- microprocessor control, digital technology and the most recent developments in analog circuit components.

The new Leitch VIP 1101N also offers comprehensive self-diagnostics including set-up and timing modes. Two vertical signal inputs are standard. But the VIP 1101N is expandable to nine inputs -- a feature unique to Leitch. It is also programmable up to 4 fields.

Your program signal couldn't be in better hands. Get the full information on the new Leitch VIP 1101N now. Let us show you how you can keep a sharp eye on the future while protecting your bottom line.

For further information, contact:

Leitch Video International Inc.
10 Dyas Road, Don Mills,
Ontario, Canada M3B 1V5
(416) 445-9640

Leitch Video of America, Inc.
825k Greenbrier Circle
Chesapeake, VA 23320
(804) 424-7920

Leitch Video of America, Inc.
12520 Loma Rica Drive, P.O. Box 1985
Grass Valley, CA 95945
(916) 273-7541

Circle 127 on Reader Service Card
**AG-6800**
VHS™ Hi-Fi video recorder. Perfect for hi-fi dubbing. Dynamic range is greater than 80dB.

**AG-6300**
High-performance VHS editing deck. Two-frame editing accuracy. Inputs for time base corrector.

**AG-6300MD**
Designed for medical applications. VHS recorder conforms to UL-544 standard. Ext. sync in. Time code inputs and outputs.

**AG-6200**
VHS recorder ideal for dubbing. Loop through recording capability. Time code connectors.

**AG-6200E**
Multiformat VHS recorder for worldwide use. PAL, CCIR and a 4.43 MHz NTSC. 14-step dial search.

**AG-6100**
PANASONIC®
HAS A PROFESSIONAL VIDEO DECK FOR EVERY PROFESSION.

From medicine to music. From New York to London. Whether it's industrial training, hi-fi stereo duplicating or international business communications, there's a Panasonic 6000 Series VHS™ deck designed for you. For long-term stability, all 6000 Series professional decks have a sturdy aluminum diecast chassis. They also have ultraprecise direct-drive video head cylinders to deliver noiseless video images and special-looking special effects.

The 6000 Series also includes all the inputs and outputs professionals demand. Like 8-pin video connectors for direct single connect on to a monitor. BNC connectors for easy interface with other video components. And time code connectors for advanced editing applications.

Still with all the 6000 Series has going for it, Panasonic knows a professional deck is only as good as the professional support behind it. That's why you'll find regional offices each with a staff of engineers to assist you with matching components for your specific system. And technical service for installation and instruction. So whatever profession you're in, take a look at the video decks designed for your profession. The Panasonic 6000 Series.


Panasonic Industrial Company

Circle 128 on Reader Service Card
Video. More and more it's playing a larger role in entertainment, industry, education, even medicine. That's why, no matter what your special application, all you need are the monitors in the Panasonic BT, CT and MT Series.

Our BT Series monitors are ideal for broadcast because they all have the quality and important controls broadcasters require. Like a normal/underscan switch that lets you select either the camera view or the actual monitor picture. Pulse-cross circuits for easy observation of sync detail. And blue only for easy chrominance adjustment. The 13" and 19" BT Series monitors (a l screen sizes meas diag) have our special Comp Focus™ picture tube. Add to that a switchable comb filter and the result is increased definition and color sharpness.

Perhaps the most versatile of the BT Series are the 7" monitors. There's one that operates on both AC and DC so it's perfect for field use. Another model includes switchable line inputs, external sync terminals and is available as a single unit or in a dual rack.

Our CT monitors also come in a wide variety of configurations. You can choose from our 19" models. One comes with a tuner, and one can be used internationally because it lets you switch between NTSC, PAL and SECAM. The CT Series 7" and 14" monitors include models with a built-in tuner, NTSC composite and RGB inputs for use with computer graphics. And when light weight and portability are important, there's the CT Series 5" monitor receiver.

For medical use, the MT-1340G conforms to the UL-544 standard. Its Data Grace in-line picture tube provides the precise resolution medical applications require. While RGB inputs assure you of critically accurate color reproduction.

By now it should be clear, no matter what your special application, the monitors in the BT, CT and MT Series have the right qualifications.


Panasonic Industrial Company

Circle 129 on Reader Service Card
The new Bosch DA's only competition...

Only a straight piece of clean wire is as transparent as the new Bosch 350 Series DA. The 350 series has superior specifications, surpassing any other product in the market. The new rack frame RF-350, with its integrated power bus concept, allows total flexibility.

The Bosch 350 Series is designed to meet not only today's needs, but tomorrow's.

Specifications:

**Audio DA**
- S/N > 98 db at 0 dBm
- Outputs: 6 balanced or 12 unbalanced or combinations
- LED metering in the front panel

**Video DA**
- Band width 30 MHz with full slew rate*
- Clamped differential input
- Cable equalization up to 30 MHz (option)

*Slew rate = 66V/μsec.
(The amplifier reproduces undistorted full voltage signal (.7Vpp) at 30 MHz.)
Here, arranged in five categories—AM Radio, FM Radio, AM/FM Radio, TeleVision, and Teleproduction Facilities—are the nominees for BM/E's Eleventh Annual Best Station and Facility Design Competition.

Our editors have carefully selected these entries from the many that were received, believing them to reflect the very best in new design ideas; now it's your turn to select the winner in each category by voting with the ballot card that appears in this section.

As you read through the entries, please bear in mind that the contest is designed to recognize management and engineering excellence no matter what the station's size and resources. A top market station may have had an almost unlimited capital budget and may therefore, at first reading, appear to be the best simply because it is the biggest. But the small-market station may, out of necessity, come up with the inspiration for the most creative solutions. To help you evaluate the station's size, we have included its market rank as part of the standard entry information.

To vote, simply select your favorite station in each category, check it on the ballot card (page 81), and drop the card in the mail. Each winner will receive a handsome plaque, to be presented by BM/E at the 1986 NAB Show, so we must receive the ballot no later than February 15, 1986 to be eligible. But please read the entries and vote now while they are still fresh in your mind.

One final note. It's never too early to begin thinking about next year's competition. If you think your station might be a winner, drop us a postcard and we will contact you next fall.

<table>
<thead>
<tr>
<th>1985 NOMINEES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AM RADIO</strong></td>
</tr>
<tr>
<td>WANN</td>
</tr>
<tr>
<td>KSJL</td>
</tr>
<tr>
<td>WWNR</td>
</tr>
<tr>
<td><strong>AM/FM RADIO</strong></td>
</tr>
<tr>
<td>WNYC</td>
</tr>
<tr>
<td>KIMN-KYGO</td>
</tr>
<tr>
<td>KTAM-KORA</td>
</tr>
<tr>
<td><strong>FACILITIES</strong></td>
</tr>
<tr>
<td>IMAGE MIX</td>
</tr>
<tr>
<td>VIDEO WISCONSIN</td>
</tr>
<tr>
<td>THE POST GROUP</td>
</tr>
</tbody>
</table>
WANN-AM
ANNAPOLIS, MD
METRO RANK: 15
Submitted by
Morris H. Blum,
President & General Manager
and M. W. Pittman,
Chief Engineer

WANN-AM in Annapolis has just installed a Radio Systems ESA-10 console and Revox PR-99 ATRs as part of its ongoing conversion to stereo.

Good engineering, good equipment, and regular maintenance have always held the upper hand at WANN, which has been under the same ownership and management since it first went on the air in 1947.

At that time, we were 1 kW D with studios located over a bank. In 1960 we increased power to 10 kW DA-D with a two-tower array and moved to our present studio/transmitter location in Annapolis. Additional offices, mostly for administration, programming, and sales, were added in 1975. In 1983 we again increased power, to 50 kW on the same frequency, but because of our 10 kW site limitations the transmitter is located seven miles away.

At present, a Potomac Instruments RC16 remote-control system helps handle the McMartin BA-50K transmitter. The four-tower phaser is from Vector Technology, formerly CSP, and the towers are Stainless, guyed by Phillystran. Programming is fed via telephone lines, but we expect to utilize STL in the very near future. To protect this investment, the new transmitter site is equipped with special Halon gas fire extinguishers.

And once again, WANN is in transition. We are converting from mono to stereo with a Delta C-Quam ASE-1...
exciter and ASH-1 modulation monitor, installed by Delta Electronics. We have also just had a Radio Systems ESA-10 console put in the main studio, along with Revox PR 99 ATRs, as part of what we call our AM stereo starter package. The mic is an Electro-Voice 20. Essentially, WANN is converting to stereo in reverse, proceeding from the transmitter to the main studio, which needs new cart machines and turntables, and then on to the second studio.

For an AM station to go stereo takes time and money, but we are making the change, slowly and carefully, because we view it as a superior audio sound for AM, especially with the coming of much-needed and improved AM stereo receivers.

Our conference room doubles as an additional studio for recording interview programs. Wall-mounted microphone plates allow us to plug in up to six Shure mics, all feeding into a small cabinet that conceals a Shure mic mixer and SE-30 gated compressor/mixer, along with a remote-control unit for one of our Ampex tape recorders.

For emergencies, a 1 kW CCA transmitter and a 15 kW generator can keep us on the air for three days without any utilities. We are planning to move our former transmitter, a 10 kW CCA, to the remote site as a more powerful auxiliary.

It is clear that WANN has not yet finished changing. We have moved and added on to the station plant over the years and are proceeding with the conversion to stereo. Now we are considering the possibility of building a whole new station out at the transmitter site.

KSJL-AM
SAN ANTONIO, TX
METRO RANK: 37
Submitted by
Thomas Sittner,
Chief Engineer

Our station is a brand-new 50,000 W high-fidelity AM stereo station owned by Inner City Broadcasting. We decided to locate our studios as close to downtown San Antonio as possible. As it turns out, we found the Reuter Building, a partially renovated building in Alamo Plaza, right across the street from the Alamo. It was built in 1891 and at one time eliminate blower noise. Heating and air conditioning equipment is mounted next to the building on its own separate cement slab. When the 10 kW transmitter was in operation, its heat was added to the system, a cost-saving idea that is used to heat the present transmitter building.

For emergencies, a 1 kW CCA transmitter and a 15 kW generator can keep us on the air for three days without any utilities. We are planning to move our former transmitter, a 10 kW CCA, to the remote site as a more powerful auxiliary.

It is clear that WANN has not yet finished changing. We have moved and added on to the station plant over the years and are proceeding with the conversion to stereo. Now we are considering the possibility of building a whole new station out at the transmitter site.

The production room centers around a Pacific Recorders BMX 1114 fader board. Turrets on either side of the board contain an Orban 424A compressor/limiter, 111B stereo spring reverb, and an Eventide H949 Harmonizer.
housed a saloon and hotel. We leased the second floor.

In our initial design, we stripped the floor space of all existing walls and started with a large empty space. Our first consideration was to eliminate noise and vibration coming from the outside. One problem is a major bus route directly in front of the building; although the walls are two-foot-thick stone, the sound and vibration was still coming through.

Architect James Mayeux of Austin called in a structural engineer who determined that the existing wood-supported walls could hold more weight than might the floors in a modern office building. Our unique solution to the sound-vibration problem was to erect a studio complex as a separate structure isolated from all walls and sitting on a six-inch concrete slab that floats on a two-inch pad of foam plastic. The studio walls are double drywall with fiberglass interiors, an air space, and then another set of double drywall and fiberglass.

Since we were limited to about 4000 square feet of usable floor space, efficiency was a must. The blueprint shows how we managed to accommodate all the normal functions of a radio station and not feel crowded. The longest side of the building without windows was used for the studio complex, engineering, mechanical/phone room, record library, and rest rooms. The longest side with windows is where offices for traffic, accounting, programming and management were located. The sales offices are in a large space at the end of the building.

We saved on utility costs by installing three separate heating and cooling systems: one each for the sales area and offices in the front, and a specially-designed all-weather cooling system for the studio complex and engineering.

From the very start, we wanted to provide true, high-fidelity, stereo AM sound. Accomplishing this meant that the entire audio chain from phono cartridges to antenna system had to be carefully thought out. All wiring to interconnect the studios and the mechanical/phone room leads to a central location in engineering, where it is laid out on one wall and terminated on phone-type punch-down blocks. The racks in front of this wall are on a raised floor for easy cable access.

The production room centers around a Pacific Recorders BMX II 14-fader board. Turrets on either side of the board contain an Orban 424A compressor/limiter, 111B stereo spring reverb, an Eventide H949 Harmonizer and patch bays on the left, and an Orban 674A stereo equalizer, with two Pacific Recorders record/play Tomcat cart machines on the right. The rest of our production equipment consists of two Otari MTR-10 reel-to-reel machines, Technics turntables, an ITC ESL IV splice finder/eraser, JBL 4411 speakers, and Shure SM5B microphones.

The air studio also has a Pacific Recorders BMX II 14-fader board selected for its reliability, ease of maintenance, and transparent sound. Music for air is played from six Pacific Recorders play-only Tomcats or, occasionally, from two Technics turntables. The equipment rack contains a Belar modulation monitor, TFT EBS system, Moseley MRC2 remote-control system, Otari MX-5050 reel-to-reel deck, and a cassette deck for airchecks. The air voice is fed to the BMX mic channels through an Orban 422A compressor/limiter used to ride gain and prevent distortion.

Our STL is a two-step process. The audio is first sent via private line to a hotel across the street, then up to the transmitter via a Moseley 606C composite microwave system. The signal is fed into an FM stereo generator and decoded at the transmitter site before being sent through audio processing, then fed into the transmitter chain.

Our transmitter is a Continental 317C2 50 kW driven by the Harris STX-1A exciter. We started with the Harris AM stereo system for its low distortion and wide frequency response, and have stayed with it even though we converted it to the Motorola C-Quam frequency.

We're a directional station, and our four-tower antenna system is driven by a wideband phaser custom designed and built by Carl T. Jones Associates. With our high-fidelity stereo sound, we feel we've gone out of the way to prevent the death of AM radio, and are hoping that active marketing of AM stereo radios comes about soon.
Broadcast Technology of world wide fame

Reverberation and Audio Delay Units

Broadcast Turntables and Pick-up Cartridges

Compressor Amplifiers

Transient Limiters

Audio Production Consoles

Digital Recorders

Contact us for our catalog and price list.

GOTHAM AUDIO CORPORATION
741 Washington Street
New York, NY 10014
Telephone 212 741-7411 Telex 236779
West Coast Office 818 785-2211
If there's one thing that's worse than distortion coming from one channel, it's distortion coming from two channels. That pretty much describes the saga of our station's transition to AM stereo. Like many AM stations, we were committed to switching from monaural to stereo, but did not know which system to choose. We were also concerned by the lack of AM stereo receivers.

Martine Broadcasting had owned WWNR just six months, and that short period of time helped generate enthusiasm for making improvements. I knew AM stereo to be the one marketable improvement that would help make us competitive. I was able to convince the local bank that the station had a bright future if we could finance technical improvements in the large abandoned building we had recently bought to relocate our offices and studios.

The station's equipment was old. Our 19-year-old Gates transmitter wasn't worth converting to stereo, so we invested in a new Harris SX-1. To our delight, our reach was increased by 40 percent. Our sound was cleaned up by adding an Orban 9100 A2 Optimod and the Motorola C-Quam AM stereo exciter.

The next step was to replace our monaural equipment with stereo. We converted our main studio to accommodate stereo by adding two Revox B77 stereo tape recorders and upgrading our Centurian II main control board to stereo. Our ITC cart machines were already stereo.
The symmetry gained from the equalization of complementary forces. Symmetry as in the precise blending of sensational chrominance with outstanding signal-to-noise. Symmetry resulting in a video tape of breathtaking balance. Ampex 196.
For the new production studio, we chose the Harris Medalist 10 board, Technics SP-10 MK II turntables, two Otari MX-5050-11 tape recorders, and ITC cart machines.

Initially, we kept our news/public affairs room monaural, and it contains a Cetec Sparta board, Russco turntables, and an Otari 7MX-5050-11 tape recorder. Since we air local gospel music from this room on Sundays, we plan to convert this studio to stereo in February.

Because of the enormous jump in telephone line tariffs, we have recently installed a Marti STL-10, which not only saves costs but cleans up the air sound.

The transition to stereo equipment eliminated many sound quality problems that affect most AM stations with aging equipment. We were able to eliminate drag in our turntables and tape machines that should not have existed in the first place.

In the station's main control room, the Centurion II board was upgraded for stereo. The ITC cart decks in back were already geared for stereo playback.

In replacing our aging equipment, it only cost a few dollars more to go stereo and centralize the termination of all our equipment on punch blocks in the engineering room. Our new engineering room also houses our Scientific-Atlanta 7325 Digital Processing unit and 7300 Wideband receiver for our 10-meter SA satellite dish.

Finally, in order to do remotes and broadcast area ballgames, we have a 1979 Chevy Van equipped with two Marti RPT remote pickup transmitters allowing for total flexibility.

Our transition shows that music over AM need not be distorted simply because the high frequency response is not equivalent to FM. Most car dealerships in our area offer AM stereo in their new models, but with or without stereo reception, our move to stereo has given back the respect and competitiveness we desired in a very aggressive radio market.

Get in Sync with Videotek Value

The new VSG-200 Sync Generator offers you an unmatched combination of standard features:

- 6 isolated Blackburst Outputs
- SMPTE Color Bars
- 1 KHz Audio Tone Output
- RS-170A specifications
- Color Field I.D. Pulse Output
- Front panel adjustments for H Phase and SC Phase
- Adjustable Vertical Blanking Width (lines 16-21)
- Gen Lock Input with SC and Sync Indicators

© Videotek - 1985
"We're putting out 50 kw of AM Stereo and we've never sounded better."

Morris Blum
President and General Manager,
WANN Radio, Annapolis, Maryland

"As anyone who's been in this business a long time knows—if you don't move ahead, you're left behind.

"We've just upgraded WANN to a 50,000 watt, four-tower directional array. We now reach a potential market of six million people.

"That—along with a new urban contemporary sound—means that WANN is moving ahead, planning for the future... and sounding better than ever.

"And Of Course, We're In Stereo"

"Naturally, I Chose Delta Electronics"

"When I decided to upgrade to AM Stereo, I chose Delta Electronics. Why? Because Delta's been around a long time, providing precision equipment to the broadcast industry long before they came into AM Stereo. They know my business and they know what they're doing. They installed my C-QUAM® stereo system without a hitch.

"And Delta's C-QUAM system is rugged and reliable, built to work the way it should. Literally trouble-free. Plus, it's got the numbers to back it up: over 65 systems operating in the U.S. and worldwide.

"Even better, Delta stands behind it with full technical and service support. Any problems or questions—I just pick up the phone. They're always ready to help.

"Next Time You're In Annapolis..."

"Stop by and I'll personally give you the deluxe station tour. "Better yet, turn your dial to 1190 and hear for yourself the new sound of AM Stereo—and hear where your listeners are going to be."

Delta Electronics, Inc.
5730 General Washington Drive
P.O. Box 11268
Alexandria, Virginia 22312
(703) 354-3350
Telex: 90-1963

DELTA ELECTRONICS

Circle 134 on Reader Service Card
One of the problems facing KFOG's new owners, Susquehanna Broadcasting Co., was finding a new home for studios and offices. After a thorough review of locations, we located a building at 55 Green St. and signed a lease less than three months before our old lease expired. A combination of intensive design work with architects Wudtke Watson Davis and Engstrom, and daily review of progress, minimized the time needed to complete the job.

The two design goals were to build a station suitable for the present that also allows for future growth.

The station is divided into two major areas: operations and administration. They are separated by a door leading to the studios and further delineated by carpet and wall colors.

Modular office furniture in the administration area maximizes the use of available space and provides work areas for the station secretary, promotion director, sales staff, and music research with room to grow. On the perimeter of this area is situated the conference room, copy/mail room, two storage rooms, a kitchen, computer room and offices for traffic, office manager, station manager and program manager with a spare office.

The operations side houses three studios, a programming staff office, engineering manager's office, and the engineering shop.

The studios were built by Industrial Acoustics from their modular, prefabricated line. After considerable comparison shopping, IAC was chosen based on quality and lower cost per foot than "built in place" construction, and in addition they guaranteed acoustic performance. In fact, actual measured on-site acoustic performance exceeds all our contracted specs.

Because the studios fall under the category of "equipment" and not "leasehold improvements" for tax purposes, they qualify for 10 percent investment tax credit and faster depreciation.

Due to a relatively limited equipment budget, however, we were unable to completely abandon our old equipment and start fresh. Careful planning and the cooperation of our air staff kept the station operating while studios were being disassembled, moved and reassembled.

Studio A, which is 15 feet by 20 feet, is used for air broadcast. Three large windows to the outside allow the DJ to check on weather. A console desk featuring a Pacific Recorders BMX-14 Series II holds three turntables and pro-

Promotions director Trish Robbins in Studio B. The window looks into Studio A.
Katz Broadcasting acquired WYAY as its Atlanta property in mid-1984, and directed local management to turn it into a competitive state of the art facility within the Atlanta market.

KFOG midday DJ Dave Morey in Studio A, which features a BMX-14 Series console, three turntables, six Tomcat Players and Studer CD player.

vides convenient access to six Pacific Recorders Tomcat cart players and a Studer CD player.

Studio B, which is 15 feet by 18 feet, is used for morning news, minor production, and tape or record listening without tying up the main production studio. Most equipment is from our old Studio B and includes Pacific Recorders BMX-14 Series I and Tomcat player and recorder, plus two Ampex AG-440C tape machines.

Studio C, measuring 15 feet by 20 feet, is the main production studio. Most of the equipment is brand-new, built around a Pacific Recorders ABX-26 console equipped for four-track production. Three Otari MTR-10s are the primary reel-to-reel decks, with two two-tracks and one half-inch four-track. There are also two Ampex AG-445C players for extra playback, one record and two playback Pacific Recorders Tomcats, and Orban signal processing.

The turntable pedestals in all studios are McCurdy isolation mounts, while the turntables are Technics, with two SP-10 MK1s and one SP-10 MK2A in Studio A and two SP-15s each in Studio B and C. The tone arms in all are Audio-Technica AT-1005Is with Stanton 681SE cartridges. The turntable preamps in Studios A and B were designed and built locally by audiophile broadcast engineer Walt Palmer, while Studio C has RTS-405 preamps.

One other important aspect is the wiring: the entire facility is wired with Mogami Neglex 2820 cable for improved detail and subjective frequency response.

In the hall outside the studios are the news and Metro Traffic printers and the station’s common equipment racks. The four racks are: STL transmitter and satellite receivers, network recording, monitoring, and signal routing equipment.

The programming staff office provides work areas for the production and air staff, plus lockers and record storage space.

The station’s telephone system is an ITT System 3100. We chose it for its excellent quality transmission for broadcast, allowing cost savings through use of its electronic key capabilities, rather than purchasing a separate 1A2 key system just for the studios.

A 3 kVA UPS system by Best Power Technology, Inc., provides three hours of battery standby power. Most power failures in our area last less than an hour, so that amounts to adequate protection without the need to meet the complicated and expensive city code requirements for generator fuel storage.

KFOG’s careful attention to detail helped to insure that the individual needs of our staff were met in what amounted to a remarkably smooth transition from old studios to new.

WYAY-FM
ATLANTA, GA
METRO RANK: 18
Submitted by Johnny Bridges, Chief Engineer

George Dixon at the Pacific Recorders ABX-26 console in WYAY’s multitrack Studio C.
An analysis of the microwave path to the transmitter plant identified three suitable sites, and one of them, Galleria Atlanta, was selected. We then leased a 7600-square-foot space in the Galleria, and the studio complex was laid out by the Katz Engineering Group with input from Jack Williams of Pacific Recorders and Engineering.

Pacific Recorders manufactured the consoles and studio cabinetry, and delivered it prewired for on-site assembly. The air studio is built around a Pacific BMX-III console with 15 of the possible 18 positions in use. Six Pacific Recorders Tomcat cart players and two Technics turntables are used for source material. The three mic positions are gang-switched when needed, using a module also built by Pacific Recorders. Mic processing is handled with dbx 900 Series equipment, with EQ and limiting on each to allow for individual settings.

We use a Sony JH-110 recorder both for program replay and telephone uses, and a Tascam 122-B cassette unit, which can also be used for complete program recording, is interfaced for skimming airchecks. Patching facilities allow us to reconfigure all studio equipment if necessary.

The overhead cabinetry in the air studio contains all required operator controls and monitoring equipment. Located here are the remote-control display and controller, microwave status and control panel. EBS alarms, sounders for the telephone hotline, and control switches for the EBS system, telephone system and other systems.

Our “B” studio is assigned for stereo production and is built around a Pacific Recorders AMX console with 12 of 18 inputs in use. All sources except cart machines have insert EQs installed, and an Orban compressor/limiter/de-esser, an Ursa Major Stargate, and an Orban Paragrapheic EQ/filter are available for sweetening production. This studio also has two Pacific Recorders Tomcat record/play cart decks, and two Sony JH-110C reel-to-reels. Technics turntables complete the equipment roster in this studio.

DJ Johnny “Stonewall” Jackson in the air studio, which is built around a Pacific BMX-III console, six Tomcat cart players, and two Technics turntables.
**Q.** If Microdyne's Ku-band downlinks are so good, why can they cost $30,000 less?

**A.** Microdyne's 5- and 7-meter dishes are precise, broadcast quality antennas providing up to 57.7 dB of gain and more than 10 years of service life. The telephone industry has run field tests which proved that top quality fiberglass antennas in outdoor service are unsurpassed in performance.

A manufacturer of metal antennas cannot escape expensive tooling if his goal is quality approaching that of Microdyne. Amortizing the dies, jigs and molds is a heavy cost which must be passed along to you, the buyer. Therefore, a Microdyne downlink can save you as much as $30,000 because fiberglass is a superior material.

**Q.** How much experience with Ku-band installations does Microdyne have?

**A.** We are among the pioneers of Ku-band technology. We have supplied the receivers, antennas and support equipment for a major electronic manufacturer's nationwide teleconferencing network. We've been supplying uplinks and downlinks for as long as there's been a commercial Ku-band market.

**Q.** What organizations and broadcasters have actually purchased Ku-band equipment from Microdyne?

**A.** CONUS, Dalsat, Florida News Network and all the other major satellite news gathering networks, plus a growing number of independent TV stations.

**Q.** How much flexibility do I get, in bandwidth and frequency?

**A.** Microdyne downlink electronics offer virtually unlimited access to any satellite signal. Microdyne's newest 96-channel receiver with plug-in programmable modules is capable of receiving Ku- or C-band, and has dual IF bandwidth filters for half or full transponder reception. Whatever you want to do with Ku-band, Microdyne can find a way to help you do it, without destroying your budget.

**Q.** How can I get more information on Ku-band downlink systems by Microdyne?

**A.** We've put together a small folder which contains a big collection of facts and performance figures of Microdyne antennas and electronic hardware for Ku-band. Just call us at (904) 687-4633 or write for all the facts on these products.

Microdyne Corporation
P.O. Box 7213, Ocala, FL 32672
(904) 687-4633
TWX: 810-858-0307
which is used for dry voice production, as well as music mastering and telephone feeds of spec spots for clients.

Studio "C" is used for multitrack production. Our console is a Pacific Recorders ABX-26 unit, with 15 input modules, four multitrack modules, and a two-mix module. As with studio "B," all inputs except carts have insert EQ available. This studio also has a Sony JH-110-4 four-track recorder and two Sony JH-110-C stereo recorders, along with two Pacific Recorders Tomcat record decks. An Ursa Major Stargate, Eventide 949 Harmonizer, Orban Paragraphic EQ/filter, an Orban compressor/limiter/de-esser, and Orban stereo synthesizer, plus two Technics turntables complete the rest of the equipment in studio "C."

In our news on-air booth we use an Autogram IC-10 console, and Pacific Recorders Tomcat cart machines. A Tascam cassette unit is available, along with an ITC 850 reel machine and an Orban paragraphic EQ to clean up poor feeds. The news rewrite station consists of an ITC 850, Pacific Recorders Tomcat recorder, Scribe cassette recorder, Urei graphic EQ, and a Rane mixer.

Our studios all have Pacific Recorders logic interfaces, configured for ease of operation. There is tape start-stop with channel on-off provided, but it is switch defeatable from the console when needed.

For our telephone needs, we modified a Telrad distributed microprocessor key system. In the studios we switch incoming lines to our Gentner hybrids, which are interfaced to the consoles using Pacific Recorders telephone modules. Our remote broadcasts are fed on dialup lines using a Comrex frequency extender.

Studio signals are routed through the central racks in the connecting hallway through ADC ProPatch bays. These racks also mount all audio amps, modulation monitors, EBS equipment, monitor tuners, the master clock, house music and paging amps, audio DAs, and the Comrex equipment.

The transmitter remote control is built around a Hallikainen and Friends DRC-190, with 20 channels of control and metering. Based on past experience, we were aware that the air staff doesn't always notice control readings, so we interfaced the unit with a Commodore C-64 computer, color monitor, and printer. Out-of-tolerance conditions cause the display to change colors, and in some instances it flashes in order to get the operator's attention. The printer prints transmitter parameters each half-hour. The DRC-190 is mounted overhead to allow direct control and to allow manual logging in the event of a computer failure.

One source of pride in completing the new facility was the timetable we were able to meet. Construction began in November of 1984, and we occupied the facility on February 2, 1985.
MC-200/MC-300 PEDESTALS

Featuring Canon's sophisticated Modular Cassette Counterbalance (MCC) system that makes them far lighter and more mobile. Canon pedestals also feature a very short mounting height, making them ideal for low-angle shooting.

MC-200
- Maximum Mounting Weight: 286 lbs.
- Elevation: 24-49 inches

MC-300
- Maximum Mounting Weight: 242 lbs.
- Elevation: 23-60 inches

TR-60/TR-90 TRIPODS

Featuring collapsible tubular leg construction, integral spreaders, flip-tip legs with spikes and rubber padding.

TR-60
- Maximum Mounting Weight: 132 lbs.
- Elevation: 20-45 inches

TR-90
- Maximum Mounting Weight: 98 lbs.
- Elevation: 25-48 inches

SC-15 CAM HEAD

Designed for use with all pedestals and tripods, it features a convenient "V" wedge mounting system and center-of-gravity adjustment control. The modular panning rod may be used on both sides.

- Maximum Mounting Weight: 330 lbs.
- Tilting: ± 50° Panning: 360°

CD-10 DOLLY

Designed for use with both Canon tripods, features a tricycle caster undercarriage that enables both free and single-direct on movement.

- Maximum Mounting Weight: 198 lbs.

For years, broadcasters have made Canon lenses a top choice for studio, field and news production because they know and trust Canon's proven commitment to quality and value.

Now Canon is proud to introduce a complete, full-featured, high-quality camera support system, built to the same high standards and backed by the Canon service network.
building a new studio/office facility in downtown Cincinnati, thus serving both communities.

The building we selected was an old French Bauer Dairy plant that was being converted into a glamorous showcase encompassing a four-story glass atrium with tiered balconies, Italian marble floors and computerized theatrical lighting. It encompasses a 5200-square-foot area with an atrium balcony and view of the downtown skyline.

Employee input figured prominently in our design plans. The initial plan called for the studio to be situated in the atrium, but air personalities objected to the idea of a "fishbowl" environment. We put the studios in the center, as the station's hub, and surrounded it with offices along the building perimeter, so each office has a window.

The dimensions and symmetry of the rooms, and angles of the walls and ceilings, were calculated to eliminate undesirable early reflections while providing accurate stereo imaging. The ratio of the room dimensions, as well as the tuned bass traps and resonators, eliminate objectionable low frequency standing waves that cause a muddy sound. The time coherent speakers are mounted on suspension isolators inside the walls with the faces flush with the wall, thus providing an infinite baffle to launch the low frequency wave while eliminating distorting reflections.

Sound isolation is accomplished by means of a floating floor and triple wall system creating a "room within a room." The center wall is eight inches thick, runs from slab to slab, and is sealed airtight. A floating floor is constructed within each studio and is completely isolated from the building. The five-inch-thick interior walls rest on the airspace between each wall. The five-inch-thick ceilings are supported by the

WLLT's air studio features oak cabinetry custom-built by the Audio Broadcast Group. To the right is a housing with special slide-out shelves for six ITC-99B cart machines; two Sony CDP-650 CD players; and two Sony two-track machines.
The Abekas A52 Digital Special Effects System.
Take the controls of our A52 Digital Special Effects System. And let your fancy fly. Your video will be limited only by your own imagination.

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

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

If you have powerful picture manipulation on your mind, think of the Abekas A52. For details contact: Abekas Video Systems, Inc., 353A Vintage Park Drive, Foster City, CA 94404. (415) 571-1711.

STRETCH YOUR EFFECTS TO $35,900
Continental Electronics offers 24-hour professional engineering service and parts for Continental and Collins AM & FM transmitters. Whenever you need service or parts for your Continental or Collins equipment, phone our service numbers day or night.

(214) 327-4533
(214) 327-4532 parts

Continental Electronics Division of Varian Associates, Inc.
Box 270879 Dallas, Texas 75227
Phone (214) 381-7161

**DAY and NIGHT SERVICE FOR Continental AM & FM TRANSMITTERS**

---

**FM RADIO**

interior floating walls and suspension isolators, so that there is no rigid vibration-transferring connection between the studio interiors and the outdoors. The doors are 350-pound units custom-made of three multiple density layers with airtight seals on all four sides that operate automatically when the doors are closed. Window construction techniques maintain the sound isolating integrity of the triple wall system with three panes of multiple density glass to eliminate sympathetic vibrations.

The studio air conditioning system is separate from the building system, so it can run continuously and undisturbed. The system is designed to deliver high volume at low velocity with appropriate duct silencers and other techniques to eliminate noise. Each studio’s temperature is separately controlled and humidity is regulated at 50 percent.

The studio’s electrical system is isolated with a Sola line conditioner that provides 120 dB of common and transverse mode noise and transient rejection. A 12 kW emergency diesel generator automatically comes on-line within two seconds following a power failure. There is also an isolated low inductance studio equipment common point ground bus. To eliminate ground loops, nothing is grounded to the ac conduits or neutral bus. Studio receptacles are special three-wire isolated ground types as used in hospitals, each with its own #12 wire to this common point ground.

The studio's electrical system is isolated with a Sola line conditioner that provides 120 dB of common and transverse mode noise and transient rejection. A 12 kW emergency diesel generator automatically comes on-line within two seconds following a power failure. There is also an isolated low inductance studio equipment common point ground bus. To eliminate ground loops, nothing is grounded to the ac conduits or neutral bus. Studio receptacles are special three-wire isolated ground types as used in hospitals, each with its own #12 wire to this common point ground.

Lighting throughout consists of a combination of quartz halogen and incandescent track or recessed luminaires on rheostat dimmers, as well as special three-level fluorescent fixtures with remote dimming ballasts. The cabinetry and parquet flooring are finished in oak. A carbonized backing was applied to the plush cut-pile computer carpet and then installed with conductive adhesive to achieve the lowest static rating.

A highlight of the studio complex is the state of the art multitrack production facility. WLLT’s production studio can produce original jingles on our synthesizer system, a Yamaha DX-7 with eight additional slaved modules. Equipment includes an Audtronics 382 custom 24x8x2 console; Urei 813 speakers; Otari eight-track recorder with multipoint search to cue; Sony and Studer two- and four-track recorders with SMPTE for locking to video or other audio; an Eventide Harmonizer; Orban 424A compressor/limiter/desessor; and 10 channels of dbx noise reduction.

The on-air studio is engineered for comfort and ease of operation. To the left of the Audtronics 218 custom console is a cabinet with two Technics SP-15 turntables on special isolated pedestals. Above the turntables is a rack unit for EBS, cassette skimmer, and transmitter remote-control unit. To the right is a housing with special slide-out shelves for six ITC-99B cart machines that allows easy access for alignment. Next to the carts are two Sony CDP-650 CD players, behind the jocks are two Sony two-track machines, and in the rear corner are three floor stand cart racks. An adjacent equipment room with a wall of equipment racks serves as the terminal point for interstudio and station interconnections. It contains ADC Propatch jackfields, modulation, weather, and house monitors, Moseley PCL-606C STLs, Harris Audio Time Base Corrector, and our proprietary dynamic split band processing system that varies the processing according to the program content.

The newsroom, which doubles as a dubbing facility and isolation booth for the production studio, is equipped with an Autogram console, three ITC-99B carts, two Studer Revox PR-99B tapes, Technics cassette, Yamaha tuner, Fostex speakers, scanner, TV, and a turret with controls for the 218 air console including clock, timer, mic channel control, monitor, and remote starts. Interface to the outside via phone lines is handled by a Mitel SX-100 Superswitch PBX with a custom key system behind the switch, and Gentner SPH-4 hybrids.

**USED POST-PRODUCTION EQUIPMENT**

**FOR SALE**

- Ampex VPR-2B 1” VTR
- Image Video Routing Switcher 60 x 96 4 level
- Bosch Mach 1 Editing System
- Chyron III and Compositor I
- Title Generators

**VIDTRONICS**

(818) 840-7208
(818) 840-7121

---

**VOTE BALLOT ON PAGE 81**
A TOUGH ACT TO FOLLOW

Genesis 1™ With ACT 1™ $27,990

Genesis 1 ACT 1, Microtime's high quality, low-cost digital effects system increases creative capabilities to your imagination's limit. Create through self-prompting, icon-driven menus and instructions for sequences involving moves, freeze, flips, tumbles, posterize, shadow, variable aspect ratio, XY mosaic, strobe, and source change.

Genesis 1 ACT 1 offers:
- 3-Axis joystick control
- Keyframe creation of sequences
- Smooth curvilinear movement
- Frame accurate duration of a sequence
- Routing switcher interface for dual input switching when flipping and tumbling
- Three levels of sequence storage: RAM, internal and portable

Genesis 1 ACT 1...A user-friendly digital effects system for your video productions. An ACT not to be missed at $27,990.

Microtime, Inc.
1280 Blue Hills Avenue
Bloomfield, CT 06002 USA
Tel: (203) 242-4242
TWX: 710-425-1165

Genesis 1 and ACT 1 are trademarks of Microtime, Inc.
When Alaska Video Productions set out to cover the 1985 Yukon Quest International Sled Dog Race, it went with a winner.

It picked 1/2-inch PRO FORMAT EASTMAN Professional Video Cassettes with Betacam equipment to record the grueling event, which saw 28 entrants mush over a 1000-mile course from Whitehorse, in Canada's Yukon Territory, to Fairbanks, Alaska.

Says AVP partner Garry Russell, who handled most of the camera work for the production: “The Eastman tape performed flawlessly through the rigors of the two-week event, in temperatures ranging from -30°F to 40°F. In dazzling sunlight, blowing snow, and after dark.”

 Adds producer Alex Epstein: “The pictures we brought back were some of the finest we've ever seen of this beautiful part of the world.”

Altogether, AVP shot nearly 17 hours of tape during the race. This was edited into a 30-minute production that was seen throughout Alaska via satellite, in the Pacific Northwest on McCaw Cablesystems, and in parts of Canada on CBC-North TV.

Recording “The Challenge of the North” proved to be another challenge overcome by EASTMAN Professional Video Cassettes. If you'd like to tell us how EASTMAN Professional Video Cassettes have helped you, write to Eastman Kodak Company, Dept A-3063, 343 State Street, Rochester, NY 14650.

For more information about EASTMAN Professional Video Tape, call 1 800 242-2424, Ext 80, or contact your nearest dealer in EASTMAN Professional Video Products.
The construction of WNYC's Fiorello H. LaGuardia Telecommunications Center, located on the twenty-fifth floor of Manhattan's historic Municipal Building, marks the first major technical upgrade for the station since 1952.

The state of the art complex is designed to house AM/83 and FM/94 on-air studios, production facilities, national broadcast studios, and satellite operations that include downlink program taping as well as distribution and uplink (NPR satellite system) services.

The complex is a combination design, which allows the talent to remotely control all control room equipment, thus eliminating the need for an engineer. The central distribution switcher, located in the terminal room, also helps to cut back on the labor force needed to run the plant. The switcher and the layout of decks and racks allows one person to perform multiple duties by remote control. The satellite operations, a substantive revenue producer, are also laid out to function as a one-person operation.

The station's air conditioning system consists of seven complete units that are controlled and monitored separately by an operator in the terminal room. Although the initial installation costs are higher for such a system, the energy conservation aspect of a split system will pay for itself.

Cost and time savings were an integral part of the planning stage. Since all control rooms are at least stereo, no further studio costs would be incurred if AM 83 was converted to stereo. Because the plant has six control rooms and two studios, maintenance crews are able to shut down a facility without disturbing on-air or production time. This encourages routine maintenance checks rather than the more expensive "emergency" maintenance.

In the station terminal room, located behind the reception area glass window, stands the NTP central distribution switcher, which is responsible for sending audio throughout the entire facility. This switcher is equipped with 96 stereo inputs and 32 stereo outputs and replaces the need for patch boards, that are, however, available as a backup system. The terminal room is also equipped with 10 Revox PR99 reel-type recorders for downlink recording and distribution as well as separate machines for recording directly from remote units located within Manhattan's City Hall.

Adjacent to the terminal room is the satellite area, where uplink operations can be remotely controlled. (The uplink transmitter itself is located in Brooklyn.) This satellite area also includes a Pacific Recorders BMX III console, and four Studer A-80RC reel recorders with selectable Dolby noise reduction to uplink supplied programming.

Each control room is equipped with
Each WNYC control room is equipped with Pacific Recorders consoles and stereo cart machines, as well as Technics SP15 turntables, Studer 2706 monitor speakers, and a Studer compact disc machine. Pacific Recorders consoles, two of which are ABX multitrack and four of which are BMX III; three Pacific Recorders stereo cart machines; a Tascam 122B cassette deck; two Studer A80 reel-type machines; AKG 414EB microphones; two Technics SP15 turntables; and Studer 2706 monitor speakers and an isolated announce booth. Since CDs comprise a portion of our music programming, we also have a Studer compact disc machine.

Each control room serves as a full production facility. With this in mind, the complex also includes five audio edit suites, each equipped with a Scully 280B reel-to-reel, and space-saving furniture modules designed to make optimum use of the various shapes and sizes of each suite. This additional workspace frees control rooms for heavy production work and on-air broadcasts.

The newsroom, which contains an editor’s office, a copy desk area, and a teletype room, also has three separate news edit stations that include a Sony reel-to-reel machine, a Tascam cassette deck, and an access terminal to the central distribution switcher.

All studio, control room, and terminal room walls are covered with two-inch acoustical panels and have large...
Finally, a Monitor System with the Power to Make Things Easy

Imagine a monitor speaker that provides its own power. Fits in tight spaces. Simplifies setup. And reproduces sound with test-equipment accuracy.

If you can imagine all that, you've just pictured the Sentry 100EL powered monitor system from Electro-Voice. Designed and created for your monitoring convenience, the 100EL combines the superb audio reproduction of the Sentry 100A with an integral, 50-watt amplifier.

With speaker and amplifier in one compact, rack-mountable package, this monitor system solves problems like limited rack space, equipment transport on remotes or cramped spaces in video editing booths.

Also, by requiring less hardware—fewer cables and connectors—the 100EL keeps setup simple and reduces potential interconnect problems. And there's no possibility of power loss caused by resistance from a lengthy speaker cable.

The on-board amplifier in the 100EL makes it ideal for single-channel monitoring. Why buy one speaker and an extra amplifier channel, when the Sentry 100EL does the job all by itself? And because amplifier power is perfectly matched to the speaker system, there's no chance of damage from inadvertent signal overload.

But convenience and trouble-free operation are only part of the package. Like all Sentry designs, the 100EL offers uncompromised accuracy. So you can be certain of quality sound.

The Sentry 100EL - with the power to make your job easier. For more information, write Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107.
windows. The studios are lined with fluorescent cove lights around the outer edges of the room, and incandescent spots controlled by four separate dimmers accommodate various studio setups.

Supporting the complex are computer-type raised floors, which provide room for wires and cables under the floor panels. Separate telephone rooms for Telco and interconnect service are provided for interoffice, intercom, and broadcast services.

Finally, the WNYC audio complex is equipped with a video system, which consists of three off-air tuners, controlled from the terminal room; a monitor tuned to our sister station, WNYC TV/31; a security monitor; and monitors in the studios. These are frequently used during simulcasts.

The two-story, 20,000-square-foot studio building constructed exclusively for the studios and offices of our AM/FM was designed by Lee Architects of Lakewood, CO, and built by Calcon Constructors of Denver between May, 1983 and July, 1984.

The building is a fully active solar heated facility with 48 solar collectors that supply all heating and hot water needs. It is supplemented with a backup electric boiler system when needed. Air conditioning is of the zone type, utilizing small compressor units located near each zone in the ceilings.

The building's large garage houses two large mobile studio vans, a 75,000 watt standby diesel generator, and two Scientific-Atlanta 9000 Series 2.8-meter earth station dishes.

Eleven eight-foot equipment racks, which contain all processing, distribution, monitoring, satellite, and noise reduction equipment, are located on the second floor.

On the roof is an antenna rack structure supporting some two-dozen assorted two-way, police monitor, STL, satellite, and modulation monitor pick-up antennas. All coaxial cables enter through a single point and are routed directly into the central equipment room racks.

Also contained in the building are several storage areas, two conference rooms, including one which may be used as an auditorium or banquet hall, a full kitchen and projection room facilities, and access to a covered patio. Also on the ground floor are the technical shop, employee lounge, garage, telephone equipment room, and exercise areas featuring showers and Nautilus equipment.

On the second floor are the business and management offices, as well as all studios and music libraries.

In the central equipment room are racks containing all processing, distributing, monitoring, satellite, and noise reduction equipment, as well as all audio amps for studio speakers, headphones, intercom, and utility equipment.
FROM HAIRPIN TURNS TO STRAIGHTAWAYS, THE SPEED OF SOUND HAS NEVER BEEN SO SMOOTH.

For years, sloppy tape transportation and handling have made the audio engineer's day much harder than it had to be.

This tormenting state has come to an end with the introduction of Sony's APR-5000 2-track analog recorder, available in a center-track time code version. The APR-5000's precise handling and numerous advanced features make the audio engineer's day run much smoother. For example, the APR-5000's 16-bit microprocessor manages audio alignment with a precision that's humanly impossible. And the additional 8-bit microprocessor opens the way for extremely sophisticated serial communications. In tandem, they reach a truly unique level of intelligence.

Not only does the APR-5000 do its job well; it does it consistently. The die-cast deck plate and Sony's longstanding commitment to quality control maintain that the APR-5000 will hardly need time off.

All of which results in a consistent sonic performance that'll stand even the most critical audio professionals on their ears.

For a demonstration of the recorder that transports analog audio to a new fidelity high, contact your nearest Sony office:
- Eastern Region (201) 368-5185;
- Southern Region (615) 883-8140;
- Central Region (312) 773-6000;
- Western Region (213) 639-5370;
- Headquarters (201) 930-6145.

SONY Professional Audio

© 1985 Sony Corp. of America. Sony is a registered trademark of Sony Corp.
DJ Randy Jay in the KIMN/KYGO control room, which utilizes Howe Audio 24-channel consoles in addition to the three-sided overhead cockpit turret cabinetry, which contains eight ITC Delta single-play decks. Also mounted in the equipment room are the electronics for our custom-designed and built Howe 24-channel audio consoles. All audio speakers. Also mounted in the equipment room are the electronics for our mixing and busing is done with the studio consoles being essentially dc control heads to accomplish level control. The control room consoles contain no audio, which allows for better maintenance of active electronics by removing them from high traffic areas. All studio cart machines employ dbx Type II noise reduction, and the encode/decode modules are also in the central room.

The control rooms use Howe 24-channel consoles with remote electronics. There is full dc VCA control, remote multiple input selectors, and rack space to accommodate Otari MTR-10 Autolocator units, a Farrtronics intercom panel, and special control functions. Overhead turrets contain eight ITC Delta single play decks (two with record), and the rest of the cabinet layout houses two Technics SP-10 Mark III turntables on isolated boxes, two guest positions behind the custom-designed and built Howe console, and two Otari MTR-10 reel-to-reel.

Professional Wireless

The best wireless microphones should sound identical to the mic, hard-wired . . . HME systems do! Dynamic range, frequency response, and system gain are set for transparent performance.

The best wireless mic should provide years of reliable performance . . . HME systems do! Our unique Auto-Loc discriminator allows the receiver to actually track the transmitted RF signal to eliminate RF-related distortion.

The best wireless mic body-pac should be compact and ultralight, almost unnoticeable systems— a Step Ahead

HME systems are! Our Cycolac housing and miniaturized circuitry allow a transmitter weight of only 2.5 ounces. The best wireless microphones are available now . . . from HME Electronics, Inc.

Call or write for detailed information on our complete line of professional wireless microphones, wireless intercoms, and cabled intercoms.
Our production rooms face each other and are divided by a shared wedge-shaped announcer’s booth and back-to-back record/tape closets. The focal point of the rooms is the Quad Eight 248 Series console. It is self-contained except for power supplies which are rackmounted. The console has 64 monaural and 32 stereo inputs and may be arranged into a four-track, two-track, or mono mix mode via bus routing selectors and submix pots.

Also in the studio are two Otari MTR-10 two-track reel-to-reels, and an Otari MTR-10/4 four-track unit. Each of these has its own autolocator mini-computer. The turntables are Technics SP-10 Mark Ills with Stanton preamps and Audio-Technica tone arms. The room is acoustically isolated by use of four sound-resistive layers of dry wall from concrete floor to building roof, and filled with dense fiberglass batting.

The newsroom, which is used primarily by KIMN-AM, has a Howe Audio 7500 console with minor modifications, two Otari MTR-10 two-track machines, and three ITC Delta III three stack cart decks with record amplifiers.

The stations' newsroom features a main anchor position (left) that uses a Howe Audio Model 7500 console, two Otari MTR-10 two-track machines, and three ITC Delta III three stack cart decks with record amplifiers.

With our Automatic Remote Control System your transmitter — and your personnel — will operate with increased efficiency

Have you ever wondered if your night operator will remember... to switch patterns at sunrise?... to periodically check critical levels?... the correct transmitter restart sequence? You'll never have to worry if Potomac Instruments' RC16+ is on the job. Because it'll do all these tasks for you. Plus a lot more. Automatically.

With its microprocessor based control logic, the basic RC16+ provides 16 telemetry channels with automatic out-of-tolerance alarms and remote raise/lower controls; plus 16 status channels. The automatic functions — pattern shift, transmitter restart, power control — are pre-programmed in accordance with station license requirements and controlled with an accurate master clock.

The RC16+ is also expandable. In 16 channel increments, up to a total of 64 channels. With the remote video display option your chief engineer can get a detailed readout of all measured parameters. It's updated every 30 seconds and connects to any standard telephone. The optional plug-in automatic logger provides a permanent record of all transmitter activity. Log intervals, sequence, and alarm flags are user-selectable.

And, best of all, the RC16+ is cost effective. No other unit on the market offers these features and capabilities at this low price.

<table>
<thead>
<tr>
<th>Basic System</th>
<th>$4,995.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional 16 Channels</td>
<td>1,865.00</td>
</tr>
<tr>
<td>Plug-In Automatic Logger</td>
<td>2,499.00</td>
</tr>
<tr>
<td>Remote Video Display Unit</td>
<td>650.00</td>
</tr>
</tbody>
</table>

**Potomac Instruments**
932 Philadelphia Ave. Silver Spring, MD 20910
(301) 589-2662

Circle 145 on Reader Service Card
KTAM and KORA are both designed with unique two-way studios. A recent phase of remodeling gave us a chance to install state of the art internal communications equipment and to upgrade our remote broadcasting facilities. Unlike most stations, we designed from the outside in.

When we expanded our facility to the 8000 square feet it is today, we built around the core studio area. The outer ring features an automatic security system that electronically locks all access doors in the evening and unlocks them in the morning. A keypad by the door allows for after-hours entry. We are equipped with a 25 kW emergency power generator that powers all the transmitters, studios, typewriters, and transmitter room air conditioning. An emergency lighting system uses batteries to light studios and hallways until the generator is on line.

The conference room has various uses, from staff meetings to broadcasting. It has AM and FM air monitor jacks as well as a four-channel mixer. A jack for the UPI printer makes this area ideal for commentators during election coverage. This room can also feed any studio.

Each room has a five-channel sound system that allows the staff to choose between our two stations, or to monitor three of our competitors. Cassette recorders in the AM and FM program directors’ offices are connected to the studio mic switch allowing them to only record the air announcers’ portion of a show. Timers make it easy to air-check even the midnight announcers.

Each station’s studio is set to receive any network or remote frequency. Because of this requirement, we chose Ramko 32 input stereo consoles. The KTAM/KORA motor fleet consists of two 25-foot GMC motor homes used as mobile studios for either station. The van is used for on-the-road broadcasting of special promotions.
At Landy Associates, Ikegami equipment comes with

a feature you won't find anywhere else.

Take a good look at the world's most professional line of video equipment. Ikegami color TV cameras—from the compact HL-79E to the fully automatic HK-322—and a wide range of color and black and white monitors.

Now look again. What you can't see is something Landy Associates builds into every Ikegami we sell.

Service.

We think that if you're buying the best equipment, you deserve the best after-sale support—from repair work to television systems planning. Which is why it makes sense to buy from the one Ikegami dealer who'll serve you as well as your Ikegami does.

Landy Associates. Call or write today.

Landy Associates, Inc.

1890 E. Marlton Pike, Cherry Hill, NJ 08003, (609) 424-4660

330 Bear Hill Rd, Waltham, MA 02154, (617) 890-6325

Circle 146 on Reader Service Card
AM and FM air studios duplicate each other, allowing ease of service and cross training of announcers. One patch cord lets any studio feed either station. While both studios have Technics turntables, most source material comes from cart or compact disc. An interface box built by engineering not only remote starts all cart decks, but resets the countdown clock, automatically starts the next cart deck, and mutes the deck just played.

A green LED indicates which deck is in the MUTE mode. To the left is a Technics 707 reel recorder for taping callers and network shows, as well as a Quasar compact disc player. Next to that sits a triple video monitor. The front door lock can be opened by pushbutton from the control room; thus, a video camera at the door feeds the first monitor allowing the announcer to verify identity before permitting entry. A TRS-80 color computer drives the other two screens. Screen two displays the current weather forecast. The computer takes a feed directly from the weather wire and forwards the local zone information to the video monitor. Screen three is hooked to the UPI line. The computer recognizes any story rated "urgent" or "bulletin" and forwards it to this screen. Thus, the announcer is kept up-to-date on all news and weather automatically.

In addition to the mainframe computer that handles traffic and billing, we have computer terminals and printers in four other offices. These handle sales proposals, projections, KORA music scheduling, and store the "reader" cards used by the announcers. Soon, an interactive system will go on line allowing the announcer to enter a request into the music rotation data to determine if the song can be fitted into the format without breaking rotation policy.

Music is recorded in the two-channel production room using a Ramko board, SAE scratch filter, Dynafex noise reduction, and an ITC 99B recorder. Commercials and promos are recorded onto Revox PR99 stereo recorders. The special effects production room is used for more difficult material. It features Tascam four-channel recorders and console. In addition to an ADM time delay, it has equalizers, compressors, and a stereo enhancer. A Revox A-77 is also available for dubs to other stations.

In the past three years, the KTAM/KORA engineering staff has done over 400 remote broadcasts. Three mobile units have handled this commitment to our community.

We have outfitted two 25-foot GMC motor homes as complete broadcast studios. With the help of Nady wireless microphones and Marti relay equipment, we can add even more flexibility to our out-of-the-studio presence. One low-band and two high-band frequencies bring the signal back to the station while another low-band frequency is...
KTAM control room features video monitor (left) that displays the front door, UPI messages, and local zone weather forecasts. Technics turntables are used for special programs.

used to deliver cues and information to the remote site. Difficult interior locations call for our "bounce" system. One transmitter broadcasts back to the mobile studio and another transmits to the receiver at the station.

Another source of remote information comes from the news department. Our news staff can choose actualities from ABC, Mutual, or the Texas State Network. Three satellite dishes and receivers provide a great choice of material. Local material is recorded in the field on Marantz cassette recorders and brought back for editing at either of the two news workstations. When the news has to be reported on the scene, we use Motorola 2 W handheld transmitters tied into a local repeater. The units are computer-controlled so that only the three units used by the station can be on the channel. The local stock report is brought to the station by Marti directly from the broker's office, giving it a much higher quality sound.

A SIGHT FOR SORE EARS.

SONEX

If ears could talk, they'd scream for SONEX. The only patented acoustic foam with a specially sculptured anechoic design can replace traditional studio materials for a fraction of the cost. SONEX absorbs sound, controls reverb, eliminates stray reflections, and kills standing waves. What's left is true sound. Your ears know. Listen to them. Simple to apply and economical to buy, SONEX blends with almost any decor and looks clean, sharp, professional. Call or write us for all the facts and prices.

SONEX is manufactured by Illbruck and distributed exclusively to the pro sound industry by Alpha Audio.

ME-318 Stereo Sound

FOR ACR & TCR QUAD CARTS

VISA

Vertical Interval Stereo Audio

Upgrade any ACR or TCR to record and play stereo audio without transport modifications. Separate encoder and decoder modules are used; multiplexing the two stereo channels into the vertical blanking portion of the video signal in Record and retrieving them during Playback.
One of the best kept production secrets in New York City:

Over 90 Central Dynamics Series 80 video production switchers are providing the video power and effects to the Big Apple's best talent... from Music Videos to Network News.

And now the New SP Series 80 switchers promise the same competitive advantages to any size facility, in any location, and for just about any size budget. SP... Special in every way.

Special Power.
Special Performance.
Special Packaging.
and at a very competitive price.

Discover why buyers and users claim... "the SP switcher gives you more... in fact, a lot more for your money."

Call or write for complete details.
Use our New 800 numbers in U.S. and Canada.
Product Information 1-800-361-2354
Product Service 1-800-361-2357

CENTRAL DYNAMICS
The enlargement and renovation of WCVB-TV's studio and technical facilities, undertaken in the spring of 1984, involved a number of special problems. WCVB-TV broadcasts full time and prides itself in producing more local programming than just about any other television station in the country. In addition, news has a special significance in the highly competitive Boston market.

We first faced the problem of rebuilding and enlarging the station's only active control room and adding a second identically equipped room. To smooth operations, a temporary control room was constructed.

The control room adjacent to the working news office/set was built first. This room is separated from the newsroom by a large tinted and tempered glass window with a large motorized shade, painted green, that is used for chromakey when needed throughout the newscast.

All cameras, recorders, and machine control are available in each control room. Each has a Grass Valley 300-3 switcher with full Master E-MEM and E-Disk, and a two-channel Quantel DPE-5000 + with flex and rotation. Our still store is a Quantel DPS 6030 with 320 Mbytes of disk storage. Although the GVG switcher has an excellent chromakeyer, we use Ultimatte Newsmattes for the highest quality keys. An assignable Utah Scientific machine control system is at the TD's position. Both control rooms have McCurdy computerized communications and 36-input Neve Model 5610 audio boards.
The first of WCVB's three studios combines the news offices and set into a working studio. Its lighting grid extends into the office area to allow reporters to go live with fast-breaking news events from their desks. The noise and bustle of the busy newsroom provides viewers with a feeling of immediacy. The cameras in this studio are three new, computerized Ikegami HK-322s with triax. Six edit suites for the exclusive use of news are immediately adjacent to the news playback area.

Attached to the news studio is the weather center, which can originate reports when warranted. Its equipment includes ColorGraphics LiveLine 3 and 4 computers, a Vitro weather radar, and an Alden dialup radar system for access to National Weather Service radar facilities.

The two other studios measure 2400 and 5400 square feet, respectively. They share five Ikegami HK-312 computerized cameras on triax.

The larger studio was designed for optimum flexibility with a motorized lighting grid system designed and built by Texas Scenic, which also provided all the buttons, track, and curtain material. Each of the studio's 312 lighting circuits has its own Teatronics dimmer, with control by a Concept computerized lighting controller with built-in floppy disk drive and a Teatronics Director 36-channel dimming controller. Motorized seating for 144 people folds to within five feet of the studio wall.

The centrally located tech center contains the station's four film chains, master.

Adjoining the tech center is a CMX 340 computer edit suite with three Sony one-inch tape machines, a 16-track Ampex ATR, and processing and terminal equipment.

The graphics area contains a Quantel Paintbox, with an Ikegami ITC-730 camera for input. A control point for the station's still store is here so the artists can transfer their images as soon as they are completed.

We at WCVB are extremely proud of our newly remodeled operation and know that it brings to our talented staff the best facilities available.
How do you decide on a brand new, high power television transmitter that costs nearly $1 million?

It isn't easy. Especially when you have to live with that decision for the next decade. And maybe longer.

At NEC, we've been manufacturing and installing television transmitters for nearly 30 years. So we've signed on more than 1,400 systems in every corner of the world.

Now, we'd like to introduce you to two more...

The first, PCN-1400 Series VHF Transmitters, includes a powerful new one tube 35 kw system, available in the U.S. for the first time.

All new V's give you 50% improvement in MTBF (now 30,000 hours). With 30% fewer exciter parts to repair and replace. And stereo without modification. They're 100% solid-state up to 10 kw, and only one tube to 25 kw.

Up the dial, you'll find our 4th and most futuristic generation of IF modulated UHF transmitters.

The PCU-900 Series.

These new U's range from 10 kw to 120 kw, with maximum output power to 240 kw (parallel running). And feature new, high efficiency Amperex or EEV Klystrons. To cut your power consumption, maintenance, and replacement costs.

So, why fret and fuss? Just call NEC for expert advice on some of the world's most advanced, most reliable UHF and VHF transmitters.

For more information, call Joe Engle toll free at 1-800-323-6655.
In 1971, WJBK-TV, Ch. 2, moved to a new building in Southfield with what was then state of the art equipment. Eleven years later, management recommitted itself to a state of the art plant.

The work began with a new master control room. A 64x64 Grass Valley 440 routing switcher is its heart, and a GVG 1600-4S master control switcher with 20-event 202-level automation handles air operations. A custom U-shaped console houses the switcher, scopes, monitors, cart machines, transmitter controls, Vidifont 4, and other equipment. Analog and digital clocks display real time and a remote control digital ESE countdown/up clock is also available. A Radio Shack EC4075 time calculator aids in timing programs. The room has two levels of Halo track lighting: one for fill light and the second for key lighting with 12 V tight spot lamps. JBL 4312 speakers provide for future stereo monitoring.

In WJBK's master control, a custom console houses the GVG 1600-4S MC switcher that automates on-air operations.

In the fall of 1984, one of the two production control rooms was completely stripped and its multilevel concrete floor removed and replaced with a two-level computer floor. Mockups were constructed to test various ideas for console design and room layout. Glass and dark brown brushed aluminum partition the room into an audio booth and a producer/client booth, both separate from the switching area. Carpeted panels were installed above and below the eye-level glass areas to aid in acoustical control.

A 24-input Grass Valley 300 switcher with Master E-MEM and E-Disk and an NEC MK II two-channel digital effects unit comprise the video system. Six racks just in front of the custom console house the 39 monitors that display inputs and outputs. Just to the switcher's left are the Quantel 6000 control and effects panels and below them, the Grass Valley machine controls. Further left is a Font V terminal and disk drive. Storage for disks, manuals, and related items is provided just to the left rear of the switcher.

An ADM 9000 computer-controlled, 32-input stereo console fills the full
NOW ALL THE WORLD'S A SOUND STAGE.

No matter what you're recording in the field, from Shakespeare-in-the-Park to "Dancing in the Dark," you'll find a Sony portable mixer that brings the creative control and flawless sonic performance of the studio to wherever you happen to be.

12 FOR THE ROAD.

The big difference between the Sony MX-P61 and other studio-quality 12-channel mixers is that the Sony can be tucked neatly into a small case and carried to any location—thanks to its switching power supply, transformerless design and, of course, the fact that it's made by the company that's best at making big things small.

Its myriad professional features include transformerless, electronically-balanced inputs and outputs, complete equalization for comprehensive signal control and modular construction for reliability and easy maintenance. Along with the phenomenal sonic performance with which the name "Sony" has been synonymous for decades.

THE 4-CHANNEL MIXER FOR EVERY CORNER OF THE GLOBE.

The incredibly small and light MX-P42 lessens not only your burden, but the complexities of field recording as well. That's because each input incorporates a fast-acting compressor/expander with gain make-up control. So input levels can be preset separately, then maintained automatically during recording.

HIGH QUALITY FOR LOW BUDGETS.

The family resemblance between the 8-channel MX-P21 and Sony's more expensive portable mixers is readily apparent. The MX-P21 is portable, durable, and has an incredible array of features for its size—including a phono EQ, fader-start and cascade interface.

All of which makes the choice between Sony and any other portable mixer a simple one.

Just decide whether you want all your location recordings to be as good as studio recordings.

Or no: to be.

For a demonstration or more information, call Sony in the North at (201) 368-5185; in the South (615) 883-8140; Central (312) 773-6000; West (213) 635-5370. Or write Sony Professional Audio Products, Sony Drive, Park Ridge, New Jersey 07656.

SONY Professional Audio

©1985 Sony Corp. of America. Sony is a registered trademark of Sony Corp. Sony Communications Products Corporation, Sony Drive, Park Ridge, New Jersey 07656.
The audio booth, with its ADM console, looks into the switching area.

The producer’s booth offers the ability to carry on two-way radio and other communications without disturbing the other operators. All the control room monitors are visible through the glass; certain key sources also appear on six monitors in the producer’s console. A switchable color monitor and audio system allows checking remote feeds prior to airing. Two Electro-Voice 100 speakers are utilized, one with the switcher and the other dedicated to air. This booth is also available to clients.

Throughout, the goal has been to provide pleasing design, neatness, and cleanliness in order to promote the highest operating proficiency and most pleasant working environment possible.
For on-air playback, the Amarillo independent bought a Sony Betacart system, which links with a CDL 990 air switcher.

Where can a former satellite independent UHF station build a new facility that provides the high visibility of a central location and still has microwave paths to the remote transmitter and satellite receivers? In Amarillo, TX, KCIT-TV found the answer at Eleventh and Fillmore, one of the busiest intersections in the downtown district.

KCIT-TV, formerly KJTV, was receiving programming from its sister station in Lubbock, TX, before the sale to Ralph C. Wilson Industries, Inc., in February 1985. The station’s general offices were in a 900-square-foot office park suite and the transmitter and tech center were five miles north of Amarillo.

Construction of a 17,000-square-foot, two-story broadcast facility was completed in July 1985, allowing KCIT to combine the offices and tech center and to originate all of its programming on-site. The station currently occupies 12,000 square feet, with an additional 5000 square feet on the second floor available for future expansion.

Nearly 14,000 cars pass the downtown facility on a daily basis, making it a very attractive location for the high visibility all broadcasters hope for. The problems we encountered in building...
downtown were satellite reception interference and STL path obstacles. The STL path was assured with a 150-foot self-supporting tower constructed on site. Two five-meter Foge satellite receivers and TSL path from the transmitter location allow clear reception for recording the nearly seven hours of programming satellite-fed daily.

The office layout of the new facility combines G&A, traffic, promotion, and engineering departments on the first floor with sales and production areas upstairs. A first-floor tour viewing area at the juncture of production control, the studio, and the tech center allows visitors visual access to our operation without interrupting the workflow. The tech center, engineering shop, master control, newsroom, and production control are all constructed upon a computer floor with two-foot-square carpet inlays that keep dust and noise to a minimum. To assure easy access to the computer floor areas, the cement pad was dropped one foot below the other station areas, eliminating the need for stairs or ramps and permitting a flush fit to the outside access floors.

All equipment racks in the tech center have either a three-foot rear passage access or access through the engineering shop. The air conditioning system for the tech center was designed to vent cooled air below the computer floor, cooling the equipment in racks with a flow of air from below.

Local programs and production can now be accomplished in the 1800-square-foot studio, which uses a lighting design and fixtures provided by Strand Century Lighting.

Studio control is equipped with a CDL 480 production switcher and a 3M D-8800 character generator. Production currently has four Ampex VPR-80 one-inch VTRs available with field production using the Ampex VPR-5 field recorder and a Sony BVP-3A camera.

The on-air operation is enhanced with a Sony Betacart on-air playback system tied to a CDL 990 air switcher. The routing switcher chosen was the 3M 40X-LD, which interfaces with a 3M 6500C machine control system to remote control all VTRs.

With a movie schedule pushing nearly 40 features per month, the film department relies on its RTI TV-2000 film editor for fast and accurate editing. Our movie look has improved with the use of an RCA TK-298 film chain.

The transmitter building is monitored by a remote-control camera to check all meter readings and catch any problem early.

The staff has tripled—from 10 to 30—since the purchase, and our building can continue to accommodate the growth we expect in the future.
Introducing An Important, New Information Resource For The Television Sound Industry...

Multichannel Television Sound

The First Deskbook In BM/E'S Series Of Stand-Alone Reference Volumes.


Television stations everywhere are gearing up to improve their plants to multichannel sound capability. And now, more than ever, television professionals need a reliable source of information that will allow them to keep pace with the fast-moving television industry. That source of information is BM/E's Multichannel TV Sound Deskbook.

First In A Series Of BM/E Deskbooks

Multichannel Television Sound is the first in a series of authoritative Deskbooks which everyone involved in the broadcast industry will want to have. The library of stand-alone reference volumes will continue to grow. Be sure to buy the Premiere Deskbook issue.

Order Today...

Please send ___ copies of Multichannel TV Sound at $39.95 each.

☐ check enclosed US$___ (inc. postage)
☐ charge to my ______________ credit card

Name ____________________________
Title ____________________________
Company _________________________
Street ____________________________
City __________________ State _______ ZIP ________

BM/E BROADCAST MANAGEMENT/ENGINEERING
295 MADISON AVE. NEW YORK, NEW YORK 10017
In New York City’s fashionable East Side, known for its top restaurants and upscale housing, a jewel of a post-production film/tape boutique opened its doors in the fall of 1984. Image Mix, Inc., has posted numerous TV commercials, music videos, and movie trailers in its initial year and recently doubled its editing and color correction capabilities.

Image Mix is a division of Modern Telecommunications, Inc. (MTI), one of the city’s largest and most progressive full-service teleproduction facilities. Although MTI encompasses an expansive midtown teleproduction facility as well as a three-building complex uptown called MTI TV City, we saw a need for a personalized video boutique serving the advertising industry.

We built the entire 10,000 square feet of Image Mix on-line in just over three months. Located in a historic 1929 building, Image Mix was designed by the award-winning architectural/interior design firm of Papadatos Moudis Associates P.C.

Founding partner and principal Steven P. Papadatos, project assistant Brenda Vanaman, and architect associate Saverino Crea designed Image Mix with a relaxed yet professional look to the facility. Clients say that they feel as if they were located in a tower, an effect created with the type of finishes and wood used and the glass effect.

The color correction capabilities also include a CDL Model 480-4 switcher, Neve audio boards, title cameras, and Ultimatte key system.

Recently, we added a second color correction/film transfer room, which features a Rank Cintel MK IIIC telecine with Digiscan, anti-weave gate, and X-Y zoom.

Our two identical computerized editing suites contain GVG System 41 editing computers, Ampex VPR-3s, CDL 1080 switchers with audio follow packages, Ampex ADOs, Chyron 4100 character generators, Neve audio boards, Sony Betacam VCRs, and graphics cameras. Audio equipment includes Studer half-inch ATRs and Image Mix features an Ikegami HL-79 camera.

¼-inch recorders with center-track time code, Lexicon stereo time compressors, and Dolby noise reduction. The second suite was installed in September.

Image Mix also features an insert
Machine room has film editing equipment in addition to Betacam recorders, Ultimatte, and test equipment.

studio equipped with Ikegami HL-79 camera and Ultimatte keying system.

A unique feature of Image Mix is its special service called Scene Sync, which is a conforming system for expedient post-production of filmed commercials.

Physically, we designed a sloped ceiling in the reception area with a skylight effect, which is a “window” lit from behind. This interesting design element creates an openness.

The light, clean lines of the reception area give a strong feeling of spaciousness. There are glass walls in the scheduling room and client conference areas to expand the space.

In the future, Image Mix plans to convert part of the upper floor into audio sweetening suites.

Image Mix is complemented by MTI’s midtown facility, located only one block away, which houses spacious studios, post-production center, computer animation, and satellite communications divisions serving long-term broadcast projects.

VIDEO
WISCONSIN
BROOKFIELD, WI
Submitted by
John Barto, President

Video Wisconsin is a 14,000-square-foot, client-oriented video post-production house located minutes from downtown Milwaukee in an area of enormous growth in a western suburb.

The facility is housed on the lower level of a building designed by Video Wisconsin president John Barto.

The remainder of the year-old building houses a retail camera store (owned by Video Wisconsin co-owner Mike Crivello) on the street level with its corporate offices on the lower level, plus two other street-level retail stores and a lower-level advertising premium company. The split-level effect is ideal for the building’s occupants, with retail located on the street level and nonretail below.

The lower level opens to the natural light outside due to an atrium effect across the entire front of the building. At Video Wisconsin, the reception area, conference room, and president’s office capitalize on this openness and are topped with skylights.

The entire facility is tastefully finished in tones of gray, burgundy, and mauve, with angled glass window treatments for each room. Green plants abound in the areas open to sunlight.

The one-inch on-line edit suite is located in the most visible area. It is complemented by the equipment room, which is visible to the editors and cli-
Video Wisconsin's one-inch edit suite, with its Ampex ACE editor, offers a view of the equipment room through sliding glass doors. Recessed lighting, an elevated custom-built oak client area, and a wet bar are the enhancements that make this room comfortable to work in.

At the forefront of the one-inch suite is the Ampex ACE touchscreen editor and Ampex Digital Optics effects system. Additional equipment includes Ampex VPR-80 one-inch recorders, an Ampex 4100E switcher, Beston Marquee 3000 character generator, 12-track Ramsa audio mixer, and a Betacam recorder/player. The associated equipment room houses Ikegami color and monochrome cameras for slide and art card insertion.

Beyond the one-inch suite, Video Wisconsin has a 3/4-inch off-line suite, 16 mm edit room, audio suite, and a 40 foot by 60 foot sound stage area. The 3/4-inch suite features a Convergence ECS-90 edit controller, a Sony VO-5800 player and VO-5850 recorder, a Panasonic switcher and special effects generator, Video Precision 3300 character generator, and 12-channel Tapco audio mixer. In the audio suite, equipment includes a 16-track Ramsa stereo mixer, eight-track and two-track Sony ATRs, a Vector Research cassette deck, and Nagra 4.2 full-track. A narration booth is adjacent to the audio suite.

The electronics for each edit room are tied together via underground channels for combined capabilities.

The sound stage features the ability to drive in (due to the ground grading on the building's exterior) and a hard curved cyc. Immediately off of the sound stage is an unloading, construction, and prop storage area.

Video Wisconsin is soon to complete its first year of operation. The amenities were included to make the client comfortable with the surroundings and provide for the best possible working environment. Technical and aesthetic design was considered. Details like the amount of client workspace, telephone placement, and the comfort level of chairs did not go unnoticed. Expansion is already evident. The Betacam unit is very new and a decision will be made soon on a graphics system. Staying on top of client needs and the changing technology are the goals at Video Wisconsin.
THE POST GROUP
HOLLYWOOD, CA
Submitted by
Rich Thorne,
Senior VP

The Post Group is a full-service video post-production facility committed to providing our clients with the best designed and best equipped facility in the country, staffed by the finest creative, engineering, and support people available.

The Post Group occupies a two-story building and adjacent structures in the center of Hollywood's production community. At the heart of our services are 10 editing suites. Eight are one-inch bays with CMX 340X edit control (three have CMX 3400A systems with motion memory). Four on-line rooms are equipped with Grass Valley 300 switches; the other four feature Grass Valley 1600 switches.

The ninth suite is a Betacam room featuring a Shintron component switcher. The tenth is a ¼-inch on-line/off-line bay with a CDL 480-4 switcher. VTRs of any format can be delegated to any suite to accommodate client requirements. The facility houses a total of 36 one-inch VTRs, 28 ½-inch VCRs, and 20 half-inch Betacam VCRs.

All on-line rooms are zero-timed. The machine room itself is equipped with 14 Sony BVH-2000 VTRs. Machine assignment is handled by a 100x100 Utah Scientific routing switcher with two channels of audio and time code. Because of heavy daily...

---

**Bandpass A UHF Channel**

or

**Combine 4 UHF Channels**

Both the UHF bandpass filter and four channel combiner are available for channels 14–69. The bandpass filter is fine tunable to allow optimum power transfer by absorbing transmitter and antenna VSWR.

The four channel combiner cuts expensive antenna costs by combining four channels to one antenna. Models may also be built to combine two or three channels.

The bandpass filter and four channel combiner are detailed in free catalog BTV/85, which also includes information on bandpass filters, traps, diplexers and channel combiners for:

- **UHF**
- **MDS**
- **ITFS**

Microwave Filter Company, Inc.

7843 Kinne Street
East Syracuse, NY 13057

Circle 155 on Reader Service Card
usage, ADOs are routed by a proprietary routing switcher that enables us to have a keyboard in each edit room. Digital effects, housed in the machine room, include Quantel Mirage, five channels of ADO, and NEC Mark II DVE. All online rooms can summon up to four channels of ADO, Mirage, and DVE simultaneously. In addition, the Betacam room can utilize Mirage, ADO, and Chyron in component format.

Graphics hardware is housed in dedicated suites and includes Aurora 100, Quantal Paintbox, and Bosch FGS-4000 systems, along with a Sony BVH-2500 stop-frame animation VTR. The most recent addition to our effects capability is the Abekas A-62 digital disk recorder, which can be routed automatically into all bays and graphics rooms.

In our film-to-tape transfer suite, the Post Group features a Rank Cintel flying-spot scanner with X-Y zoom and Dubner color control, Ultimatte, two-channel ADDA still store, and Lexicon time compression/expansion.

The Post Group’s newest service is...
audio sweetening, with two suites opened last August. The department features a Neve 8128 48-track audio console with NECAM 96 automation, Otari recorders, and CMX 340X edit control.

In the last three years we have virtually rebuilt our facility from the inside out, constructed a two-story addition, and acquired adjacent buildings to cope with our continuing growth.

In 1982, to cope with our growth and prepare for future needs, management prepared a five-year construction and expansion plan. One of its central tenets was that the facility would be rebuilt within its present building, but with no facility downtime for the construction.

Among the changes, the facility had to stretch internally to accommodate an expanding machine room. A two-story addition now houses an edit bay, audio sweetening, two graphics rooms, and additional machine room space. For complete sound isolation for audio sweetening, the second story has a concrete-based floating foundation.

For the future, suites are being readied to house an EditDroid, due this month, and the SoundDroid in the first quarter of next year. Should additional growth dictate, an additional two stories will be built to further expand the existing complex.

---

**Standard Setter**

**The Standard-Setting Telephone Interface (Modestly Improved)**

It's no secret. Studer has become the acknowledged leader in high quality telephone interfacing equipment. The Studer Telephone Hybrid – already selected by hundreds of U.S. broadcasters, including all three major networks – has been praised for its straightforward design, long-term reliability, and consistently outstanding performance.

At the heart of the Studer Telephone Hybrid is an auto-balancing hybrid circuit which automatically matches phone line impedance while isolating send and receive signals for maximum sidetone attenuation. A built-in limiter prevents sudden overloads, and bandpass filters shape the voice signals for optimum clarity and system protection. The new updated Studer Hybrid includes additional noise suppression circuitry to eliminate unwanted noise and crosstalk while still preserving true 2-way hybrid operation.

Now the Studer Telephone Hybrid is also available as part of a complete Telephone System. Designed to operate independent of the studio console, the self-contained Telephone System includes a microphone input plus a palm-sized remote module (on a 30' cable) with VU meter for line level, headphone output, and level controls for microphone, headphone, and telephone receive.

The time-tested Studer interfaces. Improved for even better performance. Expanded for more flexible operation. And built to set the quality standard for years to come. Call today for the location of your nearest Studer dealer.

---

*Studer Revox America*

1425 Elm Hill Pike • Nashville, TN 37210 • (615) 254-5651

Circle 158 on Reader Service Card
The Question of Localism

By Harry Cole, FCC Counsel

The question of localism is embodied in Section 307(b) of the Communications Act of 1934, which requires the Commission to distribute broadcast licenses, frequencies, hours of operation and power "among the several states and communities as to provide a fair, efficient and equitable distribution of radio service to each of the same." This language has been the bedrock foundation for the 50-year development of the essentially local broadcast industry.

In some senses, the concept has accelerated in recent years. For example, the FCC opted to modify its AM clear channel policies in order to create more local stations: the AM clears, of course, are a vestige of the earliest days of AM radio, when some thought that the most effective way of assuring radio service to as many people as possible was to restrict nighttime use of the AM band to a limited number of high-power stations, each of which could serve vast areas beyond their own respective communities of license. Similarly, Docket No. 80-90 was intended in part to create new FM stations in communities that did not have their own local stations. And on the television side, of course, there is the whole low-power television industry, designed to assure the availability of local TV service.

DBS and localism

But there has been a contradictory quality to the Commission's attitude toward localism. In 1983, the Commission decided to abandon certain policies that had been designed to assure that broadcast stations would serve their respective, local communities. That decision appeared to dilute the likely effectiveness of the scheme of local broadcast service. (This was discussed in the May, 1983 issue of BM/E.) Readers of this column may even recall the September, 1982 issue, where we discussed the impact of localism on the then newly authorized direct broadcast satellite ("DBS") service. DBS—which is still undergoing a difficult birthing process—is in some ways the functional equivalent of normal, over-the-air television. However, the Commission declined to regulate it as a broadcast service, subject to such statutory requirements as the Fairness Doctrine, political advertising rules, and the like.

In its DBS decision, the Commission also neglected to explain how DBS could fit into the concept of localism, a fact which was not lost on the U.S. Court of Appeals, which reviewed the FCC's DBS decision. The court told the Commission that it should take steps to explain how its treatment of DBS as a nonbroadcast service could be
rules & regulations

justified in light of the fact that it would appear to be essentially a broadcast service. Part of the problem that the court had with the DBS decision arose from the fact that DBS service was in many ways indistinguishable from the types of services offered by conventional television licensees who choose to operate subscription television ("STV") services. Such services generally involve first-run movies and the like. While STV programming is broadcast on a normal television station, the signal is coded, or scrambled, at transmission so that, in order to receive the service, a consumer has to obtain a decoder from the STV operator. From the consumer's point of view, then, it seemed to the court that STV and DBS were in effect identical services. Yet the Commission chose not to subject them to the same regulatory scheme. Because of this, the court sent that portion of the DBS plan back to the FCC for another look.

Redefinitions

All of which brings us to the present and, possibly, the future. This past October, pursuant in part to the court's ruling in the DBS case, the Commission began a rulemaking proceeding looking to redefine both DBS and subscription television service as nonbroadcast services. If the Commission were ultimately to adopt such a redefinition, both DBS and STV operators would be exempted from a number of broadcast-related regulations. They would instead be treated as "point-to-point" services.

On its face, the Commission's proposal carries a certain logic. The underlying notion of a "broadcast" service is one that is receivable by anyone who chooses to go out and obtain a receiver; the operator of the station transmits the signal intending that it be available to everyone. Subscription services such as DBS and STV, on the other hand, involve an element of privacy in that, unless the consumer has made a specific arrangement with the operator, the signal is not normally available (except in a scrambled and, thus, unintelligible, form). In other words, the subscription services from this perspective offer something more in the nature of a private communications system, serving to deliver certain information or programming from one point to a specified, identifiable and limited number of other points (thus making it a point-to-point or, perhaps more accurately, a point-to-multipoint service). Thus, it might make sense not to treat such services in the same regulatory manner as broadcast services are treated.

This logic is reinforced by the existence of the multipoint distribution service ("MDS"), a service that operates on certain microwave frequencies and by which, in many instances, a subscription programming service virtually identical to those offered by STV operators is distributed. MDS (and its recently arrived cousin, multichannel MDS [MMDS]) facilities operate on frequencies reserved for common carrier usage, and the
MDS and MMDS services are regulated as common carrier, and not broadcast, services. It is easy to see how a court might wonder why DBS, STV and MDS are regulated differently when each involves the provision to the public of precisely the same types of programming services.

DBS stations involve programming beamed directly from a satellite into the home and MDS stations involve frequencies earmarked for common carrier usage. But STV stations are nothing more than normal, run-of-the-mill television stations that happen to send out scrambled signals. If STV services are defined as something other than broadcast services, it would appear that a television broadcast licensee could secure a normal broadcast license and then exempt itself from broadcast regulation by initiating an STV service. Take this another step. Suppose that, as part of the redefinition of STV service, STV stations are relieved of any obligation to provide programming responsive to their respective communities' needs and interests. While the specifics of the FCC's proposed redefinition have not, as of this writing, been released, it is a pretty safe bet that some such relief might be expected. That would mean that a licensee who wished not to have to worry about news, public affairs, and other programming responsive to community matters could avoid such worries by opting to provide an STV service.

It should be apparent where this speculation is heading. Such a redefinition could lead to a situation where the continued availability of broadcasting service as we now know it could depend on whether, from an economic point of view, such a service is more profitable than any nonbroadcast use to which the frequency could otherwise be put. That, in turn, could reduce (and, in some instances, possibly eliminate) conventional broadcast services—i.e., services intended to serve the local community and all of its residents by providing, among other things, programming aimed at local needs, problems and interests.

The FCC approach

Now as a practical matter, it is safe to say that broadcast service as we now know it is not likely to dry up and go away just because STV specifically, or subscription services generally, get redefined along the lines that the Commission has proposed. But the speculative scenario set forth above does reflect some weakness in the FCC's approach. After all, if the Commission does intend effectively to license portions of the spectrum and then to let the licensee determine whether or not it will offer a broadcast or a nonbroadcast service, the FCC will be placing in the hands of the licensee the ability to affect significantly how much broadcast service will ultimately be available. But Congress gave that job to the Commission in Section 307(b) of the Communications Act.

Abandonment of the concept of localism would involve a dramatic shift in one of the most basic of the doctrines of communications regulations which have been in effect for more than half a century. Possibly technological, social, and cultural changes that have occurred during that period warrant such a shift. The Commission should be sure of that before attempting to adopt such a sweeping change.
Ampex Corp.'s Magnetic Tape Division has announced the signing of a three-year contract to supply MTM Enterprises with its professional broadcast quality 196 and 197 videotape. Norman Enterprises, a subsidiary of Photo Control Corp., recently acquired Bardwell & McAlister. Plans are under way for expansion of the Bardwell product line in both lighting and grip equipment. In Westboro, MA, Alden Electronics has signed an exclusive multiyear agreement with FleetWeather, Inc. of Hopewell Junction, NY to offer FleetWeather-developed software programs to enable users of weather data to convert their IBM PC microcomputers to weather data receive terminals. The two software programs, WEATHERCAPTURE 1800 AND WEATHERCAPTURE 604 will be offered by Alden to sublicensees receiving government weather data transmissions via satellite distribution channels on Galaxy 3.

In Hollywood, Commercial Video Services has introduced a matte verification service for its film production clients. Century III Teleproductions recently opened a new post-production facility in Orlando, FL. Veritech Corp. has inaugurated its new TV and video production facility in East Longmeadow, MA. Seven one-inch VTRs, ADO, Mirage, Aura, and the Bosch FGS 4000 were used to create a full promotional package for WHAS-TV, Louisville, KY at The Post Group in Hollywood. Also on the west coast, Pacific Video posted Harry Belafonte: Don't Stop the Carnival for HBO.

In New York, LRP Video has purchased several Ampex VPR Ills, and has updated its CDL switchers and CMXs. Editel/LA has acquired a second Rank Cintel MK IIIC Flying Spot Telecine featuring X-Y Zoom. Up in Montreal, Andre Perry Video has completed a $3 million production center that includes a command center, 2D and 3D computer graphics department, and a fully equipped shooting stage. Now available from Realtime Video Productions of San Francisco is a new “periscope” snorkel lens, manufactured by Century Precision Optics. The lens fits the Sony BVP-330 video camera, Betacam and comparables, and the Aaton film camera. Modern Telecommunications, located in Manhattan, will be the new home of The Dr. Ruth Show and Regis Philbin’s Lifestyles through December of 1986. Wold Communications has chosen the Wegener Communications 2000 Series Multiprotocol Data Transmission System to deliver WINX, the weather and information distribution service provided by Wold and Environmental Satellite Data. WCAX-TV Ch. 3, Burlington, VT has inaugurated a component video system for its commercial production. The system includes a Shintom Stratos component switcher, Shintron Andromeda 3000 digital RGB framestore-frame synchronizer, Panasonic AV300 VTRs, and a Convergence Model 195 editor. America, the new syndicated daytime show from Paramount Domestic Television, is edited on two Convergence 204 Video Editing Systems. NEC’s DVE System 10 has been delivered to WPCQ-TV, Charlotte, NC; WVAl-TV, Hurricane, WV; WFMJ-TV, Evansville, IN; WOKR-TV, Rochester, NY; and WTVN-TV, Columbus, GA. An MTS-compatible TV stereo generator, the Model 710, has been made available by Inovonics.

In an important marketing move, Ampex announced it will package a reel of its 467 one-inch High Energy Digital Audio Mastering Tape with every Mitsubishi X-850 32-channel digital recorder. M-2I Series professional audio tape recorders are available immediately from AEG Corporation. AM RADIOHELP, a total packaging aid that works with AM and AM/FM Combo owners and managers, has been formed by Charlie Warren, DJ and former product designer for WPRO, Providence, RI. CFTR-AM, located in Toronto, Canada, will test the Delta Electronics ASE-1 C-Quam AM stereo exciter, in what will be the first Delta AM Stereo exciter ever to be evaluated in that country.

Among the personnel changes this month, John Hartley is the new president and CEO at Harris Corp. At Barco, Walter Werdmuller has been named sales and marketing manager for the Broadcast Products Division. dbx has appointed Stan Peters VP of marketing and sales. Kinsley Jones has joined Fidelipac as marketing director.
Accuracy... Dependability... Performance...
BELAR HAS PROVIDED THESE QUALITY PREREQUISITES IN OVER 11,000 BROADCAST MONITORS.

The FMM-2/FMS-2 series monitors provide an even greater degree of precision measurement and stability than ever before. Specifications, which include better than 90 dB S/N, less than .01% maximum THD and IM distortion, and 70 dB stereo separation, make Belar FM monitors the most accurate available today.

BELAR ELECTRONICS LABORATORY, INC.
LANCASTER AVENUE AT DORSET, DEVON, PENNSYLVANIA 19333 • (215) 687-5550
Call or write for more information on Belar AM, FM, Stereo, SCA and TV monitors.

Philips has introduced the Pye TVT LDM 3010 Component Video Graphics System (CVG), a high-performance paintbox system. The CVG comes as a complete package, and includes many standard features. Included is a menu-driven control system, two color screen outputs with on-air picture swap, a color palette with access to over 7.3 million colors, a picture library including Winchester disk and floppy diskette for archiving, and a QWERTY keyboard with unlimited software-generated font capability.

Yamaha PM3000 Audio Mixing Console

The Yamaha PM 3000 Audio Mixing Console, introduced at AES, is a professional audio mixing console available in three configurations of 24, 32, or 40 input channels. It has a five-position attenuation pad switch and gain control; eight Voltage Controlled Amplifier (VCA) groups; eight group mixing buses and eight auxiliary mixing buses; a discrete stereo bus; and extensive cue and solo capabilities.

All of the conventional auxiliary and group buses may be operated independently, resulting in a total of 18 discrete audio mixing buses when the stereo bus is used as well. In addition, a total of 26 audio mixes are available by resetting the mix matrix internal preset switches. The mix matrix permits 11 possible sources to be mixed together eight different ways on eight different modules.

A new feature of the PM3000 is a VCA grouping system which provides the capability of each channel
In addition, the LDM 3010 has a full “font factory” for customer fonts, CEL animation with multiple CEL sequence and multiple vector capability, and “ON AIR” mode for transmission of picture sequences, using manual or automatic timing of transitions.

Other features include picture grab input from monochrome video sources, key signal output for external vision mixers, RGB and composite outputs on the primary picture channel, and digital processing to full broadcast standard per CCIR recommendation 601 giving resolution of 720 x 576 pixels.

Power for the CVG is supplied by 234/220/117/110 V ac, 47-63 Hz, 400 watts. It comes in both PAL and NTSC formats.

to be controlled by one or more VCA master faders. Each channel's post-fader output levels can be raised or lowered by the VCA master fader, something not possible with a conventional group master fader. The PM3000 also has the functional equivalent of 26 separately-controlled groups, in the event that an application calls for using the eight VCA groups as discrete buses.

Where extra grounding isolation is required, optional onboard IT3000 input transformers are available. Extensive metering is provided with 14 VU meters, each with peak LED, that can be switched to monitor 35 different points.

The PM3000 will be made available early next year.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>Abekas Video Systems</td>
<td>59</td>
<td>157</td>
<td>LPB, Inc.</td>
<td>90</td>
</tr>
<tr>
<td>148</td>
<td>Alpha Audio</td>
<td>73</td>
<td>151</td>
<td>MEI Microprobe Electronics Inc</td>
<td>76</td>
</tr>
<tr>
<td>116</td>
<td>Ampex AVSD</td>
<td>21</td>
<td>149</td>
<td>Merin Engineering</td>
<td>73</td>
</tr>
<tr>
<td>132</td>
<td>Ampex MTD</td>
<td>49</td>
<td>156</td>
<td>Merin Engineering</td>
<td>90</td>
</tr>
<tr>
<td>118</td>
<td>Aston Electronics</td>
<td>26</td>
<td>135</td>
<td>Microdyne</td>
<td>55</td>
</tr>
<tr>
<td>162</td>
<td>Belar Electronics Lab, Inc</td>
<td>96</td>
<td>140</td>
<td>Microlime, Inc.</td>
<td>61</td>
</tr>
<tr>
<td>130</td>
<td>Bosch Corporation, Robert</td>
<td>42</td>
<td>155</td>
<td>Microwave Filter</td>
<td>Co. Inc.</td>
</tr>
<tr>
<td>101</td>
<td>Broadcast Audio Corp. Cover 3</td>
<td></td>
<td>106</td>
<td>Midwest Corp</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>152</td>
<td>NEC America, Inc</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>150</td>
<td>NEC America, Inc</td>
<td>93</td>
</tr>
<tr>
<td>104</td>
<td>Camera Mart, Inc</td>
<td>5</td>
<td>120</td>
<td>Paco Film</td>
<td>28</td>
</tr>
<tr>
<td>136</td>
<td>Canon USA, Inc</td>
<td>57</td>
<td>128</td>
<td>Panasonic/Industrial</td>
<td>38-39</td>
</tr>
<tr>
<td>147</td>
<td>Capital Magnetic Products</td>
<td>72</td>
<td>129</td>
<td>Panasonic/Industrial</td>
<td>40-41</td>
</tr>
<tr>
<td>150</td>
<td>Central Dynamics Corp</td>
<td>74</td>
<td>114</td>
<td>Philips Test &amp; Measuring Inst.</td>
<td>19</td>
</tr>
<tr>
<td>113</td>
<td>Cipher Digital</td>
<td>18</td>
<td>145</td>
<td>Polomac Instruments</td>
<td>69</td>
</tr>
<tr>
<td>139</td>
<td>Compact Video Systems, Inc.</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>154</td>
<td>Comrex</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>138</td>
<td>Continental Electronics, a Division of Vanar Associates, inc.</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>142</td>
<td>Crosspoint Latch Corp.</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>Delta Electronics</td>
<td>51</td>
<td>112</td>
<td>Quantel</td>
<td>17</td>
</tr>
<tr>
<td>115</td>
<td>Di-Electric</td>
<td>20</td>
<td>111</td>
<td>RE Instruments Corp</td>
<td>16</td>
</tr>
<tr>
<td>108</td>
<td>Di-Tech, Inc.</td>
<td>13</td>
<td>126</td>
<td>Rohde &amp; Schwarz</td>
<td>36</td>
</tr>
<tr>
<td>122</td>
<td>Eastman Kodak</td>
<td>30-31</td>
<td>110</td>
<td>Scientific-Atlanta</td>
<td>15</td>
</tr>
<tr>
<td>141</td>
<td>Eastman Kodak</td>
<td>62</td>
<td>163</td>
<td>Sennheiser Electronics Corp</td>
<td>96</td>
</tr>
<tr>
<td>124</td>
<td>Eiden</td>
<td>34</td>
<td>159</td>
<td>Shintron</td>
<td>92</td>
</tr>
<tr>
<td>143</td>
<td>Electro-Voice</td>
<td>65</td>
<td>107</td>
<td>Shure Bros., Inc</td>
<td>11</td>
</tr>
<tr>
<td>161</td>
<td>ESE</td>
<td>94</td>
<td></td>
<td>Sony Broadcast</td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sony Pro Audio</td>
<td>22-23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sony Pro Audio</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sony Pro Audio</td>
<td>79</td>
</tr>
<tr>
<td>102</td>
<td>Fidelipac</td>
<td>1</td>
<td>153</td>
<td>Stanton Magnetics, Inc</td>
<td>80</td>
</tr>
<tr>
<td>119</td>
<td>For-A-Corp.</td>
<td>27</td>
<td>158</td>
<td>Studer Revox America, Inc</td>
<td>91</td>
</tr>
<tr>
<td>131</td>
<td>Gotham Audio Corp</td>
<td>47</td>
<td>109</td>
<td>Techron Industrial Products</td>
<td>14</td>
</tr>
<tr>
<td>144</td>
<td>HM Electronics, Inc</td>
<td>68</td>
<td>103</td>
<td>Telex Communications</td>
<td>4</td>
</tr>
<tr>
<td>164</td>
<td>Hubcom</td>
<td>95</td>
<td>124</td>
<td>Universal Elecon</td>
<td>34</td>
</tr>
<tr>
<td>123</td>
<td>Intergroup Video Systems Div</td>
<td>32</td>
<td>125</td>
<td>Utah Scientific, Inc</td>
<td>35</td>
</tr>
<tr>
<td>105</td>
<td>International Tapetronics Corp</td>
<td>6-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>U.S. JVC Corp</td>
<td>24</td>
<td>133</td>
<td>Videotek, Inc</td>
<td>50</td>
</tr>
<tr>
<td>121</td>
<td>Lake Systems Corp</td>
<td>29</td>
<td></td>
<td>Ward-Beck Systems, Ltd.</td>
<td>Cover 4</td>
</tr>
<tr>
<td>146</td>
<td>Landy Associates, Inc</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Leitch Video Ltd</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SERIES IV

- All new electronics and audio transformers, for superb audio quality — ideal for compact disks. New plug-in audio inputs.
- Transformer mic and active balanced line inputs on every mixer position. Optional transformerless mic input.
- Optional 5-frequency EQ and Pan Pot on any mixer position.
- Muting and equipment start relays are standard.

- New and improved slide fader with external cue detent switch.
- Prefader patchpoints and phantom power supply inputs on each mixer.
- Optional peak flashing indicator behind red area of VU meters.
- Modules and options retrofit to all SERIES II and UMC consoles.

Prices start at $7550.00 for SYSTEM 8 w/6 mixers — call for brochure.

11306 SUNCO DRIVE, RANCHO CORDOVA, CA 95670 • (916) 635-1048

Circle 101 or Reader Service Card
Network Multichannel TV Audio

To meet the demands of network stereo and multilingual TV programming, Ward-Beck and ABC-TV engineers teamed up to develop this impressive custom system based on new WBS Series ST technology. It employs all-new stereo modules and circuitry, as well as the brand new ST profile. In keeping with every ST system, the console offers advanced ergonomic design for control accessibility and operational simplicity.

ABC Studio TV-1, in New York, is setting new standards for audio quality throughout the world.