

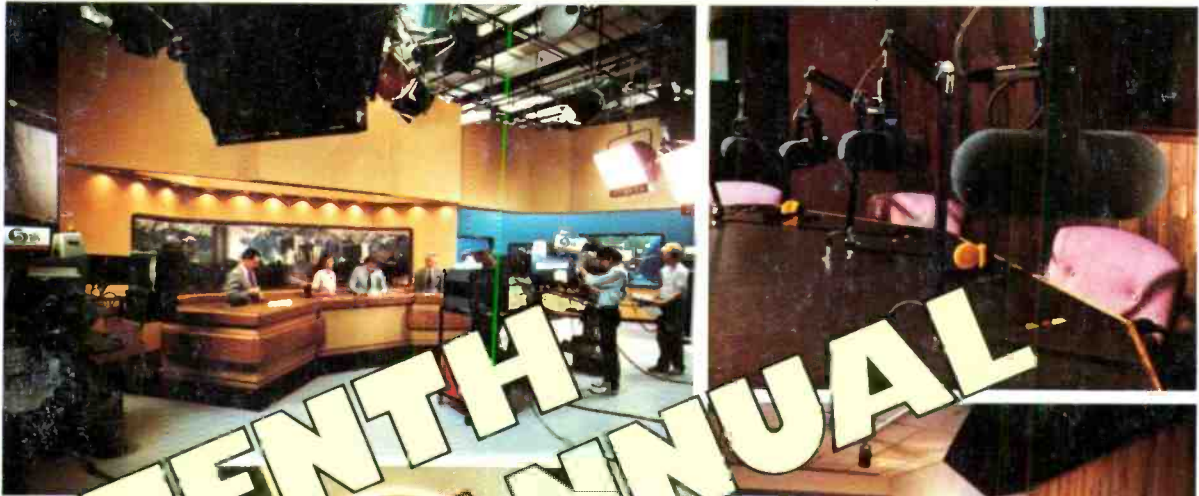
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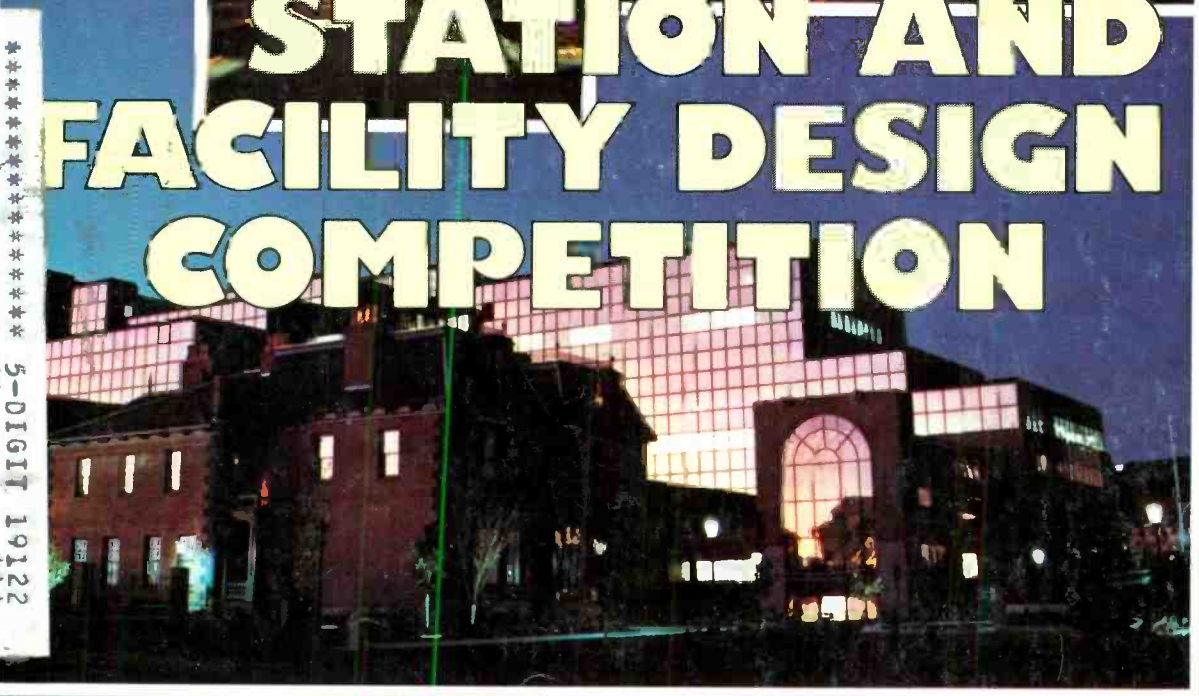
BROADCAST MANAGEMENT/ENGINEERING

SPECIAL
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TENTH ANNUAL

BEST STATION AND FACILITY DESIGN COMPETITION



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Quality • Reliability • Performance

A quality product meets the highest standards in design, components and attention to detail. It does the job for which it is designed better, more reliably, more efficiently and more conveniently. It lasts longer and has a feeling of rightness about it; it looks good; it works well; it keeps working when you need it and it is a pleasure to use.

- ADM equipment meets all these criteria by design...and is still competitively priced.
- ADM gives an exclusive five-year warranty as an indication of our confidence in our equipment.
- ADM's customer list includes most of the best known names in the industry.

Can you ask for more?



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ON-AIR

The ST Series II AM/FM Stereo Console is available in four basic mainframe sizes; 10, 16, 20 or 24 mixing channels. Modularity permits any configuration from a basic on-air to a full production console.

All machine control logic is an integral part of the input strip, an ADM exclusive, and is user-programmable for interface with today's most commonly used playback devices (carts, turntables, reel to reel machines, etc.). A unique stereo VCA provides flawless stereo tracking, which permits consistent stereo imaging on all ST Series II consoles.

ADM provides more where it counts.
Can you afford anything less?

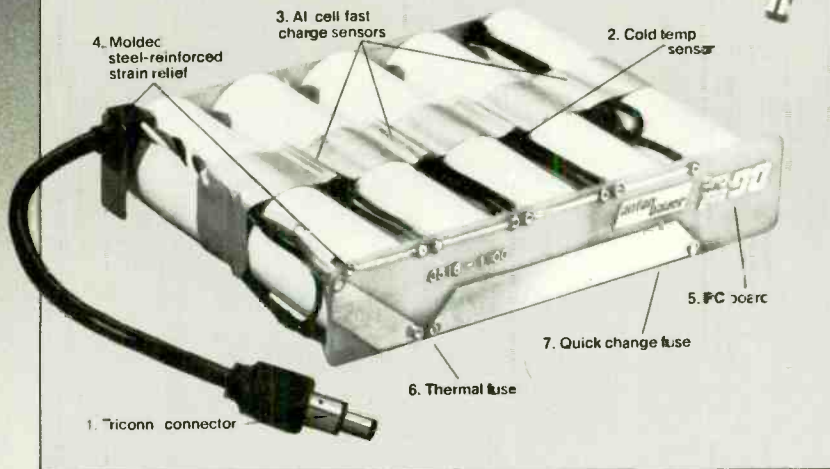
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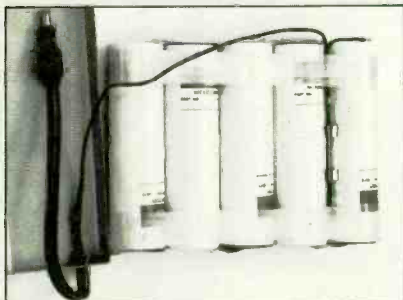
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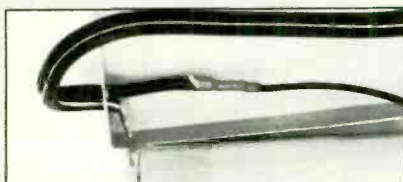
Pro Pac® 90. The perfect direct replacement battery for the Sony BP-90.



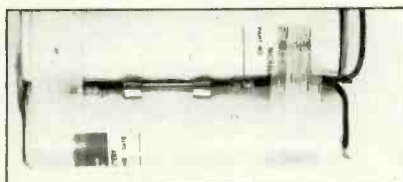
Typical BP-90 replacement battery: Failures waiting to happen.



Loose wiring. No fast charge sensors. No cold temp sensor.



No strain relief. Right angle wire stress. Splices.



Fuse replacement requires soldering and special pigtail fuse.



Compare and find out why.

Have you ever thought about all the reasons why VTR batteries fail in the field?

We have. Anton/Bauer designed Pro Pac® 90 with exclusive features that assure dependable performance for your field productions.

- (1) Unique Triconn™ connector (patent pending) automatically couples cold temperature and fast charge protection sensors (2) and (3) to Anton/Bauer Lifesaver® chargers for 100% safe fast and quick charging.
- (4) Molded cable assembly with solid wire terminations on PC board withstands the roughest handling.
- (5) PC board design eliminates loose wiring and failures caused by flexing, chafing, pinching and breaking.
- (6) Backup hi-temp fuse in output for total thermal protection and
- (7) snap-in design for easy, quick replacement of 3AG fuse.

Plus the Pro Pac 90 uses new technology NiCad cells for greater capacity, improved voltage plateau, more reliable fast charging and virtually no "memory" problems. 100% computer testing certifies the superior performance characteristics of your Anton/Bauer Pro Pac 90 battery.

Survives in the field. Pro Pac 90's design eliminates the failures of conventional BP-90 type batteries. The proof is in the field.

The quality standard of the video industry.



**SONY PRESENTS THE MOST ADVANCED
FIELD/STUDIO CAMERA UNAVAILABLE TODAY.**



**INTRODUCING THE
SONY BVP-360. ON MAY 1, 1985,
THE REMARKABLE
BECOMES AVAILABLE.**

When we previewed this camera at NAB, the response was tremendous. Which, considering Sony's considerable reputation for high performance broadcast portables, wouldn't normally seem so surprising. Except for one detail.

The BVP-360 isn't a broadcast portable. (Although at 50 pounds it's certainly the most portable camera in its class.)

What the BVP-360 represents, however, is the culmination of Sony's work in tube technology, in innovative mechanical design and in High Definition Video Systems. A highly sophisticated, automated camera that promises to usher in a new era in price/performance for cameras in the Field/Studio category.



Sony-developed 2/3-inch Mixed Field Saticon™ (Plumbicon™ tubes also available).

**THE 2/3-INCH IMAGE
FORMAT COMES OF AGE.**

For those of you unable to get through the crowds for a close look at the BVP-360, there are two explanations for the exceptional image quality you saw on the monitors overhead.

First, the BVP-360 employs the remarkable, Sony-developed 2/3" Mixed Field* tubes. The first real challenge to big tube performance. Because they deliver twice the registration and geometric accuracy of conventional 2/3" tubes. Plus greater depth of modulation. And thanks to the special Sony-developed FET that is built into the tube and yoke, an extraordinary signal-to-noise ratio. (MF Plumbicon™ or MF Saticon™ tubes are available.)

Secondly, the Sony BVP-360 is equipped with a breakthrough F1.2 prism design that single-handedly results in sensitivity and depth-of-field comparable with

25mm image formats. And vastly superior to any current 2/3" Field/Studio camera at any price.

And, naturally, when you combine these factors with the extensive signal processing technology Sony has engineered into the BVP-360, you get specs which could only be described as spectacular.

**A SUPERHUMAN FEAT
OF HUMAN ENGINEERING.**

Many of the experts who were able to get their hands on the camera at NAB were even more impressed by how it performs from a human standpoint.

Some were moved to comment by how easy the BVP-360 is to move around. Its smoothly integrated handles. Low weight. The highly maneuverable viewfinder. And the shortest lens-front-to-viewfinder distance in the industry.

Others cited the uniquely pragmatic approach to automation. An approach that concentrates the camera's considerable microprocessor-based intelligence on the most difficult setup operations; functions such as digital registration, B/W balance, flare and gamma.

And still others referred to the BVP-360's extensive camera head memory, which can store up to sixty-four scene files, eight setup files, sixteen lens files and three reference files.

Plus the advantages of being able to choose from three remote operational panels.

**NOT JUST A CAMERA.
A CAMERA SYSTEM.**

But perhaps the most striking aspect of the BVP-360 is its "building block" design concept. An arrangement that makes it particularly easy to customize the camera for various production situations.

It starts with a



BVP-360 Remote Control Panels: (left to right) a flexible Field unit, a highly sophisticated Creative Production panel and a simple Studio unit.

camera head able to transmit component signals via Triax or Multicore. Or function as a stand-alone camera.

Then, on the technical front, alignments are handled at the Camera Control Unit. With each camera able to be tweaked individually. Or addressed as part of up to an eight-camera chain linked to one Master Setup Unit.

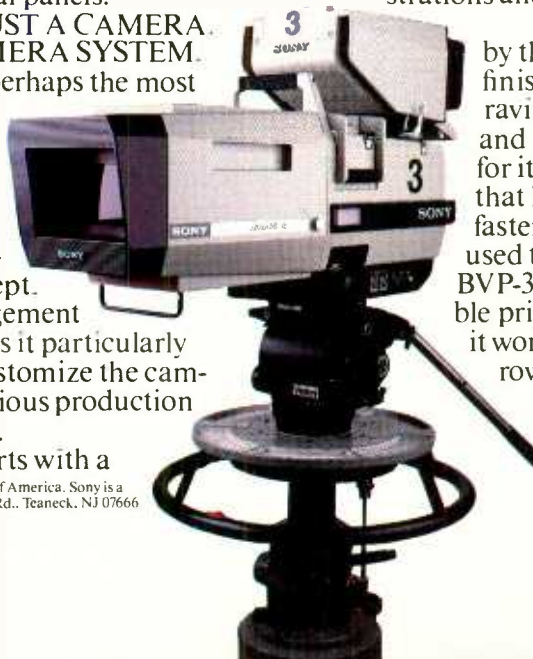
And finally, on the operational front, all control during production may be directed from one of three types of Remote Control Panels—a simple Studio model, a flexible Field unit, or a highly evolved Creative panel with extensive memory and scene-painting facilities.

**ADOPT A
WAIT-AND-SEE ATTITUDE.**

Of course, as we said at the outset, the BVP-360 isn't ready for delivery tomorrow. But that doesn't mean you have to wait until May to see it. There are units here right now for demonstrations and evaluations.

And of course, by the time you're finished testing it, raving about it and getting a budget for it (although that last part may go faster than you're used to thanks to the BVP-360's incredible price/performance), it won't be tomorrow. It'll be closer to May 1.

SONY
Broadcast



*Sony Mixed Field tubes use electrostatic deflection and magnetic focus. ©1984 Sony Corp. of America. Sony is a registered trademark of Sony Corp. Sony Broadcast Products Company, 1600 Queen Anne Rd., Teaneck, NJ 07666

BM/E

BROADCAST MANAGEMENT/ENGINEERING

DECEMBER 1984

VOLUME 20/NUMBER 12

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DON'T GET LOST IN THE FOREST, GET TOUGH . . .

PCL-606 and PCL-606/C

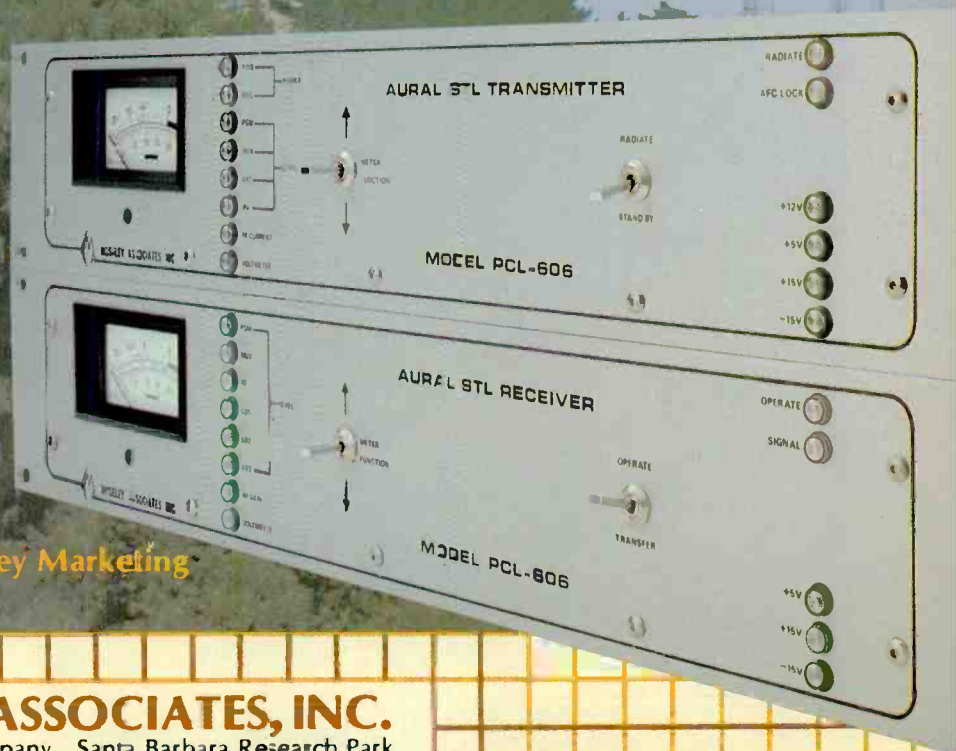
OUTSTANDING LINEARITY
AND FREQUENCY STABILITY
ULTRA LOW NOISE AND
DISTORTION
SELECTABLE IF BANDWIDTH
EXCELLENT SELECTIVITY
BUILT-IN DIAGNOSTIC
METERING

There's a jungle in the Angeles National Forest. Most of the broadcast transmitters for the greater Los Angeles area are at this single site on Mount Wilson. That means intense competition for both bandwidth and audience. The vast majority of Mount Wilson-based broadcasters choose Moseley because the PCL-606 and PCL-606/C Studio-Transmitter Links are tough, proven winners in both respects.

To keep the signal strong and distortion-free, the monaural PCL-606 and composite stereo PCL-606/C use PIN diode attenuators to maintain maximum signal level and dynamic range while preventing overload from out-of-band noise. The receiver is very selective, and the bandwidth is adjustable so that if selectivity is not critical, distortion can be further reduced.

To keep the signal bright and clear, careful IF modulation techniques are employed. Digital demodulation and a series of ultra-phase linear IF filters split the baseband frequency from the two subcarrier frequencies without noticeable noise or distortion. The subcarriers can be used for SCA or remote control data carriage.

The PCL-606 and PCL-606/C are constructed for years of service in rugged environments yet designed for easy maintenance. They feature built-in internal system performance metering for both transmitter and receiver. All service adjustments can be made through the top cover, and modular construction makes repair easy. Continuous broadcast is assured even in case of failure or abnormality shutdown because the receiver automatically switches to a redundant standby unit.



Get Moseley Tough, Contact Moseley Marketing

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“And the talent really loves their new wireless freedom”

Freedom of movement is a very good reason to use wireless microphones. Even though all wireless microphones offer the same freedom from cumbersome, noisy and ever present WIRES, there are plenty of real differences. After you've made the big decision to go wireless, take the time to: compare the sound, compare the options, and compare the price. Once you do, you'll choose Telex, the dependable performer!

W.E. (Bill) Thomson, audio engineer at KPRC-TV, Houston, Texas, already had wireless mics at his station. But, when he decided to go wireless with his on-camera weather people, it seemed like a good time to compare several brands. Audio quality is extremely important to this NBC affiliate. So, along with several others, he put the new Telex system through its paces. After weeks of careful evaluation, Bill determined

ACTUAL SIZE



that the Telex system was superior. In his own words, he liked, "...the full range response and the ready option of diversity reception". Furthermore, he told us that he was "...impressed with Telex's ability to manufacture such a high quality product... at so reasonable a price."

We're pleased that Bill, along with many others, has recently discovered our unique diversity receiver, our lightweight, miniature lavalier mics and our cardioid dynamic handheld microphone/transmitters. Bill tells us that he wouldn't hesitate to recommend it to anyone. Neither would we. For more information and detailed specifications, 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.



W.E. (Bill) Thomson
Audio Engineer
KPRC-TV
Houston, Texas

TELEX

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HITACHI INVENTS THE FIRST 1" VTR THAT WATCHES ITSELF SO YOU DON'T HAVE TO.

The revolutionary Hitachi HR-230 1" VTR has the most advanced real-time, self-diagnostic capabilities ever perfected.

In either the record or playback mode, a computer inside the HR-230 monitors 49 different performance parameters second by second. And then stores this information within the memory for recall at a later time—not just with numbers and symbols, but in words.

This means no more errors slip by when your operator is not there. And there's no more need for hit-or-miss spot checking.

The Hitachi HR-230 has a unique quick-threading tape path, incorporating retracting entrance and exit guides, main erase head, as well as a scanner air system that protects tapes.

It recues a 30-second segment in 3.5 seconds. It has a



fast/slow motion range that provides real-time reverse and field/frame still motion. Plus programmable time compression up to 20%, with 0.1% accuracy.

A unique, concealed fold-out control panel groups editing functions and separates edit controls from the main control panel.

In short, it's the ultimate 1" for networks, affiliates or teleproduction companies. Don't consider your next 1" purchase without looking into it. Contact Hitachi Denshi America, Ltd., Broadcast and Professional Division, 175 Crossways Park West, Woodbury, NY 11797. (516) 921-7200 or (800) 645-7510. Hitachi Denshi, Ltd. (Canada), 65 Melford Drive, Scarborough, Ontario M1B 2G6. (416) 299-5900.

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 **Hitachi**

Midwest puts on a great show because it uses the best components

One of the reasons that the Midwest M-40 Series is the most advanced class of large mobile teleproduction units available today is our policy of only using the finest components. This "no compromise" design philosophy ensures a system of superior quality and reliability. Our M-40 units give you up to 47 feet of unparalleled technical and creative capacity. Because we only use the best components . . . from companies like Ikegami.



Ikegami HK-322 automatic color cameras make Midwest picture perfect

In the M-40, we wanted the ability to produce the best possible pictures.

So we selected the HK-322 as a basic building block of the system.

When the position as the world's most popular field camera passes from the Ikegami HK-357A, it will be to the HK-322. This fully automatic color camera sets the new standard for picture resolution, signal-to-noise ratio and registration accuracy. Standard computer set-up takes much of the hassle out of preparing for remote telecasts. With the Ikegami HK-322, the Midwest M-40 delivers perfect pictures everytime.

Ikegami HL-79E Series plays dual role for Midwest units

The Ikegami HL-79E Series camera was selected for use aboard the Midwest M-40 because it can handle two separate functions with superlative results. Although it's renowned as the perfect hand-held camera, the HL-79E Series can easily be converted into a field camera that produces higher quality images than many other manufacturers top-of-the-line studio models

**Ikegami delivers
super performance in**



Ikegami 9-Series color monitors give Midwest "true to life" pictures

Ikegami 9-Series Color Monitors are standard in the Midwest M-40 mobile unit because of their superb resolution and ability to reproduce colors that are amazingly life-like. This performance is unmatched by any other monitor in the world. Since the 9-Series monitors use In-Line Gun CRTs, they provide more than excellent colorimetry and



fantastic resolution. They also offer high stability, unit interchangeability, low power consumption, and convenient pull-out circuit panels. By using the Ikegami 9-Series, the Midwest M-40 can reproduce colors that are true to life.

This exceptionally fine performance is due to Ikegami's painstaking attention to detail. Designed to meet the most rigorous performance standards, the HL-79E Series also offers optional automatic set-up, either via its own set-up computer or by interface into the HK-322 set-up computer for total system integration. With the HL-79E Series, Midwest's M-40 offers you the versatility required to produce network quality productions in any circumstances.

Midwest road shows



For more information on how Midwest and Ikegami can deliver world class performance for your company, contact any Midwest office in the U.S. or call toll free (800) 543-1584.

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Bridging the Technology Gap

There's nothing like a stiff jolt of new technology, as evidenced at the recent SMPTE and AES shows, to point up the ways in which our industry is still sharply divided over issues of new technological developments. Despite attempts by the various engineering committees and subcommittees to solicit input from end users, the prevailing attitude is that engineers working on SMPTE and AES committees are somehow aloof, removed from the everyday realities of the broadcast and teleproduction facility.

Perhaps this is as it should be, for developing guidelines on brand-new technologies may not need to be hampered by present-day constraints. Those defining standards for transmission of analog component signals, or digital recording formats, operate in a world that does not yet exist, and are defining the shape of things to come rather than things that already are.

But for most in the industry, it's difficult enough to keep up with what editing system or camera or character generator to buy next, let alone to worry whether the plant will be all analog component or all digital by the year 2001. While paper after paper at the recent SMPTE conference presented a picture of a still-undetermined future, the average broadcaster can only sigh in bewilderment and wonder when someone is going to offer something solid to go on—whether it be affordable technical automation, improving the performance of an editing suite, or interfacing the digital video effects system with the editor.

Those who serve on SMPTE committees—network engineering chiefs planning decades in advance; manufacturers' representatives planning future technology cycles; broadcast and teleproduction engineers noted for their forward-looking stances; and the occasional "man on the street" anxious for a taste of the new—certainly cannot be condemned for sometimes losing sight of the present in their quest to map the future. Broadcasters should remind themselves that many of today's technologies were developed by the same groups that are now working toward tomorrow. But by the same token, SMPTE and AES committees would boost industry confidence by more timely and open communication with the industry they serve.

Worth Its Wait In Gold.

For Harrison Reliability

Sure, Harrison has waited to enter the U.S. broadcast market. When you're a stickler for precise engineering and a perfectionist when it comes to quality performance – you've got to take your time to get it right. *Get it just right for you.*

No Compromises

It can be tough getting the right console to match your specifications. About as easy as fitting a square peg in a round hole, right? Harrison Systems has anticipated your need for versatility. A good deal of time and research goes into our consoles in order to bring you the smartest, most efficient technology and service. We've got the system that fits the size and scope of your needs, whether it be:

- Teleproduction
- Video Sweetening and Post-Production
- Video Edit Suite
- Film Sound Post-Production
- On-Air Broadcasting
- Broadcast Production
- Live Sound Reinforcement
- Music Recording and Scoring

At Harrison Systems, we give you choices – not excuses or unnecessary fluff. Our systems are designed to bring you long-lasting, clean performance and reliability.

Harrison Puts You In Good Company

Organizations like Swiss Broadcasting and Belgian Radio and Television have believed in the superior quality of Harrison Stereo Broadcast Audio Consoles for years and have chosen Harrison for multiple broadcast installations. Swedish Television has selected 8 TV-3 consoles and has committed to several more. This year's Winter Olympics in Yugoslavia received the main audio feed from a TV-3.

At Last

At Harrison, we take the time to listen to your needs. We design our consoles with the flexibility to fit your operation. And although our standards may be high for our consoles – our prices are very, very reasonable. We think you'll find it's been worth the wait – in golden, Harrison-true performance. Call us for a demonstration and see for yourself.

For Harrison Innovation

Introducing Harrison's TV-3, PRO-7 and TV-4, the broadcast consoles you've been waiting for:

TV-3 For large scale TV audio, remote production, studio production, post-production and sweetening ■ Adapts to wide range of tasks ■ Available in a variety of configurations for customization ■ Plus many options.



Now Available
AIR-7 For on-air stereo radio broadcasting, combining sophisticated technology with simple operation.

PRO-7 Designed for comprehensive use in broadcast, live sound, motion picture teleproduction ■ Two major configurations ■ Simple to operate ■ Cost-effective ■ Independent mix decision capability ■ Long-term performance achieved through thick-film laser-trimmed resistor networks ■ Plus many options.

TV-4 For medium scale on-air production, remote production, studio production, sweetening and post-production ■ Three major, simplified configurations ■ Easy to install ■ High-speed, low noise, low distortion amplifiers allow for best possible electronic performance ■ Plus many options.

Harrison's new VSI Fader Section, which allows for simultaneous interface with automation and video editor/switcher, is available for TV-4 and PRO-7 consoles.



Why wait any longer? Call or write Harrison Systems, Inc., P.O. Box 22964, Nashville, TN 37202; (615) 834-1184, Telex 555133.

**Harrison**

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LETTERS

FOLLOWING FCC RULES

To the Editor:

I am responding to your October Editorial "The Use and Abuse of the FCC." As a leading wireless microphone systems manufacturer, Sony supports and has always endeavored to comply with the normal procedures required by the FCC when introducing a product that falls under Part 74, Subpart H of its regulations. For the products mentioned in the Editorial, there was indeed an unintentionally premature marketing effort consisting primarily of advertising but not sales or shipments.

Part of the VHF system had been type accepted as early as April 1984. This was done by normal procedures used by all manufacturers and without any outside influences. The balance of the system was granted equipment authorization effective September 25, 1984.

Richard R. Lee
National Product Manager
Sony Professional Audio Division
Park Ridge, NJ

To the Editor:

I was highly disappointed with the content of *BM/E*'s October Editorial, "Use and Abuse of the FCC."

In the section discussing Sony's difficulties with the FCC, U.S. manufacturers were, in essence, accused of poor sportsmanship in bringing Sony's rules violations to the attention of the FCC. I find this ironic for two reasons. The first is that our contacts at the FCC have informally indicated that they were particularly receptive to pursuing the violations because Sony had filed numerous complaints against competitors, possibly more than for any other major company. In other words, Sony has itself used the FCC's regulatory powers to advance its competitive position frequently and with good effect.

You may find the second reason even more interesting. In recent years, U.S. wireless microphone manufacturers had begun to achieve some success in selling their products in Japan. In response, the Japanese government recently enacted regulations making the

possession of non-approved wireless microphones (and related equipment) a criminal offense. Such possession carries a fine of up to approximately \$2500 per item of equipment, plus confiscation and destruction of the equipment. And how may approval of American-made equipment be obtained? As a practical matter, it can't; there is no agency of the Japanese government directly responsible for approval of such equipment. Consequently, these actions by the Japanese government have the effect of totally closing the Japanese marketplace to U.S. manufacturers.

In view of the above, the "lucky" U.S. manufacturers can be forgiven if they have a desire to ensure that Sony follows our own rules; the very same ones that many U.S. manufacturers must follow, and not rules intended to utterly suppress any possibility of foreign competition. In our own case, Cetec Vega has more than once been without equipment to ship to our customers due to extended delays in receiving FCC approval of new designs. In most instances, the delays have been due to large backlogs of submittals by Japanese companies!

BM/E completely missed the point of the complaints by U.S. manufacturers. Sony was heavily advertising and promoting the synthesized equipment, accepting orders, and shipping, months before there was any possibility of receiving the necessary approvals, all clearly in violation of FCC rules. The issue was not that the equipment was synthesized; the marketplace will decide the merits of this design approach.

In regard to the general thrust of the Editorial, which seemed to be a call for deregulation, I would like to point out that the industry has been far and away the greatest private-sector beneficiary of regulatory actions. Deregulation, technical and otherwise, would harm the broadcast industry far more than any other industry segment. To illustrate my point, I would like to note that growing numbers of illegally modified handheld portable two-way radios are being placed in operation. These frequency-synthesized units were designed to operate on six to 12 preprogrammed frequencies in the 160-170 MHz range. However, they are being modified to provide fully

synthesized operation in the 170-180 and 180-190 MHz frequency ranges. Due to low energy density in many parts of active TV channels, highly acceptable two-way communications can be obtained. Unfortunately, TV reception is seriously degraded within a one to three mile radius during transmissions. We wonder if *BM/E* would support the rights of manufacturers of such equipment to "operate without fear of government crackdowns."

In view of Sony's frequent use of the FCC complaint process, and the widespread use of government regulation to suppress foreign competition in Japan, I am greatly offended by the term "abuse" in your Editorial. I am also offended by the insinuation that it is somehow unsporting and not "fair play" to require a giant multinational corporation such as Sony to follow the same rules and regulations which bind small U.S. manufacturers of wireless microphones. It is also noted that the applicable regulations have been in place for many years; they are not "more technical regulation," unlike the recent changes in Japan. In addition, it is suspected that the FCC will be more than a little surprised to learn that they are "not in the business of regulating the technical standards of the industry anymore," especially since Congress believes otherwise.

Gary J. Stanfill
President
Cetec Vega Corporation
El Monte, CA

BME has consistently taken the position, from the earliest days of the Fowler FCC, that technical regulation is critical if we are to avoid the kind of chaos brought about by the "marketplace" approach—as has proved to be the case with AM stereo. Our point in the October issue Editorial was that if the FCC is to continue in its role as guardian of technical standards, it must be armed with the engineering staff and resources to carry out its policies. Otherwise it, like any institution which seeks to legislate without a means of enforcement, becomes subject to the whims of the manufacturers it is seeking to regulate. Our position is that a condition which pits one manufacturer against another—not over product features, reliability, or price, but over which can attract the attention of a weakened FCC staff—should not be allowed to continue.—Ed.

A letter from the President of Ikegami

Ikegami Electronics (U.S.A.), Inc.

37 Brook Avenue

Maywood, N.J. 07607

(201) 368-9171

Nick H. Nishi
President

Dear Ikegami HL-79 Camera Customer:

On behalf of Ikegami, I want to express our grateful appreciation for your support and patronage which enabled us to achieve the sale of our 5,000th HL-79 series camera as of September 1984. We believe that this is an unprecedented quantity for such a sophisticated camera in this product category.

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Through the press I wish to thank all our customers for using over 5,000 sets of the HL-79 series cameras.

Sincerely,



Nick H. Nishi
President

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British Face Analog Component Choice

Faced with the problem of integrating analog component capability into existing plants, NTSC color standard countries seem to be headed for a single-cable time-division multiplexed (TDM) approach, as recommended by SMPTE's Study Group on Component Studio Implementation (see *BM/E*, November 1983, p. 67). In PAL countries, and the U.K. in particular, such a decision may be less easily implemented. Both a frequency-division multiplexed (FDM) system using out-of-band chrominance and the TDM system, each having advantages and disadvantages, have been proposed.

At the tenth International Broadcasting Convention (IBC) at Brighton in September, Thames Television Ltd. engineer B. G. Scott said the principal disadvantage of TDM is its basic incompatibility with the PAL system because a delay line encoder is required at every source. More significantly, a decoder is required at every monitor. Thus a TDM approach is likely to be more expensive. Scott acknowledges that FDM systems are more critical in terms of maintaining differential phase and gain, linearity, and crosstalk, but maintains that these are not a real problem in the controlled environment of a studio. FDM signals are more easily handled in mixing switchers.

Assuming a single-wire distribution scheme is highly preferable, G. M. Drury of the Independent Broadcasting Authority agreed that PAL decoding difficulties can't easily be overcome, but he considers timing misalignment a problem with FDM. Drury supports TDM, which he envisions as the basis of a system "to replace PAL." But because TDM requires at least 11 MHz of bandwidth, he sees some modification of the format necessary for VTR processing and microwave transmission links.

Another IBC paper by Thames engineers described a video FDM coding system, with color at a super carrier frequency of 9 MHz, that passed critical viewing evaluation tests.

Both British systems are compatible with the CCIR 601 digital component standard. The approach that eventually prevails may depend on which hardware manufacturers elect to build.

Several analog component products were on exhibit at IBC, but none were single-wire systems. Pye TVT launched a new effects product called the CVE (Component Video Effects) which uses two channels. Michael Cox Electronics introduced a new component editing mixer designed to process YUV analog component signals in component form until on-air play. For-A also introduced a component video mixer, the CVM-500. Microtime exhibited a FIT, or Format Interchange TBC.

ABC Radio Networks Dedicate New Facility

ABC's seven radio networks took a giant step into the future October 15 when they went on-air for the first time from their new home, a state of the art broadcast center built just for them. The facility, on the sixth floor of a former automobile warehouse on Manhattan's Upper West Side, measures 40,000 square feet, making it the largest commercial radio facility in the world, according to ABC.

Architect Tony Argibay worked in conjunction with ABC personnel to design the extensive new facility. The



The Technical Operations Center, with its "Starship Enterprise" computerized console, is the control center for the entire ABC Radio Network operation and its 20 dedicated satellite channels.

Shake Hands and Come Out Compatible . . .

It was an historic moment at the recent AES in New York when Dr. Roger Laghadec of Studer Revox and Masaru Nagami, head of Sony Professional Audio manufacturing operations in Japan each introduced new two-track/1/4-inch digital ATRs in the DASH (digital audio stationary head) format. Thanks to intense negotiations between the two companies, culminating just weeks before the AES, tapes recorded on the two machines will shortly be completely interchangeable.

Previously, ambiguities in the wording of the DASH standards document had led to different interpretations of the format by the two



Studer's Laghadec (left) and Sony Pro Audio's Nagami (right) shake hands over their companies' agreement insuring compatibility of DASH-format digital recordings.

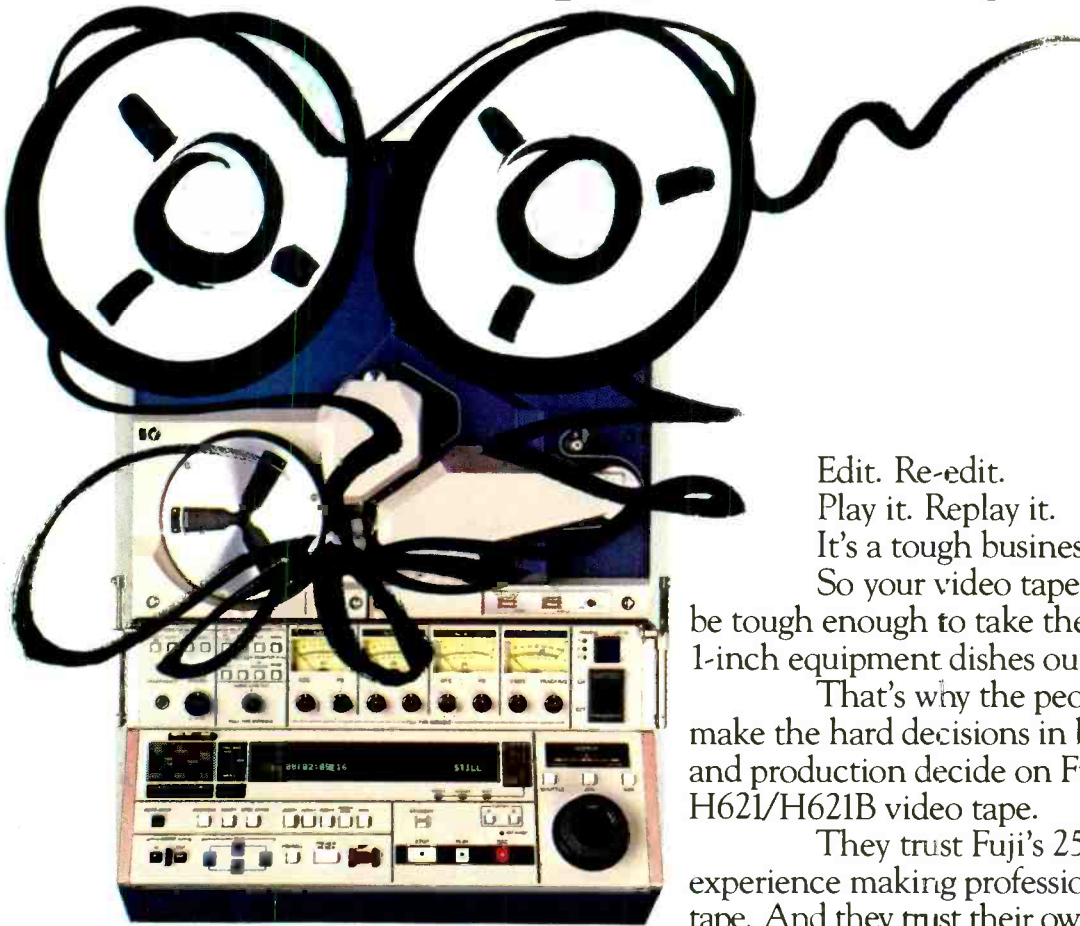
manufacturers. This, in turn, had made tapes recorded on Sony and Studer machines incompatible, even though both conformed to the basic DASH format.

According to the terms of the new agreement, although neither company will radically change its interpretation of the format, both will now encode the tapes with enough extra information so they can be read by the other manufacturer's system.

Sony and Studer, together with Matsushita (the other DASH format signatory), can now go head-to-head against the Mitsubishi digital recording format, which has been gaining considerable popularity recently, partially because of the confusion over the DASH standard.



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building's reinforced concrete structure, with many supporting columns, complicated the layout process, but Argibay's final design conceals all but one of the columns, leaving ample space for 13 studios and the large, open newsroom at the center's hub.

The editors' stations in the newsrooms are designed for speed and ease of communication. Cassette recorders, AM/FM radios, and TV receivers allow editors to monitor both in-house and outside news coverage. Stations also have intercoms and automation terminals with VDTs, keyboards, and printers. The senior editor's position intercom doubles as a PA system that can alert the entire staff of breaking developments. The one seeming omission is a newsroom computer system, but even this is in the planning stage. ABC Radio Network director of technical operations Dick Martinez predicts the newsroom will be computerized by late 1985 or early 1986.

Eleven of the 13 studios are already on-air. According to Martinez, these rooms were designed to be as similar as possible for multiple functions and ease of operator training. Built by Ward-Beck Systems around the standard

R1200 console, with some customization (including four-channel modules), the studios were built in Canada, shipped down to New York, and assembled in two to three weeks each—just about the time it took to build the next studio. Ward-Beck Systems also built the extensive intercom and studio interconnect systems.

Studios 12 and 13, still in the planning stages, will be multitrack recording studios for in-house production. The rooms they will occupy have been "floated" within the building for complete acoustic isolation; Martinez quips, "You won't be able to hear a dynamite blast unless it's right at the door." A temporary multitrack room, in service until Studios 12 and 13 are completed, uses an Otari MTR-90 16-track ATR and Yamaha console, along with Studer cassette decks, Technics turntables, and Otari MTR-10 ¼-inch ATRS, found throughout the other rooms as well (ABC purchased \$250,000 worth of MTR-10s for the broadcast center).

Besides Ward-Beck, the other major contractor was McCurdy Radio Industries, which built the plant's computer-based automation system. The automa-

tion, which includes full monitoring and reporting of the status and scheduling of all studios, is responsible for on-air switching of live programming originating in the studios and of all taped material, which originates off a custom IGM Instacart system in the technical operations center.

The facility's heartbeat is the TOC, which feeds the network's 20-channel digital audio distribution system. Nineteen of the channels are high-fidelity audio feeds for affiliates of the seven networks; the twentieth is dedicated to telephone voice and data distribution. The signals travel five miles south via a fiber optic link to the RCA downtown offices. From there, they are microwaved to the uplink at Vernon Valley, NJ, for digital transmission.

"This new broadcast center represents a commitment by the management of ABC to radio, its present and its future," ABC Broadcast Group president Tony Thomopoulos commented at the center's October 29 dedication. He continued, "We have been the leaders in radio for a long time . . . but to remain ahead of the competition, to remain the leader, you must have the best people and the best technology."



The blue balloon you may have seen zooming around your TV screen in an ad for Johnson Controls is the result of a new process dubbed "videomating" by its developer, Dean Winkler, senior design engineer at VCA/Teletronics in New York. Designed to replace traditional matting techniques, videomating allows images from one scene to be inserted into another without the limitations of traditional keying. Using an MCI/Quantel Paint Box and ADDA still store, Winkler was able to remove the blue balloon from its blue background and matte it into scenes including skyscrapers, airplanes, and a Paint Box-created starry night.

Finally, a Human Can Get the Cat's Tongue

In the Meow Mix "Universal Favorite" television commercial, the high-tech marvel is not a cat's Spielberg-like encounter with a spaceship—every kid at a cola machine has seen that—but rather the feline's singing performance.

This catchy tune was created by synthesizing a digitally recorded cat's meow. Shelly Palmer, a sound and recording expert located in New York, was given the task of making a cat sing the *Close Encounters* tune. "It sounded like a typical sampling problem," Palmer says. Unfortunately, digital recording did not solve the problem.

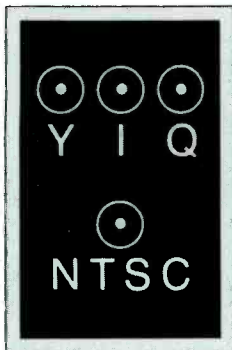
"Our sampled cat sounds didn't have a wide enough range to sing the entire song," he observes. So Palmer used timbre-frame resynthesis to alter the meow's attack, decay, sustain, and release.

"Recording the cat was the toughest part of the whole project," Palmer says. "I tried every trick in the book to get my friend's cat Stanley to come out with the perfect meow—catnip, Meow Mix, even filet mignon."

A glowing blue light beam emanates from a square-shaped object, possibly a speaker or a light fixture, set against a dark background with a blue horizon line. The light beam is bright and has a soft, ethereal quality, suggesting advanced technology or a futuristic theme.

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In the studio or van, the AU-220 doubles as an ideal source VCR when you add the AU-S220 adapter. It provides power, a drop-out compensator, and a fully corrected broadcast signal when you add a TBC, vectorscope and WFM.

For field playback on a budget, choose the AU-100KB and get black and white video confidence in the viewfinder.

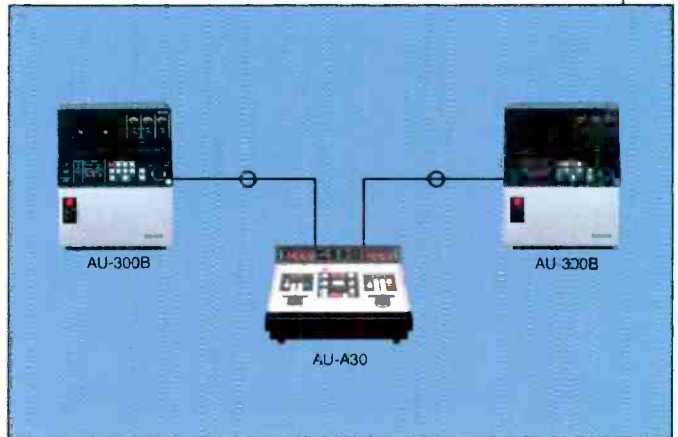
behind component compatibility.

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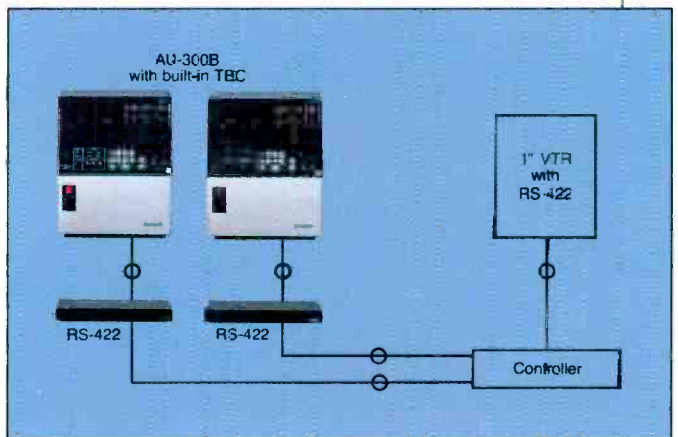
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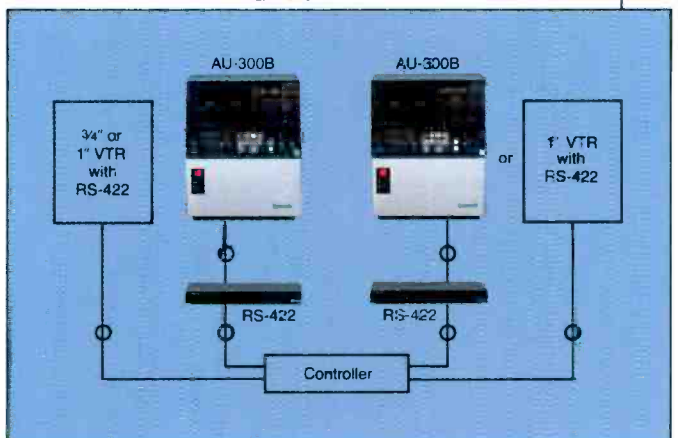
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First DBS Round Cut to Four Applicants

It was merely a formal confirmation of what everyone knew (see *BM/E*, August 1984, p. 14), but the FCC has officially removed four of the eight DBS applicants from its first round list. Though seven applicants await processing in the second round, they will still face their predecessors' problems of signing up programming and getting people to invest in a TVRO.

Among the surviving applicants, Direct Broadcast Satellite Corp. (DBSC) received channel guarantees, which it says it needs to raise funds. Also, Comsat's Satellite Television Corp. (STC) was given permission to reposition its two eastern satellites in order to cover the continental U.S.

The companies that lost their construction permits are CBS, Western Union, RCA, and Graphic Scanning Corp. The FCC had required that CP holders demonstrate "due diligence" by July 17, usually by contracting to have satellites built. CBS and STC had been partners and were planning to create a capability to combine their channels and beam down high definition signals. An STC spokesperson says the company is now looking for other partners.

STC, before the CBS departure, had planned to put up two eastern satellites and one western satellite, but now it has received permission to locate two high-power satellites at 110 degrees west, covering the full continental U.S. STC says improved receiver design has allowed for the change.

In the meantime, STC has become a part owner with Prudential Insurance and Douglas Ruhe in United Satellite Communications, Inc., a low-power service which is the only DBS system now in operation, and which is having difficulties gaining subscribers.

Another permit holder, DBSC, received an FCC guarantee for two orbital positions and 10 channels, but no specific assignments due to uncertainty over its construction schedule. The startup company, based in Bethesda, MD, says it is currently negotiating financial backing for its two high-power satellites, and expects the channel allotments to help. According to the FCC, the satellites are being built by Ford on a "pay as you go" basis. Satellite, uplink, and launching costs are estimated at \$340 million.

DBSC, which says it will operate as a common carrier, is letting Wold Communications market its 10 channels. Common carrier status would allow DBSC to get into fields other than entertainment broadcasting, such as distribution of corporate and educational programs or information. Paul Johnson, vice president of DBS sales and marketing at Wold, reports that his company is studying both the potential audiences and the programmers or

groups of programmers who might want to rent channels.

As for the other remaining first round applicants, Hubbard Broadcasting's United States Satellite Broadcasting Co. and Dominion Video, both had asked the FCC to add two channels to the six already reserved for each company, but the Commission refused, saying it would consider their requests after taking care of the second round of applications.



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NEWS BRIEFS

For the first time since FCC chairman Mark Fowler took office, the Commission has ruled that a broadcaster violated the **fairness doctrine**. WTVH-TV of Syracuse, NY, lost its argument that 182 minutes of ads—run by the local utility supporting its continued construction of a nuclear power plant—did not constitute a political issue.

According to a recent NAB study on **radio's use of satellite programming and AM stereo**, 72 percent of stations

surveyed say they use satellite dishes, and another 12 percent plan to install one in the next year. Small and medium markets were the biggest users with little difference between AM and FM. News is the most popular feed. Less than five percent reportedly broadcast in AM stereo, but 16 percent plan to start within a year. The most common reason for not using stereo, cited by 36 percent, is the substantial cost involved.

Several top executives of **RKO General and RKO Radio** have resigned in a general shakeup of the highest ranks at GenCorp (General Tire & Rubber). In an effort to save the broadcasting group's licenses from RKO's mounting difficulties, the conglomerate's new CEO, A. William Reynolds, has reportedly begun turning over the reins to Shane O'Neil, 37, whose career has been mostly in broadcasting. He succeeds his father, Thomas O'Neil, who took over RKO General when GenCorp's founder, William O'Neil, died.

Mergers and acquisitions in the broadcast industry were up to 28 percent in 1983, according to W. T. Grimm & Co., an acquisition consultant in Chicago. 1981 and 1982 both saw 47 announcements of transactions, while in 1983 the total rose to 60. . . . Clear Channel Communications finished its acquisition of **Broad Street Communications**, bringing its total number of radio stations to 12. . . . Taft Broadcasting has **cancelled its sale of WGR/WGRQ**, Buffalo, NY, to CRB Broadcasting. Taft directly attributed its action to the FCC raising the radio ownership limits to 12 stations.

As if a major fire gutting much of the PBS headquarters wasn't enough, President Reagan vetoed Congress's second attempt to pass **CPB funding legislation** for 1987 to 1989. Despite the blessings of Sen. Barry Goldwater (R-AZ) and Reagan's own new CPB director, Sonia Landau, the White House found the budget levels to be too high.

Compact Video Services, Burbank, announced completion of post-production for syndication of 161 episodes of Lorimar's *Dallas*.

L. Matthew Miller will hold its third set of classes in New York, December 4 and 5, on TBCs and **"achieving special effects with moderately priced equipment"**. . . . The NAB is conducting a series of regional seminars on the **"Revitalization of AM Radio"** which cover engineering, sales, marketing, and management. They will be held in Orlando on February 26 to 27, and Charlotte, NC on February 28 to March 1. Call (202) 293-4955 for rates and registration. . . . Microwave Filter Co. has produced a two hour tape showing **how to suppress various kinds of terrestrial interference to C-band earth stations**. Cost is \$75; ask for Emily Bostick at (800) 448-1666.



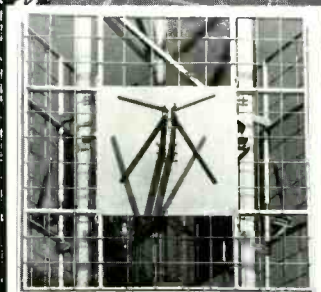
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RADIO programming & production

APR Brings Visual Art to Radio

By Michael Greenhouse,
Associate Editor

Architecture is a visual art not normally associated with radio; there isn't anything particularly aural about it. But this fall, radio did in fact tackle architecture as well as dance, painting, and a number of other visual arts in a 16-part series, *The Territory of Art*, produced by the Los Angeles Museum of Contemporary Art and distributed by American Public Radio.

The challenge in producing this series, according to senior producer Steve Rathe, was this: "How do we connect the radio medium with these kinds of arts?" In the case of "Architecture for the Future," the segment that aired around Thanksgiving, the challenge was met with an eight-part production/post-production process that took, according to Rathe, "about 400 hours of people's time." About 12 people were involved in recording, editing, and mixing close to 35 hours of interviews, as well as TV sound, prerecorded music beds, ambient sound, and dramatic readings. The result was a half-hour show that represents, according to Rathe, "the state of the art for serious radio production."

Laying the foundation

Step one was the development of a program outline by Rathe, coproducer Leslie Peters, two researcher/writers, and David Lowe, an architecture critic and the show's host. Then, about 30 architects were interviewed in at least five cities—at construction sites and building locations as well as studios. A section of a TV program, *Designathon*, was also recorded. On this show, architect Charles Moore would come up with designs for people who called with suggestions.

The producers also conducted tape sync telephone interviews, recording interviewer and interviewee separately at their respective locations, then meshing the two tapes together. Rathe then had the option of either editing the tapes together or combining them on



Senior producer Steve Rathe and coproducer Lesley Peters look over track sheets at New Wilderness, New York City.

multitrack. He preferred the latter option "because it's easier to crossfade and create a composite ambience between the two studios."

Appropriate ambience

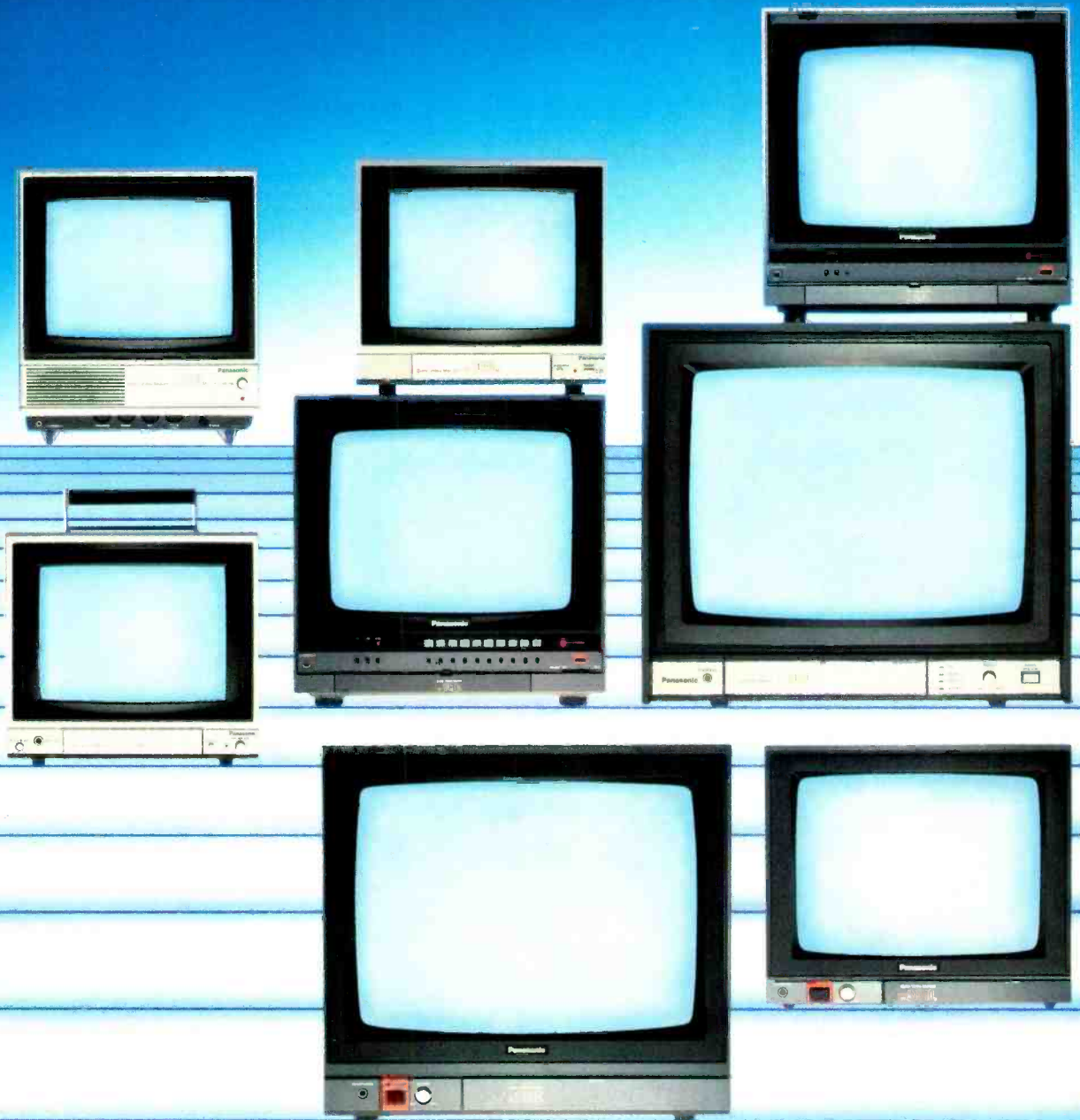
For each 35- to 40-minute interview, 10 to 15 minutes of ambient sound was recorded. "We tried, where it was possible, to get the sound of the building that the person was involved in designing, or the sound of their workspace," says Rathe. These sounds included construction sites and shopping malls, but they also included "specialized things," says Rathe. For one sequence, for example, a recordist was asked to capture the sound of dawn in a city. Another recordist rode the elevators of the World Trade Center "in an attempt to capture that sense of what it's like to live and work and travel in one of these enormous buildings," explains Rathe.

Dramatic readings were also a part of the early recording phase. Each of the major architects covered in the show had a dramatic reading describing one of his or her works. These readings were eventually set in a sound or music bed and woven into the interviews.

Much of this material was recorded with Sony TCD-5M stereo cassette machines with VU metering. Rathe comments, "The Sony machines consistently gave us a quality that withstood the transfer up to two-track, and in some cases the subsequent transfer to multi before it finally was mixed down to air master." The Nagra 4S was also used extensively, especially for the ambience recordings. No digital recording was used in "Architecture for the Future," though Sony PCM F1 units were used for a number of other shows in the series.

Rough cut

The Sony- and Nagra-recorded tapes were never just run into a master tape, of course. The lengthy editorial process began with the transferring of relevant portions of the interviews to 1/4-inch tape, at which point the 1/4-inch was rough cut. And in many cases the rough cutting was "not just taking a hunk of what somebody said, but seeing whether one could compress, for example, five minutes of remarks—by the most careful kind of editing—into three sentences," says Rathe.



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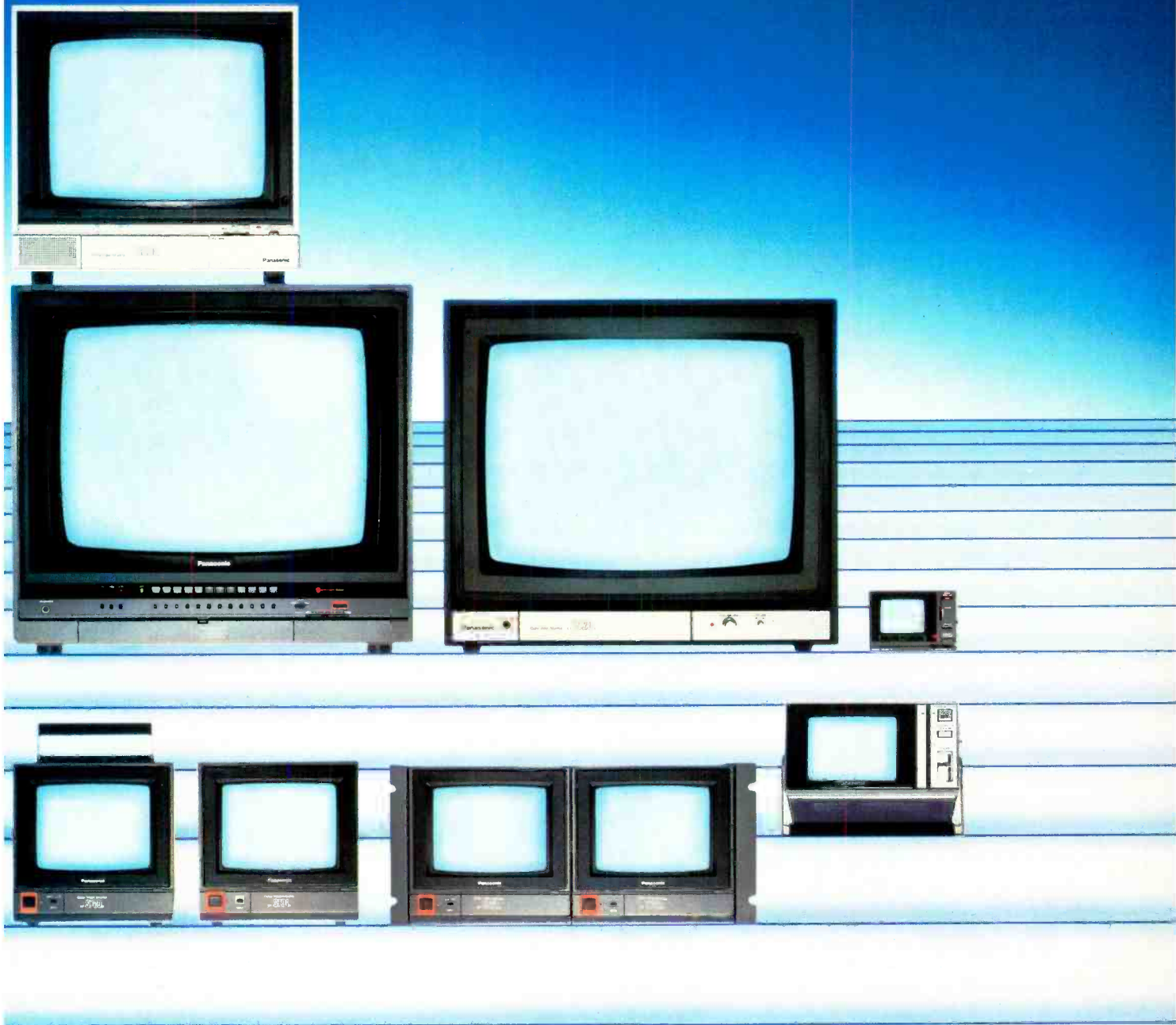
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RADIO PROGRAMMING

After the rough cut was complete, the producers made a new outline of the program. The writers were brought back to decide, says Rathe, "Now that the program has this sort of intellectual thrust, what are the illustration materials we're going to use? What sound backgrounds are we going to use? What architect's works should be given these dramatic readings? And how will they be set?"

Next, Lowe listened to all the tape

recorded connecting material, which was formed into a script. At this point the producers had 33 minutes of audio on two-track tapes.

Two more series of cuts followed, both of which can be considered fine cuts. Material was deleted and in some cases compressed: sections were overlaid that may have been just straight interview material before. The final fine cut was based on aesthetic judgement: the sound beds sometimes

didn't sound different enough or strong enough, and changes were made.

The final step, prior to mixdown, was the transfer of all the two-track material to an Otari eight-track recorder. About the Otari, Rathe says, "It fills a need. With an Otari you can have four stereo pairs going, or three stereo pairs and a couple of mono tracks. And you can roll in a couple of additional two-tracks. It increases the producer's ability to do the kind of textured and multilayered radio production that has come of age."

New Wilderness, in New York City, was the site for the eight-track session and the mixing that followed. Rathe brought a group of two-track tapes, which were more or less laid out as tracks two through seven. (The producers tried to avoid tracks one and eight, which are guard tracks and more likely to be damaged.) In general, they put the host voice on track two, dramatic voices on track three, stereo background one on tracks four and five, and stereo background two on tracks six and seven. When they had additional material they brought it in on one and eight.

The two-track reels were laid down sequentially. The producers would choose material from reel A, reel B, reel C, and so on. They might lay down, for instance, host, then dramatic reading, then sound effects would be laid under the host.

When they emerged with the multitrack they did a rough mix on a Soundcraft board, then listened to it. At that point, they still cut material out; they might dump a track if they thought it was gratuitous, for example. In one or two instances they changed sound effects "because they seemed heavy-handed," according to Rathe.

Satellite distribution

All the shows were fed by satellite, beginning September 9, to all APR member stations. The series was also made available to NPR stations because of the nature of the funding, which came from the Satellite Program Development Fund. In addition, the Museum of Contemporary Art has prepared a series of 90-second modules to commercial stations. The museum's presentation of visual media to a radio audience will continue through January, bringing listeners the opportunity to experience art through the mind's eye.

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TELEVISION programming & production

Celebrity Chefs Cooks up Syndicated Success

By Robert Rivlin, Editor

At first glance, it would seem that putting together a syndicated weekly cooking show would be one of the simplest productions imaginable, with even less hassles than a game show or weekly dance competition. But any local station seeking to capitalize on the apparently insatiable appetite of the American public for televised cooking guides—Julia Child and the Galloping Gourmet are two of the best-known examples—should spend some time doing its homework, and perhaps take a lesson or two from *Celebrity Chefs*, a weekly syndicated half-hour from Creative Programming, Inc. (CPI).

The first lesson is that “you have to be a little different,” explains executive producer Peter Wild. For CPI, this meant abandoning the traditional gourmet-chef-shows-you-exactly-how-to-do-it approach taken on previous cooking series, and opting for a looser, more entertainment-oriented show. This led to the selection of Robert Morley as the host.

Rather than having Morley himself do the cooking, *Celebrity Chefs* delivers on its name by inviting famous celebrities to come into Morley’s studio kitchen and prepare their favorite recipes. Guests have included Gladys Knight, Phyllis Diller, Sergio Franchi, George Plimpton, film critic Rex Reed, Linda Blair, Richie Havens, and Dick Cavett—an impressive and varied lineup.

In some cases the guests are, indeed, good cooks, and prepare their favorite recipes. In other cases, the guests are helped in their menu selection by the show’s home economists, and are given cooking and preparation pointers. But in every case, the guest and the recipe are tied together. Henny Youngman, for example, made blintzes. Rex Reed, because he is from the south, prepared a filé gumbo. Vic Tayback, who plays the owner of



Photo: Mary Bloom

On the *Celebrity Chefs* set at Unitel. Two Ikegami HK-312s with Canon P 18x168B lenses are mounted on Vinten pedestals.

the diner on *Alice*, made “Mel’s” chili. When the guest is really a gourmet cook, such as Phyllis Diller, he or she has an opportunity to prepare a more exotic dish, such as Diller’s salmon in papillote and also a Thanksgiving turkey.

Morley introduces each celebrity, and, while the food is being prepared, a lively discussion follows on whatever the guest feels like talking about, whether food-related or not. Then the two sit in a dining room set, pour a little wine, and enjoy a pleasant conversation as they sample the meal. *Celebrity Chefs* is billed as a “cooking/chat” series, and its theme is more “having fun in the kitchen” than anything else.

Two guests per week

Each 30-minute show airs twice a week on the CBN cable network (25 million homes), and each show consists of two 15-minute segments with different guests. Although the show tapes two segments a day while in production (it probably could accommodate more, but with Morley over 75 years old, Wild doesn’t want to push it), each segment is completely separate and is almost always split apart and joined with other totally different segments for the aired programs. In this way, the 30-minute show can offer a more interesting balance, taking a segment with a

guest preparing an entrée and marrying it to one of a guest preparing dessert, or having a movie star in the first segment and a TV star in the second.

Within each 15-minute segment, Wild has deliberately cut the in-kitchen scene to only five or six minutes, to insure a good balance between cooking and chatting. This obviously isn’t enough time to go through all the steps of the food preparation in detail, so the show’s three home economists (a main food stylist and two assistants) prepare different stages of the recipe in advance. The guest can then cover the main elements of preparing the dish, but move quickly from one critical stage to the next.

A very useful tool in allowing *Celebrity Chefs* to move so quickly through the kitchen is the recipe offer. The show is sponsored by Campbell’s, which coordinates the sending of a free recipe to every viewer who writes in to the PO Box address mentioned twice during each show. This way guests are much freer to relax and enjoy themselves, and don’t have to worry if they forget to mention an ingredient or do things slightly out of order.

Besides the stylists, another key element in making the food look good is the lighting plan, masterminded by Jack Priestly. The Unitel stage has a newly-installed Strand Century lighting board and lighting units, which

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TELEVISION PROGRAMMING

Priestly has organized so the set looks warm and homey but at the same time provides enough light for the viewer to see the food. This was especially difficult to arrange for the overhead shots, which often look directly down into deep pots.

Iso camera production

Although the production is done on a large stage at Unitel Video Services in New York City, whose control room has all the latest production equipment,

Celebrity Chefs is shot with three isolated, unswitched cameras—two Ikegami HK-312s mounted on Vinten pedestals, and an Ikegami HL-790 mounted on a Moviola dolly—each of which is recorded separately on a one-inch VTR.

A typical morning production begins with electronic setup (ESU) at 9 a.m. Morley and the guest generally arrive around 9:30, and Morley receives a briefing on the guest (being British, he is sometimes not familiar with our TV stars). At the same time, the celebrity

meets with the food stylists and rehearses "food moves"—which steps of the cooking process will be demonstrated, which will be skipped over, and how to get from one step to the next. This is especially important to rehearse, since the HL-790 on its high-riser dolly is used to get tight closeups of the cooking from an overhead angle; missed cues are therefore difficult to correct.

Actual taping generally commences at 10:15, and can last until 1:00, although it is very rare to need to do more than two takes, and in many cases a single take with an occasional audio or video drop-in is sufficient. The kitchen and dining room sets are right next to one another, so a minimum of camera rearrangement is necessary. All together, the kitchen scene generally takes about 35 minutes to shoot, and the dining room about 20 minutes.

"Live" post-production

The post-production (accomplished primarily at New York City's VideoWorks) involves an almost live setup, as is becoming common in productions shot with isolated cameras. The three iso camera reels are synced using time code and are rolled together while the editor and director, watching monitors as if they were live camera inputs, simply select the best shot. Director Don Horan, who is in the control room during production, has closely monitored the camera angles. Since he has laid down only about 20 seconds more material than the finished length of the segment, the editor's job is simply to find the best shot, cut the show a little tighter than originally produced, add in extra closeups and reaction shots if needed, and super the PO Box address for the recipes.

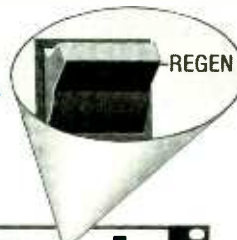
"During the production of last season's shows," explains Wild, "we live switched everything in the studio. That meant that only the show's opens and closes needed to be added in post-production. But several times we found ourselves just missing a key shot by seconds, or not having a camera at the right place at the right time—little things too small to need to retake, but annoying anyway. That's why we went to the more sophisticated post-production process."

The ingredients for a successful show are all there in *Celebrity Chefs*: an interesting format that combines cooking with a talk-show atmosphere; a lively, witty host; "household name" guests; a carefully-planned production; and even great cooking ideas. For the local broadcast station, the show offers a perfect recipe for success. **BM/E**

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TENTH ANNUAL BEST STATION AND FACILITY DESIGN COMPETITION

Here, arranged in four categories—AM Radio, FM Radio, Television, and Teleproduction Facilities—are the nominees for *BM/E*'s Tenth Annual Best Station and Facility Design Competition.

To celebrate the tenth anniversary of this competition—the industry's only ongoing awards program recognizing excellence in new design and engineering projects—the editors have decided to give a Special Award to KSL, Salt Lake City. KSL Television, KSL Radio, and Video West, KSL's teleproduction facility, recently moved together into a brand-new facility, among the finest examples of design we have ever seen. Rather than entering the TV, radio, and facility operations into separate categories we have therefore decided to remove KSL from the competition and award it a Special Prize.

Our editors 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 37), and drop the card in the mail. Each winner will receive a handsome plaque, to be presented by *BM/E* at the 1985 NAB Show, so we must receive the ballot *no later than February 15, 1985* 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.

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SPECIAL AWARD: KSL

THE BEST STATION AND FACILITY DESIGN COMPETITION

KSL-TV

SALT LAKE CITY, UT

ADI NO.: 43

Submitted by
JAY LLOYD,
President and
General Manager

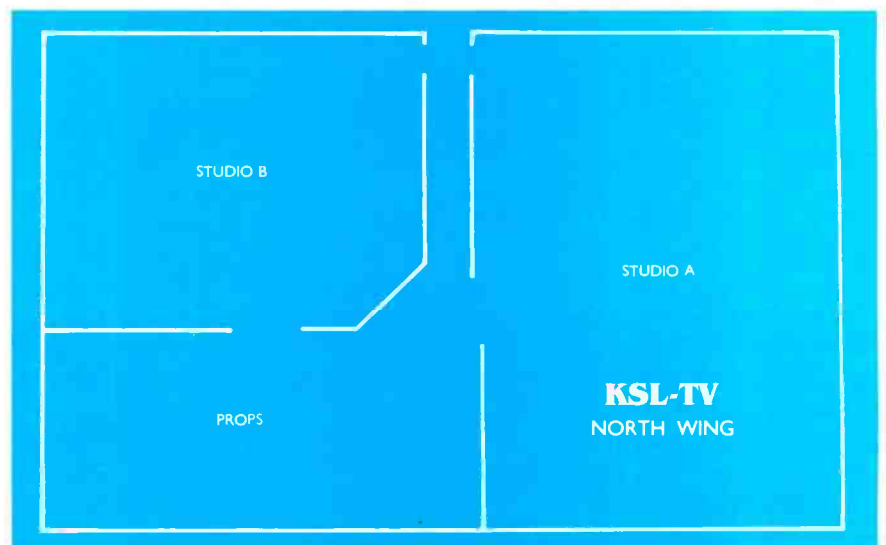
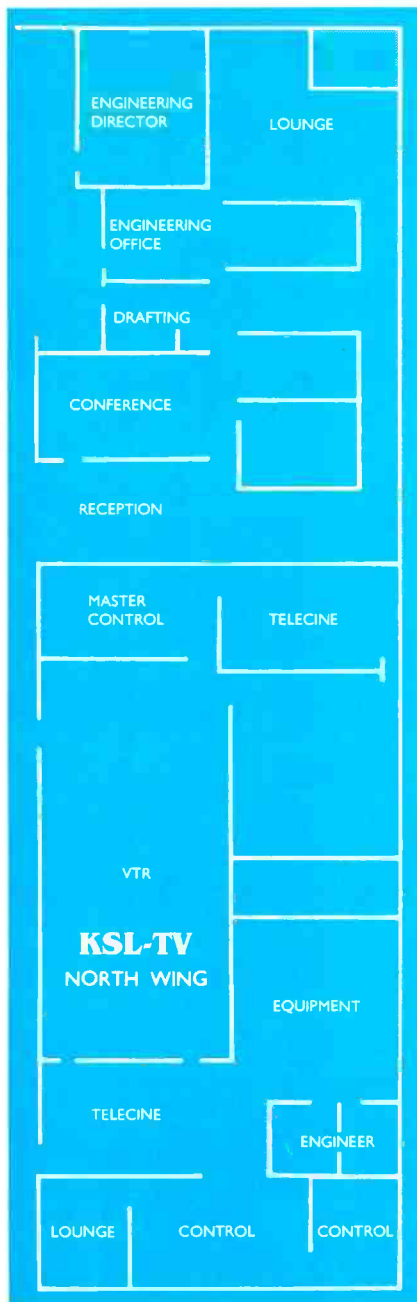
After 35 years on Salt Lake City's Social Hall Ave., KSL-TV has moved to a new home at Triad Center, which also houses KSL Radio, Video West, and parent organization Bonneville International Corp. Our new facilities are among the most modern and sophisticated in the country. Unlike the converted automobile showroom we left behind, the new 130,000-square-foot space was built specifically for KSL's needs. Designed by architect Jay Ritchie in conjunction with key personnel from KSL and Bonneville, Broadcast House is a source of pride to the station and its employees.

Several factors led to our selection of Triad Center as the site for the new Broadcast House. First, we felt it was important for the station to remain in the heart of Salt Lake City. The need for a clear microwave path necessitated access to transmitters located west of the city. It was also desirable to be near a tall building so ENG receivers and other antennas could be placed in a clear area. Finally, the new location had to be near Temple Square, home of the Mormon Tabernacle Choir, since KSL is responsible for originating the nationally broadcast Sunday morning program, *The Spoken Word*.

Triad Center, the solution to KSL-TV's problem, is a two and a half block, multibuilding complex. KSL is located in the first building to be completed in the Center. Broadcast House is eight stories high and is divided into two wings separated by an atrium. KSL-TV news occupies the south wing

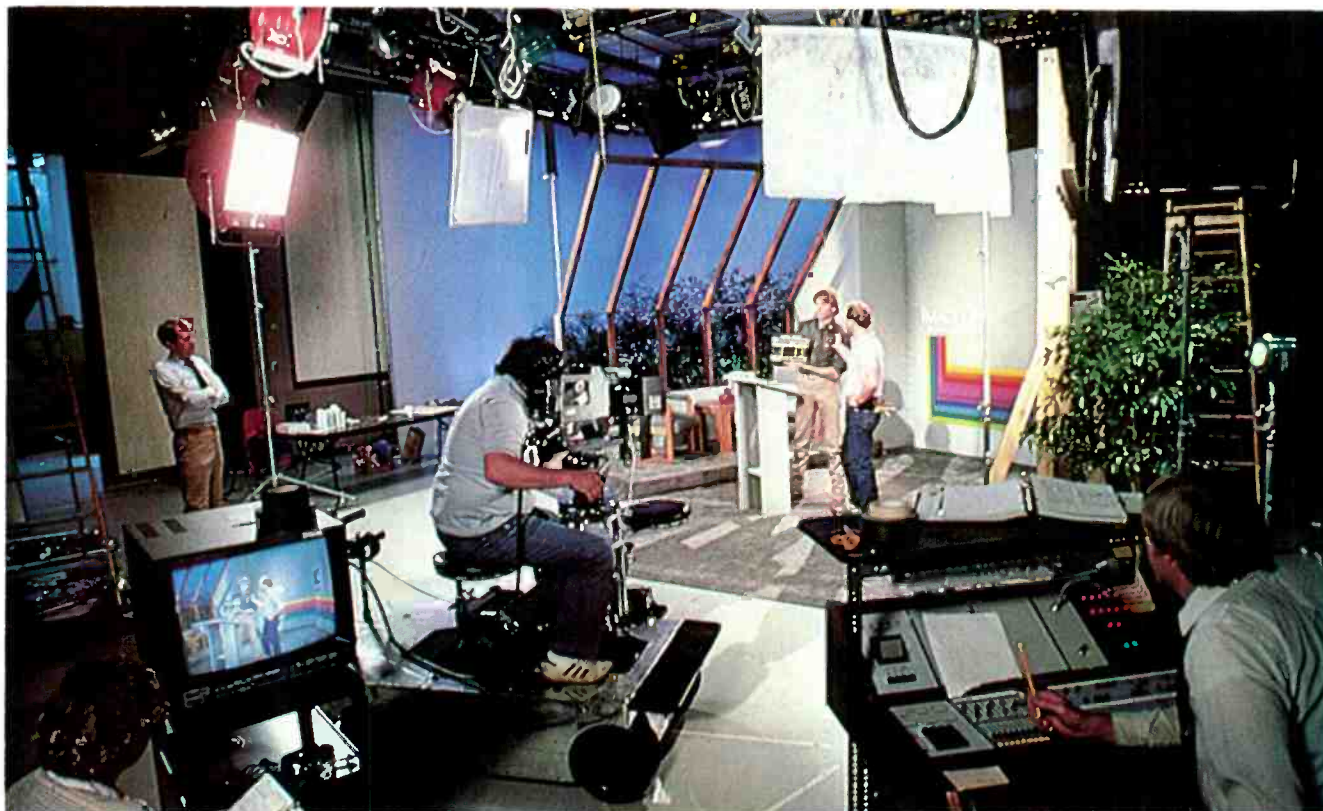
of the first floor with its own studio and control rooms. Production, engineering, and marketing are housed in the north wing of the first floor. This wing also contains two production studios, control rooms, master control, videotape, and engineering areas. General offices and sales are located on the south wing of the second floor. A gallery with theater seating on this floor overlooks the news studio, providing a place for tours to view newscasts. KSL-AM is located on the north wing of the second floor. Video West, our production company, occupies half of the seventh floor. Bonneville International Corp. offices are on the eighth floor. The basement serves as a common area for the company, housing printing, art, services, receiving, lunchroom, shops, and storage. A helicopter landing pad used by KSL-TV's news helicopter, Chopper 5, is located on the roof of the building. Remaining space in Broadcast House is being leased to private businesses.

KSL-TV facilities were designed to accommodate state of the art equipment and to anticipate future innovations in broadcasting. The entire station is stereo capable, and will begin broadcasting in stereo before the end of 1984. With the installation of the Colorgraphics Newstar computer system, KSL-TV news is now one of the few computerized newsgathering organizations in the country. This system allows our reporters instant access to AP and UPI news services, filed information, and KSL-TV news bureaus throughout

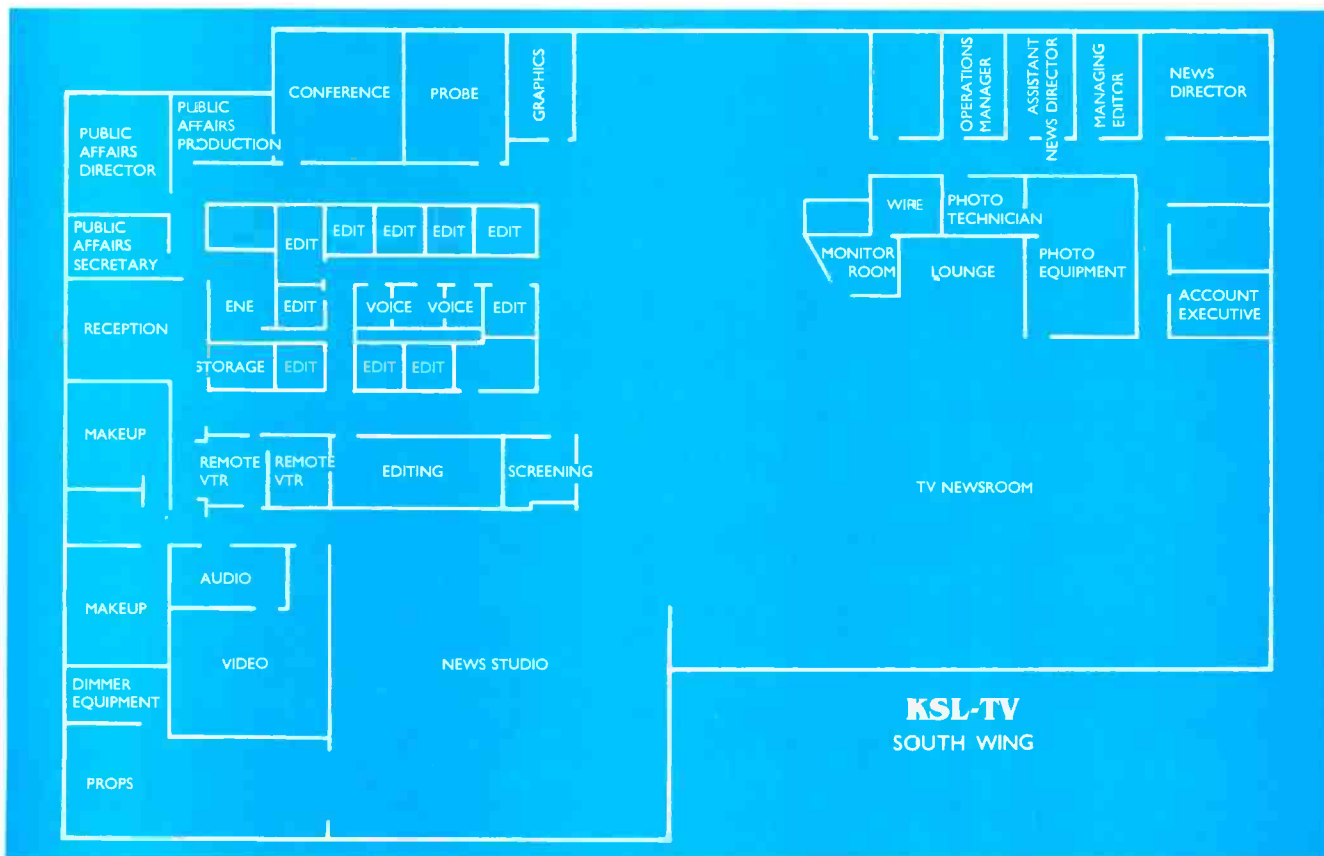


SPECIAL AWARD

THE BEST STATION AND FACILITY DESIGN COMPETITION



Soundstage B, one of KSL-TV's production studios, is used in conjunction with Video West.



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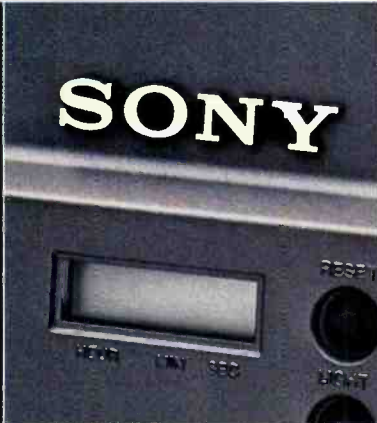
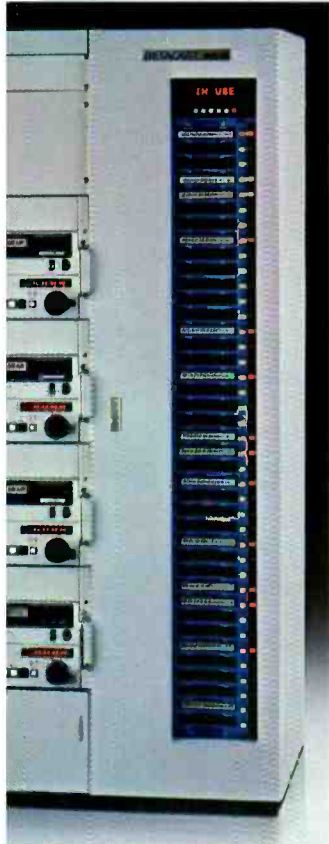
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back unit. An evolutionary system that didn't force stations to abandon their existing 3/4" and 1" equipment.

Then, in 1983, Sony expanded the system with the three-tube Betacam, the BVW-40 edit/recorder, and the world's first battery-operated 1/2" field playback unit.

And this year at NAB, Sony announced a major breakthrough in cart machine technology with Betacart.™ A system

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hat demonstrated the Betacam format's strength beyond the newsroom, beyond the studio, and beyond field production. At the same time, Sony also unveiled the world's lightest camera/recorder, the BW-2 Newsmaker.™ And a prototype coder/decoder system that will make it possible for Betacam to be transmitted by microwave. Each of these products is the result of Sony's dedication to

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KSL-TV's news studio, as seen from the second-floor gallery. Weather chart and chromakey area are seen at right.

the country. The system also has word processing capabilities.

KSL-TV's engineering needs gained high priority in the design of the facility. The station's engineers have called Broadcast House "a dream come true." The equipment/engineering room is encircled by master control and production rooms. These are separated by acoustically isolated racks, allowing access into electronic equipment without disturbing production operators. A six-foot-deep wiring and air plenum gallery lies beneath all equipment and control room areas. Suspended between these areas and the control areas is a modular computer floor system. This system allows easy access to wiring. It also results in low capital expenditures when changing equipment.

The station is zero timed through the 100 by 100 Bosch routing switcher frame. (All timing equipment is by Leitch.) This provides each control room, including master control, simultaneous access to over 100 timed and color-phased video and audio sources. Station timing is accomplished at one location by one person. When that person is finished, the whole facility is RS-170A timed. Even the output of every M/E bus and production switcher is timed in color phase back to the routing switcher. The unconventional timing design allows the station to function with only three trays of distribution amplifiers. As KSL-TV chief studio engineer Talmage Ball asserts, "This is a totally new concept in television station timing and design. It works—really!"

The new machine control system allows operators in remote control rooms total access to tape machines in the central VTR room. Each control room has four control panels, each offering operators the same view and control of every machine readout and function as if they were standing in front of the machine itself. This is achieved with knobs and LED readouts that change legend depending on the machine selected. For example, an individual control knob on the panel functions as a bin select for the ACR-25, a shuttle and slow motion pot on the VPRs, and a mirror rotator on the film islands. LED readouts indicate the corresponding positions. The system is based on SMPTE proposals and is microprocessor-controlled. It was designed in-house by KSL's own engineering staff and is now produced by Bosch.

Control Room A has keyboards for an Ampex AVC switcher and ADO effects unit. (Since all equipment is housed in the equipment room, only keyboards are located in the attractive control rooms.) Control B has a Duca-Richardson (now Ampex) switcher and ADDA digital effects unit. The switcher in news control is a Grass Valley Group 1600 with DVE.

Master control has a fully automated Utah Scientific stereo MC switcher. Graphics equipment includes a Telemation Compositor character generator and an Aurora art system.

All of the station's audio control rooms were modeled after multitrack recording studios. They were

computer-designed to maximize the use of angles and acoustic materials to flatten frequency response and psychologically enlarge the rooms. UREI time-aligned monitors and generous use of walnut, oak and lava rock maximize the acoustic and aesthetic qualities of these rooms.

The realization of years of extensive planning, Broadcast House represents KSL's commitment to the community and to the future of free, over-the-air broadcasting.

KSL-AM

METRO RANK: 43

Submitted by
JOHN DEHNEL,
Chief Engineer, and
GEORGE LEMICH,
Operations Manager

KSL-AM's move to its new Broadcast House facilities in Triad Center, a new office complex in Salt Lake City, followed two decades at the station's former home on Social Hall Ave. The old studios had been modified many times to accommodate the changing environment of "full service" radio, keeping listeners up-to-date with news and information and entertaining and informing them with the market's best-known personalities.

As planning began for the move, KSL-AM's management and staff provided significant input into the facility. The move was to be made in conjunction with KSL-TV, which meant both facilities would have to plan and share resources in order to accomplish key goals. On the radio side, news director Doug Miller, director of sales Gary Whiting, marketing director Lee Pocock, and ourselves coordinated the planning with station manager Tom Glade to develop a facility that would meet the needs of the staff.

We began the design with the basic concept that studio and operating facili-

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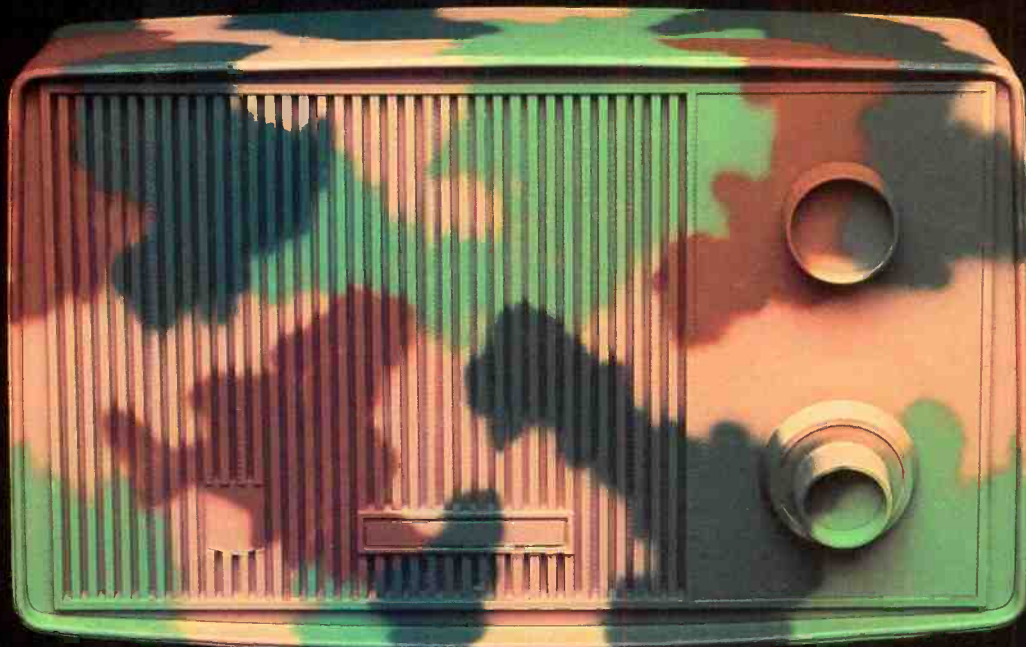
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ties were foremost. Offices and other spaces were planned after basic operating concepts were developed. Kansas City architect Jay Ritchie worked closely with Howard Smith, KSL's project manager for the new building, to insure that each department's input was part of the planning process.

KSL Radio's new home was designed to bring our listeners the highest quality sound from the studio and the field. Computer models of all studios were developed to insure uniform sound quality, so that production rooms

and master control rooms all had the same rich, warm sound.

Each of the studio areas is acoustically isolated and independent of the rest of the building. Sound isolation was provided by raising the floor and suspending it on a concrete pad with isolators. Studio walls were built with classic sound wall construction techniques. All walls are double or triple thickness. The doors maintain the acoustic isolation with sound locks providing 80 dB of isolation.

The layout clusters the two master control studios with the two news studi-

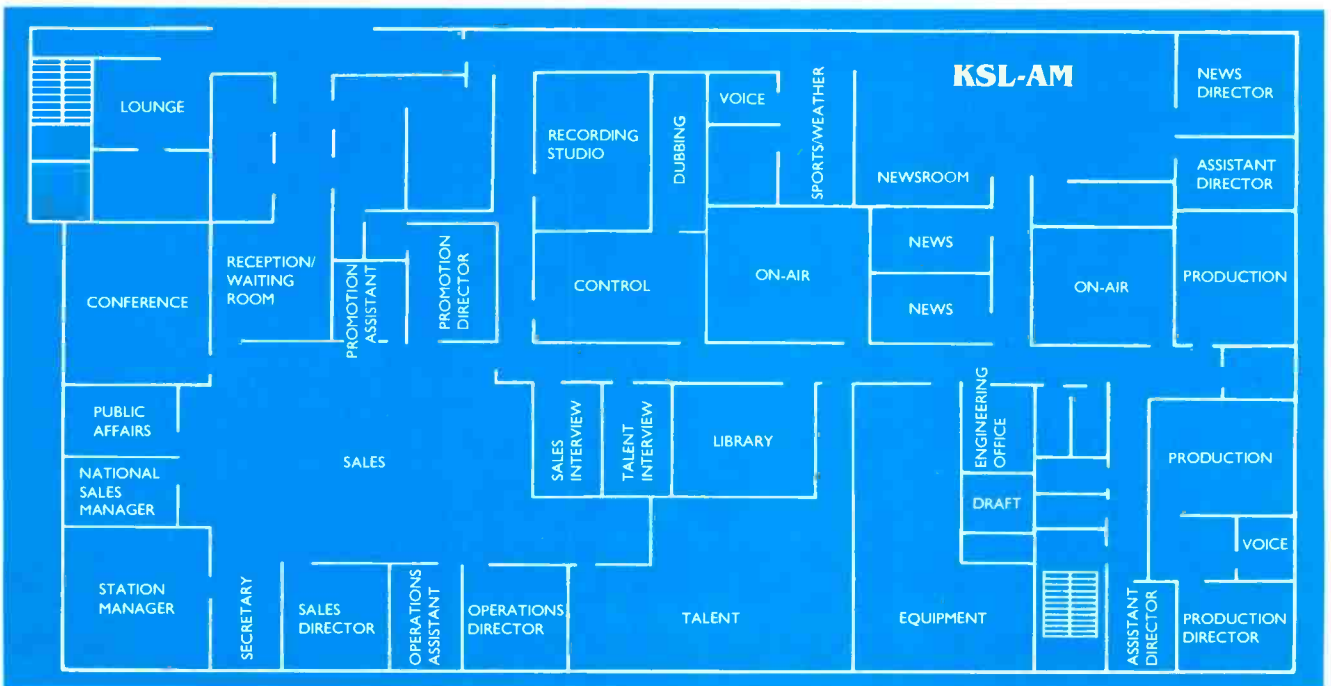
os. The two production facilities and associated voice booths are also in a working cluster, next to production staff offices. The multitrack recording studio, equipped with an Electro-Sound four-track recorder, Scully two-track ATRs and an Automated Processes console, is next to a workroom containing the associated duplication equipment.

Each of the seven studios was designed for a specific purpose, but design characteristics were maintained so operators can exchange studios without fear. The largest studio, Talk Master, is built to handle up to seven guests and is designed like a large conference room. Its facilities include a conferencing telephone interface to allow guest and callers to converse easily. A special interface was built into the Pacific Recorders BMX-26 console to provide studio guests with a headphone feed that does not include their own microphone audio so they are not confused by the sound of their own voices.

The Music Master studio originates KSL's midday shows as well as afternoon drive and all-nights. Its Pacific Recorders BMX console is similar to the console in Talk Master but has fewer guest mic positions. The studio also contains additional Pacific Recorders Tomcat cart reproduction decks to handle the stereo music carts used for



KSL Radio's commitment to keeping listeners informed is seen in its newsroom, equipped with the Colorgraphics Newstar newsroom automation system.



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KSL's control rooms, carefully designed for good acoustical properties, feature Pacific Recorders BMX on-air consoles.

KSL's AM stereo signal.

The master control studios share many resources with the two news and two production studios. All use Pacific Recorders BMX consoles and Shure SM 5B microphones, chosen for their uniform sound reproduction and freedom from voice "pops." Turntables are Technics SP-10s or SP-15s. Tape reproduction is from Scully or Ampex reel-to-reel machines. Mono commercial carts and news actualities are played on ITC cart machines, and stereo music carts and station jingles are played on Tomcat cart decks.

Audio sources are switched within the building on a 50 by 30 Bosch routing switcher. This makes all program lines, studios, networks, and ENG systems instantly available in all studios and at newsroom workstations. Using switcher outputs, all control room facilities are available in areas such as the clients' room and operations manager's office.

KSL's news staff has a wide variety of resources available for information gathering. A Colorgraphics Newstar newsroom computer system, purchased as part of the move, provides both radio and television with instant access to wire services and scripts from KSL reporters at the station and at bureaus. The computer system is available in editors' bays and in the news studios.

The KSL Newscenter includes six editing bays used to process incoming reporter feeds and actuality material. The editors' stations include a Scully reel-to-reel tape recorder, ITC RP

Series cart recorder and a routing switcher for access to sources. The bays are also capable of going on-air and are often used for anchors' voice news updates.

ENG facilities include five different radio systems for reporters. The primary system uses a Motorola Handi-Talkie modified for wideband audio. All ENG sources and IFB lines have been routed through a combined intercom system designed and built by KSL engineers.

In facing the challenge of moving to a new building, KSL's six full-time engineers excelled in meeting the operating needs of news and programming staff while maintaining technical standards. Their creative approach, designing and building equipment unavailable from commercial suppliers, followed KSL's tradition of many years. The new facility, as state-of-the-art and flexible as any radio facility in the nation, allows KSL-AM to be "The Best of Everything."

VIDEO WEST

Submitted by DAVID BIRD,
Manager of Engineering

Video West, a division of KSL-TV, was formed in 1979 to provide a much-needed outside production service for KSL-TV's on-air clients, introducing the Salt Lake valley to single-camera "film-style" video production. The small production group quickly grew.

In 1981, Video West joined Bonneville Productions as a specialized video production house to complement their successful audio production facility. As part of this reorganization, Video West moved from its original quarters in KSL-TV's building to a large new facility around the corner from the station. Expansion continued, and in 1983, Video West once again became part of KSL-TV.

One of the exciting aspects of this realignment was the anticipated move with KSL-TV to the new Triad complex. The new building was already under construction and Video West had not been included in the original plan. Our challenge was to take the existing south wing of the seventh floor and create a video production facility.

Technically speaking, there were three major problems to overcome: power requirements, climate control, and acoustic isolation.

The floor we were to occupy had been designed to be leasable office space and therefore had the normal office power distribution. First, the main building power riser for the entire south

wing was redesigned and upgraded. To cover the needs of the technical equipment, a separate, dedicated power riser from the basement vault was installed. All technical power in the editing suites, technical operations area, and production insert stages now comes from that dedicated power source.

The air conditioning system was upgraded with two air-handlers for the office, client, and production areas. The technical operating center was provided with a large computer-room air conditioner, which blows air into the computer flooring used throughout the technical operations center.

The most difficult problem was the transmission of building and exterior noise through the plate glass windows that cover the entire Broadcast House. In addition, since the editing suites (two one-inch on-line and one 3/4-inch to one-inch interformat bay) were located on the northeast corner of the floor against these glass panels, we were concerned about sound leakage from the edit suites to the floors above and below. Double and triple walls were used inside the floor, but the windows were a problem.

Our solution had an interesting side effect. Each room on the wall facing the windows was equipped with motorized laminated door panels that normally would be closed to prevent the sound from reaching the window panels themselves. This also provided the light

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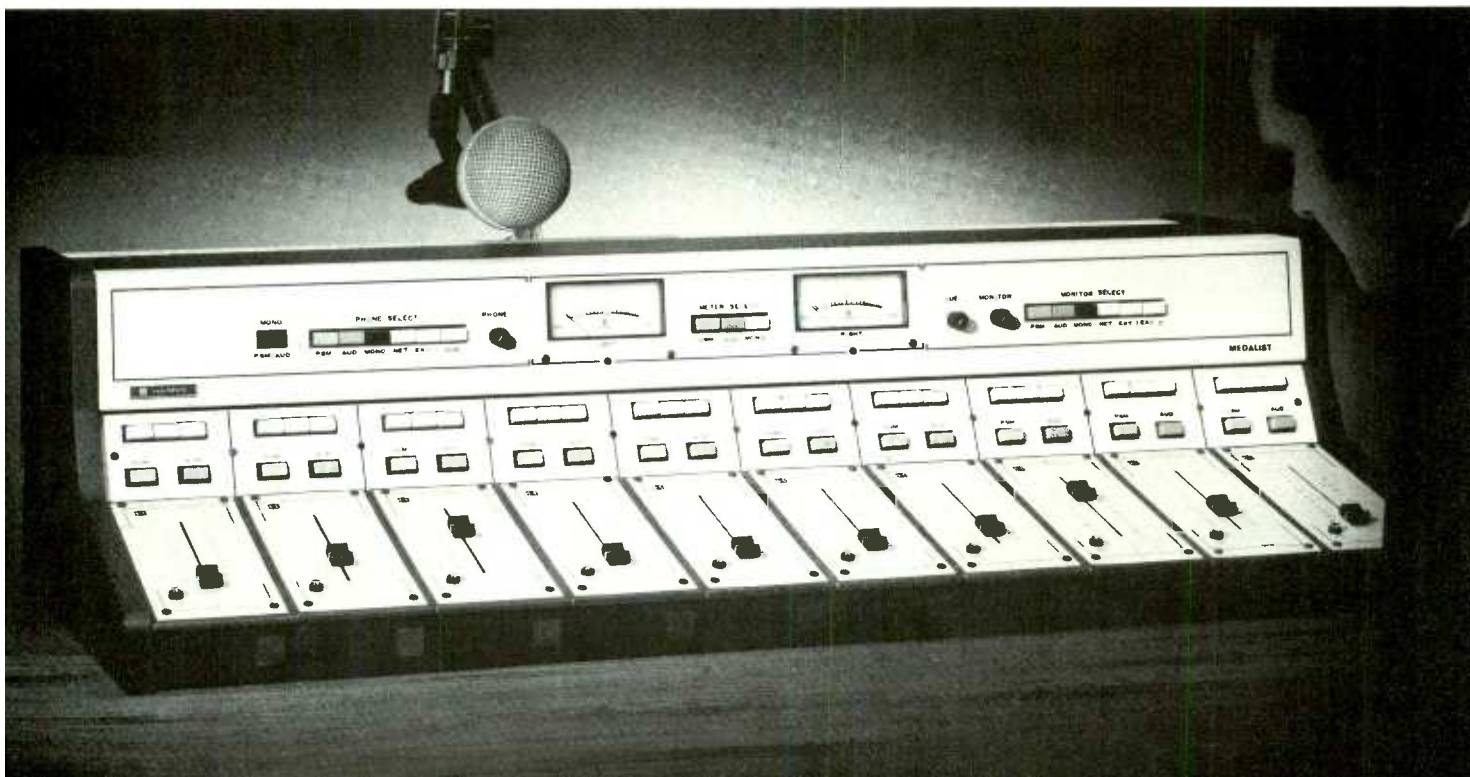
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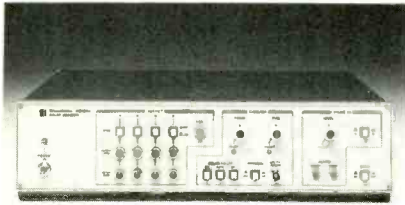
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Edit 3, the largest and most sophisticated of Video West's three post rooms, features CMX 340X computer editor, Grass Valley 300 switcher, and ADO.

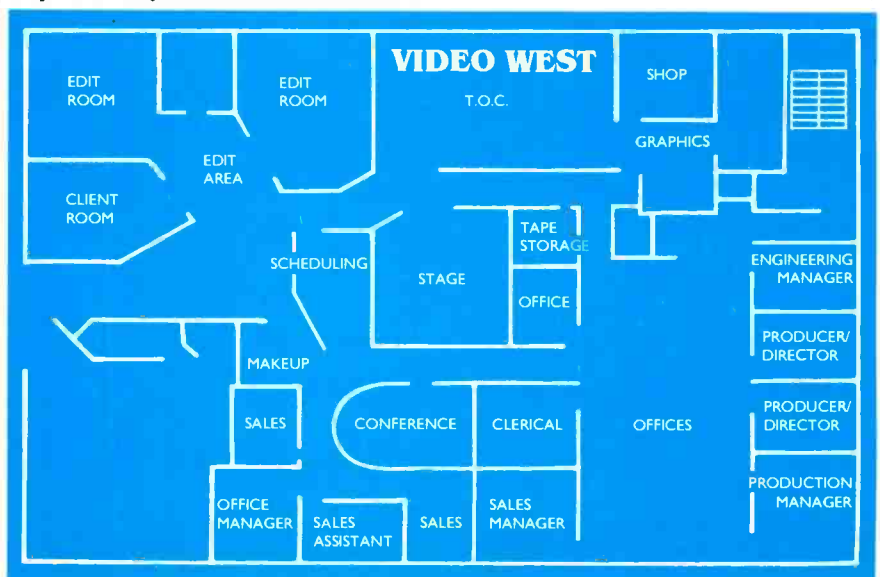
shield we needed for daytime production. The edit rooms, on the seventh floor, provide us with a striking view of downtown Salt Lake City. By using the motorized panels, we can open up the rooms at night.

Video West has always tried to maximize the utilization of our technical equipment. As chief engineer, I designed the production facility with centralized switching and control, allowing us to easily assign any particular piece of production equipment to any of the various production areas. This idea is also followed in the operations area. All terminal equipment is grouped in a row of equipment racks facing the VTR production area. The VTRs themselves—six Ampex VPR-2Bs and a VPR-80—are arranged in a horseshoe with no machine more than a few feet from the operator. Our small-format duplication system is at the end of the

operations area but has access to all of the common technical equipment.

In addition to the VTRs on the seventh floor, Video West has access, through the routing/switching system, to KSL-TV's complement of VTRs, including 12 VPR-2Bs, 63 3/4-inch recorders, and a number of two-inch machines. All commercial production takes place in the shared KSL-TV/Video West production studios downstairs.

The facility has four edit bays, three on-line and one off-line. Edit 3, the most elaborate bay, has a Grass Valley Group 300 switcher with two-channel digital effects, E-MEM, and Motion Memory. (Additional effects capability is supplied by Video West's Ampex ADO unit.) Edit 1 has an Ampex 4000E switcher. Both these rooms have CMX 340X computer-controlled editing systems. The 3/4-inch to one-inch Edit 2,



SIGN COMPETITION

also an on-line room, has a CMX Edge edit controller. The fourth room is for 3/4-inch to 3/4-inch off-line editing.

Our major technical challenge was moving the entire production facility over a three-day weekend; with our production schedule backlog, it was impractical to close down and move. We solved the problem by using computers to plan the layout and labeling of all wire and cable. Every wire or cable was identified, its length determined, and prepared, labeled and placed in one of several wiring harnesses. The idea was to prepare as much of the wiring as possible and then "drop" it into various cable trays when we were ready to move.

I was particularly pleased with the results of the "zero-time" condition which we achieved. We wanted to be able to use a dedicated routing switcher input to the video switcher in each of the edit rooms so as to allow access to signals that were not normally put into the rooms, and have those signals in time with everything else. We were able to achieve this goal, allowing mixing of signals anywhere in Video West. I should also note that the system is fully RS-170A specified.

On June 22, at 6:00 a.m., power was turned off at the old building and the technical equipment loaded into moving vans. Since we had placed new equipment racks at Triad Center, we moved the old racks with the equipment still mounted in them. A minor crisis occurred when it was discovered that one set of switcher cables was six feet too short. Disaster was averted by some creative cable routing. By Sunday afternoon, all equipment had been turned on and checked for operation. Monday, the system was timed and all levels set. At about 10:00 p.m. Monday, we edited the first production at Video West's new home. The facility has been in almost continuous operation since then.

The "miracle" of the move to Triad happened because of the combined efforts of all the Video West staff, from production to sales to engineering. In particular, the efforts of Craig Wall (maintenance supervisor), Andrew Carleton, Roger Crawford, and Ross Jones (staff engineers), and Fred Aldous and Jeff Taylor are noted.

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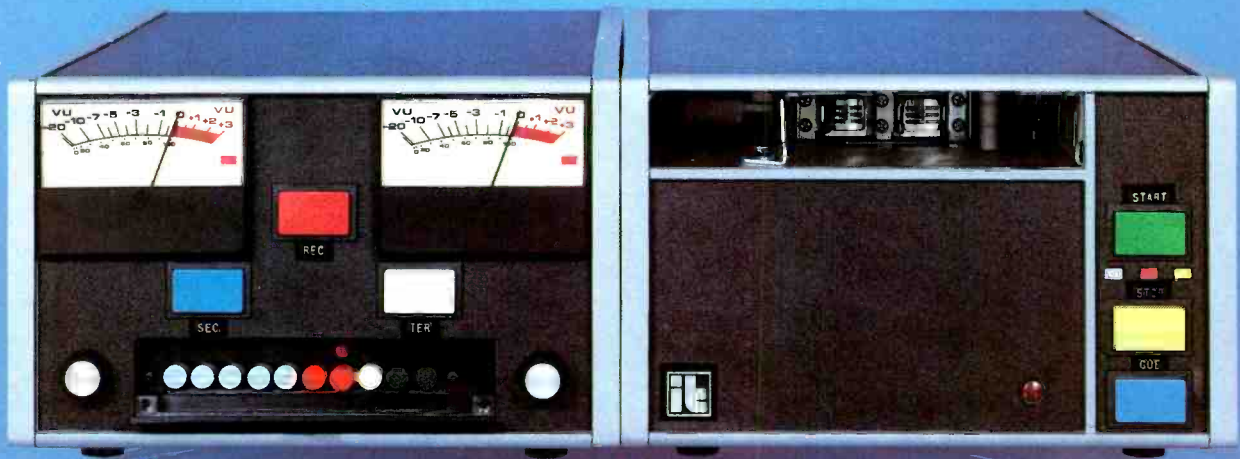
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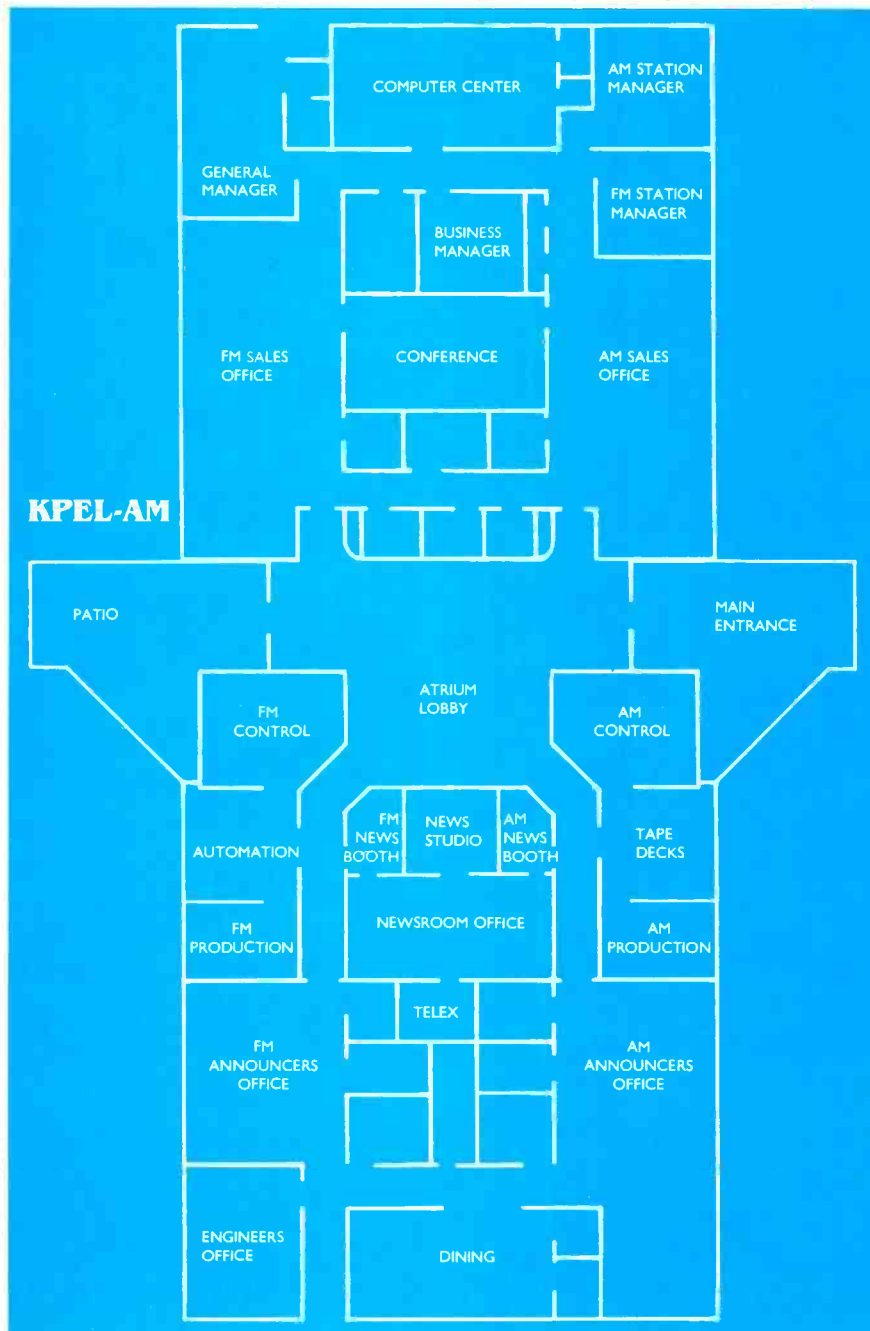
THE BEST STATION AND FACILITY DESIGN COMPETITION

KPEL-AM LAFAYETTE, LA METRO RANK: 160 Submitted by RON GOMEZ, President/General Manager

"Doing it right" was something I had wanted for 20 years. In building KPEL-AM, a stereo station broadcasting news/talk for half the day, I found my opportunity to implement 20 years'



Station manager Carol Ross keeps things rolling from the Broadcast Audio System 14 console in KPEL's control room. Sitting on top is the Heath-Zenith weather computer.



worth of thought and observation.

Besides the usual goals of efficiency and traffic flow, KPEL is designed around two ideas: that the administration and sales areas should be separate from the programming and production areas; and that instead of small, crowded rooms, a radio station should be spacious, with outside views and natural light.

With these goals in mind, the nearly 8000-square-foot structure was built as two separate wings, north and south, connected by an atrium lobby. Reflective glass was used for most exterior walls, providing outdoor views from nearly every room.



In the southern or programming and production wing, the control rooms and news studio are in full view of the lobby and each other. Double-glazed, sound-proofed windows let on-duty announcers look both outdoors and into the lobby. The control room, announcers' office, and engineering office have outside views, as well as the kitchen and dining rooms, which have a southern exposure. Programming and news staffs are in modular office areas.

The east and west halves of the programming and production area are very nearly a mirror image of each oth-



THE BEST STATION AND FACILITY DESIGN COMPETITION



In the production room, Ray Sutley, PM, records a spot. Most of the station's local commercials are taped here.

an Orban 672A equalizer and 442A de-esser, and an Eventide 949 Harmonizer. An MCI JH-100B tape deck is the primary reel-to-reel, supplemented by an Ampex 440. The production room and news studio are equipped with Technics M85 MK2 cassette record/playbacks.

In the automation room, the music playback decks are SMC-modified Otari ARS-1000 Automation Playback decks.

The complete two-tower transmitter plant was supplied by Harris and consists of a MW-1A transmitter which puts out 1 kW of nondirection power during the day, and 500 W directional at night. The transmitter link is a stereo Marti STL-8 Series transmitter and receiver. KPEL is stereo all the way out to the transmitter, and the station plans to acquire a stereo generator, but so far it has found too few stereo AM receivers in the area to justify this last step.

er, both in layout and equipment. KPEL's control room features a new Broadcast Audio System 14 console, equipped with 10 stereo digital fader channels, each with three inputs. The console also has four remote panels with four stereo inputs each, due to KPEL's news/information format, which demands flexibility as well as various sports and news sources.

Broadcast Electronics Spotmaster Series 3200 cart machines are used throughout the control and production rooms as well as the three news studios. The control room also features three Studer Revox PR-99 reel-to-reel decks with remote control on the consoles. For the weather, there is a Heath-Zenith IDW-4001 Digital Weather Computer which gives LED readouts. Both the control and production rooms use Technics SP-15 turntables with Audio Technica 12-inch tonearms and Stanton

600 cartridges, Sennheiser MD-421 mics, and JBL monitors.

KPEL produces about 75 percent of its local, nonagency ads, for which outside talent is sometimes brought in. The production room, in addition to the equipment already mentioned, contains



Flanked by two news booths, the central news studio looks out into the lobby.

CFAC-AM CALGARY, ALBERTA CMA: 5

Submitted by **BOB MACDONALD**,
Technical Director

CFAC Radio, the oldest station in Alberta, serves a population of about one million in Calgary and the southern part of the province. The stereo AM station, which broadcasts a 24-hour country format, recently celebrated its sixty second

anniversary with the grand opening of this new facility.

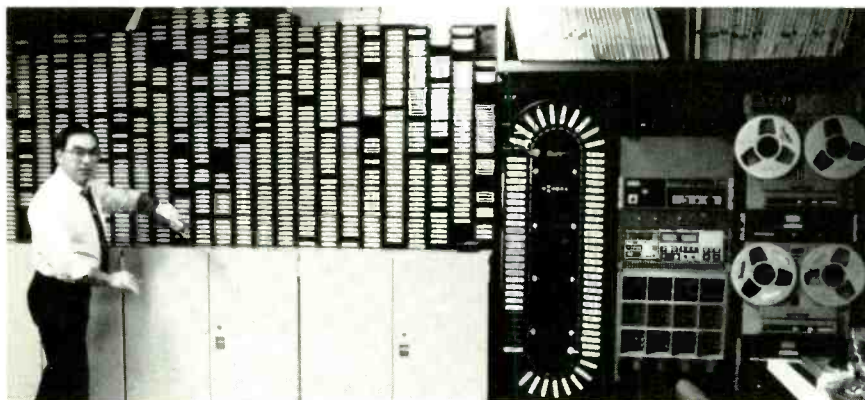
The two-story building has 9000 square feet of usable floor space, with the engineering shop and rack room located at the heart of the building on the second floor. Clustered around the

shop and its hallway, which also acts as a sound lock, are the studios and control rooms.

Proper acoustical construction was essential since the station is next to a truck route. There is also the possibility of a tramway being built, which would shake the entire building. Each control room and studio is, therefore, an independent structure. The floors are four-inch-thick concrete slabs cut from a single hundred-foot slab. Each floats on neoprene mounts, which are in turn supported by the second story's five-inch-thick concrete floor. The masonry block walls, concrete filled, are built on the edges of each floor. Ceilings are



THE BEST STATION AND FACILITY DESIGN COMPETITION



In the library, which can store 6000 carts and albums, morning deejay Don Slade unloads the two IGM cart machines.



In Production Room C, deejay Bill Kehler does some of his own production on the Auditrionics stereo board and the Ampex 104. Note the acoustic ceiling.

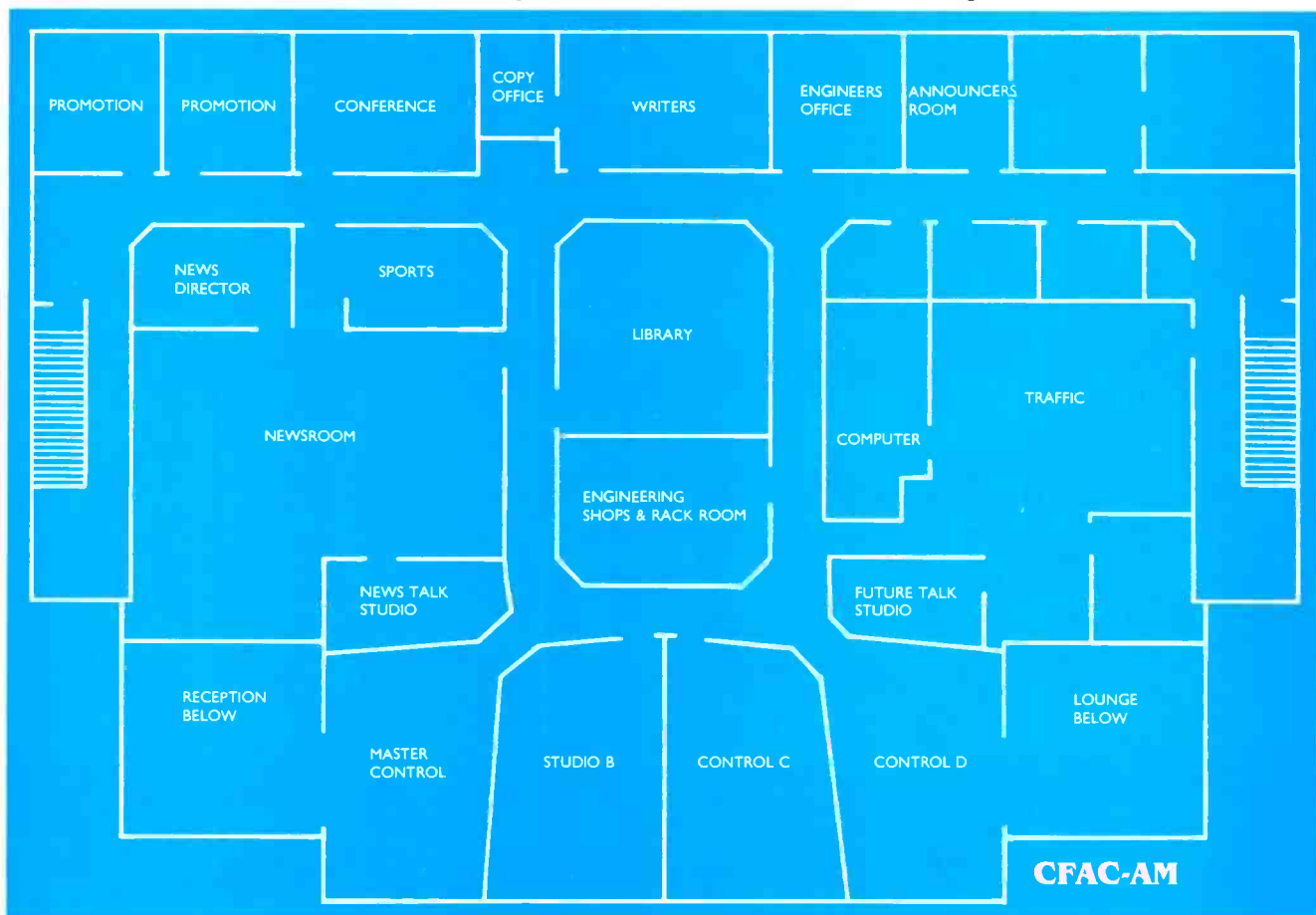
hung on the walls, also with neoprene mounts. Thus at no point does any sound room make contact with the rest of the building.

For better sound quality, the rooms butt against each other in uneven angles, and studio dimensions fall within the ideal ratio of acoustical response, 1:1.5 and 1:2.6. The non-parallel walls, floors and ceilings help to elimi-

nate flutter echoes, and jutting ceilings disperse the monitors.

The master control room features an Auditrionics 224 24-track stereo console, seven Pacific Recorders Tomcat cart play machines and one recorder/player. Monitors are JBL 4430s, driven by UREI 6250 amps located in the rack room. This combination is also used in the production studios. Technics

SPIOMK II turntables are used in all the control rooms and the library. Neumann U-89 microphones are used throughout.



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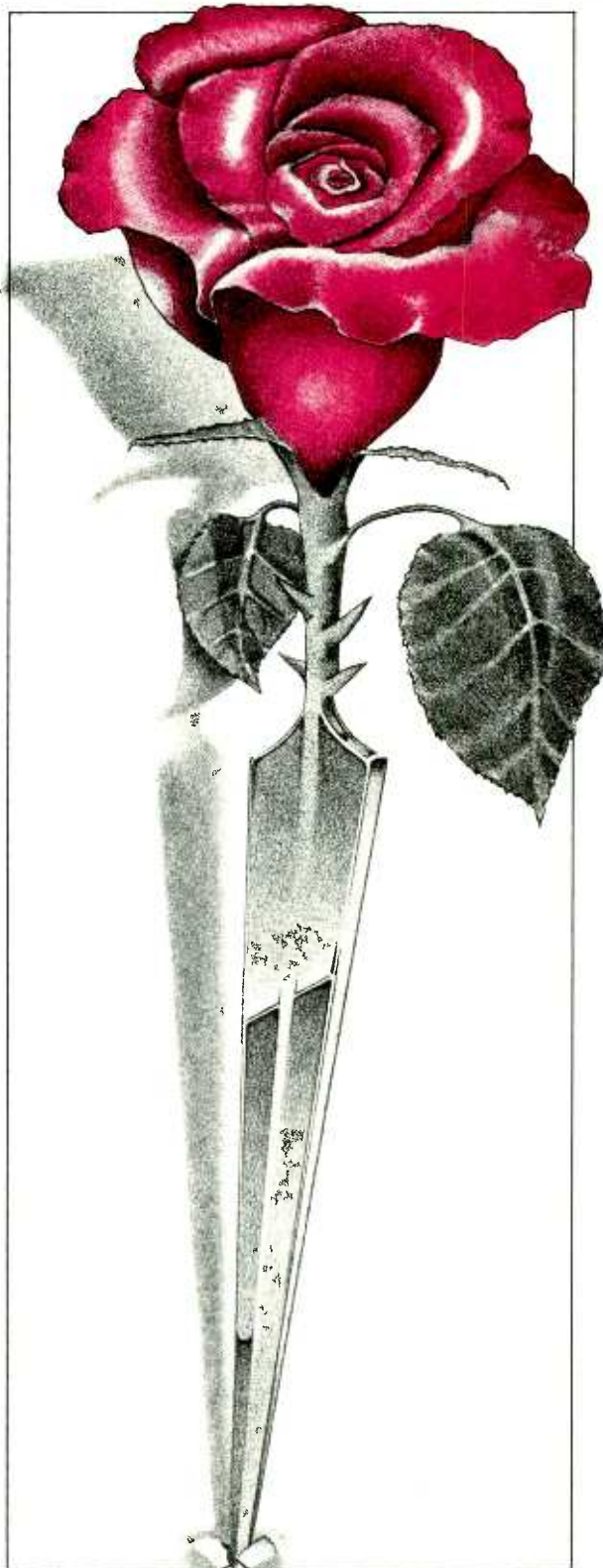
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The two production rooms are similarly equipped, using 300 Series Auditoriums consoles. Production Room C has a Model 342 Auditoriums four-track console with two Ampex 102 ATRs and one 104. Production Room D contains an Auditoriums 382 eight-track board, and Studer A-80 VU eight-track and A-80 VU two-track ATRs. Both rooms also have two Tomcat record/play cart machines and two Revox B710 cassette recorders.

The newsroom provides the 15-member reporting team with four independent workstations. Each is outfitted with reel and cart ATRs, telephone recording, news services, and links to several Motorola mobile units. CFAC owns four cars and a van, and leases an airplane for traffic reports. The news studio, which can also be used to record news production, has two mic positions, cart playback equipment, and another video monitor for the newswire.



Master control looks onto both Studio B and the news studio. Each of these rooms is a separate structure.

Playback equipment is housed in the library, which can store 3000 stereo carts and an equal number of LPs. Cart equipment consists of a 78-cart IGM Go-Cart for the playlist and a 48-cart Instacart for station IDs, all supervised by master control. The library has its own stereo and mono music dubbing



facilities and documentor tapes, plus a Dictaphone 400 logger, required by the CRTC.

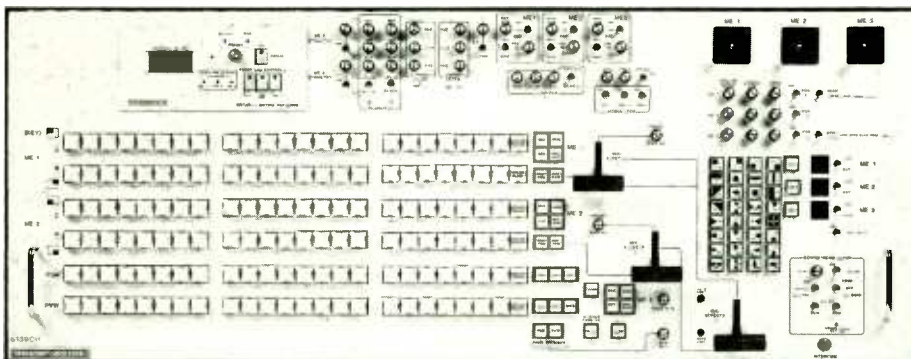
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KTOL-AM LACEY, WA

METRO RANK: NOT RATED

Submitted by JOHN DIMEO, JR., General Manager,
and DONALD WINGET, Contract Engineer

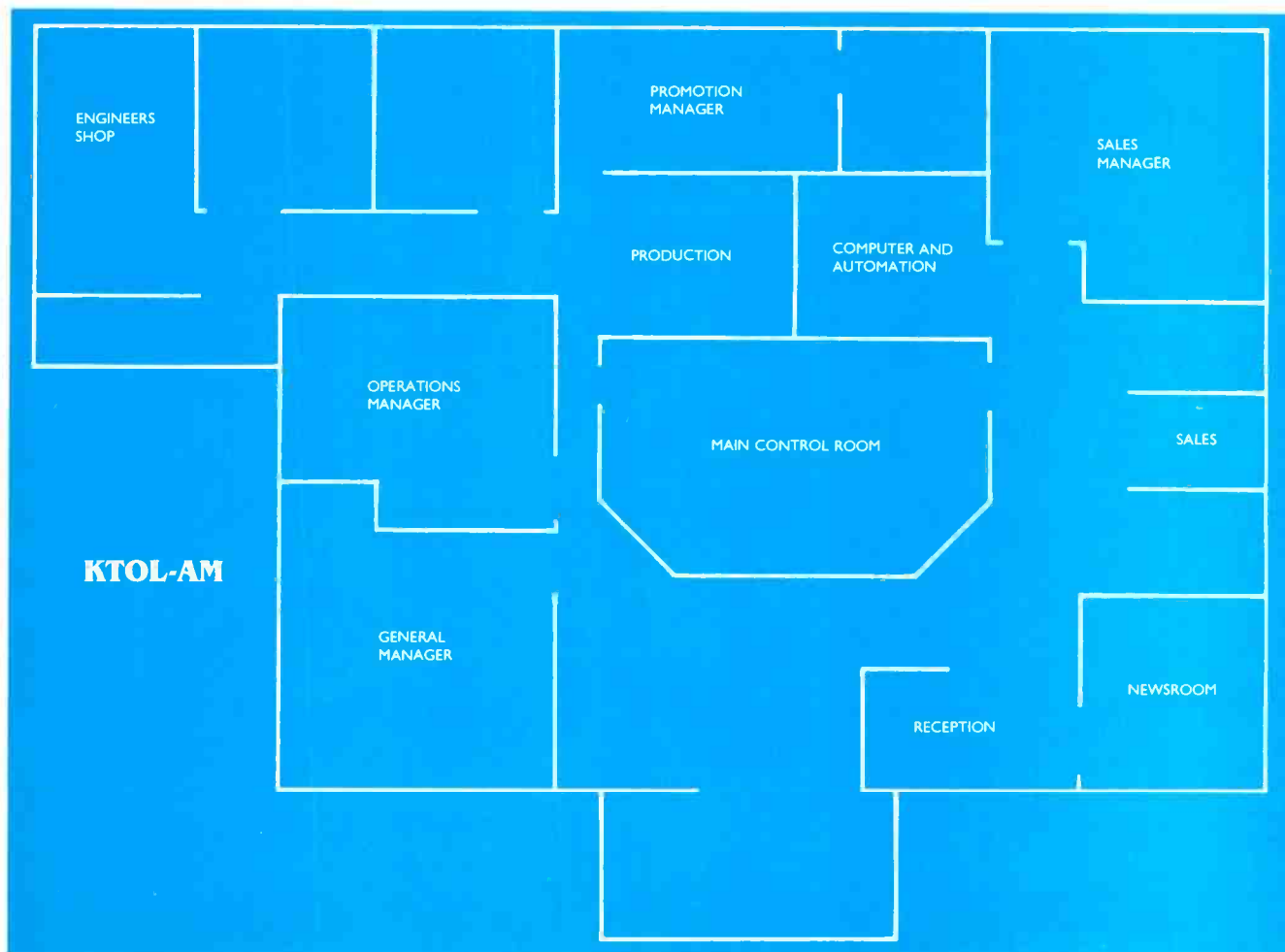
KTOL, a new AM station serving the communities of Lacey, Olympia, and Tumwater, WA, has had, from its inception, an advantage envied by many other stations: our own building, built from the ground up to the specifications of management and engineering. The result has been a fully automated facility designed expressly for the broadcast of stereo satellite music.

The station's studios were constructed last year on a parcel of land in downtown Lacey. The floor plan features a central hub comprised of the two studios and the automation room, with sales and clerical areas ringing the perimeter of the building.

During construction, all walls were exposed and conduit run for each area, allowing wiring for the built-in speakers and volume controls found in each area to be concealed in the walls. All cabling between the rooms, including the cabling for the telephone system,



KTOL program director Dennis Soapes at the console in station's main studio. All wood cabinetry was custom-built.





Now you can change satellites the same way you change channels— with the touch of a button

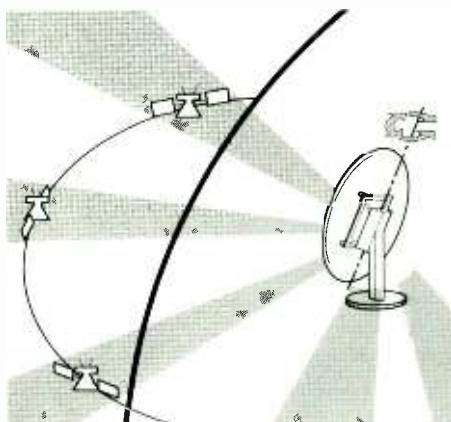
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was installed under a subfloor created by pouring two separate concrete floors, one four feet above the other.

Having the studios in the center of the building made acoustical isolation much simpler. Studio walls were built with staggered studs and standard acoustical techniques, then finished with Sonex acoustical foam. Sound-

proof windows allow both studios and the automation room full view of each other. Additional windows allow personnel in any of the three rooms a 180-degree view into the lobby, sales, and receptionist areas and past them to the outside.

Studio construction and equipment installation was performed by Donald



Soapes at work in KTOL's Studio 2, used for production. Autogram IC-8 console is identical to the main studio's IC-10 except for the number of channels.

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Winget, KTOL's contract engineer, with consulting engineers Hatfield and Dawson of Seattle. Winget, who works full-time as chief engineer for a Seattle radio station, did the work in approximately three months of weekends and evenings to meet the September 1983 on-air date.

The two studios are identical and each can be used for news or commercial production. Both have Autogram stereo consoles, an IC-10 10-input model in one and an IC-8 eight-input model in the other. Cart machines are ITC/3M Delta single-play, record/playback decks. In addition, each room has an Ampex ATR-700 reel-to-reel deck, Technics SP-15 turntable with Audio-Technica tonearm and Stanton 681 AA cartridge, and Radio Systems/Audio Metrics phono preamps. All studio processing, including EQs, compressors, and telephone interfaces, is by Symetrix. Mics and headphones are by Sennheiser, and studio monitor speakers are JBL 4401s with Symetrix A220 power amps. Custom oak cabinetry for the studios was built by Kent Siegenthaler, a private contractor based in Seattle.

All studio wiring "home-runs" to the engineering room, where it terminates on punch blocks. Also in the engineering room are all the station's distribution amps, custom-built by Winget.

Winget also designed and installed the telephone system, based on Comdial equipment with a Tone Command-

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er telephone switch. Having the phone system designed by the broadcast engineer who built the station resulted in a system that meets the needs of a broadcast station.

The open layout enabled Winget to design a simple but effective status and alarm board, visible from anywhere in the station and attractive enough to serve as a design element. The board is a solid oak panel, six inches high and about three and a half feet long, set with bronze sockets with large round light bulbs. (The effect is not unlike a theatrical dressing-room mirror.) The bulbs are color-coded for different status and alarm functions, and the name of each function is engraved below the appropriate light. Any alarm—including front and rear doors, transmitter off the air, automation system silence sensor (dead air detector), Studio 1 or 2 on-air, and satellite end-of-music and tone detectors—sounds a chime audible throughout the station (except in the



KTOL's 3.8-meter Comtech dish, right outside the station, provides insurance against closer satellite spacing in the future.

studios) and lights the corresponding lamp.

In the automation room is the station's Sono-Mag MST automation system, which is responsible for airing the station's programming, Satellite Music Network's Coast-to-Coast Country format. The music is pulled off the satellite by a Comtech 3.8-meter dish

antenna, connected to a Wegener satellite demodulator and M/A-Com receiver. Part of Winget's motivation for selecting the large antenna was anticipation of two-degree satellite spacing.

Located a mile from the studios on its own acreage is KTOL's Continental 314 transmitter, equipped with a Magnavox-standard Continental stereo exciter and modulation monitor. All transmission processing is by Gregg Labs. At present the station is linked to the transmitter by telephone lines, but there are tentative plans to consider an STL sometime within the next year or so. The transmitter is controlled from the station through a Moseley MRC-1600 digital remote control system.



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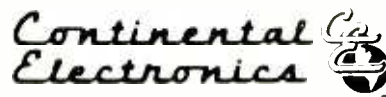
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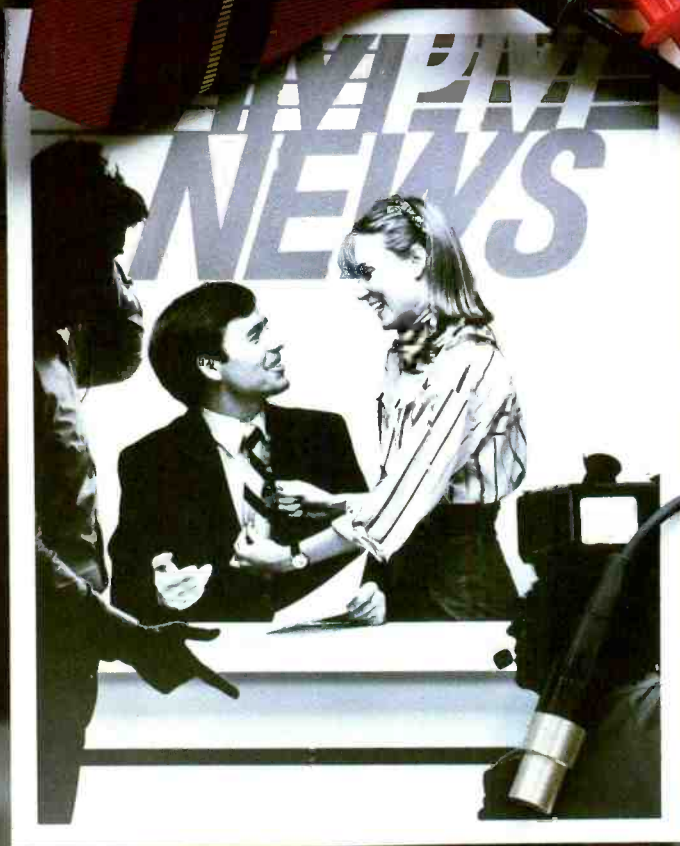
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THE BEST STATION AND FACILITY DESIGN COMPETITION

WQIC-FM MERIDIAN, MS METRO RANK: 78

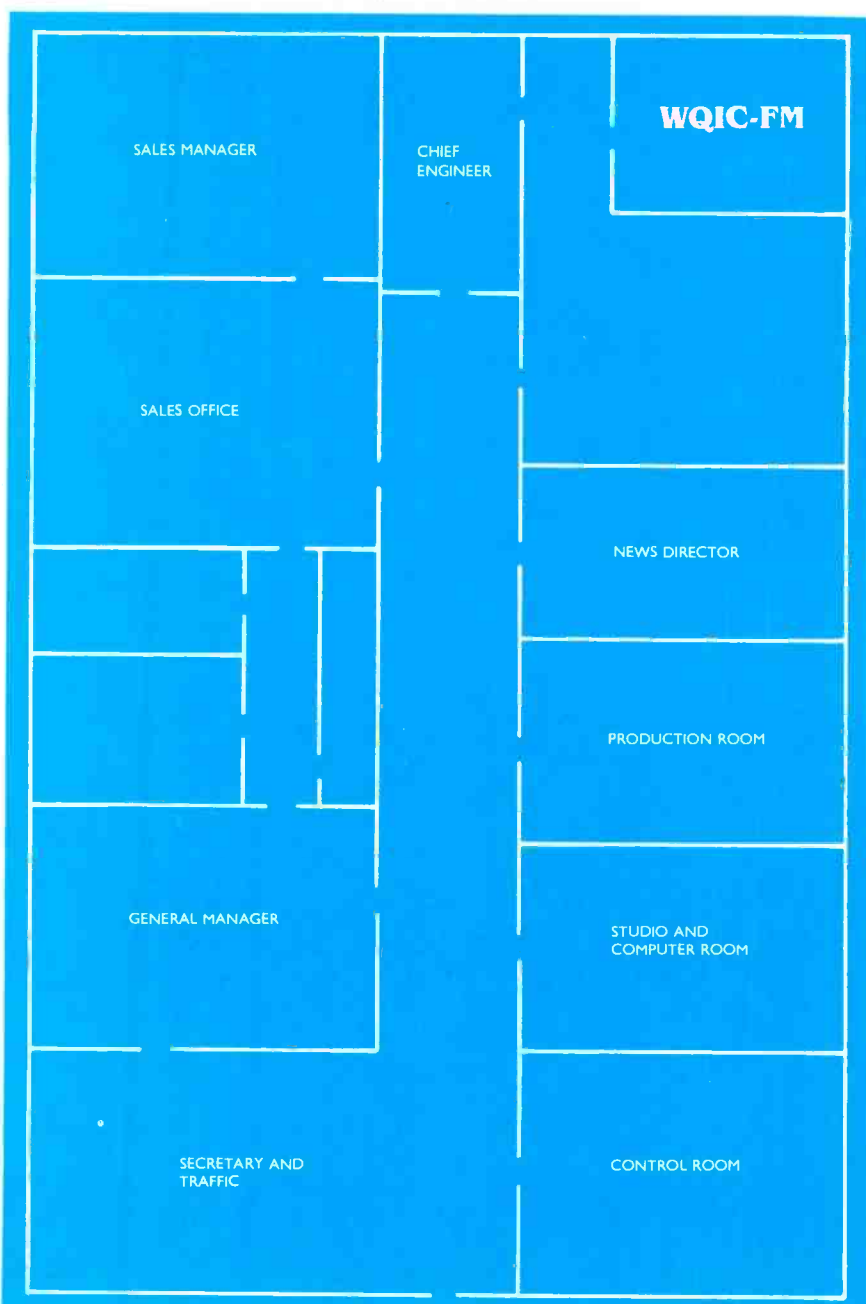
Submitted by STAN TORGERSON, President

How do you take a building that dates back to shortly after the Civil War and turn it into a very slick, modern, extremely functional radio station without losing the

charm of its history? WQIC in Meridian, MS, did it with planning, and working closely with a contractor who took more than just a working interest in the project.



News director Cherylyn Cannon at the RCA console in WQIC's production room. The station refurbished its old equipment for continued use.



When my wife and I bought WQIC in 1968, the station had six employees who fit nicely into its 1200-square-foot building. A few years ago, however, it became obvious that the enlarged staff of 14 employees couldn't operate in the same space.

We went building-hunting and found a remarkable old 4000-square-foot home on the edge of downtown Meridian that had been built around 1870 and enlarged in 1898. It looked terrible, but contractor Norvin Wilson examined it carefully and pronounced it structurally sound.



BALLOT ON PAGE 37

The building had seven fireplaces; we saved four. The large dining room and living room areas were converted into three rooms—control room, studio, and production room—by removing the common wall and splitting the vast area with two new walls.

Houses of that era were always built with a long and wide hallway down the middle, usually with four rooms off the hall on each side. We decided to keep the basic look, but to concentrate all the broadcast operations on one side of the hallway and the business and sales offices on the other. Thus, the control room, studio, and production room have a direct line of sight so that each room has eye contact with the other.



THE BEST STATION AND FACILITY DESIGN COMPETITION

The walls between broadcast rooms were constructed with principles learned in soundproofing apartments. Double panes of glass were used in the windows. The front of the building faces a busy street not far from a fire station, so again double panes of glass were used. The glass in a bay window in the old dining room, now part of both the studio and the production room, was removed and filled in.

A common problem at any station is air temperature variations between the broadcast rooms and the offices. WQIC solved that problem by installing three

separate air conditioners. A four-ton unit with the thermostat in the control room takes care of that side of the building. A three-ton unit with the thermostat in the front office handles the other side. A separate 1.5-ton unit cools the music room and program director's offices upstairs.

The control room was built to be a DJ's dream: big and comfortable, with all working functions easy to use. The meters are on the wall immediately in front of the DJs. WQIC bought the new Harris Medalist 10-channel stereo board with 30 inputs, and as a result, no

patching is needed. The console was built to order and looks like a fine piece of cabinetwork, but every panel is removable for easy access to the wiring and equipment built behind.

New Technics turntables were installed on the right, with a built-in bin for albums. A tri-deck ITC cart machine, an Ampex reel-to-reel deck, and a Technics M85 cassette recorder/player were installed on the left for easy access and jock convenience. The UPI news machine was sheathed in a soundproof cabinet designed to match the console and installed only three or four steps behind the disc jockey's work area, so at WQIC there is no long trek to the newsroom.

While new equipment was purchased for the control room, the station kept all the old equipment as well, refurbishing it for good performance. The old RCA tube-type on-air console, for example, has found a home in the new production room, along with a pair of old Tapecaster cart machines, restored to top working order, and a Technics cassette recorder/player. The former production console, a Gates Yard, was restored for use in the music room, where it, another Tapecaster, and two old Gates turntables form a mini-control room for the music director.

Virtually all the old homes in the area were built up on brick supports and stand three feet above the ground with crawl space underneath. This enabled WQIC's chief engineer, Joe Saxon, to install all wires and cables under the house in plastic tubes. Even the wiring from the rack containing the station's CRL and other equipment goes down through the floor in tubing and back up again in tubes to the board.

We spent a total of \$140,000 on the building restoration, turning a stately house into the home of a modern radio station. Besides creating an attractive work environment, restoring the building brought distinct financial benefits in the form of a seven-year tax abatement from the city and the county, and a 20 percent Federal tax credit.

Many visitors experienced in radio have called WQIC one of the finest medium-market physical plants they have ever seen. The people who work there agree.



In the control room, program director Marvin Henry inserts a cart into the ITC three-deck cart machine. New equipment purchased for this room included the 10-channel Harris Medalist console at center.



WQIC converted this gracious 1870 home into a modern radio facility, while earning tax abatements and a Federal tax credit for the restoration.

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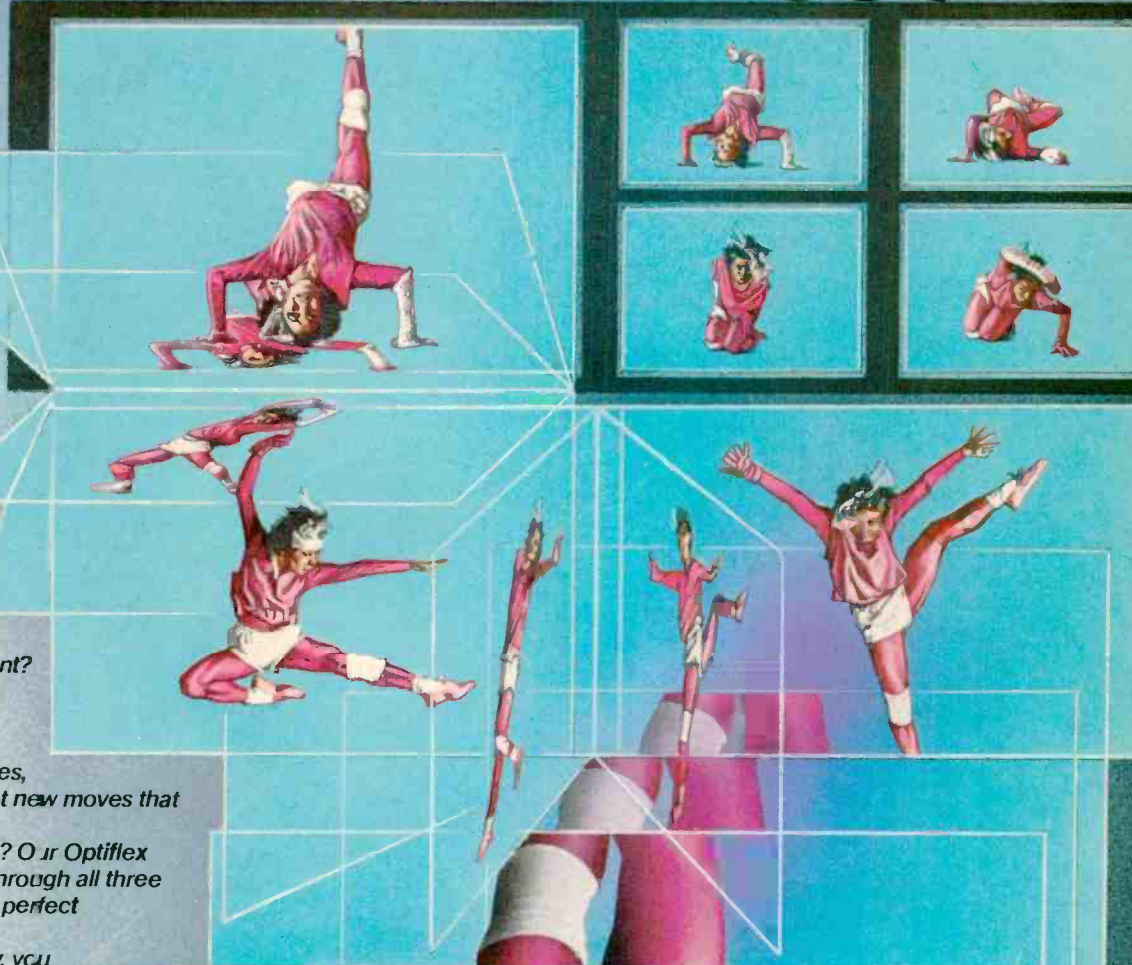
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 **HARRIS**





THE BEST STATION AND FACILITY DESIGN COMPETITION

WJJR-FM RUTLAND, VT

METRO RANK: NOT RATED

Submitted by BRUCE LYONS, Partner,
and JACK LONG, President

Late last summer, Media Concepts, Inc., which had acquired WJJR-FM (formerly WHWB), approached Radio Systems with a challenge: build a first-class new FM facility in Rutland, VT, and build it before the snow flies.

From the start, it was clear that WJJR would be unique in several ways. Studio facilities were slated for the top floor of the Opera House, an historic downtown building converted to retail space. Many of the original details,

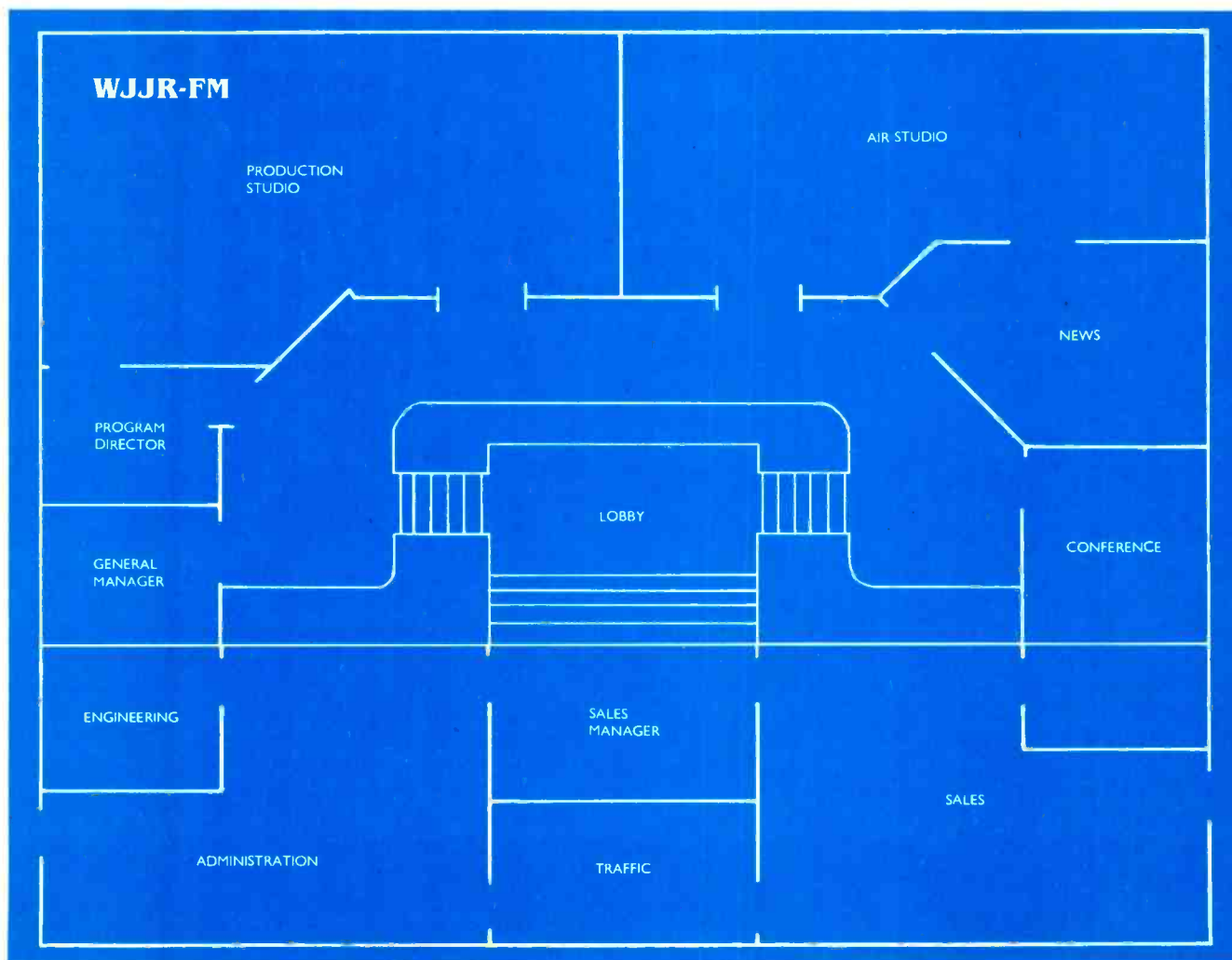
including old woodwork and windows, were retained.

On the third floor, leased by WJJR, beautiful glass-walled rooms surround a sunken visitor lobby. But the walls, while putting the station on display, also presented soundproofing problems. Therefore, all glass was replaced with double-paned glass that was installed on stops and sloped. All existing and new walls were covered with Tectum, a white material often used in roofing that absorbs sound reflections.

In addition, we divided the control rooms from each other and from the public areas with sheet lead curtains hung above the existing walls. Existing HV and AC ductwork was replaced with sound rated ductwork. The HV/AC unit itself was lifted up off the ceiling to minimize vibrations.

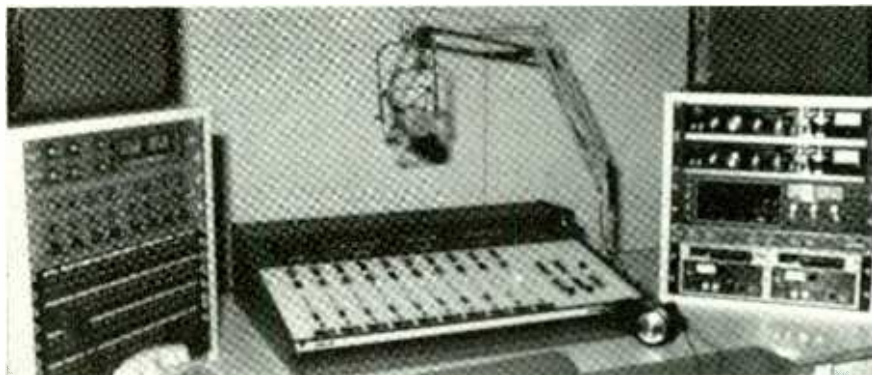
To conserve valuable on-site time, studio facilities were completely preassembled and prewired at Radio Systems' Philadelphia-area plant. Studio furniture was custom-constructed of hardwood with laminated tops and oak trim, and built-in cart racks and storage areas help eliminate desktop clutter. Production studio turntables were built into completely isolated pedestals that are covered when not in use to provide more work space. All studio cabinetry was built with multiple wiring areas recessed behind trim panels.

Sources, patch blocks, and console





THE BEST STATION AND FACILITY DESIGN COMPETITION



Production control features a Radio Systems ESA-10 console, dbx and UREI processing, TEAC and BE tape machines, and full patching facilities.



Air control utilizes an MEI event controller, visible at top in the right-hand table rack. The Broadcast Electronics console allows manual override of the mini-automation system.

inputs and outputs were prewired to punch blocks located in these areas. Connections were made by cross-cutting cables between these blocks. In this way, the completed studio was transported and set in place with only studio-to-studio interwiring required to be done on site for activation.

For WJJR's semiautomated Beautiful Music format, an MEI controller in the air studio automatically sequences four Otari ARS-1000 reproducers and two Broadcast Electronics 5402 triple-deck cart machines. The MEI controller allows the random sequencing of decks in any order and "hands off" to the announcer for local inserts. All sources are also terminated in a Broadcast Electronics 8S250 console, which allows operator manual override and

live cut-ins to the automated format. Mic processing is provided by a UREI 1176LN, allowing each operator to optimize his or her air sound.

WJJR's production studio features a Radio Systems ESA-10 console with a factory prewired harness. All production studio audio is routed through patch panels, allowing the UREI parametric equalizers and dbx processing to be inserted anywhere in the studio chain. Production studio source equipment includes Otari 5050 Mark III-2 recorders with CB-116 autolocators, Broadcast Electronics 3200RP cart machines, a Tascam 122B cassette deck, and Technics SP-15 turntables. In all studios, audio distribution is handled via Radio Systems' DA-16 stereo distribution amplifiers. Microphones are

Electro-Voice RE-20s, and monitoring is via Electro-Voice 100EL self-powered speakers.

Meanwhile, the transmission system was being designed and equipment ordered. Here, especially, time was of the essence. The transmitter site was 15 miles away at the peak of Killington Ski Mountain. No access roads, dependable phone service, or ac power are available at the peak, and the site becomes almost inaccessible with heavy snowfall.

We selected a Broadcast Electronics FM 3.5A transmitter for its main signal. Audio processing is via an Orban Optimod 8100A and Modulation Sciences composite clipper. A Moseley PCL-606 composite STL with Anixter-Mark P-948 solid grid antennas provides the 15-mile link between studio



and mountaintop transmitter site. Remote control is handled by a Moseley MRC-1600 and a telemetry return link returns information to the studio. An Onan emergency generator provides automatic backup ac power.

To avoid reliance on phone lines, studio-to-transmitter talk is accomplished via a second subcarrier on the STL and transmitter-to-studio talk is provided by a subcarrier on the TRL.

Shively Labs engineered a diplexer to allow the station to share its Shively two-bay circularly polarized antenna with radio station WRUT, only 1 MHz away.

In the last week of September, the preassembled studios were delivered and installed at the Opera House facility. At the same time, transmission system components were lifted into place by helicopter and assembled for the rapidly approaching air date. In the first days of October, de-icers and radomes were installed and tested on the main and microwave antennas. October 3 saw a successful proof of performance, and the crew left the mountaintop. Two days later the weather changed and Killington Peak was under 14 inches of snow. WJJR had made it just in time.

THE WHEATSTONE SP-5 STEREO PRODUCTION CONSOLE

WHEATSTONE BROADCAST GROUP announces the SP-5 Stereo Production Console, the latest in a long line of high performance audio mixing systems from AUDIOARTS ENGINEERING, a company with an established reputation for technical excellence, quality production and product reliability.

Modular, and specifically designed for stereo broadcast production, the SP-5 offers true stereo subgrouping for mix-minus and stereo program work. Optional configurations allow mono subgroups and outputs, dual stereo line or mono mic/line inputs, and a wide variety of mainframe sizes accomodating 8 to 52 input modules.



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THE BEST STATION AND FACILITY DESIGN COMPETITION

WLOL-FM MINNEAPOLIS-ST. PAUL, MN METRO RANK: 17

Submitted by DAVID HELLERMAN, Chief Engineer

When Emmis Broadcasting bought WLOL at the beginning of 1983, it quickly decided that the station's physical plant was inadequate. At first we planned to do extensive remodeling, but soon realized that by the time we got what we wanted we would be money and effort ahead by starting from scratch.

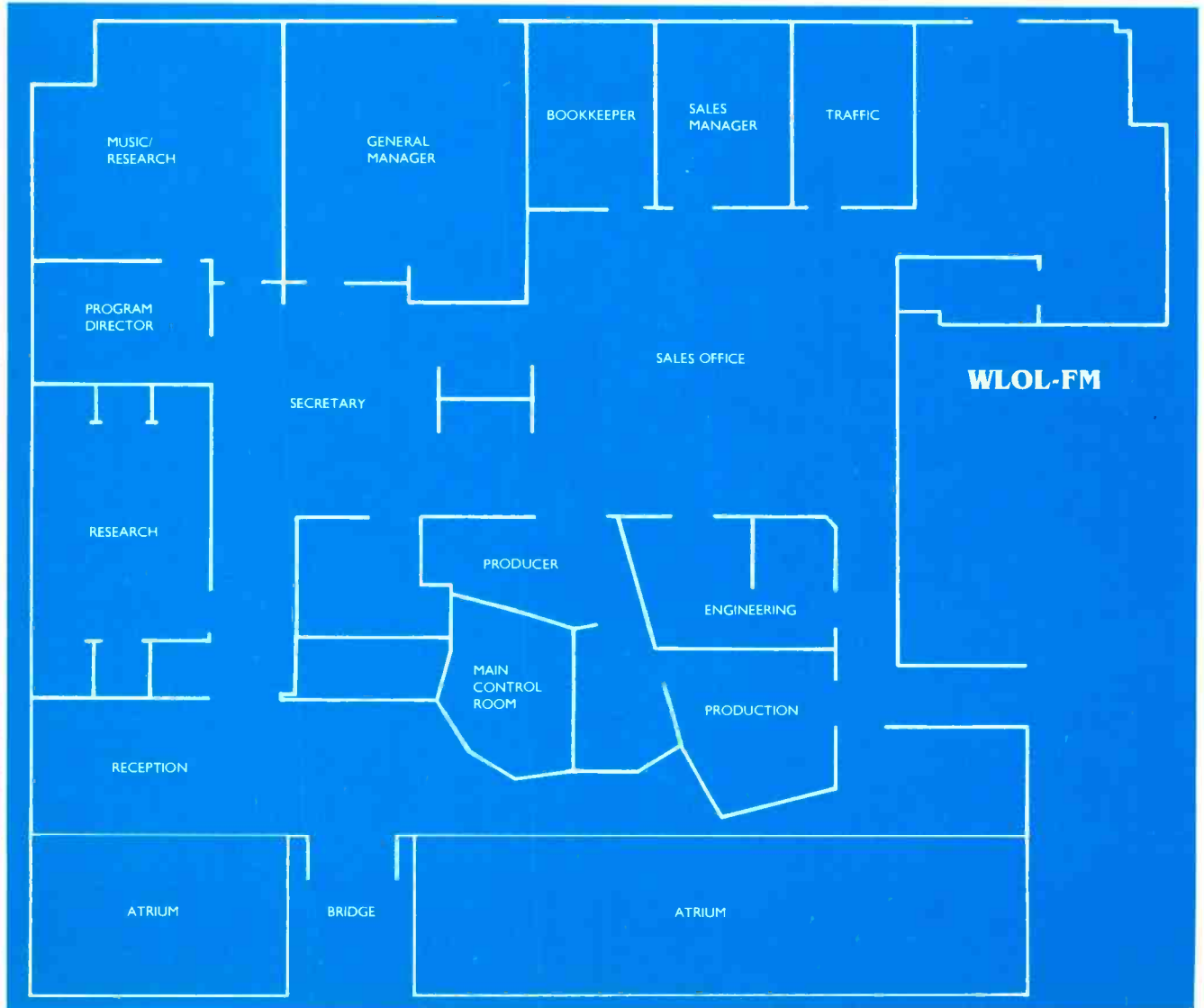
After exploring many possible locations we settled on a warehouse on the

edge of downtown Minneapolis that is being converted into an office-retail-residential complex. The building backs up onto an area that will become a riverfront park. There are some disadvantages to being one of the first new residents in this kind of area, the most serious of which is that we must live in a construction zone for quite a while. However, the developers were anxious to draw an early "high profile" tenant,

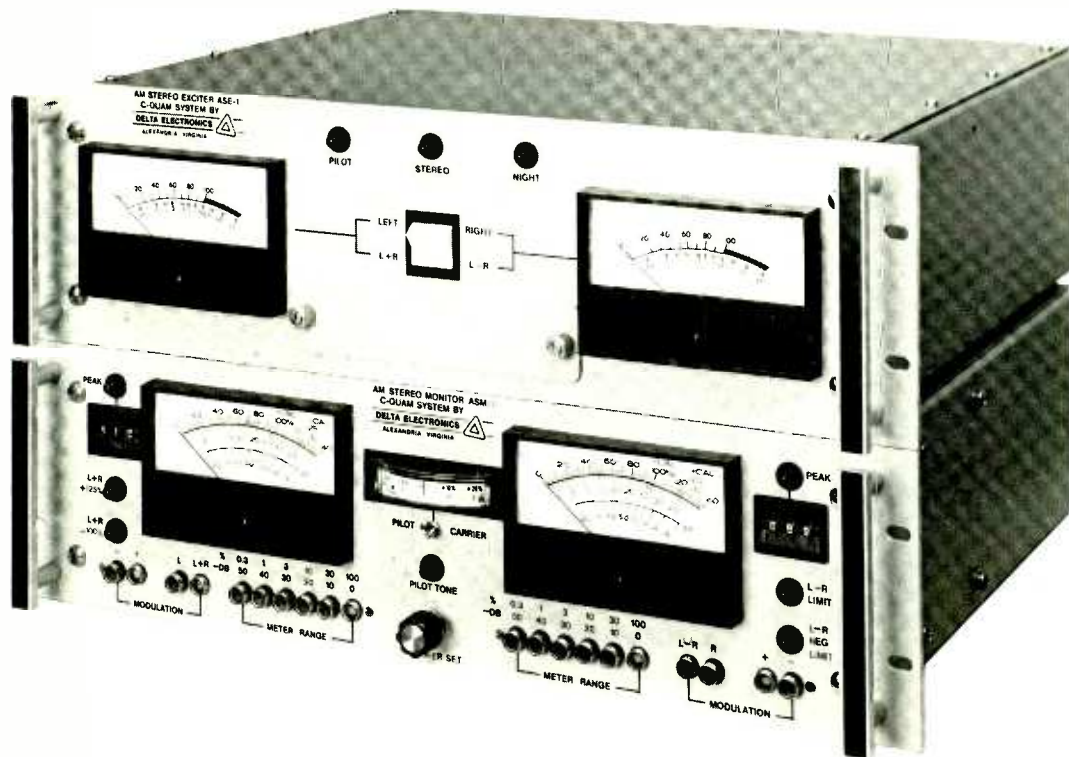
and we remain confident that within a year our "good deal" will be one of the most desirable locations in the Twin Cities.

As we began to lay out our floor plan in the new space, one of our goals was to put the studios "up front." While this is contrary to the philosophy of many stations, WLOL feels strongly that our product should be on display. Our building features an atrium that runs from the basement to the roof, six stories up. A glass wall separates the lobby from the atrium, and the studios all look directly into the lobby. The announcers expressed some discomfort at working in such an open setting when they saw the plans, but there have been no complaints since we moved in.

All of our studio walls use double



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Delta Electronics, Inc. introduces the ASE-1 AM Stereo Exciter and ASM-1 AM Stereo Modulation Monitor: FCC type-accepted C-Quam System transmission equipment for the AM Stereo broadcast market. C-Quam is the *Compatible* Quadrature Amplitude Modulation system developed by Motorola, Inc. C-Quam is the system of choice for more than 70 U.S. stations plus additional Canadian stations. Users range from kilowatt day-timers to full-time network flagships. These stations report enthusiastic response from listeners using multimode and full C-Quam stereo receivers as well as typical monophonic receivers. The key is compatibility without compromise. All listeners, stereo and mono, receive a clear signal with low distortion. Delta's twenty-year leader-

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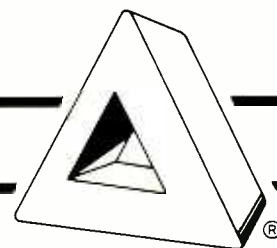
The proliferation of receivers from GM's Delco Electronics, Inc., MacIntosh Labs, Sherwood Electronics, Chrysler Corporation, Concord Electronics, Samsung Electronics and others not yet announced, is creating a sizeable C-Quam audience. With the outstanding performance of this equipment, you can be sure that the audience will *stay* tuned to your Delta C-Quam AM Stereo transmission system.

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THE BEST STATION AND FACILITY DESIGN COMPETITION

offset studs, on separate plates, with 1.5 inches of gypsum board on each side. Fiberglass insulation was stuffed into the walls, and all seams and openings were carefully caulked. Electrical conduits from each room run back to a central wire board in the shop, so that there are no conduits connecting the studios directly. This improves acoustic isolation.

We didn't want to take the extra space to provide sound locks at the studio entrances, so we settled on the "producer area" outside the control room door. This is a quiet preparation and telephone answering area that provides good isolation from the busy office.

There are three studio-control rooms in WLOL's new facility. The on-the-air control room was the first built. It uses a new ADM ST II-100 audio console, which complements an older similar board that was moved from our previous facility. All cart machines are ITC



Station's control room features new ADM console and ITC cart decks. Window gives visual contact with lobby, keeping the station's product "up front."

99Bs, and we use Scotchcarts exclusively. For an "all-cart" operation like ours, this is not a place to compromise.

The production studio uses the ADM board and two Otari MTR-10s as workhorses. We have also included an Otari MX-5050BQ four-track machine. This machine gets fairly light



BALLOT ON PAGE 37

use, but has proved invaluable for some special projects. Production also features equalizers, compressors, and cassette equipment. An ITC 3D cart machine is available so that this room can serve as a backup on-the-air facility.

The third studio is a small one located between production and on-the-air, making it available to serve as a studio for either larger room.

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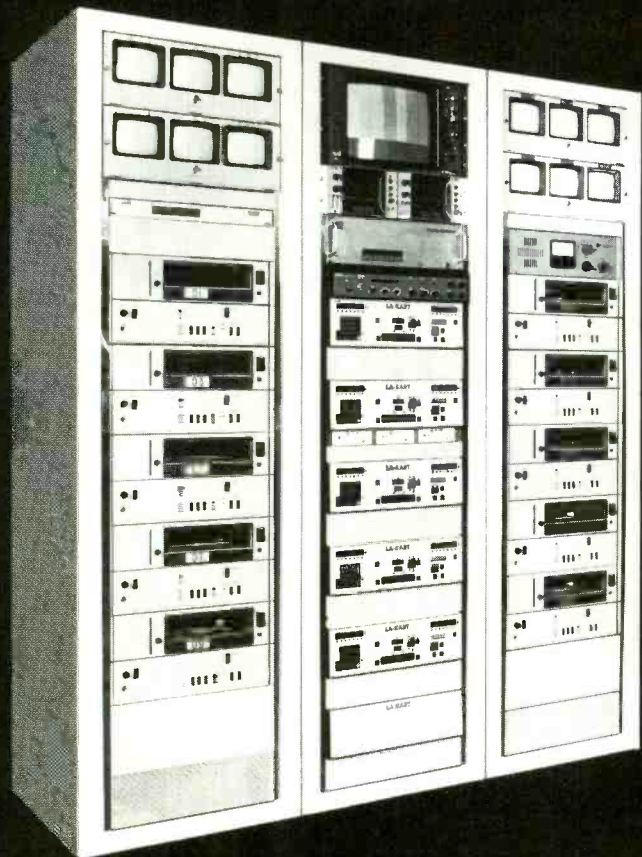
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WLOL promotion director Tom Gowan at work in production. In addition to the ADM console and twin Otari MTR-10 ATRs, the room is equipped with a four-track Otari MX-5050BQ, used for special projects.

have installed a Moseley PCL-606C STL system. We maintain equalized phone lines for backup, and although the lines test out as well as any we have ever seen, the improvement can be heard right away when we switch to the STL.

At least one feature outside the studio area is worthy of mention. Along the walls of our conference room are doors that open up to a series of research booths, each equipped with a telephone, coupler, and cassette machine. This allows the room to do double duty by serving as our call-out research center during the evening and on weekends.

A project like this can be brought to a successful conclusion only with the cooperation of many talented people. Besides the staff of WLOL, much credit must go to Jamieson Associates, our acoustic consultants, and Cunningham Architects, the overall building designers.



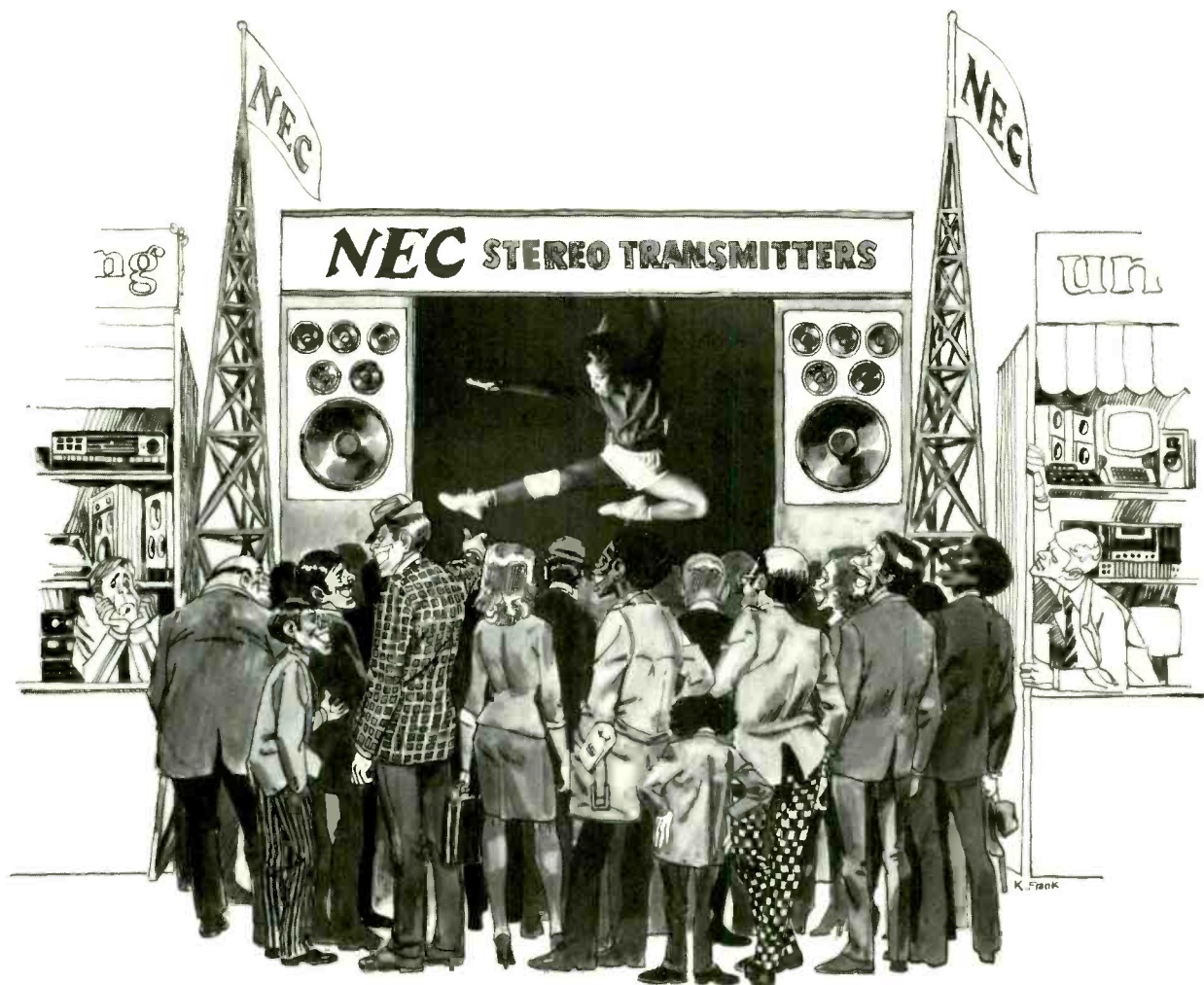
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Flash. NBC announces *The Tonight Show* and *Friday Night Videos* will soon be recorded in stereo.

Flash. ABC tests bilingual broadcasts of *The Fall Guy* in Spanish markets; ratings soar.

Flash. NEC introduces VHF and UHF transmitters with full stereo sound.

In 1977.

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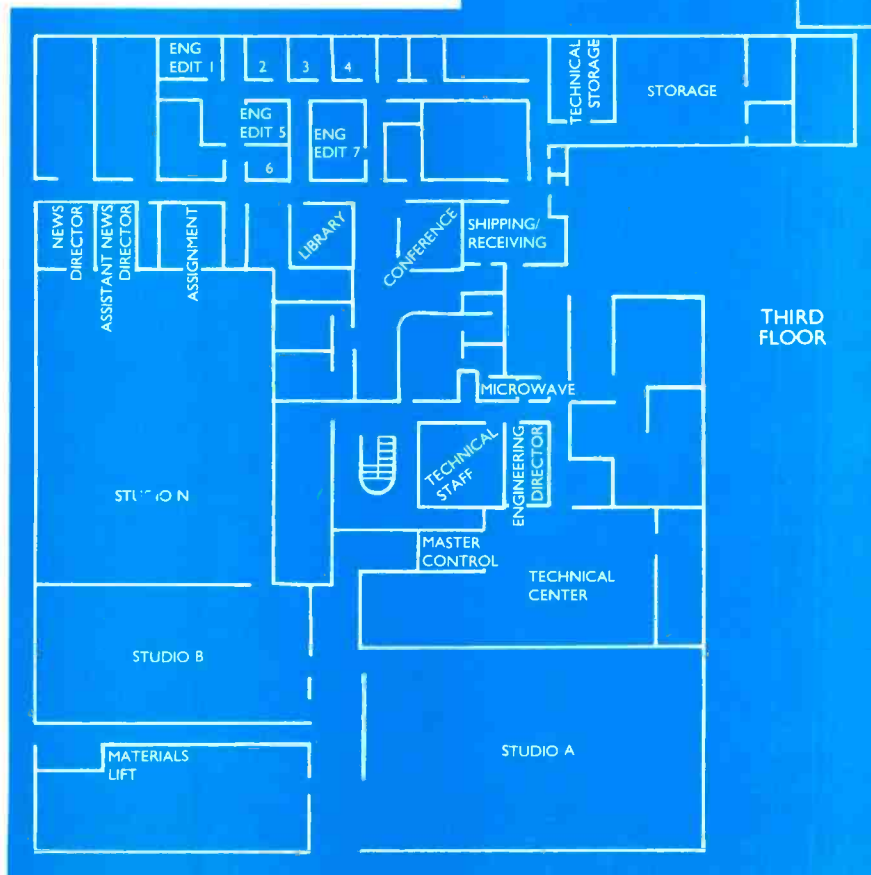
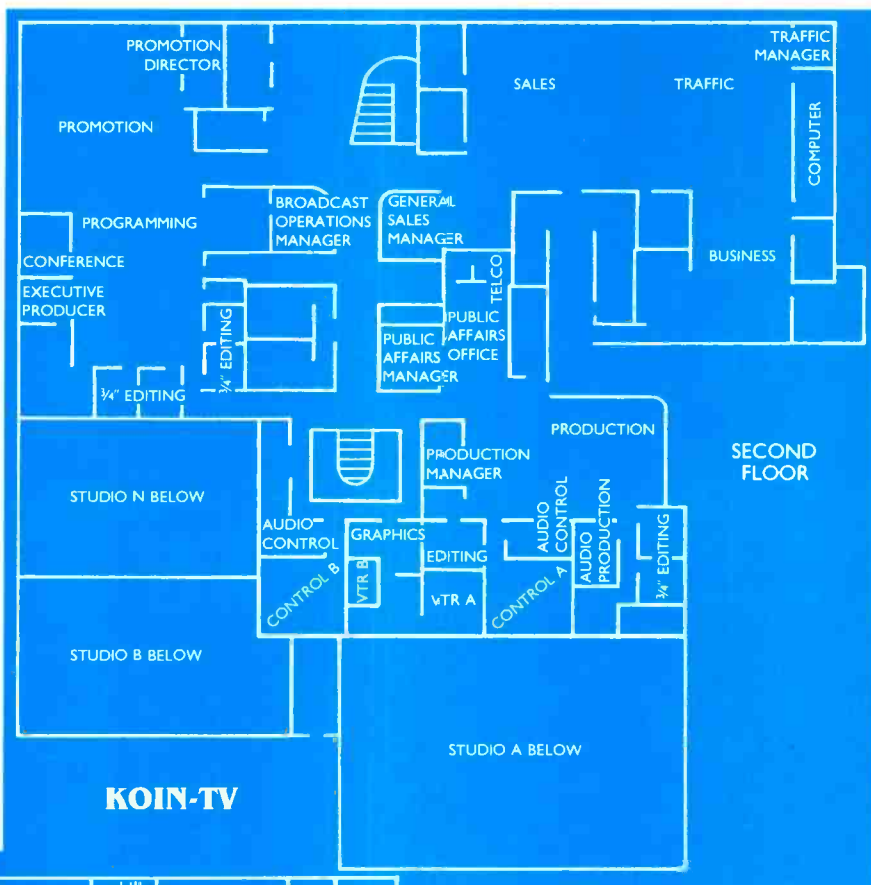
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KOIN-TV PORTLAND, OR ADI NO.: 22

Submitted by
MICK SCHAFBUCH, VP
and General Manager,
and STEVEN A. SMITH,
President, Broadcast
Technology Consultants

A commitment to stay in downtown Portland and community image were top priorities back in 1980 when we began evaluating alternatives for new station facilities. KOIN had outgrown the 34,000-square-foot space it had once shared with KOIN-AM/FM radio. A proposal was accepted to co-develop a two-block area and occupy 55,000 square feet of the 33-story KOIN Center.

Function and flow were emphasized during the design/development phase.



The KOIN Center's high-rise construction presented obstacles to optimum space arrangement. (There are 60 large columns, 43 of which are three to four feet square; 10 elevator shafts; and three exit stair systems, all of which penetrate the KOIN-TV space.) But flow and functionality were achieved even with these obstacles.

Station management offices are located on level one. The sales, traffic, business, programming, promotion, graphics, and production departments are on level two, while news, engineering, and the studios are on level three.

Three studios, with a total of 8000 square feet, are adjacent to the newsroom, tech center, and prop storage. Since the news garage, prop storage, and studios are below ground level, a ramp provides access for automobiles and vans. Large, over-the-road and local delivery trucks use a truck elevator and turntable. The studios have floating slabs to isolate vehicular noise from the parking garage below. The studio walls and ceilings were constructed as rooms-within-rooms to isolate the

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Studio N is a combination news set, weather center, sports center, and newsroom. The bottom nine feet of two walls were omitted to create a 4250-square-foot space.



Master control contains a Vital VIX-115-4B switcher and remote controls for the RCA TTG-30/30L transmitter and Harris earth station.

structural noise created by other occupants of KOIN Center.

Studio N was designed as a traditional studio. However, the bottom nine feet of two walls were omitted so the studio would be open to the news center and weather center, creating an open area of 4250 square feet of newsroom and studio space.

The studio lighting system, designed by L. E. Nelson, provides optimum lighting for the specific needs of each studio. Studio N, the news studio, has a lay-in ceiling and track-light system; Studio A has a fixed perimeter grid and chain-adjustable center grid for lighting commercials and shows; Studio B has a fixed grid to provide lighting for station productions. Studios A and B feature Strand Century lighting systems with a Mantrix lighting console.

The engineering tech center consists of a large media center and an enclosed master control room. The media center equipment includes two Ampex ACR-25 VCRs, four Ampex VPR-80 one-inch VTRs, one Ampex AVR-2 two-inch machine, and four Sony BVU-200As, which use two Fortel Y-688 TBCs. There are also two RCA film islands.

The terminal equipment, located in the racks area, includes a Bosch 2000 60x60 routing switcher, a Bosch ESC-1 machine control system, an ROH intercom with 28 stations and six P/L buses, a Grass Valley pulse and distribution system, and three ADDA frame synchronizers. A master control operator is located in the separate master control room, which contains a Vital VIX-115-4B switcher, and remote controls for

the station's RCA TTG-30/30L transmitter and Harris nine-meter earth station via the Harris 9100 facilities control system.



Control A/edit suite and Control B are located on level two, adjacent to the production department. The Control A suite was designed for the use of Video Productions, a KOIN-TV subsidiary, and serves its studio production and/or on-line, one-inch editing clients. The equipment includes: a Grass Valley 300 switcher with master E-MEM, Mk II DVE, audio E-MEM, and E-Disk; an ADDA still store; an ADM 2400 audio console; a Paltex Vanguard computerized editing system; three Ampex VPR-2 one-inch machines; and one keyboard for a Chyron 4100 with MGM and a digitizing tablet.

Control B is designed for local production and news, and is equipped with a Grass Valley 300 switcher with E-MEM and E-Disk, an NEC E-Flex, an ADDA still store, and an ADM studio console.

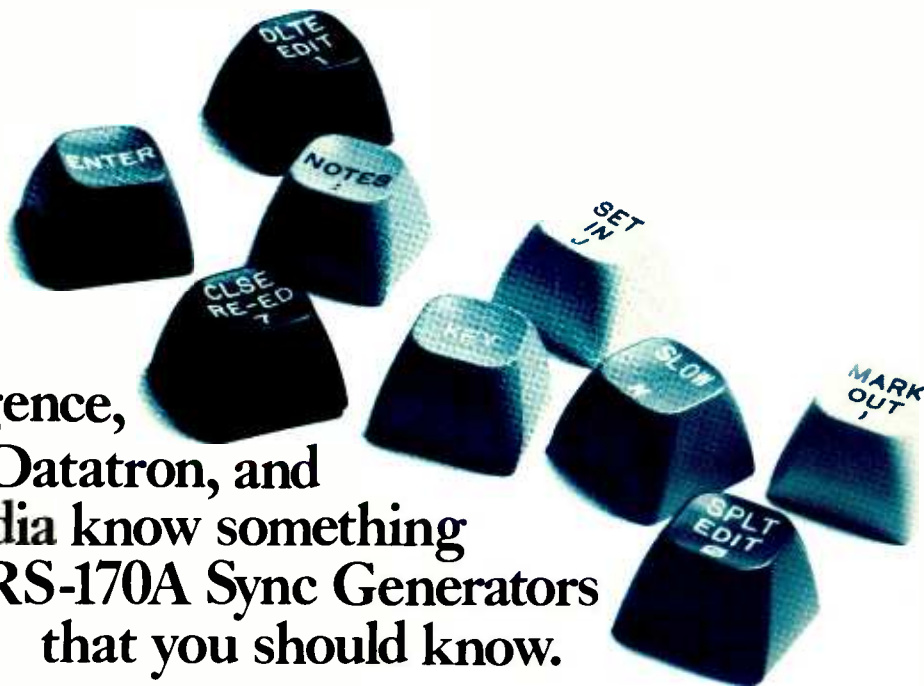
Video graphics, which is located between the edit suite and Control B, has two Chyron IV 4000s and one Chyron II titling generator, the Chyron keyboard for Control B, the font compose/digitizing tablet for the Chyron IV 4100 in Control A, an ADDA still store with MAC and two mainframes, and a camera stand with an Ikegami HL-77. All electronics for both Chyron IV systems, as well as the disk drives for the ADDA still store, are housed in a separate, environmentally controlled room.

The KOIN-TV microwave equipment, dishes, off-air TV antennas, and news scanners are located at the top of KOIN Center. A Grass Valley Wave-link 24-fiber fiber optics system provides interconnection between the microwave equipment room located on floor 32 and the KOIN-TV tech center.

The KOIN-TV facilities are, we think, quite an accomplishment. We are proud of the system we have in place, and proud, too, of the architectural statement our facility makes.

Who's Pulsing the Editors?

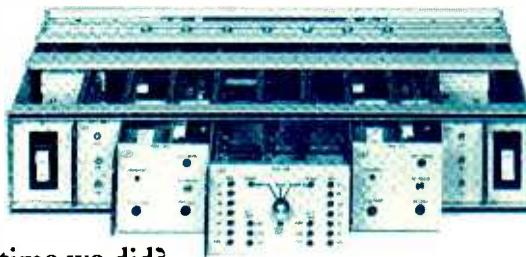
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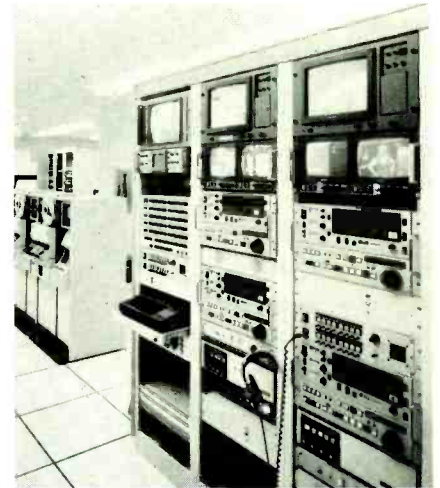
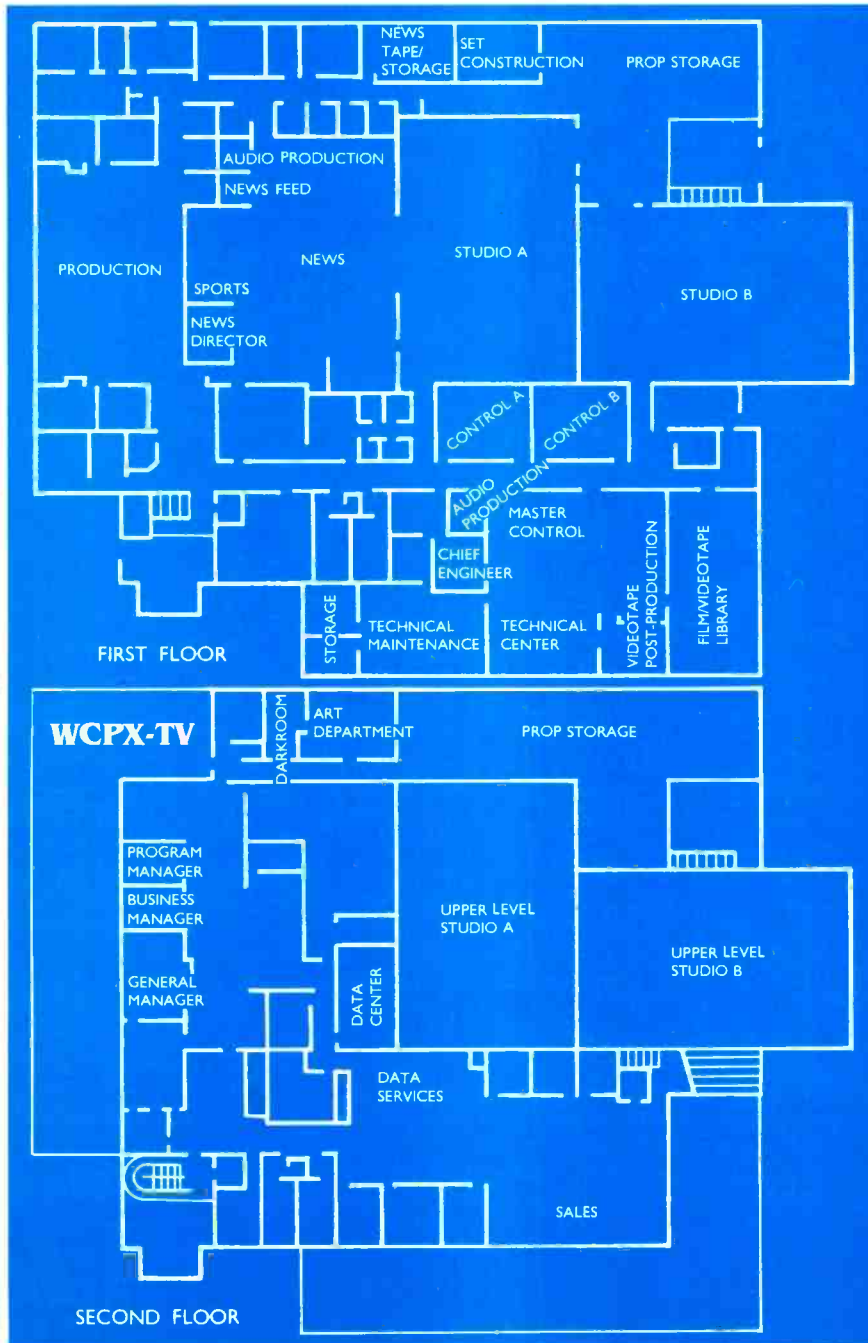
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WCPX-TV

ORLANDO, FL

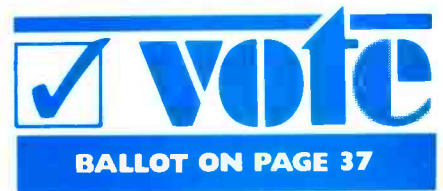
ADI NO.: 30

Submitted by GERALD T. PLEMMONS, VP Engineering, Outlet Communications, BILLY L. PATTON, Engineering Manager, Outlet Communications, and ROBERT K. DIEHL, Chief Engineer, WCPX-TV



The videotape area in the technical center features Sony and Ampex VTRs.

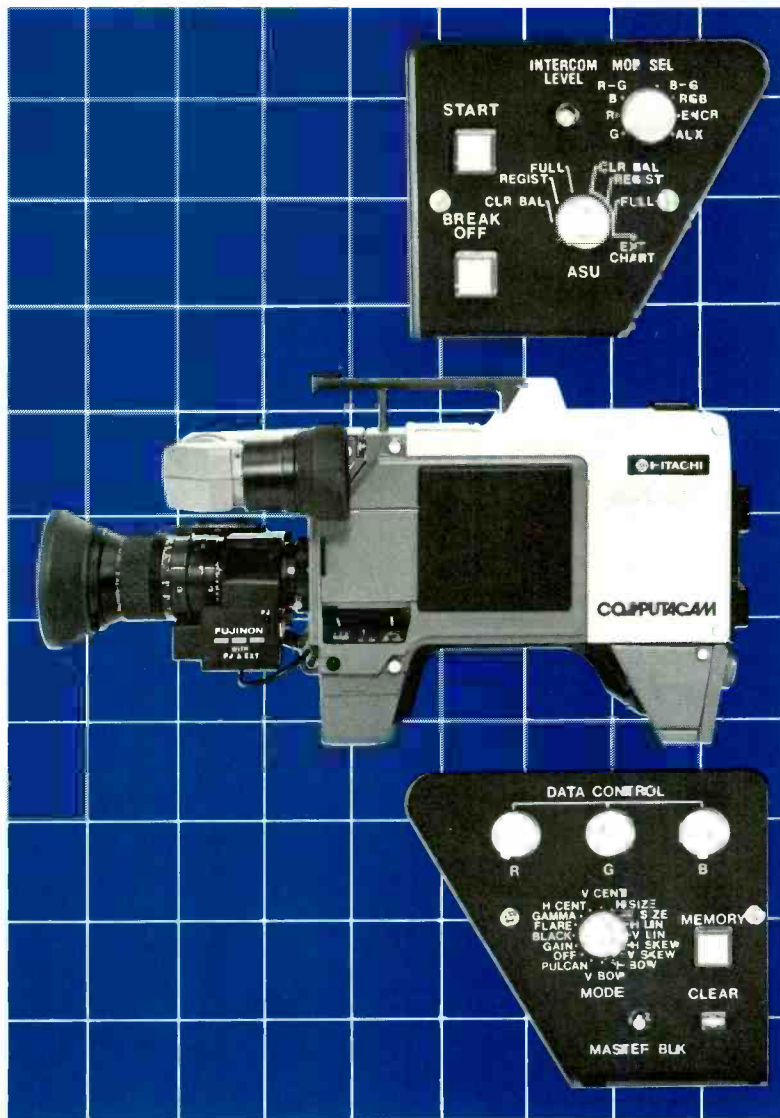
When WCPX-TV went on the air in 1954 as WDBO-TV, CBS Ch. 6, the offices were in the WDBO radio building near downtown Orlando; the transmitter, studio, and technical areas were in a prefab, tin-roof building five miles away on land used to graze horses. In the next 27 years the building was expanded four or five times. The TV transmitter was moved to a tall tower in the countryside, the AM transmitter was moved to another site, and the market rank grew from near 90 to the mid-30s. It became obvious that new, much larger, more sophisticated facilities would have to be built.



A six-acre lakefront site on a major thoroughfare that met all of our requirements was purchased, and on it we constructed a 56,000-square-foot, two-story facility served by a 500 kW emergency generator, a Stainless 400-foot self-supporting microwave tower, and four satellite dishes—one five-meter Prodelin, and three Scientific-Atlanta dishes. The site's lakefront exposure and broad lawn area are ideal for helicopter approaches.

In designing the facility, we were faced with one central challenge: prop-

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TV

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er traffic flow in a two-story building. We didn't want to have traffic flowing between floors and we were concerned with keeping those areas that are related adjacent to one another. In order to ensure the proper "adjacencies," all department heads and other key station personnel were interviewed to assess

their needs and their relationship with other departments.

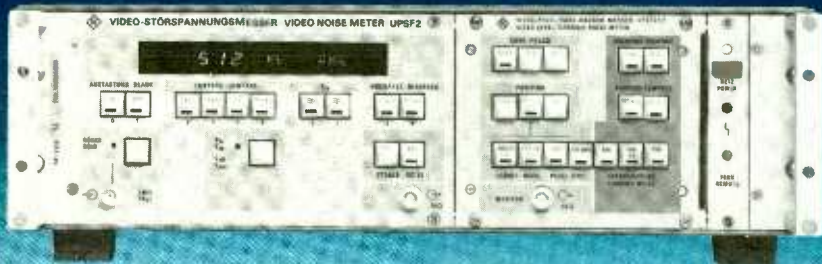
All operating departments, except art, are located on the first floor. Administrative functions such as general management, business, programming, sales, and data services are on the second floor. This floor is secured



The control rooms for Studios A and B. The large windows permit observation.

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by the computer-controlled security system after normal business hours.

The floor of the technical center, which includes videotape, master control, telecine, color video, and station equipment racks, is built on computer floor, which has been depressed so that it is flush with the rest of the first floor. The computer floor is used both as a cable raceway and supply air plenum. Access into and between the studios is through U-shaped sand traps, providing excellent sound isolation.

The building has two 3500-square-foot studios with 18-foot-high lighting grids and two 360-degree cyclorama tracks. Strand Century supplied the microprocessor-based two-scene preset "dimmer per circuit" lighting system. Exceptionally large air ducts were installed in the high-volume, low-velocity air systems.

The studio control rooms are large enough for nine people. A sliding glass door between the control and audio booths provides for sound isolation when required. Large windows to the hallway allow visitors to observe operations in all technical areas without having to walk through any rooms to get there. Both control rooms have ADM 24-input mixing consoles, Grass Valley 300-3A switchers, and a Quantel two-channel digital effects system, which can be delegated to either control room.

In the main technical center, the heart of the plant is a 50x50 Utah Scientific routing switcher, which is expandable and can accommodate stereo audio.

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One unique feature of the plant is the master control/video control room. This room is divided into two rooms by a sliding glass door. With the door open, the master control operator can adjust the video on film chains and on the Hitachi SK-110 cameras in the studio. With the door closed, air operations and color video are two separate operations.

The newsroom is adjacent to Studio A, with the common wall being a bifold acoustic door that can be opened to allow the newsroom to become an extension of the studio. The art department on the second floor has an input station for the Harris Iris still store including a camera stand, small switcher, and Digifont for writing captions.

Clearly, WCPX-TV has come a long way since the days when we shared facility space with WDBO radio. We think our new facility will keep us on top well into the future.



Studio A's control room can seat nine people. It features an ADM 24 console, a Grass Valley 300-3A switcher, and a Quantel DPE-5000.

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.

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THE BEST STATION AND FACILITY DESIGN COMPETITION

WRGT-TV DAYTON, OH ADI NO.: 49

Submitted by ALBERT M. HOLTZ, President, and CURT BERTSCH, Director of Station Development



WRGT's equipment room has two RCA-600 two-inch machines, three RCA TR-800 one-inch decks, 12 RCA HR-2As, and a host of Sony 3/4-inch decks.

On June 6, 1984, WRGT-TV received a permit to build a plant and transmission facilities on 20 acres of land inside Dayton city limits. On September 13, just 99 days later, the building—and its transmission facilities—were completed. The station, up and running since September 23, is now Dayton's only independent, and the only station in a three-state area generating five million watts of power.

WRGT was designed for optimum utilization of space, and efficiency in its operation and energy usage. One method of holding down energy costs was to utilize waste energy from the transmitter and a heat exchanger as a major source of heat for the 13,025-square-foot block-and-mortar building.



BALLOT ON PAGE 37

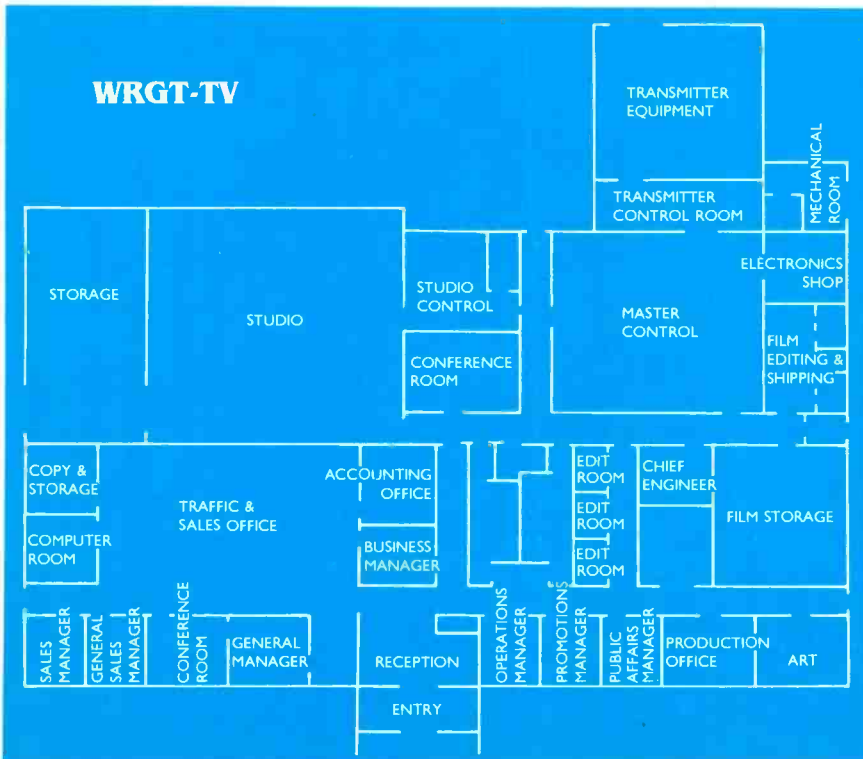
The entire operation is an efficient one: only 36 people are employed at the station; and master control can be operated by one person.

The departmental layout of the building follows work and informational flow patterns. Sales, traffic, business, and administration are on one side of the building; production, art, film editing, promotion, and operations are on the other side, adjacent to the station's three edit suites, studio control room, and master control.

The station is also computerized: a Columbine system is used for traffic and business. It handles sales orders, station logs, and accounting functions.

In addition to efficient design, the station also set as a goal the delivery of a high-quality signal. WRGT selected an antenna site within a half-mile of the other antennas in the Dayton market, and constructed a 1156-foot, three-anchor-point, stainless-steel tower topped by a custom-built, RCA TFG-36J tri-lobe antenna and powered by a 110 kW RCA TTU-110C transmitter.

With an emphasis on economical, uninterrupted service, the transmitter is redundant: it has a hot standby exciter, two visual output stages capable of 55 kW output each, a pulser, visual variable couplers, an oral fixed coupler, and



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"S" type Klystron tubes, which are currently run in the "H" mode. As soon as new visual tubes are received, however, the station will retrofit the tubes and operate in the more efficient "S" mode.

The master control and studio control facilities feature four tape formats: half-inch, 3/4-inch, one-inch, and two-

inch. The station has about 12 RCA half-inch HR-2A Hawkeye decks, Sony 3/4-inch BVU machines, three RCA TR-800 one-inch VTRs, and two RCA 600 quad machines. WRGT also has in these rooms two RCA TK-29 film chains, Solutec TCR 10 sequencers, two Grass Valley switchers (a 16-4S in master control and a 1680 in

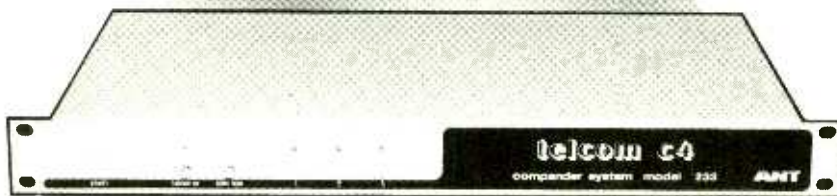


One of the station's two half-inch edit bays, which feature RCA Hawkeye machines.

David Smith of Editel, NY states in an intercompany telcom c4 test report: "The results are nothing short of amazing but the numbers will best speak for themselves." Signal to noise on Ampex VPR-2 improved from 51 dB to 77 dB and on a Sony BVH 2000 from 52 dB to 80 dB using telcom c4.

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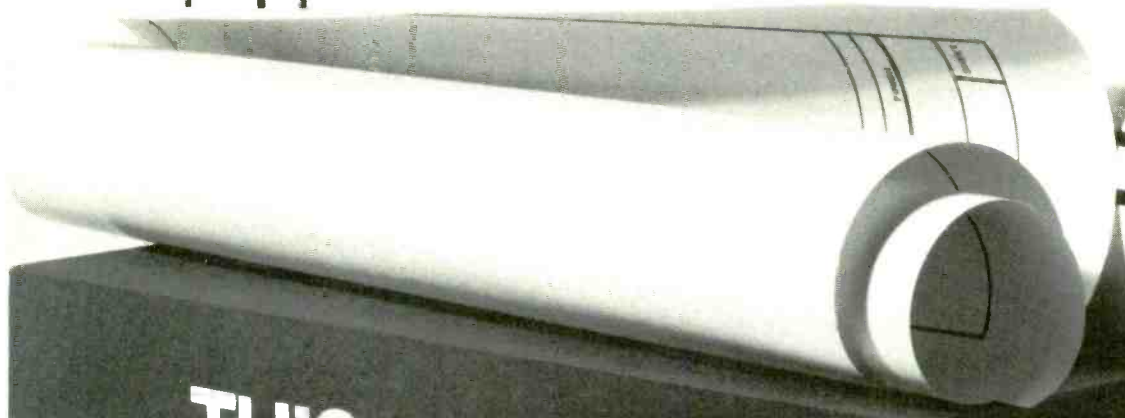


The studio control room includes a Grass Valley switcher and a 3M D-8800 two-channel character generator.

studio control), a Utah Scientific AV-20/20 routing switcher, a 20-channel audio mixer, and a two-channel 3M D-8800 character generator.

The station also has three edit bays, two of which feature Hawkeye machines for half-inch component editing. The other room is used strictly for promo work, and uses 3/4-inch video and film. There is also a 40 by 43-foot studio with two RCA TK-781 triax-cabled cameras and two RCA Hawkeye cameras with studio conversion kits, as well as a built-in hard eye and sound-deadening acoustics, plus Strand Century lighting with Mantrix II controller capable of 96-channel operation.

WRGT-TV is an efficient operation, and has been from day one, and even before construction was completed—on time and under budget. But it is also an aesthetically pleasing building, utilizing earth tones and accent stripes, and seven acres of our property has been landscaped.



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FACILITY

THE BEST STATION AND FACILITY DESIGN COMPETITION

MANHATTAN TRANSFER/EDIT NEW YORK, NY

Submitted by HOWIE BURCH, President



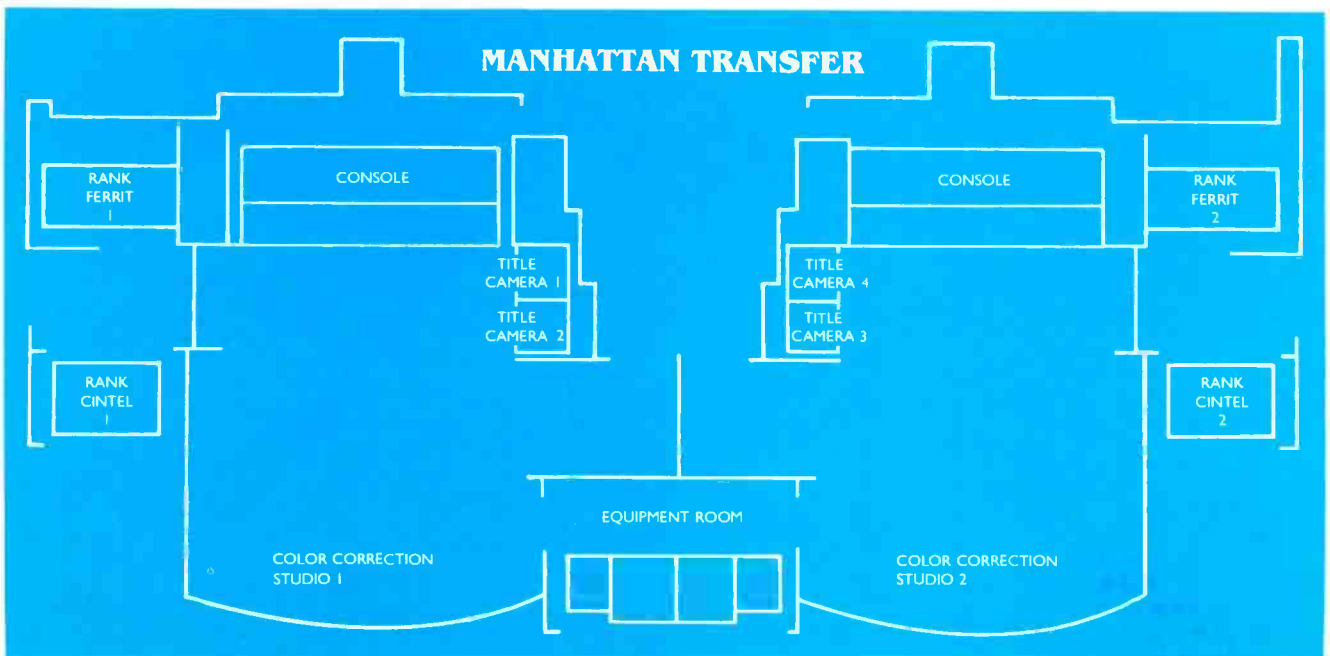
Color Correction Room 1 features, from left: a CDL-680 switcher, Dubner color correction, controls for a Rank Cintel MK-IIIC telecine, and a Neve audio board. Pictured in the room next door is a Rank Cintel Ferrit stereo dubber, and a bank of cassette decks.

After leaving Editel/New York in July 1983, I was free to implement plans for the construction of two mirror-image film-to-tape transfer and color correction studios. A design team was formed, including myself, chief engineer Jeff Lee, A.F. Associates of Northvale, NJ, and our architects, Voorsanger & Mills of Manhattan. In less than six months, we had 11,000 square feet of former office space gutted and entirely remodeled from scratch. Voorsanger & Mills helped to preserve many of the original architectural elements, such as moldings and curved ceilings. Recessed lighting, elevated client areas, warm colors, and marble floors all provide an elegant and warm atmosphere in which to work, while combining with some exceptional hardware to expedite the process.



BALLOT ON PAGE 37

At the heart of the facility are twin Rank Cintel MK-IIIC telecines with X-Y zoom. They are complemented by CDL-680 switchers, Ampex VPR-3 recorders, Rank Cintel Ferrit stereo dubbers with Dolby noise reduction, and



THE BEST STATION AND FACILITY DESIGN COMPETITION

Dubner color correction systems with secondary color control.

Our playback personnel handle all audio engineering and are positioned to our sides, at a Neve audio console.

Lee, working closely with the design team, supervised the installation of below-the-floor wiring, complete air filtration and climate control for all equipment areas and studios, and a room for the cleaning of film negative, with its own air filtration system. Working with original camera negative is particularly critical as far as handling and cleanliness are concerned. Therefore, we have installed three air filtration systems, which include Bonaire 2001 negative ion chargers, and we maintain strict film cleaning standards.

Color Correction 1 and Color Correction 2 were constructed in such a way that all components have ready access to each other but are housed in their own spaces. For example, twin title cameras (concealed behind oak doors with frosted glass) serve each studio. The oak-and-glass motif is repeated throughout the facility and provides a thematic flow.



Color Correction Room 2 mirrors CCI. Concealed behind the doors are titling cameras used by both rooms.

CC1 and CC2 are surrounded by the playback room, which houses all the VPR-3 recorders, the negative cleaning room, the maintenance and engineering office, and the patch bay. Clients are met at a wood-and-glass reception area

The facility offers a variety of addi-

tional services, such as Lexicon time compression and Ultimatte. We can also perform a variety of edit procedures on our Ampex VPR-3s, so that clients can complete projects at Manhattan Transfer without having to book additional editing time at another facility.

A film editing station, shipping facilities, an insert stage, and a cassette-editing suite are also designed to operate efficiently around the color correction suites. The insert stage measures 12 by 20 and contains an Ikegami HL-79A camera.

At this time we are also looking forward to the completion of our first pair of twin editing suites, which will incorporate Ampex equipment throughout, and will be designed by Voorsanger & Mills. Paul Sweeney of A.F. Associates will coordinate with Lee on the design and installation of all equipment. The new one-inch suites will interface with CC1 and CC2, and will feature the Ampex ACE editor and AVC-33 switcher. We hope the addition of these editing suites will make us more versatile and valuable to our clientele.

CALIFORNIA IMAGE

RANCHO CORDOVA, CA

Submitted by DUANE THOMPSON and MIKE MEAGHER, General Partners

California Image, a full-service teleproduction facility, has been in operation since October, 1983. It was built, from the ground up, in a new industrial park in Rancho Cordova, located just minutes from downtown Sacramento.

Mike Meagher and engineering manager Rob Oberbillig selected the new building space and planned the entire floor plan. They even chose the size and location of the power mains, air conditioning, and special interior wall construction for acoustic purposes.

We chose to design the facility by dividing the space into three different areas—business, production, and maintenance—with the idea of closing off the office area after normal business hours. The 10,000-square-foot facility was designed so that the production

area (a room set aside for tabletop work), edit suites, computer graphics suite, and 30 by 50-foot stage (with dressing rooms and prop storage) sur-



Mike Meagher, left, in Edit Room One, working with a Grass Valley 300 switcher and ISC 4! edit controller.

round the central equipment room. The offices, kitchen/lounge, and conference room are located away from the noise and heavy traffic of the equipment room and stage area. Space was also allocated near the stage area for a multitrack audio recording and sweetening room.

One key to the facility's design is the placement of the working areas for maximum efficiency. Each production area can work independently or in conjunction with others for complex projects that require the use of two or more areas. For example, the on-line edit bay (we also have a ¾-inch off-line bay) is close to the shooting stage, so if a chromakey or Ultimatte shot is required, the two rooms can be used together.

Also, the computer graphics room,

FACILITY

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which features a Dubner CBG-2, is normally used off-line when creating animations. But when the finished animation needs to be integrated into the final production, the graphics material can easily be called up by either the on-line bay's ISC edit controller or Grass Valley 300 switcher.

The two service areas—a maintenance room, and a scene shop where scenery and props are stored—have been grouped together; they are adja-

cent to one another, providing easy access for our 10 full-time staff members. The two areas are located close to the central equipment room, shooting stage, and garage area. The proximity of the scene shop—which is large enough to house a truck—to the garage and stage is especially convenient when a film crew is shooting a spot on the stage.

The two edit suites have been carefully designed, both in terms of space

for staff and clients, and choice of equipment. The emphasis we placed on our edit suites reflects, in a sense, the way our business is oriented: about 75 percent of our business is editing.

The on-line room, as mentioned earlier, features an ISC 41 edit controller and a Grass Valley 300 switcher. The suite also has an Ampex ADO and a Quanta Q-8 character generator. The audio side of the suite includes Tascam 52 two-track and Model 58 eight-track ATRs, and a 16-channel Yamaha 1608 audio mixer. The eight-track ATR is under ISC control for on-line audio sweetening.



The California Image equipment room houses all the facility's rack-mounted equipment.



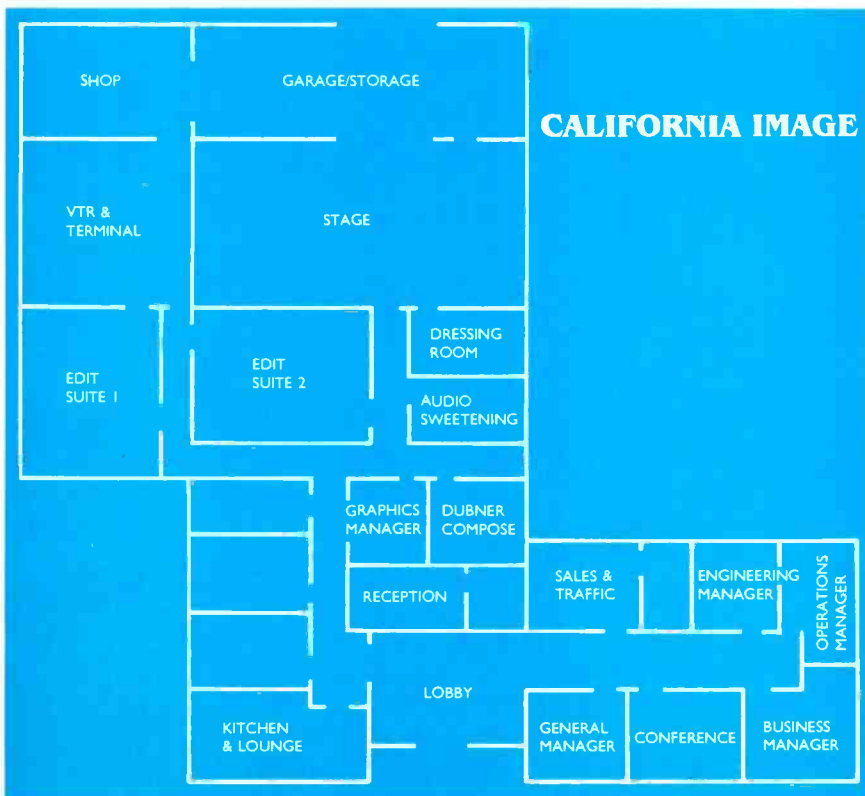
The off-line room, located near the on-line suite, handles 3/4-inch or half-inch Betacam with an ISC 41 controller and a Grass Valley 100 switcher. Both rooms have oak equipment cabinets.

The on-line room has been designed for communication between editor and client and for the comfort of the client. The client has a large working space next to the editor, with his or her own color monitor, telephone, and space for papers and other materials.

The central machine and equipment room was constructed with raised computer flooring utilizing removable two by two-foot panels for access to power and signal cables. All rack-mounted equipment used for the operation of both edit bays and the computer graphics suite—including power supplies, routing, DAs, signal generators, and audio amplifiers—is located in the equipment room, to allow shorter cable runs and timing of video and pulse signals.

Rounding out the equipment lineup are Conrac video monitors, JBL audio monitors, Tektronix waveform monitors and vectorscopes, HEDCO audio distribution, and four levels of signal routing using a Bosch routing switcher.

As we finish our first year, the facility is performing as we hoped it would, and we look forward to continued growth as the client production needs increase and technology changes.



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VIDEOWORKS NEW YORK, NY

Submitted by KEN LORBER, President



Edit Room One features a CDL-480-8 switcher, ADO and NEC digital effects, and a custom-modified Yamaha mixing console.

The VideoWorks facility is one that evolved as a result of steady growth; it was not a preconceived master plan. Originally founded as a production company in 1977, VideoWorks built its first on-line editing suite three years ago to meet its own post-production needs. After a few months of positive client response, however, we realized that we had done something right and made the decision to expand and become a full-service facility.

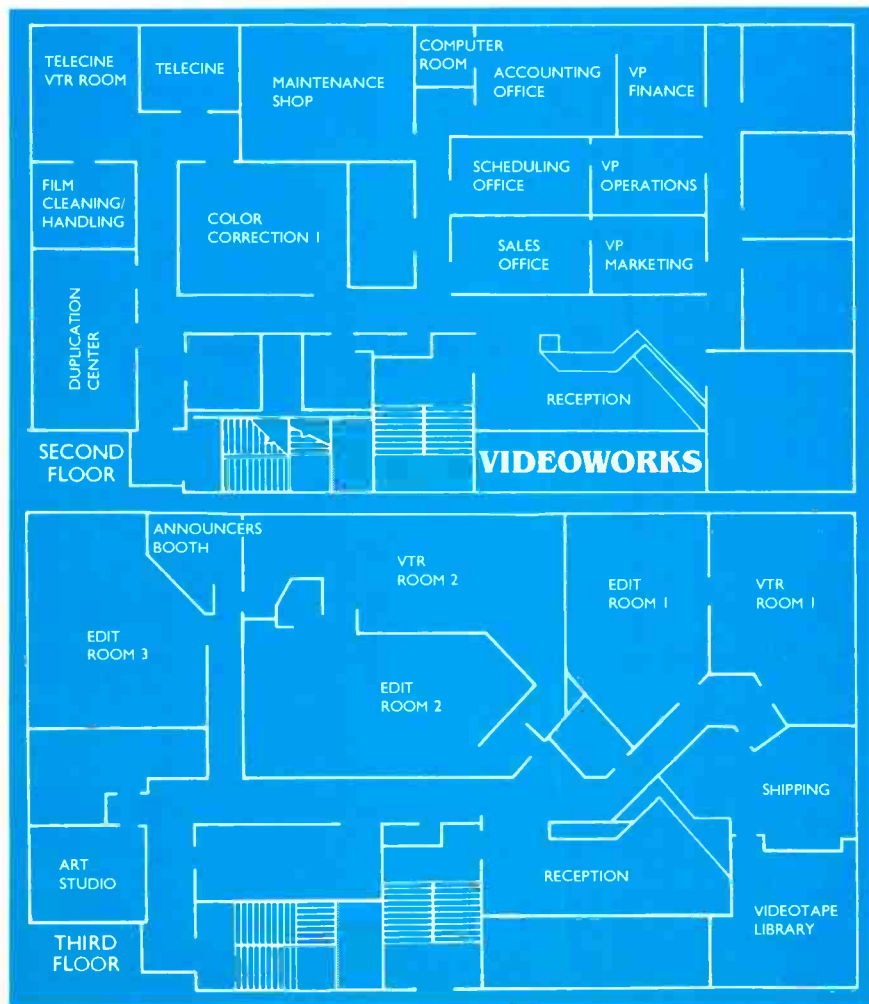
Today, VideoWorks' physical plant consists of two on-line suites, an inter-format suite, and a film-to-tape color correction suite. Editorial encompasses the entire third floor of our building, while color correction shares the second floor with engineering support services and administrative offices.

While central machine cores offer certain economies of logistics and space, the concept did not work for us, and each suite has its own dedicated machine room. Part of the reason for this is that, beyond normal editorial work, we do a great deal of art and photo animation and require video animation stands located in the machine rooms. This means a myriad of art cells and/or chromes lying about, with clients moving back and forth to examine them. Dedicated machine rooms are more accessible for this kind of checking, and they also afford clients privacy when dealing with sensitive or confidential material.

Each of our one-inch suites utilizes four one-inch VTRs, either Sony BVH-1100As or BVH-2000s. Edit Room 1 contains a CDL 480-8 switcher, while ER 2 is equipped with a Grass Valley 300. Both suites have programmable WRS-10 animation stands (with Ikegami HL-83 cameras). The stands may be operated from the editing console via remote-control panels and can be triggered by GPI closures from the editing computers.

Digital effects are provided by dual-channel ADOs, with ER 1 having the additional power of an NEC E-Flex. Titling for each suite is handled by a pair of Ikegami ITC-82 cameras equipped with remote sweep modulation. A dual-channel Chyron IVB may also be accessed at any time.

One thing that all our editing rooms



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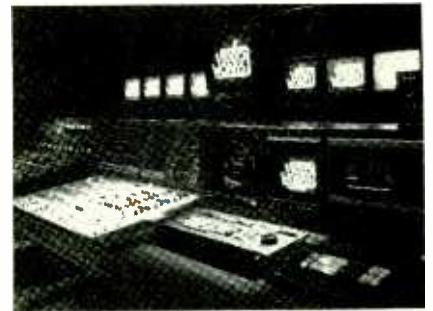
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have in common is the Sony BVE-5000 editing system. We chose the 5000 for our first room based on its sophistication, reliability, and ease of interface with the Sony VTRs. Its performance convinced us to make it the house standard. From both a systems and human engineering standpoint, we felt this was the way to go. We have total

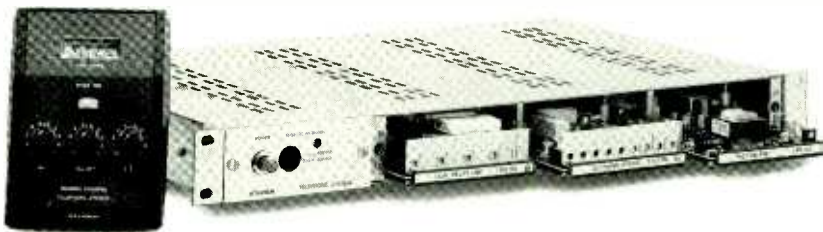
redundancy in all of our rooms—the same computer, the same keyboard, even the same software updates. An editor can move from one room to another with no sacrifice in efficiency.

Our audio capability is also superior. Custom modified Yamaha mixing consoles provide for up to 32 inputs. All one-inch VTRs are Dolby stereo



The control console of Edit Room 2: a Sony BVE-5000 controller and CDL-480-8 switcher are at the heart of the system.

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equipped. Each edit room also has multiple audio sources including Otari ¼-inch ATRs, MCI half-inch four-tracks, audio cassette players, even Moog synthesizers. Lexicon time compression and digital reverb units are also within arm's reach.

Our interformat suite is equipped with both ¾-inch and Betacam VTRs, and offers up to five playback sources feeding into a Sony BVH-2000 VTR. The room also features Grass Valley switching, digital effects (ADO and NEC), a full audio complement, and a Chyron IVB. We are currently cutting three nationally syndicated shows in this room.

Our film-to-tape operation is the most recent addition to VideoWorks. The telecine is a Bosch FDL-60, environmentally isolated in a glass "room" with its own temperature, humidity, and air purification systems. The color correction computer is Armand Sarabian's Corporate Communications System 60XL-B2. The new CDL-480 Series with an AFV option handles the switching chores. Mastering is done on the BVH-2000 in the adjacent machine room. All film cleaning is done in a separate room that is part of the telecine complex.

The future promises some further expansion at the facility. We own the first floor of our building (in addition to the second and third, which is where our facility is now set up), and have plans to move into it with operational and support facilities. We need to expand our tape library; the first floor will be used for that. We also plan to use it for expanded duplication services and, perhaps, for another edit suite.

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interpreting the FCC rules & regulations

The FOB Gains Power

By Harry Cole, FCC Counsel

Most likely, your station would never be the subject of an inspection by members of the Commission's Field Operations Bureau (FOB). But with that understanding, have you given any thought to what you would do in the unlikely event that such an inspection actually occurs? In light of developments over the last year or so, you would be well advised to include this in your list of things to worry about and prepare for.

The question of station inspections is one which has not been a hot topic among broadcasters for some time. This is mainly because, to a great degree, inspections were discontinued—or drastically cut back—in the face of budgetary constraints in the early 1980s. Also, the Commission's deregulatory program was still in its largely formative stages, and enforcement efforts by the Field Operations people were generally held in abeyance as the powers that be in Washington decided which rules and regulations could and should be abandoned. As a result, fewer and fewer broadcast inspections were undertaken, and even fewer fines and forfeitures were handed out by the FCC.

As you might have guessed, however, things are changing. The Commission has its deregulation program pretty much in place now, and the FOB people now know which rules are still on the books to be enforced. Second, because of staffing cutbacks, the overall streamlining of administrative procedures effected by deregulation, the success of the Commission's "management by objective" philosophy, and various other related factors, there appears to be more funding available for FOB activities. Finally, central to the overall thrust of deregulation is the notion that the Washington bureaucracy should govern as little as possible, and that broadcast regulation should be restricted mainly to technical matters. The best way to accomplish that limited role is through the efforts of the FOB, which is out there at the local level with the equipment, staff, and expertise to monitor stations' technical performance. Thus, in the Commission's view, it makes sense to rely on the FOB now more than has been the case in the recent past.

FCC authorization

Apparently, the Commission intends to rely on the FOB. In 1983, it even changed its rules to authorize the FOB local offices to issue their own notices of apparent liability of up to \$2000. This is a significant change in policy. Previously the FOB inspectors were authorized to inspect and monitor stations and, on the basis of their findings, to issue notices of conditions and/or notices of violations. When a licensee received a notice of violation from the FOB, the licensee was entitled to send the FOB a response explaining the cause of the violation and stating

what steps had been taken to prevent the recurrence of the problem. The FOB then reviewed the licensee's response and, if it was satisfied that no further action was necessary, the FOB would put the whole thing away in its files. If it was not happy with the response, the FOB would forward the inspection report, the notice of violation, the licensee's response, and its comments thereon to Washington, for the Mass Media Bureau's Enforcement Division to consider. The Mass Media people could then either forget the whole thing, ask for further comments, or issue a notice of apparent liability indicating that the licensee had to pay a fine. The licensee could then either pay the fine or send in a further explanation in the hope of convincing the Mass Media Bureau that no fine was actually in order.

Now, however, the FOB has authority to issue its own notices of apparent liability directly to the licensee, without having to go through the Mass Media Bureau. The result is that, following a station inspection (or monitoring of a station's performance with FOB equipment), the FOB *can* and *will* notify the licensee of a fine at the same time that it notifies the licensee of a violation. In other words, while under the old system you used to get a chance to explain an apparent violation *before* a fine was issued, now you can expect to get notice of a fine at the same time that you find out that the FOB thinks you violated the rules.

When you get one of the FOB's notices of apparent liability (i.e., a forfeiture notice), you will still have an opportunity to offer an explanation before you have to pay the fine. But the new system is further complicated (from the licensee's point of view) by the fact that the explanation will be addressed in the first instance to the FOB office issuing the notice. In other words, it used to be that the FOB merely made an initial determination that you appeared to be in violation of the rules. Now the FOB not only makes the initial determination relative to whether a violation has occurred, but it also determines whether a fine is appropriate. The amount of the fine is also left, in the first instance, to the FOB people, subject to certain guidelines established in cooperation with the Mass Media Bureau. As a result of the new system, the FOB is acting more like a traffic cop, authorized not only to flag down violators, but also to issue fines directly to them.

Practical problems

The new system may ultimately prove to be a more efficient means of assuring enforcement of the Commission's rules: With inspectors acting as traffic cops, licensees may operate with a greater sensitivity to the threat of monetary penalty in the event that their operations are not in accordance with the rules. Initially, though, the new system presents licensees with a couple of practical problems. First, in drafting a response to an FOB notice of

FCC RULES & REGULATIONS

apparent liability, the licensee has to realize that the response is being addressed to the office which has, in effect, already decided that the licensee is guilty. That obviously may make the exercise of drafting a response something of a futile effort. Moreover, that factor is likely to discourage licensees from challenging the claimed violations, since to do so would, in most instances, represent a challenge to the FOB's personnel and/or equipment, a challenge which many licensees might decline to make. Additionally, since the amount of the fine will already have been determined (at least initially) in the FOB's notice, the licensee will have to decide whether it would be cost-effective even to try to put together a response. Such a response should not, as a general rule, be submitted without at least running it by legal and/or engineering counsel. And, as we all know, even the apparently innocuous process of "running something by" a lawyer or consulting engineer can, and frequently does, turn out to be an expensive proposition. Thus, in addition to the fine itself, a licensee can incur significant costs just to pay the fine.

Two areas should be of interest to the normal licensee. First, what to do if your station is the subject of an inspection and, second, what to do if you do, in fact, receive a notice of apparent liability. If the FOB inspector does appear unannounced at your door one day, the first thing to remember is not to panic. Inspectors are entitled to inspect your facility, and you should accommodate them as much

as possible. Upon the inspector's arrival you may wish to alert your consulting engineer and, possibly, your communications counsel to the fact that an inspection is taking place. That way, if the inspector asks any questions to which you don't know the answer, you can (and should) consult with counsel. Also, you should bear in mind that FOB inspectors are, with limited exceptions, likely to be primarily interested in your technical operation. Thus, if your chief engineer is not at the station when the inspector drops by, you may wish to get him or her down to the station right away.

Inspectors will generally take a look at the station's technical equipment and records (including the operator licenses or permits for all members of your staff who control the transmitter). These should, of course, be made available to the inspectors with a minimum of fuss. Because of the likelihood that the inspection will focus on technical matters, you should be sure to have someone on hand—even if your chief engineer can't be there—who knows about the technical aspects of your operation and who can answer questions about it. Except in a few rare instances, the only nontechnical area of interest to inspectors is likely to be the station's local public records file. You should be able to obtain from your communications counsel a listing of the documents which should be in the file. One helpful hint: *all* licensees are required to have a copy of a relatively obscure document entitled *The Public and Broadcasting—A Procedure Manual* in their

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local public files. Because this is required to be in each and every station's local public file, it is something which inspectors know to look for during each inspection. Thus, you should be sure to have a copy of that document on hand and available in the file. Again, your communications counsel should be able to obtain a copy of this for you if you don't already have one.

Discuss the inspection

Once the inspector is gone, you should discuss the inspection with any staff members who participated in it in order to get a sense of any problems which the inspector might have uncovered. Usually inspectors will be pretty forthright in telling licensees about deficiencies they notice. Next, you should discuss any and all such problems with the station's chief engineer, its consulting engineer and, if appropriate, your communications counsel. As a general rule all problems noted by the inspector should be addressed and, to the extent possible, remedial action should be undertaken right away. There is no sense in waiting to see whether a notice of violation will be issued before getting the problem under control. It is also important to take note of any difficulties you might have encountered in trying to respond to the inspector's questions—such difficulties might indicate a need for additional internal record-keeping or for increased attention by management to the problem areas. Even if an inspection does not result in any fine or forfeiture, it can be a useful educational experience to point up areas of the station's operation which could use extra attention.

Finally, if you do receive a notice of apparent liability, you should treat it seriously and respond to it in a timely and completely accurate manner. Timeliness is important because further fines can be meted out for failure to respond to such a notice. In this regard, however, you should be aware that FOB offices are usually willing to grant extensions of time in which to prepare responses; you should not feel shy about asking for an extension, although any such request should be made before the deadline has come and gone.

The accuracy of your response is important because, in responding to the notice, you will be making representations to the Commission just the same as if you were filing an application for renewal of your license. Notwithstanding the Commission's deregulatory posture, it still has an intense dislike for licensees who are anything but fully forthright and candid. As a result, you should be sure not to try to shade the truth in the hope of getting your fine reduced.

As the Commission in Washington succeeds, little by little, in removing itself from the broadcaster's day-to-day operations, it will almost certainly continue to increase its reliance on its FOB offices to assure that the technical regulations left on the books are enforced. At present the FOB has authority to issue fines of up to \$2000; the Commission itself has been given the authority to fine up to \$20,000. Despite this limit on its fining power, the FOB is likely to continue its enforcement effort, doling out fines as necessary to achieve compliance. With this in mind, it seems that now more than ever is the time to pay attention to the old adage about an ounce of prevention.

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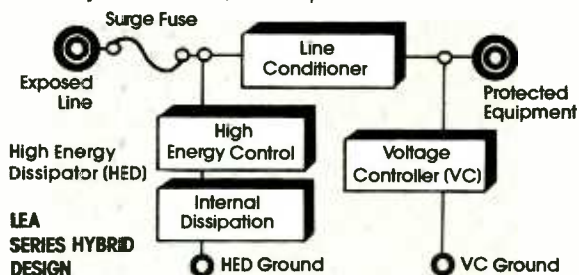


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broadcast EQUIPMENT

SSL Introduces 5000M Series



Solid State Logic's new "assignable" console series has been designed to serve the broadcast industry's multi-channel audio production needs. It provides a means of customizing while remaining standardized at all levels of operation: Each department may custom specify its console to suit the requirements of individual control rooms. Yet throughout the plant, all consoles share the same operational characteristics and maintenance routines.

The new series has been made possible by a new level of design at the basic component level. New hybrid chips replace the earlier "op-amp plus components" type of subassembly. This array of hybrids substantially reduces size, weight, complexity, and power consumption of the system's basic building blocks.

SSL has also developed a new generation of audio control desk architecture, which incorporates new materials, electronics, mechanical assemblies, and production techniques. All 5000M consoles are based on a flexible arrangement of audio, logic, and data buses. A system of modular motherboards is used

to distribute these buses throughout the console mainframe. An important aspect of this arrangement is that the audio and control buses are distributed both horizontally and vertically.

The mainframes can be visualized as having a number of "positions," which are the vertical channels running from the fader through to the penthouse. Each position is 40mm wide, and is divided into a number of "rows," which are the horizontal slots running across the mainframe.

Thirty-six standard mainframes are available. There are three basic mainframe models, providing either four, five, or six rows of horizontal buses. Each mainframe model is available in two styles, providing either eight or 16 master positions. All models and styles are available in frame sizes accepting up to 16, 24, 32, 40, 48, or 56 mono or stereo channels.

A console with 16 mono or eight stereo channels will cost about \$70,000. Delivery will start in July 1985.

**For More Information
Circle 243 on Reader Service Card**

Tandberg Introduces Reel-to-Reel Deck.

The new TD-50 Series of 1/4-inch, two-channel recorders represents Tandberg's entry into the professional reel-to-reel market.

The TD-50 Series features a unique transport design: All mechanical components are mounted directly on a 10mm-thick plate of aluminum alloy. This alloy is molded to extreme tolerance through a proprietary process, and thus has the ability to return to its original shape if ever deformed by stress or temperature.



The plate is perfectly flat, eliminating the need for a chassis, which can inhibit machine repair or adjustment. All transport mechanics and power electronics are mounted directly on the rear of the plate. Releasing two screws allows the transport to swing back for immediate access or removal of any part without having to disturb other assemblies.

The series utilizes an eight-bit microprocessor with 64K of EPROM memory that controls the five-digit, real-time (elapsed) counter and func-

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tions such as cue/rewind, variable wind speed, tape dumping, RTZ (return to zero), RTS (return to start), fader start, and so on. It also interfaces with optional SMPTE time code and frame sync capabilities.

**For More Information
Circle 244 on Reader Service Card**



Yamaha Introduces Digital Delay

The D1500 Digital Delay is a high-performance delay system with 16 programmable preset memories. The delay range, 0 to 1023 milliseconds, is selectable in one millisecond increments, with full 20Hz-18kHz frequency response and exceptionally low noise and distortion specifications. In addition to echo, other D1500 effects

include flanging, doubling, chorus, vibrato and slapback.

The D1500 has 16 memory banks (0-9, A-F), which can be programmed with different delay settings, with programs A through F preloaded at the factory. The 1500D is also the first MIDI compatible delay system. The programming of the unit allows each

synthesizer voice (up to 128 synthesizer presets) to automatically select one of the D1500 programs or bypass. This allows keyboardists to call up specific effects for specific synthesizer voices quickly onstage, without manually presetting the delay.

Ten pushbutton switches on the right side of the front panel assign the set-

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Circle 165 on Reader Service Card

BM/E DECEMBER, 1984

109

Pre-eminence

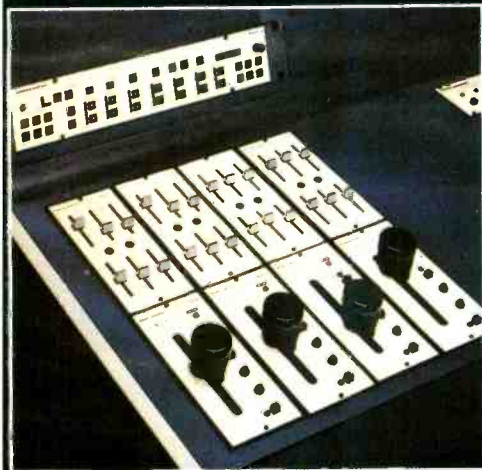
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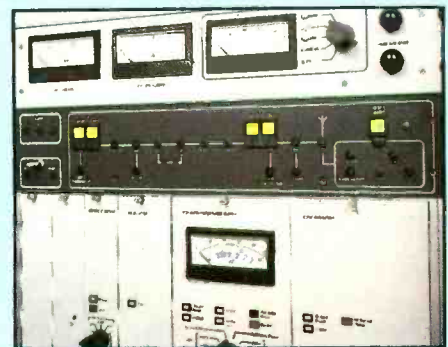
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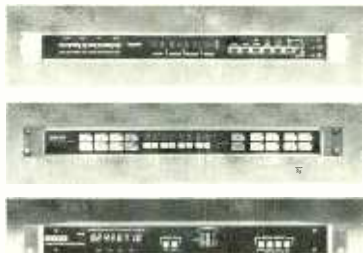
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EQUIPMENT

tings for each program. These switches are: time, feedback low-pass filter, feedback level, invert, mix, rate, wave, depth, and two switches to control the MIDI channel recall. The D1500 measures 19x1 $\frac{3}{4}$ x14 $\frac{3}{4}$ inches and weighs 11.5 pounds. The suggested retail price is \$895.

**For More Information
Circle 256 on Reader Service Card**

Neve Introduces DSP Console

The Digital Signal Processing console from Neve is a system that keeps analog circuitry and conversion to a minimum. All the fundamental aspects of recording—from gain control to equalization, to compression and limiting and even time delay—are performed in the digital domain. As a result, digital tape machines can be interfaced with the console without conversion, thus removing the problems of changing formats between analog and digital.



Once the signal from the microphone has been digitized, the sound can remain in the digital domain right up to the disc-cutting stage.

In the new Neve DSP, the digital signal is manipulated with techniques such as bit slice processing, to ensure that within the console the digital word length is always appropriate to the signal manipulations required. Thus, while the input signal may be 16-bit, the DSP is capable of utilizing up to 32-bit words internally. This makes the concept of overload a thing of the past.

The fact that all the audio signals are

in digital format makes it possible to completely integrate the control and configuration of the console with its signal processing capability. In the DSP, all the information, audio and control signals alike, are carried along together as numbers, allowing the processors in the DSP to pick up the appropriate signals and route them to their destinations. The result is a console which is fully assignable, completely integrated with mixdown automation, and easily reconfigured to almost any audio balancing requirement.

In a studio, the DSP can be customized for an individual engineer or for specific types of sessions. All the control settings can be saved on floppy disk and stored with the master tapes. All of these controls can then be reset to "zero" for the next session; the next morning, the engineer can insert his or her disk and watch the console return itself to the way it was previously.

For More Information

Circle 245 on Reader Service Card

New Amplifiers from Soundcraft

Soundcraft Electronics has introduced a new line of amplifiers. The line consists of three models: The SA2000 is rated at 435 watts RMS per channel



into eight ohms, and 3000 watts RMS per channel five ms. It is seven inches high. The SA600 is rated at 150 watts RMS per channel into eight ohms, and 700 watts RMS per channel five ms. It is 3.5 inches high. The SA150 is rated at 85 watts RMS per channel into eight ohms, and 450 watts RMS for five ms. It is 1 3/4 inches high.

The amplifiers eliminate the concept of TIM distortion from circuitry. They combine mosfet and bipolar design to allow the amplifiers to respond dynamically to a program as though they were much larger in average power. They also have very high current and voltage slew rates, and extremely low phase shift. All the amplifiers are fully protected and very compact for smaller than usual rack requirements.

The SA150 has a suggested retail price of \$749. The SA600 is \$949, and the SA2000 is \$1975.

For More Information

Circle 246 on Reader Service Card

Low Profile Microphone from Shure

The SM91 is a low-profile condenser mic designed for surface-mounted applications where a unidirectional pick-up pattern is desirable. Like the "pressure zone" mics in usage, the SM91 takes advantage of the boundary

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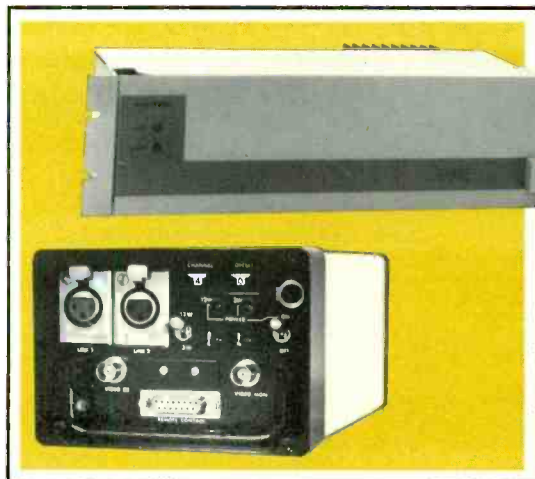
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effect principle. Because of this principle, an SM91 mic, when placed close to a barrier or boundary, will perform with as much as 6 dB higher sensitivity.

At the heart of the SM91 is a new Shure-developed cartridge that provides high output plus a wide, flat frequency response for accurate sound reproduction and excellent off-axis performance. The SM91 is also supplied with a small, low-distortion, high-clipping-level preamplifier which may be powered either by two standard nine-volt batteries or by an 11 to 52 Vdc simplex power supply. The preamp unit also includes a 12 dB/octave low-frequency cutoff switch for response tailoring, a battery ON/OFF switch, and a green LED battery condition indicator. Also included is a 25-foot, small-diameter, two-conductor, shielded interconnecting cable with two three-socket miniature Switchcraft connectors. The cost of the mic is \$300.

**For More Information
Circle 247 on Reader Service Card**

Studer Introduces DASH Two-Track, and New Features for PR99

The D820 is Studer's first DASH format two-channel digital audio recorder. It is a two- or three-head recorder that allows normal and sync recording, read-after-write monitoring in all modes, manual cueing from auxiliary tracks, tapecut and electronic editing, selectable preemphasis, adjustable gains, and digital and analog inputs and outputs.

The D820 records at 7.5 ips; it has sampling frequencies of 48 kHz and 44.1 kHz. Capstan and spooling motors are dc driven, and a stop motor controls tape position. The D820 is microprocessor-controlled, under the supervision of a master controller. Transport control is achieved by dedicated microprocessors for each basic function (spooling and tension control, capstan servo). Other processors are in charge of system management, PCM display and entry functions, and PCM pro-

cessor control.

Twelve symmetrical tracks are recorded on the 1/4-inch tape: eight for digital audio, one for time code, one for reference data, and two for digital cueing. Playing time is in excess of two hours on 10.5-inch reels, and more than four hours on 14-inch reels.

Studer has also enhanced the production capabilities of the PR99 open-reel recorder by adding several new features. This updated model, the PR99 MKII, incorporates an LED real-time tape counter and built-in vari-speed control, along with zero locate, address locate, and auto repeat functions.

The microprocessor-controlled real-time counter gives a plus or minus readout in hours, minutes, and seconds, with a display range from -9.59.59 to +29.59.59. Counter error is less than 0.5 percent, and the microprocessor automatically recomputes the displayed time when tape speed is changed.

The address locator function automatically searches the tape in fast wind



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Assistant or Associate Professor of *television* in a department providing an undergraduate major and considerable production responsibility. The Facility includes four studios, one having state-of-the-art production equipment. Responsibilities emphasize undergraduate instruction.

Application should include: Letter of intent, vita, and three letters of recommendation. By March 1, 1985 to:

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PS Form 3828, July 1984

(See instruction on reverse)



mode for a preselected address point, which may be entered from the keyboard or transferred from a tape counter reading. An address point can be entered while tape is in motion. The zero locate feature searches for the zero counter reading.

Other new features include expanded facilities for repro treble adjustment, a serial remote connector for accessing the microprocessor-controlled functions, and automatic braking adjustment for large or small tape reels. The suggested list price is \$2250.

For More Information
Circle 248 on Reader Service Card

Sony Introduces DASH Recorder

The PCM-3102 is Sony's new DASH format two-channel digital recorder. The PCM-3102 offers 16-bit linear quantization, and switchable 44.1 kHz and 48 kHz sampling frequency for a dynamic range of over 90 dB with frequency response within +0.5 dB and -1.0 dB from 20 to 20,000 Hz. The PCM has a familiar, easy-to-use open reel configuration, and a modular design that enables transportable, console and rack-mount configurations. The machine uses 1/4-inch tape and can accommodate 12.5-inch reels, allowing it to provide up to three consecutive hours of record and playback.

In addition to its two digital channels, the PCM-3102 provides two analog channels and one dedicated time code channel. The analog channels are time aligned with the digital audio to permit razor blade edits. Also provided are AES/EBU and PCM-1610 format digital outputs and serial and parallel

machine control parts, allowing the PCM-3102 to be compatible with the future studio control bus.

The machine also has a spooling function that protects tapes while in the fast forward or rewind mode, and a record-inhibit function that protects against accidentally erasing previous recordings. Both fast forward and rewind are disabled when reproducing on-air.

For More Information
Circle 249 on Reader Service Card

New Companders from ANT

ANT's new telcom c4 compander units 111, 112, 121, and 122 are designed to improve sound—especially in dynamic range and crosstalk attenuation—in videotape recorders, audio tape recorders, and transmission lines. The units can be used either as compressor (encoder) or expander (decoder).

The telcom c4 units are particularly suited to enhancing all applications where only encode or decode mode is used. This includes simultaneous recording and monitoring. One notable feature of these units is their small size. For up to three compressor or expander channels they only require one 19-inch rack space. Also, each unit can be switched on and off by remote control.

The change from decode mode can be done in the unit by means of a solder strap. Input and output lines are balanced with high-quality transformers (Model 121 and 122), or electronically balanced (Model 111 and 112). The connectors used are of the XLR type. Level calibrations according to

standards such as tape flux of 320 nWb/m with and 514 nWb/m without system at peaks are possible with the internal regulators. For special applications such as satellite transmission with a small disk, special units with a slope of 1:2.5 are available.

For More Information
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BUSINESS BRIEFS

In a major industry purchase, **Telex Communications**, a subsidiary of The Telex Corporation, has acquired **Altec Corporation** for a price of \$12 million. The purchase is to be paid principally with cash and the assumption of certain specified liabilities. . . . **Comark Communications** has signed an equip-



Michael Eismont, senior graphics designer at Praxis Media's Palace Production Center, South Norwalk, CT, programs a commercial's script at a Thomson-CSF Vidifont Graphics V character generator.

ment manufacturing agreement with Modulation Sciences. Modulation Sciences will provide Comark and its clients with multichannel television sound equipment when a station converts to stereo.

WJLA, ABC's Washington affiliate, recently signed a subscription agreement with Conus Communications. The station will begin sharing satellite newsgathering with seven other major market TV stations located around the country. . . . **KTVB**, Boise, ID, has added the Quantanews QNEWS newsroom computer system to its operations.

Broadcast Electronics has shipped a 30 kW FM broadcast transmission system to WPLJ, the flagship FM station for ABC Radio, New York. . . . **WNCM**, Jacksonville, FL, has installed a Thomson-LGT EVHF 1000 W FM transmitter. The unit features a frequency synthesizer, built-in stereo generator, an integrated control demodulator, VSWR self-protected power amps, and two SCAs.

Beginning in May 1985, **Harris**

Corporation's Studio Division will start delivering Harris HDE Digital Video Effects Systems. . . . The U.S. Information Agency has commissioned **Shook Electronic Enterprises** to manufacture a radio van for Voice of America. The facility will cover events for overseas broadcast.

VCA Teletronics of New York will use both of its Montage Picture Processors to edit *Agony*, a six-part sitcom to be broadcast on CBS-TV in April 1985.

. . . **CompuSonic**s has announced the formation of a dealer sales network for its professional recording studio, broadcast, and post-production product lines. . . . **Aelen Electronics**, New York, has been commissioned by Tape-power, a division of Gannet Productions, to create and implement a real-time computer control system for its graphics and animation production division. . . . Laurean Communications has introduced its **Customusic Broadcast Cartridge Recording Service**, which provides an entire library format of 1000 selections in an average of 10 days on factory-loaded cartridges.

Mitsubishi recently delivered its XE-1 Electronic Editing System for its digital ATR to Squires Productions of White Plains, NY. Squires will use the system for digital recording of classical music. . . . Religious programmer **The Old Time Gospel Hour** has installed an Otari DP80 high-speed duplicating package for duplicating and bin-loop master preparation. Also purchased from Otari was a DP1010 duping system, and a DP1610 quality-checking reproducer. . . . **Spectra Image**, Burbank, CA, has installed a Grass Valley Group Model 100 switcher upstream from its GVG 300 Series post-production switching system. . . . **Video Transitions** of Hollywood, CA, is offering half-inch Betacam for on-line editing. The company recently edited the summer music video countdown series *Hot*, and "The Marriage Contract," an opera by Rossini.

Via Video has announced the formation of nationwide seminars in computer graphics, which will include techniques of **Electronic Picture Processing**. . . . **MPCS Video Industries** has donated \$176,000 worth of video and motion picture equipment to the **Institute of New Cinema Artists**. INCA has trained and placed over 1000 minority men and women in the motion

picture, television, recording, and advertising industries.

Among the personnel changes this month: **Leasametric** has named Robert Owens as VP, marketing and sales, Instrument Rental Division. . . . At **Allied Film and Video**, James Merkle has been elected VP. . . . **Dolby** has promoted Tim Prouty to national product manager.

Microtime has named Robert McAll director of marketing. . . . At **Otari**, Steve Krampf has been promoted to general manager, marketing and sales. Phil Sun becomes manager, technical service group. . . . **Quanta** has appointed Arnold Taylor VP and general manager, Video Products Division. . . . At **Sony**, Philip DeSantis has been named national sales manager. . . . **Lexicon** has appointed Lance Korthals director of marketing and sales. . . . **3M** has named Ewald Lehmann marketing operations manager, professional markets.

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The Ultimate Choice!

This advanced custom Ward-Beck 40-input stereo TV production console, combining mono and stereo mixing facilities, is now operating at WFMY-TV in Greensboro, North Carolina.

When WFMY decided to move into stereo television production they asked leading manufacturers to submit designs and bids on this project. Ward-Beck's inclusion in this select group brought Harte-Hanks Communications the benefits of innovative and extensive engineering expertise employing sophisticated modules well-proven under the rigorous demands of the major networks.

The fact that this comprehensive package actually came in at the most acceptable price made the ultimate choice very easy.



First by Design.

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