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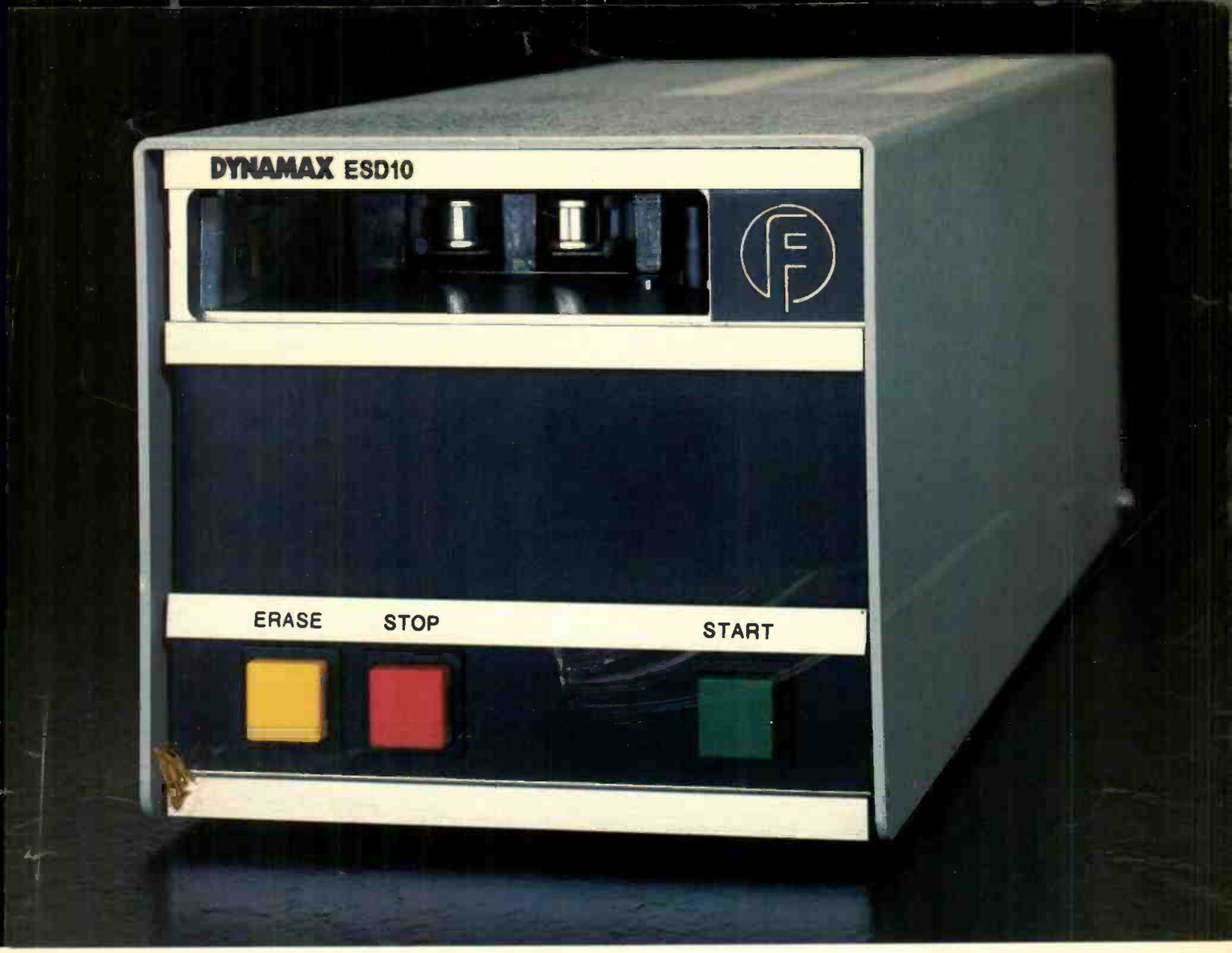

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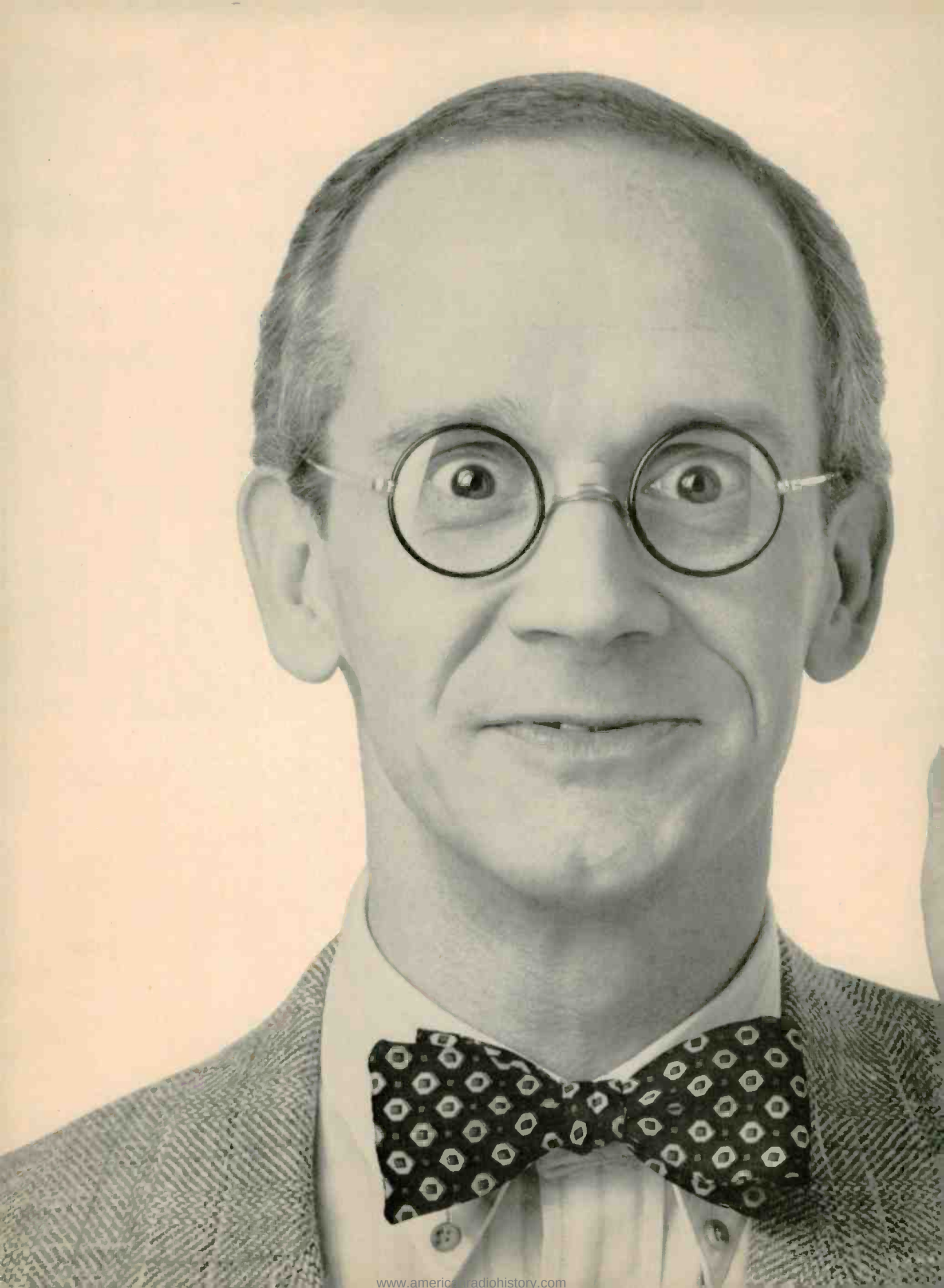

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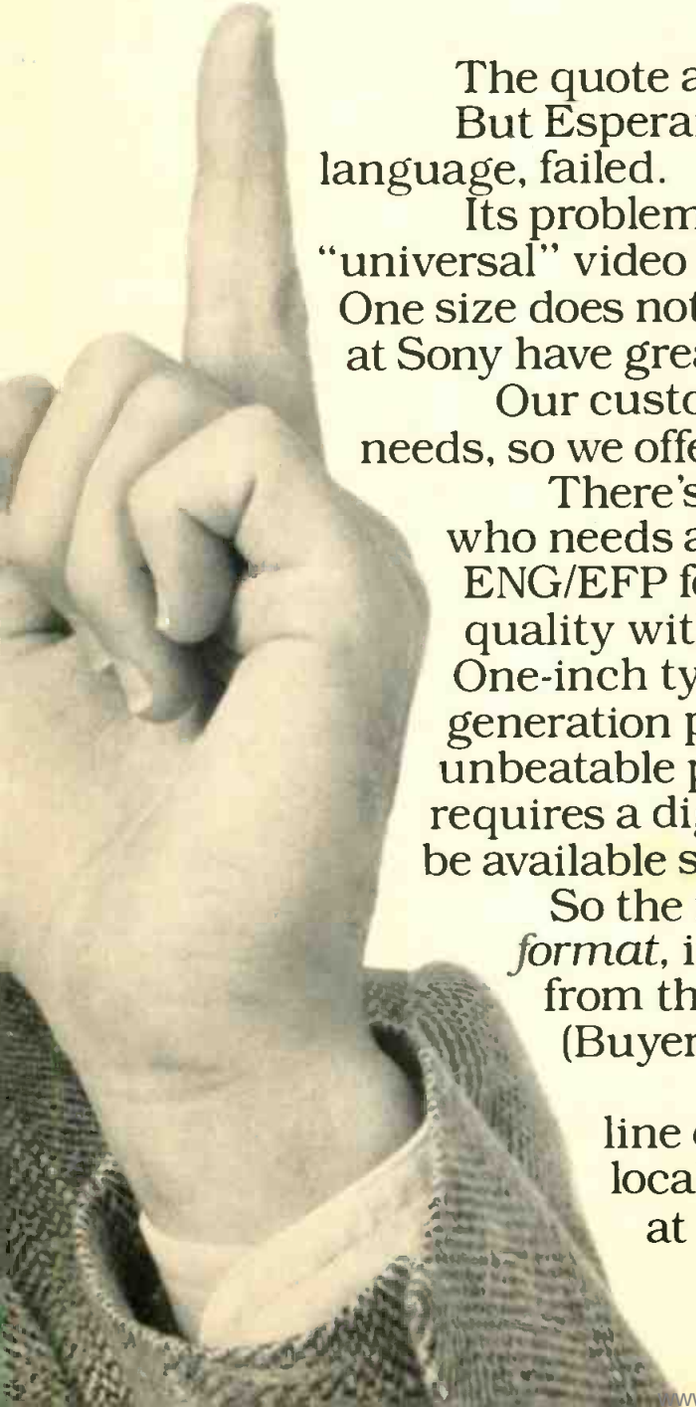

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295 Madison Ave., New York, N.Y. 10017
(212) 685-5320, Telex: 64-4001
Also publishers of:
BM/E's **World Broadcast News**
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BM/E BROADCAST MANAGEMENT ENGINEERING (ISSN 0005-3201) is published monthly by Broadband Information Services Inc. BM/E is circulated without charge to those responsible for station operation and for specifying and authorizing the purchase of equipment used in broadcast facilities in the U.S. and Canada. These facilities include AM, FM and TV broadcast stations, CATV systems, ETV stations, networks and studios, audio and video recording studios, telecine facilities, consultants, etc. Subscription prices to others $24.00 one year, $36.00 two years. Foreign $36.00 one year, $60.00 two years. Air Mail rates on request. Copyright 1986 by Broadband Information Services, Inc. New York City. Second class postage paid New York, N.Y. and additional mailing offices.
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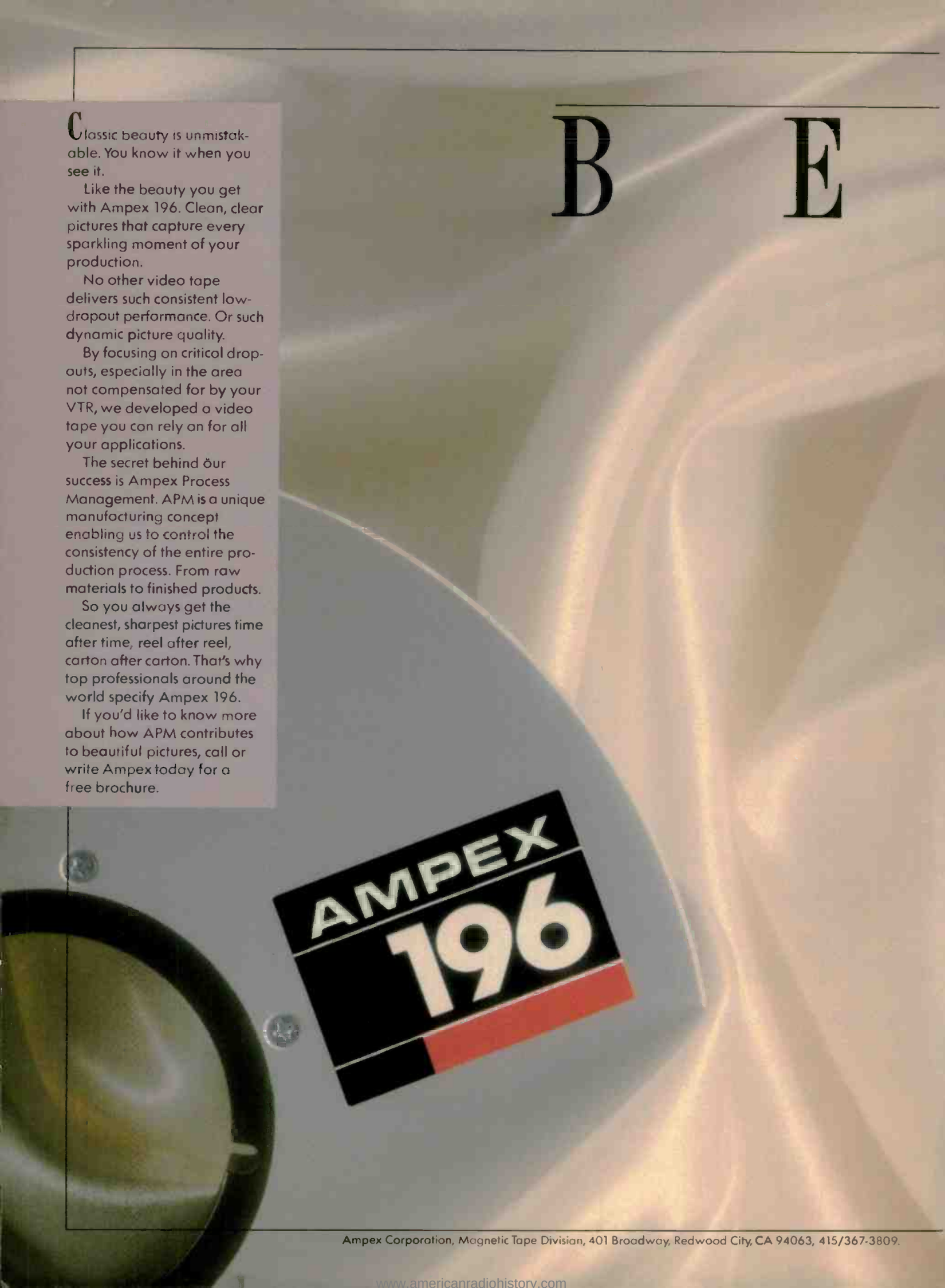

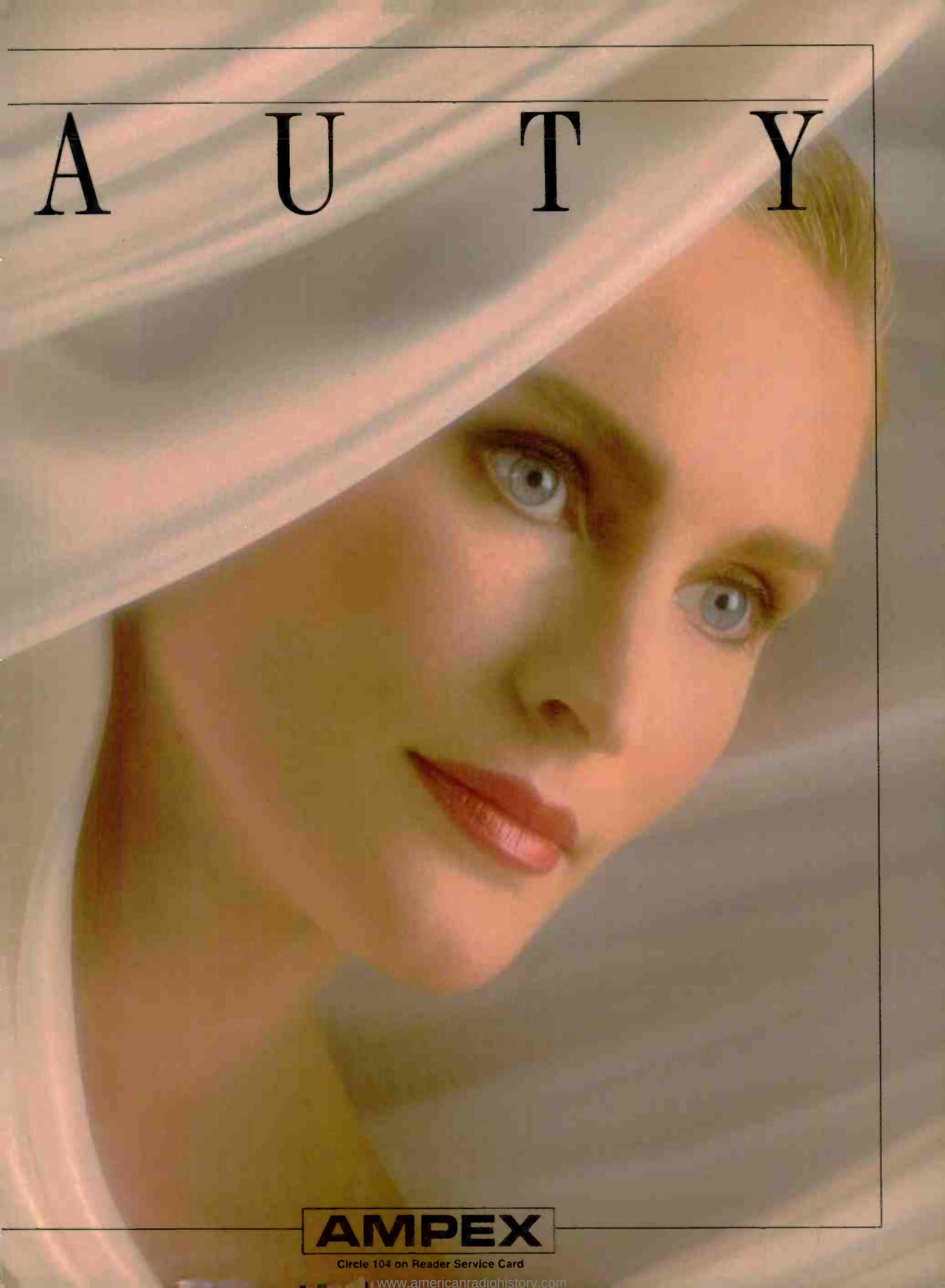

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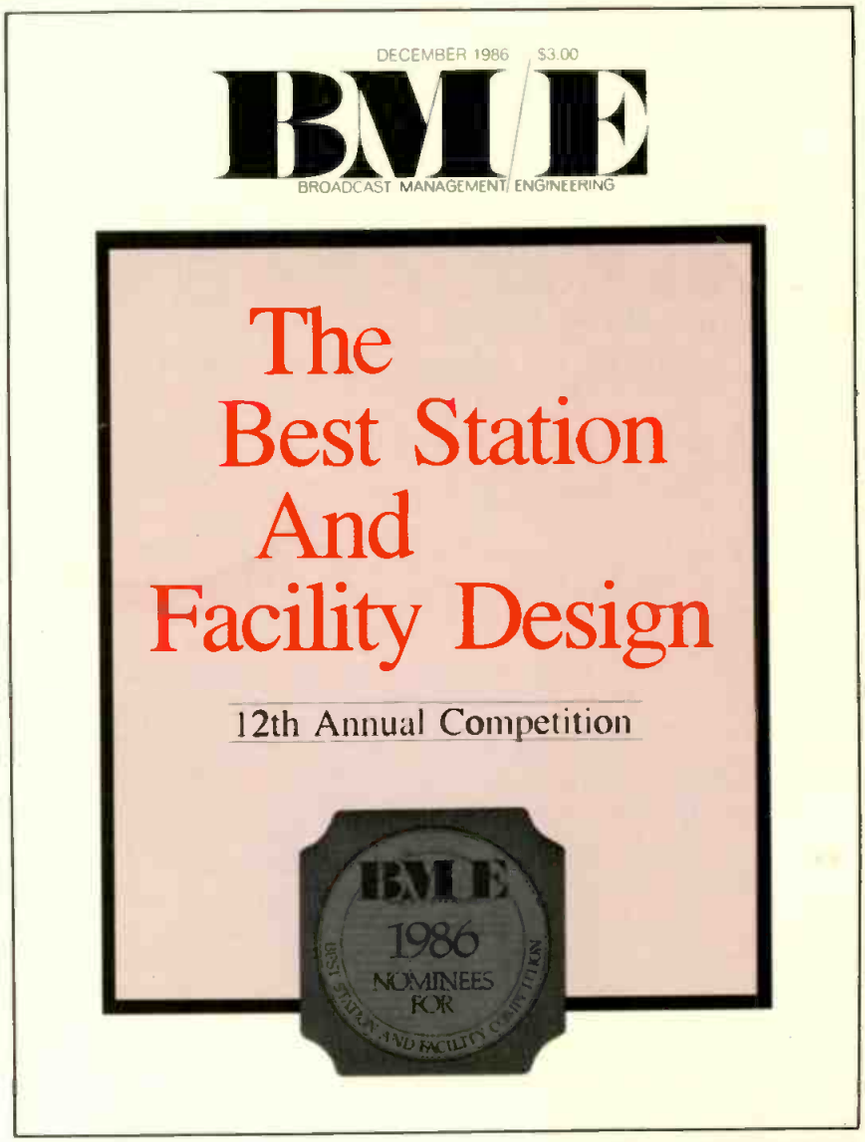

DECEMBER 1986 VOLUME 22/NUMBER 12

Best Station & Facility Design

Departments

Mis-Carry Compromise

"The cable industry is a monopolist that controls a bottleneck facility because the government says the most likely competitor, the phone company, cannot compete with it."

It didn't take long for conflicts to develop out of the recent must-carry compromise. With the recent channel repositioning of local stations taking place on an increasing number of cable systems, INTV is crying "foul." The NAB has yet to state its official position on the matter.

For my part, I believe the INTV and its president, Preston Padden, have made a good call. We might consult the networks for an instant replay, except that it would probably be declared inconclusive. At any rate, cable wasted no time in taking advantage of the must-carry compromise. No sooner was the ink on the agreement dry than cable systems began to shuffle station frequency locations with nothing more than profit in mind. Profit, of course, is a good motive when everyone is playing in the same game, by the same rules. When one party has an unfair advantage, say a monopoly, then the proselyte stance of "let the marketplace decide" becomes gibberish.

"The cable industry is a monopolist that controls a bottleneck facility because the government says the most likely competitor, the phone company, cannot compete with it, and that it can take any broadcast signal it wants in order to get its own system into the viewer's home," asserts Padden in describing what is happening under the surface of cable's recent moves. He further explains that "it offends public policy because the cable operator decides what the public gets based on his own equity interests rather than on popularity of the program or on public service."

This does not even address the critical factor of many people having invested in a station preparing to promote it based on its channel number as an obvious tag of identification. Nor does it concern itself with the confusion this will cause in ratings analysis. What makes all of this so deceptively difficult to unravel is that cable is now hiding behind the letter of the agreement while violating the spirit of the compromise.

The compromise states that all stations a cable system is required to carry must be carrried on the lowest priced, separately available tier of service. For most typical cable systems, this is the standard 12 VHF channels located on the lower frequency not requiring a decoder box from the cable company. Since this was not specifically spelled out in the agreement, cable is not bound to it, and the local and independent stations suffer. In fact, many affiliates may begin to feel the effects of this bad judgement call.

Padden says INTV will take the fight to the FCC in an attempt to stop the practice. I hope the FCC listens carefully and bases its own position on the true spirit of competition and not on a so-called "marketplace" decision providing a home field advantage to a monopoly. We support Padden's position and will end with one of his quotes, hoping it washes over the playing field of the FCC: "Cable has achieved every businessman's dream in developing an unregulated monopoly at the expense of all others."

Tim Wetmore

Tim Wetmore
Editor

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NRSC Standard Finds Favor

It looks as if the voluntary preemphasis standard recently adopted by the NRSC will become the standard for AM transmission once it becomes effective in January. Many of the major radio group owners are supportive of the standard, and, to date, there have been no unfavorable comments filed with the NAB.

The standard calls for 75 μsec of preemphasis and complementary deemphasis in AM radio receivers. It also recommends at 10 kHz a roll-off of a station's signal, instead of the 15 kHz allowed under current occupied bandwidth rules. The 10 kHz stopband is necessitated by second adjacent channel interference, which was found by the NRSC subgroup to be a much greater problem than originally thought. With narrowband AM radios, the problem could not be heard, but on wideband AM receivers, second adjacent channel interference could be detected.

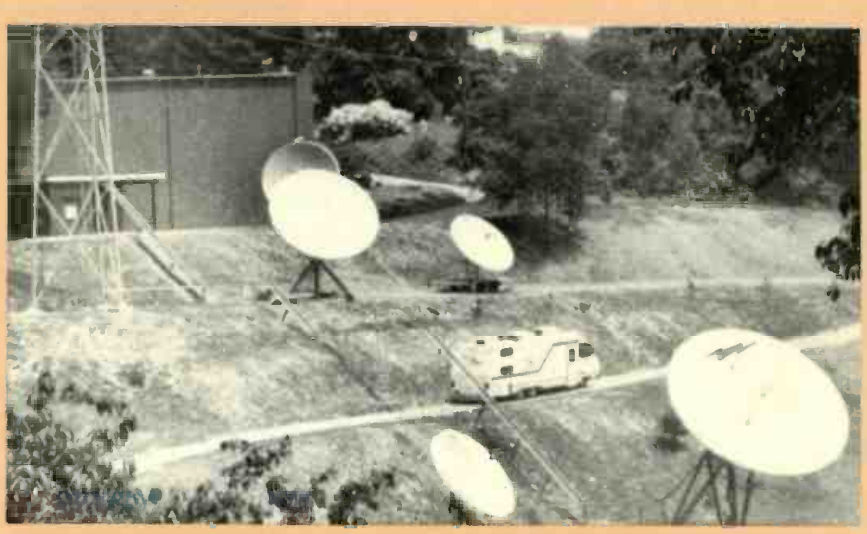
The 10 kHz stopband is the most controversial part of the standard, but broadcasters seem to be accepting this recommendation.

Glynn Walden, director of engineering for Group W Stations, said "It's a bitter pill for broadcasters to swallow, but you can't dispute the benefits." He added that with narrowband AMs that currently exist, "Who's hearing anything above 5 kHz now?"

Walden says that Philadelphia's KYW is operating with the 75 μsec preemphasis, and that the group's six other AM stations are expected to implement that part of the standard by the end of the year. He said the stations will add the 10 kHz filter as soon as it is available from processing manufacturers.

John Marino, who is in charge of engineering for New City Communications, says the group's four AMs will implement both the 75 μsec and the 10 kHz cutoff. Marino was one of the NRSC subgroup's co-chairmen, and he said the AM stations voiced "no reluctance" concerning the 10 kHz cutoff.

"Our stations realized the benefits of it to the future of AM, and they were able to convey this to the programming people as well," Marino said.



Pittsburgh, PA, is getting its first full-service fixed-location teleport. A new company, Armstrong International Teleports, Inc., began operation of the 3-acre facility, located near Logan's Ferry, in November. According to company president Dale R. Caperell, Pittsburgh-area TV stations "now have an economic alternative to AT&T for transmitting news and sporting events."

Cap Cities/ABC, with 10 AM stations in all, also supports the voluntary standard, although Al Resnick, director of engineering, explains that it's up to each of the stations to decide for itself.

"The posture of the company is to support the standard," Resnick said, "Cap Cities/ABC stations will comply on a voluntary basis."

Resnick says that support does extend to the 10 kHz cutoff point. He says that while the company's position is that stations without second channel adjacency problems in the 2 mV/m contour should be allowed the full 15 kHz bandwidth, in reality it's difficult to get that much bandwidth, and that the difference between the 12.5 kHz where most stations now rolloff and the 10 kHz where the standard recommends rolling off is not that discernible to listeners.

Ken Brown, another Cap Cities/ABC engineer who is also an NRSC member, is concerned about the 10 kHz cutoff for stations that do not have second adjacent channel problems. He points out that there may come a time when there are high-end high-fidelity AM receivers available, perhaps with switchable bandwidths. He doesn't want to see AM broadcasters close off the possiblity of broadcasting out to 15 kHz in the future. But Brown concedes that most AM stations will have second adjacency intereference problems and will probably find it in their best interests to roll off at 10 kHz.

Paul Donahue, VP of engineering for Gannett Radio says that the seven Gannett AMs "are close to the 75 μsec now," and that they will have "no problem" implementing the 10 kHz stopband once the filters are available.

"We need this step in order to get AM receivers that are competitve with FM radios," Donahue said. "Even with the 10 kHz cutoff, AM can sound as competitive as FM."

Now that the NRSC has adopted the preemphasis standard, the subgroup's work is far from finished. The group still must make recommendations on the design of the 10 kHz filter. They were considering a figure of 30 dB down at 10.5 kHz, which seemed likely to find favor. Then it would be left up to the individual processing manufacturers to design the actual curve of the rolloff.

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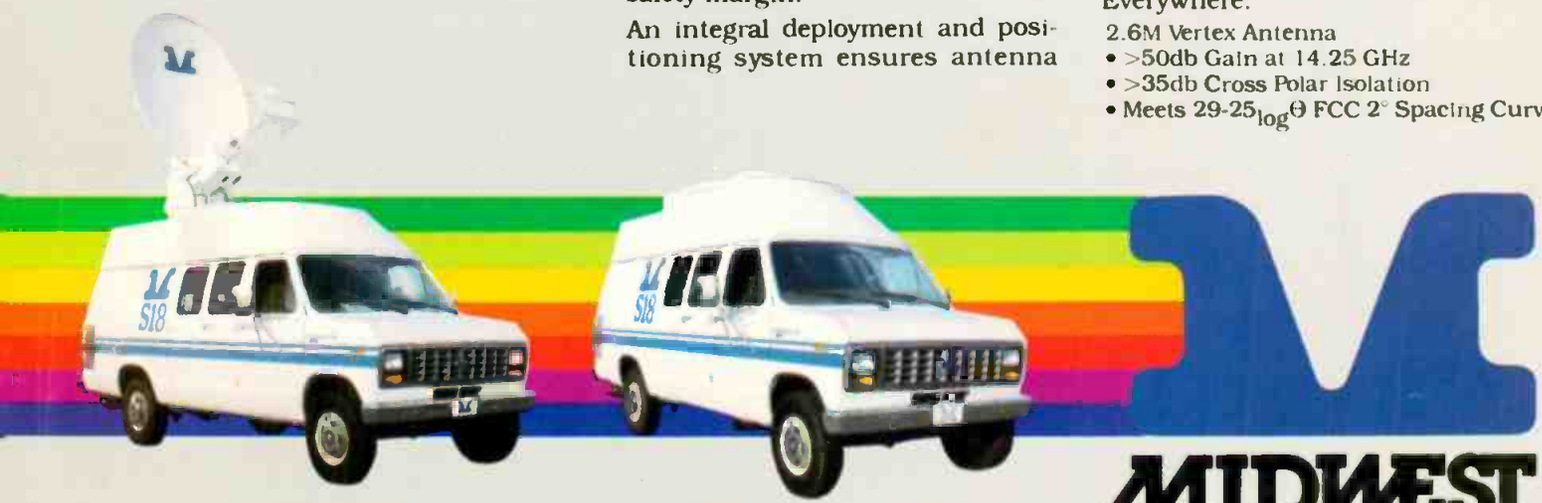

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broadcasting plague FM?

The NAB wants to make sure this doesn't happen, so they have decided to form an FM transmission subcommittee modeled after the NRSC subgroup, which has done so much to foster the cause of AM technical improvement.

The subcommittee will be responsible for bringing FMX to fruition and will tackle such issues as power increases and their potential for increased interference; multipath problems; and standardization for installation and proofs of FM antennas, among other issues.

The subcommittee will consist of FM broadcasters and perhaps receiver manufacturers, and the NAB's Science and Technology Department hopes the group will "prevent the AMization of FM."

ABC Builds Uplink

As part of a growing trend toward do-it-yourself [illegible] network uplinking, ABC is in the [illegible] the second of the [illegible] total dependence [illegible] riers and beam its [illegible] gramming to affiliat[illegible] its own master earth [illegible]

ABC's just-complete[illegible] located atop the netwo[illegible] Broadcast Center in Ne[illegible] City, began distributing pr[illegible] ming to its Eastern, Central [illegible] Mountain zone affiliates late [illegible] year. The network's Pacific zo[illegible] has been fed by their West Coas[illegible] uplink for three years.

ABC's uplink—on Manhattan's upper west side—sports two 9.1-meter Andrew Corporation antennas, with the network accesing five transponders on Telstar 301 and two on Telstar 302. The facility transmits to over 200 affiliates and receives sports and news backhaul. Andrew has also supplied hardware for each affiliate earth station, enabling them to communicate with ABC network control via satellite subcarriers.

The project was the brainchild of Tony Uyttendaele, ABC's director of allocations and RF systems. Numerous difficulties had to be overcome in constructing the C-band uplink, chief among them being New York's heavy RF interference problem. Several common carriers whose signals pass through ABC's neighborhood expressed doubt that the plan would ever work. Despite this, ABC and Comsearch conducted exhaustive frequency coordination studies, with the network designing the uplink to eliminate RF interference.

Interference problems were solved by enclosing the antennas in a partitioned steel shielding box measuring 100 by 60 by 37 feet. Absorbent foam by Emerson & Cuming within the box is optimized for maximum absorption at 4 and 6 GHz, "and it's good for a minimum of 25 dB down in reflection," comments ABC's senior RF engineer Michael Chiarulli. Side-lobe patterns of the Andrew dishes also reduce TI.

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effects. ABC provided the public with ample information on the plan's safety.

"The uplink is more economical and affords us better control," observes Chiarulli. "The network is hard-wired to it, and we've eliminated our microwave hops." ABC's satellite transmission was previously handled principally by AT&T's Coram, NY, facility.

The network also oversees Absat, a Ku-band affiliate-news exchange. Absat's antenna is on a neighboring ABC building.

Two years ago, NBC became the first network to undertake its own nationwide program distribution by satellite. NBC feeds its affiliates from its Skypath master earth stations in New York and Burbank, CA.

Satellite over Fiber

AT&T Bell Laboratories researchers have demonstrated the first system to transmit a communications satellite's full microwave bandwidth through optical fiber. It was done at a long distance and without reamplification.

A full 500 MHz bandwidth of a C-band satellite transmission was sent through 20 kilometers of fiber, and AT&T reported only minimal degradation of the signal.

The results of the research makes it possible for satellite users to build earth stations in a more convenient location. Up until now, users had to use coaxial cable to send signals to and from their earth station. Severe power losses with this method force them to locate their satellite dishes near terminal equipment. Now such a restriction won't be necessary.

The transmission was made possible with the advent of high-speed lasers and photodetectors, which can handle a satellite's mid- to high-frequency transmission rates. The researchers used an experimental 1.3-micron high-speed constricted-mesa laser and an avalanche photodiode detector, both created at Bell Labs.

The demonstration was for C-band transmission, but it can also be used for Ku-band as well as terrestrial microwaves. The experimental system is being installed at Bell Labs' Holmdel facility for further research.

Extended Satellite Life

Comsat is ready to extend the life of its Comstar communications satellites through a maneuver that helps a satellite use less fuel.

Generally satellites have a seven-year life and use some 37 pounds of fuel per year. A good portion of that fuel consumption is used up trying to prevent the normal north/south drift that plagues most satellites.

The Comsat maneuver changes the angle of the satellite slightly so that its antenna pattern is stationary on the ground. This way, even though some drifting occurs, the ground antennas are able to maintain constant contact. The result is that the satellite now needs only three pounds of fuel per year.

The fuel savings helps make satellites more competitive with

other transmission media, such as fiberoptics. It also allows users either to extend the life of the satellite or build in other technological benefits in place of the fuel.

Moves on AM Stereo

There's some good news for AM stereo in the form of a study done recently by *Newsweek* magazine. When those considering the purchase of a new car were asked about their audio preferences, a whopping 54 percent said they would prefer a radio with both AM stereo and FM stereo. That number was higher than both the 41 percent who said they would opt for a cassette tape player and the 23 percent that said they would want a CD player in their car. What the study shows is that there is some consumer awareness of AM stereo, and that there is definitely a market need for it. It would seem that even if listeners don't know all the technical ins and outs of AM stereo, they generally prefer stereo over mono audio.

Meanwhile, the FCC has not yet acted on the Texar filing asking the FCC to reconsider its rulemaking on an AM stereo standard. But another filing before the Commission aims to solve the standards battle with a compromise.

WJLK-AM, Asbury Park, NJ, has filed a petition for rulemaking asking the FCC to require manufacturers of AM stereo receivers to include automatic switching between the two AM stereo standards.

Currently, several dozen receiver manufacturers are making C-Quam only radios, with a handful making multisystem radios that receive both C-Quam and the Kahn system. The situation worsened recently when Sony discontinued two of its previous AM stereo multisystem radios. Pioneer also discontinued a C-Quam radio it had marketed.

WJLK staff counsel Perry Simon says the station wants to see AM stereo succeed; wants to see more manufactuers market AM stereo radios.

"We feel this is the way to do it," Simon said.

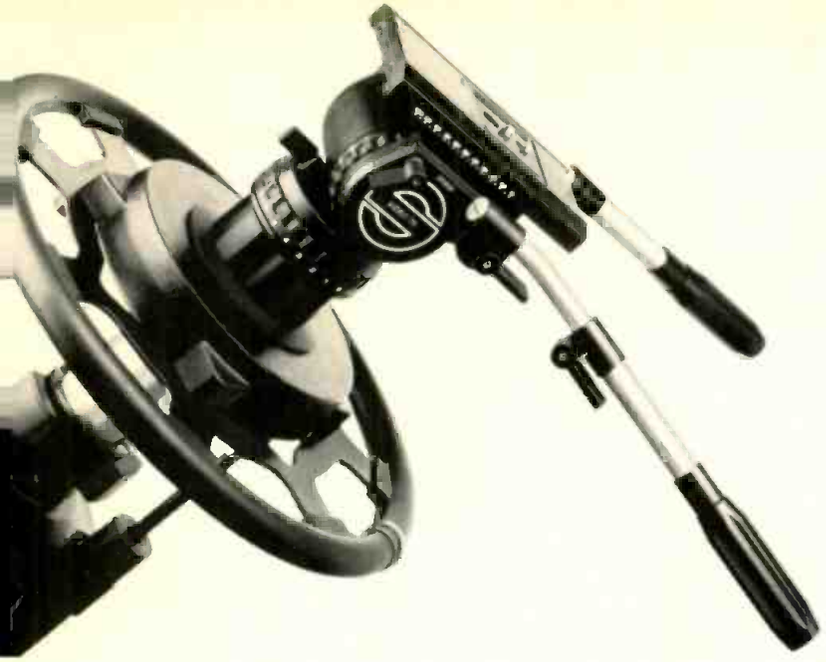
He explained that if the Commission were to require automatic switching, the manufacturers and broadcasters would no longer be forced into the wait-and-see posture that has prevented the growth of AM stereo stations.

Simon said the station believes this approach is preferable to reopening the long and tedious standards selection process, which took five years the first time around and yielded the so-called "marketplace" decision.

He also said the automatic switching would avoid the disenfranchisement of either of the two systems, and would most likely result in greater availability of multisystem chips at a lower cost.

Sanyo recently committed itself to full-scale marketing of multisystem chips.

In spite of the continuing stale-



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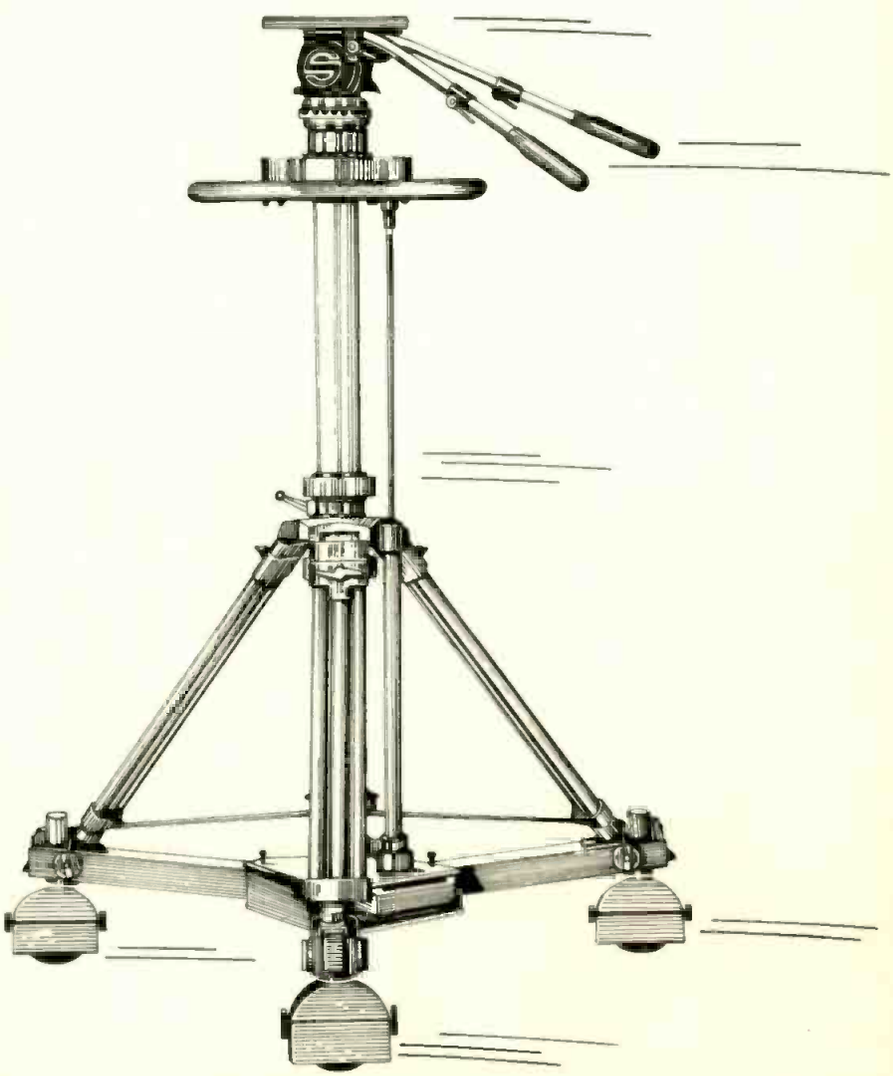

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Circle 114 on Reader Service Card

mate, Motorola's C-Quam system got two recent endorsements. In October, the Canadian Association of Broadcasters issued a recommendation and resolution to the Canadian Department of Communications to choose C-Quam as the AM stereo standard. The DOC is expected to act on the recommendation early next year.

And Group W AMs have begun their conversion to C-Quam AM stereo. Director of Engineering Glynn Walden reports that the money has been made available from the parent company, and that all seven Group W AMs are expected to be operating in stereo by December 31. The stations include several all-news or talk formats such as WINS-AM in New York and WBZ in Boston. Walden said that stereo would be used in commercials and perhaps for sports. He joked that the pan pot might be used to pan a political figure left or right, depending on his conservative or liberal orientation.

New Tech Growth Slow

After the initial swell of enthusiasm, it seems that two new technologies, one for TV and one for radio, are gaining acceptance at a much slower pace than originally anticipated.

Reports from manufacturers and broadcasters indicate that the growth of stereo TV, while still on the rise, is in more of a "plateau" stage, with conversions happening more slowly than the first two years since FCC protection of the BTSC system. *TV Digest* reports some 337 stations equipped for stereo, slightly more than a quarter of all TV stations in this country. That makes stereo reception accessible to about 90 percent of U.S. homes.

It's also slow going for FM SCA useage. According to Waters Information Services, the Binghamton, NY, firm that monitors such activity, the market for FM subcarriers in the top U.S. markets has grown only four percent from September 1985 to September 1986.

The most dramatic increase was apparently for voice applications, but data transmission remained the leading use of SCAs. It's also interesting to note that while the number of overall subcarriers in use was up only four percent, the number of FM stations transmitting two or more SCAs nearly tripled from 25 to 72. That seems to indicate that SCA growth involves fewer stations, with the increase coming from stations that were already making use of the SCA.

Correction:

An unfortunate error slipped by in *BM/E*'s October feature: *RF Lighting: Threat To AM*, p. 83. The explanation of TV signals should have stated that TV audio is FM (frequency modulated), although the picture is AM (amplitude modulated). We regret the error, and appreciate all who were quick to bring it to our attention.

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What we wanted.

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Pound for pound, Sony videotape is the toughest you can buy.

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How we got it.

Sony V1-K one-inch videotape was built to be uniquely durable, from the base film up. We developed a truly tough cross-linked binder system and coupled it with the strongest adhesive base film available.

This durable foundation protects an ultra-fine Vivax™ magnetic particle formulation, which delivers astonishing picture quality, higher stability and optimum S/N ratio.

The finishing touch is our carbon black anti-static back coating, which dramatically minimizes dropouts.

What you gained.

Amazingly enough, despite being so durable, V1-K has the lowest headwear rate of any major one-inch tape you can buy.

It also has smoother runability and better winding properties. And, oh yes, it delivers an extraordinary picture, too.

What else got better.

Our efforts to provide you with the most durable videotape have also benefitted BCT Betacam® and BRK U-matic® videocassettes. They both provide you with trouble-free still frame editing, totally reliable repeated playback and worry-free long-term storage.

We made the cassette shells and components tough, too, through precision engineering to quality control standards as tough as our tape.

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The Pro CD Alliance

Philips and Studer have joined forces. Working together, Europe's technology "superpowers" are designing the CD systems of the future.

Studer and Philips have formed a joint venture company to develop new professional CD systems. Philips provides the venture with pioneering leadership in basic CD technology, while Studer contributes broad-based expertise in professional audio systems. And, as part of the overall agreement, Studer Revox America will represent Philips professional CD products in the USA.

So now, whether you choose a Philips or a Studer product, you will benefit from the high level of technical and service expertise provided by Studer Revox America and the network of Studer Revox professional products dealers.

If you're looking for a multi-player system with sophisticated production functions, the Philips LH 2000 has what you need—and likely a bit more. The system is modular and expandable. You can start with a basic one-player system, then plug in additional players and command modules. Naturally, the LHH 2000 is loaded with features: a three-speed search/cue wheel for precise cueing, balanced outputs, fader start, player status indication, and automatic sequential play from one player to the next. Sophisticated, yes, but also delightfully easy to use.

If you're looking for the best in a basic CD unit, look closely at the Studer A725. It's solidly built to take years of heavy use. Pro features include balanced and unbalanced outputs, precise cueing with multiple cue modes, BIG control buttons, fader start option, and a multi-mode display to show elapsed and remaining time for disc and track. Nearly every conceivable function is programmable (by track, time, or index) up to 19 steps. Finally, the sound of the A725 has won praise from audio critics and broadcasters worldwide.

For programming and production, the CD is likely to be your future source for music and SFX. And the source for CD products from the new Swiss-Dutch alliance is your Studer Revox dealer. For more information and dealer references, please call or write today.

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The Best Station & Facility Design

1986 NOMINEES

AM RADIO

FM RADIO

AM/FM RADIO

TELEVISION

TELEPRODUCTION

For 12 years, *BM/E* has been conducting its best station contest and, every year, reader involvement grows in proportion to the number of entries. This year, as in the past, there are more entries in most catgories than ever before, and virtually all the entries are on a level of professionalism in design concept and execution that is unmatched in the past.

Unfortunately, there isn't room to include every entry, so the editors have painstakingly selected three nominees for each category: AM Radio, FM Radio, AM/FM Radio, Television, and Teleproduction. We therefore wish to acknowledge the fine efforts made by those whose entries did not make it into the pages of *BM/E*. And, we encourage those and other readers to keep in mind that it is not too early to begin thinking about next year's competition.

The contest is designed to recognize both management and engineering excellence in regard to station design, including creativity of concept and refinement and execution of the concept. Naturally, facilities in larger markets with more resources will have more and better equipment and more elaborate designs, but the intelligent and inspired use of available resources is the most important criterion on which you, the reader, should judge the nominees.

It will, of course, be difficult to determine exactly what may or may not have been at the disposal of the design and implementation team. Especially upon first glance, the small things that make superior effort important for the smaller facilities may not come through while, upon closer scrutiny, the creative solutions to cramped budgets and small spaces may become evident.

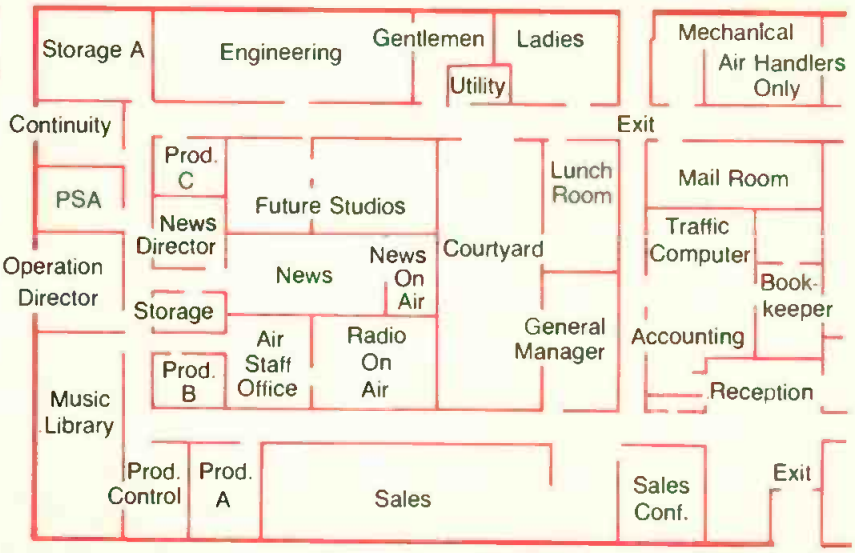
Nevertheless, it is important that you read the entries carefully (the people at these facilities have worked hard in preparing not only the station, but the contest submission as well), put yourself into the situation the people were facing when they made their decisions, and base your judgement at that time on those criteria. Remember, these are your fellows in the broadcast and production industry.

In order to vote: After carefully reading all entries, select your favorite station in each category, check it on the ballot card (page 49), and drop the card in the mail. Each winner will receive a beautiful award, to be presented by *BM/E* at the 1987 NAB show. We must receive the ballot no later than February 15, 1987, to consider your vote. Please be advised, however, to read the entries and vote while the information is still fresh in your mind.

KVOO-AM

Tulsa, OK
Metro Rank: 56

Submitted by Larry White, Chief Engineer



KVOO and its parent company, First Stuart Corp., moved into new studio facilities in November of 1985 despite the fact that construction work was still in progress.

The site is located adjacent to a six-lane expressway with a railroad running down the middle. This posed some concern for us about noise and vibrations. We decided not to go to the "room within a room" type of construction. With the building sitting on a bed of gravel, screenings and offices on the outside walls whenever possible would be the first line of defense. Sound sensitivity rooms have walls of four-inch block, one-and ¾- inch dead space, two panels of ⅝-inch gypsum board, and an inch of Armstrong's Soundsoak, which also gave us a very durable finished cloth wall. Coupled with all of this was state-of-the-art microphone technology, and it was felt that the noise and vibration would not be a problem.

One problem we did have was that of a competitor's traffic helicopter hovering over the open courtyard located in the center of our building. We had 20-foot letters reading "KVOO" painted there in the hopes that the traffic reporter would get excited enough during a traffic tie-up to use our building in the on-air description.

Inside, nearest the lobby, are the sales and accounting departments, since they generate the largest amount of visitors. Clients who will be present for the production of commercials can move right on to the main studio A without disrupting the operation.

Studio A handles the most production and music dubbing. The four-track production room and studio also serves as the location for special weekly programming such as our *Blue Grass*, *Rodeo News*, and *Square Dance* shows.

Our Auditronics 110 console was one of the major pieces of equipment moved from the old studio since we have found it to be nearly perfect for our operation and the production work we do for clients, public service groups and others. Other equipment in this studio includes ITC Series 99 cart machines, Teac reel- to-reel, Technics cassette machine, Otari 5050 four-track, MCI ¼-inch, Technics SP-15 turntables, and Electro-Voice 100 speakers.

Studios B and C are identical. B

Newsman Neal Kennedy is at the controls of KVOO-AM's on-air news studio.

12th Annual Competition
See Ballot on Page 49

is used primarily by the on-air staff, and C by continuity, sales, and as an overflow for the news department. All console programs are wired to the engineering area and could be used on the air. Studio B program is also fed to the main booth console to allow the longer public affairs shows and other programming blocks to utilize the room's reel-to-reel machines. Only one reel machine is required in the booth for telephone call-ins and the like. Studios B and C both have eight-channel Urei 1638 boards, ITC Series 99 cart machines, Russco turntables, and JBL 4313 speakers. In addition, Studio B has a two-track MCI reel-to-reel, and Studio C has a Studer PR 99 reel-to-reel.

The Music Library is located close to the production areas and also serves as an office for our production director. The room also houses the "KVOO Scrap Book," which contains clippings, photos, and articles about the station dating back to 1924 and is extremely popular with visitors.

The announce booth is buffered from the hallway by the air staff's office. This made more sense than to build a separate sound lock and has worked well. Unless visitors are to be interviewed on-air, this is the stopping place for viewing the announce booth. There wasn't enough wall space for "hang on the wall cart racks" in sufficient numbers, so standard-width units were used to form projections giving us more than enough capacity for the carted music library. Equipment in the announce booth includes a Logitek Perfectionist 12-channel console, four ITC Delta cart machines, Technics SP-10 turntables, and JBL speakers.

The current play list is loaded into two IGM Instacart units located in the air staff's office. The modified IGM controller gives us a one to 96 numbering system that the jocks find much easier than unit/slot numbers.

The news operation consists of four news edit stations and an assignment desk, the news director's office, and the on-air news studio.

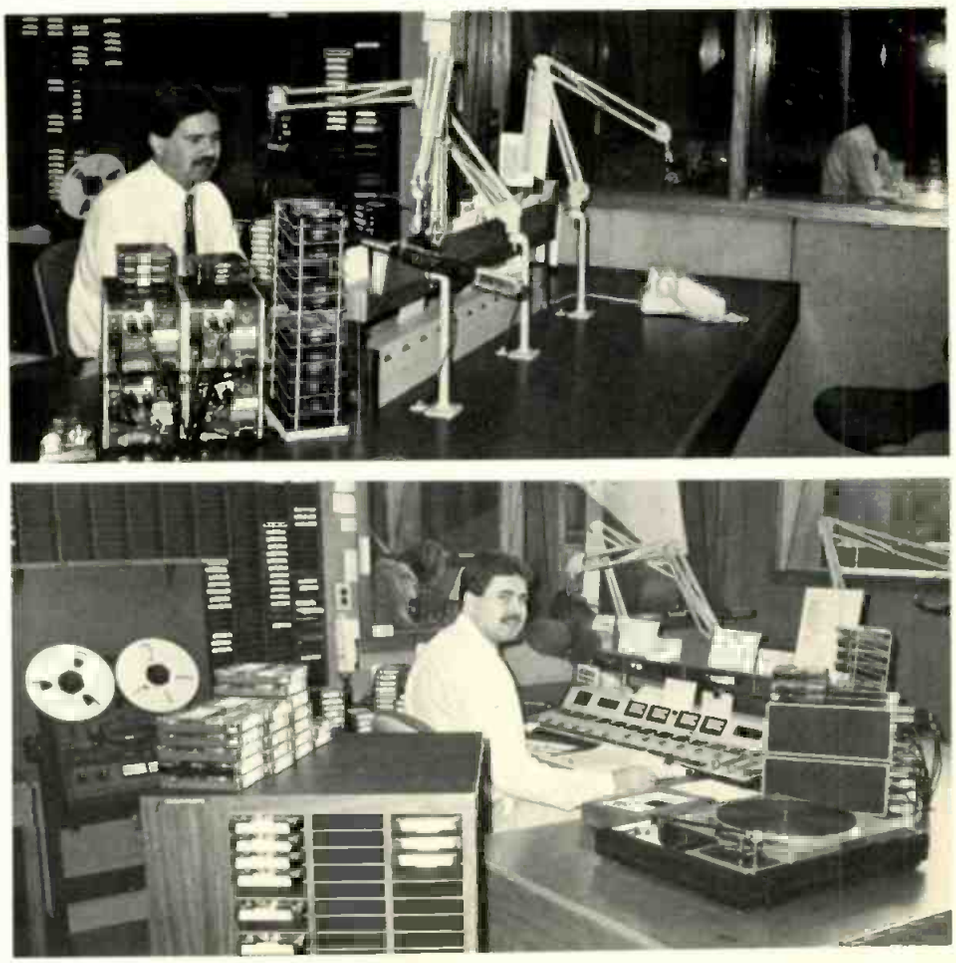
The radar monitor is on a lazy susan to allow the on-air talent to monitor conditions when no news person is present. The station's weather instruments are also located in the news booth to allow for a quick glance during weather reports. The news person has full control during the newscast since the announce booth cart machines are remoted to the news booth as well as the jock's console. This allows us to play stereo commercials in stereo during the newscast. The news booth also has a Urei 1683 console, JBL speakers, and ITC Delta cart machines. News production equipment consists of ITC Delta cart machines, a Symmetrix telephone interview setup, Sony TCM 5000 cassette decks, and two Ampro Mictortouch consoles.

As is the practice today, all of the 12 pair cable runs are direct to the ADC punch panel rack in engineering. All source and feeds are therefore routed to this one central point as the two-inch copper straps from each room. All sources entering the station are fed to the Logitek DAs for distribution.

The radio room in the civic center complex serves us for city, state, county, and federal government proceedings but is also a handy feed point for reports from other areas of town that require better quality than offered by the mobile two-way system.

We switched from the discrete STL system to a composite system last August using a Broadcast Electronics stereo generator, TFT 8300 STLK system, and a Belar FM modulation monitor to demod the composite.

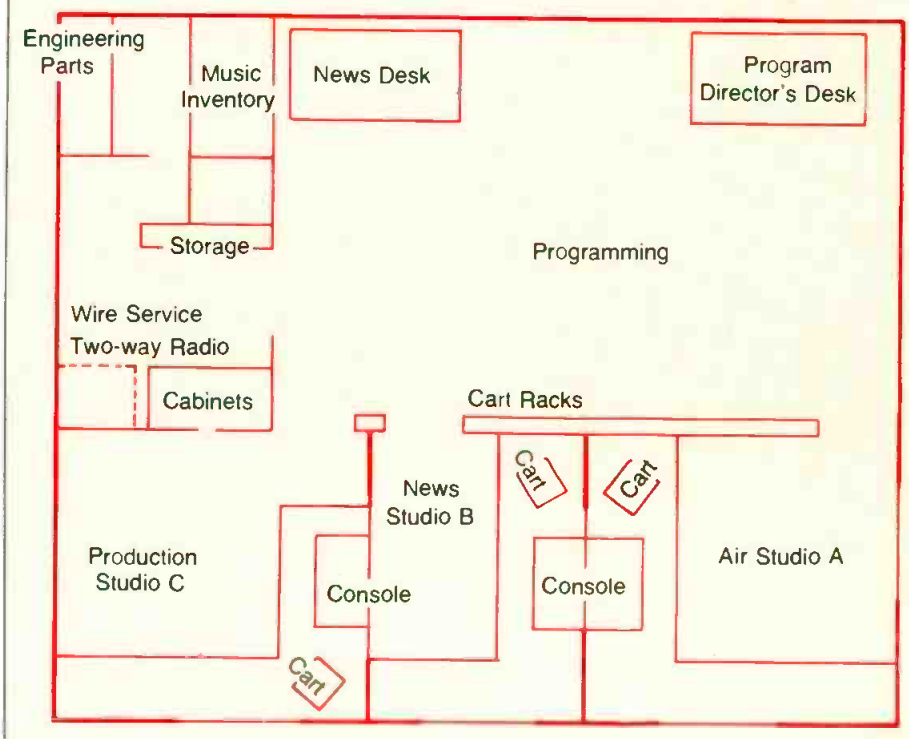
The Motorola C-Quam exciter drives our Harris MW-50 transmitter. Rebuilding of the transmitter site is now under consideration. The present transmitter building was constructed in 1938 and the Bald-Knox towers in 1948, and additions have been added to additions over the years to the point that a fresh start is the only feasible solution.



KVOO-AM music director Mike Wilson works the on-air booth with the news booth visible through the glass at rear.

KLLK-AM
Willits, CA
Metro Rank: Unranked

Submitted by Brian Henry, Owner



Nestled among the beautiful redwoods of Northern California, KLLK operates with two different directional patterns: 5400 watts daytime/2700 watts night. The station signed on the air a little more than a year ago, but the design was begun over two years prior to that time.

The early phase of the project involved the design of the directional antenna patterns. I was fortunate to work with Bob Smith of Hammet and Edison, Inc., to develop a design that would enable KLLK to meet its maximum potential. This was done before a single tower was installed. We use a three-tower "dog leg" array to create the asymmetrical patterns required for our protection ratios.

KLLK's transmitter facility is state-of-the art. The antenna phasor was also designed by Bob Smith and constructed by Audio-Lab Electronics in Sacramento, CA. Using a modified small tractor, we installed the ground system ourselves. Once we figured out what we were doing, we were able to plow 240 radials around each tower in a single day. The overall design has proven itself to be exceptionally wideband and have outstanding stability. In fact, our antenna system is so flat that there is no change in measured transmitter performance between the dummy load and the antenna system at any modulating frequency or depth of modulation.

Our main transmitter was one of the first Harris SX-5As. We still consider its performance exceptional. For audio processing, KLLK has one of the limited number of AM processors designed and built by Greg Oganowski of Gregg labs. It allows us to maintain a consistent sound without the use of additional signal processing. Our STL is an equalized telephone line with 3 dB points at 17 Hz and 20 Hz. It gives us over 20 dB of headroom above our operating level of +4 dBm and a noise floor of −70 dB.

A special aspect of the transmitter facility is our "auto-switcher." It operates in parallel with our Moseley PBR-30 remote control system to control pattern changes and will automatically switch the auxiliary transmitter on if the main one fails.

The actual construction of the studios was done in a very cost-effective manner. Sound isolation was obtained by using double-wall, staggered-stud construction. Over an inch of sheetrock on each wall and double windows provide the isolation between each studio. We used wall carpeting to serve a dual purpose. It "deadens" each room and also enhances the decor.

The beauty of KLLK's studio area lies in its simplicity. We have three studios that are functionally identical. We also have a noticeable lack of "new" equipment. To launch the station, I purchased used equipment that was originally well designed and reliable.

KLLK-AM's production studio looks through a glass booth into the news studio and beyond that to the on-air studio

Then I completely reconditioned it both physically and electrically to the manufacturers specifications. Although 95 percent of our equipment is over five years old, all of it works. There is also a great deal of interchangeability.

The ITC "Component System"

Listeners Will Love It!

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The Best of Both Worlds

The ITC "Component System" combines the quality of digital source material with *all* the operational flexibilities of an all-cart format. Simply record from a compact disc onto a ScotchCart®II broadcast cartridge using a 99B master recorder with ELSA, then play back on a DELTA reproducer!

Separately, These ITC Components are Impressive, Together They're Awesome!

Cartridge, tape and machines have been designed by a single manufacturer to compliment each other like never before and produce uncompromising audio quality.

1. 99B Master Recorder—Loaded with features
2. ELSA—A patented automatic cartridge preparation system
3. DELTA Reproducer—Outstanding audio performance in a reliable, mid-priced cartridge machine
4. ScotchCart®II Broadcast Cartridge—Capable of frequency response equalling professional reel-to-reel performance

Allow ITC's "Component System" to provide your facility with the operational flexibilities of an all-cart format while you offer your listeners impressive on-air sound they are sure to love.

When newer technology emerges, it will come from International Tapetronics Corporation/3M, "The Leader in Reliability and Service."

Call today to discuss financial options and the unbelievable price/performance benefits of the ITC "Component System." In the U.S., call toll-free **800-447-0414**, or collect from Alaska or Illinois **309-828-1381.** In Canada, call Maruno Electronics, Ltd. **416-255-9108.** In most countries outside the U.S. and Canada, information on ITC equipment can be obtained through local distributors.

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3M

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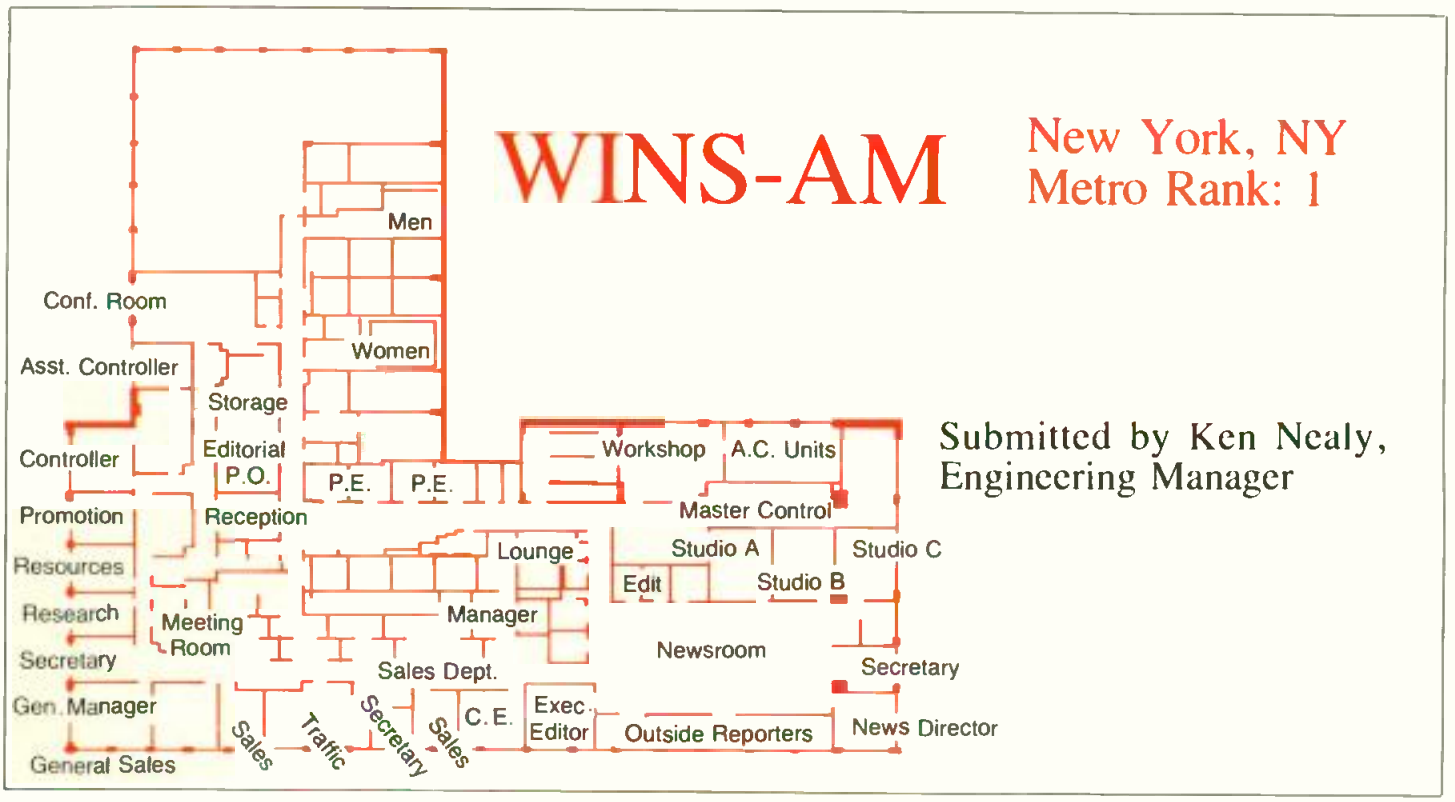
All of our reel decks are Ampex AG-440s; our cart machines are from the ITC premium line series; all of it is good, rugged, reliable equipment. Our air console is a reconditioned Gates Gatesway II. Production B uses a slightly modified Sparta AS-30, and Production C has a Gates Dualux II. We actually did purchase one new piece of equipment. It's a Technics SP-15 turntable and RTS preamp.

KLLK also has a mobile studio that is actually a complete teardown portable building that fits into the back of a pickup truck. We use this for live broadcasts from various remote locations. For live actualities, an old Motorola two-way radio system fits our needs nicely. Our next project is to put an old Moseley PCL-303/C to work as an intercity relay, to place KLLK on the local FM cable system. Another future goal of ours is to be in stereo, which is in our three-year plan.

KLLK-AM program director Mike Valentine does an air shift from the station's main studio

We like to promote KLLK as one of the new AM stations that will help move AM radio back into a competitive marketplace position. The station was built under an extremely tight budget, but it performs comparably with larger facilities that cost ten to twenty times more to build. There's a lot to be said for simplicity.



The decision to move WINS-AM, Westinghouse's all-news outlet in New York City, was based on a need for more space and the desire to have a modern facility.

The move was really a three-phase project. The planning phase created the need for outside expertise. Also, the cost meant involving our parent company in an advisory capacity.

General Electric's Construction Technology Group provided us with an architect and coproject manager, to help in space planning and design. The planning phase involved a preliminary cri-

CTM-10 CARTRIDGE RECORDER

SAFE DEPOSIT BOX.

Finally, a cart machine you can bank on. ■ No jams, no repeats and no make goods. ■ Our new CTM-10 cart machine has the same famous reliability that is built into our 5050 BII, ■ plus many new features like Hx-Pro;* ■ so 7.5 ips sounds like 15 ips and your listeners don't tune-out when you shift from CD to cart.

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*Trademark Dolby Laboratories Licensing Corporation

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teria study and the actual choice of the site. Group W provided the expertise in studio design and station construction. Corporate Communications provided expertise in selecting and designing our telephone system.

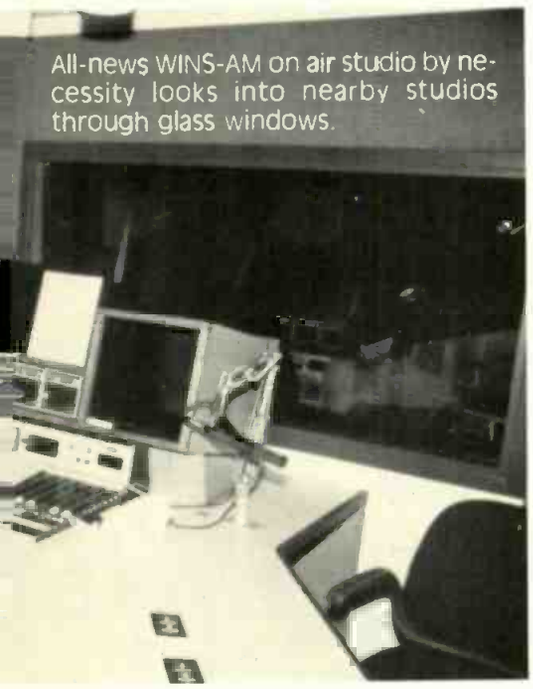
With so many companies and systems available these days, their help proved to be a necessity. The divestiture of AT&T has been the most frustrating experience in my 25 years of broadcasting.

Phase Two, the design phase, involved many important considerations. In designing the facility itself, we had to take a look at the aesthetics, acoustics, and consider HVAC, electrical, plumbing, security, and communications systems. To make equipment decisions, we considered system design, equipment evaluation, and the use of our existing equipment. We used a technical contractor and drew up an equipment purchase list.

We started planning the studio portion of the project from the operating position. We spent time talking to our news anchors to determine how the cart machines, switches, etc. were best positioned and as to what changes were needed. Plans were drawn up by the equipment vendor and the furniture was designed. We then built a full-scale mock up for consoles, cart machines, and furniture. The anchors were asked to sit and play the equipment as if they were on the air. From this setup, several changes were made and the design was finalized.

The budget was generated from the plans. The construction or renovation costs were checked by our in-house construction group. The equipment and machinery cost were the responsibility of Harrison Klein of Hammet and Edison, the director of engineering, and myself. In planning the broadcast facility, we chose equipment first, then designed the studios to fit the equipment

The customized consoles are Ward-Beck. We chose the R600 for the edit booths, R1200 for the air



All-news WINS-AM on air studio by necessity looks into nearby studios through glass windows.

studios, and R2000 for the master control room. The intercom and audio switcher are also Ward-Beck. We have standardized on ITC Delta I cart machines for all studios and edit booths. We took only monitoring and control equipment such a speakers and remote control with us from the old studios.

The entire newsroom and master control are on a raised floor for easy cable access. A wire book was made up before actual wiring was done. This allowed us to figure the length, type, and cable size needed. The cables were then made by a local vendor with connectors.

The time for planning and construction took two years. This might seem like a long time, but when a station such as ours undertakes a major project such as this, there must be time allowed to plan and replan, which in our case took one year.

The building renovation took nine months and was on schedule from start to finish. The actual equipment and machinery installation took about six months.

In total, phase three, the construction phase, included demolition, raised floors, electrical, plumbing, and HVAC work, and work on the interior wall and ceilings. Equipment installation included rack layout, wiring/routing, waring harnesses, cable installation, and complete system testing.

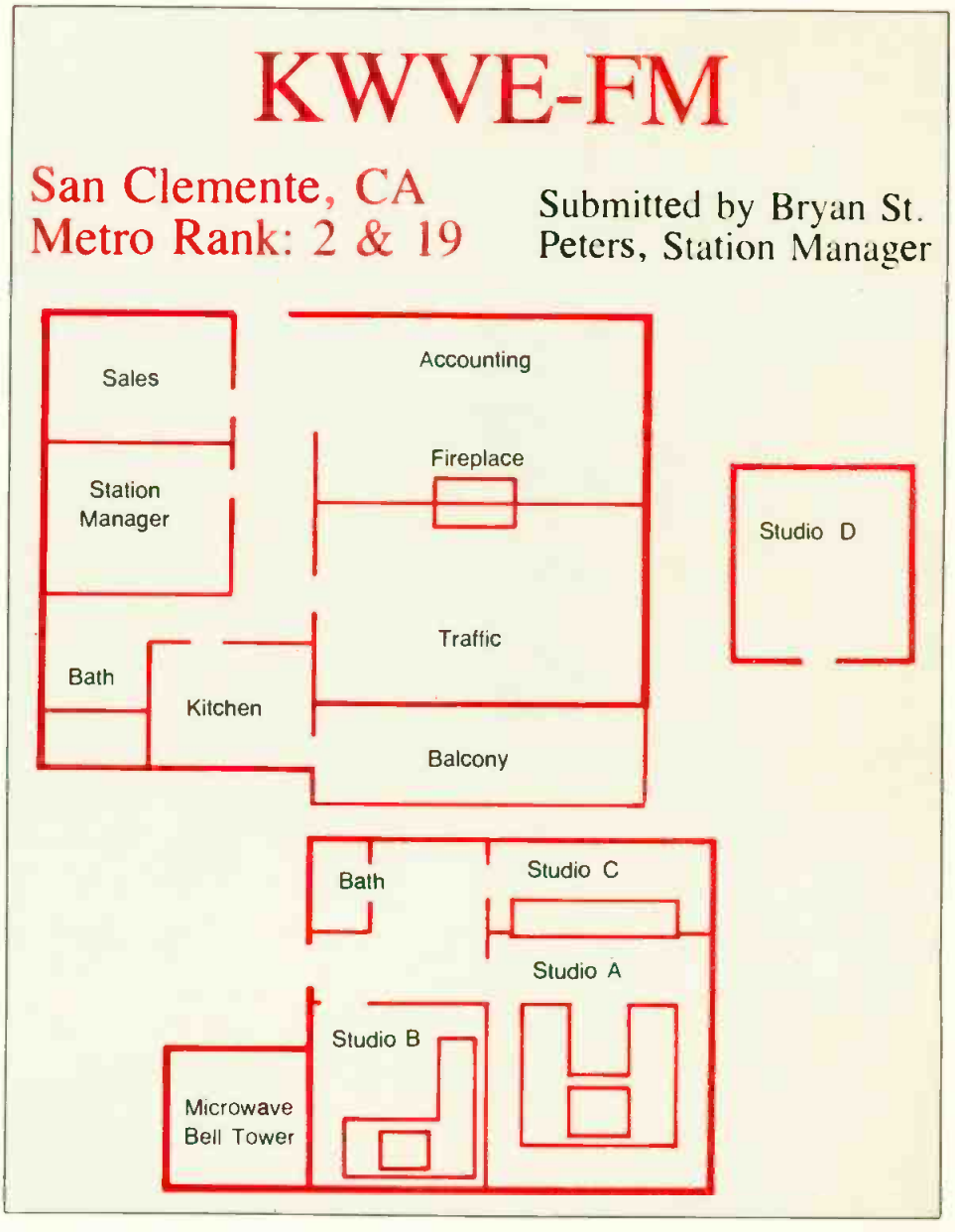
We have only been in our new facility six months with very few equipment problems in that time. This can be directly attributed to careful planning and good installation.

It is not to difficult to construct a first-class production or on-air facility when you have plenty of money with which to work. This was not really the case in our construction, however, we were able to produce a quality installation without breaking our budget. The mark of an engineer is not necessarily what you have, but what you do with what you have.

KWVE-FM

San Clemente, CA
Metro Rank: 2 & 19

Submitted by Bryan St. Peters, Station Manager



Calvary Chapel of Costa Mesa, a large Christian church in Orange County, CA, acquired KWVE in April, 1985, as a ministry outreach. We are a commercial station that plays a blend of very contemporary praise and worship music and religious programming. The station had been located in a hotel, and efforts were begun immediately to seek relocation of both studios and offices.

While this search was underway, new studio equipment was purchased from Ram Broadcast Systems directly from the floor of the NAB show. Appropriately, by Christmas of 1985, the station had acquired, reconstructed, and occupied its present site.

The new offices are located in what was once a three-bedroom home, just one block from the San Clemente beach. It was chosen because of cost considerations and because it offered a better opportunity for future expansion over offices that were under consideration. The building still has two functional fireplaces, a full kitchen facility, and a bathroom, complete with shower. The front portion of the house is divided into a reception/accounting office and sales office. Behind that is the station manager's office and another large office containing traffic, public service, and assistant manager's desks. This large room opens onto a sun deck overlooking the studios.

The studios themselves are situated in a separate building in back of the offices. To get from the offices to the studios requires a short walk outside, but, in the San Clemente climate, that has never been a problem for our staff. The studios underwent the biggest transformation of all. What was once a detached two-car garage has become a highly efficient, aesthetically pleasing three-studio configuration through the design, engineering, and technical expertise of Calvary Chapel's John Jackson and Gord Driver.

KWVE-FM's studios were created out of a former garage, and the wall coverings are color-coded to the equipment.

Sliding glass doors allow full visibility of all studios at KWVE-FM.

Much of the studio design and construction was handled by Bob Savage and his associates at Builders West. Studio A,B, and C are separated by walls of acoustical laminated storefront glass. The purpose was twofold: to create a feeling of spaciousness where there was none and to facilitate

12th Annual Competition
See Ballot on Page 49

Calvary Chapel-owned KWVE-FM was built in a former house-garage one block from the Pacific Ocean (photo courtesy of Exile Records).

visual communication between studios. To build the studios, the former garage was stripped down to the bare cinderblock walls and built up from there. Fiberglass insulation was laid over wooden beams. Our acoustic engineer felt it would be best to stay as close to the basics as possible, so, once the insulation was in place, we merely covered the walls with regular cloth. The combination of the acoustic glass and the cloth wall covering gives us rooms that are remarkably "dead" and free of reflections.

An added side benefit of the wall covering was its aesthetics; the dark blue color matches the studios' oak paneling and face of the McCurdy boards.

Carpeting was installed over the floor, and wiring is done through conduits in the floor. We haven't found a need for RF shielding.

A six-foot relay dish, part of the TFT STL, is housed in what appears to be a Spanish-style bell tower of white stucco and red tile to match the rest of the exterior. Such a structure was required by local ordinances prohibiting the placement of exposed rooftop antennae. Architect Steve Phillips of Phillips, Terrazas, Manzer & Associates was responsible for the design of the station's "bell tower" as well as other modifications to the new facility.

The on-air control room, Studio A, is built around a 16-channel McCurdy SS-8816E console. The custom oak cabinetry was built by McCurdy and also houses Straight Wire Audio preamps, two Revox PR99 reel-to-reel recorders, two Technics SP-10 MK2A turntables, and a Studer CD player. Cart machines include two ITC Delta series triple-players and a single Delta cart machine. For cassettes, there are a Studer A710 deck and two Hitachi D-2200M decks. A Revox B 77 MKII reel-to-reel logger records the on-air signal until an EBS transmission is received. It then automatically records from the EBS receiver, a Vox clock activates to record the time on the logger reel, and a light begins flashing.

The main production facility, Studio B, has as its center a 10-channel McCurdy SS-8810E control that is also mounted in custom oak cabinetry. Cabinetry in this room was built by Ram Broadcast Systems. This studio utilizes an ADC ProPatch and dbx 900 Series rack. There are also McCurdy SS-3159C preamps and Bryston amplifiers. There are two more Technics SP-10 MK2A turntables, and ITC Series 99-B cart recorder, two Hitachi D-2200M cassette decks, a Studer A810 reel-to-reel editor, and an Ampex ATR 100 reel-to-reel editor. The digital seven-second delay for live call-in programming is a McCurdy ADU-10. Each studio, A and B, contains two JBL 4312 control monitors. In addition, Studios A and B are linked via McCurdy VAS-100 switchers in each room so that they can be used on the air interchangeably.

Studio C, the smallest of the three, is used primarily for live call-ins, talk shows, and interview tapings. Mics here and throughout the station are Neumann U89s and AKG 414s.

KWVE's fourth studio, D, is located more than 40 miles away at Calvary Chapel of Costa Mesa. Live broadcasts originate from this location three or more times each week. Studio D has a six-channel McCurdy SS-8806E console, a Revox PR 99 reel-to-reel, an A700 recorder, and ITC Delta cart recorder, two Delta cart players, and two Hitachi D-2200M cassette decks. There are identical processing units in Studio B and D. Each has an Optimod 8100A and a Urei 533 graphic EQ and LA-4 compressor-limiter.

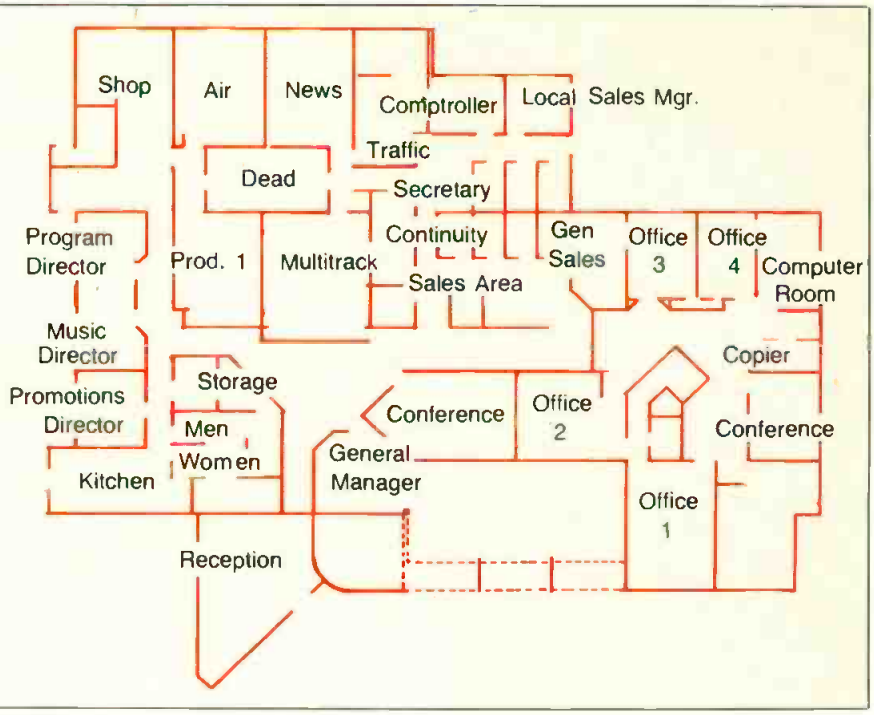
The composite signal transmits from the Chapel via TFT microwave models 7700B and 8300A a distance of 21 miles to a relay on Santiago Peak, and then on another 26 miles to the KWVE transmitter. News feeds are provided by the U.S.A. Radio Network via satellite downlink at the transmitter. This signal is sent to the studio on equalized phone lines.

The transmitter site is on San Clemente Peak, about two miles above the studios. Inside a generously constructed building, there is a Harris FM 20k main transmitter, a Harris FM 10H3 backup transmitter, and a Broadcast Electronics FX-30 exciter, all of which transmit through a brand new, very efficient six-bay E.R.I. antenna. Engineers are currently completing the process of automating the transmitter transfer between sites.

WLVE-FM

Miami, FL
Metro Rank: 11

Submitted by Roy Pressman, Chief Engineer



The biggest problem with the construction of the new WLVE studios was time. We had one year to construct a building and studios from the ground up. The decision was made to build the studios within three miles of the transmitter site to allow the use of the digital STL that was developed at WLVE.

Since WLVE is the flagship station for Gilmore Broadcasting, every effort was made to ensure that the building and studios would be state-of-the-art, both technically and architecturally. Precise coordination between the architects, interior designers, acoustical consultants, and the WLVE staff ensured that the project stayed on track and was completed on time.

The final design was for an extremely modern building both inside and out. Over thirty-five different colors of paint, including striking pastels, accent different parts of the complex, and everything, including the studios, carpets, and staff lounge with its spiral staircase, is coordinated to the color scheme.

Because we were able to build from the ground up, we did not encounter any major design or acoustical problems that are common in building to suit existing structures. There are four studios that share a common "dead" studio, which is used for interviews and talk shows, although its main function is for use with the multitrack room.


Announcer Gary Chase prepares to play a CD in WLVE-FM's new on-air studio.

Computer flooring begins in the middle of the engineering shop, goes throughout the studio complex, and encompasses the accounting office, which is the future space for an additional studio. By utilizing either two- or three-wall construction, all studios have at least 50 dB of acoustic isolation. Studio windows have at least two layers of ½-inch glass, and the majority of them also have a third ¾-inch layer. Seventy-five percent of the interior studio walls have either two-inch or four-inch acoustical panels for sound absorption. The studio complex and engineering shop are completely RF shielded.

The studio complex has its own redundant air conditioning system; each studio has its own thermostat. The system uses an extremely low-velocity/high-volume scheme that provides for noiseless air flow. Incandescent lighting is used throughout the studio complex with variac-type dimmers. In addition, each studio has a four-color warning/on-air light system mounted directly over the console, according to a unique, in-house design.

Each studio has six separate ac circuits with ground returns. A six-inch copper strap runs through the studios to provide a good equipment ground bus. A 125 kW generator powers the studios' main computer systems during power failures, and the air studio has the added protection of a UPS system.

Since technology is changing so rapidly, we equipped the studios with gear that would not be obsolete for many years. Each studio has the ability to play records, carts, or compact discs. An extensive study was done to find a CD player that would operate along the same lines as a cart machine, with manual cueing ability. And, because 80 percent of our music is played from CD, our on-air consoles had to have the ability to "solo" a source, enabling us to cue

DENSITY determines the input drive level to the Six-Band Limiter. Lets you have it your way—open and transparent, or solid and dense.

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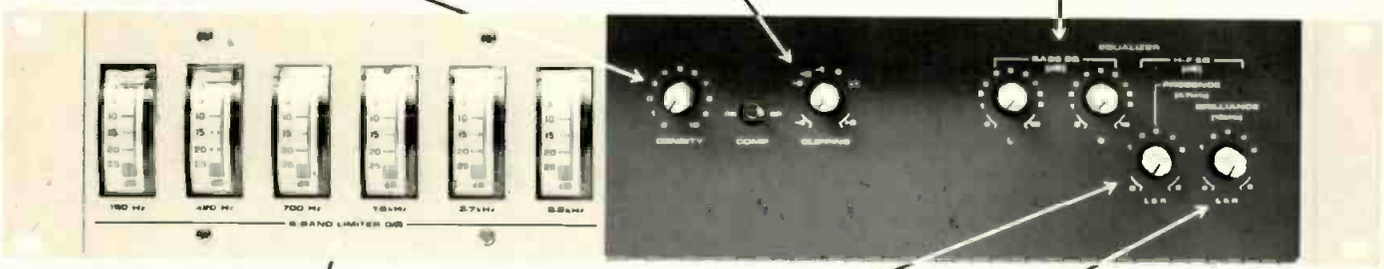

Gain reduction meters for each band: they provide the information you need for accurate setup.

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Our *NEW* **8100A/XT2 Six-Band Limiter Accessory Chassis** (which works with any 8100A OPTIMOD-FM) features two new high-frequency equalizer controls: PRESENCE and BRILLIANCE. They complement the original 8100A/XT's bass EQ controls, and give you *twice the flexibility* of the single HF EQ control typical of other add-on multiband processors.

With an XT2, your OPTIMOD-FM system is totally immune to operator gain-riding errors because the dual-band compressor in the main unit is converted into a smooth, slow AGC to ride gain ahead of the XT2. Any reasonable input level operates the XT2 in its "sweet spot," so there's never any need to add external, potentially incompatible compression.

This is good news because the time-constants and other processing parameters in a pure, integrated Orban system have been carefully harmonized to achieve an overall sound that's *loud* and *bright*, yet remarkably *open* and free from audible side-effects.

The XT2 also excels in the most difficult of processing tradeoffs—delivering loudness on music while keeping speech free from clipping distortion. Credit this uniquely capable performance to Orban's patented multiband distortion-cancelled clipping system—which we were able to implement in the XT2 system because the XT's circuitry is fully *integrated* into the processing system, not just tacked onto the front.

The XT2 lets you have it all: natural sound, source-to-source consistency, loudness, clean voice, and adjustability that lets you tailor bass and treble to your taste and format requirements. And thanks to its efficient single-chassis construction and its use of the main 8100A power supply, it lets you have the next step in Optimod processing at an exceptionally reasonable price: $2075 (suggested list).

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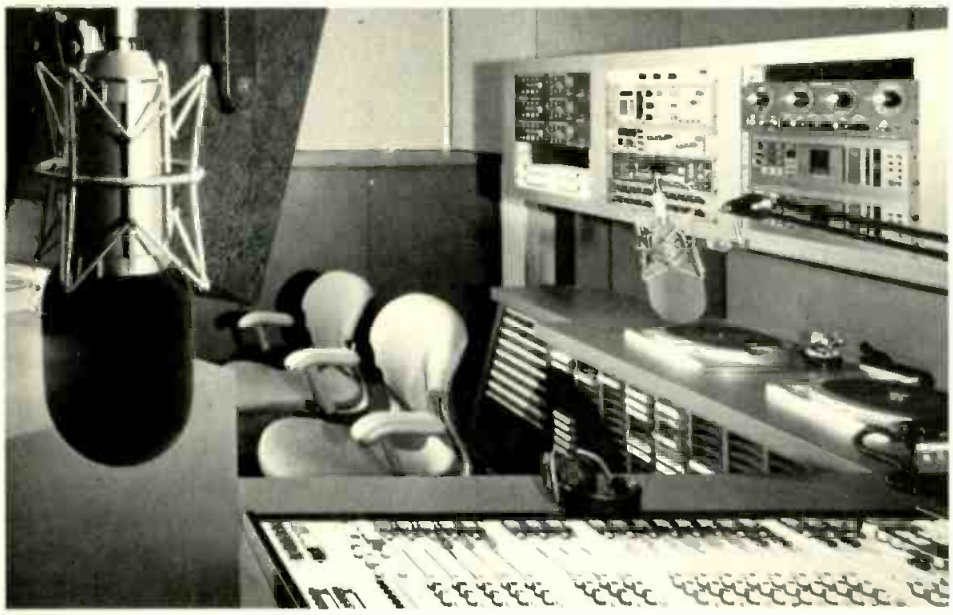

WLVE-FM's stereo production room is identical to the main air studio and is used for two-track work.

up a selected CD cut and preset the fader position.

The heart of the air studio is a Pacific Recorders BMX III-22 console. Peripherals include six ITC Series 99 cart machines with dbx noise reduction; three Philips LHH 2000 CD players with controller; two Otari MTR-10 tape machines; two hidden Technics SP-15 MKII turntables; NTP stereo phasescope; one Nakamichi MR-1 cassette deck; three ADR mic processors; three Neumann condensor mics; a Bryston 4B amplifier; three Bryston 2B amplifiers; JBL 4411 speakers; and a computer terminal for the Moseley remote control. Each source has its own individual input module. In addition to the announcer's position, there are two additional announce positions behind the console.

The stereo production room is identical to the air studio, except for the addition of full patching, cart recording capabilities, an additional Nakamichi MR-1 cassette deck, and a bank of audio processing equipment. This studio serves as our major two-track production room and is the backup studio when the air studio is down for maintenance or technical problems. Processing gear includes: Lexicon PrimeTime II digital delay; Lexicon 200 reverb; Eventide H969 Harmonizer; dbx 160X compressor; Sontec Parametric EQ; Urei Little Dipper filter set; and a Burwen DNF-1000 noise reduction system.

The news studio is a fully equipped stereo production room. It has a Pacific Recorders BMX II-14 console with patch bays. Equipment in this room includes Neumann mics; two ITC Series 99 cart machines with dbx noise reduction; two hidden Technics SP-15 MKII turntables; two Sony CDP-3000 CD players with CDS-3000 controller; two MCI JH110B tape machines; Technics RSM 85 cassette deck; Sound Workshop reverb; Delta Labs digital delay; Urei graphic EQ; ADR mic processor; NTP stereo phasescope; two JBL 4311 speakers; Bryston 3B and 2B amplifiers; and two Urei LA4 compressors.

The news studio also has a full newsgathering area that is located in the rear of the studio. Our newsgathering facilities include a fully equipped earth station with movable dish; Sony 15-inch monitor; Proton FM stereo receiver; Bearcat scanner; and remote control of reel-to-reel machines in the front area of the studio.

Our eight-track production studio is designed as an independent production center. We have a full-time multitrack engineer on staff who is solely responsible for the productivity of this studio. The multitrack room serves mostly outside clients, but it can also be used by our air staff for any complex on-air production projects. We selected the Pacific Recorders ABX 26 multitrack console because it is not only flexible, but extremely easy to use.

Equipment includes two Otari MTR-10 tape machines; two ITC Series 99 cart machines with dbx noise reduction; two Technics SP-15 MKII turntahles; one Otari MX-70 eight-track tape machine with dbx noise reduction; two Sony CDP-3000 CD players with CDS-3000 controller; Nakamichi MR-1 cassette deck; NTP stereo display scope; Bryston 4B amplifier; three Bryston 2B amplifiers; Fostex LS3A monitor speakers; RTS IFB headphone system; complete patch bay; Yamaha DX-1 synthesizer; and Linn drum synthesizer.

For processing, we have an Eventide 969 Harmonizer; Lexicon PrimeTime II digital delay; Lexicon 200 reverb; ADR Compex Limiter; dbx 160X compressor; four Valley People Kepex noise gates; and a Sontec Parametric EQ. In addition to external processing, the ABX-26 console has internal EQ and compression.

Besides our four main studios, disk-to-tape transfer is located in the music director's office. Equipment includes a Technics SP-10 MKII turntable with linear-tracking tone arm, ITC Series 99 cart record/play with dbx noise reduction, and a Philips LH 2000 CD player with controller.

The engineering shop has the latest test equipment and is designed to emphasize quality and efficiency. A strict maintenance schedule catches failures before they occur, which results in low down time in all areas of the studio complex. The studio signal is sent via our digital microwave link to the transmitter site. When weather conditions prevent this 23 GHz signal from reaching the transmitter, a Moseley PCL 606C 945 MHz link is automatically switched on the air. When conditions improve, the digital STL automaticaly returns to air.

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

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

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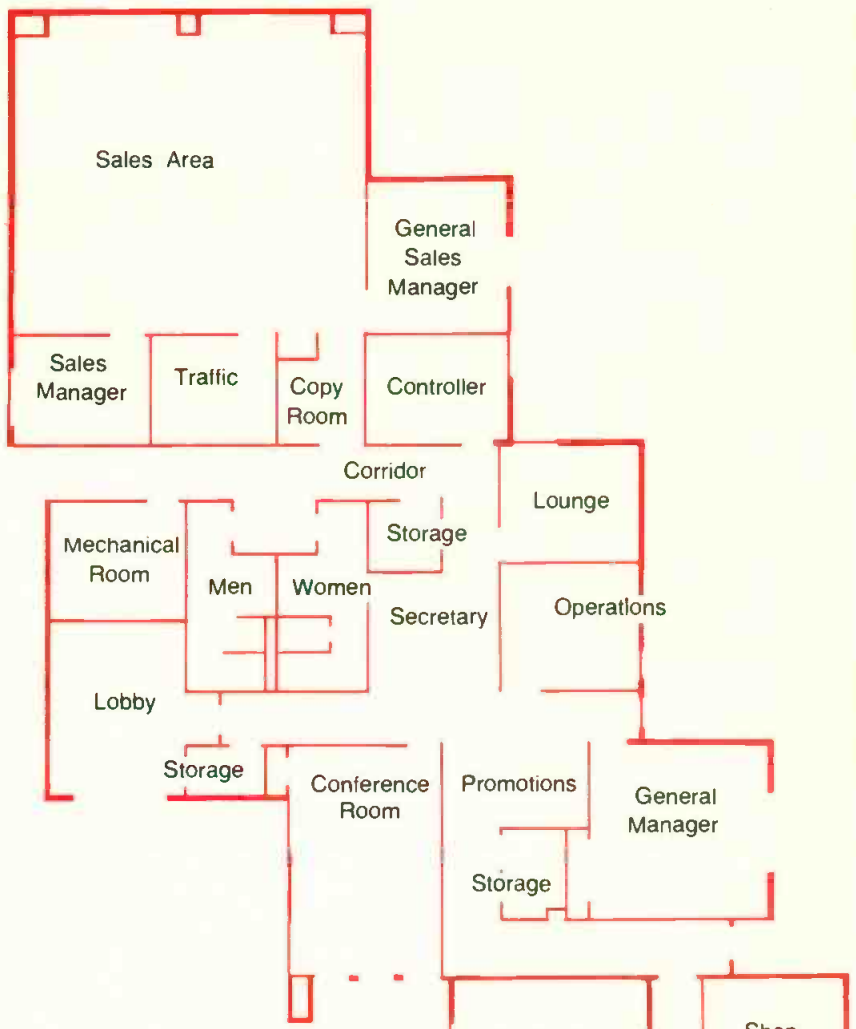


KQXT-FM

San Antonio, TX
Metro Rank: 35

Submitted by Margaret Bryant, Engineering Manager

The fall of 1985 to spring of 1986 gave us an opportunity to construct an entirely new office and studio facility. The key word in the design of the studios was "flexibility." KQXT is an easy listening station, and, in the past, that meant running reel-to-reel tapes and little talk or anything else. Today, easy listening means much more, and the studios had to be designed for the format as it is now, and how it might be in the future.

The building was constructed from the ground up; Bob Hanson was the architect. The studios were kept at one end of the building so it was easier to pay attention to the special needs of this area. The three studios were laid out in a row so the newsroom in

Production director Abe Saldana is at the controls of KQXT-FM's production studio.

the center could also function as an announce booth for either the control or production rooms. All three studios were built using the "room within a room" concept to keep them isolated from each other. The floor is a concrete slab, with raised computer floors for wiring. Each ceiling and wall is actually separate from those of the adjoining room, so none of the rooms actually "touch" each other. This design isolates each room and makes it soundproof.

The control room uses double sliding glass doors as an entrance to the tape room. This gives an open feeling and also enables the disc jockey to see the tape machines, modulation monitor, and remote controls. The rooms are laid out in a row, with glass between each, so it is possible to see all the way from one end of the studios to the other.

The air handling system for the studios is separate from the rest of the building. Each studio has its own thermostat to control the temperature.

Multipair individually shielded cable was run from each studio to the taperoom. In the taperoom the cables were attached to punch blocks and appropriately cross connected. At the other end in the studio, the cable was also attached to a punch block and single pair shielded wire was run from the blocks to the various pieces of equipment. While we were at it, we also ran an extra cable to each

Announcer Bill Norris is able to look into the room, which holds equipment racks from KQXT-FM's on-air studio.

of the studios to allow for expansion.

The flexibility of the studios really shows up in the design and layout of the equipment. We currently use reel-to-reel, stereo carts, and CDs as music sources. The on-air reel-to-reel machines are in the row of racks in the tape room. Monitors, audio processing, and remote controls are also in these racks. In the control room, the CDs and the carts are located in easy-to-reach racks in the studio furniture. We included an extra rack space in the layout, in case we want to change our music sources in the future. It's possible that easy listening formats may go to all cart or all CD sources.

The control room has a Ward Beck R1400 console; we used Ward Beck boards throughout because of the ability to get a custom product and still keep the cost affordable. The console was configured as simply as possible, with a mix minus for the telephone and the insertion points of each console module brought down to Christmas tree blocks. These kinds of blocks are usually considered a nightmare when it comes to soldering, but we discovered that a special device known as a Scotch clip can be used to facilitate the process.

The connections are crimped to the clip and then slid along the "branches" of the Christmas tree blocks to make the connection. We even use the clips for mic connections, with good results. We included the mix minus and

telephone in the console's configuration even though these two are not in use at the station now. This will give us the opportunity of adding a phone on the air or audio processing in the future.

Other equipment in the on-air room includes Fidelipac 100 cart players, a Revox CD player, and a Technics SP-10 turntable. In the taperoom next door are our on-air reel-to-reel machines, five Otari MTR 10s.

The newsroom is capable of being a production facility on its own or working in conjunction with one of the other two studios. Timers can function alone or be synched up with other studios. The monitor speakers switch inputs to function with the other studios as well. Microphones and headphones are also set up to function with the other studios.

In addition to the Ward Beck R1000 console, the newsroom has an Otari 5050B reel-to-reel, and two Fidelipac 100 cart players and one record/play, plus a Nakamichi MR-1 cassette deck.

The production room has two Otari MTR-10 two-track reels and an Otari MTR-12 four-track. A Dorrough meter is mounted in the center of the audio console meter panel to provide instantaneous average and peak modulation readings. All the inputs to the Ward Beck 2200 console in this room appear on a patch panel to allow flexibility. The on-air reel-to-reel machines appear as "B" inputs on the board, so with the flip of a switch, the production room can feed the transmitter and become a convenient backup.

The production room has also been equipped with two Fidelipac 100 cart record/play machines, two Urei 535 EQs, a Sony CDP-302 CD player, and a Nakamichi MR-1 cassette deck.

The challenge of the project was to plan ahead for changes and expansion. In the short time we have been in the studios, we have already been discussing minor changes to enhance our service to the "Alamo City." The time spent on planning for the future has already paid off.

WDBO and WWKA had occupied a 7700 square foot facility since 1947.

A renovation study showed that a new, larger facility was needed to meet growing operational and other needs, and many concepts were developed for renovating the existing structure. However, each new one presented too many compromises, so, in July of 1984, the decision was made to build a brand new facility. HHCP Architects was retained for the project, as was R.C. Stevens Construction Co.

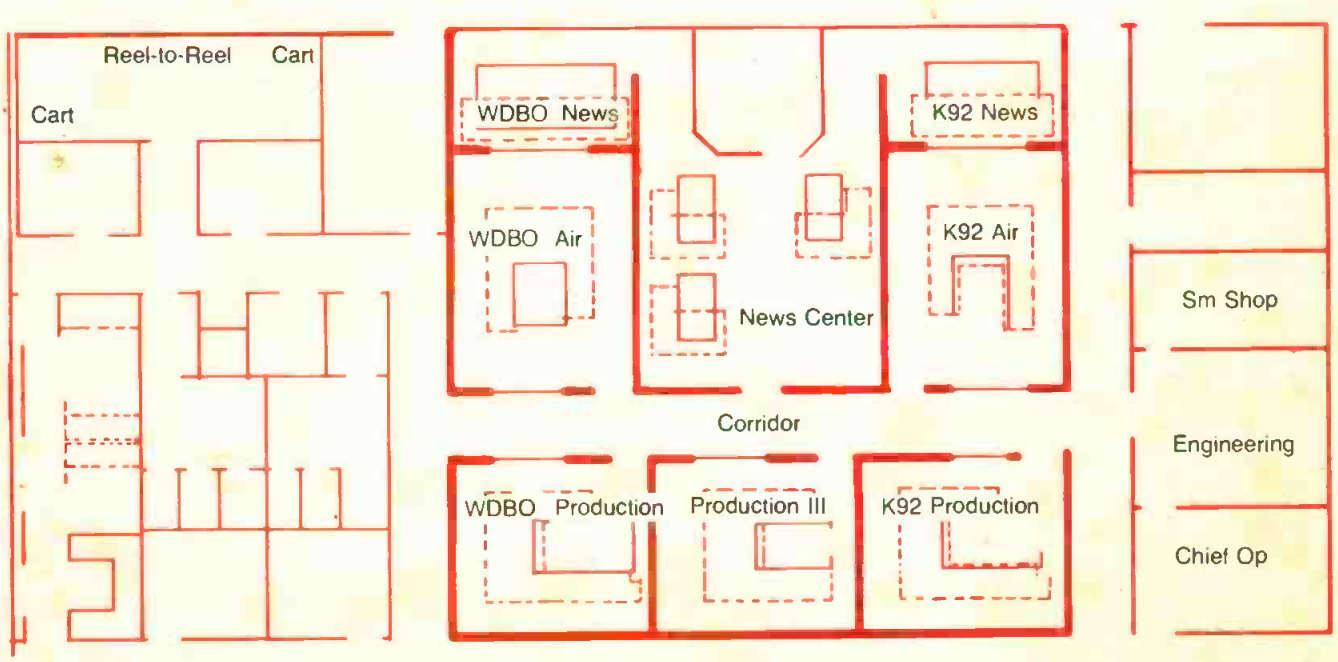
The new studios were designed specifically to meet our operational needs and make a statement that underscored our long-term commitment to the community. The architect and engineering department worked with our programming, news, sales, and traffic departments to determine our requirements.

WDBO-AM's newsroom is designed to be autonomous, with its glass window facing the main air room.

WDBO-AM/WWKA-FM

Orlando, FL
Metro Rank: 51

Submitted by Tom Bohannon, Chief Engineer



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- ☐ KQXT (p.44)

AM/FM RADIO

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OFFICIAL BALLOT

BM/E's 12th ANNUAL BEST STATION & FACILITY DESIGN

WWKA-FM's control room, with Joe West (front) and Bill Barber (rear) is similar to the AM side, with a window facing the FM news center.

WDBO-AM's production studio is one of three production rooms in the new AM/FM facility.

Our engineering design parameters were aimed at creating a technically superior facility to increase our "competitive edge" in the market and provide the "human engineering" needed for announcers and news people to do their jobs simply and efficiently.

Pacific Recorders & Engineering was chosen to supply a package of consoles, cabinetry, wiring, and custom items. While building construction was in progress, the studio wiring and cabinetry were designed and built, and the interstudio wiring system was developed. All wiring, equipment placement, and antenna locations were documented. This thorough documentation combined with studio prewiring supplied by Pacific Recorders allowed the studio core to be put together in six weeks.

The architects were responsible for designing a building that was unmistakably a broadcast facility. Rather than hiding the tower on the back lot, it was made an integral part of the overall design and placed next to the main entrance. The satellite dish was also incorporated into the design by placing it on an eight-foot column at the opposite end of the building. These two elements were tied together by a skylight that runs the length of the main corridor, thus giving a dramatic, high-tech appearance.

The building exterior is reflective glass, which further enhances the high-tech look. This feature, along with a skylight, required that special attention be given to the HVAC system. A "Texas multizone" system was chosen for the studios because of its improved efficiency over conventional multizone systems. Separate thermostats were provided for each control room, the news booth, and the production rooms. The computer room was given its own system capable of maintaining 68 degrees.

The heavy rainfall and flooding associated with the Florida hurricane season presented its own set of problems. The building was raised six feet above grade, which also helped enhance its visual impact. The exterior windows are rated to withstand 110 mph winds. We chose a self-supporting tower for its strength and for architectural reasons. We also raised the 125 kW emergency generator; this is important as it powers the studio core including HVAC, the engineering area, emergency lighting, and the computer room.

Two of the announcers' main concerns for the control rooms were outside visibility and the ability to communicate visually with the news anchor. This was accomplished by locating the news booths along the outside wall, which is double-pane glass, and then locating the control rooms behind the news booth with a large window separating the two. The control rooms are equipped with Pacific Recorders BMX-22 consoles, six stereo ITC cart machines, two MCI reel machines, two Technics SP-10 turntables, a Gentner telephone hybrid, and a Stentofon intercom. Two guest positions are available for interviews.

The reel machine inputs are fed via a 10-input PR&E LS-10 line selector. This enables the announcer to record feeds without routing them through the console. This technique is also used in the news booths and news edit stations. The turntables are located under a hinged cover, which provides additional counter space when they are not in use. In addition to the normal inputs, all other studios appear on the console and the patchbay.

Based on past experience with heavy production loads, we decided to add a third production room. This studio was designed to be identical to the others for ease of operation. Each production room has a Pacific Recorders AMX-18 console; one ITC 99B cart recorder; two ITC Delta cart playbacks; two MCI reel machines; one MCI four-track; one Technics SP-10 turntable; one Technics SP-15 turntable; one Tascam cassette machine; one Straight Wire Audio CD player; and a Stentofon intercom.

Processing and effects equipment includes an Eventide 649 Harmonizer, Ursa Major Stargate 323 reverb, Orban 622B EQ, and Lexicon Digital Delay. Production III differs slightly from the other two: it does not have a four-track, but it has an expanded guest leaf to comfortably accommodate three guests. All music is carted in this room, and equipment is dedicated for this purpose. The last three channels of each console are equipped with an eight-input remote line selector.

News is one of the main concerns of our AM station. The news booth was designed to be the primary operating point of the anchor during his shift. All the network lines, two-way, TV, production rooms, and FM news booth, appear on the console. The newsroom has a Pacific Recorders BMX-18; six ITC Delta cart play-

12th Annual Competition
See Ballot on Page 49

backs; one ITC Delta cart recorder; one MCI JH110 reel machine; one Otari 5050 reel machine; one Tascam cassette machine; Gentner phone hybrid; TV monitor; weather station; scanner; and Stentofon intercom. There is also a control turret for a coanchor, which is used during drive times. The turret provides remote control of the coanchor's mic.

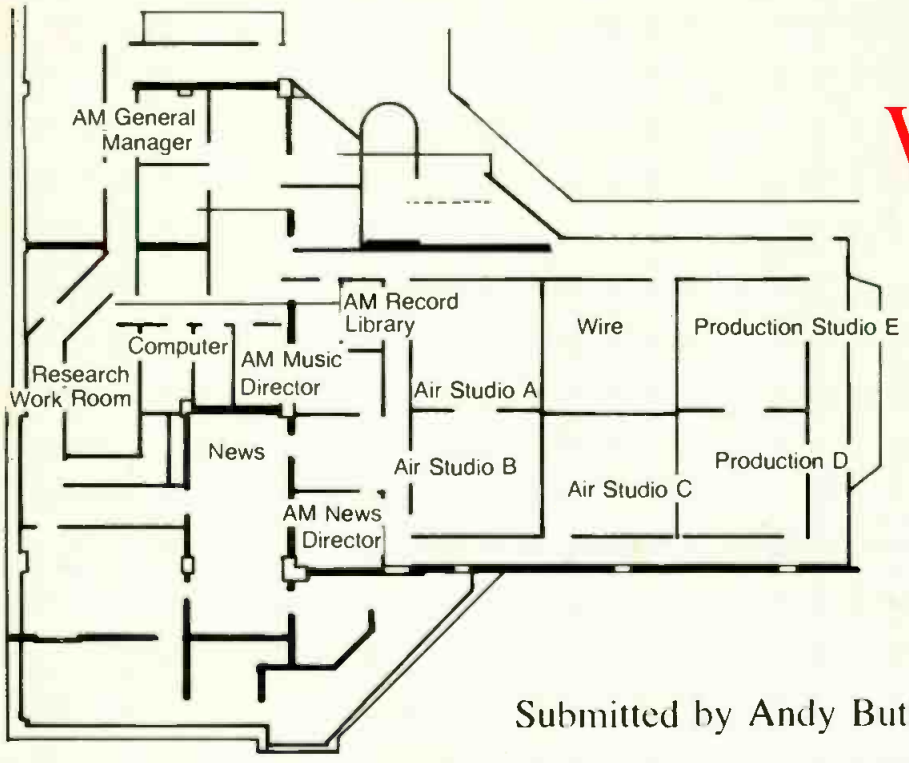
The news center is the heart of the news operation for both WDBO and WWKA. It has three news edit stations, three wire machines, three TV monitors, scanners, NOAA receiver, civil defense receiver, two-way radios maps, bulletin boards, and the WDBO news director's office. Each edit station is equipped with a Pacific Recorders Newsmixer, ITC Delta cart recorder, ITC ESL V splice finder, Otari 5050 reel machine, Gentner phone hybrid, and Tascam cassette machine.

The engineering area is the heart of the technical operation. It contains the satellite receivers, audio distribution, audio processing, air chain patchbay, STLs, and TRLs. This equipment is housed in five racks that connect with the satellite dish, studios, and towers via underground conduit. Audio distribution was done via an ADC ultra-patch system contained in one rack. All of the cross connects and interstudio wiring is done on the front of the ADC panels, while multipair audio cable and Straight Wire Audio ADA inputs and outputs are wired to the rear.

The engineering area itself is divided into three rooms: the chief operator's office, the main shop, and a smaller shop. The wall between the main shop and the chief operator's office is built around the equipment racks.

WHN-AM/ WQHT-FM

New York, NY
Metro Rank: 1



Submitted by Andy Butler, Director of Engineering

In WHN-AM's production studio, Dan Taylor adds effects to a recorded track.

Providing a facility that allows the station staff to perform to its full potential, and at a cost that will allow for a reasonable revenue return, is engineering's major challenge in the 1980s.

When WHN-AM and WQHT-FM were combined under one ownership, we began searching for space to combine the two operations. Costs for suitable space in Manhattan are astronomical. We had almost given up finding anything close to the core of the city when we stumbled onto the Kaufmann Astoria Studios project in Queens, one of the outer boroughs. The studio was built by Paramount Pictures in 1920 and later became the Army Pictorial Center.

A careful analysis of the main building convinced us that we could build a competitive facility

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Hands Down, the #1 Choice.

In the WHN-AM's on-air studio, producer Jim Nedelka watches traffic reporter Judy Heron at work in the announce booth.

in a 5000-square-foot area in the lower level that had been used to store props. The 26-foot ceiling height allowed us to double-deck the space to net out a little over 11,000 square feet of useable space.

At the heart of the radio complex are the five studios and terminal room on the lower level. Each prefab Industrial Acoustics studio is an independent box that floats on its own acoustic isolators. This prevents loud monitor levels from traveling between studios. Since the floor level is 42 feet below ground, there is no problem with street or airplane noise.

The studios are arranged in a "U" around the terminal room to minimize the length of wire runs and allow easy access for future changes. The equipment racks in this room house shared support equipment including Scientific-Atlanta digital satellite receivers; Microdyne SCPC satellite receivers; Pacific Recorders distribution amps; Gentner audio switchers; Belar modulation monitors; TFT and Moseley STL transmitters; Straight Wire Audio DAs; Texar FM processors; Gregg Labs AM processors; and, of course, the custom switching to originate the 35 station Mets baseball network, which is so much a part of WHN's programming.

By concentrating the support equipment for both stations in this one room, the engineering staff has easy access for both maintenance and additional construction. All wire runs, to and from the studios, are Belden multipair individually shielded wire, broken out on 66 blocks at both ends. This allows for quick changes with a minimum disruption of operations.

Air studios A, B, and C are equipped identically with Auditronics 224 consoles, ITC Delta and Series 99B cart machines, Technics SP-10 turntables, and MCI JH110B reel-to-reels. Monitor amps are Crown DC300As, and the headphone amps are D-75s. A custom supervisory panel in each studio controls the audio switchers, the transmitters, the Telos phone system, the security cameras, electric door locks, EBS send and receive, ABC/Mutual network alarms, AP teletype alerts, and other peripheral equipment.

Special cabinetry by Ruslang Corp. is designed to allow four people to work comfortably facing each other. A versatile lighting system allows talent to mix incandescent dimmer-controlled track lights with four levels of flourescent lights to set the right mood. Power is routed through the studio using a flat conductor cable system so it can be changed anytime to accommodate new cabinetry. Audio wiring reaches the terminal room through a four-inch PVC conduit buried in the concrete subfloor before the floating steel floors were assembled. Studios air conditioning is handled by fully redundant dual air handler and compressor systems that are alternated. Emergency power is supplied by a four-cylinder Kohler generator on the building roof.

Studios D and F handle production for both stations. They are equipped with Harrison Pro-7 consoles, Studer A810 two-track reel-to-reels, Studer A80 eight-track reel-to-reels, ITC Series 99 and Delta cart machines, and Technics SP-10 turntables. Production tools include Eventide SP2016 effects generators, Orban parametric and paragraphic EQs, Eventide Harmonizers, and dbx 165 limiters. The cabinetry is once again arranged so four people can work comfortably at one time.

The news area includes four custom edit positions with Ampex reel-to-reels, ITC cart machines, and McCurdy switchers. All of this equipment was recycled from the previous WHN and WQHT air and production studios, in order to minimize costs. The edit positions also include a full microphone processing system so they can go on the air directly for fast breaking news or to "tease" a newscast. The area is adjacent to the three air studios so newscasters can easily maneuver between the two.

The office areas are also planned to maximize functionality. Management, programming, and promotion for each station are grouped together. The support functions: engineering, business office, traffic, continuity, and production, that are shared by both stations, are located together on the second floor. Sharing these nonformat specific support services is another way that the station controls costs.

By finding a novel location with the correct support services, and by carefully planning a versatile compact facility, WHN and WQHT have built a cost-effective, competitive home. This was demonstrated recently when the FM station underwent a surprise full format change less than three weeks after moving to the new facility. The total engineering time needed to prepare for the change was less than ten working hours!

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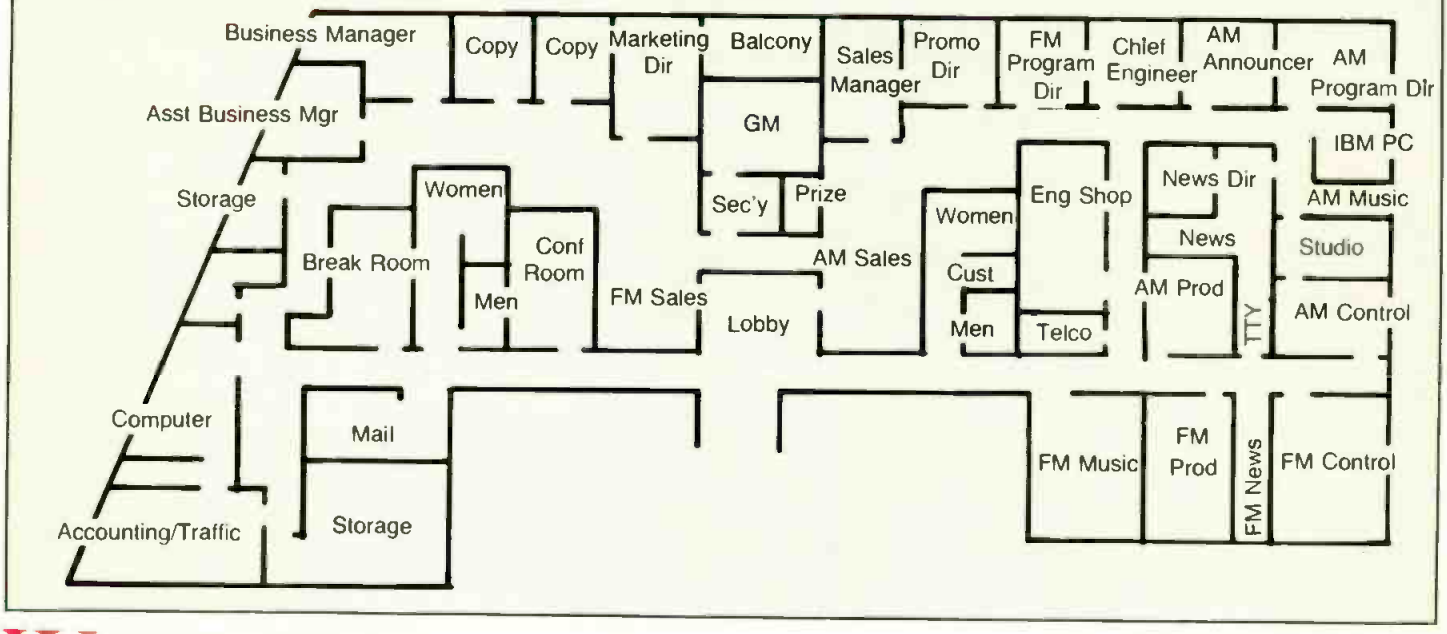
Circle 135 on Reader Service Card

WREC-AM/WEGR-FM

Memphis, TN
Metro Rank: 50

Submitted by Jim Cope,
Chief Engineer



WREC-AM and WEGR-FM, like many radio stations these days, was recently faced with the need to relocate studio facilities. The nearly 10-year-old studios had been outgrown, environments had changed, and reasons to move were mounting.

Site selection was probably not as prolonged as it is for some facilities. Sixty-year-old WREC has always had an affinity for the downtown Memphis area, as it was located in the historic, and now famous, Peabody Hotel for many years. Departure from there in the mid-1970s was necessitated by the hotel's closing.

By 1985, reasoning dictated a move back to the downtown area, into the resurrected Beale Street Historic District. Negotiations with city fathers and others, along with the station's desire to support the city's efforts to revitalize Beale Street, led to a decision to locate in the old Handy Square Building across from the W.C. Handy Park. Music buffs will recognize Handy as the "father" of blues music, and the building also at one time housed a drug store that became Plough Chemical, and, subsequently, Plough Broadcasting, so it is no stranger to radio.

The entire second floor, some 10,000 square feet of space, had been gutted and was reconstructed to the station's specifications. The shape of the outside wall and structure columns presented some challenging design problems. The studio and control area floors had to be raised to accommodate inter-room wiring and pipes, which were three-foot PVC. The engineering shop became the central wiring point and equipment center.

Since the studios were being located close to each other, concern focused on acoustic control. AM and FM formats try to be demographically complimentary, but, to avoid this happening through both transmitters simultaneously, each studio was completely encased and isolated with soundproof material. Ceilings were mechanically isolated; walls were of double-offset stud construction.

The AM control room and its adjacent studio have visual contact through a sound-lock window for live studio programming. The FM control and production rooms are separated by a news/announcer booth with visual contact from end to end. The booth can serve either room.

Fortunately, a scheduled major equipment replacement was able to be integrated into relocation plans, and it was possible to "move into" mostly new equipment. Auditronics consoles were selected for all studios, except the newsroom, where the best of our surplussed RCA 12-channel consoles was installed.

WREC-AM's control room fea-

WREC-AM's studio and control room have dow, which is helpful for talk shows.

WEGR-FM's production studio is separated from the FM control room by a news/announce booth.

tures an Auditronics 12-channel console with downstream telephone mixing interfaced with a Gentner Telemix IX unit, used mostly for talk programs hosted in the adjacent studio.

Four Otari 5050 tape decks, rack-mounted and remote controlled, provide record/play reel capability. Six Fidelipac Dynamax single play cart decks, one Technics turntable, three microphones, multiple satellite sources, and phone line connections provide capability to handle any style format. The Dynamax cart decks were selected on the basis of their ability to differentiate between differently formatted cartridge tapes. Transmitter control is accomplished with the Potomac remote control via phone loop with auto dial back-up.

WREC-AM's production room employs an Auditronics console flanked by two Otari MTR-10 two-track consoles reel-to-reel decks, three Dynamax playback and one record cart deck, two cassette

visual contact through a soundproof win-

decks, and a racked graphic EQ.

WEGR-FM features an Auditronics console situated in a locally constructed standup cabinet. Three microphones allow group activity to be on the air. The mics are premixed and compressed and coupled into the phone system for a talk-back to listener. Two varispeed Technics turntables, along with six ITC cart decks, and one Otari MTR-10 reel, a Scully 280 reel deck, and Studer CD players provide audio sources.

WEGR-FM production employs an Auditronics four-track console, custom-fit into a standup cabinet. The reel-to-reel decks are Otari MTR-10 two-track and four-track. ITC 99 cart machines are used for recording carts.

Various long-haul feeds to both stations are provided by a Scientific-Atlanta digital downlink on Satcom 1-R, and analog services from Wegener equipment split from the Scientific Atlanta equipment and other antenna aimed at various satellites. These sources along with telco lines all pass through Auditronics DAs, which also accommodate many other in-house distribution functions.

One of the major elements of the entire project turned out to be our telephone system. An AT&T Horizon was the resident PBX before the move, and remained with us after the move. The unit served all the business functions of the offices, and the studio/air phone needs were served by a conglomerations of private lines, custom switches, speaker phones, and an unidentifiable assortment of boxes and connectors.

The Horizon was moved to the new location and installed pretty much intact. A completely separate ITT KSU 500 13-line key unit was installed for the studio areas. It was possible to take advantage of Bell Telephone's Essex system due to the proximity of their central office. Ample Essex extension lines were fed to the KSU and Horizon PBX, which allowed for direct outside dial to the studios, and the Horizon PBX console separately, as well as communications between the two separate systems.

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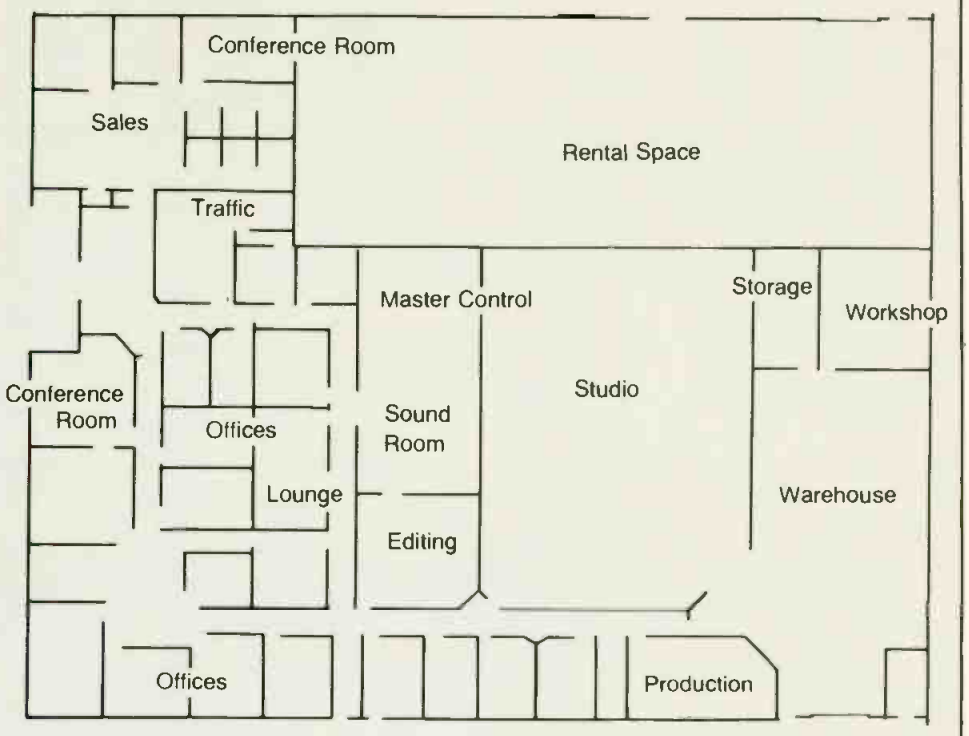
KSCH-TV

Rancho Cordova, CA
ADI No. 20



Submitted by Robert J. Gordon, President and General Manager

The first new television station in the Stockton-Sacramento market in more than 12 years signed on the air on April 13, 1986, to the strains of Bruce Springsteen's "Born in the USA." We met that sign-on date only because the entire station staff pulled together with unrelenting determination to make it happen. Just two months before, KSCH-TV's temporary facilities were completely ruined in the floods that ravaged Northern California.

Traffic and accounting computers, cameras, VTRs, stereo modulation equipment, TBCs, editing equipment, and company files were all submerged and destroyed under four feet of water. A change in our tower site proved fortunate, as the original location was also flooded.

Our goal was to build a semiautomated television station within a reasonable budget. With this in mind, every piece of equipment ordered had a dual function. For example, our Sony BVH-1100A's are used in both programming and production. Our assortment of ¾-inch Sony type 5 VCRs are used in production, but they can also be used in program backup.

Master control includes the Lake Systems La-Kart II system, the key to KSCH's automation.

The heart of KSCH's automation lies in the La-Kart II system. Although La-Kart II was designed for use with ¾-inch video, we have interfaced it with our workhorse Sony 1100A's. And we still have room to expand, utilizing GPIs that will control digital video effects, still store, film chain, audio cart machines, and other equipment. For instance, the La-Kart II controls our Grass Valley Group downstream keyer for periodic insertion of station IDs.

Automation allows us to provide live local news with only one master control operator, making an otherwise cost-prohibitive news undertaking affordable for this new UHF. We pride ourselves on family-oriented programming, and because many of these shows are on film, we want to maintain the highest possible film-to-tape trans-

fer. For this reason, we have purchased a Rank Cintel ADS-1 telecine, which also puts us in the film-to-tape transfer business. MTS equipment for this independent station is by Modulation Sciences.

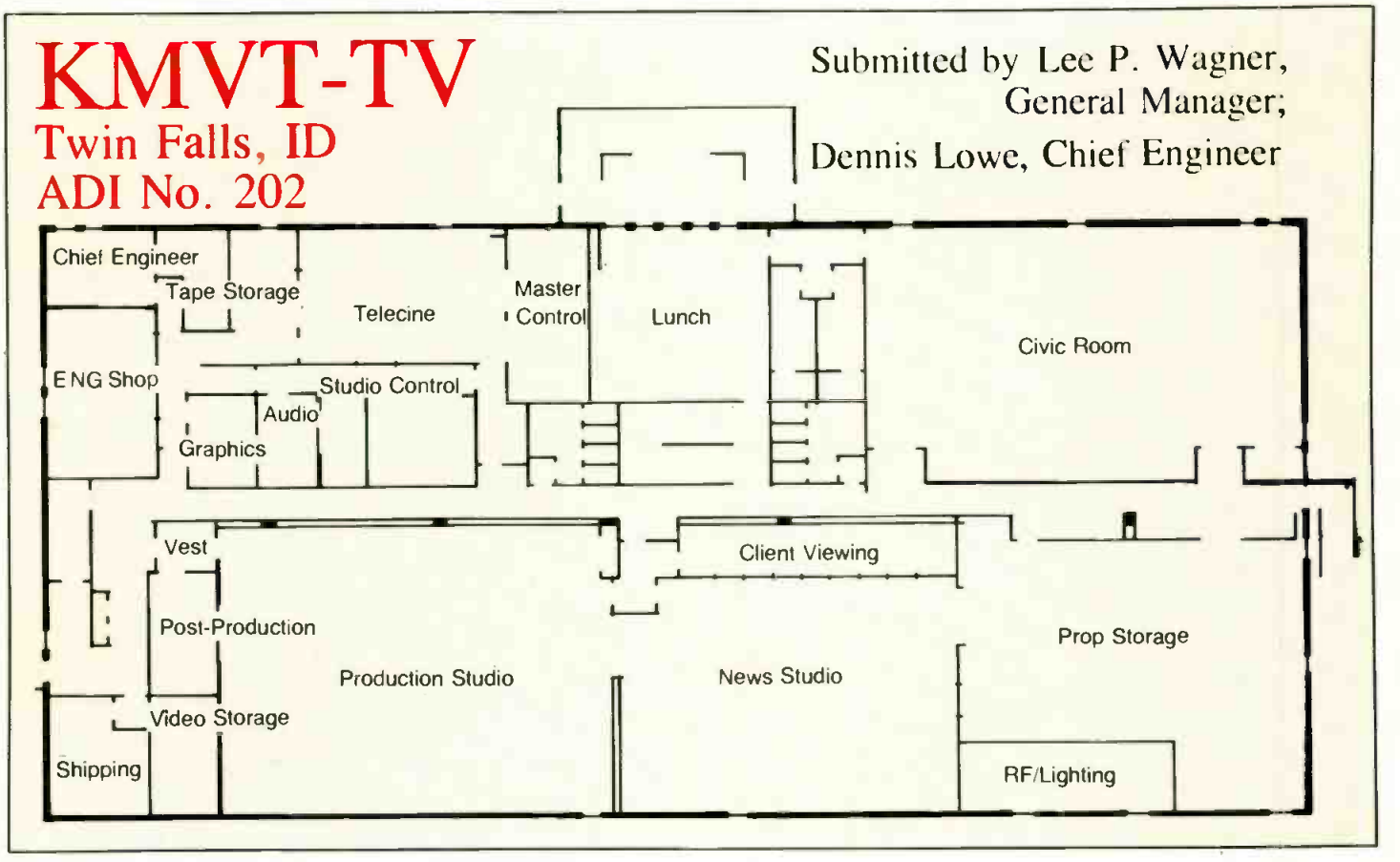
In production, our other new equipment includes an Abekas Video Systems A-52 digital special effects generator and their A-42 digital still store, a Dubner 10K character generator, and a Yamaha audio board. Our budget necessitated incorporating used, proven equipment also. This includes an eight-year-old Vital video switcher with 24 inputs and a Vanguard video editor that's been totally refurbished by Paltex. Broadcast Systems Inc. supplied all of our studio equipment in master control and production. Beck Associates provided custom cabinetry and installation, and design assistance.

We have two studio locations, Stockton—our city of license—and Rancho Cordova. Both studios share nine Hitachi Z-31 cameras, chosen for their high quality and cost efficiency. From groundbreaking to completion, both studios were built and fully operational within four months. Our plant was designed from a work-flow point of view; departments that work closely together are adjacent. Both studios are also built for expansion, which is what we feel the future holds for KSCH-TV.

KMVT-TV

Twin Falls, ID
ADI No. 202

Submitted by Lee P. Wagner, General Manager; Dennis Lowe, Chief Engineer



After repeatedly pushing, pummeling, and otherwise forcing changes upon our original 30-year-old building, KMVT-TV management jumped when a chance came to purchase a newer and larger building at an attractive price. Its 30,000 square feet was originally designed to house a large insurance firm, but the way it was constructed allowed for extensive remodeling.

Management's principal concern in the design of the new facility were the news, sales, and technical departments. Another important design concern was flexibility. Because the station is in a modest-size market, certain new equipment purchases have to be delayed. For this reason, the design incorporated facilities changes and equipment necessary to accommodate future expansion and purchases.

The new technical areas are planned around a telecine "core." Master control, production control, videotape, and audio rooms surround a telecine area containing most distribution, switcher, terminal, and test gear. All of these rooms were connected for easy wiring changes by a common raised computer floor. VTRs from our original location include two RCA TR-61 quad machines.

The telecine section houses new Hedco audio and video distribution equipment and a newly expanded Intergroup 1100 series routing switcher. The room also houses two film chains and other equipment from our old facility, and it adjoins master control through two sliding glass doors.

New equipment for our master control includes: a Beck Associates custom console; an automated network delay system by Broadcast Systems, Inc. (BSI); a BSI DC-8 automatic ¾-inch commercial playback system; and a Harris TVRO control system.

In the production control room, a stepped floor affords director, producer, and audio positions a

Track lighting in production control keeps light off Sony and Panasonic monitors and focuses it on work areas.

clear view of a custom oak-trimmed monitor wall. Behind the production room is audio control, which looks out on production through acoustic glazing. Consoles in both rooms were custom designed and built by Beck Associates. Audio control features a new Pacific Recorders board, the AMX-14.

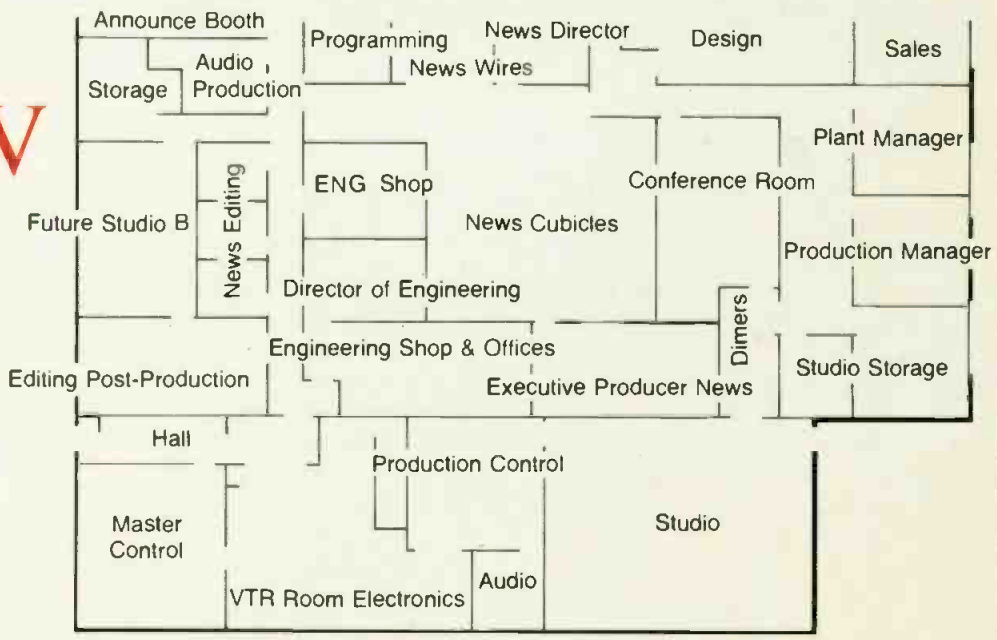
The post-production suite is situated between the production room and the production studio. It includes a Grass Valley Group model 100 switcher interfaced to a Convergence 204 editor and a Tascam M-30 audio board. This ¾-inch A-B roll suite has slow-motion capability thanks to a Fortel Y-688 TBC and a Sony BVU-820 VCR.

Studio facilities include one each for news and production. Both are furnished with lighting grids and equipment by the Walter S. Brewer Company, including dimmer controls by Electro Controls and many Bardwell & McAllister fixtures. A special viewing room that can hold 30 guests looks out on the news studio through acoustic windows. There is also a multipurpose community meeting room, which is free for use by the public for civic and nonprofit events, seminars, small conventions, and other special functions.

KMVT-TV's spacious newsroom has four off-line editing booths, a teletype room, and a custom dispatcher's desk. Editing booths feature Sony ¾-inch VCRs, which are able to access the house routing system for special feeds. Last but not least, the news department was given easy access to a special parking area for its own use.

KVEA-TV

Glendale, CA
ADI No. 2



Submitted by H. Douglas Lung, Director of Engineering

Estrella Communications purchased KVEA-TV 52 in October, 1985, and commenced its new Spanish-language programming one month later. Channel 52 had been broadcasting subscription TV, and the change in formats required a complete redesign of the facility in a matter of weeks. The need to rebuild, however, was recognized far in advance and planned for.

Our technical and creative staff was challenged with adapting this existing facility to its best advan-

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tage. Fortunately, all design was done in-house, and it was easy to toss ideas around. The number and complexity of production activities steadily increased up to and beyond the purchase date, further complicating design and construction because of the need to meet both current and new station needs.

Master control was designed with everything in easy reach so that it could be operated by one person. Economy and ease of operation dictated ¾-inch video as our primary format. Standard racks, however, will enable KVEA to be modified for different formats and for automation. Master control is designed to minimize single-point failures.

Ten Sony V0-5800s are looped through three Grass Valley Group (GVG) Ten-X routing switchers, one for preview and backup, plus one for each of two For-A FA420 TBCs. To enhance reliability, the video output of the TBCs goes directly to our GVG 1600-4S master control switcher without passing through DAs. The second video output of the TBCs does go to a DA for distribution to an auxiliary GVG Ten-X switcher for monitoring.

The monitor Ten-X allows level checking through the system from the TBCs to the Rohde & Schwarz EKF-2K off-air demodulator. Monitoring uses an Ikegami TM20-9R, TM14-9R, and Sony PVM-91s. Master control is completely self-contained, although timed inputs are available from machines in the VTR room.

Our production area had to be upgraded without disrupting the daily news program. A new 3M 40 X 20 routing switcher was installed with master panels in editing, production control, and the VTR room, and with individual pushbutton panels for the NEC digital video effects (DVE) generator, Abekas A-42 still store, VTRs, frame synchs, color corrector,

An ADM 2442-II console gives KVEA future expansion and bilingual capability.

monitoring positions, and primary record VCRs. Four Sony BVU-800s were added to the VTR room, and all but one of the old quad machines was removed. Two Ampex VPR-80s and two VPR-2Bs were also retained.

In addition to the machines in our VTR room, KVEA has an editing suite equipped with a Convergence 204 editor, a GVG 100 switcher, a Soundcraft 200B audio console, an NEC DVE system 10, Chyron RGU character generator, and three more Sony BVU-800s.

All cables to switchers are of matched lengths, which allows for timing to be checked at any switcher, and set throughout the plant. Still store, frame synch, and video inputs from the VTR room are available in the editing suite. Either of the NEC DVE generators can take control of the other for two-channel effects.

All video and audio wiring was replaced. Cables were run in a cable tray along the wall about a foot below the drop ceiling, and through walls, when necessary.

We chose an L-shaped layout for the production control console so that the technical director can easily reach not only our GVG 1600 series switcher, but also its accompanying master E-MEM III and E-Disk options, NEC DVE controller, and the Abekas A-42 library system terminal. We also allowed space for the additional crew required for news and other large productions.

Because a second studio is in our long-range plans we chose the ADM Technology 2442-II board for our audio control room. The board has separate monitoring and talk-back for a second studio.

Although stereo programming is not yet available in Spanish, mic inputs were equipped with pan pots in anticipation of when it will be. The four submasters also mix down to two channels and the plant is wired for stereo. An Aphex stereo Compellor provides audio processing. Although the audio operator can see into production control, monitors for the three studio cameras and program and preset were installed above the audio board for easier viewing.

The main studio is configured to allow maximum flexibility. Audio junction boxes provide microphone inputs plus patchbay inputs and outputs that can be used for line-level signals, additional monitoring, or other needs. Utility boxes provide IFB channels, intercom line, talk-back and monitoring outputs, master antenna RF output, plus BNC connectors tied into the VTR room video patchbay. Studio lighting is controlled by three Colortran 12 X 2.4 dimmer packs and a Patchman digital control panel.

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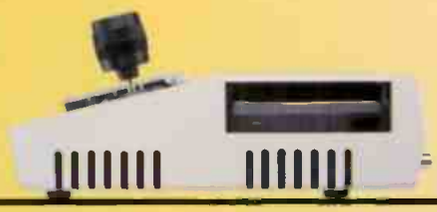

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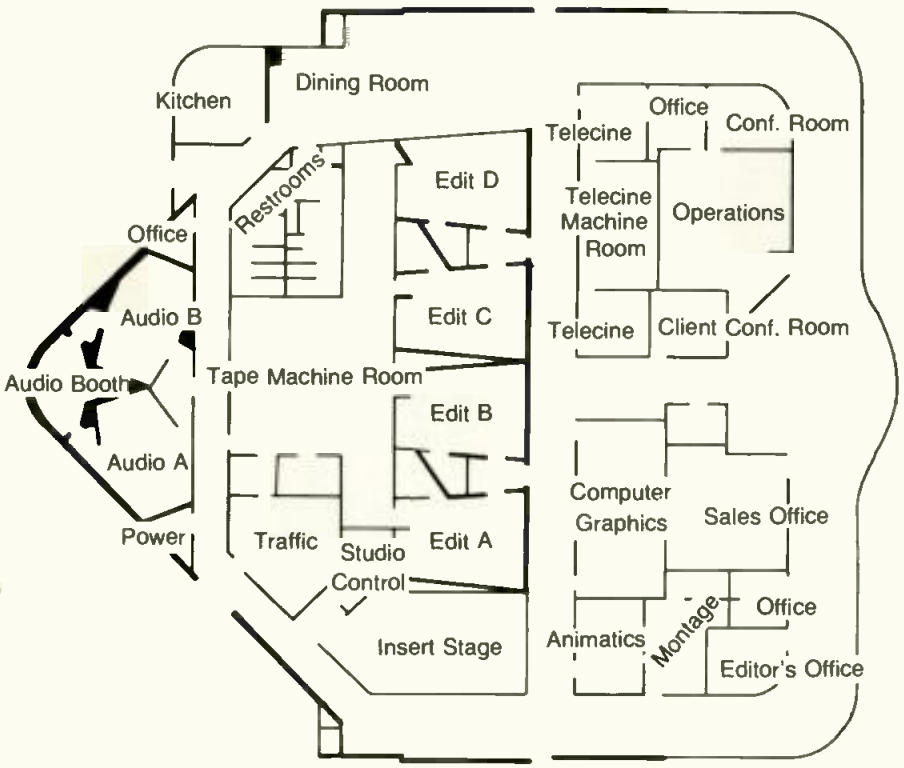
Video Tape Associates

Atlanta, GA

Submitted by W.K. Chambliss, President



When Video Tape Associates announced the plans for its new post-production facility, the news went out to VTA's clients with a questionnaire asking for their ideas on what should be included in the new building. Although VTA had been in Atlanta since 1977 and in South Florida since 1968, this was the first time VTA would be constructing a facility from the ground up. The final plans—drawn from client and staff input on equipment, room design, and amenities—were the start of a 40,000-square-foot facility built for post-production.

The front half of the three-story bulding is floor-to-ceiling windows, lined with trees and plants. This, along with the light oak floors and white textured walls, gives the facility a bright, open atmosphere. Corporate offices are on the third level while engineering offices and the Halon-protected tape vault are on the first. The entire post-production operation is contained on the ground floor so all services are readily accessible to the client.

The layout of this floor follows the usual post-production process. Operations and sales offices are in the front hall. Parallel to this hallway are four edit suites, two telecine suites, and two computer graphics rooms, with the Montage edit suite, animatics studio, and insert stage around the corner.

VTA's Bosch telecine suite uses the da Vinci color corrector—designed by its sister company VTA Technologies.

The four edit suites access the tape machine room, which also contains the duplication operation. Directly across the hall from this room are the traffic and shipping offices, located next to the loading dock. The audio complex is in the back of the building, built on a floating slab to isolate it from vibrations and noise in other parts of the building.

VTA has a sister research and development company called VTA Technologies, which is responsible for much of the equipment in the new facility. The interformat edit rooms, which are capable of editing on ¾-inch, one-inch, or Beta half-inch are operated through the Fastrack edit system. Fastrack was designed to condense many of the frequently used function into one or two buttons to save time. It also cuts machine cue time in half.

Fastrack is combined with an innovative routing system, designed with the help of Utah Scientific, and the MEVA (Mixed Effects Video & Audio) Project, allowing editors to use any machine in the building and to build a switcher to meet the needs of a

12th Annual Competition
See Ballot on Page 49

particular project. All just by punching buttons at the edit console.

Other equipment available in the edit suites are two Ampex ADOs, the Chyron 4200 character generator, Abekas A62 digital recorder, and black-and-white titling cameras. VTA's tape machine inventory includes Ampex VPR-2Bs and VPR-3s with the Zeus time base corrector, RCA high-band quads, Sony ¾-inch cassette decks, JVC VHS, and Sony Beta cassette decks.

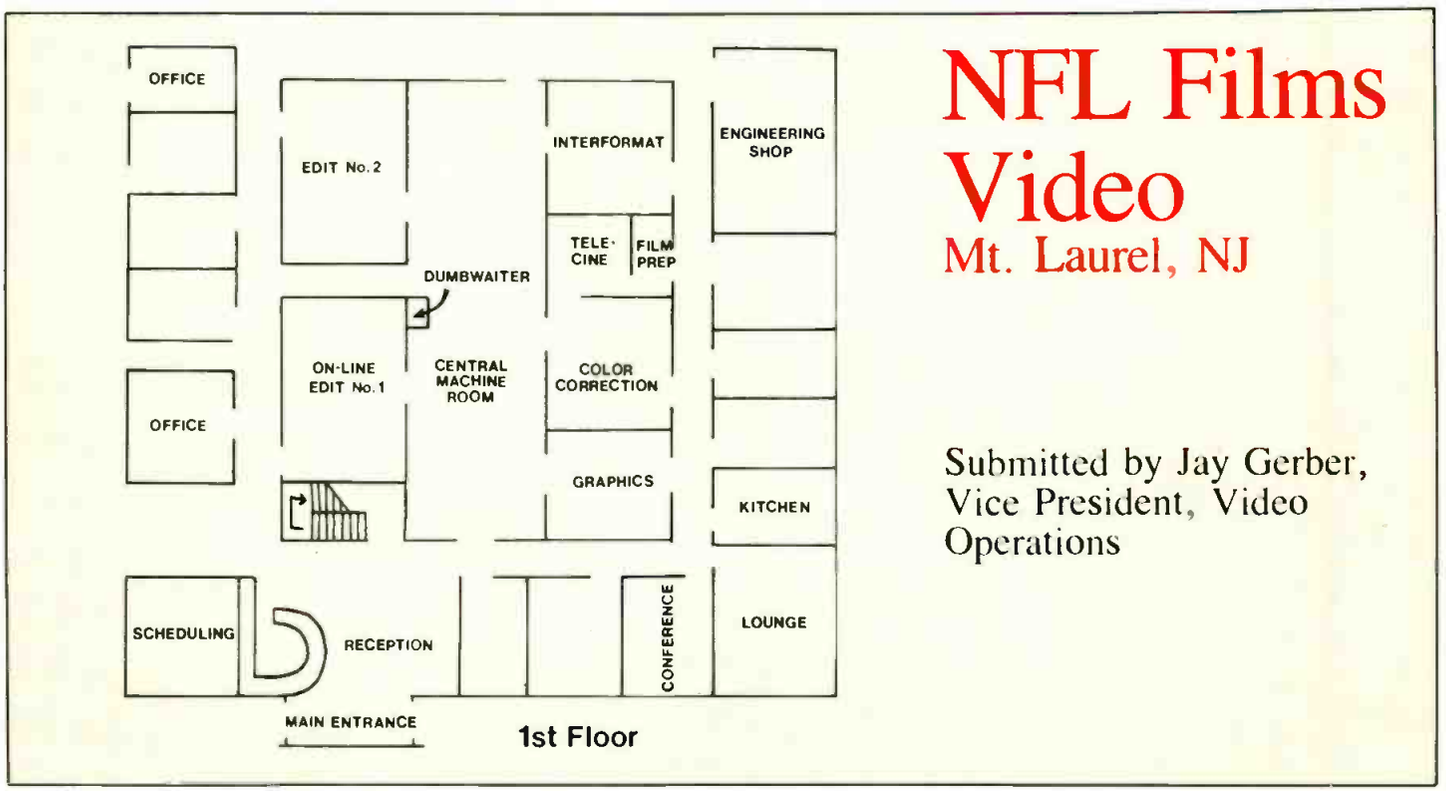
For film-to-tape transfers, VTA offers clients a choice of Bosch FDL-60 or the Rank Mark III. Each is equipped with the da Vinci Unified Color Corrector, developed and marketed by VTA Technologies. Film is cleaned with the Lipsner-Smith CF200 ultrasonic cleaner. Monitors in the telecine suite are surrounded by a color-corrected wall to provide a constant reference during transfers.

VTA chose the Alias computer graphics painting and 3-D modeling system, supported by the Abekas. The choice was made after studying several similar systems, but the Alias, complete as it is now, is still in its infancy with lots of potential for growth. Also new is the Warren R. Smith animatics/photomatics stand. This system allows repeatable, programmable moves on 35mm and 2¼-inch slides, as well as various sizes of chromes and flat artwork.

The audio sweetening studio features a recording booth; MCI 36 x 24 automated mixing console; MCI 24, 4, and two-track ATRs; dbx noise reduction; BTX editor/controller; Eventide Harmonizer; Lexicon 224X; and complete music and sound effects libraries. Also available are the Ultimatte, the Montage Beta off-line edit system, an insert stage for product shots and talking heads, one-inch and Sony Betacam remote facilities.

Having built the facility from scratch, VTA was able to provide its clients with several extras that were previously impossible due to lack of space. Clients now have a large office near the front lobby for phone calls, meetings, or viewing cassettes. Each edit room has a small private office for the client. A large kitchen and large dining area are situated near the two-story windows and atrium, where clients can enjoy lunch and a break from their session. On the lower floor, VTA has furnished a small suite for clients involved in late-night or all-night sessions; a place to freshen up or catnap before catching an early morning plane.

Although the new facility is now completed, VTA will not slow down, either in Atlanta or in Hollywood, FL, where VTA Technologies continues to expand and improve hardware and software each day. And, in both locations, what really makes VTA special is its staff of professionals, which provides an excellent complement to the superior technology.



NFL Films Video

Mt. Laurel, NJ

Submitted by Jay Gerber, Vice President, Video Operations

NFL Films Video was expanded in March, 1986, with the completion of a new $10 million audio/video post-production facility in Mt. Laurel, NJ. The two-story, 22,000-square-foot facility is situated on over two acres of land. Located on the same site as its parent company, NFL Films, the new facility is equipped to handle a variety of projects, including rock videos, concerts, industrial, education, and training films, commercials, sporting events, and documentaries.

TELEPRODUCTION

The interformat, rough-cut suite at NFL Films Video is convertible to a full on-line room with Sony BVE-5000.

A complete audio recording studio allows full sweetening functions with an SSL 6000E console, Eclipse synchronizer, and Studer multitrack recorders.

Video post-production equipment supplies two on-line edit suites, two interformat suites, two film-to-tape color correction suites, a cuts-only suite, and a graphics suite, all integrated through a central machine room. For audio production and post-production, we offer an audio sweetening studio with three spacious performance areas, and top-of-the-line equipment.

The heart of the technical operations, the central machine room, is directly connected to film-to-tape, interformat, graphics, and on-line editing suites for optimum speed and efficiency. The computer floor, dedicated air conditioning, humidification, and electrical clean power create the proper technical environment.

NFL Films Video has two on-line edit suites, east and west. On-line edit west is fully equipped with a Sony BVE 5000 editor, Grass Valley 300-3B switcher, two title cameras, Dubner CBG-2, and Chyron titles. Any combination of up to six sources and two record VTRs are available. Sony BVH 2000s, BVU 820, or BVW 40 Betacam is complemented by a Quantum audio board for full stereo mixing with dbx compression and Orban reverberation. Audio interlock through the Eclipse editor affords complete audio versatility. Digital effects include two channels of ADO with Digimatte, Concentrator, and Infinity. In addition, with the Abekas A62 digital still store and a Quantel Paint Box, this room can accomplish any creative task.

On-line edit east features a Convergence ECS 205 editor with dual disk drive, printer, and eight-inch disk drive for interface of data with the BVE 500 edit suites. Any combination of seven machines is available with this four-port editor. The BVU 800s, BVW 40 Betacam, or three one-inch BVH 1100As, coupled with Quantum audio board and Chyron RGU-2 make this a cost-effective suite.

Interformat west is a true interformat, rough-cut suite that can easily be converted into a full on-line edit room offering a Sony BVE 5000 editor using two BVU 800s, one BVU 820, one BVW 40 Betacam, and one BVH 2000. Video signals are manipulated with a Grass Valley 1680-10X switcher with E-MEM. A title camera, Dubner CBG-2 for titles or graphics and ADO with Digimatte allow for complete rough-cut or final edit. The two film-to-tape/color correction suites give the client the advantage of quality imaging with Rank Cintel MK IIIC telecines capable of XYZ zoom, one-line ADO, switcher effects, video and audio time compression, title camera and Dubner graphics.

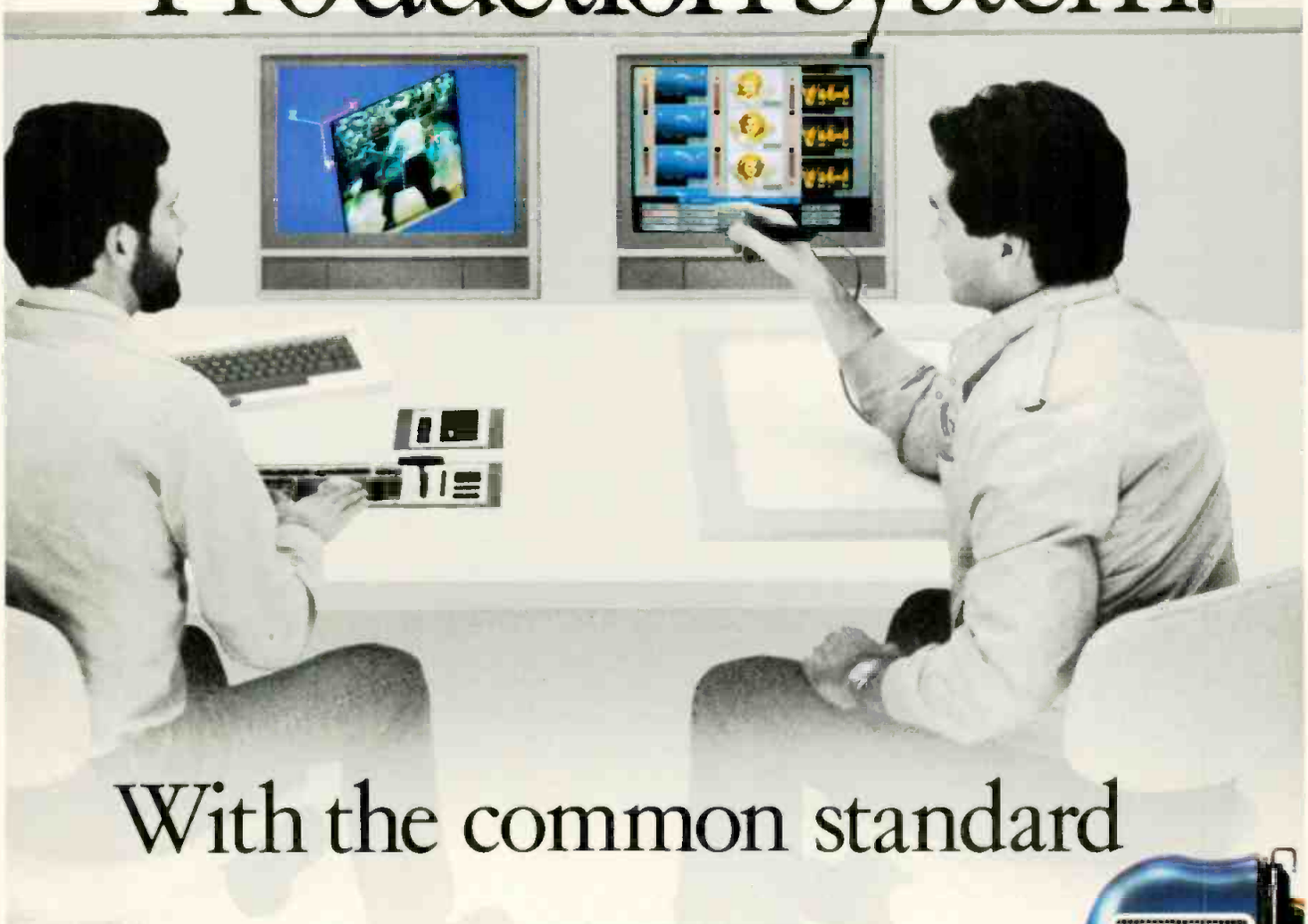
The audio studio features an elegant sweetening facility. The studio offers a Solid State Logic 6000E console with total recall, Eclipse synchronizer, Studer 24-, 16-, 8-, 4-, and two-track recorders, Lexicon 224, Bel Systems delay, Eventide Harmonizer 969, Dolby and dbx noise reduction, plus Nakamichi digital two-track. Three spacious playing areas, vocal and drum isolation booths, high-speed mixing, and electronic post synching provide total versatility in one location.

Further capability is provided by our 40- x 40- x 30-foot shooting stage with a wide range of photographic and audio functions. Soft cyc and audio baffling produce excellent sound quality. Wraparound and Ultimatte backgrounds afford on-the-spot usage. Large exterior doors allow easy access and there is a carpentry shop adjacent to the room.

For client comfort and screening purposes, we offer a lounge with multiformat screening capabilities. The lounge has been designed and furnished for total comfort and privacy. For much larger occasions, the Edwin M. Sabol Theatre seats 62 and is capable of monitoring, screening, or projecting one-inch, ¾- inch, half-inch, Beta, Betacam, or 16 mm composite. An additional screening room, which seats 30, is available for 35 mm, 16 mm interlock, or composite.

NFL Films Video employs 150 professionals, many of whom have over 15 years of experience in all aspects of audio/visual production and post-production work. The staff represents impressive expertise including electronic engineers, video and film editors, special effects photographers, and creative editors. With our marriage of top equipment and highly trained staff, we have performed post work for a wide range of clients.

The Complete Digital Production System.



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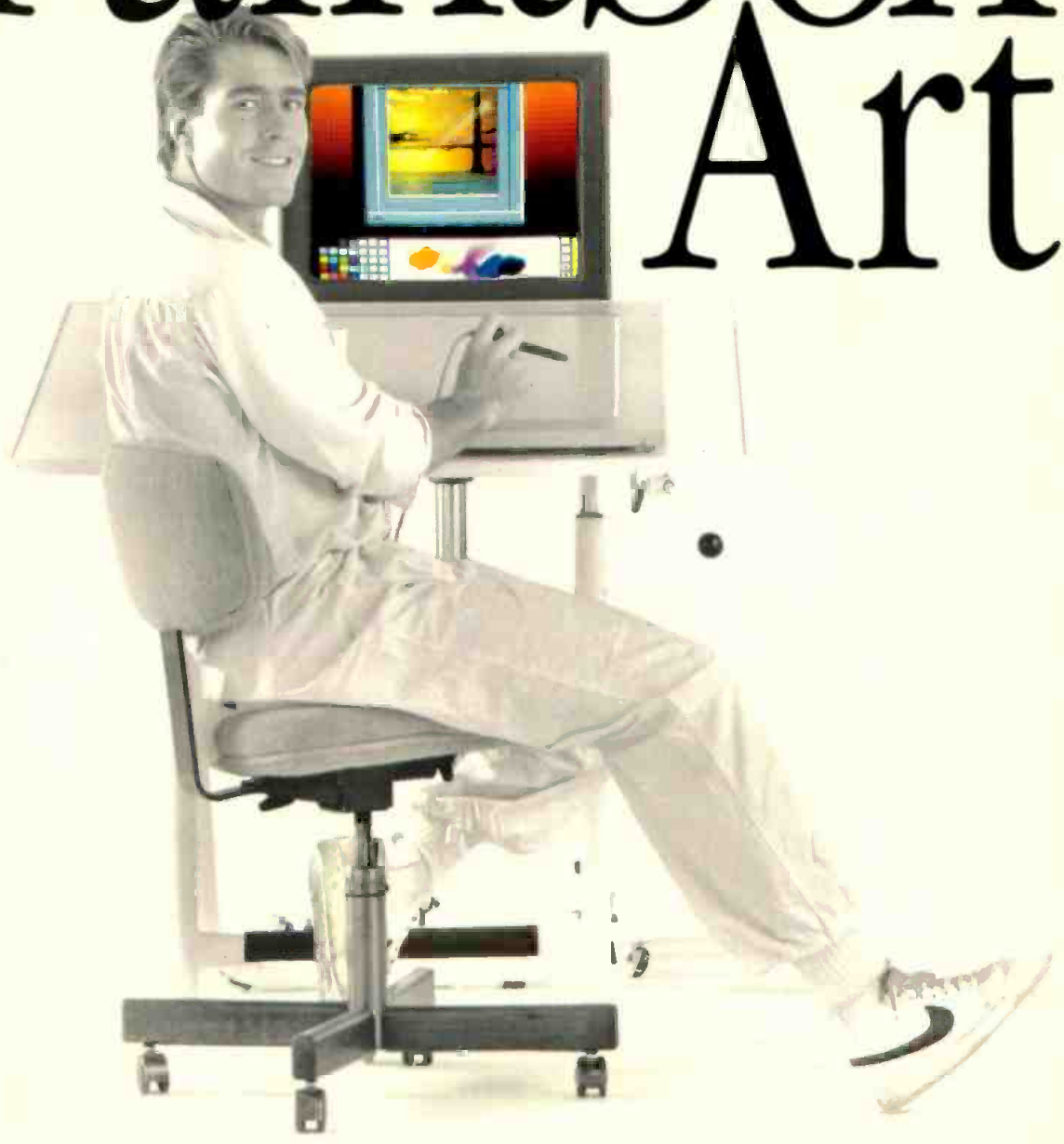

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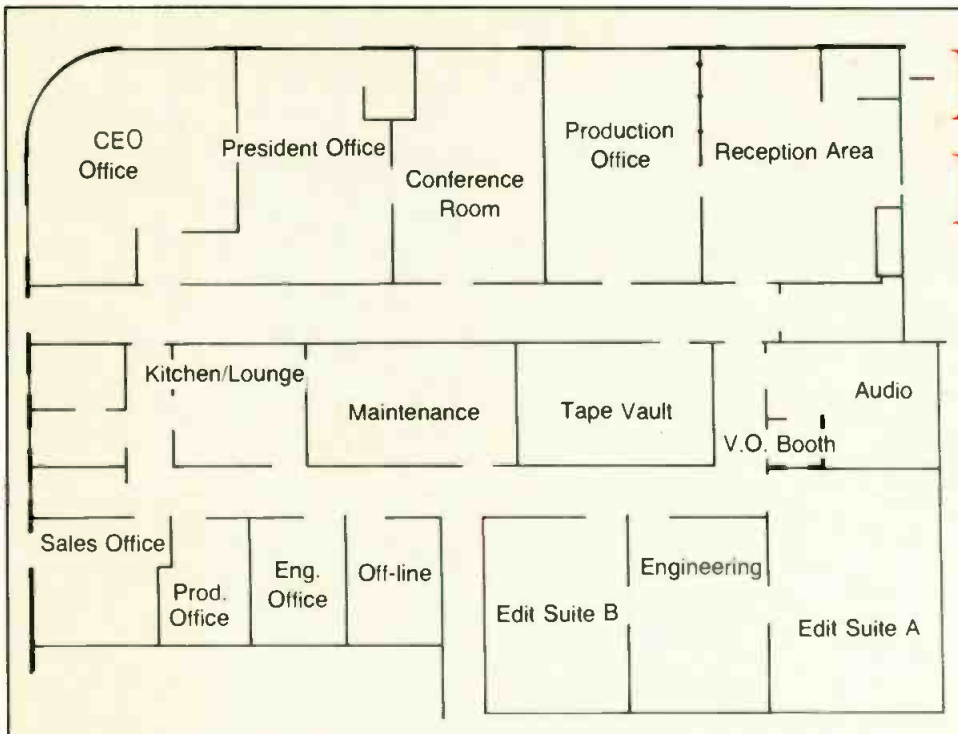

Rock Solid Productions

Burbank, CA

Submitted by Mark Bement, Design Engineer

Nationally recognized as a pioneer in component technology, Rock Solid Productions is a full-service Betacam production and post-production facility. It occupies approximately one-third of the Burbank Production Plaza, a 35,000-square-foot complex.

A little over three years ago, Rock Solid chose Betacam as its production format because of its high image quality and compact size. To control post-production costs while maintaining high quality, an on-line edit system was built. Taking full advantage of the Betacam recording system, as well as other inherently component devices (such as graphic systems, digital effects devices, and color correctors) they chose to build an all-component post-production facility.

Rock Solid was the first to build a commercial, fully component edit facility and has since established a respected reputation as pioneers of Betacam technology. Much work is done with manufacturers and producers to develop new equipment and techniques in this emerging field. For example, many projects have been shot with Betacam, posted in component, and converted to film for final release.

Rock Solid's Edit A contains Grass Valley component video switcher, Dubner character generator, Tannoy audio monitors, and Sony BVM-5000.

Our new location was designed with space for on-line and off- line editing suites, audio sweetening, central engineering/VTR room, tape vault, lounge, and offices. Edit suite A contains a Grass Valley system 41 edit controller, GVG 1600-1XCV component video switcher, Graham Patten 612 audio-follow-video mixer, Abekas A-52C component color corrector, and Sony Betacam BVW-40/BVW-15s. Recently completed, edit suite B contains a GVG system 41, Grass Valley 100-CV component video switcher, Soundcraft 200 audio console, Chyron VP-2 RGB character generator, and Sony BVW-40/BVW-15/BVW-10. Audio equipment includes an Otari 5050 MKIII multitrack ATR, Sony PCM F1 BVU-850 SP digital two-track , and dbx noise reduction and processing.

Central engineering contains all routing, main electronics, and tape machines, including Sony BVH 2000 one-inch VTR linked to the component sync, test and measurement equipment. All

A full-service component Betacam facility, Rock Solid features a machine room with Sony BVH-2000, VCRs, and all routing and electronic equipment.

inter-rack cabling and power is concealed under a suspended panel computer floor. Currently we are awaiting delivery on a two channel Grass Valley Kaleidoscope for digital effects and the Sony DVR-1000 digital VTR, which will be accessible from either bay. In addition to Rock Solid's post facility, the Production Plaza also houses a 40- x 50-foot sound stage with a 15-foot-high grid and a three-wall hard cyc.

Founding partners David Griffin and Geoffrey Leighton, along with the designer/engineers Mark Bement and John Rauh, conceived the facility with the idea of creating a relaxed environment while at the same time maintaining a professional look. Clients consistently comment on the intimate atmosphere of the facility.

Lighting, acoustics, and ergonomics played a key role in the formation of a design plan. In the A bay, a pair of Tannoy SRM 12B audio monitors and a single Sony BVM 5000 video monitor are supported by steel I-beam pedestals set at the optimum height and distance from the operator's area. The console is an 8 x 4 parallelogram made of hand-lacquered purple heart wood, also supported by steel I-beams to achieve a floating effect. The switcher control panel is supported by a separate wood and steel enclosure.

The simplicity of the design was intended to create an intimate atmosphere that more closely resembles the final viewing environment, while allowing for adaptation to the constant evolution in systems design. The founders wanted to give a greater flexibility and at the same time avoid the cluttered appearance of many edit system control rooms. While most facilities tend to lock themselves into a specific equipment design scheme, Rock Solid Productions approached their design with the key ideas of modularity and adaptability.

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Minority Preference

By Harry Cole, FCC Counsel

Mark Twain is sometimes credited with the observation that, if you don't like the weather, just wait a minute; it'll change. He might just as easily have made the same observation about the FCC. Nothing illustrates that principle more than the rise and apparent fall of the Commission's minority preference policies in comparative proceedings.

As we have written more than once in this column, the Commission has devised a series of criteria by which it compares competing applicants for new broadcast authorizations. One of the criteria long thought to be the most immune from any legal attack has been the minority preference. That preference allows an applicant to claim a substantial comparative "enhancement" to the extent that it can legitimately claim that its voting stockholders who will hold full-time management-level positions at the proposed stations are members of one or another minority group.

For more than a decade, this concept of minority preference has been applied by the Commission, largely without serious challenge. To the extent that the concept has been challenged, it has been defended—and defended successfully—by the FCC. Now, however, it appears that the Commission is prepared to abandon the preference.

Some 13 years ago, the Commission's stated desire was to avoid the awarding of any kind of preference based on race. In the FCC's original view, the grant of broadcast licenses should be on a "colorblind" basis. However, in a 1973 case titled *TV 9 v. FCC*, the U.S. Court of Appeals for the District of Columbia Circuit rejected that approach. The Court told the Commission that it would have to take into account an applicant's race to the extent that that factor might contribute to diversity in programming.

Following the Court's order, the Commission developed and applied its minority preference policy, which has since been applied in numerous comparative proceedings (and which has been the deciding factor in many of those cases). That policy was so generally accepted that the Commission's own review board thought it appropriate to extend the policy, in 1978, to include a "female preference."

Defending constitutionality

The next relevant milestone in the history of the minority preference policy occurred in 1984, when the Court of Appeals decided the case of *West Michigan Broadcasting Co. v. FCC*. There, a black applicant had won an FM construction permit based in large measure on the basis of the minority preference. The losing white applicant appealed the decision, claiming (among other things) that the minority preference scheme was unconstitutional reverse discrimination. The Commission defended the constitutionality of its policies.

One year later, the case of *Steele v. FCC* went to court. *Steele* involves another FM comparative proceeding pitting a white male applicant against a white female applicant. The female won, primarily on the basis of the female preference. The male appealed the decision on constitutional (and other) grounds, and the Commission again staunchly defended the constitutionality of its policies. But in August, 1985, two members of a three-judge panel of the Court of Appeals concluded that the female preference was *not* constitutional.

In its opinion, the majority of the three-judge panel in *Steele* attempted to distinguish, in statutory and constitutional terms, between the female preference and the minority preference. However, as Judge Patricia Wald pointed out in an extensive and detailed dissenting opinion, the majority's distinctions were not particularly persuasive.

The panel decision in *Steele* was a clear set-back for the Commission's minority policies. Indeed, it was an almost complete reversal of the Court's own decisions in *TV 9* and *West Michigan*. Many observers viewed Judge Wald's dissent as an open invitation to the Commission to seek "rehearing *en banc*" relative to the panel's decision.

In its brief the Commission declared that, in its present view, the female *and* the minority preference policies are unconstitutional. The Commission's conclusion was based, among other things, on recent Supreme Court decisions that hold that race-based standards can be upheld only if there has been a prior determination that discrimination has previously occurred and that the race-based standards are necessary to correct that discrimination. The FCC, reviewing the history of its minority-preference policies, realized that it had never even attempted to establish a record relative to the effects of any past discrimination that might have occurred.

Gender preference

Careful readers might note that the FCC's recent *Steele* brief is addressed to gender *and* minority preferences, even though the *Steele* case itself involved only the gender preference. The Commission explained this extension—which some observers felt to be unnecessary—by saying that the

gender preference arose as a direct offshoot from the minority preference. According to the FCC's logic, if the lack of a supporting record rendered the gender preference unconstitutional, precisely the same result would have to be reached with respect to the minority preference.

As it turned out, though, the Commission's brief proved to be possibly a superfluous exercise. At the same time that it filed its new *Steele* brief, the Commission also asked the full Court of Appeals to remand the *Steele* case to the FCC so that the Commission could initiate a proceeding in which it could attempt to develop the type of record necessary to make the minority and gender preference schemes constitutional.

Needless to say, the Commission's apparent about-face on minority policies caused an immediate stir in many circles in Washington. The House Telecommunications Subcommittee, which had coincidentally scheduled an unrelated hearing for two weeks after the *Steele* brief, suddenly shifted the focus of that hearing, choosing instead to examine the Commission's change in policies. All five Commissioners testified before the Subcommittee on October 2, and all five were roundly berated by a number of Subcommittee members.

Just the same, several Commissioners clearly indicated that they have serious doubts as to whether such a record could ever be developed. In their view, it appears, it will be impossible to justify the imposition of race- and gender-based preference policies where such policies have already been in place for ten years or more.

Other questions

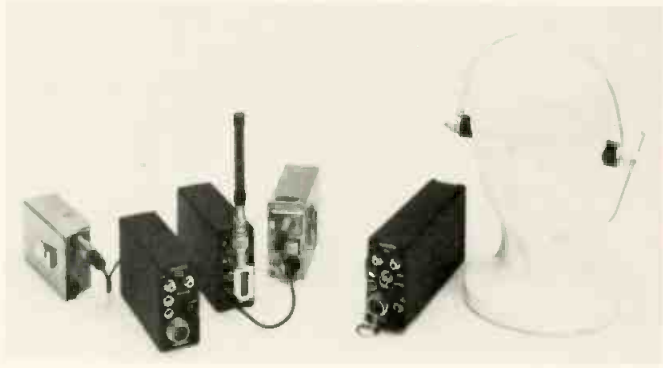
There are a wide variety of other "spin-off" questions that lend themselves to speculation. For example, if the minority preference policy is unconstitutional for lack of a supporting record, what about the minority "distress sale" policy or the policy of awarding tax certificates to broadcast owners who sell their stations to minority buyers? What about the lottery process used to award low power television permits? That process, which incorporates numerical preferences for minorities (but not for women), was mandated by Congress.

Also, what about cases that are presently pending, and in the disposition of which the preference policies could be crucial? During testimony before the Subcommittee the Commissioners were unable to state with any clarity what their position would be in such cases.

It is difficult to predict the answers to any of these questions. It does appear clear that the Fowler Commission is moving away from minority- and gender-based preferences in broadcast licensing. How far away it moves, how fast it moves, and how long it stays away from minority preferences are all questions that remain to be answered.

If you have any questions about these matters, you should consult with your communications counsel. □

New Equipment



Swintek Goes Wireless

The Mark 200D/C, a compact wireless headset interconnect device for hardwired intercoms, was introduced by Swintek, Inc.

The 200D/C is designed to work with any three-pin XLR patch: plug the unit into the patch, connect the antenna, select channel one or two, and turn on the power to activate the base.

Utilizing the high VHF FM band between 150 and 240 MHz, the unit incorporates db-S audio scaling and signal processing to increase the dynamic range. List price for the 200D/C is $895; dual frequency capability is optional.

Circle 250 on Reader Service Card

Amber Unveils Test Systems

The Model 3501, a portable distortion and noise measuring system from Amber Electro Design, delivers super high-performance testing for BTSC stereo applications. Featuring lab-quality performance, comprehensive measurement, and balanced high-level interface, the 3501's updated stereo switch matrix option is particularly applicable to stereo testing environments.

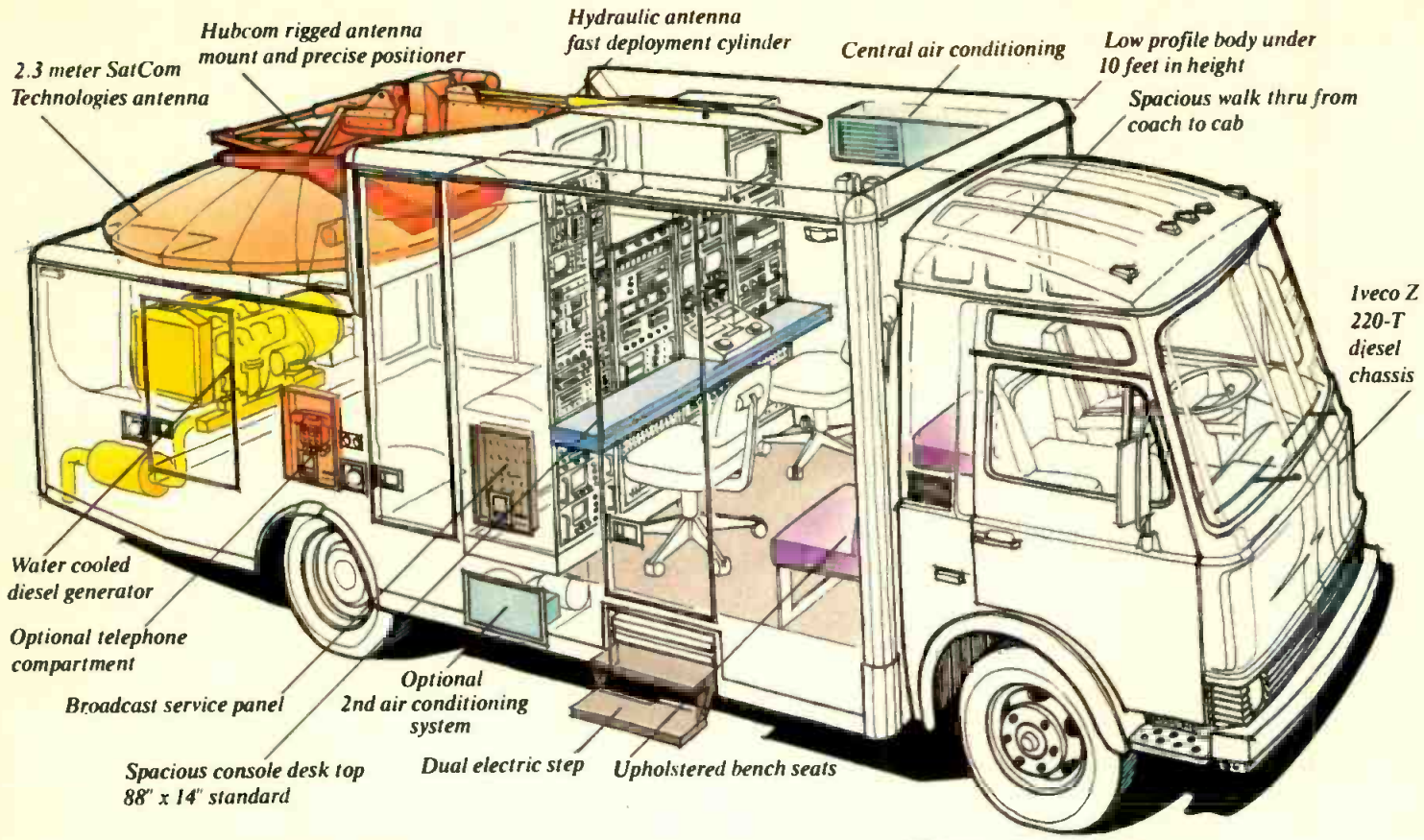
For automated applications, Amber's programmable Model 5500 distortion and noise measuring system couples state-of-the-art PC capability with intelligent bench top operation for test-and-measurement needs. The 5500 features a high-quality stereo audio generator; stereo level and noise meters; distortion, spectrum, and crosstalk analyzers; and a frequency counter.

Both units feature intermodulation distortion (IMD) options.

Circle 251 on Reader Service Card

Barcus-Berry Debuts Signal Processor

Barcus-Berry Electronics, Inc., has released a new lower cost model of its signal processor unit. Called the BBE 802, the pro sound signal processing device is intended for recording studios, live concerts, TV and radio broadcasting, and oth-



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Marconi Communication Systems

er commercial sound applications. Basically, the 802 is a multiband, program-controlled processor that is designed to improve the overall sound quality of reproduced audio.

The unit features high-speed dynamic gain-control circuitry, which improves program transients and adds brightness and presence.

List price is $499.

Circle 252 on Reader Service Card

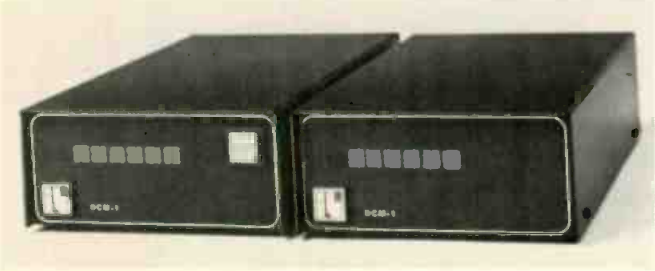
3M Remote Controls the Future

A new SMPTE-type machine control system, designed for remote control of the mechanical functions of existing and future VTRs, has been introduced by 3M.

The Model 442 system also provides remote control of telecine devices and offers easy operation and durability. The system consists of one or more control panels and one or more interfaces connected to a bidirectional digital serial data line. The standard eight-button model features film island control, unlimited machine number and type, allocatable machine assignability, and optional automation capabilities.

An extended-function 20-button unit features software-configurable illuminated push buttons.

Circle 253 on Reader Service Card



ITC Monitors Problem Carts

The new DCM-1 dynamic cartridge monitor from ITC/3M is designed to continuously monitor and verify audio cart performance before and during broadcast. Used with a station's cart machine, the DCM-1 can help personnel identify problem and worn-out carts to eliminate from the station's library.

The monitor can encode existing carts and can be hooked up to as many as six cart decks. Encoder/decoder and encoder-only versions of the DCM-1 are available, and all models feature their own power supply.

Circle 251 on Reader Service Card

Bencher Stands by M2

The rugged new M2 camera stand from Bencher, Inc., features a 48-inch precision rectangular fluted column for precise accuracy and stability of a variety of camera types and video equipment.

The M2, counterbalanced for 35 mm cameras up

to 15 pounds, sports a Kelvin temp–matched illumination board for exact color balance. Options include fine-focus device, leveling plate, quick release, reflection shield, copy masks, copy holdown, and polarizing filters.

Two models—3200 K for type B color film or video and 5000 K for daylight-balanced color film—are available.

Circle 255 on Reader Service Card

MCL Transports TWTA System

MCL Inc. has recently developed a transportable Ku-band TWTA system that consists of two M/N 10975-111 200 W TWT amps along with associated control logic and RF circuitry for redundant integrated variable power combined (VPC) operation.

The TWTA unit provides high maximum power, consistent for 3.7-meter and under antenna dish applications—perfect specs for SNG vans, transportable systems, and rooftop point-to-point transmitters.

Packaged in a convenient modular format, the system features top-mounted components and high-voltage shielding throughout.

Circle 256 on Reader Service Card

Shure Shotgun Loaded with Features

The SM89, Shure Brothers Inc.'s latest condenser shotgun microphone, is designed specifically for location film and televison production, sound reinforcement, and spot news coverage. An innovative capsule design gives the SM89 a highly directional polar pattern, and the mic's fine-tuned frequency response discriminates in favor of desired dialog or effects over ambient noise.

The unit offers a very smooth and extended on-axis frequency response, user-selectable low-frequency rolloff, wide phantom voltage operation, and a built-in windscreen. List price is $900.

Circle 257 on Reader Service Card

Correction: A photographic error was noticed in the New Products section of the November 1986 issue of *BM/E*. On page 110, the photograph running with the Sierra CIK-1 mixer product announcement is, in fact, a picture of Otari's new EC-201 time code reader. In the next column, the copy for the Otari product runs with the photograph for the Sierra device. *BM/E* regrets the error.

The results of a **five-year NAB survey** show that the number of minority owned radio and television stations has reached 2.1 percent of all U.S. broadcast facilities; 247 outlets all told—38 TV and 209 radio. The major share of the increase is represented by black and Hispanic owners: 119 black owners of 21 TV and 150 radio stations—43 Hispanic owners of 8 TV and 44 radio stations.

The Hyatt Regency in San Francisco recently hosted the inaugural meeting of the **World Teleport Association— Americas,** an organization that addresses teleport issues in North and South America and the Caribbean. Speakers brought in via satellite included Diana Lady Doughan, director of international communications for the U.S. State Department, Alfred Sikes, assistant secretary of the U.S. Department of Commerce, and David P. Tudge, deputy director of Intelsat.

Arlington, TX–based **Aries Productions** now sports new interformat editing and high-speed Beta production capabilities. New equipment includes a **Sony** BVW-15, BVW-40, BVH-200, and a **Convergence** 205 editor.

The first **Amek Consoles, Inc.**, APC1000 console has been sold to New York's Greene Street Recording. The audio facility has catered to such recording artists as James Brown, Chaka Khan, and Run-DMC .... People will listen *and* look when **E.F. Hutton** talks, thanks to a seven-second animation segment in a recent company commercial that was produced by **Cranston-Csuri Productions,** Columbus, OH. Using Skyline computer animation software, artist Doug Kingsbury was able to produce a slick, colorful cityscape.

CMTV, Inc., Burbank, CA, an affiliate of New York's **Camera Mart, Inc.,** has been appointed as dealer to market the complete line of **Ikegami** cameras in California, Arizona, and Nevada .... **Zephyr Weather Service,** Inc. is moving data transmission from Galaxy I to **Westar V.** The service will utilize United Video's SCS delivery system once on the Westar satellite.... **Conus Communications** and **Mitsubishi** have announced a limited partnership for a new SNG network in Japan. In addition, the two companies will set up a Mitsubishi subsidiary, Space Communcations Corp., for delivery of domestic telecommunications in the Orient.

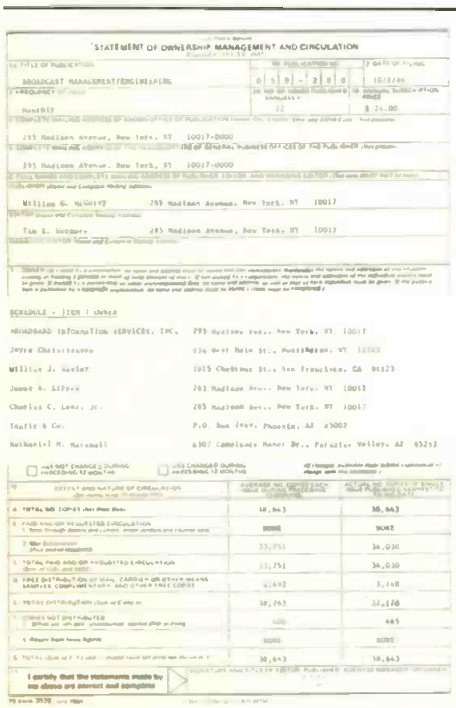
This month's movers: **Fuji Photo Film USA** has relocated corporate headquarters to Taxter Corporate Park in Elmsford, NY; (914) 789-8100.... **Cerwin-Vega** is moving operations to 555 Easy St., Simi Valley, CA 93605.

This month's shakers: Charles A. Steinberg has been appointed president of **Ampex Corp.** Formerly, Steinberg was executive VP of the company.

With one of the first fully operational, fully equipped Betacam conforming suites in the New York City, Kopel Films, Inc., is expanding its arsenal of editorial services. Here, president Harvey Kopel operates the suite, which features a Sony BVW-10; BVW-40; BVU-800; Callaway CED controller; Tektronix 1730 waveform monitor and 1720 vectorscope; Soundcraft 200B audio mixer; Hotronics AS 61 TBC; Ikegami 20-9RH monitor; Datatek A/V DAs; Videotek VSG 200 sync generator; and a variety of audio accessories from ADC, Crown, Nagra, Dahlquist, Belles, Yamaha, and Technics.

Advertisers Index

Manufacturer	Page No.	Circle No.
Alliance Air Freight	46	131
Alpha Audio	46	130
Ampex Corp./AVSD	17	110
Ampex Corp./MTD	6-7	104
Audio Technologies	34	121
Auditronics, Inc.	4	102
Avcom of Virginia	77	147
Beck Assoc. Inc.	76, 79	146, 149
Belar Electronics	81	152
BTS Broadcast Television Systems GmbH	57	136
Camera Mart, Inc., The	5	103
Canon USA, Inc.	18	111
Comark Communications	11	106
Continental Electronics, a Division of Varian Associates, Inc.	44, 57	127, 137
Crosspoint Latch Corp.	22	115
Delta Electronics	43	125
Dielectric	72	143
Digital Video Systems	47	132
Fidelipac	1	101
Grass Valley Group, Inc.	8	105
Harris Corporation	45, 47	129, 133
Hubbard Communications	77	116
International Tapetronics Corp./3M	31	119
Lake Systems Corp.	75	145
Leasametric, Inc.	79	150
3M Magnetic A/V Products	58-59	—
Marconi Communications Systems	78	148
McCurdy Radio	Cov. 3	155
Microtime	65	140
Microwave Radio Corp.	55	135
Midwest Corporation	15	108
Orban Associates	41	124
Otari Corporation	33	120
Pacific Recorders	53	134
Paco Electronics U.S.A. Inc.	35	122
Panasonic Broadcast Systems Co.	12-13	107
Perrott Engineering Labs	20	113
Potomac Instruments	80	151
Quantel	69, 70	141, 142
Sachtler Corp.	21	114
Scientific-Atlanta	23	138
Shively Labs, Div. Howell Labs	19	112
Shure Brothers Inc.	16	109
Sony Broadcast Products Co.	2-3	—
Sony Pro Audio	36-37	123
Sony Tape Sales Co.	24-25	117
Studer Revox Corp.	26	118
Telex Communications	45	128
Texas Electronics, Inc.	44	126
Toshiba Corporation	63	139
Total Spectrum Mfg.	Cov 2	100
Videotek	73	144
Ward-Beck Systems	Cov. 4	—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