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BM/E

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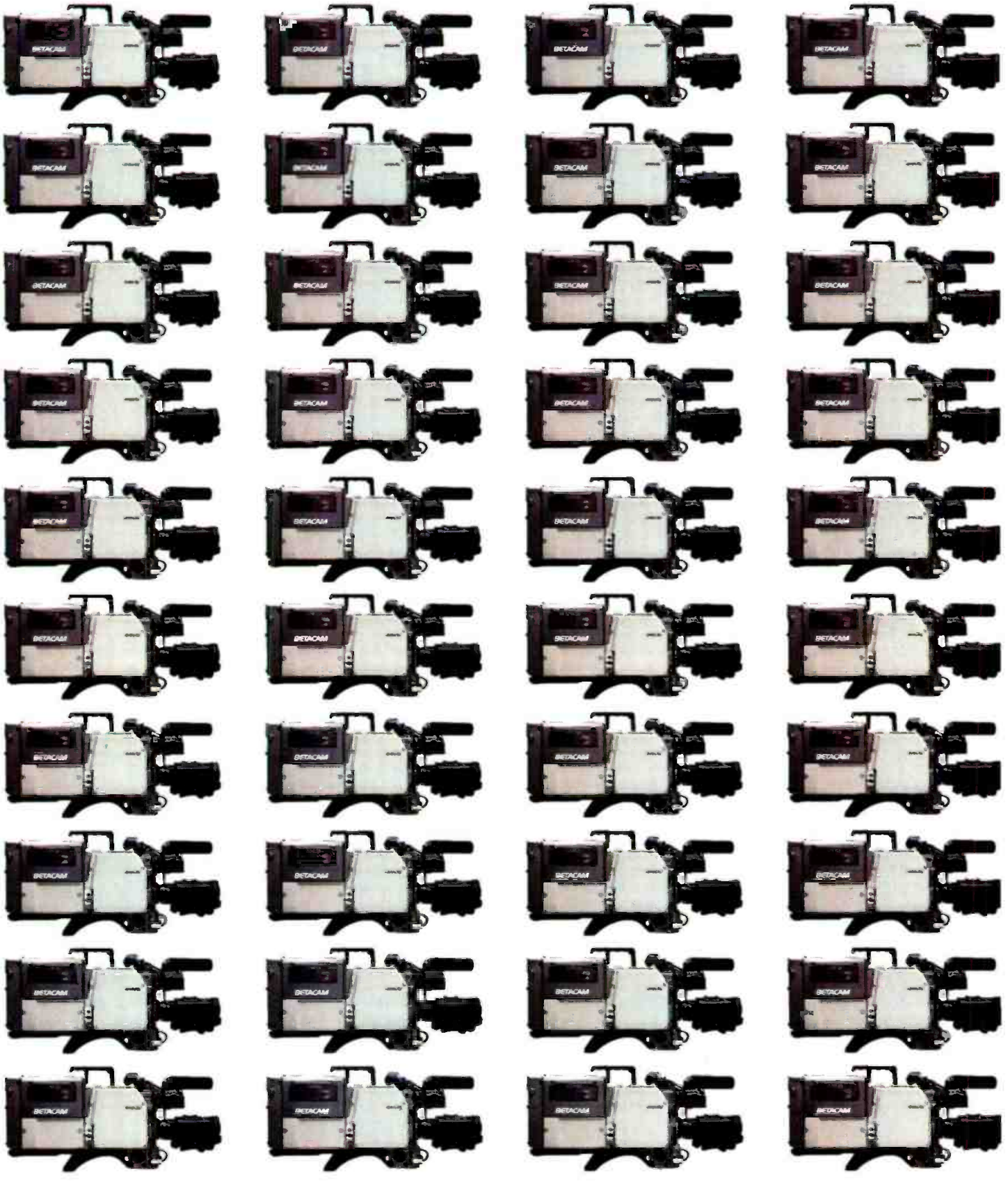
Circle 100 on Reader Service Card

"TO RELIEVE MY CAMERAMEN'S BACKACHES AND MY



Art Biggs coordinates major engineering purchases for the six Corinthian stations. After careful evaluation of all the ½-inch camera/recorders on the market, he made a multi-million-dollar purchase of the Sony Betacam™ system.

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CONTROLLERS' HEADACHES, I TOOK ALL OF THESE."

—Art Biggs, Vice President, Engineering, Corinthian Broadcasting Corporation

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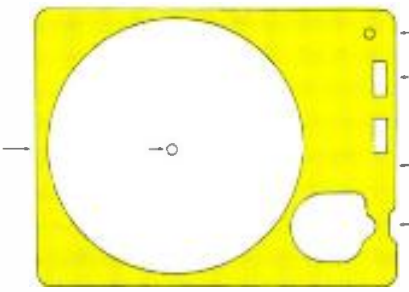

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FEATURES

SPECIAL REPORT

DEPARTMENTS

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- ☐ Signal processing VCA's with six (6) independently controlled channels. DC remote control with balanced outputs.
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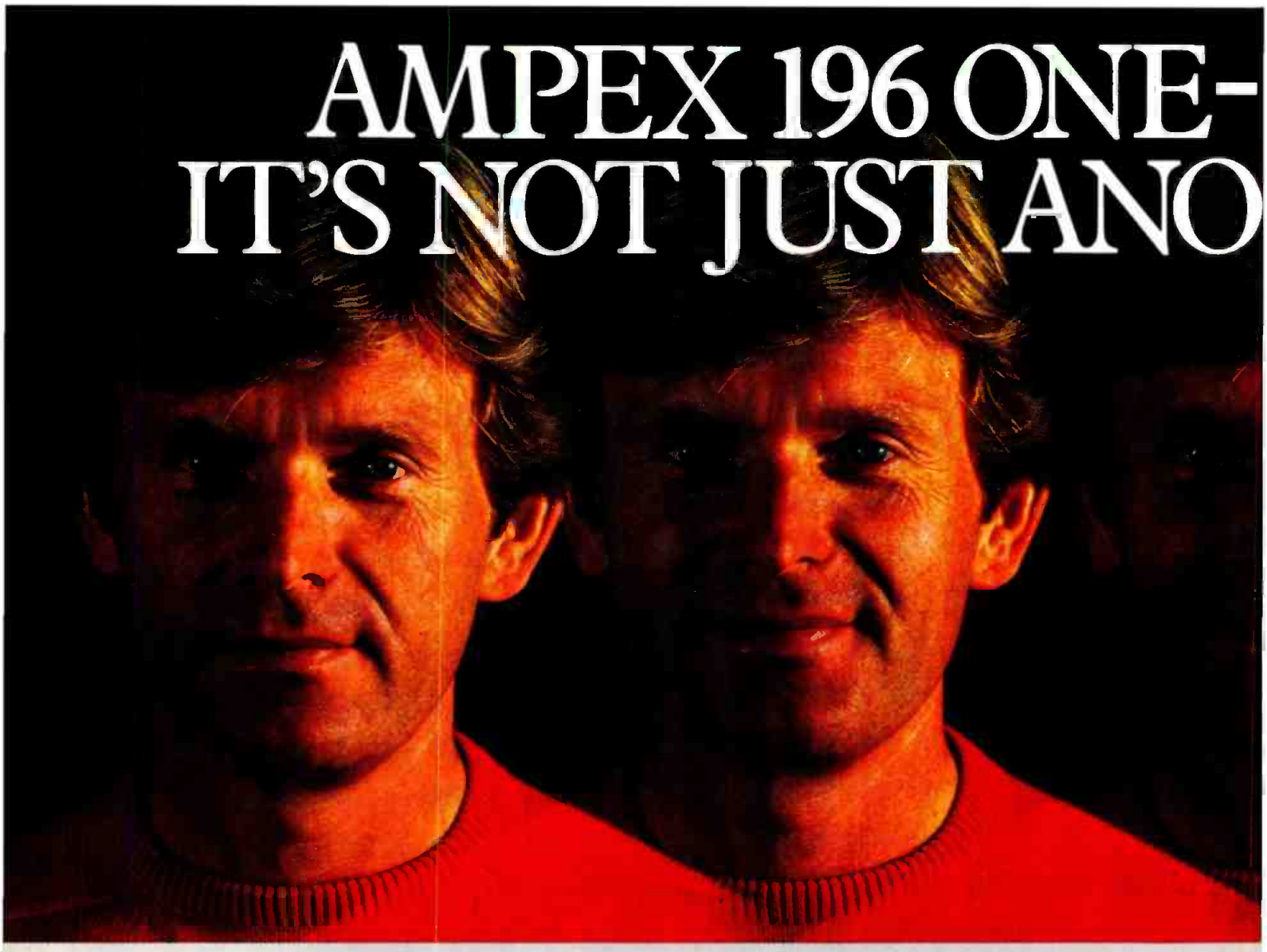

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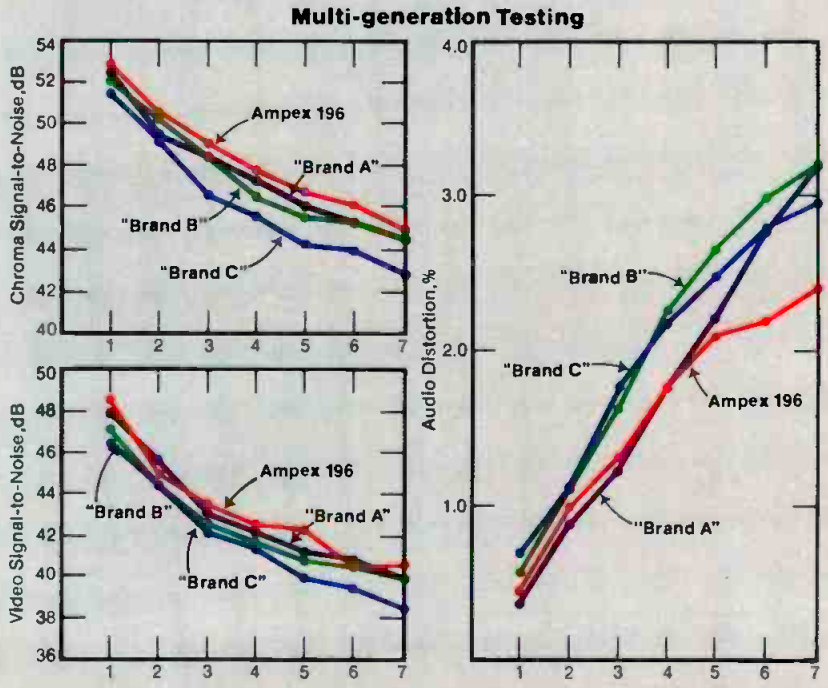

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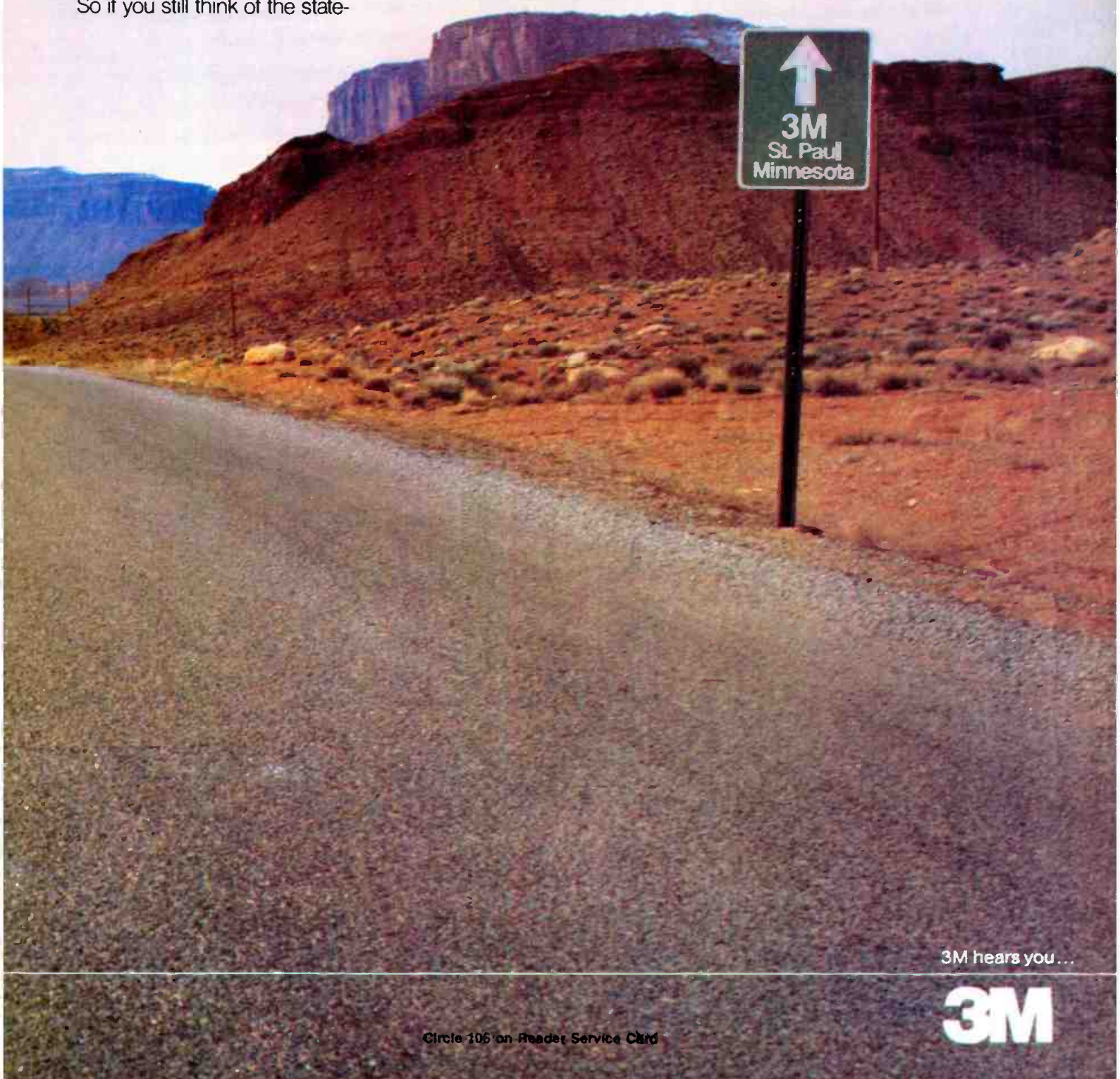

3M hears you...

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Financial Interest Bill Introduced in House

Legislation that would prohibit the FCC from changing its financial interest or syndication rules—as well as its prime time access rule—was introduced recently in the House of Representatives by Rep. Henry Waxman (D-CA). The bill, known as H.R. 2250, would make the rules off-limits to change for a five-year period.

Waxman, who at press time had 42 cosponsors for the bill, was reportedly optimistic on its prospects for passage. Among the cosponsors is Rep. Timothy Wirth (D-CO), who chairs the House telecommunications subcommittee. When the bill was introduced, Wirth read a statement warning against deregulation "for the sake of deregulation," and asserted, "the level of competition in the video marketplace simply does not justify lifting those rules, which were carefully designed to protect the public interest from the lack of competition now facing the networks."

The networks, of course, disagree, and said so in en banc hearings before the FCC shortly before the bill was introduced. At those hearings, representatives of ABC and NBC indicated, however, that they would be willing to live with an anti-warehousing clause if such a clause were coupled with repeal for the financial interest and syndication rules. Their statements constituted a shift in position for the two nets, which had previously opposed such restrictions. CBS, on the other hand, remained steadfast in its opposition to any restrictions.

At press time, the FCC still had not set a date for its ruling. Some observers believe the FCC will try to schedule the action before the June 30 retirement date of Commissioners Joseph Fogarty and Stephen Sharp, thought to favor repeal.

LPTV Lottery Approved, With Minority Preference

By unanimous vote—though with some internal dissatisfaction—the FCC has voted to institute a lottery system for choosing among mutually exclusive applicants for low-power television licenses. Keeping an eye on the future, the Commissioners voted themselves the power to resort to lotteries at some future time for "deadlocked" full-power TV battles; for now, however, lotteries will be limited to new LPTV stations and major service changes.

A two-to-one preference was voted for applicants controlled at least half by minorities as well as for those with no other media holdings, with a smaller preference going to those with one to three media holdings. Much debate centered around whether to grant women minority status for the lotteries, with commissioners Mimi Dawson and Anne Jones strongly favoring the proposal. In the end, no preference was granted, but the Commission said it would ask Congress to reconsider if the minority preference should be expanded to women.

Chairman Mark Fowler's vocal opposition to the minority preferences—which, he claimed, would victimize "the innocent white people who are denied an equal opportunity to compete for a Commission license"—was blasted by commissioners Joseph Fogarty and Henry Rivera.

Shortly after deciding upon the lottery, the FCC issued a clarification of

BM/E's "Best Stations" Honored at NAB

The winners of *BM/E*'s 1982 Best Station Awards—chosen amid stiff competition by readers' votes—received commemorative plaques at a cocktail party given in their honor at last month's NAB convention. Hundreds of guests at the Monday evening affair applauded the winners, whose stations were described in the December 1982 issue of *BM/E*.

The latest winners in the annual contest were: in the TV category, KSDK-TV, St. Louis, MO (submitted by Fred Steurer, chief engineer); in the AM radio category, KFWB, Los Angeles, CA (submitted by Richard A. Rudman, engineering manager); in the FM radio category, WNUS-FM, Belpre, OH (submitted by John Patten, general manager); and in the AM/FM radio category, WEAN/WPJB-FM, Providence, RI (submitted by Joe Drury, chief engineer).

Flanked by *BM/E*'s editor, Robert Rivlin (far left) and editorial director, Jerry Walker (far right), the Best Station Award recipients are, from left: Joe Drury, chief engineer, WEAN/WPJB; John Patten, WNUS-FM; Richard Rudman, KFWB-AM; and Fred Steurer, KSDK-TV.

Is your station a potential Best Station? If you feel your plant is something special, let us know about it. Send us a postcard listing station call letters, address, telephone, and the name of the person we should contact. Rules for the 1983 Best Station Contest will be mailed out late this summer.

WKRC, Cincinnati.

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NEWS

some of its other rules governing LPTV. It reiterated its stance that LPTV signals will not be included under the cable "must-carry" rules for local programming, noting that there is no local programming requirement for LPTV stations. In addition, it indicated that translator stations may originate programming and operate as STV outlets, and that microwave and satellite feeds are not considered originated programming.

The Commission also denied a request by the Corporation for Public Broadcasting that a certain number of LPTV channels be reserved for noncommercial use.

Also in the LPTV arena, two LPTV advocacy organizations have joined forces to urge the FCC to act expediently in processing the backlog of LPTV applications. The National Institute for Low Power Television (NILPTV) and the American Low Power Television Association (ALPTA) have formed the Coalition for LPTV in '83 and have retained the Washington, DC lobbying firm Wexler, Reynolds, Harrison & Schule. According to NILPTV director John Reilly, the coalition's aims are to see all Tier 1 applications processed this year and to urge the FCC to redefine LPTV stations as local signals for the purposes of cable carriage and copyright royalties.

"Marketplace" the Winner in FCC Teletext Decision

Once again, the FCC has turned to the marketplace to guide its decision on a technical matter. Over dissension by commissioner Anne Jones and partial dissension by Henry Rivera, the Commission voted to authorize both commercial and noncommercial television stations to transmit teletext on lines 14-18 and 20 of the vertical blanking interval, using any transmission standard of their choice.

President of NAB Edward O. Fritts criticized the FCC action, pointing to the AM stereo marketplace decision as "a sorry precedent for teletext." Fritts continued, "The Commission must return to the selection of single standards if our industry is to provide the public with new and innovative services at the earliest possible time and for the least possible cost commensurate with quality service." Fritts also found fault with the FCC for voting to allow cable operators to delete teletext signals in retransmitting distant television stations.

At present, teletext proponents fall into two major technical camps, one favoring the British-developed World System Teletext and the other the North American Broadcast Teletext Specifi-

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BOSCH

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casters a cue to deemphasize programming for children.

The marketplace model is insufficient to provide sufficient quality programming for children, Rivera continued. "As entities with an exclusive license to use the spectrum," Rivera said, "broadcasters have benefitted substantially from the use of a public resource. In return, the public is entitled to a dividend." Part of that dividend, Rivera contended, should be "regular, diverse and enriching" children's television.

While claiming "no love for mandatory program performance guidelines," Rivera said he would consider such guidelines "as a last resort" if commercial broadcasters failed to meet their obligations independently. Too much reliance on public television is unrealistic because of the funding crisis, he said.

In calling for the temporary commission, Rivera suggested that it be given a limited lifespan in which to bring the pending rulemaking—and the newer commissioners—up to date, and present recommendations for action.

At the same hearings, NAB president Edward O. Fritts painted a different picture of broadcasters' service to children. Claiming that the last three years have seen an increase in the amount of children's television, Fritts stated, "Broadcaster response to the needs of children has been, quite simply, far more thoughtful and imaginative than some have given them credit for." He also said that the quality of children's programming had "improved dramatically in recent years."

President of ACT Peggy Charren, speaking at the previous day's press conference, called for stricter EEO enforcement, increased PTV funding, a guarantee of sufficient public access channels on cable, and a reaffirmation of the public interest standard for broadcasters. These actions, she said, could help "increase the quantity and diversity of programming available for young people."

AM Stereo Study Finds Stations Showing Caution

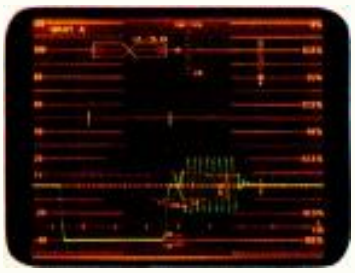
AM stations see stereo broadcasting in their futures, but don't think it will prove a cure-all. So found a recent study by Donald R. Mott of the University of Southern Mississippi and Dr. John H. Pennybacker of Louisiana State University. The professors mailed questionnaires to 1008 U.S. AM stations, selected at random, and received useable responses from 344 (34.1 percent).

Nearly 69 percent of the stations responding said they had investigated AM stereo equipment, and almost 82 percent rated AM stereo "very important" or "fairly important" to the future of AM stations. A resounding 85.17 percent, however, disagreed with the statement that AM stereo would prove to be AM's "saviour," and almost 71 percent disagreed that the future of AM lies in nonmusic programming.

Approximately two thirds of those responding felt that the FCC should have selected a single system for AM stereo transmission. Almost 85 percent, though, said they would wait until the marketplace choice was clearer before making a decision.

Over 64 percent said their market positions had been hurt recently by FM stereo, but only 33.72 percent had recently changed format in an attempt to better their ratings. More than 60 percent felt AM stereo would not improve their market positions significantly.

JVC engineers another breakthrough in video cameras.



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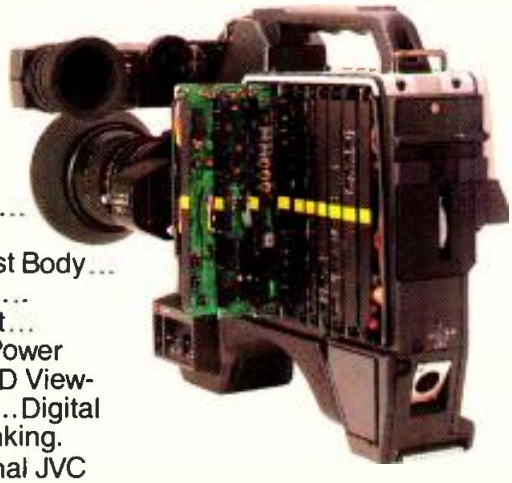

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Professional Video Division

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The FCC has approved the **largest station sale** in its history—the $245 million transfer of KTLA-TV Los Angeles, from Golden West Broadcasters to Golden West Television Acquisition Co. The price beats by $25 million the tag for Metromedia's 1981 purchase of WCVB-TV, Boston . . . . Designed to **ease the entry of minorities** into telecommunications, the recently introduced Minority Telecommunications Ownership Tax Act of 1983 would raise the investment tax credit for minority owners and allow tax certificates for the sale of nonbroadcast properties to minorities. FCC commissioner Henry Rivera praised the proposed legislation, saying it would "give minority entrepreneurs potent tools" to enter the industry . . . . The FCC has denied a request to reconsider its 1982 action resuming the assignment of **daytime-only AM stations** on clear channel frequencies.

Both NAB and RTNDA have commented unfavorably on an FCC proposal that would require broadcasters to **share their auxiliary broadcast service spectrum** with terrestrial microwave users displaced from the 12 GHz band, soon to be taken over by direct-broadcasting satellites. NAB board chairman William L. Stakelin, scoring the FCC for refusing to extend the comment deadline on the proposal, accused the FCC of "playing 'musical chairs' with spectrum users." He went on to say that the proposal had a "mind-boggling" potential for havoc, could cost broadcasters over $100 million over the next decade, and could interfere with ENG operations. RTNDA president Dean Mell expressed similar concerns, saying that the proposals "amount to a giant step in the wrong direction" . . . . NAB has told the FCC it opposes any **reduction in FM mileage separations,** claiming that even the existing mileage rules allow only the minimum FM stereo service . . . . The FTC should permanently lift its rules requiring broadcaster **disclosures on games of chance** offered by food and gasoline advertisers, the NAB has said. The rules, which call for presentation of the odds of winning and the exact number of prizes in each category, were suspended last December during a rulemaking proceeding.

CBS Broadcast International and the BBC have signed an agreement for the exclusive **sale and exchange of public affairs programs,** under which the BBC will pick up such shows as *60 Minutes, CBS Reports,* and *Face the Nation,* and CBS will receive current affairs material from the BBC's Breakfast Television. CBS has also signed a similar agreement giving West Germany's Westdeutscher Rundfunk and its affiliated broadcast organizations exclusive rights to all CBS News public affairs programs . . . . AP Radio was scheduled to begin providing **U.S. and international news coverage** to Broadcast News Ltd. of Canada starting April 1. In return, AP members will receive Canadian news from Broadcast News . . . . UPI has announced CustomCast, a new **"custom" news service** that will allow radio and TV news directors to preprogram news and information from UPI's database via a microprocessor located at each station. UPI also recently announced a name change for its audio network, from UPI Audio to UPI Radio Network.

WVIT-TV, Hartford, CT, won the Lee Nelson Award for best television newscast in the UPI International Tom Phillips Awards for New England. Awards in six other categories went to radio and television stations in the New England states.

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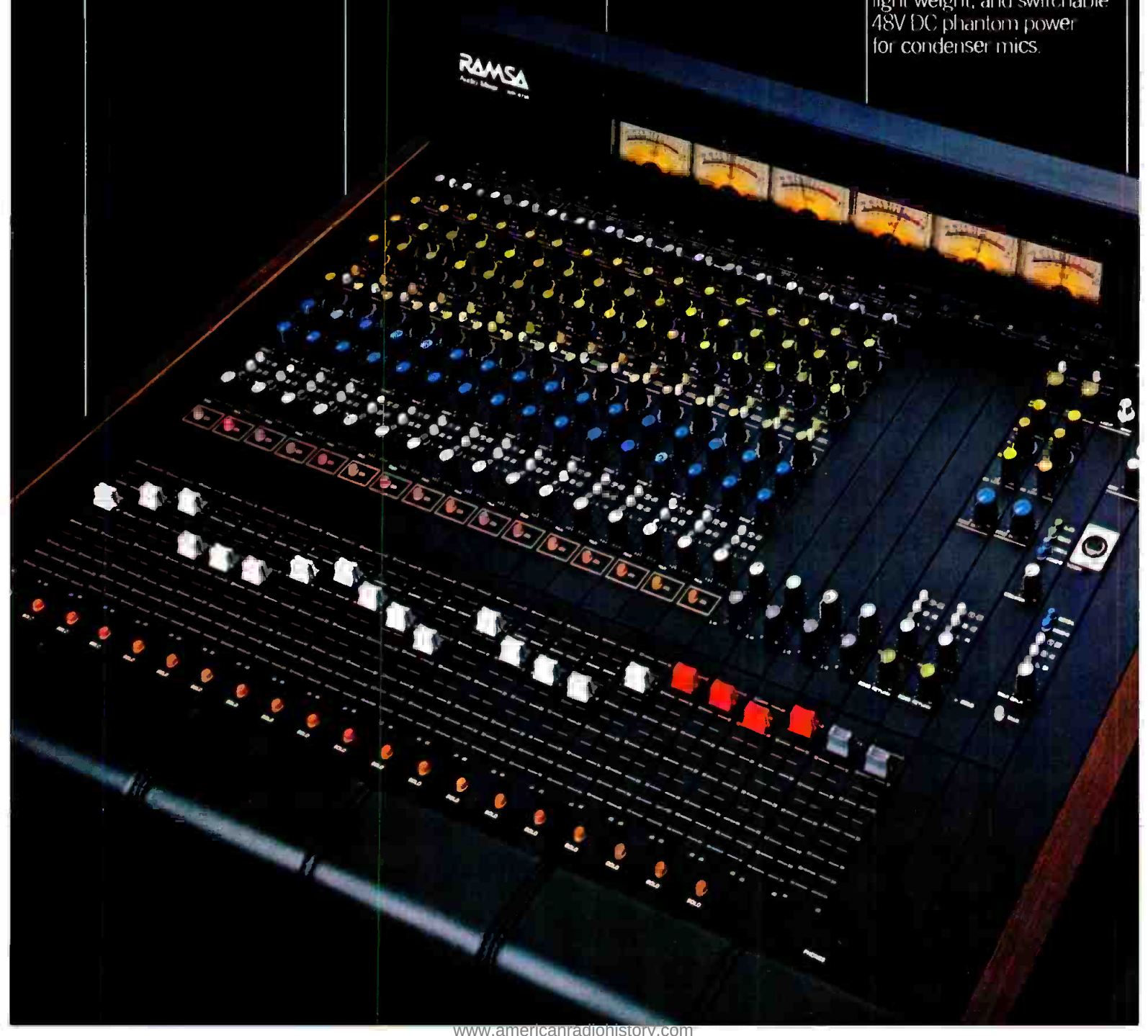
And the WR-8716 features plastic conductive faders for greater reliability and smooth, low-noise operation; external power supply for light weight, and switchable 48V DC phantom power for condenser mics.



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The WR-8816 recording console includes the same modular construction, input modules, power supplies, and faders as the WR-8716 plus many important recording advantages. Like direct outputs for 4, 8, or 16 track recording and peak-reading LED meters that let you monitor any 4 out of 24 signals with clear, quick response.

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Ramsa offers a full line of specialty mixers including the more compact WR-8210 recording mixer and WR-130 sound reinforcement mixer. So don't hold down your professional sound, call (201) 348-7470, because you're ready for Ramsa.

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That's only the beginning. The A810 also provides three "soft keys" which may be user programmed for a variety of operating features. It's your choice. Three more locate positions. Start locate. Pause. Fader start. Tape dump. Remote ready. Time code enable. You can program your A810 for one specialized application, then re-program it later for another use.

There's more. Electronic alignment of audio parameters (bias, level, EQ) is accomplished via digital pad networks. (Trimpots have been eliminated.) After programming alignments into the A810's memory, you simply push a button to re-align when switching tape formulations.

The A810 also introduces a new generation of audio electronics, with your choice of either transformerless or transformer-balanced in/out cards. Both offer advanced phase compensation circuits for unprecedented phase linearity. The new transport control servo system responds quickly, runs cool, and offers four spooling speeds.

Everything so far is standard. As an option, the A810 offers time-coincident SMPTE code on a center track between stereo audio channels. Separate time code heads ensure audio/code crosstalk rejection of better than 90 dB, while an internal digital delay automatically compensates for the time offset at all speeds. Code and audio always come out together, just like on your 4-track Except you only pay for ¼" tape.

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More features, standard and optional, are available. We suggest you contact your Studer representative for details. Granted, we've packed a lot into one small package, but ultimately you'll find that the Studer A810 is the most versatile, most practical, most *useable* audio recorder you can buy.

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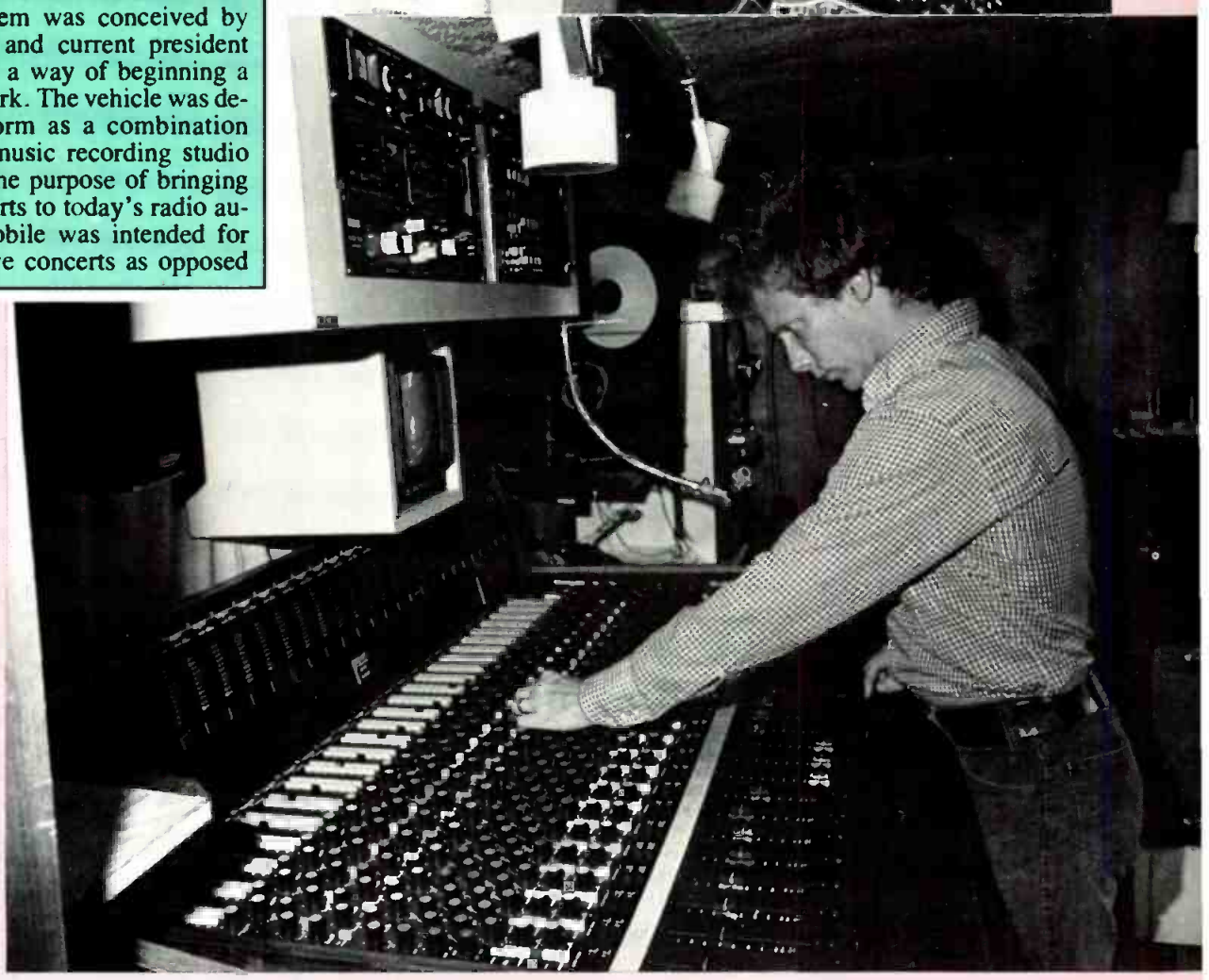
Circle 118 on Reader Service Card

Starfleet Blair Rises in Quest of Live Radio Broadcasts

MANY PEOPLE ARE under the impression that the only mobile productions undertaken by radio are news and sports. Not so. There is a live music production vehicle which has grown from a one-man operation to one of the most modern live broadcast facilities: the Starfleet Blair mobile bus.

The Starfleet Blair mobile broadcast production system was conceived by original owner and current president Sam Kopper as a way of beginning a broadcast network. The vehicle was designed to perform as a combination broadcast and music recording studio on wheels for the purpose of bringing more live concerts to today's radio audience. The mobile was intended for broadcasting live concerts as opposed



Above, Starfleet Blair president Sam Kopper at left, with Sammy Hagar for a live rock concert from St. Louis, March 13.

Inside Starfleet, the audio section displays the Tangent console, JBL monitors, and overbridge processing.

to taping a live concert for later broadcast, bringing the spontaneity and excitement of live broadcasting to radio listeners.

As part of a large organization (it is now owned by Blair Radio), the bus uses the resources and contacts of a large corporation to make use of the newest technology and most highly skilled personnel, in dealing with both the artists and with the equipment. But it didn't start out that way.

"What I wanted to do was to become a live network," says Kopper. "To take the impact and excitement of a live music event and bring it to radio." He set out to do so as soon as he learned the business.

Fresh out of college in 1968, Kopper went to WBCN in Boston to perform duties as, among other things, a DJ and program director. After employment at that station and with experience as a freelancer, he bought a school bus around 1971. He left WBCN in 1971, returning to the then progressive rock station in 1974. During those three years he assembled enough audio equipment to make a mobile production studio. Also at the time, and after returning to full-time radio work, he kept the vehicle going as a side venture to his work in broadcasting.

These productions were an attempt to get live music back on the radio, to take the music from where it was being performed and put it out over the air. The live broadcasts then produced by the truck (known at the time as Crab Louie Studios) usually consisted of Kopper and his partner, Jim Slattery, pulling the bus up to a club, hooking the two- and four-track versions of his Ampex 440B reel-to-reels to his Tascam 12 input mixer and feeding it to a local station. Also on hand were two Shure M67 mixers for expansion of the number of inputs if necessary, but the dream of becoming a network didn't seem to be approaching very quickly.

Then, in the spring of 1976, the rolling studios experienced a turnaround. Kopper was able to produce a Laura Nyro concert live from Carnegie Hall. Five stations, from Boston to Washington, DC, took the feed. The reason Crab Louie could reach only the five was that, at that time, the phone company didn't have a way of linking a quality, live FM signal to more than five stations.

Soon there was capability to link up to 13 cities and Kopper thought he was on the way to becoming a broadcast music network. Unfortunately, reality intervened when they discovered that national advertising money would not support a live broadcast event if it could reach only 13 cities, even if they were the top 13 markets. Still, Kopper persevered and persuaded the record companies to finance the live concerts. Eventually, with advancements in the late '70s in phone lines and with the record companies helping, the broadcasts were able to clear 38 cities.

The mobile system grows up

In 1979 the mobile unit was renamed Starfleet Studios. In 1980, Kopper says, "we produced the first commercially sponsored live radio broadcast concert by mobile vehicle." It was the rock band Heart performing in Dallas. This was possible because of live broadcast networking improvements enabling the phone company to deliver 80 cities with a quality signal.

Because of Starfleet's successes with this advancement, the growing company began to look for venture capital to finance an upgrade of the mobile studio

or the purchase of a new one, and to pay for the placement of earth stations. Again, it was difficult. In the '70s, when Kopper was looking toward assembling a satellite radio network, so were a few other companies, namely Mutual, RKO, ABC, NBC, and CBS. It became evident that even with new capital, his competition was in the heavyweight division.

At the time Starfleet began searching for investors, Blair Radio saw the future of radio networking by satellite and was looking to invest. Through a station they owned, WCOZ in Boston, and from some of the stations they represented, Blair heard about Starfleet. As the live concert broadcasting successes grew, so did the realization that, to make the mobile production system reach its potential, changes would have to be made. Late in 1980 Starfleet was sold to Blair Radio for about $1 million.

Kopper and partner sold the entire operation and got a contract to run the company as Starfleet Blair. The goal of the newly formed company was to produce live music broadcasts, to distribute shows via satellite, and to lease the antennas for use by independent producers. The decision was finally made to forget the idea of becoming a network and to cease signal distribution. A reorganization of the company was implemented in September 1981, Kopper's partner left, and Starfleet Blair signed with NBC's The Source to help produce the shows.

The agreement has Starfleet producing the shows, arranging the schedules and dealing with the artists. NBC clears the stations and sells the program to advertisers. Kopper and Joseph Mirabella, executive director of programming for the mobile studios, deal with Andy Denmark at The Source.

In a reassigned responsibility from Blair's radio division to its video division, Starfleet Blair now reports to Dick Coveny in video, since they feel, with the increase in high-quality music video productions, the purposes of the radio broadcast bus and the video division are similar. And, in fact, the bus will continue its work in live radio as well as expand its music video operation. In rounding out the Starfleet Blair concert crew, Steve Canavan is the production coordinator, George Wardwell is the stage manager, and the chief engineer responsibilities are handled by Steve Corbiere.

With the assistance of these people, Sam Kopper was able to take his school bus and tape recorders and turn it into a full-fledged mobile production studio. They have combined the multitrack music studio control room equipment with radio broadcast equipment, leaving space for a director, and moved from a struggling one-man operation to a mobile broadcast system. The equipment they use has kept pace, including a 32-input Tangent console, a 12-input Howe broadcast board, two Otari MX 5050s, as well as dbx, Eventide, and Lexicon processing systems. In the new, mature system, whenever possible, they use Satellite Systems Corp. to supply the transportable satellite antenna.

As the sophistication mounts, and the stakes are increased, the challenges become greater. Kopper and crew seem to have met those challenges with a strong effort and with an attitude reflected by Kopper: "It's one thing to do a beautiful mix, and another thing to have a live radio program come out smoothly and professionally in terms of a radio broadcast. That's what we're after: professional, live music radio." **BM/E**

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TELEVISION
programming & production

Local Stations Gather a Bouquet of Irises

THE HIGHLIGHT of March's NATPE International conference, at least for a group of creative stations, was the presentation of the sixteenth annual Iris Awards. The ceremonies, a gala affair in Las Vegas's Sahara Hotel, were unusual in that two stations—WMAQ-TV, Chicago and KYW-TV, Philadelphia—each won two of the coveted awards.

Readers of *BM/E* will already be familiar with one of KYW's Iris winners, "Sweet Nothing," produced by James Anderson. The special on America's love affair with sugar was highlighted in February's special report on post-production, "Mid-Sized Video Editors Take on Special Assignments" (p. 38; story on "Sweet Nothing" begins on p. 40). KYW, of course, competed in the large-market category, covering markets one through 10. At the other end of the market spectrum, one of the winners in the small-market category (markets 41 through 210) was a repeater from the previous year: KUTV, Salt Lake City, won another Iris for its magazine show, *Extra*. The show was profiled in *BM/E*'s look at the last year's Iris winners (May 1982, p. 29).

In addition to the programming Irises, which honored 19 stations, NATPE gave its special Award of the Year to television producer Garry Marshall. Marshall, who developed such series as *The Odd Couple*, *Happy Days*, *Laverne and Shirley*, and *Mork and Mindy*, was cited for his "enormous contributions to television entertainment." Retiring CBS chairman William S. Paley shared the NATPE President's award for "a lifetime of service to television" with the late Sol Taishoff, editor and co-founder of *Broadcasting* magazine.

Stations with ambitions to join next year's Iris honorees may find some hints in the following profiles of a few of this year's winners.

River renaissance

St. John's River, which flows north through Jacksonville, FL, was one of the worst polluted rivers in the country 10 years aago, according to Robbie Gordon, who with Ken Kaminski coproduced "River Day '82," which brought Iris honors to WJXT-TV in the entertainment category for small markets. Local concern over raw sewage dumping in the river led the town to a massive cleanup campaign, and the now-clean river is celebrated each year with a River Day.

For its half-hour special, the Post-Newsweek-owned CBS affiliate didn't confine itself to the day's activities, which included a nine-mile River Run, swimming, boating, kite flying, water skiing, and a carnival on the river shore.

"We tried to give a feel for the history of the river and its people," says Gordon. The station commissioned Florida folksinger and storyteller Gable Rogers to write a song about the river for the show's opener. The station's *PM Magazine* anchor hosted the show, with the sports anchor covering the varied sports activities. Rounding out the show was material on the river's history and the history of the cleanup operation—including 1975 footage of the town's mayor jumping into the water on waterskis to demonstrate the river's safety to skeptics.

Producer Anne Michaels (left) and director Fritz Roland supervise film-to-tape transfer of "Our Daily Bread" at Interface Video in Washington, DC.

Producer Kathy Teets (below) at KBTV's Sony BVU-500 editing recorders, used to produce the "Skier's Dream" segment of the winning edition of *Assignment Colorado*.

TELEVISION PROGRAMMING

How did the producers manage to fit all that material into half an hour? "The biggest problem" complains Kaminski, "was that it all happened the same day. We only had five hours to edit it." The show aired at 7:30 p.m., but according to Kaminski, "At 7:15 we were still working on the third or fourth segment." The station had a crew of about 20 in the field, with six Ikegami HL-79As covering the festivities. One camera was in the lead vehicle for the race and another was in a helicopter. These and a third HL-79A on the Main Street Bridge were linked by 13 GHz microwave to the station's EFP truck, which relayed live video back to the station for race coverage during the day. All the videotaped sections were on one-inch, with Sony BVH-500 field recorders. Editing was done on the station's Harris Epic computer editor with Sony BVH-1100s. Since the show was completed, Kaminski says, the station has added NEC's E-Flex digital video effects package to the editing system.

Looking at unemployment

Given the seriousness of current unemployment levels, it's no surprise that the winner for public affairs specials in the medium-market category was a show looking at this problem. Atlanta's WTBS, the Turner Broadcasting System superstation, had identified minority unemployment as a topic for a special when they contacted Anne Michaels, a Washington, DC-based independent producer who previously had done some editing work for the station.

Michaels was particularly well suited to the job, having served as director of communications of the Office of Equal Opportunity in the Johnson administration poverty program. Her partner, Herb Kramer, had also worked in OEO. WTBS wanted Michaels to talk to members of the Congressional Black Caucus and develop a show for them.

"The script actually developed itself," according to Michaels. "We had a sense of what we were looking for, but we didn't have a specific script to start out with." After meetings with members of the Black Caucus and other groups concerned with the problem, the topic was narrowed down to youth unemployment—culminating in a one-hour special, "Our Daily Bread: A Study in Black Youth Unemployment."

"Our Daily Bread" is largely centered on a pair of black teenagers living in Baltimore's inner city. Michaels says Baltimore was chosen in part "because I'm in Washington," and partly because Baltimore seemed fairly typical of urban areas and had a ghetto that was "much talked about."

Edit bay at WJXT-TV, showing Grass Valley 1600 production switcher and Yamaha audio board.

"The city was small enough to allow us to get a handle on it," Michaels continues. "We didn't want to use New York, which has been done to death."

The story was shot in 16 mm film, then edited and transferred to one-inch videotape at Interface Video in Washington. Film editing was done by Robert Pierce.

Working largely without a script, Michaels let her subjects speak for themselves to develop the story. "It wasn't really cinéma vérité," she says, "but the story evolved by itself."

Working with WTBS, Michaels says, was an independent producer's dream. The station didn't look over her shoulder, but gave her complete freedom to develop a show within the boundaries of the concept of minority unemployment. When the station received the completed show, owner Ted Turner did an intro himself. "The people at WTBS have an integrity and concern that most people don't realize," says Michaels.

Featuring creativity

It takes a large dose of creativity to keep a magazine program out of the doldrums. That creativity clearly is in ample supply at KBTV, Denver, an ABC affiliate owned by Gannett Broadcasting Group. Mary Brenneman, who produced the station's *Assignment Colorado* magazine until switching to other projects at the station this year, pulled together a diverse, unusual trio of features for the Iris-award-winning edition, in the medium-market category.

The winning show opened with a piece on a local man who does presentations and storytelling for Denver schoolchildren on the much neglected topic of black cowboys. Shot with a Sony BVP-330 camera, the in-school segments were intercut with photos of black cowboys from the local Black History Museum and interviews with a

Sixteenth Annual Iris Awards

Public Affairs Specials
Markets 1-10: WJLA-TV, Washington, for "The Saving of the President," program executive Carol Myers and producers Paul Fine, Holly Fine, and Dr. Frank Kavanaugh.
Markets 11-40: WTBS, Atlanta, for "Our Daily Bread: A Study in Black Youth Unemployment," program executive Robert Wussler and producer Anne Michaels.
Markets 41-210: WDAY-TV, Fargo, for "Hjemkomst: A Dream Come True," program executive Susan Eider and producer Daniel J. Anderson.

Public Affairs Series
Markets 1-10: WBBM-TV, Chicago, for *Channel 2: The People*, program executive Ed Spray and producer Bruce DuMont.
Markets 11-40: WCCO-TV, Minneapolis, for *The Moore Report*, program executive Chuck Sorlein and executive producer Mike Sullivan.
Markets 41-210: WLBT-TV, Jackson, for *Small Farmer Profile*, program executive Hewitt Griffin and producer Dennis Smith.

Sports
Markets 1-10: WMAQ-TV, Chicago, for "Call Me Coach," program executive Dillon Smith and producer Sandra Weir.
Markets 11-40: KOA-TV, Denver, for "Riding the High Country: The Coors International Bicycle Classic," program executive Lon C. Lee and producer Bruce Brown.
Markets 41-210: WHAS-TV, Louisville, for "Derby '108," program executive Dick Sweeney and producer Jerry Drury.

Magazine Format
Markets 1-10: WMAQ-TV, Chicago, for *You*, program executive Dillon Smith and producers Peggy Allen, Len Aronson, and David Finney.
Markets 11-40: KBTV, Denver, for *Assignment Colorado*, program executive Darla J. Ellis and producer Mary Brenneman.
Markets 41-210: KUTV, Salt Lake City, for *Extra*, program executive Lamar Smith and executive producer Bill Lord.

Children's
Markets 1-10: KYW-TV, Philadelphia, for "Santa and Son," program executive Chuck Gingold and producer Raysa Bonow.
Markets 11-40: WPBT, Miami, for "The Me Knowbody Knows," program executive John Felton and producer Penelope McPhee.
Markets 41-210: WOWK-TV, Huntington, for "Around the World in 60 Minutes," program executive Paul Dicker and producer Andrew M. Friedman.

Entertainment
Markets 1-10: WDIV, Detroit, for "A Star Is Born: Detroit Picks a Winner," program executive Jim Corno and producers Curtis Gadson and Bruce Littlejohn.
Markets 11-40: KIRO-TV, Seattle, for "The Making of Donahue," program executive Judy Law and producers Tim Garrigan and Christine Dewey.
Markets 41-210: WJXT, Jacksonville, for "River Day '82," program executive Barry Barth and producers Ken Kaminski and Robbie Gordon.

Other
Markets 1-10: KYW-TV, Philadelphia, for "Sweet Nothing," program executive Chuck Gingold and producer James Anderson.
Markets 11-40: WSB-TV, Atlanta, for "Special Edition: The Making of Nightline," program executive A.R. Van Cantfort and producers Marla Sparks and Monica Kaufman.
Markets 41-210: KSL-TV, Salt Lake City, for "Smoke Detectors: What You Don't Know Could Kill You," program executive Scott R. Clawson and producer Spence Kinard.

International Iris
Société Radio-Canada, Montreal, for "Le Mandarin Merveilleux," program executive Louise Marois and producer Pierre Morin.

black woman who had ranched with her husband. Brenneman edited the piece herself on KBTV's Sony BVU-800s. "It was the first time I had used them," she recalls. "I remember being here at midnight trying to figure out how to work the things."

The second piece was a "video skit," similar in feeling to the video music of MTV and similar services. It featured local singer/entertainer Lannie Garrett, who worked with the station to conceptualize the skit.

"We wanted to do something more than the usual profile," explains Brenneman. Set to the song "Desperation," the skit was a scene in a diner, with visuals depicting a waitress's fantasies—realized at the end of the skit—of becoming a star. Two cameras, a Sony 330 and a 300A, were used to shoot this segment, and editing was done on the station's Sony BVU-800 editing recorders, then finished on its

CMX 340X system, tied to four Sony one-inch VTRs.

The third piece took a cinéma vérité look at "helicopter skiing," in which skiers are taken to generally inaccessible slopes by helicopter. It takes excellent skiing skills, but station photographer Sam Allen and segment producer Kathy Teets were up to the task, shooting the run on a Sony BVP-300A. "There was no script," Brenneman explains. "They let the natural sound carry the story."

Three segments, each unique in content and feeling: the ingredients of an attention-holding magazine. Brenneman, understandably, looks back on it with pride. "All the things I strived for came together in that show," she says.

Double honors

The Chicago NBC O&O WMAQ-TV shared with Philadelphia's KYW-TV the distinction of winning not one but two Iris awards. *You*, a magazine-format show produced by Peggy Allen, Len Aronson, and David Finney, won in the magazine category in the large-market division; the sports prize for that category went to WMAQ's "Call Me Coach," a half-hour special celebrating Ray Meyer's fortieth year as DePaul University basketball coach. Sports fans are probably aware that the 69-year-old Meyer recently indicated he would continue to coach DePaul for at least another year.

Reviewing a four-decade career gave WMAQ the impetus to go through its archives for old film footage to incorporate into an imaginative, nostalgic opener. "We went through the decades, starting in the 1940s, with old black-and-white footage of DePaul basketball games transferred to tape," explains the station's director of programming Dillon Smith. (Sandra Weir, who produced the show, has since left the station to pursue a freelance career.) The '40s footage was accompanied with big band music of the era, with titles superimposed in a contemporary typeface. The intro continued through the 1950s—again with appropriate music and type—and on through the '60s, '70s, and '80s in the same manner.

The half-hour show, which ran in prime-time access period, also included interviews with coach Meyer and his wife, conducted in their home, and talks wih former DePaul basketball players. All production was on video, using an RCA TK-76 camera. Recording and editing was on the station's Sony ¾-inch gear.

"We composited on two-inch because our one-inch equipment hadn't arrived at the time," Smith remarks. The station, he says, is in the final phases of conversion to one-inch operation.

In addition to the interviews, WMAQ shot plenty of current game action. "The coach doesn't mind wearing a wireless mic," notes Smith, and the station took advantage of that to get plenty of actuality of Meyer talking to his athletes in the locker room and on the sidelines.

Smith admits that "Call Me Coach" was a relatively low-budget project. It didn't take too long to shoot, he says, and although there was a fair amount of editing involved with all the old footage, the post-production was still within the limits of most standard shows. What, then, was special about this Iris winner?

"It's not how many days you shoot," Smith suggests, "but rather the quality of the people involved. We have an exceptionally good staff who come up with good ideas and concepts, and we have excellent camera operators and editors." With two Irises under his belt, who could dispute him? **BM/E**

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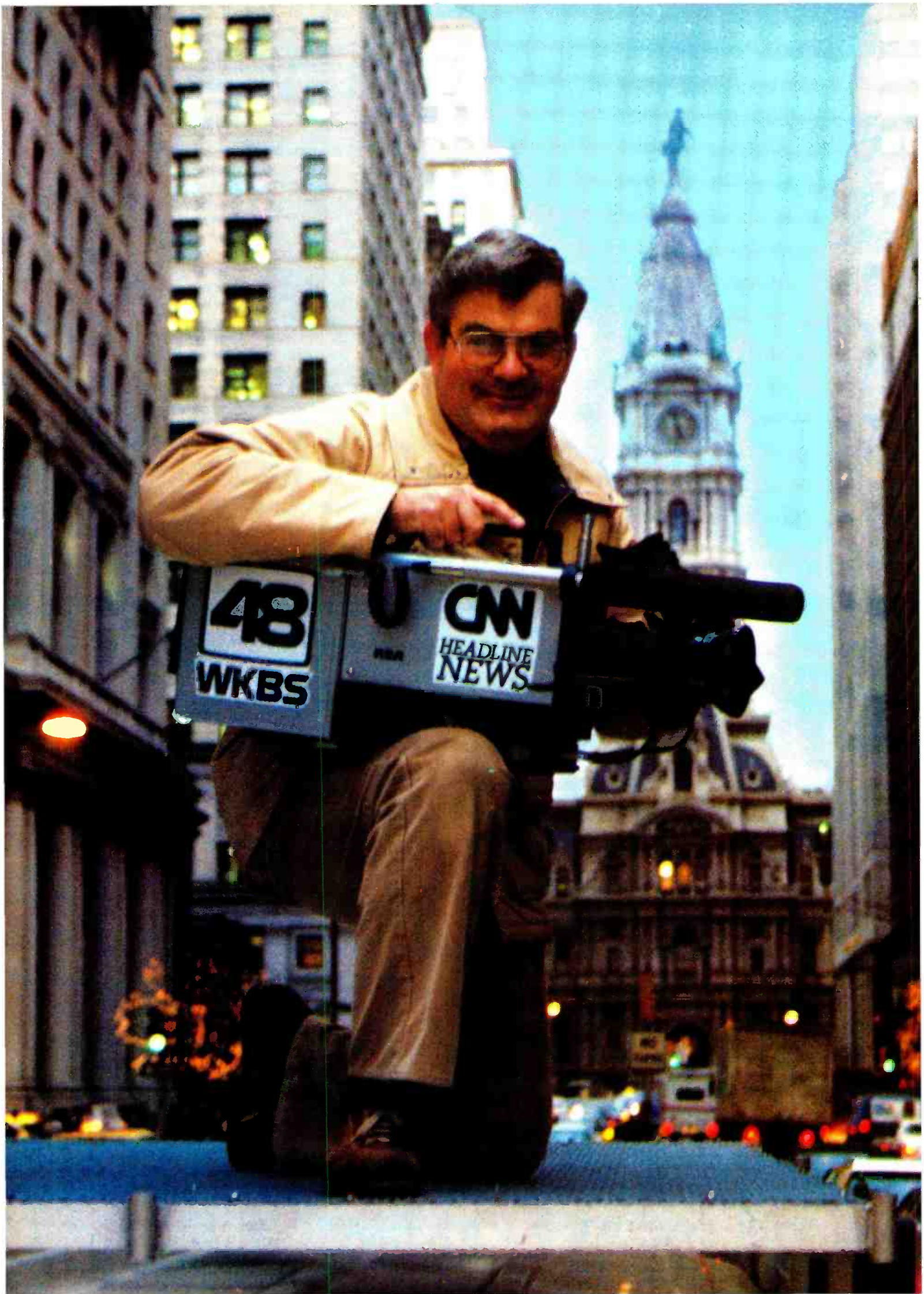

HAWKEYE

PHILADELPHIA NEWS CREW SWITCHES FROM FILM TO VIDEO

WKBS-TV in Philadelphia has "localized" its news operation with HAWKEYE. And they've done it with a crew that was previously only experienced with film!

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The versatile HAWKEYE HCR-1 recording camera captures local stories which are then programmed in with the station's CNN Headline News.

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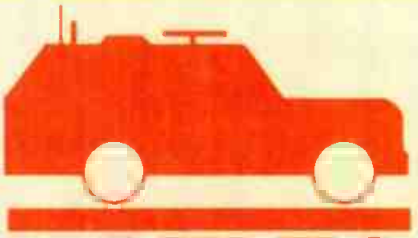

HOW TO SUCCEED IN TELEPRODUCTION VEHICLE OPERATION (BY REALLY TRYING)

By Eva J. Blinder, Senior Associate Editor

Stiff competition and stiffer costs make running a teleproduction truck challenging and risky. What are the directions that lead a truck down the road to success?

GLAMOROUS NETWORK ASSIGNMENTS, creativity, fat profits—all these and more await those adventurous souls who enter the business of mobile teleproduction. Or do they? At the very best, yes—but the teleproduction pie, while bigger than ever, is being sliced thinner and thinner as competition intensifies. Dreams of the potential awards must be balanced with serious consideration of the costs and pitfalls inherent in running a mobile facility.

In the mobile business, the concept of "market" undergoes some unusual distortions. Trucks, after all, have wheels, and are not bound to their home addresses, as are studios or any other business. Trucks based in New York, for example, have been known to travel to California for a really big shoot; a travel radius of 500 to 800 miles is commonplace, giving "competition" a new meaning.

Despite their wide range, trucks remain subject to many of the woes that plague business in general, such as high interest rates, rising salaries, and union demands. In addition, the technological pressure is especially high for teleproduction vehicles, with producers and networks constantly demanding the latest in sophisticated electronics. Truck operators, however, are forced by the severe competition to keep a lid on prices and to negotiate each job on an individual basis.

People make the difference

With all the negatives, how does one achieve success? "The real key, as in any service business, is the creative ingenuity and capability of the staff," according to Herbert Bass, president of Unitel, one of the largest production houses in New York City. "All mobile companies have basically the same equipment," Bass continues. "It is the talents of people that we depend on."

Those talents don't come cheap—in the New York market, a skilled mobile maintenance engineer commands a salary ranging from $35,000 to $60,000 a year. Salaries are somewhat lower in smaller markets where the cost of living is lower, but they remain a significant expense. And competition for top-notch maintenance personnel means many companies lose their engineers to higher bidders.

For example, Mike Kanarek, director of operations for the 45-foot trailer operated by WKYT-TV, Lexington, KY, reports that salaries for maintenance engineers average around $25,000 plus overtime in his area. The station maintains two full-timers to keep the truck in good shape.

"We can get people at lower rates because it's a smaller market," Kanarek explains, "but we have trouble keeping them." With the skills and experience they gain working on the WKYT truck, many engineers get itchy for the larger salaries they can get elsewhere. Kanarek notes, however, that the truck has never been idle for lack of staff. "So far we've always been able to find people," he says. "If necessary we can always promote someone from the station staff."

"Maintenance is the biggest hassle in trucks," complains Eric Duke, vice president of New York's All-Mobile Video. "You have to pay very well to get good systems maintenance people." Finding someone with top skills is tricky, and checking references is a must. "Sometimes you just have to try someone out on a freelance basis if you're strapped for personnel," Duke suggests.

Other personnel needs

In addition to their full-time staffers, most truck operators require freelance help to a greater or lesser degree. Most agree that it's best to have at least one or two people who always accompany the truck and know all its idiosyncrasies; but when the truck has to travel several hundred miles to a shoot, taking along a full crew gets expensive.

Richard Clouser, president of Unitel Mobile Video (the mobile division is based in Pittsburgh), says the company has remote crews in many cities who are familiar with its trucks, allowing Unitel to use the same crew each time it goes to a particular location. "The full-time employees,

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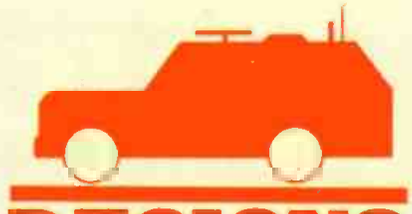
PART 1



DESIGNS THAT SUCCEED WITH MOBILE VEHICLE CONSOLES

By Tim Wetmore, Associate Editor

Higher-quality audio is now an essential element in every production vehicle. But fitting the biggest and best possible audio console into the unit involves complex decisions about van size, cost, potential applications, and engineering issues.

EXPANDING THE LIMITS of space and technology. This is the task at hand, this is the challenge. It is being met head-on. Going beyond the limitations imposed by time and economics, today's mobile design engineers are exerting their imaginations to devise production vehicles in previously unknown forms.

It is a well-recognized trend that the amount and quality of audio equipment is on the increase in production vehicles. Now that the giant 40-foot-plus rigs with large, expandable sections are with us, whole audio production studios containing advanced design audio consoles can be included.

Advances are being made in audio design for the small and mid-sized vehicles as well. But here, space considerations seem to conflict directly with the need for larger, higher-quality mixers. These are the questions with which vehicle designers struggle, reasons they may assume very different design philosophies in their attempts to reach the same goal of engineering excellence.

Mobile studios are a reality

According to C.D. Phillips, administrator of the RCA Mobile Van Projects, "A good audio man who can operate a sophisticated console in the demanding environment of mobile production can watch his stock rise in the near future." With the advent of larger vans, and with the influx of tractor-trailer rigs onto the mobile production scene, the industry has witnessed many changes—among the most important, the expanding sections on the newer trailers, creating plenty of room inside for audio.

The central element in increased audio quality and quantity in these vans is, by necessity, the full-blown audio console. The design questions raised in the large trucks are generally limited to customer preference and design principle, since current vehicles do not restrict console space significantly. It is now common to find mixers with 36 or more inputs in a truck, with different features for submasters, outputs, telephone, and IFB interfacing.

The large-vehicle designer must have a good working relationship with console manufacturers so that the heart of the entire audio matrix is not a stumbling block in the completion of the mobile production system. The designers, then, look for reliable equipment. That, and considerations such as: Does the manufacturer offer support? Is his product good? And will he come through with assistance when it's needed? are very important when the van designer's customer has a set production date for which a large amount of money has been invested.

Another consideration is how to integrate the console into the total mobile system. In doing this, the customer's type of programming, the truck's different applications, and the crew size must be determined. From this information, the designer will be able to choose the number of inputs necessary for the console, the number and types of mics required, and the physical location of the console.

A.F. Associates systems division manager Tom Canavan relates, "It is imperative that we know the operating practice of the end user in order to determine how to integrate the console into the total production package. We often recommend certain consoles with certain capabilities, but only the customer knows exactly how the system will be used and that is what we must find out before we start."

AFA just delivered a truck to NBC in November which was slated for action in the company's massive sports production schedule. The van will be working with other vehicles at various locations, requiring of the console tremendous mixing capacity and a good deal of versatility. An ADM 32-input console was installed with eight submasters and grouped submixers which allow the capability of mixing 60 microphones simultaneously. Of the

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PART 2

that by today's high interest rates and you're faced with a weighty corporate decision.

TAV won't escape the pressure to upgrade by concentrating on post-production, however. Eassty says the company is getting the second Mirage graphics system produced by MCI/Quantel and is building two new edit bays. Technological changes have already killed the demand for two-inch VTRs, which used to dominate the industry; Eassty muses, "Maybe five years from now we'll all be half-inch."

Technological trends

Several truck operators comment that the switch to triax was one of the most important equipment decisions of the last couple of years. Eric Address, director of engineering at E.J. Stewart, notes that many stadiums are now prewired with triax. "Our largest equipment pressure was to go to triax cameras," Address remarks, adding that demand for Stewart's two-truck Gemini unit has increased greatly since installing TK-47s. "We decided to get the best cameras made and spend the extra money for a good market position." The cameras were instrumental in bringing in a wider range of clients, who now include the TV networks, cable nets, and foreign broadcasters.

New TK-47s have also figured in the upgrading of Reeves' 40-foot truck, now in its sixth year. Moscone says the company is considering building a new truck, but meanwhile has ordered the equipment and is installing it in the old truck as it arrives. "The old truck had TK-46s, a Chyron III, and no sophisticated switching," Moscone says—perhaps explaining a recent dearth of sports jobs. All that will probably change with the upgrade, however. In addition to the four TK-47s, the truck now has two new HL-79Ds and a Chyron IV, plus better intercom and IFB equipment. On order are a 24-input Neve audio board (Moscone fears the board may not fit into the old box) and the largest-model Grass Valley 1680 switcher, which was due to arrive in April. "The switcher will make me feel like I have a new truck," Moscone sighs.

Another area where technological pressure is especially great now is graphics. A Chyron IV is *de rigeur* for any kind of network job, and clients expect to find one in any large truck. Shirley Bass says that Rimyth purchased the latest model Chyron IVB earlier this year; the old Chyron II is being sold to a television station. "We have to get whatever is network standard because that's what producers ask for," she comments. The amount of upgrading necessary varies from year to year, she says, and there is two or three years' lead time to catch up with the latest network necessity.

WKYT added a Chyron IVB in January; at the same time the truck added an Ampex ADO system. "Graphics were a primary concern," says Kanarek. "We had been losing some clients because of it." When WGBH reclaimed its truck from a lessee that had operated it for three years, the station immediately upgraded the Chyron and added Quantel digital effects, along with two new Sony VTRs.

Unitel's Clouser, however, says, "You can temper equipment pressure by knowing your clients and what they're using." He says Unitel stands ready to supply almost anything a customer wants on a per-unit basis. He concedes, though, "There are a lot of whims in this business." The next trend, he predicts, will be toward full onboard editing capability.

Production area of Channel One's Starshooter features an ISI 904 switcher and 3M digital matrix effects.

How much will that cost me?

Determining the charges with most service businesses is a simple matter of checking a rate card. Things are more complicated in mobile teleproduction, however: operator after operator says, "Rate cards don't exist in this business." Rate cards exist, of course, but clients' needs vary so widely and are so specific that truck operators tend to negotiate each job on an individual basis. For trucks based in and around New York city, the going rate for a one-day shoot with a 40-foot trailer equipped with, say, four cameras, seems to hover in the vicinity of $5000 to $7000. Operators are understandably reluctant to discuss figures because of the large number of variables involved—the "average" shoot really doesn't exist. An even more sensitive consideration is different clients' differing abilities to pay. Some operators indicated they would occasionally lower rates for less affluent clients, such as cable

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HOW TO SUCCEED IN TELEPRODUCTION VEHICLE OPERATION (BY REALLY TRYING)

Staff meets outside Mobile Unit 5, one of three large trucks operated by Versatile Video of Sunnyvale, CA. The truck, equipped with Philips LDK-5 triax cameras, was in San Jose covering the World Games.

companies—at least if no more lucrative assignment was available.

Unitel's Clouser explains, "The mix of jobs is very important. You need some long shoots, some network leases—which are very profitable but hard on the equipment and not stimulating for the staff—and some smaller jobs to maintain the proper volume." Unitel has two large trucks: Odyssey 1, a 45-foot trailer with expandable sides, 10 cameras, six VTRs, and digital video effects; and Startruck, another 45-foot trailer. Having two trucks gives the company more leeway in booking shoots, letting Unitel serve a greater number of clients without turning away work. At TAV, Eassty echoed Clouser's sentiments: "You can't make a decent profit without two trucks—the overhead is too high and the equipment takes a beating."

"You can't be snobbish about your price structure," claims Reeves' Moscone. "It's a buyer's market." Along with several other truck operators, he expresses concern that prices can only go so low if a company wants to stay in business. Operators in general indicate they are trying to hold their prices level, raising them as little as possible and trying not to cut. One says his company hasn't raised prices since 1978.

Several operators agree that network clients are more likely to shop for the truck they like best, with price a secondary consideration; cable clients, however, tend to negotiate price "right down to the dime." A major reason for price differentials, however, is clients' varying equipment requirements. Even if the truck has sophisticated graphics capability and can handle 12 cameras, clients only pay for the gear they actually use. "You can't expect a client to pay for something he doesn't need," says Herbert Bass, echoing the sentiments of most operators. Full-blown shoots requiring a truck's full equipment complement are much sought by truck operators, but are hardly the kind of job most available. "Network price is several times what it would be for a local station," says WPHL's Joel Levitt, "because you have to satisfy their requirements. For a local pickup, that kind of equipment is overkill—you don't need it." In addition to its large trailer, which Levitt says has served as the house trailer at Veterans Stadium in Philadelphia for 12 years, covering Phillies baseball and other sports, the station operates a small one-camera mobile unit for commercial and industrial clients, as well as its own news features.

The wide range of jobs and prices, in turn, makes it difficult to quantify the exact number of days per month a truck must be booked to show a profit. Leshner of E.J. Stewart expresses the view of many when he explains, "How often the truck has to work to be profitable depends on the dollar size of the shoot. We look for an overall weekly gross to cover salaries, equipment payments and overhead, and to provide some profit for the company." Especially for a sports-oriented truck, work may be seasonal, with a busy season helping to carry the truck through a slow one.

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HOW TO SUCCEED IN TELEPRODUCTION VEHICLE OPERATION (BY REALLY TRYING)

Rimyth Video truck (left) on location for CBS. Network jobs require state-of-the-art equipment.

For example, Kanarek reports that the WKYT truck usually has a single weekly shoot during football season, requiring a day for travel, a day for setup, and a day for shooting. The basketball season can bring two to three shoots a week. During the spring and summer, however, the truck may sit idle for as long as three weeks at a time.

Other operators report general formulas for profitability—"one or two major shoots a month, plus some small jobs"; "the truck should be booked every weekend"; "we try to book the truck 15 to 20 days a month." Moscone of Reeves says, "If you can fill half the month you're okay." All emphasize, though, that it is impossible to rely too much on any formula because of the variation among jobs.

One buffer for possible hard times can be a diversified operation, according to several companies. Shirley Bass of Rimyth says, "It's difficult to make a profit if you're concentrated in a single area." The company plans to open a large facility in New Jersey with six studios, three editing suites, a duplicating room and stages for film and video. Herbert Bass—who says Unitel has no lack of mobile business—feels that having a full-service facility is attractive to clients, provides backup in terms of extra equipment, and gives several areas of income.

Landing the job

Ultimately, then, the profitability of a teleproduction truck depends on landing the right jobs for the right price. Having the right equipment is essential, but many trucks have the right equipment. What actually brings in work, then, has much to do with a tricky combination of customer service, engineering knowhow, and reputation.

Building a reputation in a competitive field can be difficult for a newcomer. Reputations, after all, are based on jobs well done, and jobs are based on reputations. This catch-22 situation can be frustrating for a truck operator trying to get established.

A good example of this quandary is Rick Abrams, who says the biggest hurdle for the GBH truck so far has been establishing a reputation and building a clientele. Even though the truck had been in service for another production company for three years before GBH reclaimed the lease and upgraded the equipment last summer, the carryover in reputation was "negligible," although not entirely nonexistent. Abrams finds his most effective means of attracting customers is personal sales calls, but the healthy profits the station had looked for to defray some of its operating expenses (as a PBS station, its crunch is particularly severe) have not materialized. Abrams finds it difficult to gauge how the economic recession has affected business. "I have only known hard times," he says. The truck has had a number of network assignments in addition to its work for cable companies and other stations, mostly in New England, but business hasn't matched Abrams's expectations. Interestingly, WGBH, which owns the production subsidiary, has a reputation for top-quality program production; still, the truck's business is sluggish.

Once a reputation is established, it is not carved in stone. Without proper maintenance, a truck's equipment won't function properly; there's no surer way to lose clients. Many clients are loyal to a truck they like, but others have roving eyes and may leave if a newer, better equipped truck drives into the market. And a truck that was state-of-the-art five years ago isn't state-of-the-art today without extensive, and expensive, upgrading. As many operators say, "You're only as good as your last job."

Spirit of cooperation

"The business is competitive, but we talk to each other," says Address at E.J. Stewart.

"It hurts like hell to turn business away," complains Eric Duke at All-Mobile Video, "but if the truck is booked we'll refer the client to someone who has what he wants." Duke adds, "Everyone in this business knows each other. If you stand away, you get a bad reputation—a bad turn catches up with you down the line. After all, no one company can have *everything* a client wants."

Referring a client elsewhere when the truck is booked, Duke implies, may be good for business because it demonstrates to the customer that the company has his interests in mind. In a way, the bottom line in mobile teleproduction is not merely hardware—which is crucial, but never unique—but rather the kind of personal service clients receive.

"Our strength is personal service," insists Unitel's Clouser. "Anybody can put a truck together." His colleague Herbert Bass explains, "We're really in the people business, not the hardware business." Address talks about building up the "confidence factor" with clients by keeping the truck in top shape. "You must treat the client one hundred percent nice," he advises.

In sum, it seems that the best advice to someone contemplating entering the mobile teleproduction field would be two seemingly contradictory maxims: "proceed with caution" and "pull out all the stops." The business is tricky and the stakes are high, and anyone starting up without a good deal of thought and research is doomed. But there are no half-way measures that lead to success, no path to profit without the best in equipment and personnel. Rewards and satisfaction are distinct possibilities, but heed this word to the wise from Eric Duke: "It's not glamorous in the rain." **BM/E**

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DESIGNS THAT SUCCEED WITH MOBILE VEHICLE CONSOLES

continued from page 41

32 ins, eight have submixers on them with four mics on each of the eight inputs. The board also offers one stereo (two channels) and one mono master output.

The bigger the better

As a general rule, "the bigger the better" is a truism with which most designers agree. On a CBS sports truck built by AFA, a 36-input Ward-Beck console was used with 12 submasters; but because of the style of CBS production, no submixers were employed. In another NBC truck, the N-1, an ADM console is being interfaced with a custom 40x20 IFB mix-minus matrix, essentially an audio routing switcher hooked to the board. All the customizing, all the ins and outs of a particular design, are a direct result of the three important criteria: How much room? How will it be used (in terms of application and crew size)? And how much money is available?

Different companies, of course, approach the console design and implementation questions differently. RCA, one of the oldest teleproduction vehicle designer/builders, has a marketing agreement to install ADM consoles as the standard unit. If the customer has a preference for a particular brand, or if another model is required, then it is made available. The mobile van division of RCA has used Neve and Seimens as well as other mixers depending on the particular job requirements.

RCA entered into the agreement with ADM because the product met certain standards. These standards, as stated by C.D. Phillips of RCA, are that "in building for a worldwide broadcast community we need flexibility. We look at the mechanical construction of the mixer, considering its durability and space displacement in addition to its ability to interface easily with other equipment."

The mobile audio system design business, by nature, is a custom business with modifications and various provisions for physical restrictions invalidating any definite "way of doing things." As a result of designing with an eye to the future, RCA has been, for the last seven years, designing the mobile audio systems with stereo program capability to accommodate radio broadcasts and the potential for stereo television. One of the recent projects designed for stereo and with complete flexibility in mind was a $3 million van built for Quality Video in Las Vegas. The consoles used were a Yamaha 32X8 and a Tapco 16X2. The system was designed such that the two boards can be married bus-to-bus to provide 10 outputs, or they can be patched so that the Tapco is routed into two inputs of the Yamaha, giving submaster control capability from the eight subs on the Yamaha.

Other electronic design considerations of RCA include the present increase in digital limiters and digital effects as well as the increasingly sophisticated monitoring systems. Formerly, only one audio monitor was used so that the console operator could hear how it sounded. Most of RCA's present trucks are built with three monitor speakers, one for cue and two for the stereo program. In addition, the consoles must handle more and more complex systems such as voice couplers allowing a voice input to be cut into the audio mix as well as intercom capability through the board. RCA, for this type of design, usually uses the RTS intercoms.

Quality Video's van by RCA shows a 32-in Yamaha console, Technics deck, and dbx processing.

Equipment list approach

With a slightly more regimented design philosophy, Midwest Corp. begins the overall track design with an equipment list. The list, including the model of audio console to be used, also contains a summary of proposed uses for the van. From this point, David Moore, the design engineer for Midwest, makes every effort to keep a balanced system and consistent audio levels with balanced impedence. As a standard, these levels are +4 dBm at 600 ohms. An effort is made to isolate the audio as much as possible by running all lighting circuitry in one conduit with the ac, separating it as much as possible from all audio lines and locations.

In an explanation of how the Midwest design principle affects the audio console installation, Moore claims, "The placement of the console and the monitors influences how the program is heard. Since the monitors are directly related to console locations, this is an important factor. Further, the placement and design of the console into the entire mobile unit affects the overall capability and performance of the complete mobile system."

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In a different version of the audio isolation principle, the designers at Television Engineering usually opt for a completely enclosed audio booth rather than just an area partitioned by racks or walls. With this in mind something as seemingly mundane as door size can affect the console choice if only certain models will fit through the door. If an external door for the audio booth is provided, the field of choices expands and any size console can be used.

A model often chosen at Television Engineering is the large Auditronics line which, it feels, offers very high quality at a reasonable cost. One further particular which sales manager Larry Mason says is too often overlooked in the professional audio design world is the use of XLR connectors and balanced line inputs. Says Mason, "They are a must for professional use and, strikingly, are very often ignored."

Small vans pose different problems

The concerns of large trailer designers are different from the ENG van designer in that problems of space allocation and crew size are increased in the smaller setting. Here, lack of space is the predominating factor, demanding a tremendous amount of custom modification to install the best possible mixer. Sometimes the designers are forced to compromise between size and capability, especially if the audio will be restricted to news reports. At RCA, when size is the most important factor, the ENG vans get an 8X2 mixer, either in the form of a rack-mount unit or a tabletop unit which is modified to fit in a rack.

Others, when devising the audio system for the Econoline van, for example, go for 12 to 16 inputs on the consoles. As usual, they try and get a mixer with as many inputs as can fit in, but 12 to 16 is usually the most.

The biggest problem for improved audio in small ENG vans is that the audio portion of the system cannot be isolated from the video equipment and technical functions, severely limiting the type of console that can be used, and consequently restricting the number and type of programs that can be produced. Often, this is an obstacle that can be overcome, since many ENG vans are purchased for the sole task of gathering news information in which superior audio quality may be of little importance.

For instance, MZB does not emphasize audio in its trucks, which are almost exclusively 14-foot vans using three or five cameras. The engineers at MZB suggest a 16-input mixer, often a Tascam, and try to provide rack-mounted patching close to the console so the board operator can get to the patchbay easily. As a design premise based on experience, the engineers always use a tabletop console because of operation ease and flexibility. Since it is a custom business, the engineers often modify a standard design to meet client specifications with human engineering in mind, trying to be most careful of efficiency, space utilization, and user convenience to eliminate operator fatigue.

Television Engineering's designers recognize that there are a great number of compromises involved in building teleproduction vehicles, the greatest degree of compromise coming with the small ENG van. Larry Mason prefers to use small modified tabletop units, often installed in panels that slide in and out of a rack configuration. On this level, Shure mixers see a lot of use, since the productions are mostly a matter of mic mixing. Also used are the RTS and Tapco mixers for the more elaborate jobs.

In the 14-foot trucks built by Shook Electronics, Ed Shook tries to go with an 8X4 mixer because of size. He often uses a Yamaha mixer or the Tascam 3 (8X4 with EQ). This 14-footer uses four racks behind the driver, containing the audio equipment, with the console to the right and video to the left side of the truck.

There are four different designs based on the standard van which are modified according to client specifications, reflecting the need to make it seem as open as possible, make it as efficient as possible, and make it convenient for two to four crew members to run the systems.

In a similar design approach, AFA uses an eight-input board for its small vans. In an ENG van with one or two cameras, a small rack or drop-through mixer is used to save space. To accommodate crew members who will need to be in a press room or outside the van, quite often the designers will outfit the truck with one of the case-contained consoles which have reached quite a high level of sophistication.

Quality Video's Tapco 16-input mixer, Crown amps, and Telex carts complete audio room in van.

Midwest places emphasis on location and convenience. In its small ENG vans, Midwest tries to place the console in a location facilitating the routing of outputs to patchfields, providing as much flexibility of signal routing as is possible with a small board and little room for other audio equipment. Thus the strategic placement of jackfields in various positions in the truck enhance the output capabilities of the audio console.

For Mark Leonard, the person responsible for van customization at Wolf Coach, the best way to outfit the small vans is to use rack rails on pull-out shelves for the console mounting: a case in which audio generally takes a secondary position. Wolf Coach has found that cable path and talent placement are important considerations when designing the space for the console, both facilitating ease

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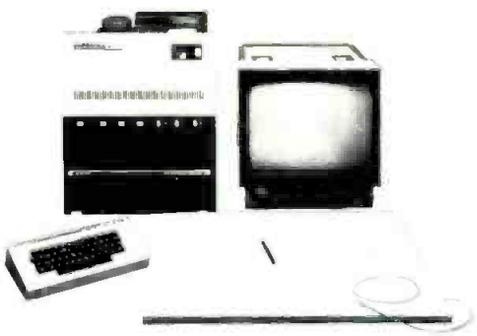

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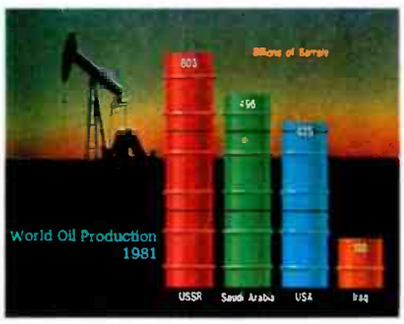

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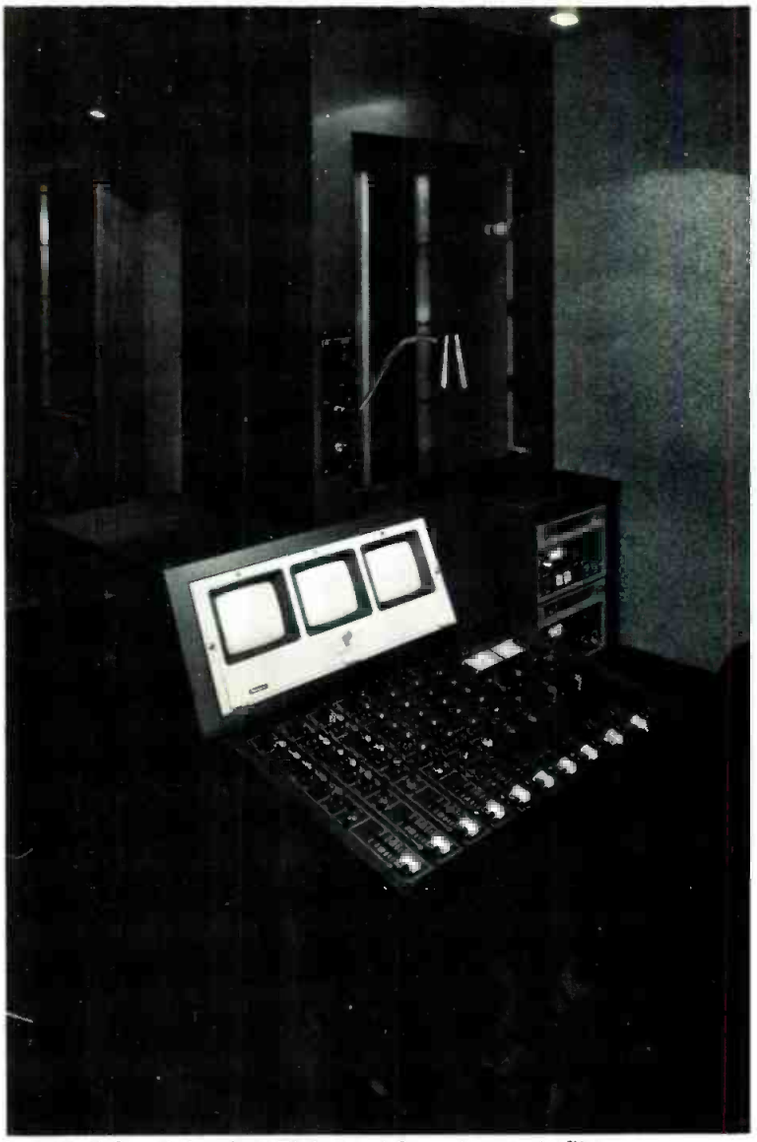
save space. This, of course, depends on the client's desires, but typical would be an eight- to 12-input mixer.

With a different view on priorities, Television Engineering designers, in their basic configuration for the medium-sized vans, start with a rack unit to save space; but if it limits the user, they modify larger consoles into a vertically mounted position. An important consideration here is if the connectors are located at the back of the board or on the bottom, requiring a separate connector panel, further modification, or necessitating the choice of another console. The two brands most commonly used at Television Engineering are the Tapco mixers and the Tascam 3.

If the audio requirements are such that a console with up to 16 or more inputs is necessary, an audio room or isolated audio area may have to be designed. In the medium-length vans this is difficult. The planned location of this room should go back to the first rule of van design: find out the production demands on the truck, and determine how and where the crew fits in. Often, equipment such as audio DAs will have to be located in another part of the vehicle, remote from the audio room, so that more space can be provided for the console and its operator.

Finally, the market demand for the bigger, better, and smarter consoles is being met by the versatility and creativity of mobile production systems designers. The technology is there to be tapped, and with clever methods and hard work, what can be done in a mobile vehicle with a good console can rival the best of studio production. **BM/E**



In a Wolf Coach truck, a Richmond Sound console fits next to BE carts and Panasonic video monitors.

Shook's modification of the Econoline ENG van shows how two-person crew can operate console and video equipment.

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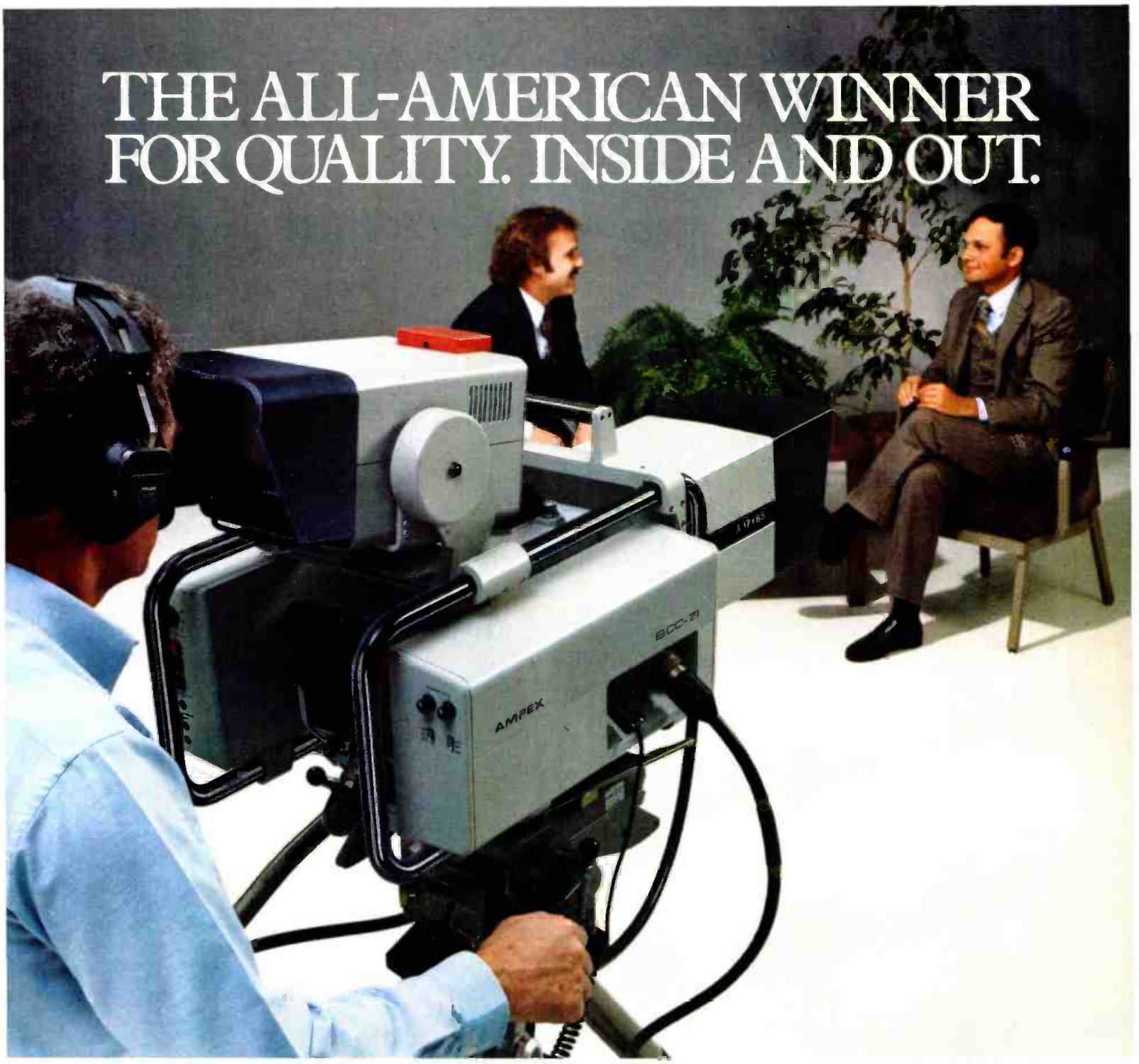

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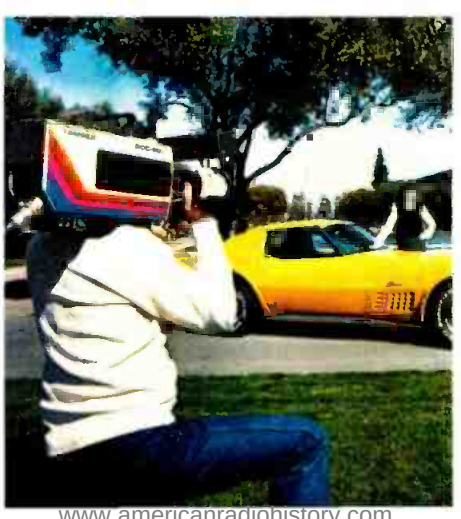

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STATE OF THE CART

By Jerry Whitaker

Audio carts have been evolving recently, producing higher-quality stereo-capable units suitable for every application. But keeping them in tip-top shape is the radio or TV station's responsibility.

THE BROADCAST AUDIO CARTRIDGE has come a long way since its introduction to the industry in the late 1950s. Most of the improvements over the years have been evolutionary, with only small modifications; but the basic design has remained the same. Within the last few years, however, some departures from the conventional layout have been made, spurred on by the demand of broadcasters for higher-performance cartridges. The parameter most often of concern has been phase stability, due to the increased use of carts for stereo service.

A number of factors can be used to determine whether a cartridge will meet the high performance requirements in demand today. These include the obvious specifications of frequency response, phase stability, tape type used, wow and flutter, and stop speed. Other not-so-easily-determined requirements are also important to high performance work. These come from the realization that cartridges will be used in a real-world environment in which they will be dropped, stepped on, baked in poorly ventilated decks, and subjected to various other tortures. With this in mind, ruggedness becomes very important, as do the spillout characteristics of the tape wheel. The cart braking mechanism must be capable of preventing (or at least adequately dealing with) the tendency of tape to spill off the wheel and into the tape path when the cartridge is mishandled.

High-performance audio cartridges are manufactured by a number of companies. Performance claims vary from one device to another and opinions by users in broadcasting vary as well. I have found that if you ask five engineers their opinion on the best audio cartridge on the market today, you will get at last eight answers.

The only sure way to select the best cartridge for a particular operation is on-site experience. When considering the purchase of new cartridges, it is good practice to order five or more of the devices from each manufacturer that are to be evaluated. The carts can then be put through their paces in an actual operating environment.

It is important to also consider the needs of the station. If stereo carts are used, high-performance types will be needed. But if all production is done in mono (which is often the case), a lower-performance and less expensive device may suffice.

Most cartridges currently on the market will provide excellent performance and repeatability, provided, of course, the cart decks on which they will play are accurately set up and adequately maintained. The best cartridge in the world will still sound bad on a poorly adjusted deck. Using a single type of cartridge for all recorded material at a particular station has obvious benefits, such as ease of deck alignment, guaranteed interchangeability, and reduced spare parts requirements.

Phase test procedure

The NAB standards for size and tolerance are shown in Figure 1. The NAB audio cartridge standard also specifies that the peak phase difference between stereo channels (record and subsequent reproduce) should be less than 90 degrees for all frequencies from 50 Hz to 12.5 kHz. Tests by the individual manufacturers of high-performance (stereo) cartridges show that their devices are well within this specification. Despite such assurances, a little in-house testing of devices that are to be considered for purchase surely will not hurt.

The procedure for conducting phase difference/stability testing on sample cartridges is relatively simple and requires no special test equipment. The basic procedure is as follows:

1. Connect the test equipment as shown in Figure 2.

Jerry Whitaker is chief engineer of KRED-AM/KPDJ-FM, Eureka, CA.

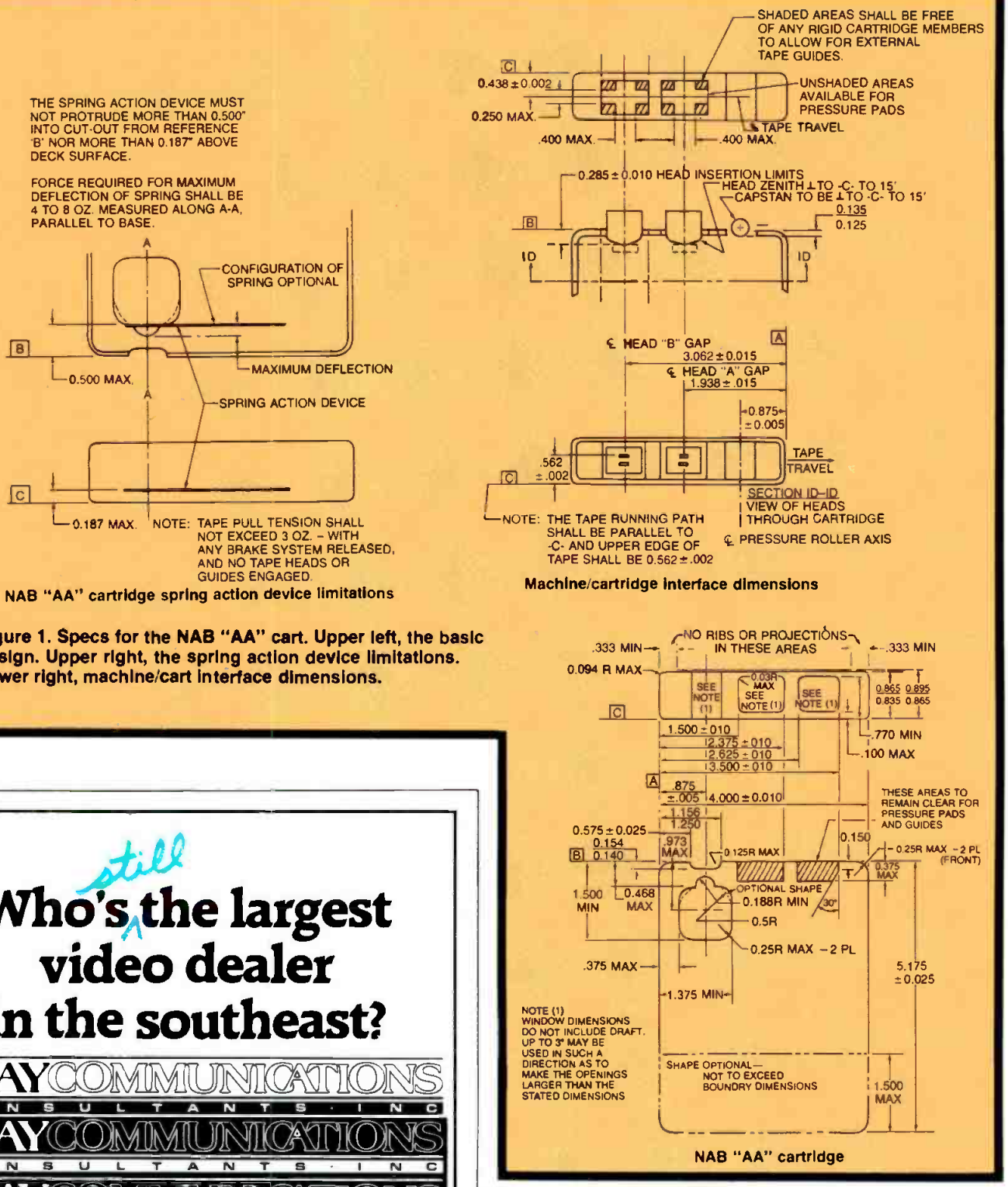

Figure 1. Specs for the NAB "AA" cart. Upper left, the basic design. Upper right, the spring action device limitations. Lower right, machine/cart interface dimensions.

Make sure the polarity of the input and output lines is maintained as shown.

2. Feed 400 Hz into the tape deck at 10 dB below normal operating level, as read on the deck's VU meters. Start the cart machine in the record mode with a cartridge of known quality.
3. Adjust the oscilloscope horizontal and vertical gain controls to give the display for zero-degree phase shift, as shown in the scope pictures of Figure 3. Polarity inversion in some oscilloscopes will result in a display that is 180 degrees out of phase, when the input is correctly phased. Many scopes have horizontal polarity inversion switches to correct this situation. When using a scope without such a control, reverse the polarity of the horizontal input signal to achieve the correct pattern. (We make the assumption here

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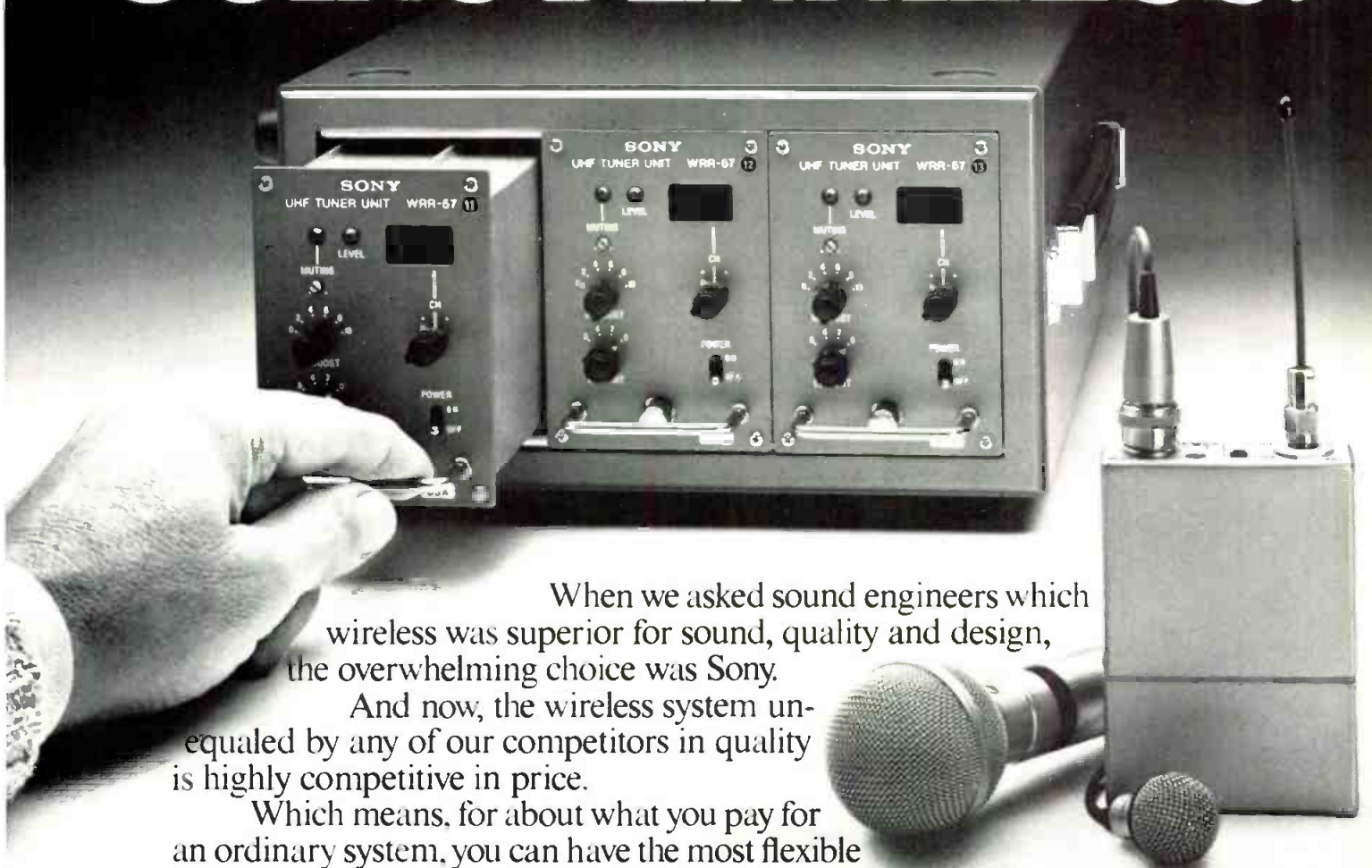

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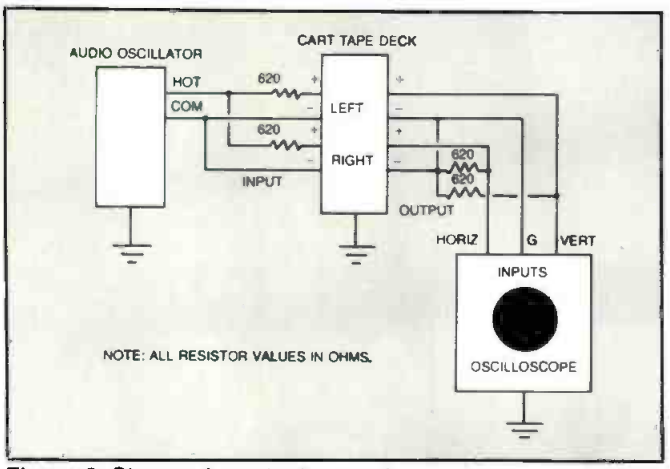

Figure 2. Stereo phase test procedure setup.

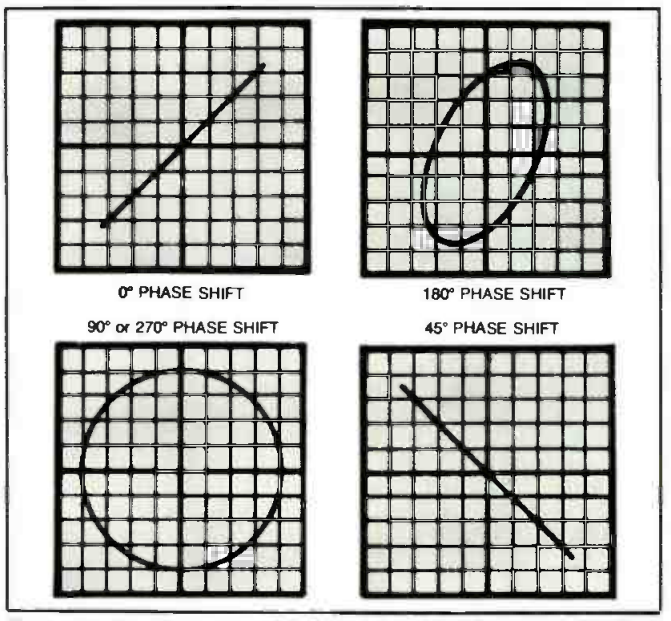

Figure 3. Oscilloscope phasing patterns. (Courtesy 3M/ITC.)

that the tape deck has been recently aligned and meets the new equipment specifications. The tape heads and capstan should be cleaned and demagnetized.)

4. Maintaining the -10 dB input level, switch the audio oscillator to 12.5 kHz. The scope pattern will vary, but should not shift more than ±45 degrees, as shown in the oscilloscope drawings.
5. Remove the cartridge and insert the "test" carts. Observe the peak phase difference as shown on the scope when recording the 12.5 kHz test signal. NAB specifications require a peak phase difference of less than 90 degrees. Top-quality cartridges should be able to deliver a phase difference of less than 45 degrees in most cases.
6. Test several cartridges of the same make but different lengths. The phase jitter problem is generally more acute in longer cartridge lengths, such as 7.5 minutes.
7. If desired, a "drop test" can be run on the cartridges to check their mechanical stability under what is all too often a typical situation. Record a 12.5 kHz signal on a test cartridge as before and note the differential phase response as shown on the oscilloscope. Remove the cartridge from the tape deck and drop it

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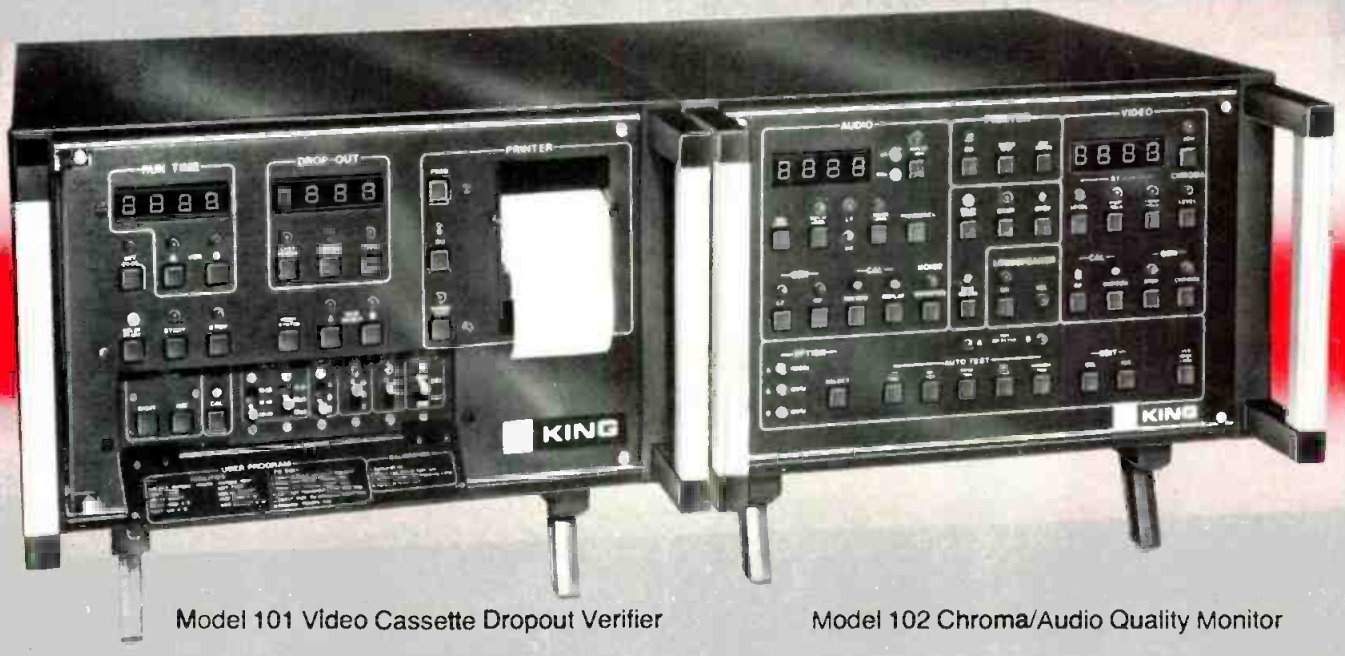

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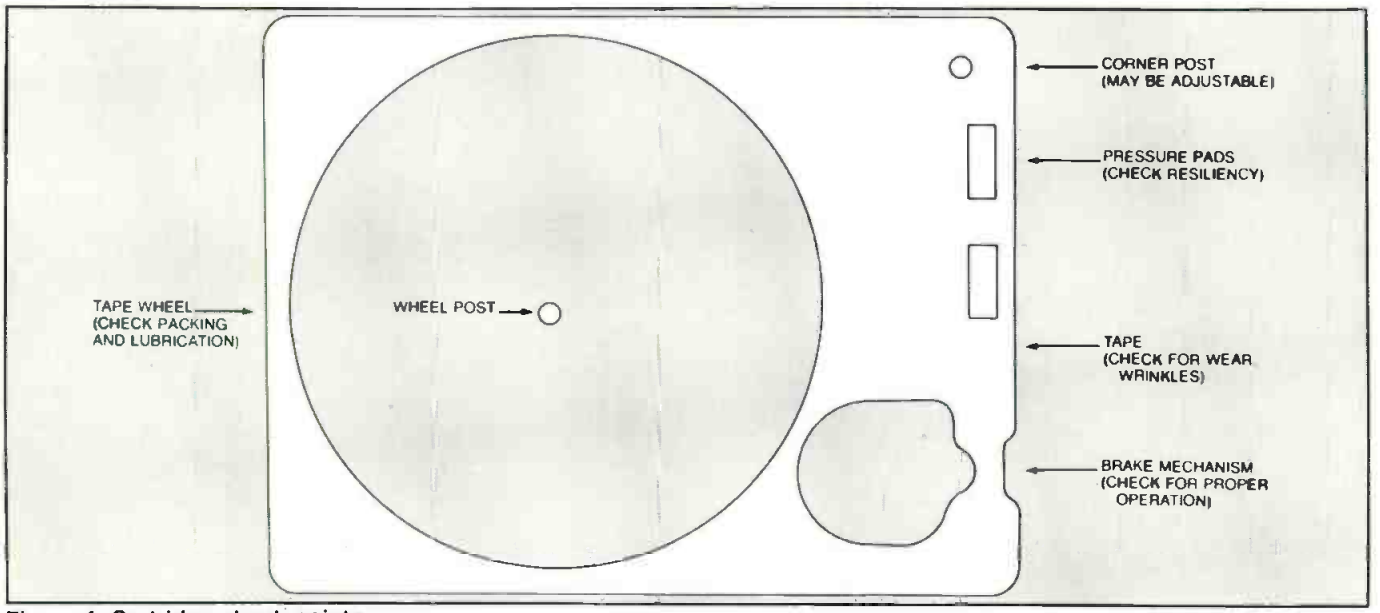

Figure 4. Cartridge check points.

on the floor. Reinsert the cart and push the play button on the deck. Observe the differential phase pattern as shown on the scope.

This test will simulate the typical operating environment in which the cartridge will be put. Phase reversals of more than 180 degrees have been recorded with just one crash to the floor.

Cartridge types

Stations looking to purchase new cartridges for stereo applications have a wide variety of devices from which to choose.

The Aristocart is manufactured by Western Broadcasting Company of Canada. This device is a veteran high-performance cart that pioneered many of the features now used in other top-of-the-line units.

The Audiopac AA-3 is Capitol Magnetics' high-performance offering. The AA-3 is the stereo version of the popular A-2 device.

The Equalizer is Marathon Corporation's newest entry

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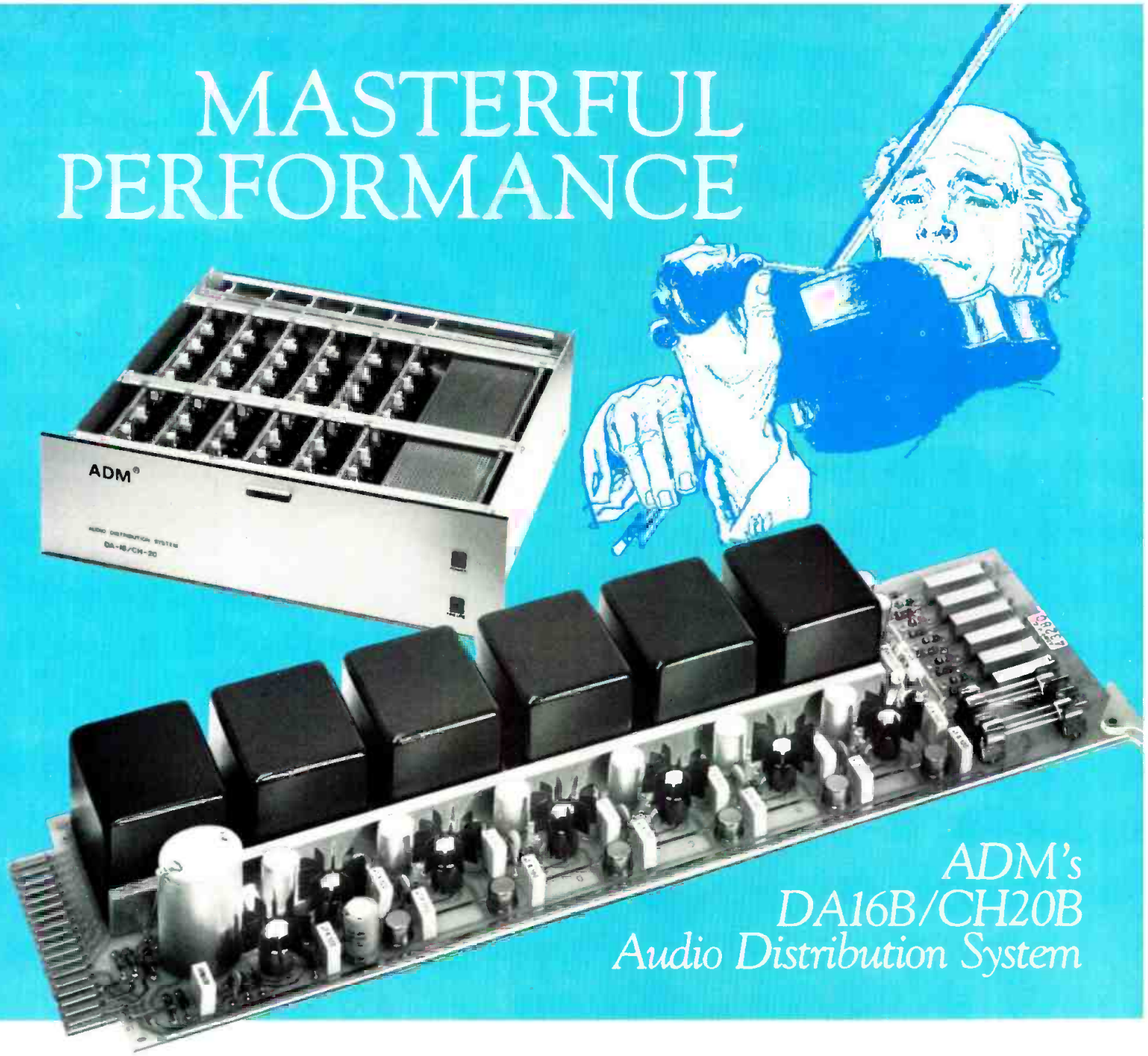

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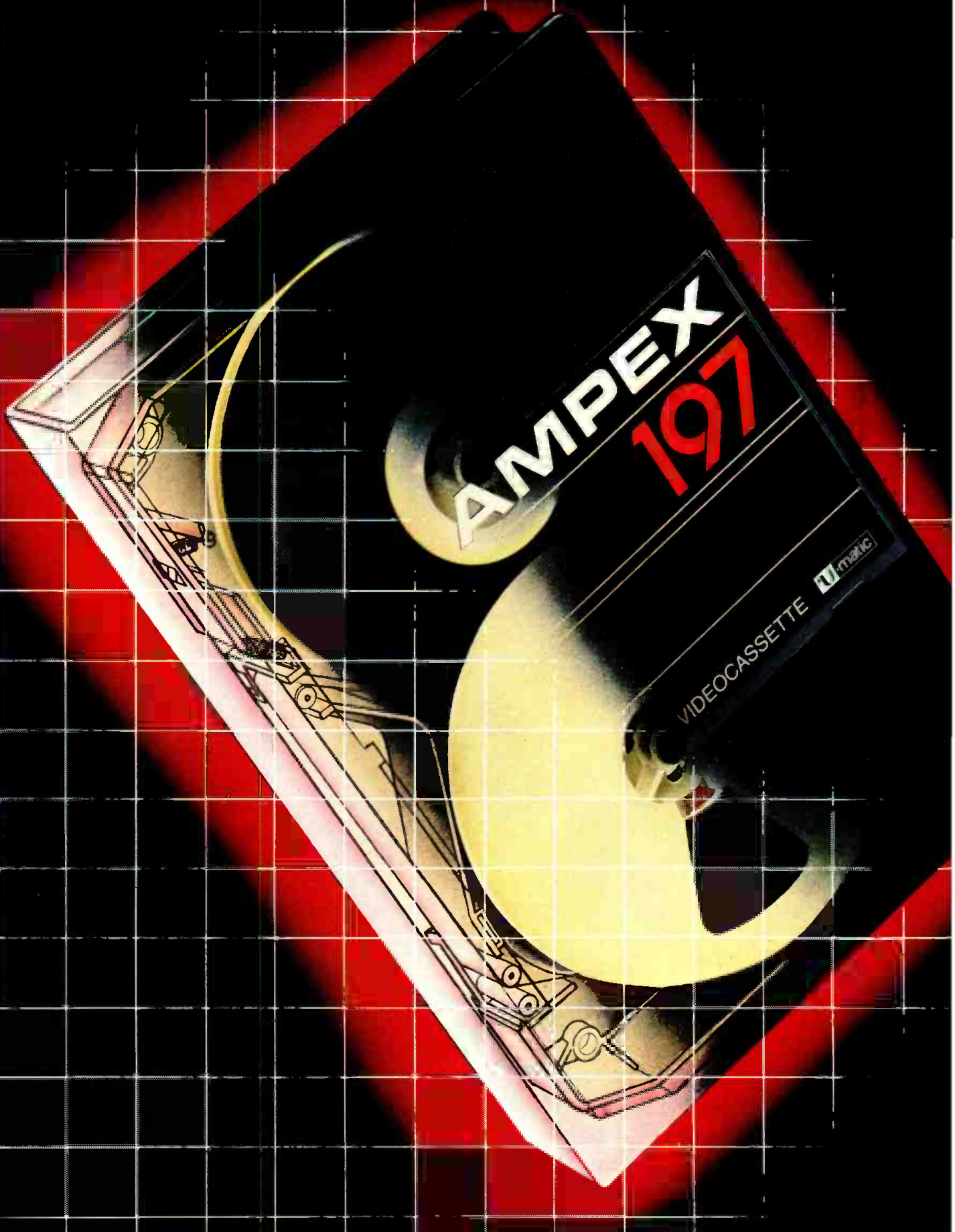

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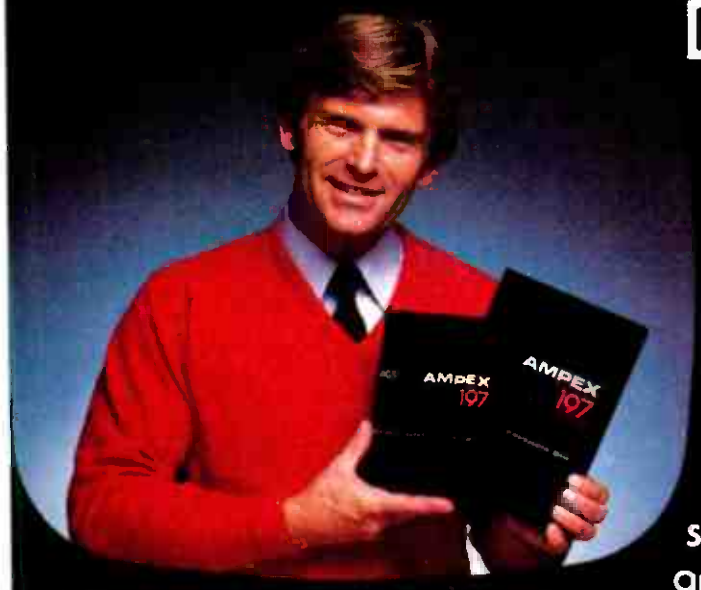

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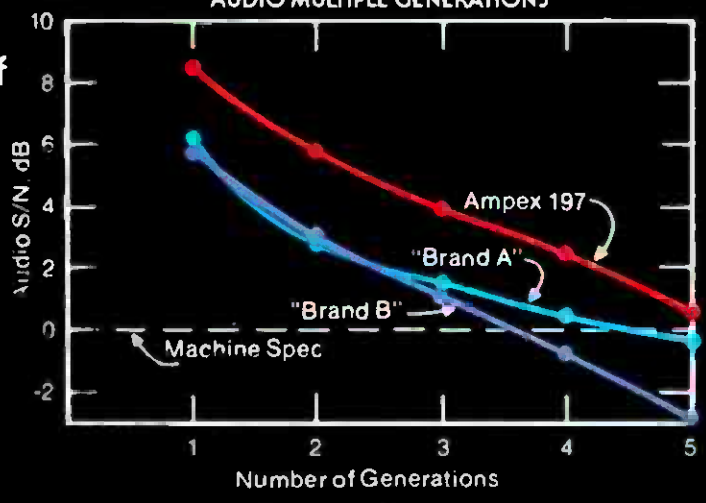
Ampex award-winning sound has been an industry leader for a quarter of a century. Now Ampex 197 brings this award-winning expertise to video.

Ampex 197 offers superior signal-to-noise and low distortion characteristics. This translates into crisper, cleaner audio performance under heavy editing conditions and multiple generation dubbing. It also delivers excellent stereo fidelity when used for music recording.



Even after five generations, Ampex 197's audio signal-to-noise ratio exceeds the BVU series machine specifications.

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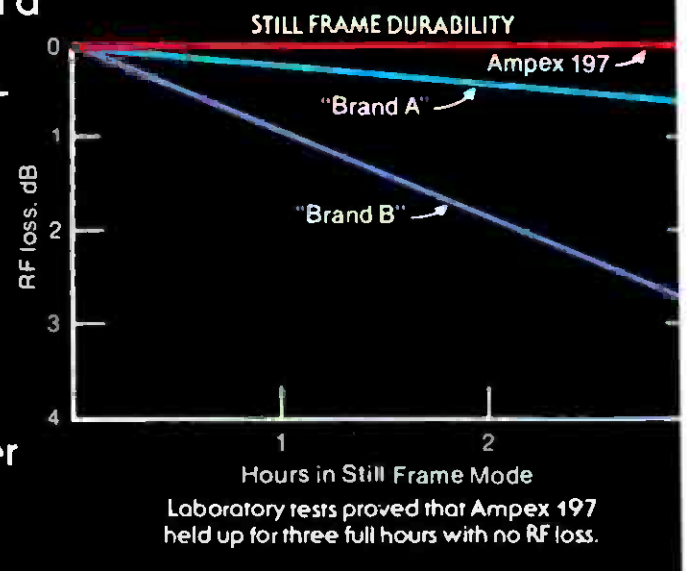
This new ¾" videocassette is a blend of the finest broadcast materials and Ampex's unique technical expertise. In blind field testing, Ampex 197 got the highest marks from broadcast professionals for its picture quality, stability, and durability.



Laboratory tests proved that Ampex 197 held up for three full hours with no RF loss.

In laboratory trials, Ampex 197 held up in the still-frame mode for three full hours and showed no dropout increase or RF loss.

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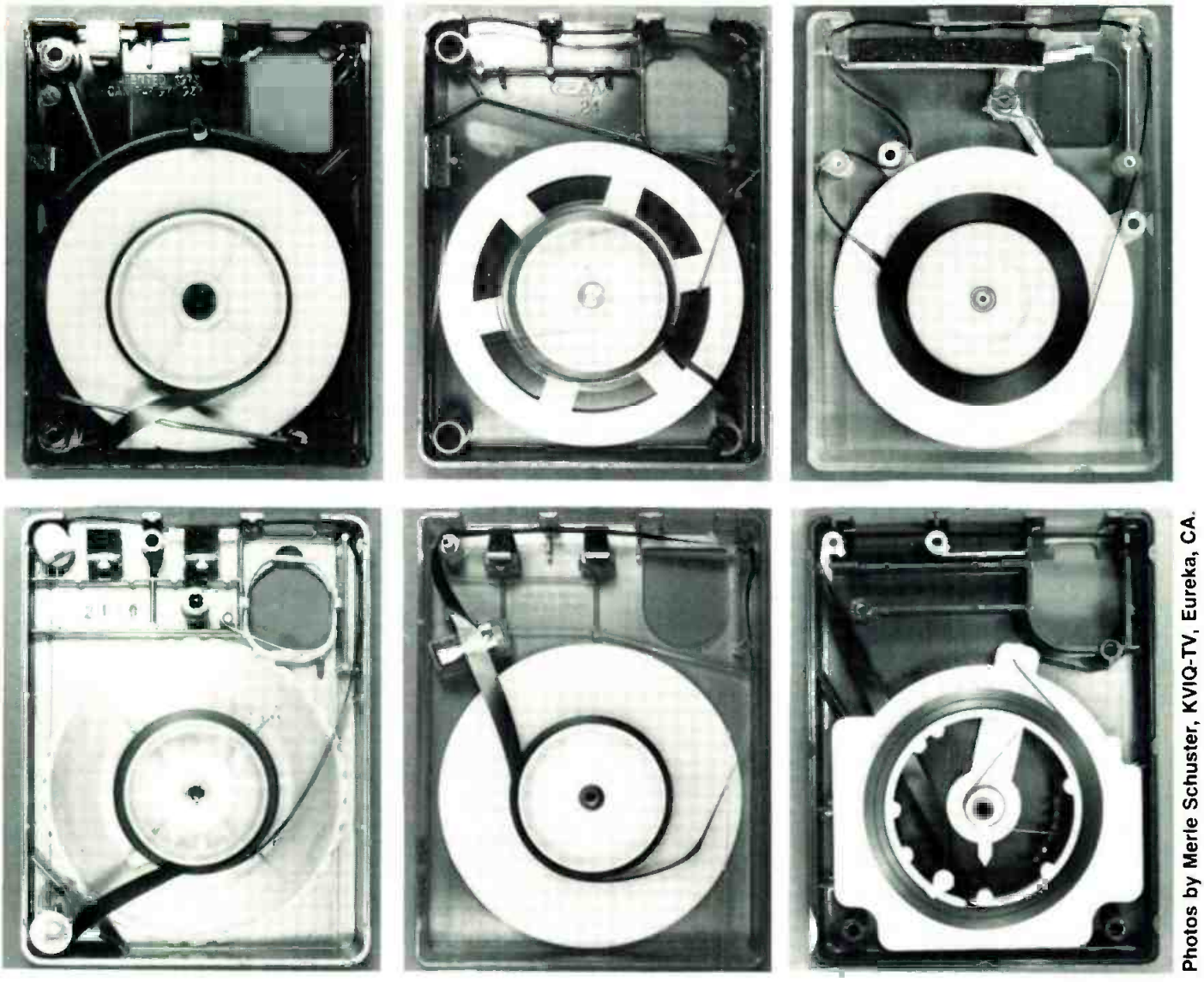

Photos by Merle Schuster, KVIQ-TV, Eureka, CA.

NAB "AA" carts (Top, left to right): The Aristocart from Western Broadcasting Company. The Capitol Magnetics Audiopac AA-3. The Equalizer from Marathon Corp. (Bottom, left to right): Fidelipac's Master Cart II. The Procart from Broadcast Supply West. And 3M's new ScotchCart.

into the stereo cartridge market. It includes a unique mechanism to maintain tape tension within the cartridge, thus allowing removal of the pressure pads, if desired.

The Master Cart II is Fidelipac's successor to Master Cart I, which was introduced to broadcasters in 1975. The new device is designed to overcome the compatibility problems that Master Cart I had with some older-generation cartridge tape decks.

The Procart includes several tape guides at the head contact area for tight tape control. The device is manufactured by the Procart Company.

The ScotchCart is 3M's newly designed broadcast cartridge. A radically new tape delivery system is used with this device which eliminates the need for pressure pads at the head contact area.

This is by no means a complete listing of all devices available for high-performance stereo use, but rather a starting point for interested broadcasters.

Keeping carts fit

Audio tape cartridges are perhaps the most vulnerable and least maintained parts of most radio and television stations' audio chains. Carts are all too often given no attention until they begin affecting the on-air sound. It is possible to receive years of service from any of the audio cartridges currently on the market, but to achieve this, an aggressive and thorough maintenance procedure must be followed. Unless your station can afford to replace all the carts in the building every year or so, the lack of a maintenance schedule will show up on the air, to one extent or another.

Figure 4 shows the vulnerable areas of cartridge operation. Precise alignment of the tape to the tape head is as much a function of the cartridge itself as it is the cart recorder in many units. Cartridges made of plastic are susceptible to manufacturing errors and shock-induced physical changes. Improper lubrication of the tape wheel can cause increased wow and flutter, as can a defective braking mechanism. Heat and normal use may reduce the resiliency of the foam pressure pads, causing poor tape-to-head contact, and thus reduced high frequency output. These problems certainly should not discourage the use of cartridges, but instead point up the need for proper maintenance.

A maintenance schedule should be established and strictly adhered to. Start by checking and cleaning all of the cartridges in the production rooms, and then as spot end dates come up, have the traffic department route all carts to be recycled back to production through engineering to be checked and cleaned. This procedure will, within a few months' time, allow nearly all of the cartridges at the station to be inspected.

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CART

The parts needed for maintaining carts are inexpensive and available from nearly all cartridge suppliers. Individual requirements will depend on the condition of the carts on hand, but experience has shown that a good supply of cartridge tops and pressure pads will suffice for most repairs. Other parts can be pulled from a few sacrificed "junk" carts.

Use a methodical approach to checking and cleaning each and every cartridge.

1. Clean the cartridge body using "Glass Plus" (from Texize) or an equivalent cleaner, and some paper towels. Get all of the dirt off, particularly any on the base of the cart. This will insure proper seating when the device is inserted into the recorder deck.
2. Using a cotton swab, clean the head entrance area inside the cart. Be careful not to touch the tape while performing this step.
3. Check the cartridge for physical damage. Cracked tops or bases should be replaced, as should ones with adhesive tape or labels stuck to them.
4. Examine the audio tape for any signs of damage. Rewind any carts (or use for spare parts) that have wear streaks on the tape, or any wrinkle marks. Also check the packing of the tape on the wheel. Uneven packing is generally due to excessive amounts of tape for the particular cut length.
5. Test the cartridge for high frequency audio response. Check the output (record and subsequent reproduce) of the cart while feeding a 16 kHz tone at 10 dB below normal operating level. The output should be within 3 dB of a previously established "standard" cart, such as a brand-new device set aside for this test.

During Step 5, any operational flaws should show up. Mechanical rattling of the tape wheel is easily corrected by cleaning the old grease off the support post and replacing it with a light grease, such as Lubriplate. Note that some of the newer devices do not use grease on the tape wheel hub, in which case the manufacturer should be consulted. Do not tighten the cart cover hold down screw any more than necessary to securely clamp the cover. Excessive tightening can result in drag on the tape wheel or shortened life of the plastic cover.

Poor high frequency response in Step 5 can be caused by a number of problems, depending on the type of cartridge. Generally, however, the loss of high frequencies can be traced to the pressure pads. Visually inspect each pad by lightly pushing on it (the pad, not the tape) with a clean cotton swab and noting the response. If the pad is slow to return to its normal shape, it should be replaced. On cartridges with pressure pads mounted on metal tabs (Fidelipac 300 and others) the tabs should be parallel to the head end of the cartridge. Never bend the tabs toward the heads in order to compensate for bad pressure pads.

Carts placed in playback decks for long periods of time (such as jingles in single-play automation system reproducers) or those loaded in an Instacart deck, will show more than the normal amount of pad wear because pressure is being put on the pads the entire time the cartridge is sitting in the tray. Playback units such as the Go Cart, Audiofile, or Carousel will not show greater pressure pad wear because the pad will be compressed only when the selected tray is mated with the playback shelf.

Fidelipac 300, a long-time favorite cartridge, has one point of adjustment that should be checked if poor high frequency response is noted. The corner post is set at the factory, but can be dislodged from its correct position

Phasing and AM Stereo

The problem of cartridge phase stability is obviously of great concern to FM broadcasters using carts for stereo reproduction. Poor performance in this area can result in a muddy, dull sound, when listening in mono. AM broadcasters considering a switch to stereo have even more reason for concern about cartridge phase stability, since the day they change over, virtually 100 percent of their audience will be listening in mono.

Cartridges that have performed well for years in mono service may not live up to the requirements of stereo use. The end result, then, could be a very disappointing experience with AM stereo operation. It would not take much phase shift in the cartridge system to undo extraordinary efforts at delivering an "FM-like" sound into a typical AM radio. The station's audio processor will not clean up a muddy signal caused by cartridge phasing errors, since the processor works on each channel independently, not the sum of the two channels.

The basics of stereo phasing are illustrated in Figure 2. Two identical "in phase" signals, when summed, will yield an ouput that is twice the level of either of the two input signals. When one channel is shifted 180 degrees out of phase with respect to the other, an output of zero will result, since the two signals completely cancel each other. Phase shifts other than zero or 180 degrees will produce varying amounts of signal cancellation.

Dramatic phase shift cancellations resulting in zero audio output do not show up in everyday practice because (assuming a correctly aligned tape deck) the degree of shift in a cartridge system is frequency-dependent. Phase changes are caused by skew of the tape from the ideal horizontal path across the tape heads and back into the cartridge, as shown in Figure 2.

One cycle of a 12.5 kHz signal is stored on just 0.0006 inches of tape at a cartridge speed of 7.5 ips. The same measurement applied to a 1 kHz tone is 0.01 inches. It can thus be seen that normal tolerance in both the cartridge and tape deck systems will have a much greater effect on the higher frequencies. As tape heads and guides wear and the cartridge characteristics change (due to possible stretching of the tape itself or shock-induced damage to the cart) the phase errors seen by the user will increase. The phase stability performance of a cartridge system is, therefore, not a static value, but one that changes with the amount of use (or abuse) the individual components see.

To AM broadcasters, the phase stability performance of a cartridge has, in the past, been of little concern. With the promise of AM stereo, however, that is changing.

through rough handling. Generally, the post should be pushed down with a moderate amount of pressure into the cartridge base. Occasionally, the post will have to be moved up in order to achieve the best high frequency response. Once the correct point has been found, secure the post with some general-purpose plastic cement.

Cart reloading

Reloading cartridges presents no particular problem, but a couple of guidelines are in order. First, always load

cartridges with new, lubricated tape of the same type used in the rest of the station's carts. Do not use high-output, low-noise tape in new carts unless the old ones are loaded with it as well. This tape type will require, in most cases, new bias settings on the recorders and result in widely varying output levels from normal to hot carts. If the budget allows, complete conversion to high-output, low-noise tape should be considered, since it will result in improved signal-to-noise performance from the cartridge systems.

When rewinding carts, experiment on the first two or three to determine the optimum amount of slack to leave in the wind to provide good packing of the tape on the wheel.

Production techniques

Production techniques play a vital role in insuring good performance from audio cartridges. The following procedure should be adhered to whenever recording on to a cart.

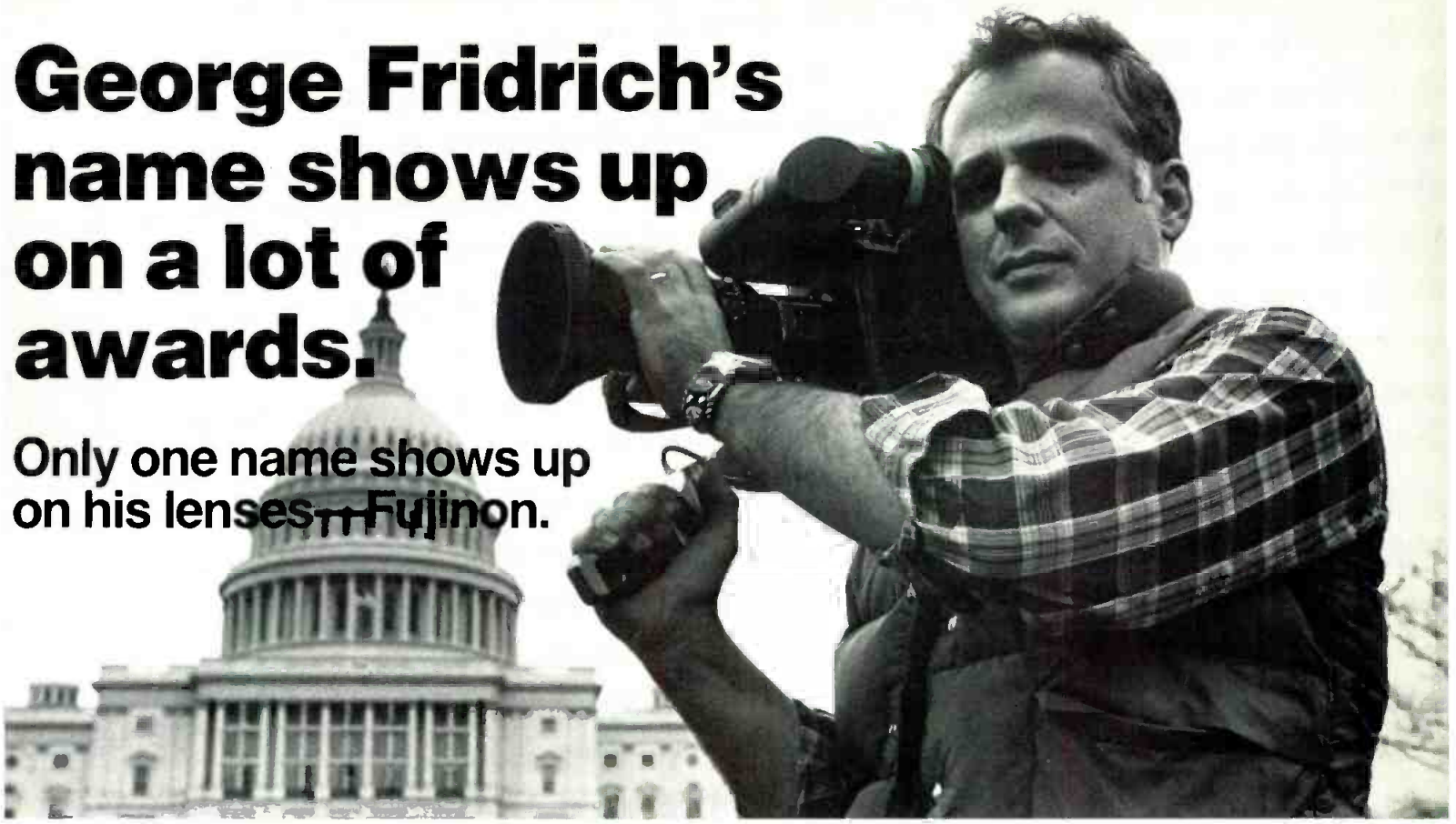
1. Use only cartridges recycled and checked out by engineering.
2. Keep the heads on the record and playback decks clean at all times.
3. Record all carts on a selected cart machine in each production room. By keeping the number of machines used for recording carts to a minimum, in-house tape head alignment problems are generally reduced.
4. Cue past the splice on the cart.
5. Be certain the cartridge is fully erased, leaving the demagnetizer energized while the cart is pulled away to a distance of one to two feet.
6. Allow one second of start-up time at the beginning of each cart cut. Ideally, program audio should appear on the cart about one second after it is started. Some tape cartridges have very poor high frequency response in the first second or two of tape motion, and this dead space will prevent muffled starts, as well as recue "thumps."
7. Apply the end of message tone carefully on encoded carts. The secondary button should be depressed for about two seconds, beginning with the final spoken syllables or last music notes on the spot. Multiple secondary tones are not acceptable. They can drive an automation system crazy.
8. Leave the cart machine in the record mode for a few seconds after the end of program audio. When the machine is taken out of record, a "thump" is sometimes put on the cart. By delaying the record drop-out, an automation system can switch the cart tray off before the pop comes along, or cover it with other program material.
9. Set aside any carts found to be defective and pass them on to engineering for repair.
10. Report any equipment problems or malfunctions promptly.

By establishing good production practices and a thorough cartridge maintenance program, reliable, high-quality programming is guaranteed. **BM/E**

The author wishes to thank ITC/3M, Broadcast Supply West and the National Association of Broadcasters for their help in preparing this story. —*Ed.*

George Fridrich's name shows up on a lot of awards.

Only one name shows up on his lenses—Fujinon.



Network news cameraman George Fridrich covers the nation's Capital. Assignments also take him across the country. But wherever he goes, his work speaks with authority. The most prestigious awards confirm it.

The White House News Photographers Association named him "newsfilm photographer of the year" for 1982. (They did the same for 1981 and 1979.) And he received first place awards for spot and feature news in 1982 from the National Press Photographers Association.

Obviously, George Fridrich has his choice of lenses. For years, his choice has been Fujinon, exclusively. Here, in his words, are his reasons:

"Fujinon lenses deliver great performance and reliability. I use two of them, I abuse them and they hold up. They get knocked around and still perform often under the worst conditions. The fact is, you just can't go wrong with any Fujinon lens. On top of that, Fujinon's support and service are fantastic."

George's basic lens is a Fujinon 14X zoom with built-in 2X extender. When he can't get in close, the lens will and because its maximum F1.7 aperture stays flatter, farther, George can still get the brighter, higher contrast picture quality he demands. His second lens is Fujinon's exclusive 3.5x6.5 wide angle zoom. With an MOD under one foot, no assignment is ever missed because of tight quarters.

Incidentally, although George didn't receive the White House News Photographers' award for 1980, Pete Hakel (WJLA, Washington) did. He won with Fujinon, too. It's not a coincidence. According to Pete, "90% of the ENG work in D.C. is Fujinon."

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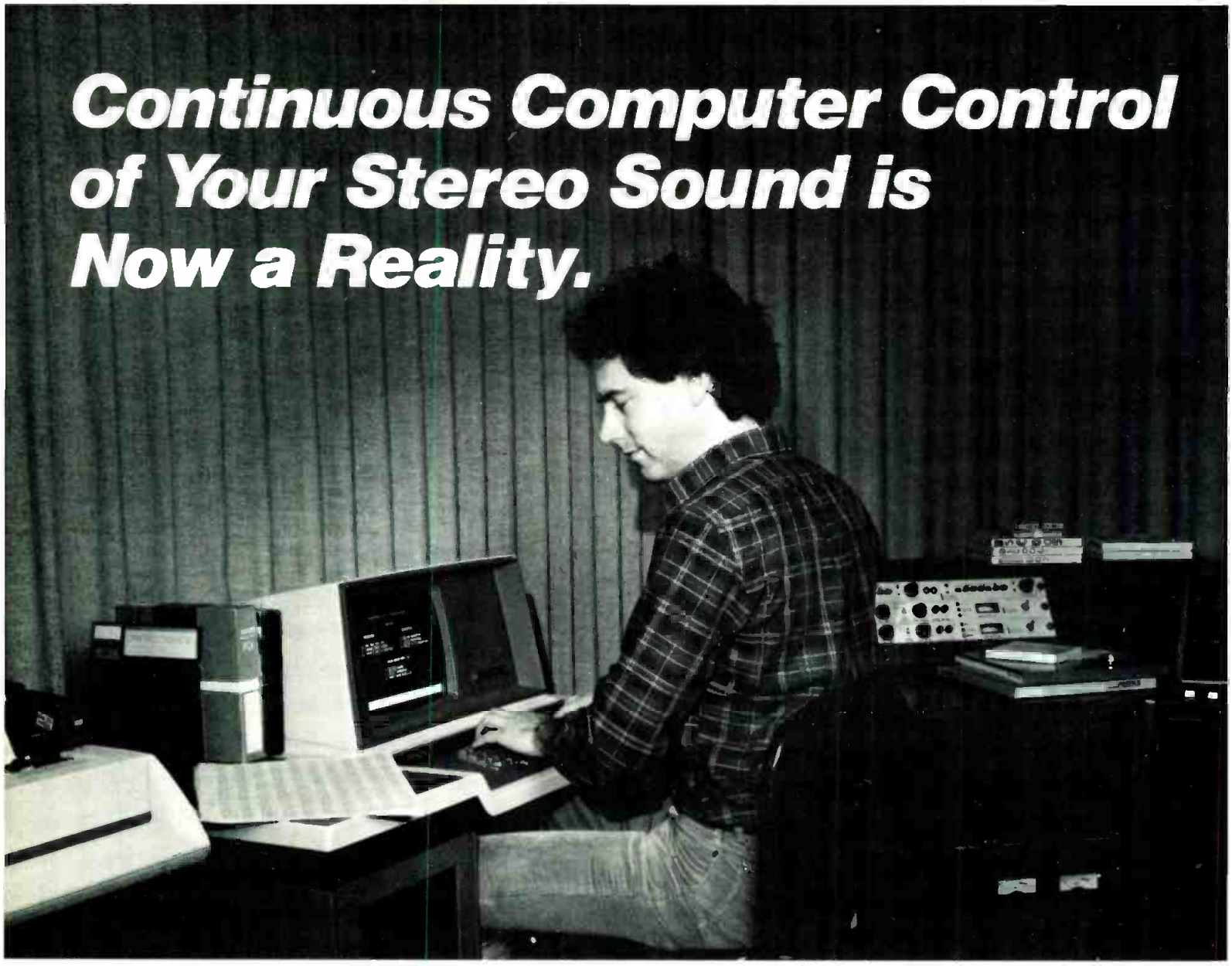

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With our standard 250 you can pre-program four remotely selectable manual presets. The optional dynamic programming card allows you to program the 250 on a continuous basis with on-line control by any of several small computers with RS-232C serial data interface.

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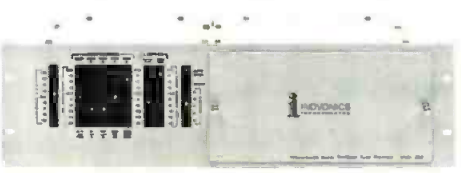

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Exhibits at AES in Eindhoven drew some heavy traffic.

AES Addresses Digital Techniques, Standards

By Gerald M. Walker, Editorial Director

EINDHOVEN, HOLLAND, the home of Philips, was taken over by AES visitors in mid-March when some 3000 audio engineers filled the town to overflowing during the society's seventy-third convention. The meeting provided an excellent insight into what European broadcasters are up to concerning digital audio technology and in turn how their standards efforts might affect U.S. broadcasters.

Essentially, the Europeans, like Americans, are trying to cope with an analog-to-digital conversion—learning to use new digital equipment while continuing to operate a basically analog broadcast system. Anticipating the need for standards, they are analyzing digital procedures in the studio, transmission link (interface), and in eventual transmission systems.

This standards process was reviewed in a report on European Broadcast Union (EBU) studies in digital audio presented by David Wood of the EBU Technical Centre in Belgium and Gianfranco Billia of Radio Televisia Italiana, Rome, Italy. It has been a drawn-out process because of the need to make the digital audio standards compatible with digital video standards, which in turn have to account for not only NTSC and PAL/SECAM standards, but film format. Thus, audio and video are inextricably linked.

A controversial aspect of the EBU's work is formulating quality standards for digital audio broadcasting. Mindful of the need for efficient use of the radio-frequency spectrum, broadcasters must ask themselves at what point a digital audio signal, which is well controlled in level, is of sufficient quality to make further data bits unnecessary.

"This is a subjective judgment," the authors admitted, "but the EBU believes that this point is reached with the 14 bits/sample, 32 kHz [sampling frequency] system. This allows an audio bandwidth of 15 kHz and a peak weighted signal-to-quantizing-noise ratio on the order of 66 dB."

The EBU is making progress toward a standard interface. Basically, the proposal calls for a two-channel interface with self-clocking. Auxiliary data is four bits; one bit validity flag, one bit user-definable data, one bit channel status data, and one bit parity. Error protection could be provided by the four least significant bits in the sample word, which is proposed to be 24 bits.

On the studio side, the top priority among broadcasters is to achieve identical audio sampling frequencies for broadcast audio tape recorders and videotape recorders, because of the frequent loops between the two for editing, dubbing, and so on. After studying this constraint, the EBU has concluded that a 48 kHz sampling frequency is preferable.

The outlook for a common digital audio tape recorder format is perhaps the least optimistic, however. Lack of a common format has frustrated broadcasters in analog video and now a similar fate may befall digital audio.

"We know who will in the end pay for the lack of standarization of a digital audio tape recorder format," they warned. "—Just about everyone."

Other standards

Another important standards-setting organization in Europe is the CCIR (International Consultative Committee of the International Telecommunication Union in Geneva). And this group has also been involved in digital audio issues. Although progress has been slow, digital techniques have been assigned a high priority in CCIR's broadcast audio section, Study Group 10.

Documents prepared by this group include:

- "Digital Audio Techniques for Studios and Quality Measurements," which reports results of studies carried out by the EBU mentioned above.
- "Sampling Frequency for Digital Sound Signals in Broadcasting Studios," which discusses the 48 kHz sampling frequency supported by the EBU.
- "Subjective Assessment of Quality of Sound in Broadcasting Using Digital Techniques," which includes studies of the upper cutoff frequency (15 kHz).
- "Digital Coding for the Emission of High-Quality Sound Signals in Satellite Broadcasting," which contains the proposal to use a 32 kHz sampling frequency for satellite broadcasting.

Compact Disc developments

With the compact digital disc a reality on the European market, AES attendees learned that Philips is carrying out further research with the system—experiments on an erasable compact audio disc using magneto-optical (MO) thin films. A paper prepared by K. A. Schouhamer Immink and J. J. M. Braat of Philips Research Laboratories described these experiments.

The disc is made with a photopolymer layer put over a pregrooved glass substrate. A thin dielectric layer separates the photo-polymer from a magneto-optical storage layer which is made of an amorphous alloy. The 100 nm thick storage layer is vapor-deposited and has an internal magnetization perpendicular to the surface. A protective layer is then put over the storage layer.

The recorder has an aluminum galium arsinide laser with a wavelength of 850 nm. During recording the laser is pulsed at intervals of 250 nsec with pulse duration of 50 nsec. Peak power is 60 mW, but due to losses in the light path 10 mW is available in the focused light spot. Information recording is done by locally heating the amorphous MO layer. The coercive force of the layer is decreased by a temperature rise, and with the aid of a small external magnetic field the magnetization of the layer is locally reversed.

The recording process produces the familiar Compact Disc storage domains. Erasing information requires two steps. First, while the laser is delivering pulses the external magnetic field is reversed so that the whole track surface is magnetized in the opposite, original, direction. Then, new information is recorded in the normal way.

According to the Philips researchers, the information in neighboring tracks is unaffected by the erasure track. (Spacing between tracks is 1.7 micrometers.) And the signal-to-noise ratio is unaltered by erasure when new information is recorded. While recording of a digital music signal in this manner is promising, information density in the track direction is 40 percent of the density of a nonerasable Compact Disc. At present, the density is limited by disc surface roughness, not variations in storage domain dimensions. **BM/E**

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Suburban Community Policy and Localism

By Harry Cole
FCC Counsel

AS WE HAVE SUGGESTED in past columns, the Commission under Chairman Fowler is reshaping many of the fundamental principles and policies of its regulatory approach relative to broadcasting and, indeed, communications generally. Yet another tremor in the continuing deregulatory earthquake occurred in March, with the release of a Report and Order eliminating the Suburban Community Policy, the *Berwick* Doctrine, and the De Facto Reallocation Policy. As a practical matter, it is possible that the effects of this action may not be felt by many existing broadcasters. As a theoretical matter, however, the action signals a shift in the Commission's approach to "localism," a shift which could lead to a reappraisal of the relationship between broadcasters and their audiences.

In order to understand what the elimination of these policies means, it is necessary to understand how the policies arose in the first place. It all goes back to the Communications Act. Section 307 (b) of the act, which was included in the act in 1936 (and which had first been adopted as part of the Federal Radio Act of 1927), calls for the Commission to distribute stations "among the different States and communities" on a "fair, efficient and equitable" basis. Congress felt compelled to include this provision because, back in the dawn of the broadcast industry, there tended to be concentrations of broadcast development in and around major metropolitan areas like New York, Chicago and San Francisco. By contrast, very few of the first 500 to 1000 radio stations were established in less populous (and, as the theory goes, less lucrative) markets. Fearful that this trend would continue and ultimately preclude the institution of service to the hinterlands, Congress passed section 307 (b) in order to assure "an equitable geographical distribution of stations over the entire country," to quote the Congressional Record.

In the 1950s and 1960s, taking its cue from Congress, the Commission sought to develop mechanisms by which it could control the development of the broadcast industry so as to provide service to as many communities as possible. For new stations this was relatively easy to do in the FM and TV services, since neither of those two had experienced any substantial development. Thus, the Commission was in a position to control FM and TV growth and distribution. AM service, however, was another story, since AM stations had proliferated, and had become geographically entrenched, years before the adoption of section 307 (b).

With respect to AM stations, the Commission had long since adopted a "drop-in" approach, under which an applicant for a new station could specify any community it wanted as long as the proposed station met various technical standards. In order to factor 307 (b) considerations into this process, the FCC decided that, to the extent that competing applicants proposed different communities, the applicant proposing to serve a community which had no other stations would be preferred over an applicant proposing to serve a community which already had one or more stations. This was pretty straightforward, but it was also pretty easy to circumvent. The Commission soon recognized that applicants were trying to have their cake and eat it too, mainly by specifying small suburban towns as their cities of license. The applicants' idea, of course, was to gain a preference by specifying the small suburb, while still keeping the proposed station close enough to the large city to be able to program it as if it were licensed to the large city. Since this tended to undermine the 307 (b) concept, the Commission established the Suburban Community Policy. That policy stated that, when the proposed city-grade signal of an AM station would penetrate the city limits of a large community (i.e., 50,000 or more population), and when the proposed city of license was less than half the size of the large community, the Commission would presume that the application was, in fact, for the

large community. The applicant could, of course, try to rebut the presumption. The showing necessary to rebut it, however, was a tough one to make, and many failed in the effort.

With respect to FM and TV, the Commission was not saddled with the "drop-in" approach used for AM applications. Instead, it established tables of allocations in which it designated which FM and TV frequencies would be available in which communities. Thus, rather than "dropping in" stations wherever they could fit at the request of an applicant, the Commission doled out the channels to the various communities *before* accepting applications for use of those channels. Applicants were then free to file for use of any channel listed in the tables. The community in which the channel would be used had to be the one specified in the table of allocations, or a community within at least 10 miles (for a Class A FM station) or 15 miles (for a TV or Class C or B FM station) of the listed community. If an applicant wanted an FM or TV station in a place where no channel was allocated and where no channel was available under the 15- or 10-mile rule, the applicant had first to convince the Commission to allocate the channel there. If the Commission agreed to do so, the applicant then had to file an application for a construction permit for use of the channel. The bifurcated process may seem unnecessarily difficult, but it provided the Commission with a relatively efficient means of controlling the geographic distribution of FM and TV stations.

Notwithstanding the two-step FM and TV allocation process, the Commission ultimately found it necessary to create for those services a couple of policies equivalent to the AM Suburban Community Policy. The FCC was concerned about applicants acquiring stations already allocated to specific communities who might turn around and, in spite of that allocation, try to program their stations to serve other larger (and, again, more lucrative) nearby communities. Obviously, such a practice runs directly counter to the purpose of the allocation process. What is worse, the Commission feared that some applicants might try to add insult to injury by proposing to utilize an available channel in a smaller, unserved community (for example, under the 10- or 15-mile rule) in order to obtain a comparative preference over other competing applicants proposing to use the channel in the larger community to which it was assigned. As it had been with respect to AM allocations, the FCC was understandably reluctant to let FM or TV applicants take advantage of section 307 (b) preferences in order to acquire a station, only to operate the station in a way

wholly inconsistent with just those preferences.

Thus were born the *Berwick* Doctrine and the De Facto Reallocation Policy. Those two closely interrelated policies were patterned in large measure after the Suburban Community Policy, with appropriate adjustments made for the differences in allocation policies underlying AM service, on the one hand, and FM and TV service, on the other. The *Berwick* Doctrine and De Facto Reallocation Policy, at bottom, were intended to permit the Commission to determine when and if a licensee was abandoning its designated community of license in favor of some other populous community.

All of these policies are well and good in theory, but the proof of the pudding, as they say, is in the tasting, and the proof of a policy is in its application. Unfortunately, none of the three policies fared well, according to the FCC's review of its own records. As it turned out, the policies seemed to have been invoked in large measure not by the Commission itself, in an effort to uphold the letter and the spirit of section 307 (b), but by existing broadcasters seeking to slow, if not prevent altogether, the arrival of new competition. Thus, for example, if an applicant proposed a new station in a suburban community, licensees in the larger nearby city might petition to deny the application on the basis of section 307 (b) considerations. While such petitions generally proved unsuccessful, they did add significantly to the processing time required before the application could be granted, and they also added considerably to the ultimate cost of the application, primarily because of the legal fees incurred in warding off such petitions.

The Commission was understandably disturbed that its policies might be used for such anticompetitive purposes, especially since the current Commission has spent so much time and effort seeking to increase competition in the industry. Accordingly, last summer it proposed the abolition of all three policies. It also proposed the elimination of the 10- and 15-mile rules, and indicated that it would consider the possibility of redefining the word "community" for licensing purposes. In March, the FCC completed work on these proposals. The bottom line? The Suburban Community Policy, *Berwick* Doctrine and De Facto Reallocation Policy were eliminated, as were the 10- and 15-mile rules. The definition of "community," however, was unchanged.

The bases cited for the Commission's action were not unexpected. They made much of the fact that the various policies had served more as a brake on, rather than a spur to, competition. They also relied on the fact that the number of existing broadcast stations now in operation in and of itself provides some assurance of competition, assurance which can justify a shift in regulatory approach. This, of course, should be a familiar theme by now, as it has been relied on by the Commission fairly regularly in a variety of contexts during the last two years (the most obvious such context being the 1981 radio deregulation decision). With respect to the factors underlying the particular 307 (b)-related policies under consideration, the Commission's "safety in numbers" rationale was stated as follows: "Growth in the number of stations has increased competition in

the industry and created the incentive for broadcasters to discover discrete markets within which to provide an economically viable service. . . . Identification with and service of a small community becomes economically feasible after an increase in the number of players in an industry fractionalizes a market."

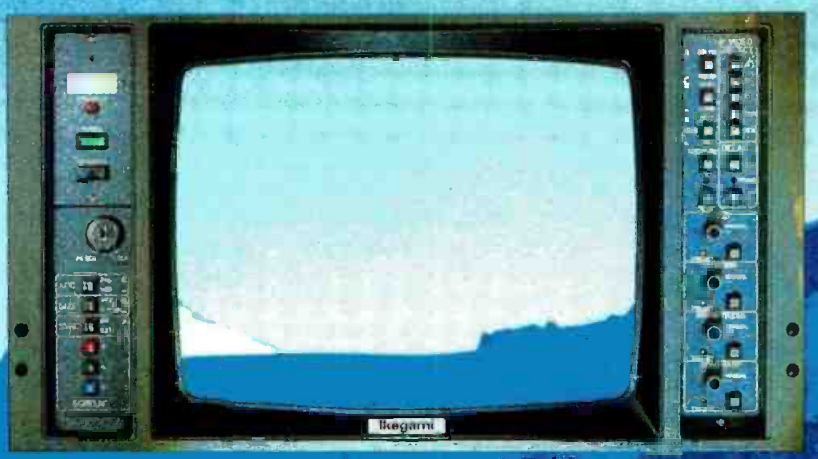
In addition to this general, deregulatory rationale, the Commission also noted that it intends to keep in place a number of rules aimed at insuring truly local service. These include the main studio rule (which generally requires that a station's studio be located in its city of license), the city-grade coverage rules (requiring that a station provide a signal of a particular strength to all of its city of license), the city-grade coverage rules (requiring that a station provide a signal of particular strength to all of its city of license), and the requirement that each station's programming be tailored to meet the needs and interests of its city of license. The FCC concluded that it really couldn't complain if a station in a smaller community satisfies all these rules and, at the same time, wishes to compete for audience and revenues in a larger nearby city or metropolitan area. This is because, in the FCC's view, a station's effort to compete in a large market does not necessarily prohibit it from serving a smaller locality at the same time.

So much for the Suburban Community Policy, the *Berwick* Doctrine, and the De Facto Reallocation Policy. The 10- and 15-mile rules were eliminated because the Commission no longer sees a need to keep its FM and TV allocation scheme flexible in light of the fact that both those services are "mature" and "thriving" and no longer in need of fostering. The Commission also expressed concern that the 10- and 15-mile rules could add to the burdens on applicants, particularly if those rules are invoked in comparative situations. Accordingly, the 10- and 15-mile rules have been thrown out. In the future, if an applicant wishes to specify a particular community which does not have any vacant channels available, the applicant will first have to seek formal reallocation of a channel to that community, regardless of whether or not vacant channels may be available in nearby cities.

The question which the Commission traditionally sought to answer through the rules and policies which it has eliminated was relatively simple—what city does each applicant intend to serve, its community of license or some other city? No matter how simple that question may seem, however, it is a difficult one to answer. Any question of intent is almost reduced to an effort to read the applicant's mind, an imprecise exercise at best. As a result, the Commission has, in effect, abandoned its attempts to discover the intent of applicants. Instead, it has decided to presume that, as long as an applicant satisfies the main studio and city-grade coverage rules and offers a program proposal related to the needs of its city of license, the applicant intends to serve the proposed city of license.

Thus the reshaping of the FCC regulations will have, whether direct or indirect, an effect on community policy licenses and the definition of localism. If you have any questions concerning the Commission's recent action or its possible impact on you, you should consult with your communications counsel. **BM/E**

Now there's even more to look into



TM14-9RH

TM20-9RH

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Circle 156 on Reader Service Card

TAX TIPS for stations

Those Other Taxes

By Mark E. Battersby, Financial Consultant

AMONG THE HIDDEN COSTS of operating your broadcasting business are those taxes and charges which relate to the employment of those individuals who work with or for you. These taxes frequently are dismissed as minor or unimportant, but they can—and often do—add up quickly. Fortunately, with a little planning and a little knowledge, even those miscellaneous employment taxes can be kept to a minimum.

For example, the unemployment compensation bite is among the most neglected financial problems facing the average-sized station. The unemployment compensation system is designed in such a way as to provide the minimum benefits established by our lawmakers to individuals who lose their jobs because of layoff or discharge (but not for cause). These benefits are paid by the state to the employee for a specified period of time, so long as the discharged employee is seeking work and willing to accept other employment if available. The program is ordinarily run by an agency of the state which has its own rules and regulations, employees, and appellate procedures.

The short response time allowed under the present computerized system can work against the employer, unless that employer makes a conscious decision before claims are filed to respond to every claim. For instance, consider what happens if an employee leaves your station to take another job and is fired from the new job. In many states the experience rating (which is the way in which your tax payments are determined) of the original employer is the one that is charged with this former employee's present unemployment benefits. This may be the case even under these conditions: you asked that employee to stay, the former employee's departure from your station was voluntary, and you as an employer had no part in the discharge by the new employer.

Should you choose to represent yourself in objecting to having your station charged with this employee's inability to keep the new job, you will undoubtedly find it a time-consuming and frustrating experience. In many states the hearing officer is also the representative of the state agency and the employee. He also is charged with interpreting the complex rules and regulations. What's worse, continuances for the appearance of the employee are readily granted in most cases.

There is another way to handle this kind of claim on a relatively inexpensive basis. There are firms that do nothing but handle unemployment compensation claims for others such as your station. These specialized firms, usually for a flat fee per calendar quarter, will keep you advised of any changes in the law or regulations, and will assist you in setting up a procedure for termination of the employment of any individual so that you will have documentation available for any subsequent unemployment compensation claim.

Furthermore, most of these firms will represent you in any hearing, freeing you from any time-consuming personal appearance—not to mention the frustration and aggravation normally accompanying such appearances. Some firms will even monitor your claims for you and give you computer readouts of your experience factor with respect to your unemployment compensation claims.

There may be instances in which an employee is discharged for cause, because of his inability to get to work on time, for example, or for being unavailable for work when required, being involved in theft or fraud, or for other similar reasons which may be the basis for a legitimate denial of unemployment compensation benefits. If you can

properly present your case and thereby defeat unwarranted claims, you will be in a position to keep your unemployment compensation costs lower.

Another element in the tax cost buildup is workmen's compensation. Workmen's compensation is not, strictly speaking, a tax, but nonetheless usually falls within the category of "other taxes." Workmen's compensation is a statutory means by which employees may collect from their employer for injury on the job or for job-related injuries. In many states this is handled through private insurance. Although in the manufacturing and construction industries this can be a substantial cost because of the tremendous risk of injury, in a broadcasting station or office the risks are substantially reduced. Regardless, many insurance companies have used these vehicles as money-making opportunities by consistently raising premiums.

Depending on the size of your station, the number of employees, and the law in your state, it may be possible for your station to self-insure its own workmen's compensation coverage. To self-insure you merely establish a fund to cover a set number of potential claims with an insurance policy covering any catastrophic losses. Naturally, you must know what you are doing and get the approval of the proper authorities but, again, there are firms willing to help you in this area too. Furthermore, in light of the present highly competitive insurance market, it may even be possible to shop for other insurance companies in order to determine whether your worker's compensation premiums can be reduced.

With the signing of recent legislation, other obligations affect the station's taxes. Through December 31, 1981, an employer did not have to pay the employee's portion of FICA on sick pay. However, on that date, President Reagan signed a bill entitled "Social Security Amendments of 1981." The bill states that any payments made to, or on behalf of, an employee on account of sickness or accident disability are subject to Social Security taxes—unless those payments are made under a qualified plan or paid after the employee has not worked for an employer for more than six months. What's more, if the employee is getting disability payments from an insurance company, the employer will still be liable for FICA withholding if the disability insurance carrier advises the employer of the amount of taxable wages and the amount of the employee's FICA contributions withheld.

A final tax burden on the station owner comes from local government. Many municipalities have so-called "head" taxes which are used as a means of taxing the employer, particularly where employees may tend to come from the surrounding communities and live outside the municipality. In almost every instance there are exemptions which should be carefully studied and reviewed in order to determine whether you as an employer are in fact subject to the tax. In some communities, employers have banded together to fight such taxes on constitutional or other legal grounds and in some cases have successfully managed to defeat them.

Unearthing the hidden costs of those "other taxes" is beginning to have a bigger payoff. You can save on employee taxes and charges by knowing the law in your community and by carefully reviewing all of your contracts and practices regarding these matters. As always, but perhaps more so in these days of recession, every dollar counts. **BM/E**

The telecine without tubes. Digital CCD technology means better pictures.

Advanced technology in the new Bosch FDL 60 "U.S. Series" with PanScan and black stretch gives you tremendous advantages over conventional film scanners.

And the most important of these is superb picture quality with high resolution, excellent signal-to-noise ratio, and brilliant color rendition with negative or positive film.

CCDs make the difference

The use of solid-state CCDs—charge-coupled devices—completely eliminates electro-optical problems inherent to pickup or scanning tubes.

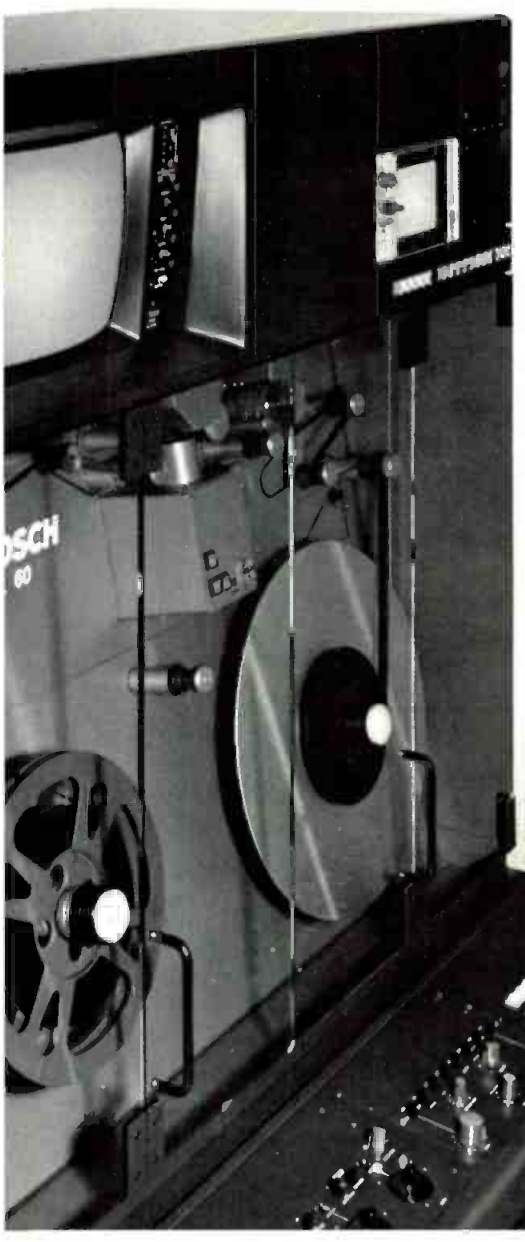
You don't have to worry about burn-in, afterglow, or field lag because there's no photoconductive or phosphor layer to cause these effects.

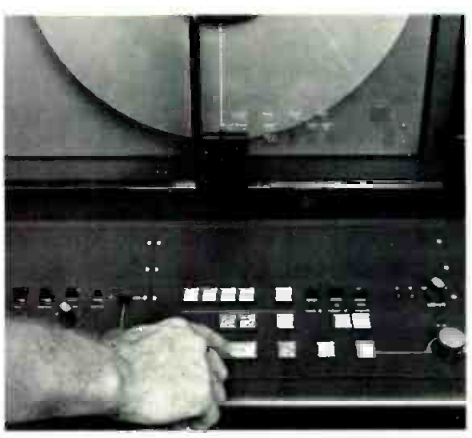
You can forget about shrinkage, flicker, vertical deflection, horizontal misregistration, and positioning errors of all kinds.

And never again will you be subjected to the expensive ordeal of tube changes.

New operational modes

Thanks to the FDL 60's capstan drive and digital signal processing, you can operate slow motion, fast motion, forward, reverse, and freeze frame—all in full broadcast quality. You can start and stop instantly, and with frame accuracy. You can search for scenes or frames either with variable programmable search or frame jogging, both with full format color pictures.





Convenient film deck controls include speed, mode, direction, format, framing, and focus. Adjacent decks control audio, video, and color correction.

Low operating costs

The solid-state devices used in the FDL 60, including the CCD sensors, need no maintenance. They have all the reliability and long operating life typical of semiconductors. So besides giving you a better picture, the FDL 60 saves you money on maintenance.

Operational flexibility

The FDL 60 gives you operational flexibility you'd expect only in a modern videotape recorder. You control it like a VTR, too. The servo deck with continuous capstan drive and microcomputer control ensures gentle film handling. And it's totally insensitive to perforation damage.

A keyboard that lets you enter time code cue points and a changeover switch give you disturbance-free transitions between two machines in parallel operation.

You can even integrate the FDL 60 into your VTR editing and film-to-tape transfer systems.

A quick-switch optical block lets you run either 35mm or 16mm film in combination with all the usual types of sound track.

Find out for yourself how high technology can mean better pictures. Call your local Fernseh office. Or get in touch with Fernseh Inc., P.O. Box 31816, Salt Lake City, Utah 84131, (801) 972-8000.

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GREAT IDEA CONTEST

Here's a chance to share your own personal solutions to some of broadcasting's most vexing engineering needs . . . .

Each month, *BM/E* presents two engineering problems and invites you to submit solutions complete with diagrams. *BM/E's* editors will read the entries and select the best for publication—giving readers an opportunity to vote for the idea they consider best by using the ballot area on the Reader Service Card.

We will pay $10 for each entry printed. In addition, the solution in each month's competition receiving the most votes on our Reader Service Card will win $50.00. So put on your thinking cap and submit an answer to either of the problems outlined below . . . and be sure to watch this section for the solutions.

NEW, BIGGER PRIZE: $50.00 FOR EACH CONTEST WINNER!

Problem 18: Automation With Home Computers

Allen W. Marshall III, president and GM of WKEU AM and FM, Griffin, GA, writes: "I don't have a Great Idea Contest solution, but I do have a problem: Has anyone been able to design a home-built automation system using a small, relatively inexpensive computer such as the Apple or TRS-80? Everything that the salesmen pitch me is in the $25,000 range and up. Surely with the price of home computers they can be put to good use at the broadcast station." Can anyone make some suggestions for Mr. Marshall?

Solutions to Problem 18 must be received by May 23, 1983 and will be printed in the July, 1983 issue

Problem 19: Wire Service Automation

Although there are several commercial newsroom automation systems that incorporate wire service tracking, does anyone have a program that allows a personal computer to perform this task? Describe your program (without going into a line-by-line rundown) for acquiring AP, UPI and similar services, storing the data, then providing for computer recall by categories (news, weather, sports, and so on). (Problem submitted by J. T. Vobbe, CE, WLEW AM/FM, Bad Axe, MI.)

Solutions to Problem 19 must be received by June 20, 1983, and will be printed in the August, 1983 issue

CONTEST RULES

1. **How to Enter:** Submit your ideas on how to solve the problems, together with any schematic diagrams, photographs, or other supporting material. Entries should be roughly 500 words long. Mail the entries to *BM/E's* Great Ideas Contest, 295 Madison Avenue, New York, NY 10017. Use the official entry form or a separate piece of paper with your name, station or facility, address, and telephone number.
2. **Voting and Prizes:** *BM/E's* editors will read all entries and select some for publication; the decision of the editors is final. Those selected for publication will receive a $10 honorarium. Each month, readers will have an opportunity to vote for the solution they consider the best by using the Reader Service Card. *BM/E* will announce the solution receiving the most votes and will award the winner of each month's competition a $50.00 check.
3. **Eligibility:** All station and production facility personnel are eligible to enter solutions based on equipment already built or on ideas of how the problem should be solved. Consultants are welcome to submit ideas if they indicate at which facility the idea is in use. Manufacturers of equipment are not eligible to enter. Those submitting solutions are urged to think through their ideas carefully to be certain ideas conform to FCC specs and are in line with manufacturers' warranty guidelines.

Mail Official Entry Form to:

BM/E's Great Ideas Contest
295 Madison Avenue, New York, NY 10017

Solution to Problem # _____

Your Name: _____

Title: _____

Station or Facility: _____

Address: _____

_____

Telephone: (____) _____

I assert that, to the best of my knowledge, the idea submitted is original with this station or facility, and I hereby give *BM/E* permission to publish the material.

Signed _____

Date _____

SOLUTIONS to problem 16: Cart Ready/Not Ready Indication

Many older audio cart machines lack a blinking "ready" light that indicates whether a cart in the machine has already played. Several engineers sent in circuit designs for indicators, with lights or otherwise, to show if a cart is ready, playing, or finished playing. Here are the finalists, as selected by *BM/E*'s editors.

SOLUTION A

Andrew Ellis
Technical Supervisor
KCBS, San Francisco, CA

This circuit interfaces easily to almost any audio cart machine. It provides an unambiguous indication that the cart has cued out by flashing the ready light. A steady-burning ready light indicates that the cart either has not played at all, or was last stopped manually. The flashing lamp reminds operators to unload played carts promptly to prevent accidental replays.

When a cart is inserted, the deck switch output is used to set flip-flop U3A-U3B. The $\bar{Q}$ output of the flip-flop goes low, forcing the output of U3D high. This turns on U4, allowing the ready lamp to burn normally. The line to the ready lamp is broken and the output side of U4 inserted in it to allow gating the lamp.

When a stop cue is detected, the voltage from the cue detector couples a negative pulse to U3B-6, clearing the flip-flop. U3C is a clock, running at about 4 Hz. The square wave at U3D-12 forces the output of U3D to toggle, flashing the ready lamp through U4. The flip-flop remains in this condition until the cart is removed and another inserted. The next cart insertion begins the cycle again.

The optically coupled inputs allow operation of this circuit with positive or negative-going indications for cart insertion and cue detect. If the insertion switch provides a switched +24 Vdc, for example, the switch connects to the "CART+" input and the "CART−" input is grounded. If a switched ground is provided, the switch connects to "CART−" and +24 Vdc is connected to "CART+". Optical coupling also means the unit will not introduce ground loops.

U5 provides a 12 Vdc supply. It can be eliminated if the cart machine has a 10 to 15 Vdc supply available. Otherwise, the flasher operates from the 24 Vdc relay supply. Polarity is unimportant, since there is no ground reference on inputs or output.

This is the fourth generation of this device designed and built at KCBS. Total parts cost is less than $6.00. In most cases, the only changes needed to the cart machine are the break in the ready lamp line and the connection to the cue detector circuit. Do *not* use the STOP circuit to clear the flip-flop, since this would allow the unit to indicate a cued-out cart after a manual stop. The input to U2 must be from the stop cue detector itself.

R1 and R2 are chosen to provide a few milliamperes of LED current when the circuits are active. For 24 Vdc indications, 10k is a reasonable value. A copy of our 1.4-inch by 2-inch PC board layout of this device is available for an SASE from the author.

SOLUTION B

Gary Shirk
Supervisor
WCAO/WXYV, Reistertown, MD

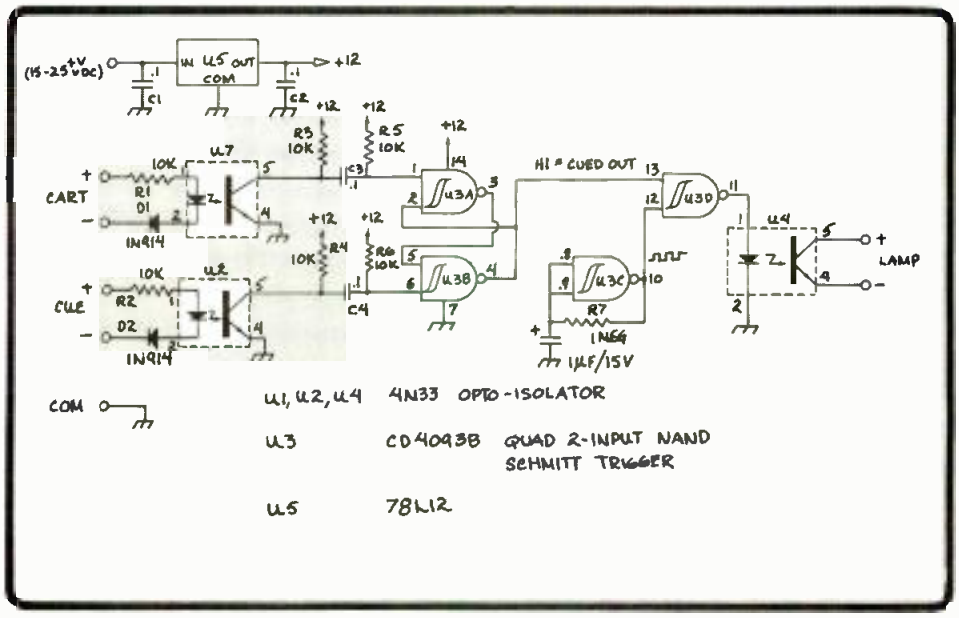
Our first step was to learn the conditions of the ITC Series 99 cart we used. The only thing that seemed to give a false indication was a power failure. So we designed the circuit not worrying how the logic changed once it saw a power failure. The machine we used in the design was an ITC Triple Decker. I haven't worked with too many Tape Casters, but I do know that they have an octal control plug with which you can get different combinations of highs and lows. So there is no visible reason why this circuit won't work with virtually any machine on the market.

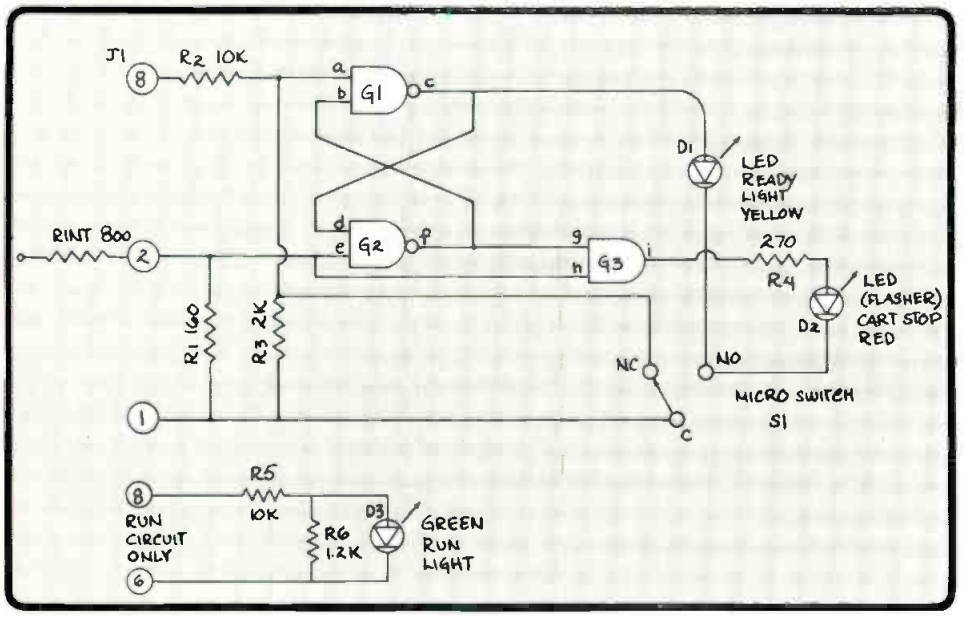
The basis of the circuit consists of a NAND latch and an AND gate. We will show different kinds of flash circuits that can be used. The one using the fewest parts is Radio Shack's LED #276-036. The only drawback is that if you want to use a ready light, run light and a flashing light, you would need three LEDs, so a different light would have to be used for the flashing indicator. But Radio Shack also has an LED flasher/oscillator IC #276-1705 that has an adjustable flash rate. If this is used, some simple steering diodes and the same ready light can be used.

Pins 8, 2 and 1 of control plug J1 on the ITC 3D was used. In order for this circuit to work, the micro switch S1 has to be used. You have to bring each side of the micro switch out to appropriate points. Not all machines use a spot switch, but one can be put in almost any machine.

With the machine in the rest mode, no cart in the machine, the micro switch NC is at ground. Resistor R2 and R3 place a low at Pin A, which sets the latch. A high is at Pin C. The ready light will not light until a cart is inserted, completing the ground for the LED. When the cart is started, a low appears at Pin E which resets the latch and turns out the light with a low at Pin C. When the cart stops, a high will be on Pin E, a low on Pin D which makes Pin F go high. So with Pin F and Pin E going to the AND gate, this will give a high to the flasher circuit. Note: When the cart is in, Pin A goes high and stays high until

Solution A





Solution B

the cart is pulled out and reinserted. Pin E is high when cart is in and Pin C is high which keys Pin D high and Pin F low. So the only time Pins F and E are high is when the cart has played and stopped. This is the heart of the flash circuit; a way to turn a circuit on in the proper sequence of events. Also notice that the ready light is forced to stay out because there is always a high on Pin A, which forces Pin C to stay low, until the cart is reinserted. All three LEDs can be stacked; Ready Light Yellow in middle, Green Run Light on top and Flashing Red on bottom. Of course, the same ready light can be used if the LED Flasher IC is used. Also a slow A-Stable Multivibrator can be used, but you would need more parts to accomplish this. For the run circuit, a tap-off point voltage divider, across the run lamp circuit, works well with no logic involved.

SOLUTION C

Robert Tarsio
Assistant Chief Engineer
WKHK, New York, NY

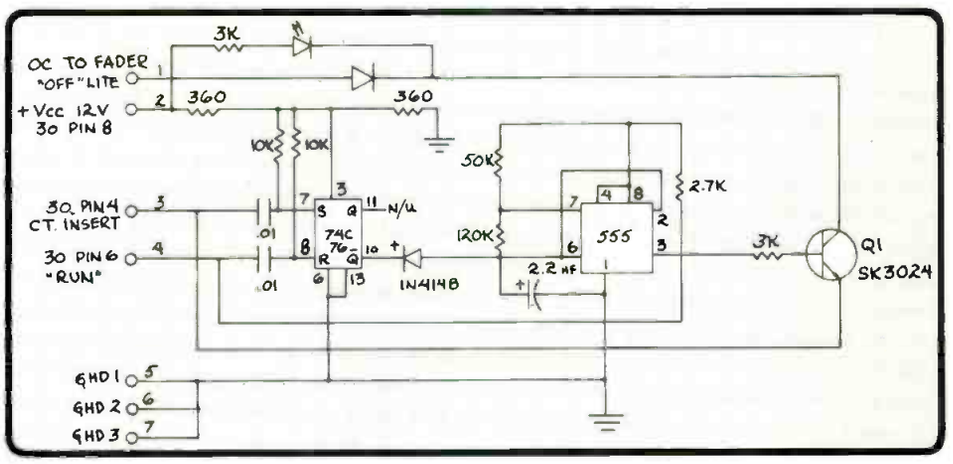
The circuit involved was designed to be used with the ITC SP, RP or 30 cartridge playback systems. With a few modifications, it could easily be adapted to any cart machine with remote control capability. Power for the circuit is derived from the cart deck, thus eliminating the need for an external power supply. (Total current drain per circuit is about 40 mA.)

When a cartridge is inserted, the ready light (external to the machine) is turned on due to a trailing edge pulse appearing at Pin 7 of the 74C76 flip-flop. This causes Pin 10 of the Q out-

put to go low, inhibiting the 555 timer. The steady state of the 555 is high, turning on the light driver transistor.

When the cartridge is started, a trailing edge pulse appears at Pin 8 of the 74C76 flip-flop. This causes a high to appear at Q which, when the 555 has supply voltage applied to it, will enable it to oscillate at a 1 Hz rate, turning on and off the light driver transistor. The 555 is starved for current at its supply pin until the cartridge recues and stops. This is accomplished by tying Pin 8 of the 555 through a resistor to the run pin from the cart machine. When the cartridge is removed, the light goes out and stays out because the emitter lead of the transistor driver is tied to the cart in switch to ground only when a cartridge is inserted. When a new cartridge is inserted, the light comes back on and stays on, and the process starts all over.

We chose to use the "off light" in our Broadcast Audio System 20 console, which normally indicates the fader off state. In doing this, we needed to tie the console, cart machine and circuit grounds together, which did not cause any problem. The ready light in the cart deck could have been rewired to perform the same function.



Solution C

This was done because the cart machine is started by the on button on the console fader. Without ever having to look at the cart machine, the operator knows the states of the machine by merely looking at the console. If he sees no lights, he knows he can insert a cartridge; if the off light is illuminated, a cart is ready to go; if the on light is lit, the cartridge is playing; and if the off light is flashing, that cart has already played. One further thing should be noted: at the end of each cart we play on the air, a secondary tone is placed on the cart that closes a relay, which turns off the fader, thus extinguishing the on or "run" light indication. This system is virtually foolproof in that a false indication from the console lighting system is impossible, short of a bulb failure.

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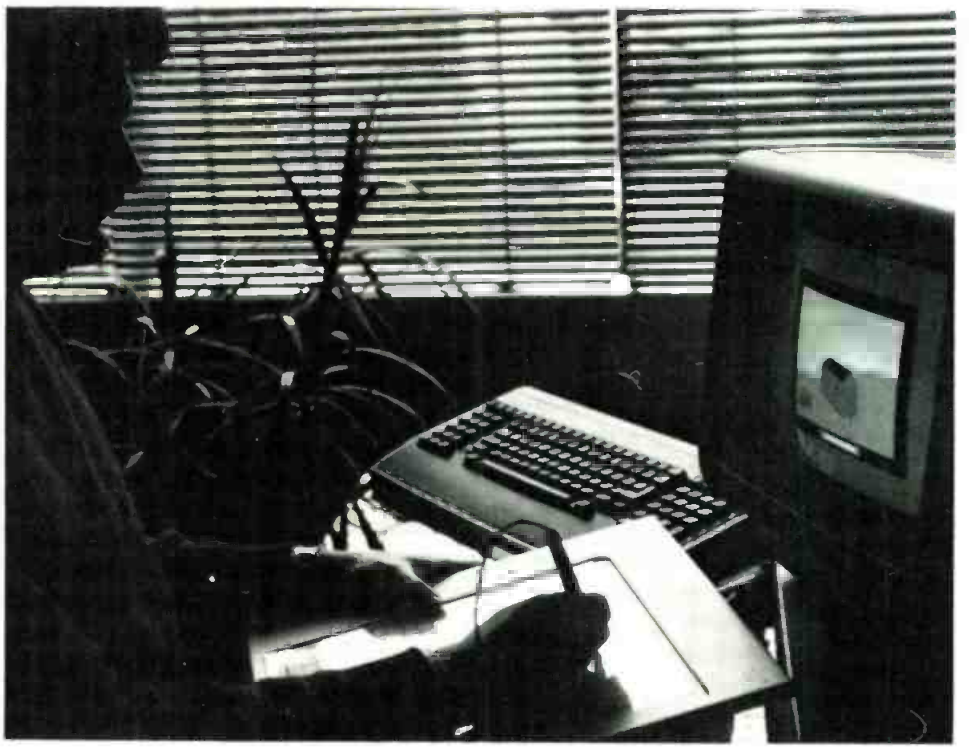
broadcast EQUIPMENT

Morgan-Fairfield 250 Releases Graphics Computer



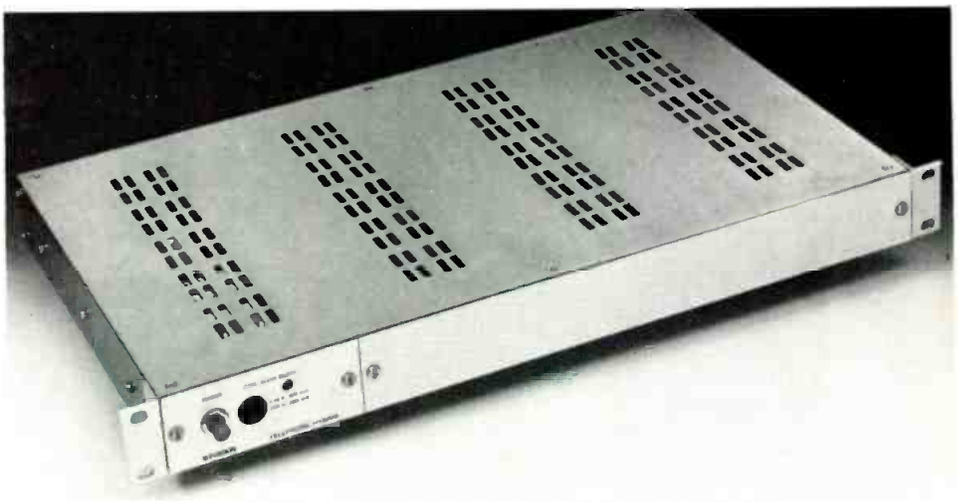
Morgan-Fairfield Graphics has released the IBIS illustration software implemented with the new Florida Computer Graphics Beacon color graphics computer. It is a graphic design and video illustration production system designed with an electronic stylus for use by artists and graphics designers in production facilities and broadcast stations. The company claims no computer experience or engineering background is necessary to operate the computerized graphics package.

IBIS is a menu-driven format with access to 32 pen weights, user-definable brushes, 256 colors used 16 at a time, and digital templates and drafting aids. The user can also call on roam and zoom, locking functions for registra-

tion and placement of graphic elements, and a selection of type sizes and styles with shadowing and kerning options. A font editor is included for users to enter their own or existing type designs.

The complete turnkey system consists of the IBIS software and a Beacon computer with 896 kbytes of memory, a 13-inch color monitor with 640x480 resolution, a five-megabyte Winchester disk drive, and a 640 kbyte floppy disk drive. A keyboard and a digitizing tablet with an electronic pen complete the hardware. Depending on the user's requirements, a frame camera, 19-inch monitor, color printer, or video interface can be added as options. Additional hard and floppy disk drives may be added to increase storage capacity to a maximum of 20 megabytes.

The Beacon is equipped with a CP/M-compatible FCG operating system, allowing other computer operations such as accounting, inventory, and word processing. Also standard is an external video extension board providing RS-170 RGB, NTSC, or Xerox color copier outputs. The complete turnkey package is priced at $39,500.



Studer Introduces Talk Show System 251

The new Telephone Audio System, based on Studer's Telephone Hybrid, allows operation by radio talk show hosts independent of the main studio console. The Talk Show set of equipment consists of a rack-mount unit and a separate remote module with a 30-foot cable.

In the 19-inch rack frame is contained the power supply, a microphone preamp for the studio announcer, a dual relay unit, and an auto-balancing hybrid circuit. The hybrid accomplishes sidetone attenuation by electronically matching the telephone line capacitance and resistance. Operation of the unit is automatic, with activation of the hybrid triggered as soon as voice modulation begins. A tape recorder output (+6 dBu) is also incorporated.

The tabletop remote module contains a mic input and level control, a headphone output and level control, telephone return control, and a hybrid on-off switch with an LED "on" indicator. A small VU meter on the remote module reads the mic input level.

Advantages to the Talk Show equipment, claims the company, are that it eliminates the need for a mix-minus bus audio feed, and allows stations with less sophisticated audio consoles to make use of the hybrid. The system may also be used on remotes and in applications where a complete, stand-alone telephone link is required.

EQUIPMENT

MicMix Produces Audio Processing 252

The MC-Series of modular audio processing equipment includes the MC-101, a single-channel Dynafex noise reduction module. The device provides up to 30 dB or more of noise reduction without encoding or decoding.

A threshold control for noise reduction, a hard-wired in/out switch, and a switch to set the appropriate signal reference level are included in the unit. The reference levels range through: −10, 0, +4, or +8 dB, allowing interface with consumer, sound reinforcement, recording studio, or broadcast equipment. A stereo version (MC-102) of the MC-101 will be available in the spring. The MC-101 sells for $325 and the 102 for $600.

Asaca Unveils Digital Still Store 253

The Asaca/Shibasoku ADS-1000 digital still store features a high-speed memory and an eight-inch Winchester disk drive. The system will store up to 218 fields of still pictures on one disk. By adding the maximum four disks, a total of 872 fields may be recorded.

Sorting of up to 16 pictures simultaneously is possible with the ADS-1000. The unit can also instantly replay still pictures within one second, and has a built-in floppy disk to store pictures.

BM/E READER SERVICE CARD May, 1983 Issue

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GREAT IDEA BALLOT: *Circle your favorite solution*

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Use until August 31, 1983

BM/E READER SERVICE CARD May, 1983 Issue

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Use until August 31, 1983

COMPLIMENTARY SUBSCRIPTION QUALIFICATION CARD

1 I would like to receive BM E (Broadcast Management Engineering)
☐ YES ☐ NO

2 Please check your business classifications

☐ AM Station Network Group
☐ FM Station Network Group
☐ TV Station Network Group
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☐ Campus Limited Radio
☐ CATV Facilities
☐ Microwave Telephone Satellite Company
☐ Recording Studio Teleproduction Facility
☐ Government
☐ Consultant
☐ Lawyer
☐ Manufacturer Distributor Dealer
☐ Other (please specify) _____

3 Are you responsible for more than one station or facility?
☐ YES ☐ NO

4 My primary area of responsibility is (please check one)

☐ Corporate Management — Board Chairman President Owner Partner Director and VP or General Manager (other than in charge of engineering or station operations management)

☐ Technical Management & Engineering — VP Engineering technical engineering director chief engineer engineering supervisor other engineering or technical titles

☐ Operations & Station Management Production & Programming — VP operations operation manager director general manager station manager production manager program manager news director and other operations titles

5 Signature _____ Date _____

Name _____

Title _____

Station Call Letters or Company _____

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City _____ State _____ Zip _____

Is this your business address? ☐ YES ☐ NO

If not please give us your business address below so that we can avoid sending duplicate copies

Name _____

Station Call Letters or Company _____

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City _____ State _____ Zip _____

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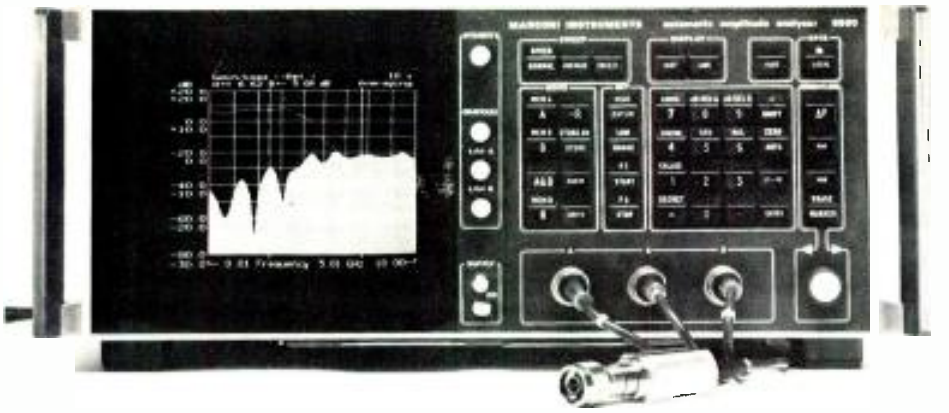
EQUIPMENT

Marconi Designs Amplitude Analyzer 254



A new automatic Amplitude Analyzer, Model 6500, has been designed by Marconi for testing microwave systems and components. The scalar analyzer has a graphic display screen.

Amplitude and frequency scaling can be automatically arranged for optimum display, and a bright line cursor shows frequency and amplitude across the band which, according to the manufacturer, makes for ease of use and accurate measurements. The 6500 is designed to control any sweeper or RF source which may be driven externally by a voltage ramp, eliminating the need to buy special RF sources. With its 10 MHz to 18 GHz detectors, it measures and displays absolute power, transmission and return loss, and VSWR.

Display flexibility and automatic correction for square-law and temperature effects in the detectors is achieved through the use of a digital design with nonvolatile memory. All front panel settings, amplitude limits, and frequency ranges can be stored in and recalled from memory.

In addition to optional GPIB control of all front panel functions, a conventional analog output allows the use of normal X-Y recorders. The resulting plot is a function of the 6500 instructing the device's recorder to include graticules and labeled axes. The unit is priced at $9325.

Winsted Devises Corner Console 255

The four-bay corner equipment console can be configured into a three-bay editing station and can, with the addition of modular components, be expanded in capacity. The steel constructed console accepts a rack to make a three-high unit for additional space and flexibility. A complete line of accessories is available for the console, including rack slide VTR mounting kits, storage drawer, blank panels, and electrical outlets. The accessories are finished in matching textured pearl gray and light beige.

Imagery System From Fantastic Animation 256

The Fantastic Animation Machine has introduced the Video Imagery System, a computer-generated series of animated wipes, transitions, mattes, and backgrounds prerecorded on videotape.

The Series 1 images are designed to be used with any switcher's luminance key mode. The SMPTE time-coded tape is fed through the switcher and combined there with any other video source to achieve the effects images.

The use of the effects requires two VTRs and any luminance keying switcher. The imagery is in black and white, so once the switcher has been set to do a luminance key, images from any video source can be substituted for the video imagery black and white signal, including those from video cameras, switchers, colorizers, and VTRs. The 30 prerecorded effects are played in several speeds and are marked with SMPTE code.

The video imagery is designed for use on tape from half-inch to two-inch, and each effects tape has been individually registered. The Series 1 imagery sells for $400 on ¾-inch and for $700 on one-inch.

Minneapolis Magnetics Improves Audio Heads 257

MMI has announced the introduction of Life Plus, record, playback, and erase heads. The new tape head design uses laminate and material structures to increase the life and electrical performance of the heads.

According to MMI, head core losses are negligible from 0 to 25 kHz, requiring less corrective equalization. The heads are designed for retrofit installation without additional kits for Ampex and other reel-to-reel equipment. The company plans to have the heads available for cart equipment and has doubled the warranty period on all Life Plus products.

Augat Offers Fiber Optics Tool Set 258

The new tool set is designed for complete optical connector installation, providing all the tools necessary for either field or laboratory work. The set is supplied in a case and is designed for Augat's JSC and DSC connector lines but is, according to the company, suitable for other compatible products.

Included in the kit are blades, tubes, strippers, an insertion tool, a scribe, epoxy curing tool, and polishing tool. All necessary chemicals, distilled water, and other materials are also contained in the set. The complete set is priced at $495 and the refill pack at $78.50, available from stock.

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BUSINESS BRIEFS

A new film and videotape facility, **(212) Studios**, will rise in Long Island City, NY, opening its doors in January 1984. The 6.9-acre facility will provide complete pre-production, production, and post-production services, including mobile video and satellite communications. Nancy Littlefield, formerly director of the **New York City Mayor's Office of Film, Theater, and Broadcasting**, will become president and chief executive officer of (212) Studios beginning April 4, 1983.

KCOP in Los Angeles will begin its ENG operation with two RCA **Hawkeye** half-inch recorder-cameras and two complete Hawkeye studio systems . . . . **Ampex** has reached agreements with **Wheelabrator Financial Corp.** and **Commercial Funding** to provide financing alternatives for the lease or purchase of audio and video recorders to its U.S. customers.

In a pending $9.5 million cash transaction, **Andrew Corp.** has a tentative agreement to acquire the assets of **Grasis Corp.**, a privately held manufacturer of microwave towers and equipment shelters . . . . Also, **U.S. Philips** has acquired **M/A-Com's** 50 percent interest in **Valtec**, a manufacturer of optical fiber and cable, bringing Philips' interest in Valtec to 100 percent.

Nortronics has introduced a new merchandising plan for its recorder maintenance product lines, including freight on volume orders, a rebate program, new discount terms, and additional advertising and public relations . . . . **Prudential Insurance** will invest $45 million as a shareholder in **United Satellite Television Corp.**, which is planning to launch a DBS service by this fall.

In finances, RCA had record sales and higher earnings in 1982 totalling $8.237 billion, amounting to a net income of $222.6 million . . . . **Oak Industries** reported its operating result for 1982, taking a pretax charge of $23 million against 1982 earnings for write-downs of certain subscription television development costs. After write-downs, net income for 1982 amounted to $4.1 million . . . . **Zenith** has reported a net loss of $21 million in 1982, compared with a net income of $15.6 million in 1981.

A.F. Associates in New Jersey has purchased more than $3.5 million of **Ampex** video equipment for integration into studio production systems. The equipment includes four ADO systems, 20 VPR-3s, eight VPR-80s, and an ACR-25 automatic VCR . . . . **Sunrise Video West** has ordered from **CMX/Orrox** a 340X editing system for its Albuquerque production facility.

WNEP-TV in Scranton/Wilkes-Barre, PA has acquired a new 100-watt EMCEE transmitter to rebroadcast its Channel 16 signal to the Clarks Summit area . . . . WGN-TV and **Radio** have purchased from **Colorgraphics Systems** the Newstar computerized newsrooms made by **Integrated Technology** . . . . CBS **RadioRadio** has signed a contract to purchase a complete Newstar system for its news operation.

Modern Videofilm in Los Angeles has bought three **Sony** BVH-2000 VTRs for its film-to-tape transfer operation . . . . **Stargem Recording** studio in Nashville has outfitted its studio with **MCI/Sony** recorders and consoles. Included in the equipment list are a JH-636 automated console, a JH-24 multitrack recorder, and a JH-110B mixdown recorder in half-inch stereo.

Larcan Communications has received an order for a 30 kW VHF transmitter from WVAN, **Channel 9** in Savannah, GA . . . . Larcan also received an order for a 60 kW VHF transmitter from WBIQ, Birmingham, AL, and two major orders for VHF transmitters from the Canadian Broadcasting Corporation . . . . **Custom Duplication** of Los Angeles has added an **Otari** DP7000 tape duplication system with five slave units to its existing five-slave configuration . . . . **Sound Arts** of Oakhurst, NJ has added two slave units to its existing DP7000 . . . . **ABC Radio Network** recently purchased 74 **Otari** MTR-10 two- and four-channel recorders and an MTR-90 16/24 channel recorder.

Eureka Teleproduction Center has entered into the Northern California audio/video production facilities business, located in San Carlos, CA . . . . **Computer Video Productions** of Minneapolis will move, expanding into new 20,000-square-foot video production facilities in May 1983.

In personnel/business developments, **Quad/Eight Electronics** announced that Kenneth Davis, Jr. has acquired the company, assuming the duties of president . . . . Marc Plitt, former president of **Comprehensive Video,** has established his own company, specializing in a complete line of video supplies and accessories.

Docuvid has undertaken a major reorganization in its New York and Washington, DC headquarters. John J. Sheehan is now executive VP and will be based in New York; Craig Maurer is now manager, Washington news operations . . . . Clyde Smith has joined **Math Associates** as president of **Fibervision.** Thomas Califano will be the VP marketing at Fibervision.

John D. Rittenhouse was elected Group VP for the government systems division of RCA . . . . The company also announced the election of James Vollmer as senior VP of technical evaluation and planning . . . . **Chyron** named Paul Rozzini as new VP of the corporation with responsibilities for the expanding manufacturing operations.

Gary Schmidt recently joined **Artel Communications** as manager, broadcast sales with responsibility for all fiber optic sales . . . . The new director of broadcast engineering for **McMartin Industries** is Charles Goodrich, in charge of new product development . . . . Ernest Pappenfus has moved from **Cetec Corporation's Vega** division to a corporate staff position, and Gary Stanfill has been named to succeed him as Vega GM.

M/A-Com Video Satellite announced the appointment of Randy Young as marketing manager of the SMATV division, with marketing responsibility for the growing satellite market. As part of the expansion program of **TFT, Inc.,** John E. Leonard, Jr. has been named VP of RF products division.

Peter Hammer, curator of the Ampex Museum of Magnetic Recording, shows off an Ampex VRX-1000 videotape recorder. The first to be delivered to a customer, the CBS Television Network, in 1956, it was kept in operation for 22 years before CBS returned it to Ampex in 1978.

"I want the world. Consistent .05% corner registration and full auto-setup of up to 96 cameras on computer command."

HITACHI HEARD YOU.

AUTO SETUP

Don't want much, do you?

Dynamic registration not just at dead center but at all four corners. Plus 2-minute auto-setup of all those cameras.

You're asking for some smart camera system, networks of the world and top-drawer video production companies.

Well, Hitachi heard you, and has created an outright *genius*—the Hitachi SK-110 Camera System.

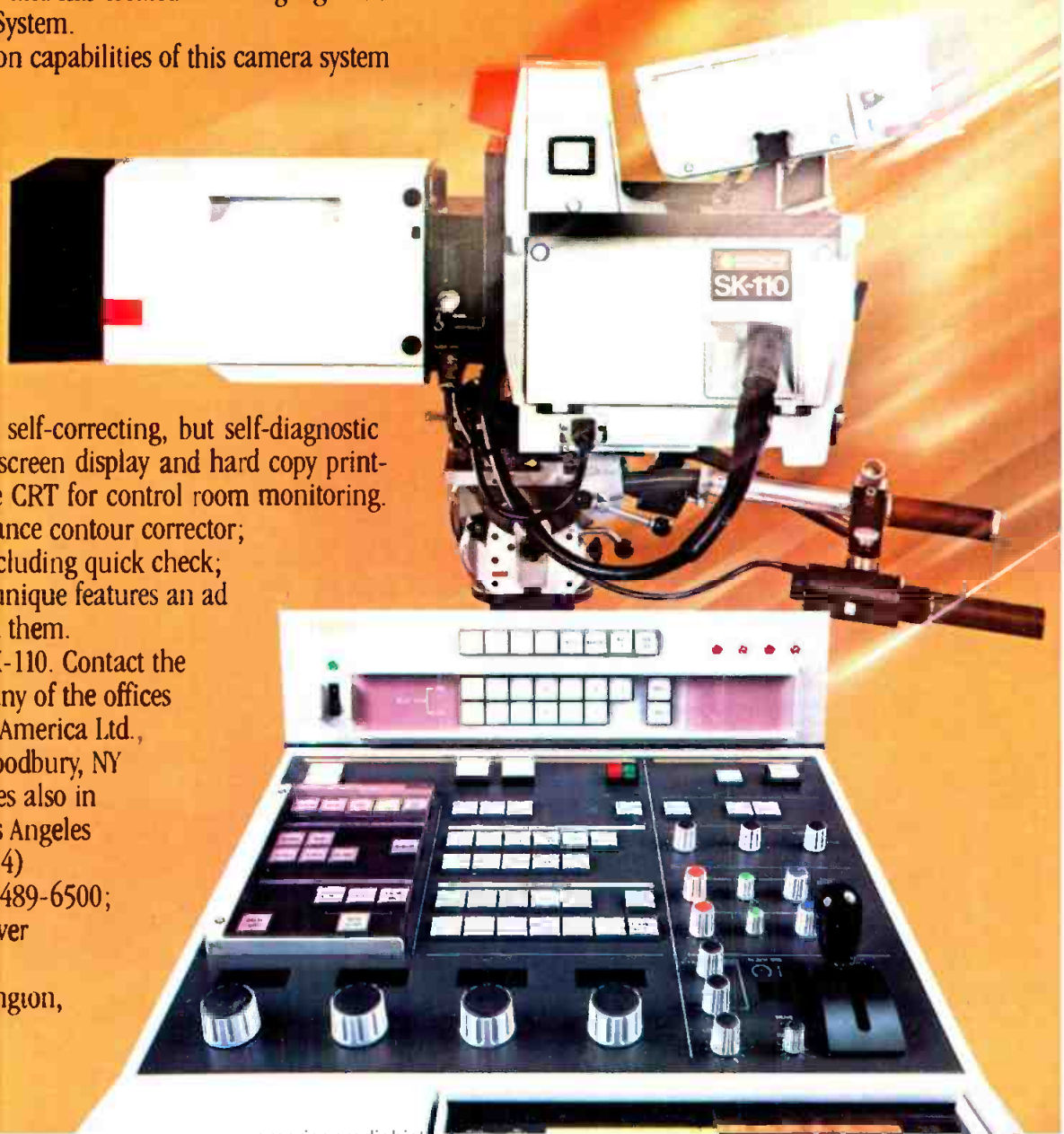
The computer registration capabilities of this camera system produce pictures of a clarity and resolution previously unheard of.

And you get auto-setup at the push of just one button, and zero reference, too, where the computer sets the green channel and compares blue and red to it with absolute precision.

The SK-110 is not only self-correcting, but self-diagnostic as well. It gives both video screen display and hard copy printout; can be hooked into the CRT for control room monitoring.

There's a high-performance contour corrector; 5 automatic setup modes including quick check; 5 data files; so many other unique features an ad can't begin to tell you about them.

The ultimate Hitachi SK-110. Contact the broadcast video division at any of the offices listed below. Hitachi Denshi America Ltd., 175 Crossways Park West, Woodbury, NY 11797 (516) 921-7200. Offices also in Chicago (312)344-4020; Los Angeles (213) 538-4880; Atlanta (404) 451-9453; Cincinnati (513) 489-6500; Dallas (214) 233-7623; Denver (303) 344-3156; Seattle, (206) 575-1690; and Washington, D.C. (301) 459-8262.



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