

JULY 1980

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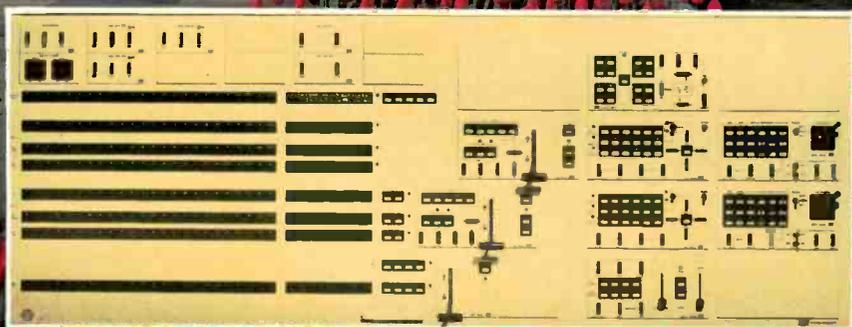
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"By the time the late 1970's had arrived, the future television program production requirements we were facing at Televisa were staggering. In 1978 we produced 2,500 thirty-minute shows, virtually all of which had to be edited. Up to this point we were editing with quad machines and making our decisions during normal editing time. They were tied up 24 hours

a day, making it difficult to use the VTR's for ordinary recording time. We knew we had to change our method of program production.

"To move into the 80's, we established a clear-cut goal of producing a better product at a lower cost in the shortest time. With the guidance of Victor Hugo O'Farril, San Angel's Vice President, Operations, himself dedicated to keeping Televisa in the forefront of television equipment technology, we were ready to select the right product mix.

"Recognizing that one-inch was the wave of the future, we installed 46 Ampex one-inch machines, 18 of which are at San Angel. Over the years we had worked closely with TeknoMerica, the CMX representative in Mexico.

"Since we were in the process of changing from quad to one-inch, it was critical that we achieve full interface with both formats. CMX 340X was our choice.

"Once on-line with the 340X, everything we projected about speed in editing and resultant cost savings proved accurate beyond question.

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Dazzling performance extras

Imagine shuttling a 1-hour tape end-to-end in just 80 seconds! It's possible, only on the Hitachi HR-200, because an internal air compressor injects a column of air into the tape guides to reduce friction and increase acceleration. The same air compressor provides air for the non-contact air drum, cushioning the tape when in the standby or fast shuttle modes. For fumble-free shuttling and jogging and fast editing, a single knob controls both. There is audio spot erase capability. And a Hall-Effect head on the third channel reads the time code more accurately, regardless of tape speed.

A microprocessor makes the built-in editor the most advanced you'll find today. And, just as important: it can be re-programmed to interface with editing systems of the future. Serial or parallel logic for remote control? Both have advantages, so Hitachi gives you both. Built-in cable compensation boosts the signal so you can use cable up to 300 feet.

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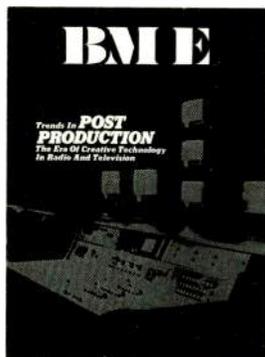
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BM/E

BROADCAST MANAGEMENT/ENGINEERING

JULY 1980/VOLUME 16/NUMBER 7



A rapid expansion in post-production capabilities in both video and audio is a necessary step for broadcasters to take as they prepare to answer new demands for commercial and other production

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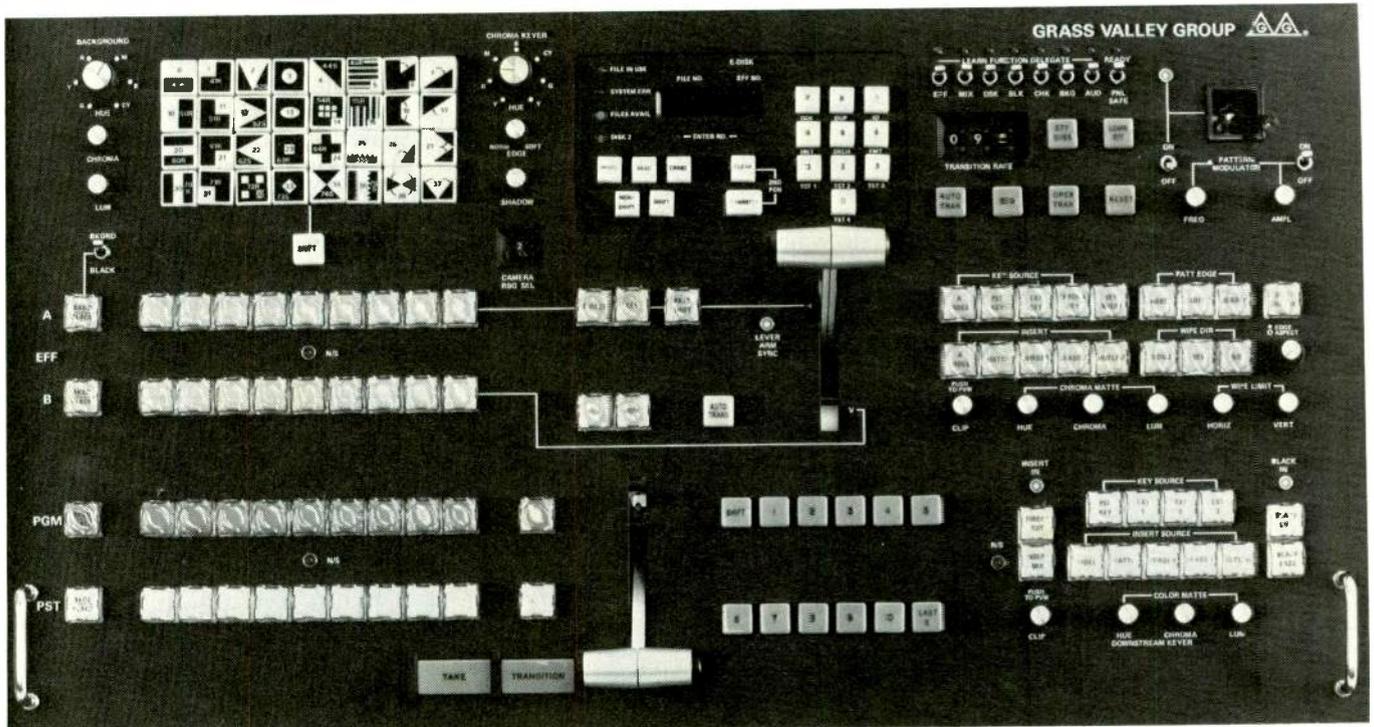
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BROADCAST INDUSTRY NEWS

Turner Turns On News Net

With a little help from its friends — notably the FCC — Cable News Network went on the air just after 6:00 p.m. June 1. The on-schedule startup for the 24-hour-a-day all-news cable service went smoothly according to all reports, with no more technical flaws than could be expected from a fledgling operation.

Atlanta cable entrepreneur Ted Turner, CNN's daddy, won another round in his fight for permanent transponder space on RCA Americom's Satcom I when the FCC, which had recently ordered temporary access for CNN through the end of this year, threw out another challenge by Spanish International Network and Eastern Microwave, Inc. The two had sought review of the Commission's decision

giving CNN access to a Georgia earth station and uplink. SIN became one of CNN's most vocal opponents when the loss of Satcom II put transponders for CATV at a premium.

The first day of CNN's programming saw a live report on the shooting of black leader Vernon Jordan in St. Louis, preproduced features, and an hour-long exclusive interview with President Carter. Also in the lineup were paid commercials, one source Turner is looking to to keep CNN afloat.

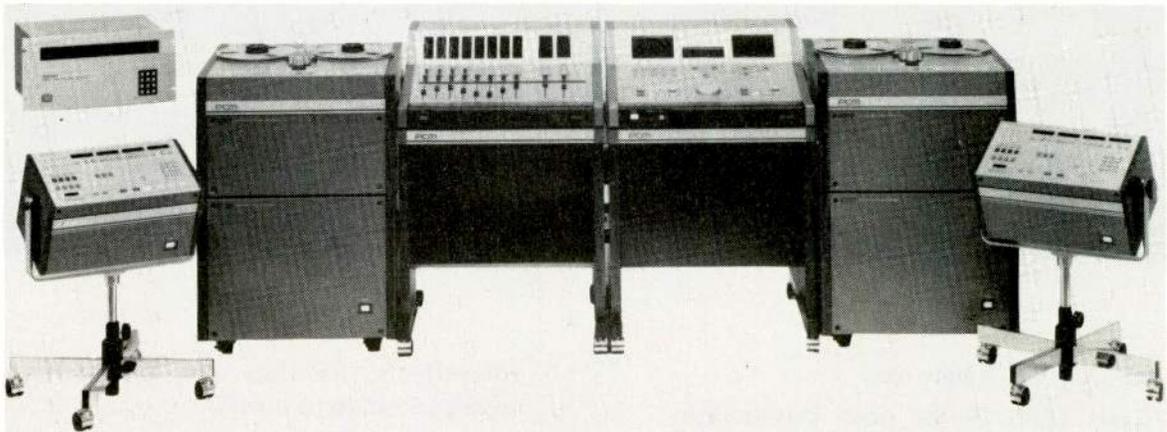
Turner doesn't expect the news channel to be in the black for three to four years; in fact, he says, the service into which he's plowed many millions can be expected to lose \$2 million a month for its first year-and-a-half of operation. Revenues for that period, Turner says, should run about a million

a month — a small dent in the \$3 million monthly expenses.

Not that this daunts Turner in the least — he's been pouring money into CNN and says he'll stand behind it with everything he's got. His commitment includes hiring top news personnel to staff CNN's headquarters and news bureaus and stocking up on top-grade equipment. His profitable Atlanta superstation, WTBS, will no doubt help subsidize the operation.

About 2,200,000 subscribers were hooked up to CNN at starting time, with the figure predicted to climb to 4,000,000 by December and 7,000,000 by next June. The race to sign up subscribers will be crucial for CNN's survival; as Brian Lamb of C-SPAN put it, "The question is, can [Turner] get enough subscribers in time so he doesn't go belly up."

All-Digital Audio Disc Debuts



Matsushita's digital recording system consists of (left to right) delay/premonitoring unit, remote control unit, four-channel player/recorder, mixing unit, and editing controller

An all-digital audio recording system — from initial sound recording to final mastering — was demonstrated by Matsushita Electric Industrial Co. Ltd. of Japan and its Technics subsidiary at May's Los Angeles convention of the Audio Engineering Society.

Most previous systems have concentrated on digitizing one stage of the complex recording process — a case in point being 3M's much-heralded digital mastering system — with other operations remaining analog. The Technics system, however, is unique in keeping the signal in the digital domain during all phases, from recording

through mixdown right up to disc cutting. Analog enters the scene only to connect analog equipment into the system or to feed the direct output from the studio for monitoring.

The four-channel 1/4-inch recorder, with four tracks per channel, is a fixed head, all-audio system, unlike the 3M mastering system, which puts the signal into pseudo-video form. Development of a digital mixer was a particularly difficult problem, a Technics spokeswoman explained. The system's mixer can process and mix down up to eight inputs into two channels to prepare material for mastering. A digi-

tal editor and digital delay/premonitor unit complete the system.

The company is keeping mum about prospective buyers and prices, but spokeswoman Jane O'Brien did say that deliveries were expected in the first quarter of 1981. She said that Technics was looking toward designing digital playback equipment — even the sophisticated analog equipment now available is often unable to handle the clarity and intensity of digital sounds. The firm's other plans include introduction of a 24-channel (four tracks per channel) one-inch audio fixed-head digital recorder.

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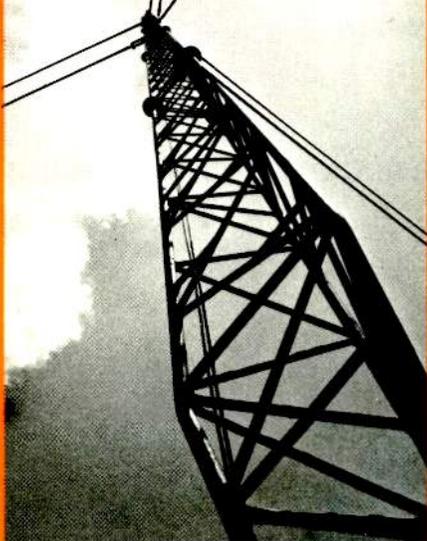
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News

Turner, apparently, is betting on it. At least three additional cable systems signed up within a few days of CNN's debut. A lot of eyes will be on CNN in the next few months to see if the young challenger gets knocked out quickly or has the stamina to stick it out through the final round.

**Clear Channels Cleared
For New AM Stations**

Up to 125 new full-time AM stations could be created as a result of an FCC rulemaking, announced in late May, that would limit interference protection for existing AM clear channel stations and open up their frequencies to lower-powered stations.

The 25 AM clears would still be protected within a radius of 750 miles under the rulemaking, which would give preference to noncommercial groups and groups with at least 50 percent minority ownership when assigning new stations. The action by the Commission was designed to steer a middle course between broadcaster and listener demands, according to the FCC, which acted under deadline pressure imposed by the recent Region 2 Regional Administrative Medium Frequency Broadcasting Conference. Member countries were instructed by the conference to prepare by May 31, 1980, an inventory of AM stations in or about to be in operation so that international protection agreements may be reached. This led the FCC to act swiftly to insure that new assignments would be established in time to secure protection from foreign stations.

New stations will be limited to 1 kW power, except where they are providing the first primary service to 25 percent of the area or population of the community of license. In those cases, power of up to 50 kW will be authorized.

FCC chairman Charles Ferris termed the rulemaking "a welcome compromise that will satisfy dual needs. The benefit of wide-area nighttime coverage from clear channel stations remains while up to 125 new AM stations can be added." In clear disagreement with Ferris was Leonard Hensel, VP/GM of clear channel WSM, Nashville, home of the Grand Ole Opry, the famous country music program received as far north as Canada and farther west than Oklahoma City. Hensel told the *New York Times* that he would fight the decision, which he said might mean the death of the Opry.

Avenues open to Hensel and other clear channel stations include asking the FCC to reconsider its decision, taking the case to court, or seeking legislative action.

Restricting the reach of his station would harm the interests of nighttime listeners more than those of the station, Robert Hyland of WCBS-AM, New York, told *BM/E* in a telephone interview. Hyland, the station's vice president and general manager, said that WCBS's all-news format brought fast-breaking stories to many communities with inadequate overnight news coverage; listeners in those areas would have to wait for morning newspapers for news of important events once the restrictions became effective. The station itself would do fine, however, Hyland said; he predicted no impact on ad sales.

**Cable Convention Reflects
Industry Boom**

With attendance up 50 percent from last year's mark for a total of 9000 attendees, NCTA's twenty-ninth annual convention was simply reflecting the boom that has taken hold of the CATV industry. The password to the meeting rooms and exhibit floor could have been "more" — more new networks, more programming services, more channels (available through new 400 MHz technology, a hot item at the show), all leading to the biggest "more" of all — more profits for cable operators and program suppliers.

The traditional cable-broadcast split was getting a little fuzzy, with CBS announcing a new cable venture, CBS Cable, just before the convention. A panel session, "Changing Perspectives: Old Adversaries Look at the New Marketplace," saw broadcaster Bob Wormington (KBMA-TV, Kansas City) urging broadcasters to cooperate with cable by programming local cable channels and urging cable operators to make like broadcasters, for example by setting up regional networks.

At the same session, Andrew J. Margeson, representative of Rotelcom, a Rochester, N. Y. telco subsidiary, predicted more cooperation between telcos and cable systems, saying that serious competition lay elsewhere. The greatest threat to both industries, according to Margeson, is government regulation. He warned cable operators that fighting competition too fiercely can invite the government to step in with severe regulation, citing the Carterphone decision, which forced telcos to allow outside companies to hook into their lines.

Causing controversy aplenty at the show was Premiere, the new joint programming venture of Getty Oil and four major movie houses, MCA, Inc. (Universal), Columbia, Paramount, and Twentieth Century Fox. The service, which intends to offer top movies earlier than any other programming supplier, is being eyed warily by the

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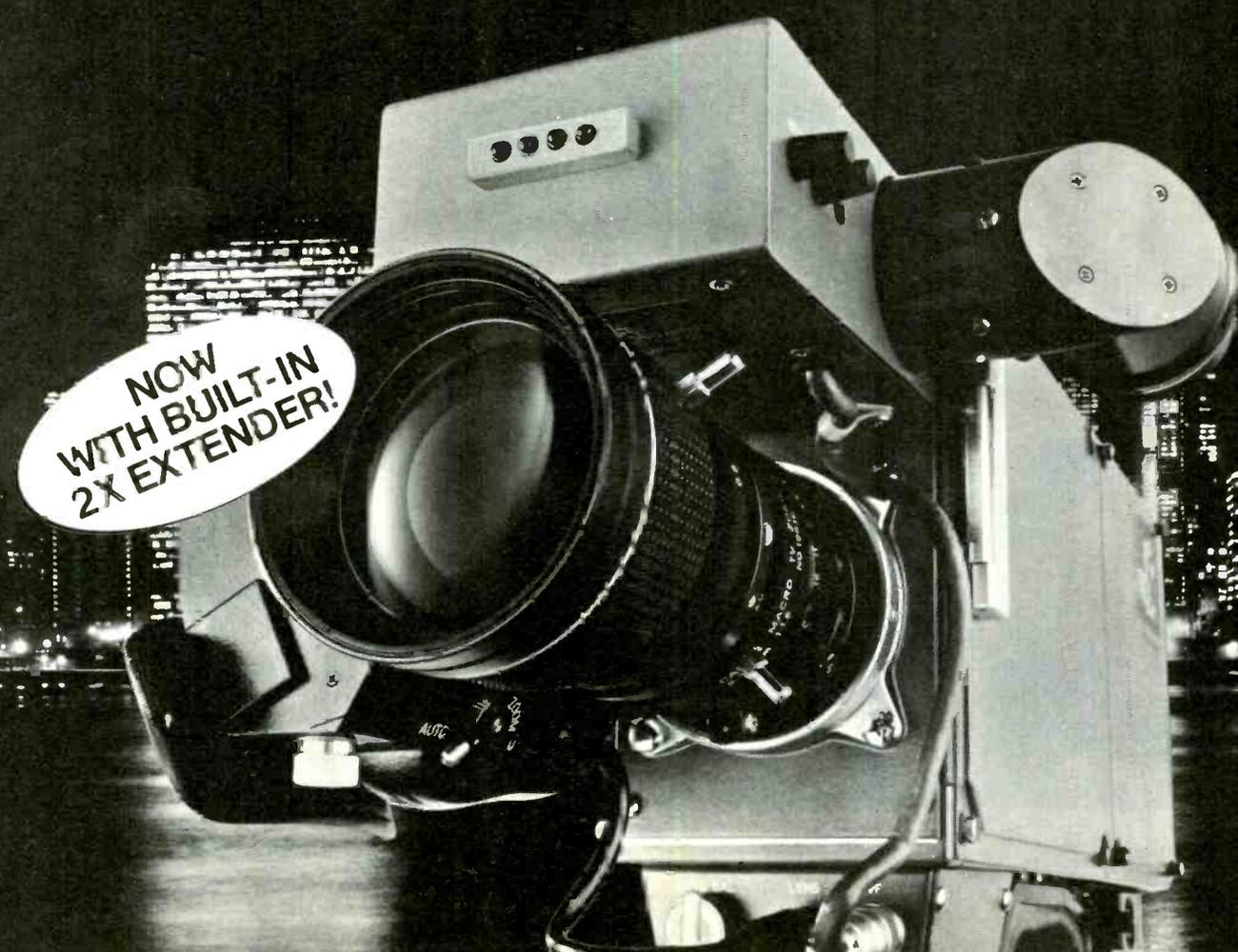
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News

Justice Department, which is doing some preliminary question-asking to determine if any antitrust laws are about to be broken. Competitive programmers, as could be expected, were less than overjoyed at the prospect of such a heavy-duty operation bulldozing into their territory. Showtime senior vice president John Sie called Premiere "patently illegal"; he was echoed by N.J. Nicholas, Jr., chairman of HBO, who

termed Premiere unlawful at a press conference. Even the NCTA board was hesitant, saying in a press release that it had "serious questions" about the structure and operations of Premiere — questions that the board wants the government to take up.

Sony, Studer Agree On Digital Format

Sony Corporation of Japan and Willi Studer of Switzerland have agreed to

support a common format in stationary-head digital audio recording. The pact gives Studer access to Sony's digital technology.

The two firms announced at May's AES Convention that they hoped their format would become an industry standard with wide acceptance. Sony currently markets a full line of digital audio recording equipment; Studer is expected to begin producing digital equipment soon, based on its own R&D.

Independents Get New News Network

VHF independent WPIX-TV, New York City, kicked off a national nightly news network June 9. Aimed at independent television stations across the country, the show features national news, sports, and weather reports produced by WPIX, as well as international stories from UPITN and Visnews. WPIX executive news director John Corporon is coordinating the effort, which initially is reaching about 30 markets, including Los Angeles, Chicago, Boston, Philadelphia, and Washington, D.C.

The half-hour show is beamed to subscribers via Western Union's Westar satellite system from 9:30 to 10:00 p.m. Eastern time Monday through Friday, although actual air time is left to the discretion of the receiving station. National advertisers already signed include General Foods and Bristol Myers; local sales staffs have three minutes of ad time to sell.

UPITN, one of the international news suppliers to the WPIX net, recently opened new satellite-connected live-action studios and sophisticated videotape editing facilities in conjunction with American Video Channels in New York City. The group, which uses three different satellites for its daily feeds, maintains editorial offices in New York, Washington, London, Paris, Frankfurt, Rome, Beirut, Salisbury, and Hong Kong; its association with United Press International gives it extensive worldwide representation.

The UPITN satellite facilities are available to independent programmers for all kinds of sound-and-video links, including teleconferencing and TV programming.

Survey Finds Opposition To AM Stereo Decision

Fifty-five percent of general managers and chief engineers polled in a recent survey strongly opposed the FCC's recent decision naming the Magnavox AM stereo system as the way to go. An additional 41 percent found Magnavox a poor but acceptable choice, according to the survey, commissioned by Harris

Case History #437

Electronic News Gathering is one of the toughest environments a microphone will ever encounter. Every mike we've seen has compromised the demand for low handling noise, fine audio quality and virtual indestructibility.

Credit the NBC Electronic Journalism Department/Operations and Engineering in New York for putting the Electro-Voice DO56 shock-mounted omni in the field. Although originally designed as an on-camera entertainment and MC's microphone, NBC found the DO56 to be the microphone that provides an audio signal commensurate with video in real-life crisis situations. In these situations audio often takes a back seat to video,

Electro-Voice DO56 Shock-Mounted Omnidirectional Microphone

resulting in a final product that doesn't accurately reflect the broadcaster's professional standards. NBC discovered that the DO56 takes the pushes, the shoves, the rubs and finger taps in stride. And when handling *really* gets rough, the DO56's unique internal shock mount virtually eliminates the bell-like clang transmitted by other shock-mounted mikes

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For an in-depth description of this and other case histories, get on the Electro-Voice "Mike Facts" mailing list. Write on your letterhead to Mike Facts, c/o Electro-Voice, 600 Cecil Street, Buchanan, MI 49107

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Fourteen transmitters are now in service and four more will follow shortly. This speaks well for Continental's transmitters design and for their choice of long life EIMAC power tubes.

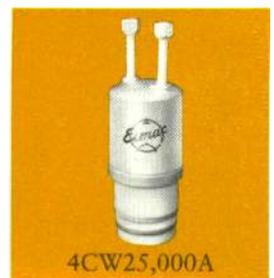


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X-2159/8974



4CW25,000A

News

Corp. and conducted by Weeks Research Associates, a consulting firm specializing in the communications industry.

Conducted by professional-level personnel with broadcasting experience, the survey reached 112 GMs and 138 CEs in 233 cities in the 48 contiguous states. Most of the stations reached said they intend to convert to stereo (46 percent claimed they'd do so within a

year of FCC approval), but many said they would reconsider if they had serious doubts about the system chosen.

Meanwhile, other action on the AM stereo battlefield included Magnavox's announcement that it will allow other broadcast equipment manufacturers access to its system without pressing patent claims and will charge a "reasonable" license fee to receiver manufacturers using its system. Magnavox's magnanimity rests, of course, on the outcome of the very complicated procedures that will certainly ensue as the

result of challenges from Harris and Kahn, its main competitors. How long will broadcasters have to wait for stereo? *Inside Radio*, in a particularly bleak prediction, calls final approval "many years away."

FCC Adopts Comsat Recommendations

The FCC has adopted a report to Congress recommending several changes in the corporate structure of Comsat. The major change proposed by the Commission would require Comsat to form two separate corporate entities — one for functions related to its role in INTELSAT/INMARSAT and the other for its more competitive businesses, such as domestic satellite service, product marketing and sales, and technical and consulting services.

Interlocking directorates would be permitted between the two sections, but all officers, facilities, and functions would have to be separate. High-technology facilities and professional resources could be shared, however.

The Commission's report claims that Comsat's international roles give it possible unfair advantages over U.S. competitors as well as opportunities to evade rate regulation by juggling costs incurred in regulated and unregulated sectors. Division of the company into two discrete entities would discourage such abuses, the Commission said.

Conflict of interest between INTELSAT/INMARSAT functions and competitive functions, however, could continue even with the new structure, according to the report. Therefore, the Commission recommended more effective government oversight of Comsat, with possible government representation on Comsat delegates to the international organizations.

Other Commission action with regard to Comsat has permitted individual TV customers to be defined as "authorized users" of Comsat services. Effective June 10, the Comsat tariff was revised to permit individual TV users to lease satellite service directly from the corporation.

Commission Won't Limit Foreign CATV Ownership

A petition seeking to limit foreign ownership of cable television systems has been denied by the FCC.

Midwest Cable, a cable operator in Mt. Carmel, Ill., had asserted that Canadian investment in U.S. CATV companies was growing to the detriment of U.S. investment interests. The situation could lead to foreign control of U.S. telecommunications, Midwest claimed.

The Commission, pointing out that

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The specs and automatic features of the HL-79A are equally outstanding. They're yours, along with an eye-opening demonstration, at your Ikegami distributor. Or contact Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood,

N.J. 07607, (201) 368-9171. West Coast: 19164 Van Ness Ave., Torrance, CA 90501 (213) 328-2814; Southwest: 330 North Belt East, Suite 228, Houston, TX 77060 (713) 445-0100; Southeast: 552 So. Lee St., Americus, GA 31709 (912) 924-0061.



Ikegami HL-79A

News

Canada was the only foreign country with cable investments in the U.S., and that less than one percent of U.S. cable subscribers were served by Canadian-owned firms, agreed that monitoring the situation would be desirable, but said that adoption of rules against foreign ownership at this point was beyond its jurisdiction. Echoing a 1975 decision, it stated that local communities were primarily responsible for

selecting operators of local cable systems.

Agfa-Gevaert Plans U.S. Subsidiary

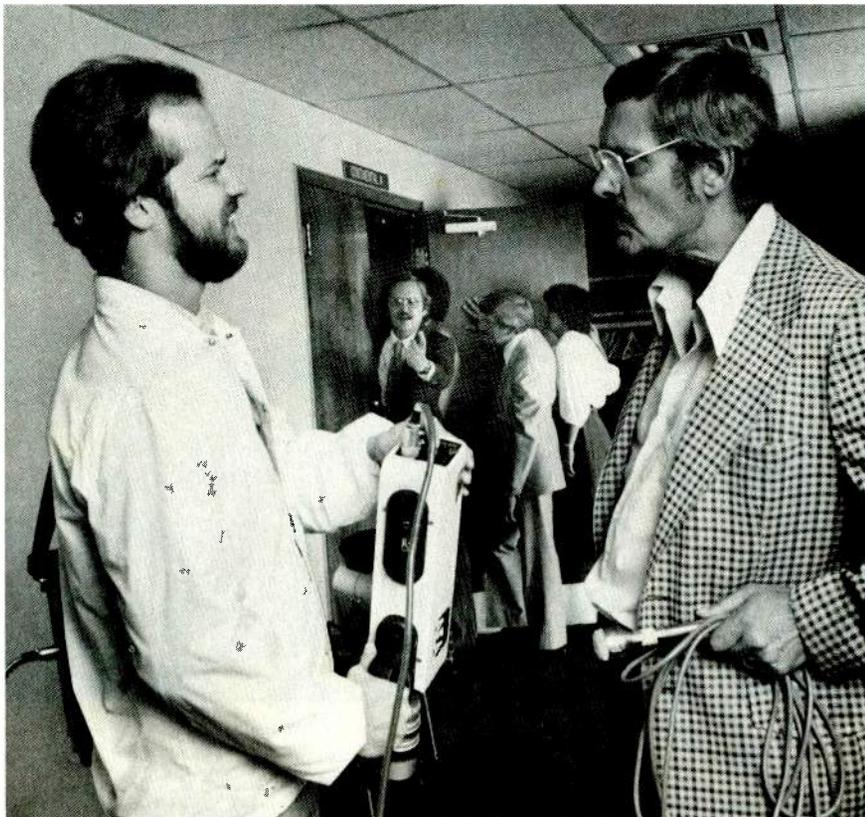
A new magnetic tape facility, estimated to run some \$25 million, will be built by Agfa-Gevaert in Huntsville, Ala., starting this fall. The facility will house a new Agfa subsidiary, to be known as Agfa Tape, Inc., which will start operations by the end of 1982.

Both audio and videotapes are on the

new firm's production list, with the initial audio effort to center around high-quality cassette tape for duplicators. The plant, Agfa-Gevaert's first manufacturing venture in the U.S., will also produce half-inch videotape for OEM and duplicator use, as well as videocassettes.

Correction

In the May, 1980 *BM/E*, we incorrectly identified the 15 by seven routing switcher used in NBC's mobile control room ("NBC Mobile Control Room Brings New Approach To Election Coverage"). The switcher is manufactured by Di-Tech of Babylon, N.Y.



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News Briefs

NAB and NRBA each gave testimony before the House Communications Subcommittee on the media cross-ownership bill, H.R. 6228. Both groups supported the bill's provision **prohibiting the FCC from taking a licensee's other holdings into account** in renewal proceedings. . . . The FCC has drafted a decision that would **settle a license dispute by lottery**. The case involves three competing applicants for a vacant FM slot in Media, Penn. Commissioners Washburn and Fogarty dissented.

Affiliated Broadcasting will purchase **WIVY-FM**, Jacksonville, and **KOME-FM**, San Jose, for \$11 million from Infinity Broadcasting. . . . Metromedia will pay Swanson Broadcasting more than one million dollars for the **Texas State Network**. . . . Outlet Co. has completed its deal to purchase **KOVR-TV**, Stockton-Sacramento, from McClatchy newspapers. Final reported price was \$65 million.

Commercial TV will stay strong in the 80s, according to RCA executive VP Herbert S. Schlosser. Schlosser, speaking at the NAB convention, predicted some audience loss to new technologies but felt that broadcast TV would still thrive. The company's manager of VTR engineering, Lee V. Hedlund, also spoke at the convention on the impact of microprocessors on manufacturers and end users.

SMPTE's 122nd Technical Conference and Equipment Exhibit will be held November 9 through 14 at the New York Hilton Hotel. . . . Radio scientists from around the world will attend the twentieth General Assembly of the **International Union of Radio Science (URSI)** in Washington, D.C., August 10 through 19. Information is available from Mr. R.Y. Dow, National Academy of Sciences, 2101 Constitution Ave. NW, Washington, D.C. 20418, (202) 389-6478.



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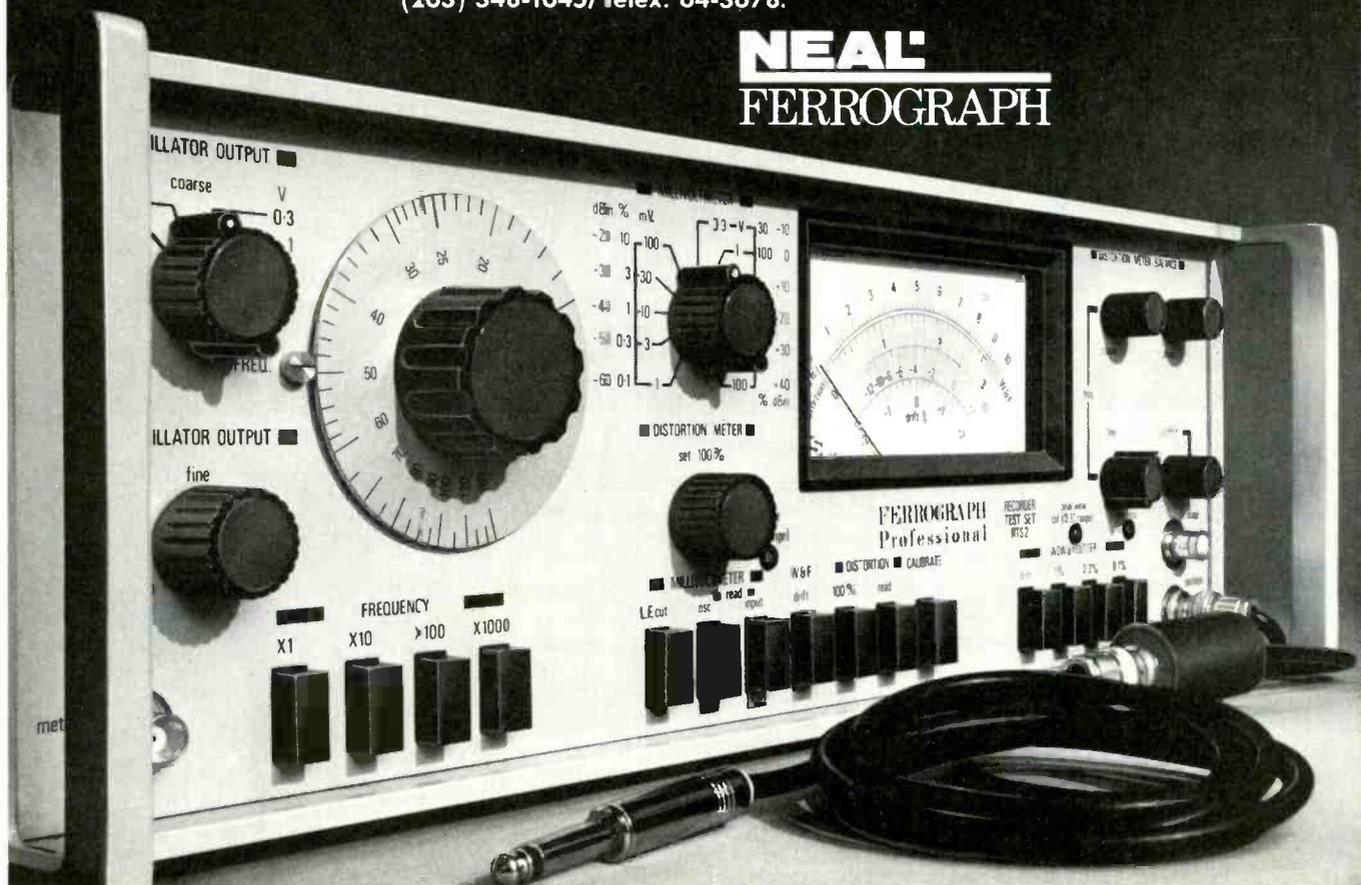
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RADIO

PROGRAMMING & PRODUCTION FOR PROFIT

Good Shorts That Cost Little Or Nothing

RADIO PROGRAM DIRECTORS today have to wade their way through a flood of offered shorts, many costing little or nothing. This takes a sharp eye, because low cost may equate with trashiness or an unacceptable special-interest slant. It may equally attach to excellent material resulting from public-service motivations or intelligent image-building.

Exemplifying the many quality free programs are several developed by Cinema Sound of New York, and a music-commentary series from JiSal, a religious organization in Tulsa, Okla.

Hooked on Books

The International Paper Co., a giant in its field, has engaged the services of Cinema Sound and Henry Morgan, a real veteran of radio talk shows, to produce a series of interviews with authors of current books. The sponsor's stated objective for the show, catchily titled *Hooked on Books*, is to encourage people to read. This is clearly a valid stance since the program can't make any change in paper sales that International's accountants would notice.

The choice of Henry Morgan will greatly please people who have listened to the radio for more than a few years. It is fine to know that a performer who was long one of the funniest and most intelligent voices on radio is still active and kicking hard. Morgan clearly has the wit and style to make books and their authors interesting and to focus on the essential information they bring us.

The program is initially five minutes a day, five days a week, distributed on reel-to-reel tape produced in the Cinema Sound studios in New York. Later Cinema Sound and the sponsor will increase the number of cuts to 10 a week — two five-minute programs for each day — which the radio station can run back-to-back or split in any way the program director wants. The program is free to the station. Of the 10 weekly cuts, eight provide availabilities for the station and two carry identification tags

for International Paper. At the time this was written about 250 stations had signed on, including WOR in New York and KGIL in Los Angeles. The show got underway early in April.

A list of one week's guests shows the variety and interest Morgan's interviews promise. They include Isaac Asimov, Joseph Heller, Lee Israel, Andre Brink, and John Jakes. Another week brought Willard Espy, author of *Say It My Way*, light verse and essays celebrating the richness of the English language; Dan Kurzman, author of *Miracle in November*, about the siege of Madrid in the Spanish Civil War; Morton Shulman, who wrote *How To Profit From Inflation*; Leon Prochnik, whose *Endings* tells about the special courage and vision shown by some famous people at their deaths; and Ruth Hill, who tells about the lives of American plains Indians in her novel *Hanta Yo*.

The series is also being promoted by B. Dalton, retail book sellers, with posters in their stores and other local activities.

Cinema Sound has a long history of producing shorts of solid informational character. A few of the other series now on tap there are: *Commentary*, a daily 90-second cut of political talk produced by the weekly *U.S. News and World Report*; *Discovery*, reports on science by Ken Gilmore of *Popular Science*, two minutes a day, underwritten by that magazine; *Health Break*, medical advice from the editors of *Medical Tribune*, a doctors' newspaper; and *Organic Times*, another health series produced for the Rodale Press and taken by several hundred stations. There are a number of others. Full information comes from Cinema Sound, 311 West 75 Street, New York, N.Y. 10023, telephone (212) 799-4800.

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Radio Programming

Tulsa, Okla. So far it is available only via satellite; the receiving station must be able to tune in Transponder 6 or Transponder 21 on RCA's Satcom I and have a demodulator at 7.4 MHz (for either transponder). The programming is music of many types, in a sequence designed by the producer for "easy listening." Included is big band music, jazz, country and western, rock, religious, semi-classical, and classical. Interspersed throughout the music are readings from the Bible.

The commentator is Dick Zavitz. We are told he has degrees in law and ac-

counting, has been for many years a financial consultant, and now owns his own retail business. He also has had many years of experience as a radio and television commentator.

Zavitz told *BM/E* that the present satellite program started in May, 1979. The program runs 24 hours every day and has been designed so that the radio station can record or air any section of it at any appropriate time. Zavitz pointed out that the program can be especially useful to stations in smaller markets for the after-midnight hours. He noted the common experience of turning on the radio late at night in smaller towns and finding only boring or offensive material.

He said that he tries in the music to get a very broad appeal. It is not designed as background music, but for a sharp interest. Since the program is totally free and requires no communication with the producer, he has no documentation on the number of users.

He says that when he started in May, 1979, his was the sole audio-only signal on the satellite. He is convinced, as is *BM/E*, that as earth terminals spread among radio stations, his program will find many takers among them. The pattern prefigures the satellite-in-radio future clearly, and a very near future at that. JiSal's address is 2448 East 36 Street, Tulsa, Okla., 74105, tel. (918) 743-3422. **BM/E**

BM/E's Program Marketplace

Syndicators At NAB '80, Las Vegas

AS NOTED in the Show-in-Print report last month, sellers of syndicated programming turned up in greater numbers than they had at any previous NAB convention. The show justified their hopes; it was the best one in history for most of those who came.

The positive atmosphere at the show reflected, of course, the positive state of the syndication business around the country. There is strong evidence in the selling experiences of both old and new syndicators that the radio industry is turning more and more to syndication. Although industry statistics have not been gathered, a majority of syndicators report not an explosion, but a steady expansion.

Several syndicators wrote new business on the exhibit floor, and nearly all reported excellent leads of the serious kind that result in a high proportion of sales.

Syndicators generally found the traffic on the NAB floor excellent, with a high proportion of serious visitors. The

experience in the hospitality and demo suites was much less positive. Several syndicators opined that demo suites in Las Vegas suffer severely from the competition of all the other entertainment opportunities that are right at hand.

Here is a sampling of the individual comments to *BM/E*. Agnes Peterson of Live Sound, with a successful Country format, liked the callers at their floor booth for strong interest and "sincerity." She noted that there were several positive factors for country music at this time: the decision of Warner Brothers, the record producer, to go heavily into country music, and the movies built around country music, including the forthcoming John Travolta film, *Urban Cowboy* (which has a number of country stars on display) and, of course, *Coal Miner's Daughter*. She said her staff will prepare a second format in the near future, part of the trend to multi-format operation.

Larry VanderVeen of Radio Arts

called the prospects he turned up at the show "excellent." He reported interest in the whole range of formats, especially "The Entertainers," MOR music aimed at an adult demographic group. This is part of the swing of the last few years, noted in this column often lately, toward older listeners who were severely underserved during the heyday of rock.

Redd Gardner of Peters Productions, a firm with a wide range of formats, liked the response to their "Natural Sound" format, which he described as partly Country, partly MOR. This is designed for stations that must win a large proportion of all listeners in a community, cutting across demographic lines. Julia Spira of the Golden Egg called the show "better organized" for syndicators than earlier shows, as the flow pattern promoted good contacts with station personnel.

W.B. Tanner, reports Dick Denham, got an excellent response at the show. He noted that Tanner's five formats were all getting business. As one of the largest producers of commercials and jingles in the country, with a large sales organization in the field, Tanner is in touch with the syndication business quite generally. The business is now going up strongly enough to persuade Tanner to consider additional formats.

Dale Tucker of Concept Productions called his firm's experience at the show "fantastic." The firm's customized voice track scheme is highly popular, he said, along with the sequencer Concept has developed for synchronizing the track with the program tapes.

Marlin Taylor of Bonneville called

NAB Radio Programming Meet Set For New Orleans

The desire of many radio managements for a high degree of professionalism in programming, which they showed by their strong interest in syndication at the NAB Las Vegas Convention, will get further encouragement and support at the third NAB Radio Programming Conference, running August 24 through 27 at the Hyatt Regency, New Orleans.

The conference will include the events and meetings that proved to be extremely popular at the two earlier

programming conferences, including the Format Rooms, the "nuts and bolts" workshops, and the panel discussions on every important aspect of radio programming. There will be a whole day on promotion, and one on news and public affairs. There will also be a product exhibit devoted to equipment used in program production and airing. Radio managements wanting registration forms should address the NAB at 1771 N Street NW, Washington, D.C. 20036.

the floor traffic very good, that in their hospitality suite much less so. He confirmed the general report that visitors were serious, the talks with them useful. Bonneville, a pioneer in the field with one of the larger lists of subscribers, is spending a lot of time, he said, in helping individual customers develop top performance.

Tom Krikorian of Radio Programming/Management said his firm's business was at the highest point in its history. He noted a move to a more contemporary, "brighter" Beautiful Music, with more vocal content than in the past, as a factor in programming success now. He also noted that the trend for syndicators to produce their own Beautiful Music singly or in groups, is allowing the programmer to get more interesting, more "contemporary" material. One hazard in this creation of Beautiful Music recordings especially for syndicators, Krikorian said, is the frequent receipt by radio stations of calls from listeners who want to buy the recordings. A listener told too often that the recordings can't be bought may develop negative feelings about the programming.

Jim West of Kershaw-West, whose adult format, "The Music of Your Life," is in 25 markets after less than a year, found a good response at the show. He believes that hospitality suite traffic was lighter than it should have been because of the hotel's rule against notices in the lobby. Stephen Trivers of KalaMusic also found the exhibit floor far better than the hospitality suite. He reported excellent response on the floor, and said that KalaMusic would soon have a "lighter," more "contemporary" version of its Beautiful Music format.

Jane Kindred of Broadcast Programming International (the granddaddy of syndicators and still one of the biggest) called the floor traffic "very satisfying," the suite much lighter. BPI, with programming for nearly all styles of popular music, is finding virtually all in an expansionist stage.

Cavox president Lee Tate said the firm had "a most fruitful show" on the exhibit floor — but the hospitality suite was "dead." Tate was also concerned with the background music systems of his associated firm, TapeAthon, exhibited in the same booth. He was especially pleased with the response from foreign visitors at the show — a sizeable proportion of TapeAthon sales are to foreign buyers.

The comments reproduced here are very much in the overall pattern, showing that syndication is up generally. All in all, as *BM/E* pointed out in the June issue, it means a lifting of the quality of radio programming, both musically and technically. That is one thing the syndicators are doing for us. **BM/E**

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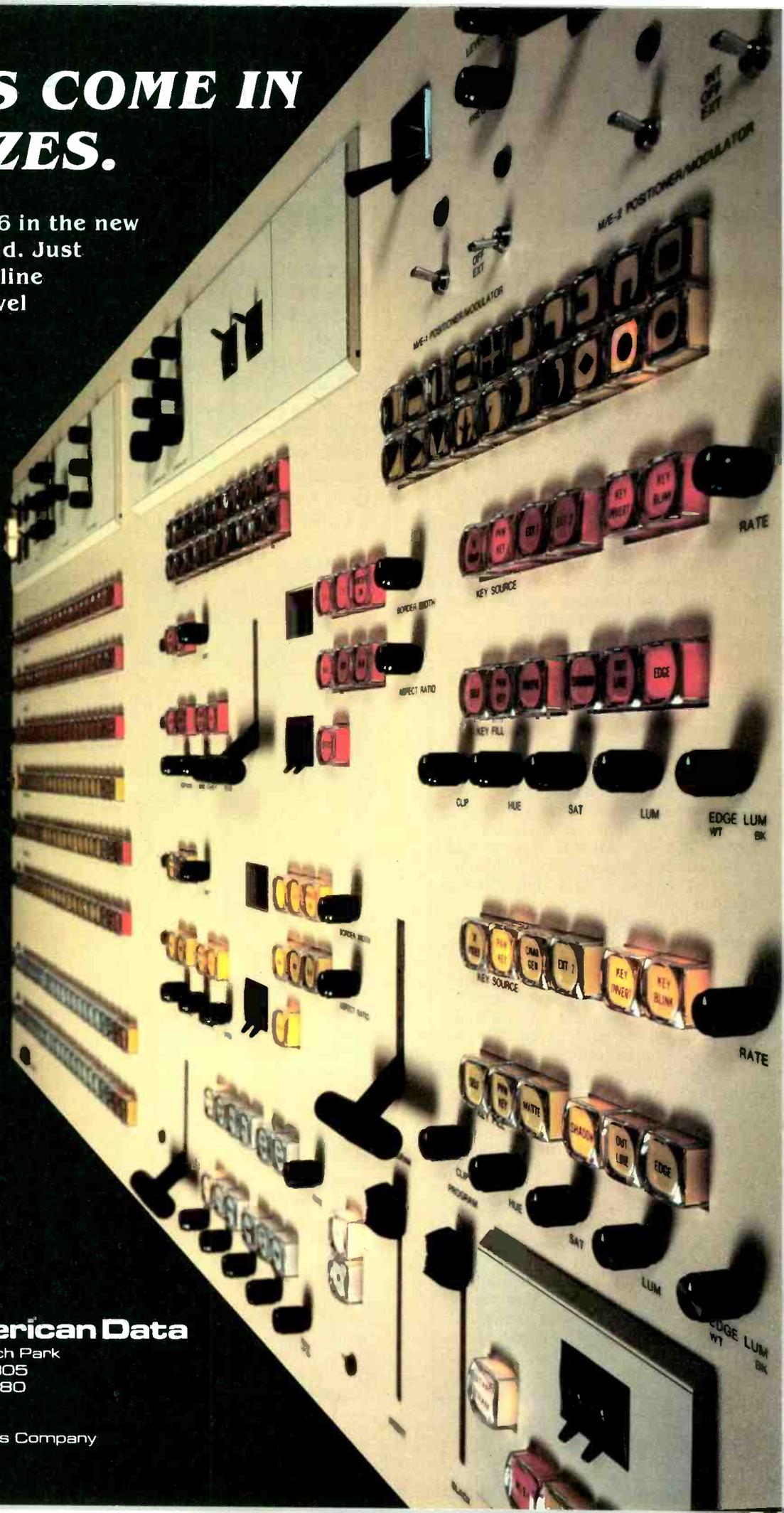
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PROGRAMMING & PRODUCTION FOR PROFIT

Eighth Decade Consortium Takes Local Programming One Step Further

WHAT MAKES FIVE major-market VHF stations willing to preempt network prime-time programming to air a locally produced show?

"It's a commitment to localism and good local production," according to Thomas Cookerly, president and general manager of WJLA-TV, Washington, D.C.'s ABC affiliate, owned and operated by Allbritton Communications. Cookerly is chairman of the Eighth Decade Consortium, a band of five (so far) VHF network affiliates that have joined forces to produce top quality programming on a larger-than-local scale.

The idea for the Consortium grew out of a discussion between Cookerly and Bob Bennett, president and general manager of Boston Broadcasting, Inc.'s WCVB-TV, Boston, at an NATPE meeting about a year ago. Both men had been thinking about working in cooperation with other stations of good repute to produce high-quality national programs with a strong local slant. The idea was exciting enough to pursue, and Cookerly followed up by contacting three more stations — KOMO-TV, the Fisher Broadcasting outlet in Seattle, KSTP-TV, Hubbard Broadcasting's Minneapolis-St. Paul station, and WRAL-TV, owned by Capitol Broadcasting in Raleigh, N.C. All five stations, said Cookerly, "have reputations of doing good work lo-

cally," evidenced by the awards they win for their productions on a regular basis. (KOMO, for example, just received kudos for *Town Hall*, a public affairs series, and for its children's programming.)

"The thinking behind it," said Cookerly, "was that the stations that are involved here are not part of major groups. Sometimes groups, like Cap Cities and the owned and operated stations, have gotten together and done some very nice things. But there are a lot of good stations in this country that do exceptionally good work that are not part of big groups. And the thought was, could we in fact get some stations together who have reputations of doing good work locally, and by pooling our resources of people and equipment and money do even better work than we have before? And we got together to explore it and decided to give it a try."

General managers of the five stations met in Washington late last summer to discuss the feasibility of working together and to come up with some program ideas. They finally settled on a suggestion made by Kathy Cunningham, a producer at WJLA, that they look into the problems of working mothers.

"My sense was," explained Cunningham, "that we wanted a topic that was obviously of interest locally in these five cities, that was a national

trend to which we could bring local as well as national perspectives." Her research convinced her that the massive flow of mothers into the workforce was such a topic. According to figures she came across in her reading, "As of 1980 there are more mothers of young children who work outside the home in a job where they're collecting a salary than there are full-time housewives. This is the first time it's gone over the 50 percent mark." The reason for the movement, Cunningham said, is plain — it's "the way the economy's going."

Making local national

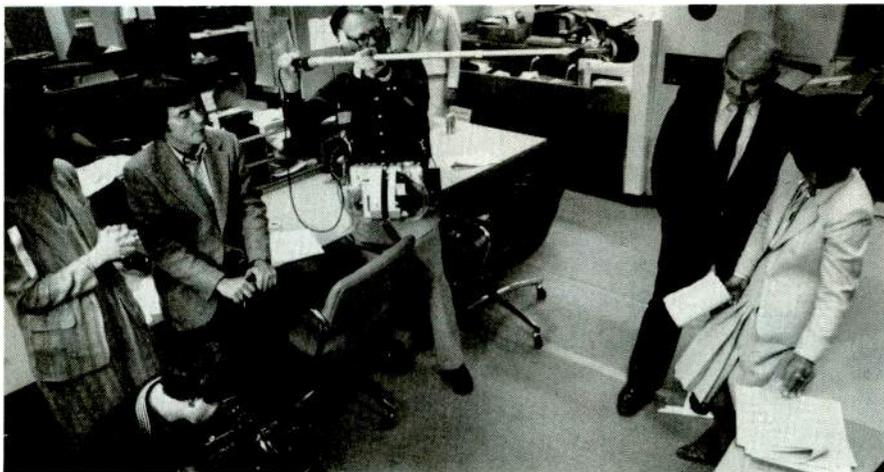
Cunningham was named executive producer of the one-hour documentary, titled, "What Does Your Mom Do?" Her idea was for each station to produce a brief segment featuring a local woman and to tie the segs together with an overall narration. A producer was designated in each city, and Cunningham assigned each station a type of working woman to profile when the producers met together in Washington. The subjects were chosen with diversity in mind and range from a divorced welfare recipient attending a technical school to a top corporation executive.

Another decision involved choice of a narrator for the overall show. Out of several possibilities they settled on Ed Asner, star of the series *Lou Grant*. Both Cookerly and Cunningham stressed that Asner was selected largely because of his well-known stand in favor of women's rights, both in his television career and in personal life. Cunningham also said that Asner's presence gives the show a broader appeal: "We want this to be a show that's not just for women . . . because we're talking about a social revolution."

Long-distance production

Except for the first meeting of the producers in Washington, all communication took place by telephone. The complications of long-distance communication were more involved than any technical problems the production encountered, according to Cunningham.

"We essentially had field producers at all the five stations," she said, "and communicating to them what they had to go and get so that it held together and told a continuous, developing story was the challenge. It was much more of a challenge than putting together a magazine show. Every piece within a half-hour magazine show is different and you don't have to make sure that all those pieces fit together, whereas with this you did. You had to make sure that there was no duplication and that the crews went out and filmed different kinds of scenes and the women said substantially different things, and all



Production crew films KSTP's Cyndy Brucato and Ed Asner in the ABC-TV newsroom

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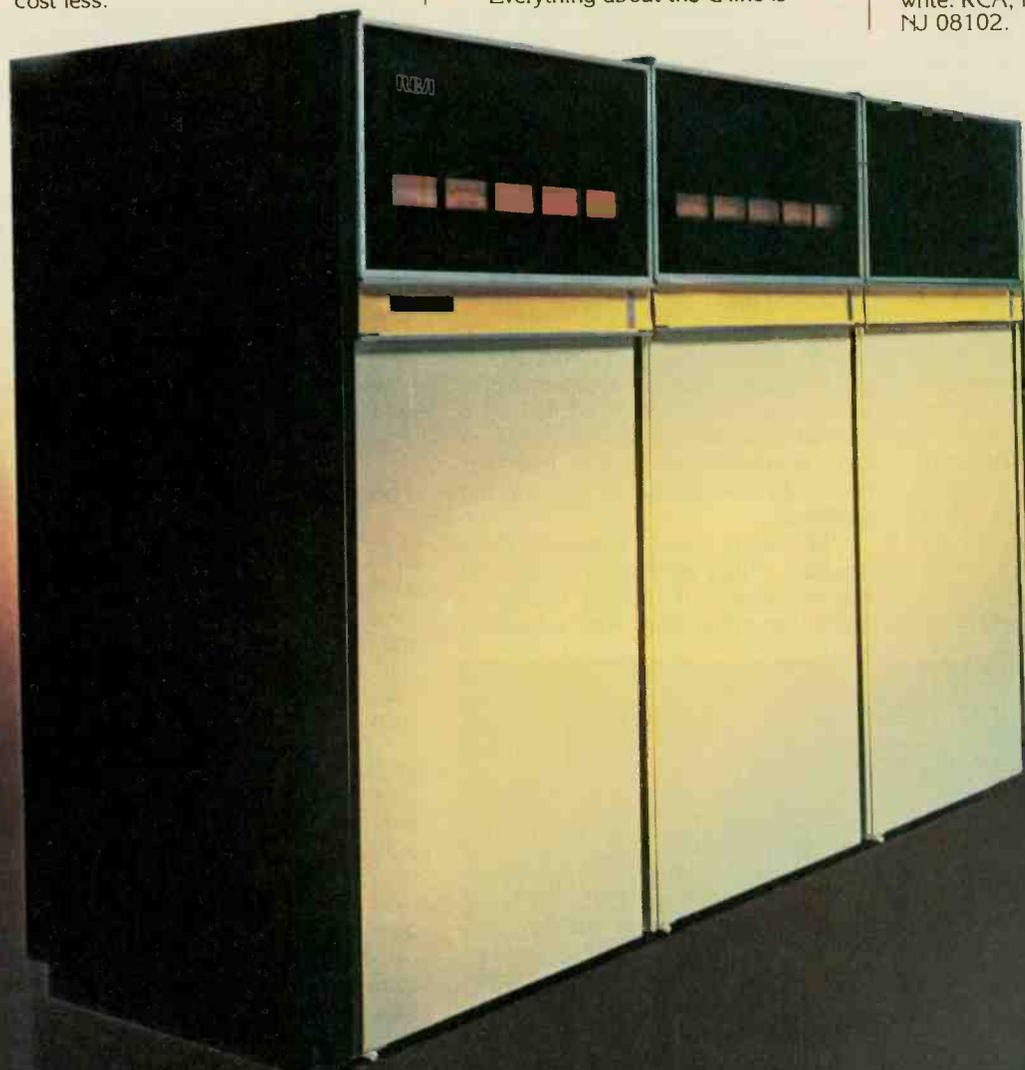
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TV Programming

those things added up to the ultimate word on what the impact of women is on the workforce."

"What Does Your Mom Do?" was shot entirely on film, double system, with a crew at each station consisting of the producer, a camera person, an editor, and audio and lighting people. "The reason we chose film over videotape," Cunningham explained, "was that with film you have the ability to look at a print and rework it without having to start from scratch. You can play around with it. If they sent me a videotape and I didn't like it, I'd have to have them redo the whole thing from the original tapes. This way you can monkey around with it a little bit more."

The original interviews were done by the producer, camera person, and audio person; the stations then sent work prints to Cunningham for review and suggestions. She returned the work prints with changes and comments, asking the crews to do additional filming and interviewing when necessary.

The final editing was done by Cunningham in Washington, working with an overall show editor to conform the segments to a uniform style and make sure they were not repetitive. The segments range in length from five to 10 minutes, averaging around eight. The last stage of production involved filming Asner's narration, including separate openings and closings for each city, done with each city's local anchorwoman: Renee Poussaint at WJLA, Cyndy Brucato at KSTP, Ruth Walsh at KOMO, Waltje Rasulala at WRAL, and Natalie Jacobson at WCVB. In this way, each city got a customized version of the show. When final editing was completed in Washington in early May, each station received an assembly package consisting of the middle section (the five interview segments with Asner's narration) and its own open and close sequences, to be edited together onto two-inch tape.

Cunningham provided an amusing sidelight on the anchorwomen's response to Asner. "It was fun for us," she laughed. "You know, most women in TV think of themselves as kind of a Mary Tyler Moore. Even if they don't think of themselves that way, their parents or friends do. And for all of these anchorwomen and for me to be working with Ed Asner, who you see in reruns every day working with Mary Tyler Moore — it was really a stitch, because you felt, 'How much of this is playacting, how much of this is real?' It was kind of fun."

Filming the sections with Asner was done in WABC-TV's New York newsroom, access to which was facilitated



An anchorwoman from each city filmed intro and outro segments with Ed Asner in New York. Left to right: Renee Poissant, WJLA; Kathy Cunningham, executive producer from WJLA; Cyndy Brucato, KSTP; Natalie Jacobson, WCVB; Waltje Rasulala, WRAL; Ruth Walsh, KOMO



All production for the show was done on film. Here, cameraman shoots Asner's narration

by the fact that all five stations are ABC affiliates. Cookerly emphasized, however, that network affiliation was not a criterion in selecting the Consortium members, calling the shared affiliation "a little bit of an embarrassment — we're afraid ABC is going to get mad at us." Cunningham pointed out some advantages of the arrangement, saying, "Generally, I think that affiliates try to conform to the look of the network, which tends to lead to continuity." Both noted, however, that the Consortium is far from a closed group at this point. "We didn't know if five was too many or too few or what," said Cookerly. "That's another decision that will be made at the next get-together of our group after we have this one in the can." If new members are sought, the list will not be limited to ABC affiliates.

All ad sales for "What Does Your Mom Do?" were handled by the local stations; there was no national spot. The show has four two-minute breaks, a 90-second end break, and a five-second local ID spot. Syndication of the show after its initial airing June 10 at 10:00 p.m. is still under discus-

sion, and Cookerly indicated that if the Consortium opted for syndication, they would most likely look for national advertising. Each station will own its own tape of the program and can rerun it at its own discretion. "It's obviously worth running more than once," Cookerly affirmed.

The future plans of the Eighth Decade Consortium have not been firmed up yet. As already noted, there is the possibility that additional members will be sought, and there is no decision yet on what the group's next project will be. "We're just kind of learning," Cookerly explained. "After we get this one in the can, we're going to sit down and say, now, our next project should be whatever. It might be children's programming, it might be access programming — I don't know yet." Executive producer responsibility will not be fixed in Washington, Cunningham said, but will probably rotate among the stations. Whatever direction the Consortium takes, however, chances are it will be all up from this first venture. As Tom Cookerly put it, "We've got our big toe in the water right now." **BM/E**

$\frac{ENG}{EFP} \times EPP + X = EC$

Trends In

**POST
PRODUCTION**

FORMULA FOR THE FUTURE

With some of the elements of ENG, as enhanced by progress made in EFP, existing super editors, a new off-line computer-assisted editing system, and some things yet to be developed, the industry looks at the very beginnings of electronic cinematography. Two critical links in the chain leading to EC have recently emerged — CBS's computerized off-line editing system and a new EC camera that works like a 35 mm film camera.

"ELECTRONIC CINEMATOGRAPHY," said Joseph A. Flaherty, vice president, engineering and development for CBS Television Network, "still sounds strange to people, but it is no stranger than ENG was in the beginning when people didn't know what that meant." According to Flaherty, electronic cinematography, or EC, must be seen as a system — a series of components and equipments organized in such a way as to optimize the application of electronic technology to the production of programs traditionally accomplished with 35 mm film. The objective is to improve the efficiency and productivity of the method by which prime-time television programming is produced.

EC begins with the retention of artistic skills traditionally employed in the process of motion picture production. Thus, a "single camera" approach to shooting must be retained, and an electronic camera developed that permits the cinematographer to apply his art as he has always done in the interest of creating a specific visual look or effect. The images recorded must be isolated in terms of scene and take numbers so that the ultimate choice of a segment for inclusion in a finished program can be made in an artistic milieu that considers juxtaposition of other scenes, dramatic impact, technical superiority, and a host of other more subtle influences.

In film, the process comes with the production of a work print of all good scenes and takes. Then a rough cut is assembled which represents the artist's initial impression of how the film will look. After numerous reviews of the rough cut by the editor, producer, director, talent, network executives, clients, or whomever may have some say in the outcome of the project, new versions of the rough cut are made. In fact, each new opinion may result in changes to all or some of the segments in the film. In the film medium, all this is accomplished quite easily. The rough cut can be "opened" at any point, a segment can be lengthened, trimmed, deleted, replaced in its entirety with a wholly new element, or modified to include completely new material. Whatever action is taken affects none of the adjoining segments in any physical way, but in video, such alteration generally results in having to reassemble all segments following the edit if the temporal duration is affected by the action taken.

Finally, it is essential that the original footage never be used for editing, but instead be preserved for final conformation with the approved work print. The program to be aired or distributed is then assembled from the original footage just once (ideally). The electronic media already has a superior assembly system in its super editor auto assembly functions. When this stage is reached, the final assembly need take little more time than the total running time of the finished program.

So, as Flaherty sees it, there were really two missing links in the EC system: an electronic equivalent of a 35 mm motion picture camera and an economical and efficient electronic equivalent to the off-line practice of editing and reediting through numerous iterative cycles. Toward these goals, Flaherty and others at CBS set about writing specifications for the "ideal" electronic EC camera and developing (at their own CBS Technology Center in Stamford, Conn.) a prototype of the EC off-line post-production system.

Camera comes into focus

The CBS specifications for an EC camera were released to a number of camera and lens manufacturers who showed interest in such a design, and at this year's NAB convention in Las Vegas, one company, Ikegami, unveiled the EC-35. The EC-35 meets or exceeds some of the CBS specs and falls short of some others, but as Flaherty put it: "I have every reason to believe that those cameras with good competitive prices and quality will become available as ENG cameras did." And, said Flaherty, there will probably be a wide range of camera models to choose from, many designed for specific types of applications. An EC camera for documentary might well emphasize light weight and ruggedness, while an EC camera optimized for studio-based dramatic production might emphasize other operational features.

This month the CBS EC off-line editing system begins its first field trial runs at CBS Studios in Los Angeles. According to Flaherty, the system will be tested throughout the summer and fall. Programs produced in the single-camera film style will provide copies of their dailies to be transferred to tape and run in parallel through the post-production cycle using the electronic system.

CBS editors will use the system, critique it, and compare its results to those achieved through the normal film production and post-production process. At the end of the field trials several modifications are likely to have been made, but Flaherty hopes that they will be minor and that the system as it currently exists will be very close to the final product. In the development of the system, CBS has already made a close study of the work flow, style, and technique of scores of editors, and as many as five of CBS's regular program editors have used the system, made recommendations, and given their approval to the final result.

How the system works

The system consists of two major segments, hardware and software. The hardware includes six specially modified Sony Betamax half-inch VCRs, three on the source side, and three on the record side; a pair of high quality color video monitors, a CRT, and light pen; and, of course, the console cabinetry. A special electronics package keeps the machines' playback, record, and search functions frame accurate. There is also the computer containing the operating software and a floppy disc memory unit for recording the edit decision list in CMX-compatible format.

The software package allows the operator to work with the system through the light-pen based man/machine interface. The CRT presents the operator with a series of simple menu displays, each called up automatically as he completes a function and requests the next operating mode. No other operating controls are required. Even the tape transport direction and speed is controlled by the light pen.

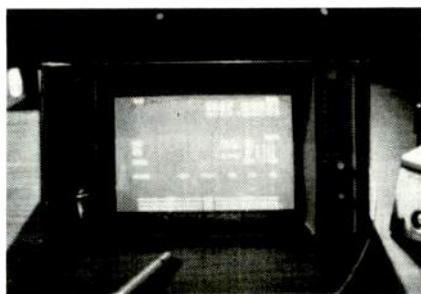
In order to edit, the operator loads the three source VCRs with Betamax cassette copies of individual "good" takes. These cassettes are automatically cued. For example, to edit Scene 1 in which there was an establishing shot, a close-up, and a medium shot, the operator would load the three cassettes containing each camera angle into the three VCRs. Assume that the operator wants to begin with the second take of the establishing shot, go to the third take of the medium shot, and finish on the first take of the close-up.

With the light pen, the operator selects the VCR to be used and assigns it to the control bar — a line of arrows at the bottom of the display running left and right from a zero, or stop point. The control bar handles whatever VCR is currently displayed. By moving the light pen onto the bar for VCR 1 and moving it in the direction he wishes to go, the distance away from the center zero equates to the play rate. Full color playback is provided from still to five times normal speed in either direction.

When the operator gets to the head of the desired take, which he watches on the right-hand monitor, he then brings the machine to a stop. Slight forward or reverse jogging to the exact point is easily accomplished with the light pen. Once the in point is established, he simply touches the light pen to EDIT. When satisfied with the in-point, he touches ADVANCE and the frame immediately jumps to the left-hand monitor display. He then runs the "take" forward until he sees the desired out point, and so indicates with his light pen. Then he moves on to reel 2 for the medium shot in Scene 1, locates the desired take in the same fashion, chooses his edit point, indicates such, and that decision is then displayed on the left-hand monitor. He can now review that edit by watching the playback on the left-hand monitor and chooses another out point at the end of the second take. This process is continued for the next take. The style of operation is analogous to "building a reel to the left" in film editing.

If the editor changes his mind regarding the appropriateness of an earlier edit somewhere in the middle of a scene — say he wants to replace the medium shot with a different take — he merely goes to the edit point and touches his light pen to the OPEN instruction. Even if the new take is shorter or longer than the take being replaced, no other edit already executed has to be modified.

The secret to this "random access to edits" lies in the recording structure of the editing system. As mentioned before, the system uses three VCRs for recording. Each edit selection is recorded separately on its own VCR so that edit selection 1 is recorded on record VCR 1, edit selection 2 is recorded on VCR 2, and edit selection 3 on VCR 3. The electronics of the system assure that the various decisions play back as if they had been recorded serially on a single VCR. Therefore, the existence of three



The menu monitor and light pen. These are the only operational controls required to fully utilize the system



This specially modified Betamax VCR offers not only economy but also reduced mass for faster action



The CBS off-line electronic editing system. Now undergoing field trials, the system will make a major dent in the cost of electronic post-production for prime-time programs

Formula For The Future

record VCRs is completely transparent to the operator and, in fact, the record VCRs can be located remotely from the system.

The three playback VCRs are recessed in the console to the right of the operator. A cassette carrel provides storage for the half-inch cassettes until they are needed. The system is fully capable of storing not only cuts and dissolves, but also special effects, split audio or video edits, and a host of other decisions which are selected from the menu just prior to advancing to the next edit. The output of the system includes a hard copy of the decision list (either punched paper tape or floppy disc), and a dubbed copy of the edited video can be obtained.

Producers or other interested parties can take the decision lists and the dub of the edited program for review and alteration. Any changes required can be easily introduced in the next reedit session since the system is not locked into a single physical, serial recording. Other operational features enhance the effectiveness of the system, such as its capability to automatically record "extra footage" at the head and tail of each edit so that addition of a few frames can be accomplished without having to return to the source tape.

Costs of the concept

It must be emphasized that this off-line editing system is part of an overall EC concept. Therefore, the cost effectiveness of an overall EC system must be compared in its entirety to the overall cost of an alternative film system. As Flaherty points out, "One component of that system may be more expensive than its counterpart, but there will be other pieces that are net-less. You have to add up all those across the board — labor, consumables, capital investment — the whole thing."

The CBS off-line editing system will, Flaherty thinks, "knock a big hole in the cost of electronic post-production." The hardware involved in this system costs about \$50,000 at retail prices, according to Flaherty. Of course, the cost of software is hard to estimate and the R & D must be paid off. When the system is finally manufactured for the marketplace — and the best estimate for that is still a year off — there will still be a good deal of customizing to do for individual users, and a cost for such customizing is hard to pin down. Nevertheless, \$50,000 worth of hardware is still in the same ballpark as the cost of a top-of-the-line flatbed editor for film. Moreover, when compared to the early CMX-600 light-pen based computer-assisted editor, which involved \$250,000 worth of console hardware alone in 1971 dollars, the CBS system has clearly come a long way. Currently, the hourly rates charged for electronic post-production utilizing a super editor and several top quality one-inch VTRs run easily to several hundred dollars per hour. Since the CBS system uses half-inch Betamax machines that cost between \$2000 to \$2500 each as compared to the \$70,000 to \$90,000 one-inch machines, it is apparent that in hardware costs alone significant savings should dribble down to the end user. All other things equal between current computer-assisted on-line editing systems and the CBS off-line system, an hourly rate of slightly more than \$50 per hour is not inconceivable though probably optimistic.

The greatest cost savings for this system over film will clearly be in the area of consumables. CBS projects that a

stock of 100 half-inch cassettes might be adequate for a couple years' work on the off-line system. Since the cassettes used never contain original material and since the final edited version on one-inch tape releases those cassettes to a new project, there is clearly no good reason why the tapes should not be erased and reused.

Is this the beginning of a new era?

While the economics of the CBS system will certainly improve the cost of editing, not to mention ease and efficiency in the electronic media, the emergence of a truly effective EC system is still several years away. Technically, Flaherty sees only the need to employ a frame-accurate color correction system somewhere in the chain. He points out that several very good color correction systems already exist and it remains only for someone to decide exactly where in the process it should be introduced, and, of course, to put it together. The EC-35 camera from Ikegami and those that will follow it will probably succeed in answering the demands of cinematographers. Lenses, like those from Canon that were shown with the EC-35 at NAB, will provide the family of high quality optics, both zoom and fixed focal length, that the cameras will require. The one-inch VTRs already provide good original recording systems. Flaherty sees the need to address some specialized problems in the area of audio post-production in the near term, but the technology is in place and much of the audio for cinema process can be retained.

Clearly, the things that will retard the pace of EC are more human than technical. First, the current software package of the off-line editing system has been optimized for the editing of prime-time programming, such as action/adventure, drama, and other programs, the bulk of which are currently done in film. Software changes in the current system will have to be made to optimize the system for other types of projects, such as documentaries.

It is not an uncommon practice now for a film to be transferred to the tape medium for certain post-production stages, as was Francis Ford Coppola's *Apocalypse Now*. The ease of the new CBS off-line system would seem very attractive for applications in that area already. Flaherty clearly recognizes that producers, cinematographers, and others currently doing prime-time programming will not instantly flock to a new electronic medium. There will be a period of adjustment and success with EC building slowly at first to win converts.

Just as the EC camera and the CBS off-line editing system have had to carefully retain in their design the means by which current practitioners of the art of cinematography execute their decisions, so will other component pieces as they are identified and developed. While CBS clearly intends to achieve certain economies by a move to EC, it is just as clear that they do not intend to do it at the expense of the artistic goals of those who make programs.

As Flaherty pointed out in his paper on the CBS computer-assisted off-line editing system, delivered to the 121st SMPTE Technical Conference in Los Angeles last year, technology passes through several phases on its way to acceptance. "In the first phase, new technology is against the Bible and often 'immoral.' In the second phase, 'It'll never catch on,' and in the third phase, 'I thought of it myself a few years ago.'" In less than a decade, ENG has gone through all three phases. The same time frame does not seem impossible for EC. **BM/E**



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Shown left to right: NV-A960 Controller, NV-9240 Recorder and NV-9600 Editing Recorder

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System features:

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2. Automatic IN/OUT insert editing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Automatic IN/OUT assembly editing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Automatic STAND-BY (with picture) at out point.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Edit accuracy ± 2 frames.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 4.5 second pre-roll time.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Multiple AC voltage applications (100V/120V/220V/240V), at 60 or 50 Hz.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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8. Dial search control with lockable speeds.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. 10 tape search speeds (5X, 2X, 1X, 1/5X, 1/20X—forward and reverse) plus PAUSE, all with picture.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Automatic instruction error diagnostics.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Address time indicator for hr./min./sec./frames.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Lap time indicator.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. PREVIEW function.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. RETURN to in point function.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. REVIEW function.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. GO TO out point function.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Independent reset of entry and exit points.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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21. Servo lock and frame lock indicators.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Relocated head switching to vertical blanking interval.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Electronic tape counter.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Separated chroma (688 kHz) and luminance for dubbing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Head amp frequency adjustment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Chroma level adjustment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Time code capability (audio channel 1).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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VIDEO SYSTEMS DIVISION

NEW POST-PRODUCTION FACILITIES MARK BIG INVESTMENT IN THE NORTHWEST

Trends In

POST PRODUCTION

Two stations of Fisher Broadcasting, Inc. — KATU-TV, Portland, and KOMO-TV, Seattle — have gone all-out for their new post-production facilities. With one-inch videotape and computer-controlled post-production editing systems, they now offer their Northwest clients “the finest and most sophisticated service available.”

FORTY MILES to the north, a live volcano is erupting. KATU-TV, Portland, Ore.'s ABC affiliate, is supplying much of the national coverage on Mt. St. Helens, its news department pushing hard to meet the deadlines. But there's more than just news going on at this TV station. KATU's new production and post-production facility is in full swing after an expansion to the tune of \$3 million. In addition, its parent company, Fisher Broadcasting, Inc., has invested a like sum for new production facilities at sister station KOMO-TV in Seattle. Both stations serve top-20 markets, and it is the development of these markets that justifies the large production and post-production investment.

“Advertisers must be able to produce exactly what they want,” says John F. Behnke, president of Fisher Broadcasting. “They've got to have the top production values

on call. Now we have all the skills and tools a client needs.” These tools include some of the most modern equipment available. At KATU, for instance, three studios include a Grass Valley 1600-7K production switcher with triple effects banks containing GVG's E-MEM system, a digital effects system, a 20-channel Yamaha audio console, and three Sony BVH-1100 one-inch C-format tape machines. Thomson-CSF color correctors and GVG video distribution amplifiers and processors complete the system. Besides the video hardware, there are two RCA TK-28 telecine cameras and four RCA TP-66 16 mm film projectors.

“We've invested in the best,” says Behnke. “In Seattle and in Portland we expect our local advertisers to grow, to be as demanding about their commercial work as we are about our programming.”



KATU engineers enjoy elbow room with their new Grass Valley Group 1600-7K video switcher and audio E-MEM

New Post-Production Facilities

Computers are the heart of each station's post-production unit. A master computer digests the editorial and effects program. It is linked to the audio and video editing and effects equipment through subordinate micro-computers. These in turn direct each piece of equipment. "We've tried to make commercial production better, faster and simpler," says Bob Plummer, Fisher Broadcasting's director of engineering and designer of the facilities. "It helps if the advertiser knows how the electronics works, but it's not necessary. All the client needs to know is what we're capable of doing and what he wants done. We can do the rest."

Producers at KATU say they're capable of doing just about anything. A wide range of optical effects are at their disposal including continuous picture compression, picture expansion, push-on/push-off, "hall-of-mirrors" effects, and an assortment of wipes, inserts, and keying. Besides the studio applications, both stations have field production units that handle local and regional commercial productions. For the most part, 3/4-inch format is used in the field, but one-inch is available. "We use Ikegami HL79 and Sony BVH 500 one-inch field recorders," says Plummer, "and we've got the people to put behind the

equipment, both in the field and in the studio. All this equipment only enhances the need for good people. It takes a lot of skill to make it work."

At KATU, a crew of four handles the productions in the field. Accounts come from Canada, northern California, and other western states. While national and regional accounts are handled by both production facilities, local advertisers comprise the bulk of commercial production.

Two KATU studios are dedicated to commercial work. While use of the newer equipment is sold at a higher rate than that for productions requiring only the simpler equipment, these rates are established according to studio time with a full staff, not according to the number and kinds of effects required as is done in many other production studios. In either case, standard rate cards are used to establish prices.

"From beginning to end," says Plummer, "the client has absolute, time-coded, scene-by-scene control of the commercial. That includes scene-by-scene color and audio enhancing or correction. And the effects, edits, corrections, and enhancements are all memory-stored. You can replicate what you want done again and again, now or later, here or somewhere else. The client gets a hard-copy printout program and the punched tape input codes."

At KATU's post-production facility, two crews work



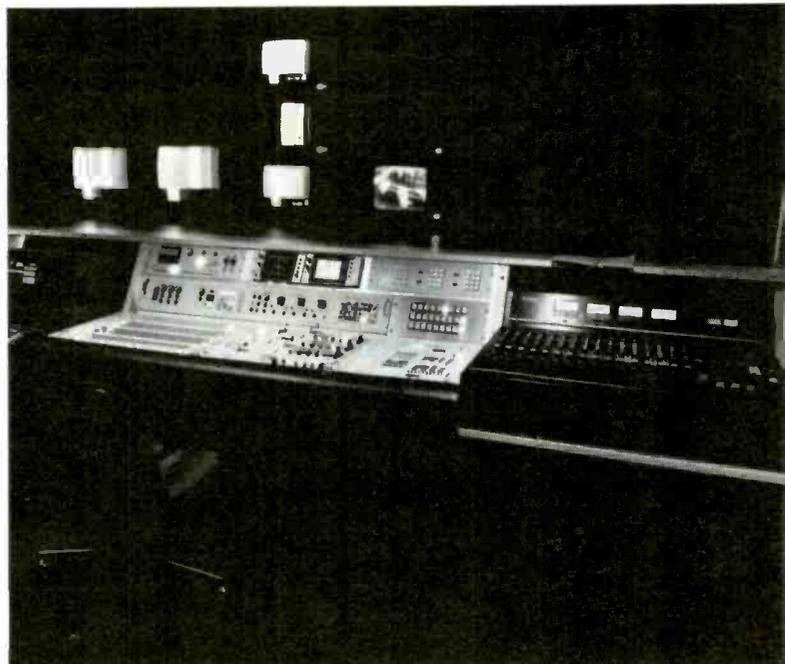
Post-production at KATU, Portland, features Sony BVH-1100 one-inch tape machines and automated systems

by day and one at night, making the system capable of 24-hour operation. Before the new studios, bookings were made two months in advance. Now the operation is smoother and can handle a greater volume in a shorter time.

Besides the commercial productions at KATU, the new facility handles two magazine programs and promotional material for the station's programming. While both KATU and KOMO have similar production and post-production equipment, they do not share staff. A certain amount of cooperation and exchange does go on between the two, but that is the exception rather than the rule.

Accounting for the commercial productions at KATU is handled separately from that for the station's broadcasting operations. This has worked to its advantage, say KATU's technical and production directors. As a result, KOMO is looking to follow a similar setup. A third KATU studio is in the process of completion with a table-top, transportable, post-production operation. Don Wilkenson, chief engineer at KATU, and Bob Karlstadt, programming director, say the move to one-inch has saved a lot of time and gives their clients a better idea of how to handle production material. Slow motion, still and reverse motion for record, search, and edit functions provide significant advantages, not only in terms of visual quality but also in operational efficiency. While use of one-inch is extensive, it is not exclusive. Both production facilities offer a full complement of quad equipment.

At the present, KATU's and KOMO's production facilities are concentrating on local and regional advertising markets. Industrial and cable applications are not being pursued, though the two markets have been consid-



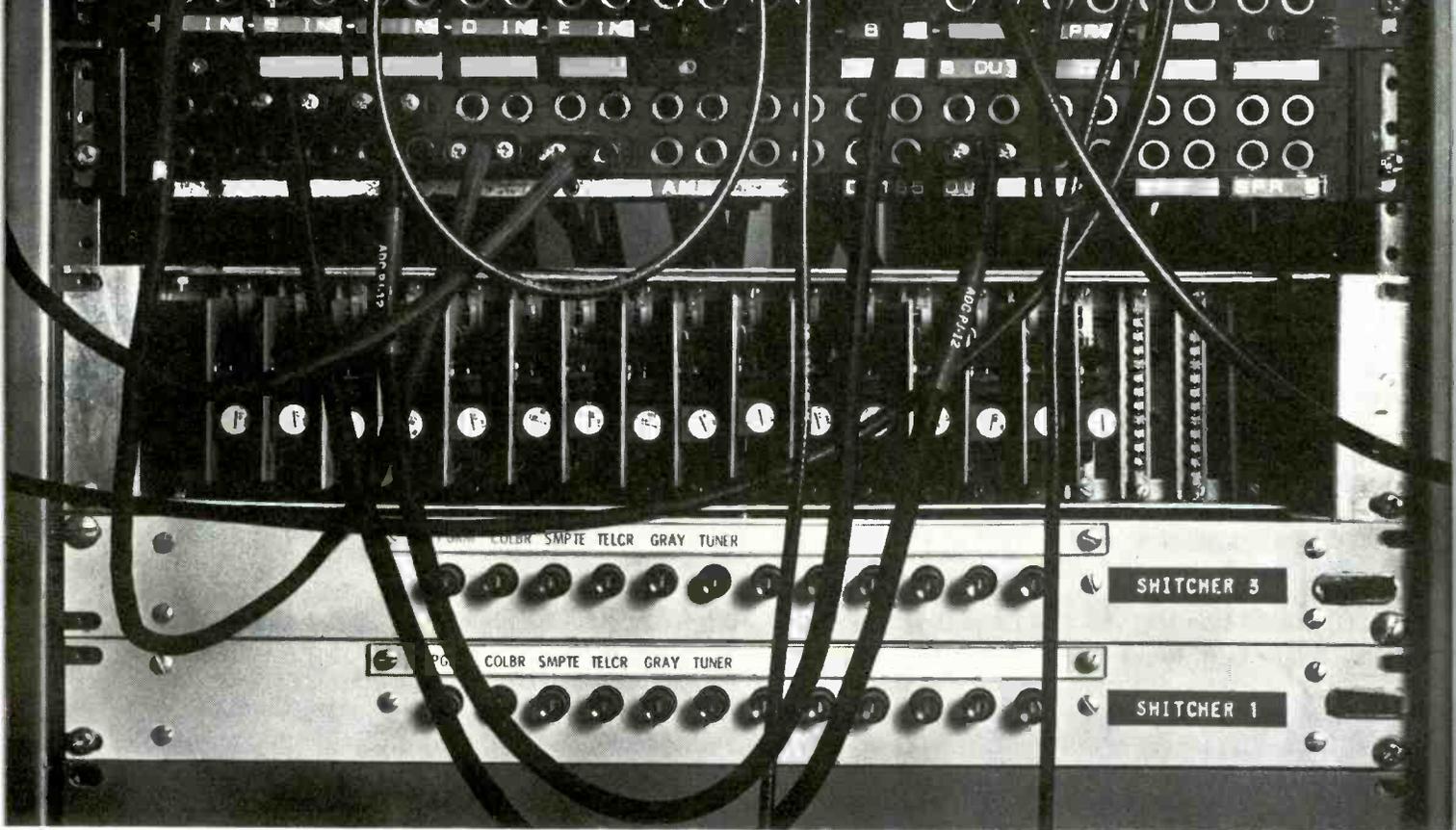
The new editing suite at KOMO-TV in Seattle has a CMX 340X editing system capable of 24-hour operation

ered. Inquiries have been handled on a three-tier basis: clients with agencies, direct accounts, and national syndications.

"We looked at what the most sophisticated local advertisers are doing," says Bob Plummer. "We know what advertisers need now and we think we know what they're

Ask for
fiberoptics by name.

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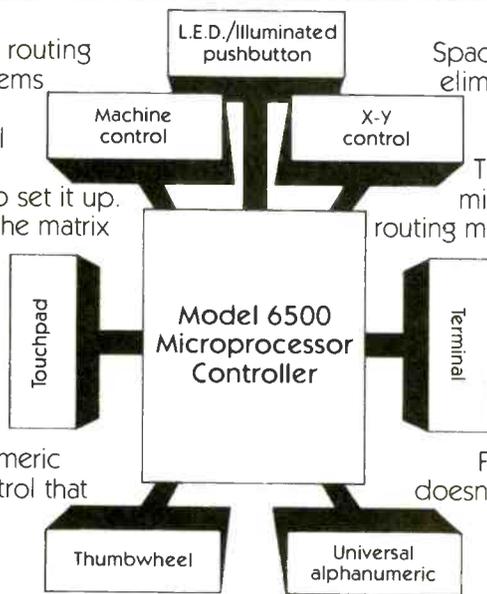


With a microprocessor-based 3M routing switcher, you can eliminate the problems of hard wiring once and for all. And specify just about any type of control you want.

It all depends on how you'd like to set it up. Our design engineers can then tailor the matrix for you. From your smallest requirement on up to any desired size. And they'll help you select the control that's best suited to your needs, too.

The choice is yours. Touchpad, thumbwheel, illuminated or L.E.D. pushbutton, machine, X-Y, or alphanumeric universal control. Even a terminal control that allows you "supervisory" control throughout the system, or computer control through our RS-232 port.

What's more, 3M routing switchers are easily expandable. Start with a matrix that matches your present requirements. Then as your studio grows, your routing switcher does, too. With the simple addition of extra frames and switch cards.



Space-guzzling, multi-conductor cables are eliminated. And so are unnecessary output panels. Because with our system, outputs can be reallocated as required.

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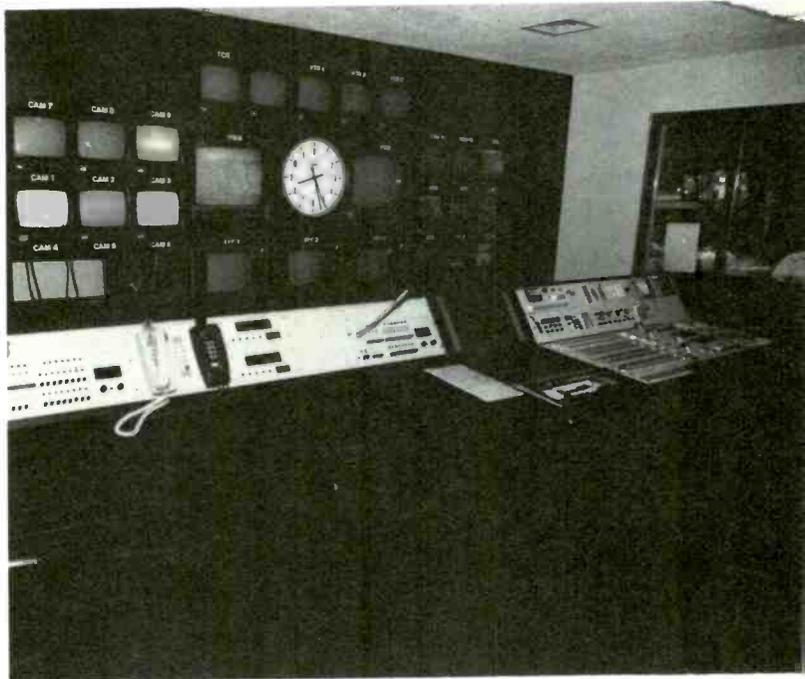
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AS YOUR NEEDS GROW.**

New Post-Production Facilities

going to need in the future. We studied editing and post-production studios at stations in other markets and the independent producers' facilities in L.A. These studios are completely comparable with anything you'll find at any station in the country and with anything you'll find in Los Angeles." The studios are described as spacious and quiet, designed to let producers devote full attention to the work at hand. "We understand that people need good, pleasant surroundings to be the most productive," says Plummer. "We wouldn't provide anything less for our clients."

Indeed, equipment and pleasant studios are only part of the picture. A well-trained staff is of the utmost importance. While CMX training provided the staff with its initial introduction to the new post-production equipment, much that goes on in the production facilities is the result of in-house cooperation and support.

The return on investment in a broadcasting operation is substantially different than that of a production company. While the former sells time, the latter sells a product and a related service. A major problem encountered by stations going into the commercial production business is competing with production houses that deal solely in production. By offering their clients the best possible production equipment and talent, KOMO and KATU hope to hold their own in the northwestern market. By developing this market and expanding their services, the new production facilities in Seattle and Portland are seen as solid investments in the future. So far, it appears as though the market



KATU's new editing suite is spacious and quiet, a comfortable environment for the most demanding producer

is there. A KATU production director says he's surprised by the growth of the local market. "We're finding that small local businesses are ready to use our services rather than go elsewhere at greater expense." As KATU's general manager Tom Dargan says, "Hollywood will have nothing on us as far as capabilities are concerned." **BM/E**

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Only Valtec has a field-proven baseband video/audio/data fiberoptics system. Our economical alternative to coaxial or microwave is immune to hum, ground loop or RFI problems. So you can

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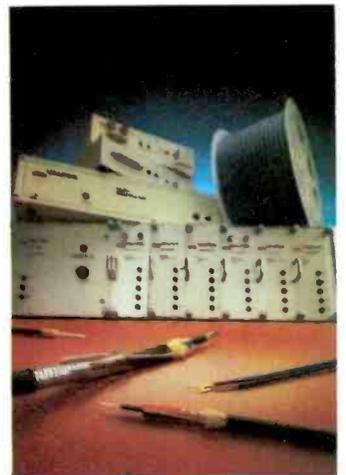
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The VPR-2B. Its intelligent design and creative editing give you the edge. But we didn't stop there.

The Ampex edge really comes through with our smooth as silk slow motion! The VPR-2B's special effects—forward and reverse slow motion as well as still pictures—are as smooth and free of distortion as anything you'll find in videotape production.

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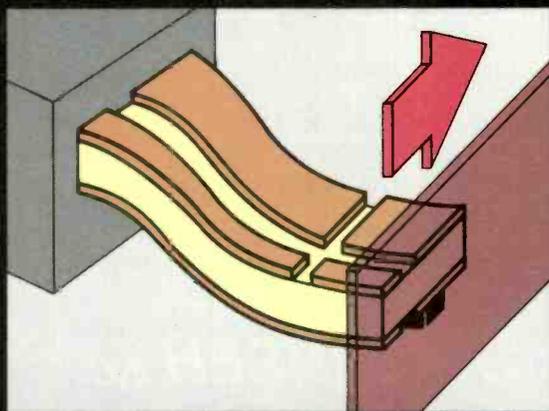
The Ampex Edge. It's experience. It's design excellence. It's performance when and where you need it.

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RADIO STATIONS GET A LIFT FROM POST- PRODUCTION SOUND EFFECTS

Trends In
POST
PRODUCTION

Flanging, reverb, double tracking, and all the rest of the delay line effects are becoming standard, rather than special, for radio stations with heavy commercial production loads. Here are the stories of several of the stations now riding strong sales waves with the aid of special effects in sound.

EVERYBODY KNOWS that strange sounds have been coming out of small boxes of electronics — special effects systems — for a number of years. But it is likely that many in the industry are not fully aware of the extent to which those strange sounds are now aiding the success of radio stations all across the country.

In another article in this issue, *BM/E* tells how special effects devices are used by specialists in commercial sound tracks, and presents an interview with Stephen St. Croix of Marshall Electronics, maker of one of the most popular systems, on some of the basic psychoacoustics of special effects. Here we concentrate on radio stations that are using the systems in the day-to-day battle for business.

Competition, of course, is the name of the game, and a bellwether operation that shows the way radio has to go to stay competitive is that of the NBC-owned radio stations, with large production facilities in Los Angeles. Their studios are set up for every kind of production and post-production needed for both radio and television. The equipment is on an elaborate scale — and the radio commercials end up on the air in competition with large stations and small in a number of cities.

Tom Moody, engineer in charge, told *BM/E* about the equipment used for radio production and post-production. A battery of multi-track tape machines, along with equalizers and limiter-compressors, begin the lineup. The Prophet V is one of several music synthesizers that help producers get the exact sound they need. In addition, there is the Eventide Harmonizer plus a recent addition, the Ursa Major Space Station, a newer digital delay-line special effects system. The latter unit, Moody said, has been particularly useful in matching the acoustic character of sound tracks that have to be mixed into material during production.

The studios deal with both radio and television and do a great deal of film-to-videotape transfer. Radio, however, is in very high volume: they make approximately 700 radio spots a month for KNBC, the Los Angeles O&O, starting from scratch on most of them. The production staff is now highly skilled in the use of special effects and dedicated to their use. Every commercial radio spot is analyzed for the most effective handling of sound. This often includes various kinds of flanging, doubling, digital reverb, and other sophisticated effects.

The important aspect of this operation for radio managements in smaller communities is that listeners are rapidly getting accustomed to highly sophisticated sound tracks. It seems safe to say that there will be a steady

growth in the use of special effects by radio stations everywhere. The growth will be slow in small communities, where the competition is minimal, but it is likely to be much faster in medium-sized cities.

In Huntington, W. Va., for example, WKEE-AM/FM have been using special effects in ad post-production for a number of years. The AM station is a 5 kW daytimer using mostly country and western music. The FM station uses "contemporary" music and has 53 kW of ERP. Both were purchased last year by Capitol Broadcasting.

WKEE's production studio makes commercials for both AM and FM. The studio contains a UREI graphic equalizer, a Fairchild reverb unit, and the Eventide Harmonizer, all in use for a long time. Just added is the DeltaLab DL-2, not yet in operation when *BM/E* spoke with Raydon Thompson, chief engineer. The tape machine is a four-track Studer and the control console is the Audiotronics 110A.

This studio turns out between 200 and 300 commercials a month, according to Lou Mueller, engineer in charge, who along with his staff has become thoroughly aware of the particular sounds available with the equipment. The studio has proved to be a very important economic asset for the management. Advertisers in the area can be invited in to create their ads there with the station staff doing the whole job, or in cooperating with a local ad agency. There is no other studio in the area that provides the kind of sound tracks that Mueller and his staff produce, and this persuades many advertisers to use the service.

Along with getting the commercial made, the usual deal includes airing it on one or both of the transmitters. So the special effects skill developed there brings in business in a positive way. The management is convinced that the special effects in post-production are a big factor in the station's success.

It is clear that *any* station in a competitive market, from fairly small to medium large and on up to the largest, making a high proportion of the commercials it airs, is today a prime prospect for special effects work — whether the management is aware of it yet or not. Another management that is hip to this and has been acting on it for a number of years is that of KSLO-FM in St. Louis. The station was bought by Charter Broadcasting in 1975 and is doing very well with its Top 40 format, using 100 kW of ERP.

Chief engineer Don Schwartzbaugh told *BM/E* that more than 70 percent of the commercials KSLO airs are made in the station's own production studio. That studio

Radio Post-Production Sound Effects

boasts such gear as the Eventide Harmonizer, an Eventide phaser/flanger, an AKG reverb unit, a Burwen noise-reduction system, various compressor-limiter units, an Audiotronics 110 console, and MCI four-channel tape machines.

This splendid array is thoroughly absorbed into the station's production of commercials. Again, the staff has become expert in analyzing the sounds needed for high impact on each commercial. This encourages their ingenuity in coming up with fresh approaches — as Suzanne Ciani notes in the companion story on special effects in this issue, total familiarity with the potentials of a special effects system is the most important requirement in learning to use it. The endless versatility of the devices makes abstract guidelines far less useful than hands on and "ears on" experience.

The devotion to special effects at KSLO arose in the most natural way, says Schwartzbaugh. With a large load of commercial production, the management early started looking for ways to make the commercials as attractive as possible to customers — more attractive, they hoped, than those of competitive stations. Giving the sounds the added punch and interest of special effects seemed practically inescapable as a way of meeting this need. It has worked out just as the management hoped: KSLO is heavily booked at all times.

A third radio management going the special effects route — just getting ready as this was written, in fact — is KDSN in Dennison, Iowa. Owner Don Uker is in the process of setting up a production studio to make programs and commercials for the station, and also to serve as the plant for a separate business, the Don Uker Company, which will produce ads and programs for outside customers. He shopped for his production equipment at the NAB show in Las Vegas. His original idea was to buy a reverb plate of the classic kind, but after listening to the Ursa Major Space Station, he decided to go with digital-delay reverb, getting the whole panoply of digital special effects in the same box.

Uker succeeded in buying his entire production studio at the show and hopes to have it in operation in late July. His motivations are fairly similar to those of the managements of WKEE and KSLO: a service for which he is sure there will be a demand in the community, a way of selling more air time for his radio station, and a lift to the effectiveness and power of the material he broadcasts.

A strong program of special effects in commercial post-production that demonstrates the power of the approach in a small market is that of WBHP in Huntsville, Ala. This veteran AM station, now using 1 kW in the day and 250 W at night, is doing well with its mixture of "adult contemporary" with a variety of farm-oriented programs and other locally directed material. Something over a year ago the management decided to make a large commitment to top-quality production of commercials, not only for the station but also for contract work for outside customers.

Dana Harmon, production manager in charge of the operation, told *BM/E* that the original hope was to establish the station as the outstanding local facility for production of commercials. The production studio as set up includes an Audiotronics 110 console, ATR-700 Ampex tape machines, Technics SP-10 turntables, Sennheiser



KLSQ program director Kevin Matheny completes the final mixdown of a commercial

microphones, an Orban parametric equalizer, the Eventide Harmonizer, an Orban reverb unit, and ITC cart machines. The staff also designed a small sound booth so that outside users could come in and "do their thing" without being intimidated by the large studio full of equipment. The setup also includes Crown amplifiers and JBL monitors, and the monitoring function is currently being refined further by the installation of acoustic wall treatment in the control area.

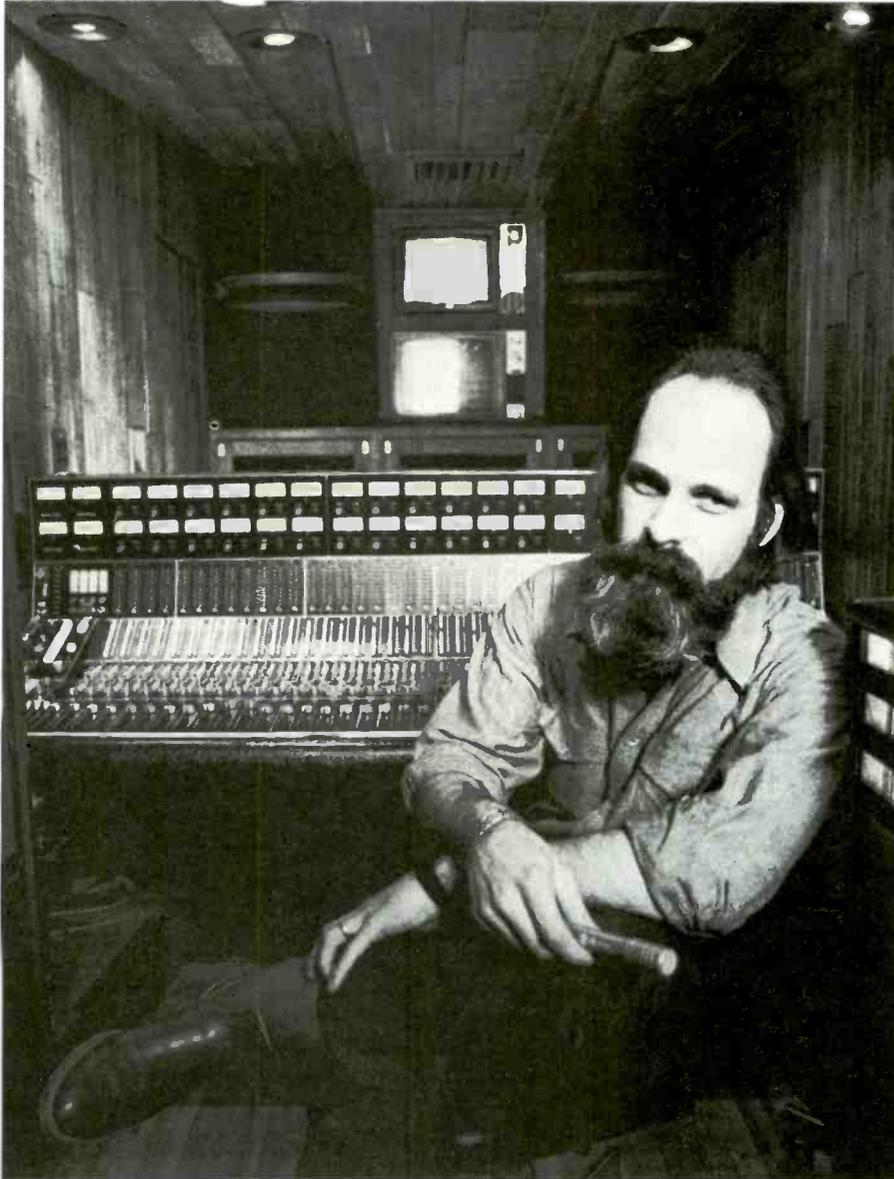
This array of A-one grade production equipment is, of course, unusual for a station in a market of the Huntsville variety, but the management's faith in the move has been abundantly justified. Harmon said that the main problem now is keeping the outside customers happy without cutting into the production time needed for the station's own commercials, virtually all of which are made in the studio. He told of three or four sessions scheduled for outside work on the day of the *BM/E* interview: this has been typical almost since the day the new studio was ready to go and was announced widely to advertisers and ad agencies in the community. The outside customers can bring in whatever they want for their productions, including, of course, live talent, recordings of every description, or simply scripts from which the WBHP staff can work.

Harmon termed the equalizer most valuable in cleaning up and improving in quality tapes or cassettes produced by ad agencies or other studios and to be mixed into final productions. He has noted a recent falling off in quality of these outside-produced recordings. The Orban parametric, he finds, provides very resourceful fix-ups for badly made recordings.

He uses the Eventide Harmonizer, as do many such installations, to give commercials special zip and interest. Harmon says that his experience and that of his staff has given them a sense of the repertory of sounds in the Harmonizer; they have learned not to *overuse* the special effects, but to add in discrete sound changes that lift the power of the commercial without pulling it apart or making it ridiculous.

For the future, Harmon would like to establish a precise response curve, a standard for the operation, which could be set up on a spectrum analyzer so that any material made in the studio or brought in from outside could be compared with it. This excellent approach to quality control has become practical in recent years with the appearance of spectrum analyzers that include memory sections to hold such standard curves. The standard is instantly available at the push of a button, and running the material under test next to the standard on the screen will show instantly what has to be done to get the new material in line. **BM/E**

fact:
“I never thought such a rugged microphone could sound this great”!



Record Plant Studios, N.Y.C.

David Hewitt
Director of Remote Recording

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DRAWING POWER FROM THE ART OF SPECIAL EFFECTS IN SOUND

Trends In

POST
PRODUCTION

Special effects in sound, as practiced today by a group of talented, immensely skilled professionals, has become a dazzling art. But the producer of material for radio does not need comprehensive training to draw a lot of sonic power from the jam-packed special effects cupboard. Here some experts supply tips on how to do it.

WHEN A RECENT Coca-Cola radio ad gave a delightful sonic imitation of a glass being filled with liquid with a pop, a fizz, and a strangely musical "gulp-gulp" that rose in pitch suggestively as the glass filled, the attentive listener may have realized that the sound was too good to be real. Anyone with recording experience would know that it was not produced by putting a microphone a few inches from a glass while pouring liquid into it.

In fact, the musical glass-filling was produced by one of the country's top specialists in special sounds, Suzanne Ciani, founder of Ciani Musica, New York, independent creator of sound for radio and television ads.

Ciani has a long string of other creative sound tracks for large advertisers to her credit. One of them, a recently released television commercial for Pabst beer, is a spoof of sexy-action-detective tales. The hero, who bowls over women with his charm and men (the evil ones) with his gun/fists/secret explosives, etc., is being chased through a swamp in a speedboat. The motor has a larger-than-life throb that gets an exaggerated Doppler effect as the boat passes, amusing as well as powerful.

There is a bridge ahead: the hero pushes a button on the dashboard (weird electronic sound) and the boat flies up in the air and over the bridge ("big fat musical sound, lots of bass and reverb" that swoops up in pitch as the boat goes up, then stops, with reverb alone falling by itself as the boat comes down). The viewer feels something like a roller-coaster effect: stomachs go up and down with the boat, the sound is again exaggerated, amusing.

The pursuing boat, with the "bad" gang, crashes into the bridge. Ciani goes all-out to make the crash catastrophic in sound. There is an explosion, then a big melange of sound splatters up in pitch and settles in bits and pieces downward as the fragments of the boat slowly fall into the water.

The final scene: the hero comes ashore for his reward, a draft of Pabst beer. A slinky woman slides up, saying, "But how did you know I would be *here*, you wonderful man?" "Because you are a double agent," he snaps back, pushing another button. A chair shoots up, lifting her out of the scene to the accompaniment of white noise shooting up in pitch.

Ciani has a remarkable background of training for her work. She is a graduate of Wellesley in music composition, with a Masters in music from the University of

California at Berkeley. She also studied electronic music at Stanford and at Bell Labs, worked at the Mills College tape music center, and worked with Don Buchla, designer of music synthesizers. Her interest in electronic music has been strong from the beginning. She worked with the composer Giancarlo Menotti in a revision of his children's opera, "Help, Help, the Globelinks!" Ciani invented sound effects for the dwarf-like Globelinks and even a language, put onto tape and used in presentations of the opera.

Her equipment is among the most comprehensive in any single sound studio operation operated by one person. She has several music synthesizers, including the Buchla, the Rolland MCA, the Prophet V, and the Steiner-Parker, as well as special effects units from Eventide (the Harmonizer), Marshall (the Time Modulator), and Ursa Major (the Space Station). There is also an MXR equalizer, a dbx noise reducer, and a Bode Vocoder (for voice effects).

How did she put her studio to work for the sound effects in the two ads described? Without going into full details, brief summaries of the technique in a couple of the sounds will suggest the kinds of things that the special effects devices can do. The fizz for the Coca-Cola sound was white noise, frequency modulated for a sharper effect and for rising pitch. The rising musical tone came from a sub-audio wave form with lots of harmonics, being swept by its control voltage. A highpass filter let through the audio harmonics for a pleasing musical effect of the right "lightness."

The sound of the boat flying over the bridge in the Pabst ad used the Prophet V synthesizer with a large chord sweeping up in pitch, again voltage-controlled. A triangular waveform was added to give the sound more sharpness. The whole sound went through an Eventide Harmonizer to have three more lower-pitched tones added, and then through the Marshall Time Modulator to get a "sweeping edge."

Similar combinations of instruments were used for the other sounds in the two ads. This extreme complexity reflects Ciani's musical training, which impels her to make elaborate combinations to get the exact sound she wants. Naturally a production studio of the completeness she has assembled is not appropriate for most radio broadcast use. Ciani's advice to the producer of radio material is

Special Effects In Sound

to get *one* of the new special effects devices, plus an equalizer that can be patched in.

She makes the point that the user must put the system through a series of trials at some length to learn just what it does, how all the various effects actually *sound*. Then the user's taste and imagination will lead to the right applications: the user must be familiar enough with each sound to decide if that particular sound is really the desired one. By trying the capabilities of the device in every available setting of the controls, the user gets this essential familiarity.

In the most general terms, some of the main effects the user will have with many modern delay devices include the following:

Flanging. Combining a program with delayed repeats of itself, for an enormous variety of "swimming," "vibrance," "spacy" effects (see further discussion of flanging in Stephen St. Croix's comments, below).

Echo. Longer-spaced repeats become echo; double or triple echoes can provide many kinds of space effects; very long echoes suggest outer space. Echoes, too, come in many varieties, including "slap," "cloud," and others.

Vibrato. A single instrument or group can get more "life" with vibrato, just as the string player adds aliveness by using a finger on the string for vibrato.

Automatic double tracking. This adds a repeat of a sound right behind it, for "fattening" (see also Stephen St. Croix's comments on this).

Arpeggio. Anyone who reads music will know exactly what this does — chords are spread out in time, one note after another. But new variations are available: the arpeggio, for example, can be fed back on itself for a musical effect of tremendous vitality.

Doppler. The train-at-the-crossing effect, everybody's example of a psychoacoustic phenomenon, can be straight or, again, altered in many ways.

Stephen St. Croix of Marshall Electronics, whose Time Modulator is already in use at several hundred radio sta-

tions, furnished *BM/E* with some additional guidelines for the use of special effects, along with valuable and fascinating explanations of the psychoacoustic reactions that make the various sounds interesting and attractive. The following is a summary of his discussion.

Flanging, the original "special effect" and still the most heavily used, comes in innumerable varieties today and holds its prime place in the special effects "battery" because of this variety and because of its basic psychoacoustic power. Flanging can produce, among many other things, an illusion of pitch change without an actual change of pitch: the program material retains its identity, but extremely interesting variations can be introduced. Special effects are, in general, interesting if they give the brain something to do, to pay attention to. The wandering or rising or falling pitch, on top of the steady basic pitch, can be extremely interesting. Many virtually indescribable effects are available in flanging, with sounds that "shimmer" or "shake" or vibrate, all without losing the identity of the original material.

Another psychoacoustic virtue in delay effects is that many of the disruptions produced are quite similar to the disruptions the external ear produces in sounds that are moving past the hearer. This gives a feeling of motion that, again, is extremely interesting to the psychoacoustic system in the brain. The more complex these effects (without losing a "home base"), the more intriguing. The Time Modulator supplies complexity by having two separate delay lines that can be locked together.

The provision of a close "follower" for each sound in the original material — automatic double tracking — is very widely used today for "fattening" a voice or musical passage. But an *exact* follower, one that simply repeats the leading sound precisely a very short time later, turns out to be far less interesting, less "natural," than a follower that has a certain amount of variation, of "error." If the doubling sound goes a bit sharp and flat in a more or less random pattern, it sounds much more "real" than a perfect doubler, and the original sound gets the bigger, "fatter" quality sought. Many pop singers today using automatic double tracking have chosen the "natural" effect of the follower that does not follow precisely. The general verdict is that the listener can't tell it's not "real."

The Time Modulator can produce metallic or otherwise strange voices and was used for the voice of Darth Vader in *Star Wars* and for the outer-space voices in *Alien*. The trick is to alter the voice quality drastically without losing intelligibility. The Time Modulator does this by removing all the vowel sounds (the "voiced" sounds) but keeping the fricatives (the consonant sounds) in the original. The spaces in time occupied by the vowels are preserved and can be filled with the voice sounds after they have been radically processed in the delay line. For example, all ups and downs in pitch of the vowel sounds can be removed for a "dead tone" effect; in addition, the frequency response can be drastically skewed for a thin or hard or squeaky sound, or whatever else is wanted.

One of St. Croix's important general comments was that a special effects device must have extremely low noise and distortion of its own and cover the total audio range to preserve the full character of the various sounds. Many of the flanging sounds, for example, have extremely complex harmonic structure, including components at the limit of the range. Any failure to reproduce this harmonic structure with total fidelity will dilute the effect, reducing its power and interest. **BM/E**

Suzanne Ciani, virtuosa of electronic music, sounds, and effect



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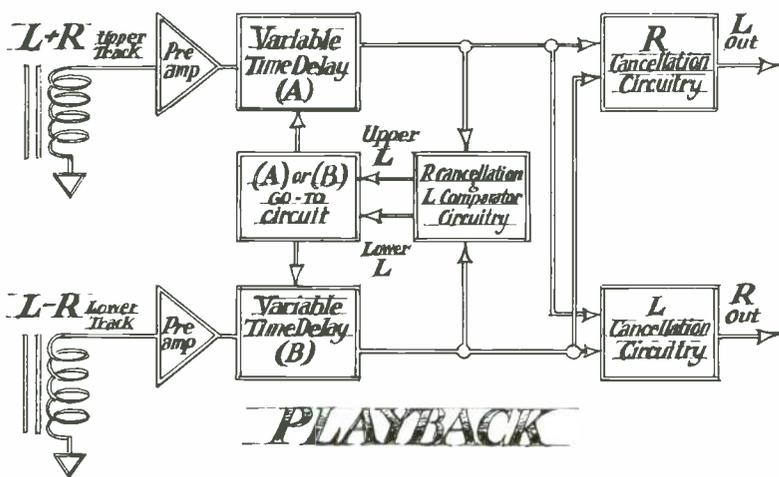
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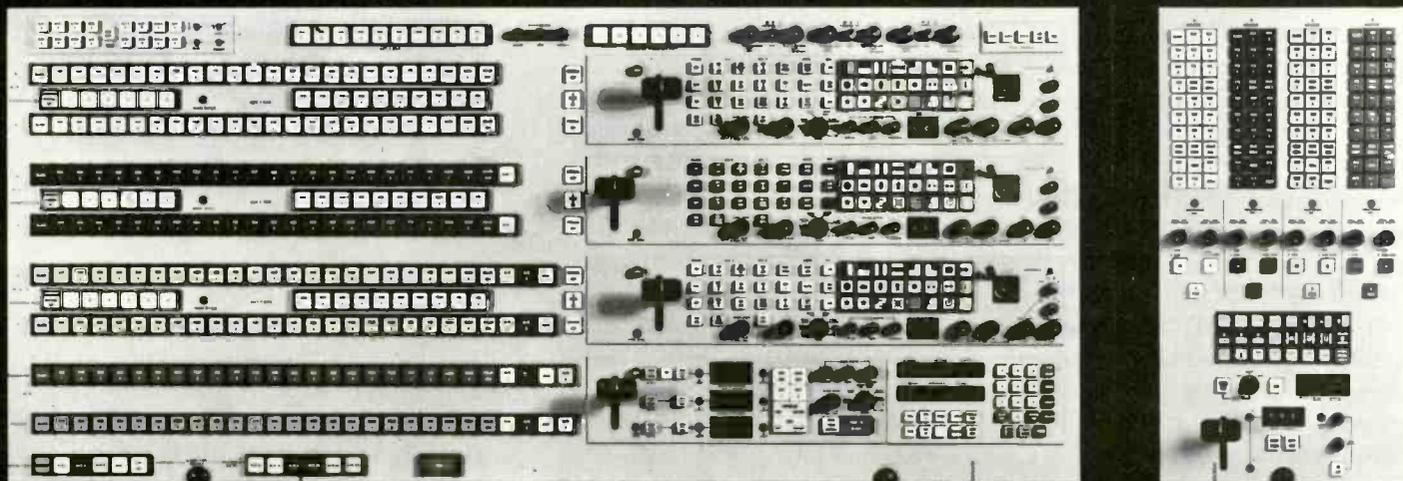
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**POST
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VIDEO WEST POSTING A BANNER YEAR

In the April, 1979 issue of *BM/E*, Al Henderson, general manager of KSL Video (a production company set up by KSL-TV, Salt Lake City) reported a trend-setting, profit-making first year of operations. A year later, Henderson's operation, now called Video West, is stronger than ever. A change in name accompanied greater independence and Video West emerged from KSL as an autonomous production enterprise.

IN 1977, KSL TELEVISION, Salt Lake City's CBS affiliate, felt the need to form a semi-independent video production company to take the load off its overburdened production department. KSL-TV is a division of Bonneville International Corporation, a nationwide organization with broadcast properties in New York (WRFM), Los Angeles (KBIG), Chicago (WCLR), San Francisco (KOIT), Dallas (KAFM/KAAM), Seattle (KSEA/KIRO), Kansas City (KMBR/KMBZ), and Avalon, Calif. (KBRT). Bonneville also controls Bonneville Broadcast Consultants of New Jersey, Bonneville Data Systems and Bonneville Productions, both of Salt Lake City, Bonneville Entertainment Industries, Encino, Calif., Bonneville News Bureau, Washington, D.C., Radio Data Systems, Salt Lake City, and Torbet Radio, New York.

With a corporate stable as large as this, Henderson sought to gain an autonomy which he felt was impossible under the old identity. A production company, while benefitting from the expertise and talent of a broadcasting parent, is altogether a different kind of business. For one thing, a broadcasting company makes money by selling time, while a production company sells a product, be it a 30-second commercial or an hour-long show. For another thing, the return on investment for a production company is initially lower than that of a broadcasting company, especially at the outset.

KSL Video had already established a local reputation as a top-flight, full-service video production company with location, studio, and post-production capability. It now needed a name and symbol of its own to allow it to expand into the kinds of endeavors Henderson envisioned for the

company during the '80s and '90s.

Video West now enjoys that autonomy. It bills its own clients independently of the KSL-TV accounting department. The staff is not controlled by its big brother station, though both occasionally share personnel on certain projects through special requests. It also employs a full-time advertising company to oversee all marketing and promotional activities. Video West most recently began a personal direct mail campaign to the nation's top 100 producers, enticing them to bring their projects to Salt Lake City. In addition, the American Society of Training and Development Western Regional executives are being invited to organize and train their employees using video technology (supplied, of course, by Video West).

The philosophy has not changed since Video West began operations two and a half years ago. "We wish," says Henderson, "to maintain a small staff of competent, creative people. Our aim is to provide personal service so that any producer will feel that he or she is a part of our company for as long as our working relationship continues. At the same time, Video West is part of a larger, very conservative business philosophy. For that reason, we must grow into the equipment we purchase. We cannot just buy on a whim."

New hardware and time-sharing

Video West has expanded considerably since last year. Its studio production capability is housed in a 25- by 35-foot stage and is actually a part of KSL-TV. Through a time-sharing arrangement Video West has access to the studio 12 hours each day on an exclusive basis. At the

Video West Posting A Banner Year

heart of the setup are two brand-new RCA TK-47 cameras with servo zooms. They are fed into two Ampex VPR-2 one-inch VTRs and one AVR-2 two-inch quad deck through a Duca-Richardson 4000 H switcher. Each VPR-2 is equipped with its own Ampex digital TBC. One of the newest acquisitions is Quantel's DPE 5000 digital effects generator. Graphics are generated by a Fernseh-TeleMation Compositor 1 with a library of over 50 fonts. Video West has just installed Fernseh-TeleMation's new Graphics Compose system, which will give the producer a limitless range of on-screen graphic choices at the push of a button.

Vans keep production rolling

The philosophy of service goes on the road, if need be, in a Chevy four by four van with complete "film-style" design. This includes an RCA TK-76B camera with a 15:1 Angenieux zoom, CCU, and color monitoring capability that feeds into an Ampex VPR-20 one-inch portable VTR. The van is also equipped with a portable time code generator. A second, much larger Kary Van transports the tremendous amount of audio and lighting gear needed when Video West goes on the road. The idea behind the Video West van is that all equipment is undedicated — that is, each unit can be pulled out and packed in an airline-proof case ready to be shipped wherever and whenever it might be needed for additional location production.



Video West's new post-production facilities include digital video effects through the Quantel DPE-5000 and DRC-4000



The editing suite features the CMX-340X as well as a comfortable viewing area for clients

Video West location crew poses with their new helicopter at remote site



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Video West's new "heli-video" unit takes on Ampex one-inch portable VTR and TK-76B camera . . .



. . . as the crew begins its take-off



. . . for the short hop to locations



. . . in and around the magnificent desert areas

At Video West, the philosophy of service extends into the lavish editing suite. The room is an alliance of technological wonders and interior design talent. Besides a CMX-340X editing console, a Duca-Richardson 4000 E Series switcher, and Conrac monitoring, the room contains comfortable furnishings, modern art, and subdued lighting, all designed to promote creativity by eliminating the distractions that often intimidate producers. Henderson is proud of the ambiance. "Special care has been taken," he says, "to make a creative atmosphere for the client who can come in, sit down and understand what's going on without being overpowered by the equipment."

Adjacent to the editing suite beyond a sound-lock door, four Ampex VPR-2s are controlled by the talented hands of the CMX operator, who is oblivious to the noise though he is scarcely 20 feet away.

"Heli-video": production takes off

When Video West chose the sun and mountain motif as a logo, there was little indication of how appropriate the image would be to the scheme of things by early 1980, when helicopter video, dubbed "heli-video" by Henderson, arrived on the scene.

Utah sits in the middle of some of the most varied scenery in the country. Naturally, Video West took advantage of this spectacular beauty and variety with a practical means of capturing it on tape. Enter the helicopter. When John Ford ushered caravans of technicians and actors into Monument Valley during the '30s and '40s, the trip from Los Angeles took several days through blistering deserts. The trek is now a short hop by helicopter.

Video West's heli-video unit utilizes a five-bladed Hughes 500 D chopper, an RCA TK-76B camera with

15:1 Angenieux zoom lens, an Ampex VPR-20 one-inch VTR, and a veteran pilot named Jack Rhodes. The extra blades add stability to difficult shooting assignments; the camera and VTR offer lightweight portability; and the pilot has the expertise needed for the kinds of aerobatics producers like to see. Of course, with a nearly unlimited range, the Hughes helicopter can travel to sites such as Utah's ski resorts, the salt flats, various cities and ghost towns, and deserts which were once considered too remote to reach by ordinary means.

Indeed, Video West is not limited to the state of Utah. With non-dedicated equipment, Video West is able to transport itself to whatever locale necessary to get the job done.

A successful year

During the first quarter of '1980, Video West has experienced a remarkable success rate: it tripled the amount of business done during the same period last year. In 1979, the company worked for Martin Carr (ABC *20/20* producer), George Crain & Associates (CBS *Sports Spectacular*), and the Mizlou Television Network. Success breeds expansion and Video West has added a new producer-director, a recordist-technician, and a production assistant, bringing the staff to 12 people. The CMX editing suite now is used 10 to 15 hours a day. "If this continues," says Henderson, "we'll have to look long and hard at another CMX editing suite within a year."

The future holds new promise

With 60 percent of its business now falling into the noncommercial category, Video West has come to grips

with a new profitability. Henderson explains, "The explosion of non-broadcast programming opens up a whole world of production opportunities that are simply staggering. We can realize a greater margin of profit in producing say, an hour-long program for cable than we ever could in making 30-second commercials. We are still dedicated, however, to working with our advertising and agency clientele."

Henderson places a tremendous amount of stock in his company's ability to produce programming for all forms of non-broadcast distribution: event coverage for cable, training and how-to programs for disc and tape, and corporate communications for individual clients.

Video West is looking up these days. Bonneville International has just purchased its own satellite transponder, and Henderson says, "With an uplink here in Salt Lake City, we merely have to arrange the transmission time." The outcome? "We can finish editing a program on Friday and be watching it on national cablecast that same night."

It is the organizational philosophy nurtured over the past two and half years, however, that will make this dream come true. Video West is already well underway in the design and construction of mobile systems utilizing undedicated equipment. Henderson envisions a fleet of mobile vans with completely modular setups, designed to integrate with equipment from any other unit.

What does the already crowded future hold? Henderson is optimistic: "We are preparing to select a western city as the location for an affiliate production office. We also anticipate being able to fully utilize all the possibilities of the new digital audio and video technologies. It all makes the future very exciting."

BM/E

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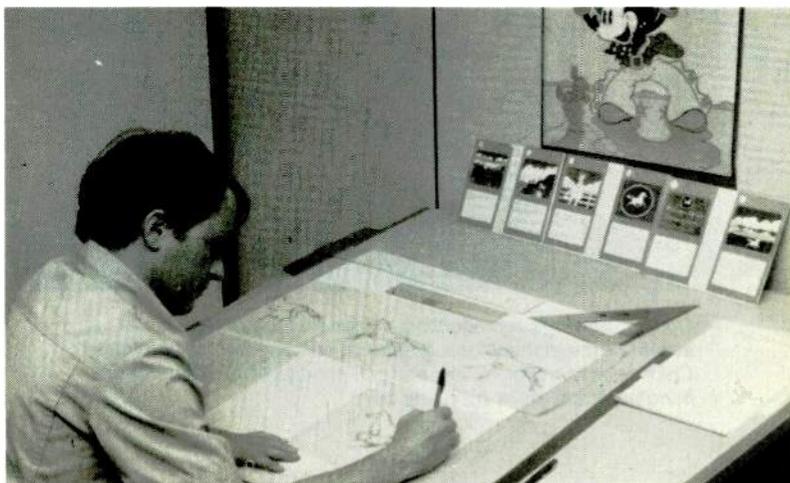
Computer Creations, one of several companies that offer broadcasters that extra snap for their commercial productions, shows how a computer animated sequence is put together. With animation in three planes, a new dimension is added to spots for class, style, and clarity.

IN SOUTH BEND, IND., Computer Creations offers its videoCel® animation to a variety of clients. According to Corya Kennedy, manager, sales and marketing, the latest group of clients are local television stations that have entered into commercial production competition. Since even the most remote retail advertiser watches network television with its national commercials and local television with its national spot sales, he is constantly exposed to the best commercial artistry. Often, he envisions his own product or service ensconced in the same rich milieu of visual images.

Toward this end, numerous stations (detailed in preceding stories) have introduced the latest in production and post-production technology to their marketplaces. Nevertheless, computer animation often remains beyond a station's practical capacity. It is not called for often enough to justify the enormous outlay of capital for the computer hardware and software, nor are the specialized talents of computer artists generally available. As such, computer animation remains largely a service business, but broadcasters are learning how to take advantage of it.

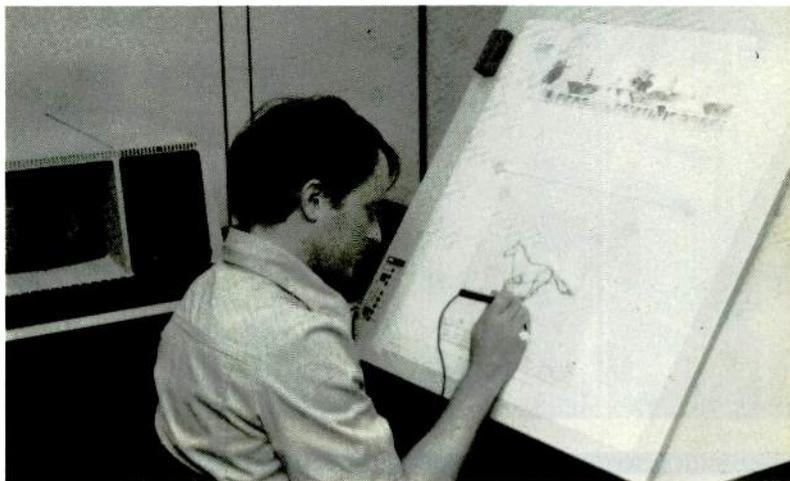
The process begins when a local broadcaster provides a storyboard to Computer Creations or one of the several other companies offering such services. The company provides a bid for the work required; on acceptance of that bid, the art directors and producers begin an exchange of information that works out the specifics of the project.

When the tag or spot is completed, it is returned to the client station on two-inch quad videotape. The station edits it onto, or integrates it with, the finished commercial. Station clients who have used Computer Creations include, among others, WMAQ-TV, Chicago, WNIT-TV, Elkhart, Ind., WFFT-TV, Fort Wayne, Ind. BM/E

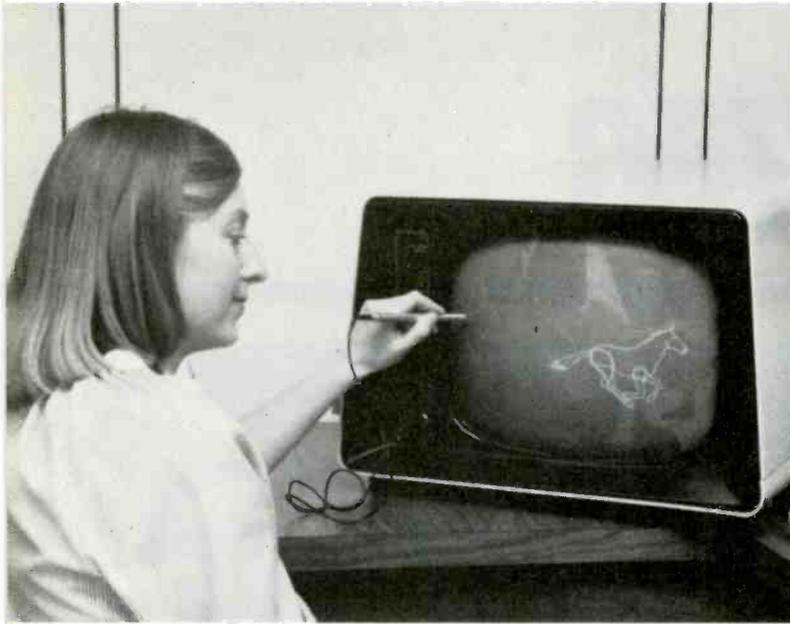


At Computer Creations, videoCel animation is produced by a multi-step process. After studying the storyboard submitted by the client, Shaun Reynolds, art director at CC, analyzes the visual requirements. If there is an accompanying soundtrack, the animation is designed to synchronize with it at this time. A preproduction meeting, either in person or over the telephone, determines precise details and production values

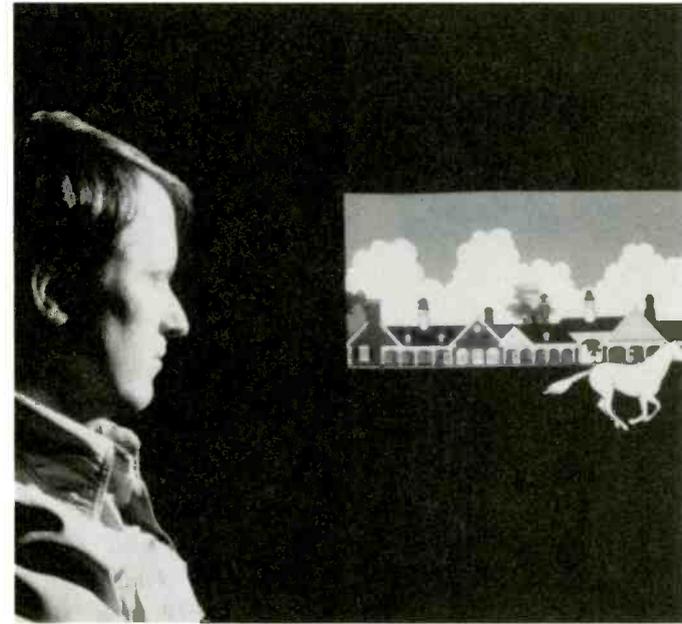
The artist then proceeds from the drawing board to the laboratory. Here Reynolds enters simple black and white line art into the computer via the electronic easel. The digitizer allows for a complex picture, sometimes utilizing as many as 10,000 points of data



The Video Tag



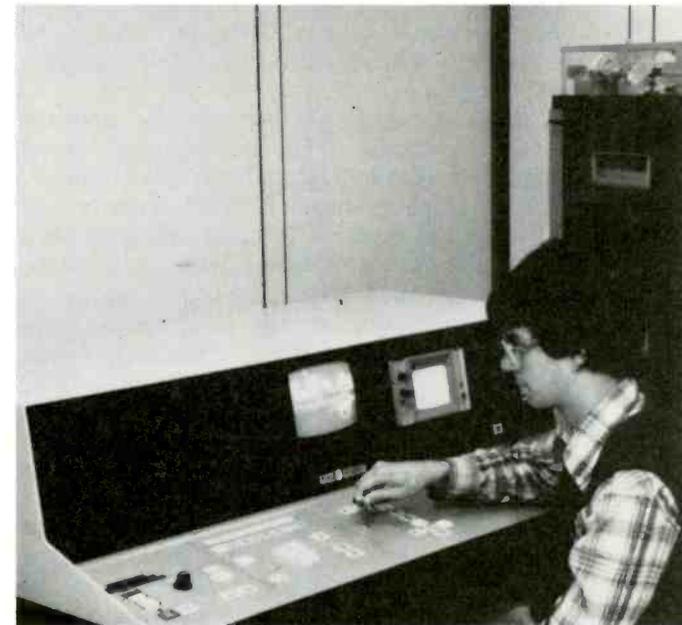
Outline drawings representing planes the computer uses to assemble the pictures now appear on vector graphics terminals. Color selection, registration, and composition of the elements are handled at this point by Kathy Levy



Now the artist can see the work drawn in full color. Each frame can be called up individually so that color, location, and composition can be adjusted. Reynolds checks key frames on an animated segment

When this step is completed, the computer receives animation instructions from the artist. Robert Beech, associate producer, tells the computer what to do with the individual pieces, how fast they will move from one point to another on the screen, etc. The computer will keep track of colors, remembering where each plane belongs, regardless of its position on the screen

The production process is now in the final stages. The computer draws each picture necessary, one at a time. A slow mo disc collects and strings the frames together. Transfer to two-inch videotape completes the process. The animation can now be edited with existing live footage for broadcast



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MYTHS OF THE 90 DEGREE NETWORK

By Grant Bingeman

Many engineers attribute characteristics to the 90 degree network that it doesn't deserve. Many of the objectives sought can be better achieved with a different approach.

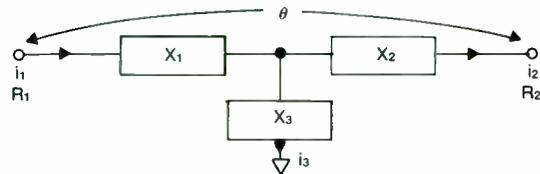
APPARENTLY SOME PEOPLE FEEL that the 90 degree network has magical properties. I think they would be hard-pressed to come up with an actual case where this is true. For example, in all cases an L network has better impedance bandwidth and better group-delay ($d\theta/dw$) than a tee network: intuitively this would seem so, since there is one less reactive component in an L network.

Figure 1 shows the ± 10 kHz sideband VSWR seen looking into a tee or pi network as a function of carrier phase shift across the network. VSWR is 1.0 at carrier (540 kHz), and the load is constant.¹ Figure 2 shows the optimal or L network phase shift as a function of transformation ratio. Figure 3 shows the 540 ± 10 kHz phase

shift (Equation 1) across various networks, assuming R_2 is constant. It can be seen that networks having phase shifts other than 90 degrees produce slightly better results.

Equation 1:

$$\theta = \tan^{-1} \left[\frac{X_2 X_3 + X_1 (X_2 + X_3)}{-R_2 (X_1 + X_3)} \right]$$



at carrier: $X_3 = \sqrt{R_1 R_2} / \sin\theta$ (Equation 2)

$X_1 = R_1 / \tan\theta - X_3$ (Equation 3)

$X_2 = R_2 / \tan\theta - X_3$ (Equation 4)

$i_3^2 = i_1^2 + i_2^2 - 2i_1 i_2 \cos\theta$ (Equation 5)

Before I travel too far on this path, let me say that the 90 degree network is indeed useful in some cases as a mini-

¹Bear in mind that a constant load rarely exists in a real antenna system; performance will therefore differ in the real world (see "Optimizing Impedance and Pattern Bandwidths of a Phased Array" in the February, 1980, *BM/E*).

²"Toward Independent Phase and Power Control in Medium Wave Directional Arrays," Dane Jubera, 1980 IEEE Transactions on Broadcasting.

Grant Bingeman is with the Broadcast Products Dept., Collins Transmission Systems Div., of Rockwell International.

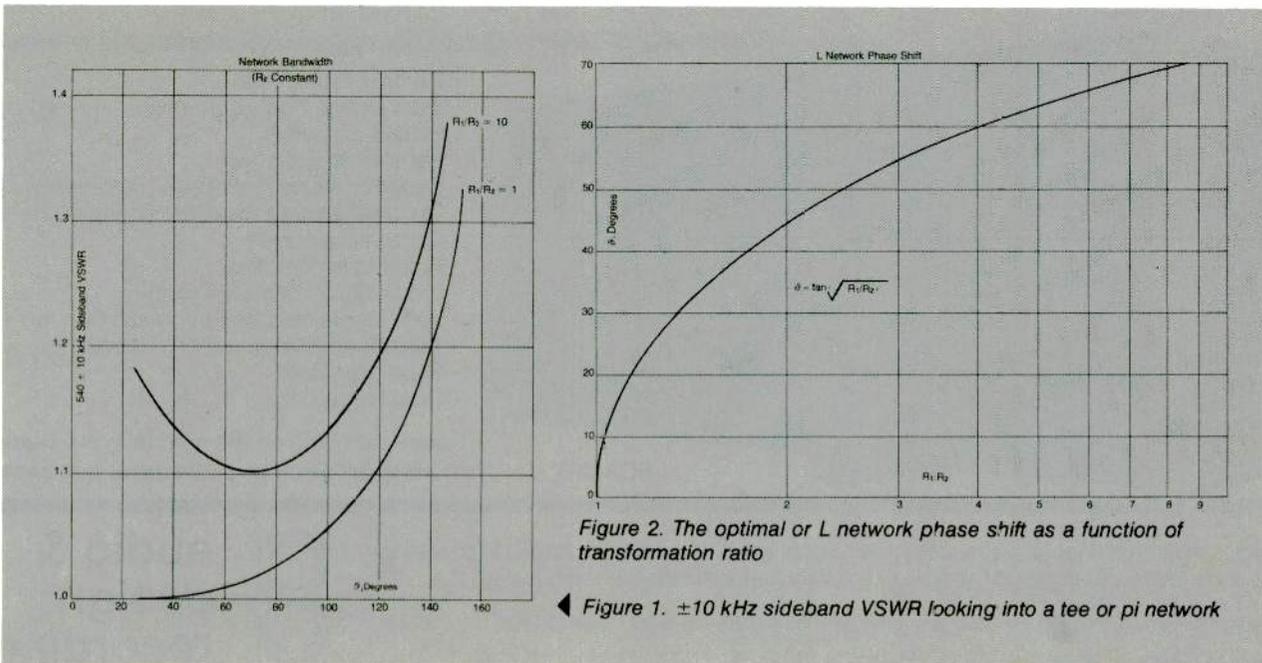


Figure 2. The optimal or L network phase shift as a function of transformation ratio

Figure 1. ± 10 kHz sideband VSWR looking into a tee or pi network

Myths Of The 90 Degree Network

kHz	Z1(Ω)	VSWR	R2(Ω)	θ	dθ
540	50.0 + j0.0	1.00	50	-90.0°	0.0°
530	51.8 + j0.1	1.04	50	-88.0°	+2.0°
550	48.1 - j0.1	1.04	50	-92.2°	-2.2°
540	50.0 + j0.0	1.00	50	-60.0°	0.0°
530	50.4 + j0.3	1.01	50	-58.9°	+1.1°
550	49.5 - j0.3	1.01	50	-61.1°	-1.1°
540	50.0 + j0.0	1.00	500	-90.0°	0.0°
530	51.9 - j5.3	1.12	500	-83.5°	+6.5°
550	48.2 + j5.2	1.12	500	-96.9°	-6.9°
540	50.0 + j0.0	1.00	500	-71.6°	0.0°
530	51.7 - j5.0	1.11	500	-65.8°	+5.9°
550	48.4 + j5.0	1.11	500	-77.8°	-6.2°

Table 1. The 540 ±10 kHz phase shift across various networks

mum-impedance-change phase-shifter when the input and output legs are ganged. In any sensitivity or adjustability analysis of components in a phased array, however, incorrect conclusions may be drawn if a constant load is assumed, even at carrier, since the tower operating base impedances change every time you turn a knob. A complete model of the mutual impedances, self impedances, and base currents is therefore necessary². Using such a model, it may then be found that a ganged 90 degree phase shifter is not superior enough to warrant its greater cost in some cases.

On another front, there is little basis for the rumor that a

90 degree antenna coupling unit will stabilize impedance changes in a tower. When base impedance drifts, VSWR changes. If VSWR is not 1.0, impedance is a function of network phase shift. However, carrier VSWR is not a function of network phase shift. VSWR change is a better yardstick for stability than impedance change, since one VSWR value can represent an infinite number of impedances. Perhaps the stability rumor arose from the fact that sideband VSWR (not carrier VSWR) is dependent on network phase shift.

Suppose a tower's base impedance changes from 25 + j0 (VSWR = 1.0) to 20 - j5 (VSWR = 1.37) as a result of an ice storm. Not knowing anything about the ACU except that it was previously matched, what will the carrier VSWR be on the transmission line feeding the ACU when the base measures 20 - j5? The answer is 1.37, of course. The load stability is not dependent on the network.

Perhaps some of the preference shown for the 90 degree networks stems from its simplified design equations. Referring to Equations 2, 3, and 4, it can be seen that $X_1 = X_2 = -X_3 = -\sqrt{R_1 R_2}$ when $\theta = -90$ degrees. But with today's calculations, computational tedium is a thing of the past, no longer a valid excuse.

A more cost-effective and higher-performance phaser design can be had if the 90 degree constraint is ignored. This will allow use of the optimization method described in the February, 1980 issue of *BM/E*, "Optimizing Impedance and Pattern Bandwidths of a Phased Array." One may also then take advantage of the lower current and voltage in the middle leg of networks having lower phase shifts (Equation 5). BM/E

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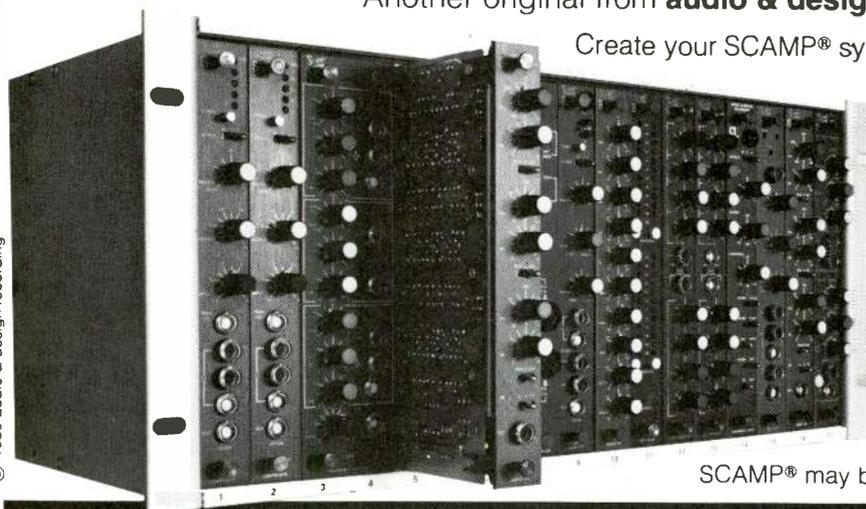
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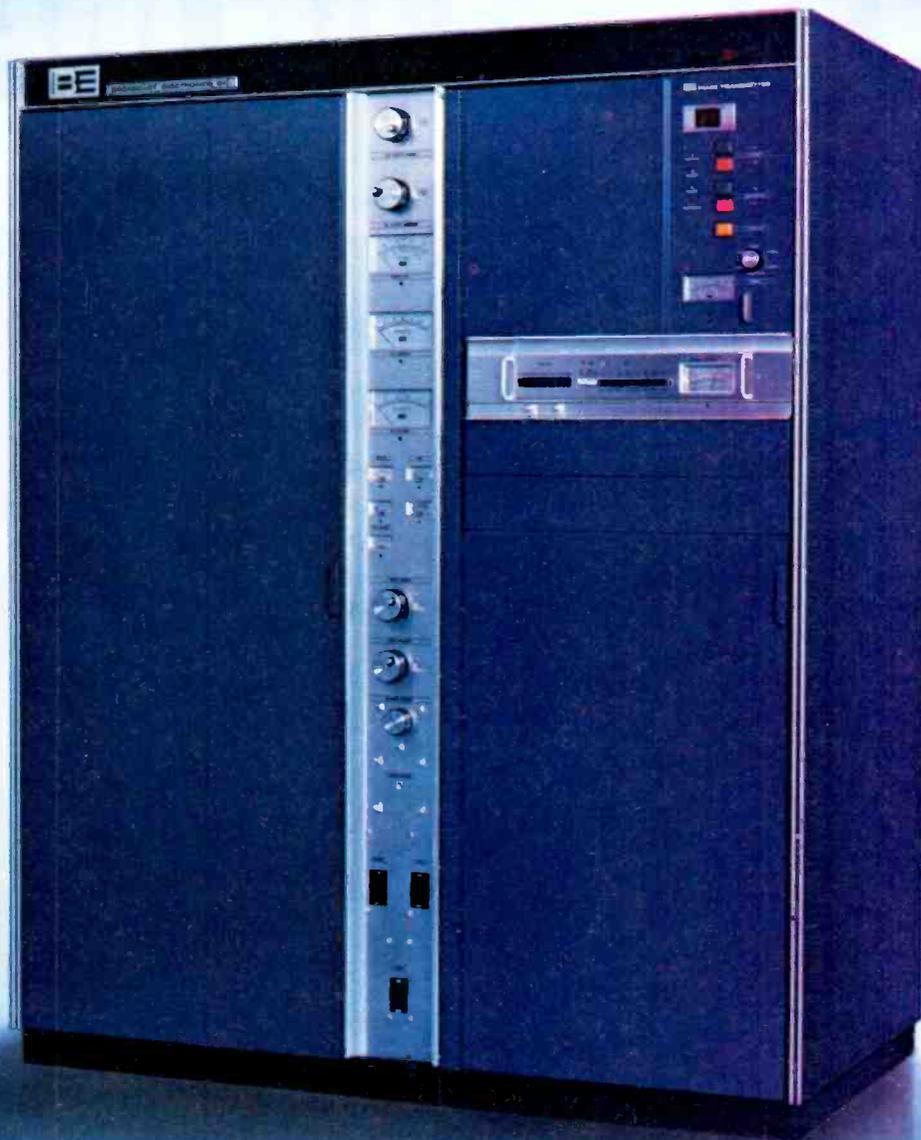
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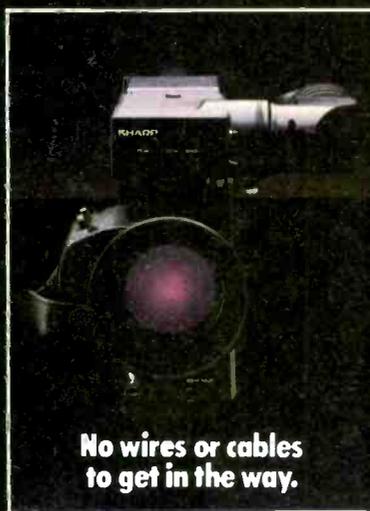
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BUSINESS AUTOMATION: ANYWAY YOU WANT IT AT NAB

As we noted at last year's NAB in Dallas, there has been an explosion in the number of companies offering business automation systems and most of this activity has been in the in-house systems appropriate to small and medium-market stations, especially radio. This trend continued in Las Vegas.

New to this year's NAB were Broadcast Management Concepts, Computer Concepts, Generic, Marketron, Matrix, Register Data Systems, and Patrick Computer Systems. Marketron is of course well-known to broadcasters and 1980 merely marked its return to NAB. Another new business system, Nidus Broadcast Systems, made its stand in a suite at the Las Vegas Hilton.

Returning to NAB this year were Automation Electronics, Inc. (Autotron), Chase Media, Custom Business Systems, Computer Management Systems, Data Communications Corp. (BIAS), Groton Computer, Jefferson Data Systems, Kaman Sciences (BCS), and Station Business Systems. From the returning companies much of what was new was in the way of additional management programs and services. Most notably, Station Business Systems and Jefferson Data presented their new full-blown news computer systems (see story elsewhere this issue). Other companies took approaches similar to Kaman Sciences' approach, which was to add programs appropriate to news operations to the existing business programs.

Radio and TV: new companies & services

Station Business Systems has come through with the "great promise of the computer age" — a cost reduction! According to Lee Facto, VP of technical support, "the price of the smallest SBS system has been cut by \$5000 and the price of the largest system reduced by \$20,000." This is due to what Facto described as a "consolidation" of hardware and software costs made possible by the expansion of the number of SBS installations to 175.

SBS has also added new management programs to its TV and radio systems, a film and program package inventory for TV, and a cart and music program inventory system for radio. The music program offers playlist management. SBS has also made its election system available through 3M and will offer it for integration with just about any character generator system on a 90-day rental basis.

Data Communications Corp.'s BIAS system has spun off a wholly new sales/management system available to BIAS and non-BIAS client stations alike. The new system, called Buy Line, is intended to provide stations with a complete marketing tool that customizes professionally formatted avails submissions.

Utilizing DCC host computers on-line in Memphis, Tenn., Neilsen and Arbitron data are accessed for the station's market and used to generate a number of the station's sales planning reports. The Master Planner provides a complete listing of the station's programming broken out into time parameters and contains all demographic and sales information relevant to each commercial slot, or SSU (station sales unit).

Information extracted from the Master Planner is used to generate a Sales Planner, which focuses in on a specific piece of business concerning a definite client, product, SSU, etc. Using this information, a tailored avails submission can be prepared for a specific client. The booking of the sale is entered into the system and all affected parameters are adjusted.

In addition to its NEWS system, which Kaman Sciences'

BCS system added last year, enhancements have been added to its DEMOS and KARTS programs for providing demographic sales information and cart inventory. In addition, BCS has added FILMS, a film library management system. FILMS allows the television station to automate its film contract maintenance, performs amortization functions, tracks accounts payable, provides a complete programming profile of the films concerned, and provides management reports to help in forecasting market changes affecting contract negotiations and inventory weaknesses.

Kaman Sciences is also offering its BCS-1100 TV system in a 1164 configuration providing 64K of memory. With some 57 stations now participating with BCS systems, Kaman Sciences elected to sell its interests in the Phoenix-based Valley National Bank and "jump into broadcasting with both feet," said a company spokesman.

While the big news at Jefferson Data was its ENP news system, to get a pilot run at WBTV, Charlotte, the business system continues to evolve. The major decision, reached last year, to conform the Jeff Data software to standard IBM hardware, has been well received by client stations, according to the company. Using the IBM System/34 has provided Jeff Data clients with IBM hardware support.

Chase Media, with 21 station installations, is now offering complete word processing in addition to its traffic and billing programs. A wide range of management, sales, and logging functions are offered. Now, utilizing the Beehive terminal (about \$2200), Chase Media provides complete word processing for preparation of reports and business letters and interface with wire services. The Chase system with floppy disc is priced at \$35,000, and with a 20 Mbyte hard disc memory, \$40,000.

Computer Management Systems, which promotes the BMIS (Broadcast Management Information System) for radio and television stations, has added a film amortization program and a fixed assets program to its software. CMS has offered business systems since 1968 and was at NAB for its encore presentation to broadcasters this year.

Marketron, a longtime supplier of business automation systems to the broadcast industry, made a return visit to NAB after a year's absence. Highlighting its Model 1000 Television System were new sales and management reports. A sales production report compares past performance with present performance of individual sales persons on a month-by-month basis; a spot price distribution report analyzes what prices comparable spots are commanding in the market; a TV program-profitability program compares prices commanded by particular programs to program costs. Certainly the most colorful new service offered by Marketron is a printer/plotter addition to its Sales and Research system. This option, which can be obtained as an in-house system or on a one-day turnaround service utilizing Marketron's computers, provides a wide range of color graphic print outs of charts, graphs, and tables for sales presentations or internal use. Depending on options, this addition is priced between \$16,000 and \$20,000.

Patrick Computer Systems, Inc., introduced its Leprechaun™ computer business system for AM, FM, and TV stations. The "broadcast scheduler" offers inventory control, general ledger, accounts payable, time billing, program log, and other sales, management, and traffic reports. All software is supplied at no extra charge. The maintenance contract includes both hardware and software.

The Nidus system, which was viewed in a Hilton hospital-suite, is the result of inquiries by broadcasters brought to

the attention of this three-year-old firm by Herb Didier of Didier/Denver. Bill Myers of Nidus said that the inquiries led them to take a broader look at business automation beyond traffic and billing considerations. The result is a minicomputer-based system with 32 Mbyte hard disc memory, 300 line per minute printer, work processing capability, and technical automation interface design. This very large system capacity provides 50 management reports in addition to traffic and billing functions.

The system is available in both a floppy disc configuration (\$24,000) and a larger capacity hard disc configuration (\$44,000). The larger system will provide the user with up to

a 24-month look ahead capability and is the recommended format, according to Myers. The system is available on a lease/purchase basis and Nidus is responsible for hardware as well as software maintenance. If system failure should occur, Nidus will supply loaner equipment until the system is restored.

There are currently 12 clients for the Nidus system, with a Denver, Colo., station due to start up shortly. By September, the company expects to release its software update No. 5, which will include general ledger.

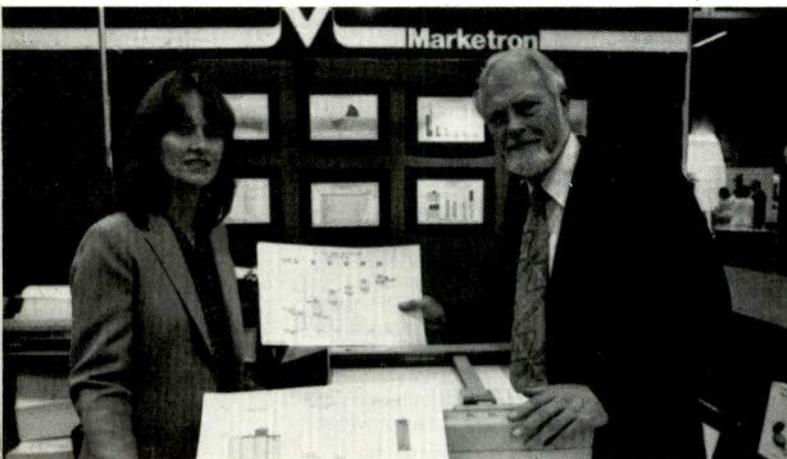
More companies offer radio systems

As was the case last year, there were a number of new entrants into the radio station business automation field, including Broadcast Management Concepts, Computer Concepts, Generic, Matrix, and Register Data Systems.

But not all the faces were new. Broadcast Management Systems is a new company born of the merger between Bloomington Broadcasting's Computer Division and long-established Automated Business Concepts. The new MAPS system is essentially the same from a hardware standpoint as ABC's system. Some of Bloomington's software approaches have been adopted for the MAPS system. MAPS offers a very complete set of management, accounting, programming, and sales reports. One of the highlights of the sales package is a special scheduling report for coop packages and program buys.

Autotron continued to express confidence in its Honeywell-based in-house computer system as a major advantage. Like most of the experienced firms, software enhancements continued to be offered in response to individual client requests and normal evolution.

Custom Business Systems, which relies on a Wang computer system for radio station automation hardware,



Marketron, returning to NAB, showed its printer-plotter system for producing charts and graphs in color

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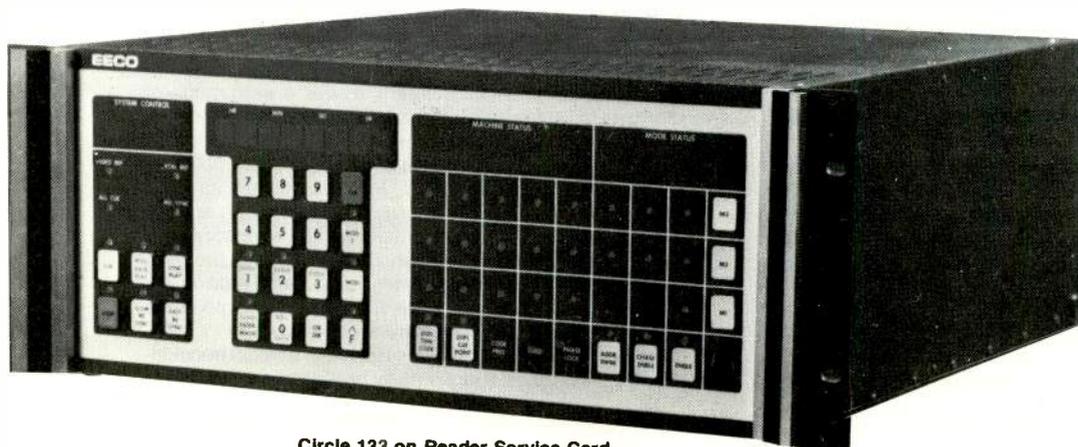
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proudly explained what it called "a new concept in business/program automation interface . . ." This new approach results from a joint development project between Custom Business Systems and IGM. The first phase of the project was demonstrated in both the IGM booth and at the Custom Business Systems exhibit. It showed the ability of the two computer-based systems to communicate.

Ultimately the IGM/CBSI project is intended to utilize IGM's Basic-A program automation system to make program and program format changes instantly reconciled with the business automation system. According to the company, current systems require the operator to enter program changes in both the program automation system and traffic systems, while this approach will allow automatic adjustment of scheduling and billing reflecting the program change.

Groton Computer, once again, presented its case for low-cost business automation. Groton's GC300 radio automation system is still the most economical on-line system offered. Groton is, of course, a business computer service that handles station business on a monthly fee basis. In addition to normal traffic and billing functions, Groton will buy back unused avals for resale to advertisers.

Among the new entrants in the NAB running were Computer Concepts, Matrix Systems, Register Data Systems, and Generic.

Computer Concepts offers traffic, receivables, payables, payroll, and general ledger on an in-house minicomputer system. The hardware is manufactured by Wang.

Another in-house system billed as low-cost was demonstrated by Matrix Systems Inc., the Matrix System Three. This system offers traffic, billing, management reports, general ledger, accounts receivable, accounts payable, and financial statements. Music research and word pro-

cessing programs are optional.

Another fairly powerful in-house system was exhibited by Register Data Systems. The RDS III offers the complete traffic, billing, and accounting program array plus an in-house mini with 64K memory. The printer is a buffered high-speed machine working out at 150 characters per second. RDS is another computer system designed and offered by a company with broadcast background. The system is base priced at \$18,845.

In the Landy Associates booth, Joel W. Rosenblum of WISR, Butler, Penn., showed his own version of radio business automation, the Generic system. This very low-cost system, priced at \$17,500, provides a minicomputer-based hardware configuration with software for logs, billing, avals, affidavits, sales reports, aging, and product separation.

With system prices declining, even the smallest station would now seem to be within reach of business automation. Since many of the larger firms offer lease/purchase options as well as direct buy-outs, and as a number of companies provide on-line systems with monthly charges tied to station revenue, business automation will help stations compete more effectively for the commercial dollars.

For more information: Data Communications BIAS, **314**; Kaman Sciences ECS, **315**; Chase Media, **316**; Computer Management Systems BMIS, **317**; Marketron Model 1000, **318**; Patrick Computer Leprechaun, **319**; Nidus system, **320**; Broadcast Management MAPS, **321**; Autotron computer system, **322**; Custom Business Systems, **323**; Groton Computer GC300, **324**; Computer Concepts mini-computer system, **325**; Matrix System Three, **326**; Register Data RDS III, **327**; Landy Generic system, **328**.

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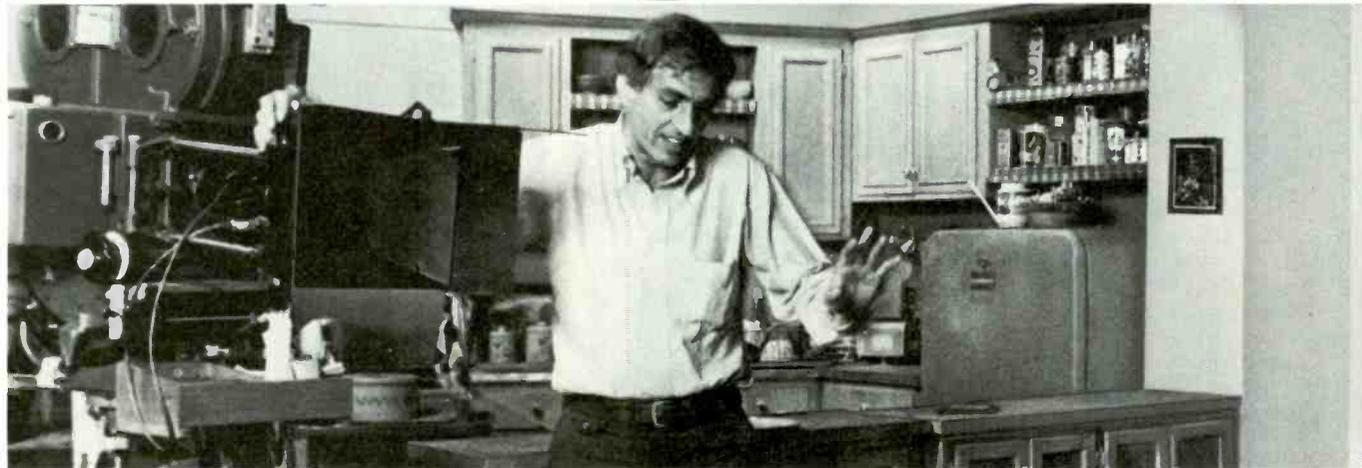
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"I use the audience as a barometer. I listen to 300 people, and I can hear whether they laugh or don't laugh; so I don't need subjective opinions about what's funny.

"The three-camera technique gives me the best chance to be funny, because I always have three cameras looking at *everything*. I don't have to pick the very best shot until later in the quietness of the editing room.

Then I can listen to the audience, see where they laughed, and pick the funniest shot. For me it works better than picking the shots electronically as you shoot.

"The three-camera technique involves lots of rehearsal. We're often rewriting up to the very last moment. I have even rewritten lines in front of the audience. I welcome contributions from anybody in my shows, because comedy can come from any place. Many of my cameramen have given me funny lines. Gate guards have contributed. The more creative the atmosphere, the better.

"I think film is kind to performers. It's *much* kinder to women; it makes women look prettier. This may be due partly to the subtler lighting and partly the nature of film. At any rate, my gang is pleased with how the film camera treats them.

"About 86 percent of prime-time television originates on film. The *look* of film may have something to do with this.

"I don't use a laugh track but even using a live audience can be bad. A number of my shows have featured cult heroes; so when a Fonzie or a

Mork makes an entrance, the audience stands up and cheers. That distracts the viewing audience from the story, so we take that out.

"Part of the appeal of series television is *comfort*. It makes people comfortable to see the same familiar faces each week, doing different kinds of things, but remaining in character. It's like having friends. If you make your series a best friend, you can put it in that wood frame, and it will last for seven years."

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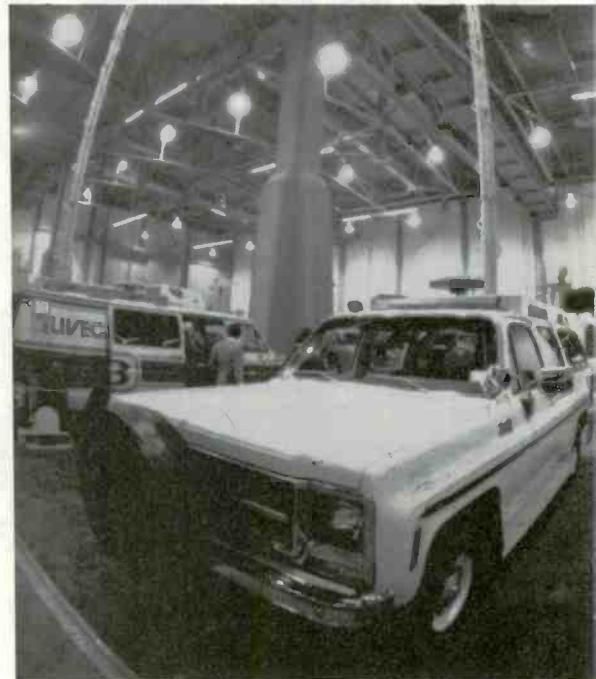
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Centro has built this four-wheel-drive ENG unit for Skaggs Communications Service of Salt Lake City



Hydraulic or mechanical antenna masts that extend 30 feet are features of E-N-G Corp.'s vehicles



Bell Helicopter's turboprop Jetranger draws attention as an ENG vehicle



Compact Video hopes to bring standardization to ENG vehicles with its 17- and 19-foot Ford trucks

VEHICLES

Standardization is not a word normally associated with broadcast vehicles, whether they be pickup trucks with flashy paint jobs or quarter of a million dollar Bell Jetrangers. Yet at this year's NAB, vehicle builders were suggesting that standard-type units could become the rule.

Compact Video Systems, certainly no stranger to vehicle design and construction, is reasonably sure that its 17-foot and 19-foot ENG vans, built on Ford 351 chassis, are just what engineering directors will be looking for. Fully carpeted, paneled, and insulated, both the 17 and 19 seat three people (four in a pinch) and carry up to two cameras with an additional video source and support equipment. The vehicles carry their own power — either a 6.5 kW generator with a 12/24 V dc backup bus and 2.5 kW hours of battery storage, a 1 kW, 30 amp bus with 5 kW hours of battery storage, or a 12/24 V, 30 amp bus with the same 5 kW hours of battery storage.

The vehicles are equipped with antenna masts — either a manually operated triangular tower that extends from 12 to 30 feet or a 30-foot pneumatic mast. They carry either 2, 2.5, or 7 GHz microwave transmitter and receiver systems supplied by Farinon Video or Microwave Associates. Included in the package are up to two portable or ¾-inch cassette VTRs, bar and sync generator, video source ID, four by one audio mixer, audio and video switchers, audio power amp, speakers, an eight-inch monitor, RF tuner, and time code reader.

Compact brought its 42-foot self-contained earth station to the show, and company staff members thoroughly enjoyed picking off transmissions from Satcom II, then switching the five-meter Scientific-Atlanta dish on the rear of the van to Westar. Reception quality was excellent.

Potential customers might think twice about popping \$500,000 for the mobile earth station, but they seem to be placing orders for the much smaller vans. Compact expects increasing international sales activity, having sold seven vehicles to Latin American countries in the last year. Interest is strong, company officials say, in the Middle East and Africa, though European vehicle builders (none of whom showed at NAB) have an appealing engineering approach that is — as a Compact rep put it — “tough to beat.” He added, however, “the American approach is faster.”

Compact introduced a 125 kW diesel generator, powered by a turbocharged International 466-cubic inch, six-cylinder engine. The unit can be installed in a truck or trailer-mounted.

Meanwhile, Centro is confident of the success of its 28-foot teleproduction vehicle, the first of which was shipped earlier this year to JES Producciones in Bogota, Colombia. During NAB, Centro engineers back in San Diego were working on a second 28-foot van, much the same as the JES truck, for Skaggs Communications in Salt Lake City. Centro, acting as a consultant between Skaggs and its architects on the new teleproduction center, is outfitting the van with four RCA TK-760 cameras and Vital switching and distribution systems. Two Ampex VPR-2 one-inch videotape recorders and two BVH 500s are being fitted in the van, scheduled for delivery last month.

The company also has a contract for two 32-foot vehicles for ABC. One will be a four-camera van, the other will be a videotape recording vehicle.

Wolf Coach displayed its Hippo, which is becoming something of an industry standard. The Grumman-bodied

Marion Wolf of Wolf Coach discusses the company's aluminum-bodied Hippo with a prospect. Wolf is moving into four-wheel-drive vehicles



aluminum bread truck design allows a lot of space for personnel. Now the Massachusetts company is developing a four-wheel-drive ENG vehicle with microwave, for which it has had several requests. WXIX, Cincinnati, will take delivery of the first one later this year.

E-N-G and Microwave Associates teamed up to show a compact GMC van built for export to Nigeria, and M/A's microwave equipment also was seen in a Bell Jetranger helicopter, which can operate in a transmit-only mode or as a repeater.

Television Engineering of St. Louis showed a nearly completed 26-foot van it is building for WTTW, Chicago. The vehicle, a modified Barth chassis powered by Chevrolet, is set up for three on-board Ikegami HL-79A cameras, with allowance for a fourth carry-on camera. Cinema Products' coax control is included, and the control board is set up for full stereo recording. The van packs two 6.5 kW generators on board, with ample storage for ¾-inch tape. The truck's main function, however, will be to send microwave video back to WTTW's Chicago studio.

A new entrant to mobile vans could be World Video. The company is putting the final touches on a deal with Bortown Auto Body Works in Pennsylvania for construction of an expansible mobile van. The van, 25 feet long by eight feet wide, accords to a 16-foot width when stationary. A decision to go ahead with Bortown Auto Body will be made later this month.

In addition to the M/A-equipped Bell helicopter, which was seen last year, ENG Helicopters teamed up with Teac and Farinon to demonstrate the efficacy of airborne ENG and microwave relay. New to the show was Airborne Video Systems' antenna deployment system, which is located on the skid cross tube. Antennas deploy below the airframe for an unobstructed signal, even during banks as steep as 30 degrees, and automatically retract should there be a power failure or the pilot forgets. In addition, the company showed a remote camera system that hangs beneath the nose bubble. Operated from inside the chopper from a monitor, the remote camera system allows a 360-degree sweep.

For more information: Compact Video 17- and 19-foot vans, **300**; Centro 28-foot van, **301**; Wolf 4-wheel-drive ENG van, **302**; Television Engineering 26-foot van, **303**; World Video expansible van, **304**; Airborne Video antenna deployment system, **305**.



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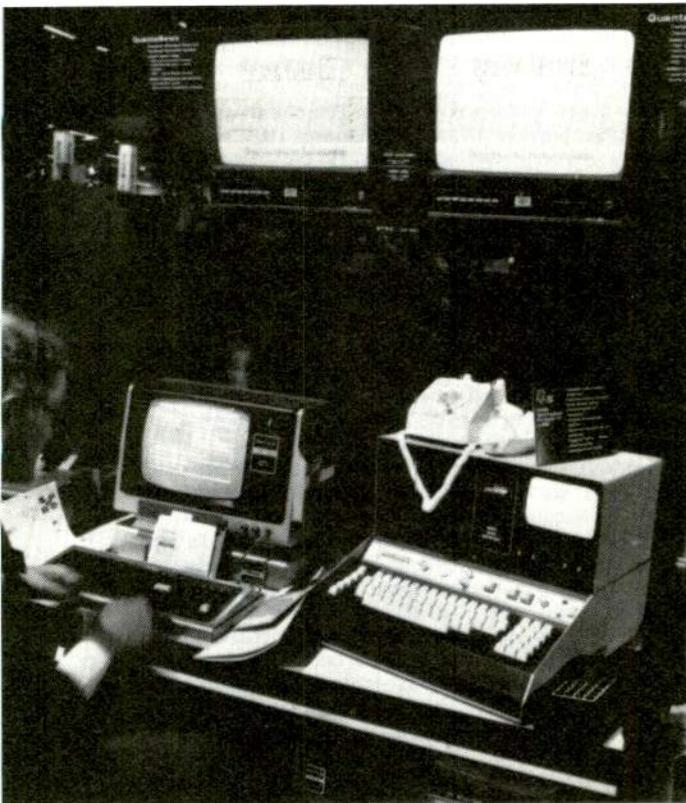
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NAB BRINGS OUT NEWSROOM COMPUTERS

By Steve Miller

For the past year or so there has been an intense interest in newsroom computers. The subject has generated panel discussions, talking papers, in-house memos, and a new industry. A number of mostly software vendors have invested significant time, energy, and money into the development of newsroom computer systems with the obvious view that there is sufficient business in the nation's newsrooms to justify the outlay.

Steve Miller is president of Steven Miller & Associates, N.Y., a consultant to broadcast news departments. Miller is also a former newsman and frequent contributor to the *RTNDA Communicator*.



QuantaNews from System Concepts will bring a computer assist to several newsroom operations

That optimism is not misplaced. Many news directors believe that a computer system in the newsroom is long overdue. They think that a news computer would allow a flexibility not currently available. The consensus is that five basic functions should be incorporated into a computer system: (1) wire copy manipulation, (2) text editing, (3) assignment desk, (4) production, and (5) archive. The first four would be vastly speeded up and the fifth is, in many newsrooms, an addition. Few stations have anything close to a decent morgue for background information or even the easy retrieval of scripts.

If everyone agrees that a computer system is needed, why the delay in startup? The problem seems to be the reluctance on the part of station managers to commit to the capital outlay on what is, in truth, an untested system. The problem will soon be eliminated. Before the end of the summer, four of the seven available systems will definitely be in working newsrooms and there is every indication that the others will follow suit.

Because the systems were still being installed at the time this article was prepared, the system descriptions are based on design specifications and access to most of the prototypes at the NAB convention.

The systems and their approaches

News Fury is the system built by Basys, Inc. It comes in two basic sizes — the larger designed to handle 24 terminals and 16 wire service inputs and the smaller to handle four terminals and four wire inputs. They are expandable by connecting additional units.

The system uses an Onyx C8000 with 10 megabyte memory connected to Basys's custom-designed microprocessors (which handle wire copy and act as a partial backup for CPU crashes). Digital VT100 terminals provide more backup. The system has, at this point, the most sophisticated wire service interface. Two microprocessors sort all the incoming material and distribute it according to category. It is, in effect, an electronic spike. Retrieval of copy is speeded up because stories can be found by category (i.e., sports, financial, national), subject (oil, hostages, politics, and so forth), and special codes designed by the user.

News Fury has a good solid word processor to handle writing and editing. It is function keyed to simplify standard editing procedures. The system does not have a programmed assignment desk function, though it does provide a "notepad" system that allows the storage of some basic assignment information.

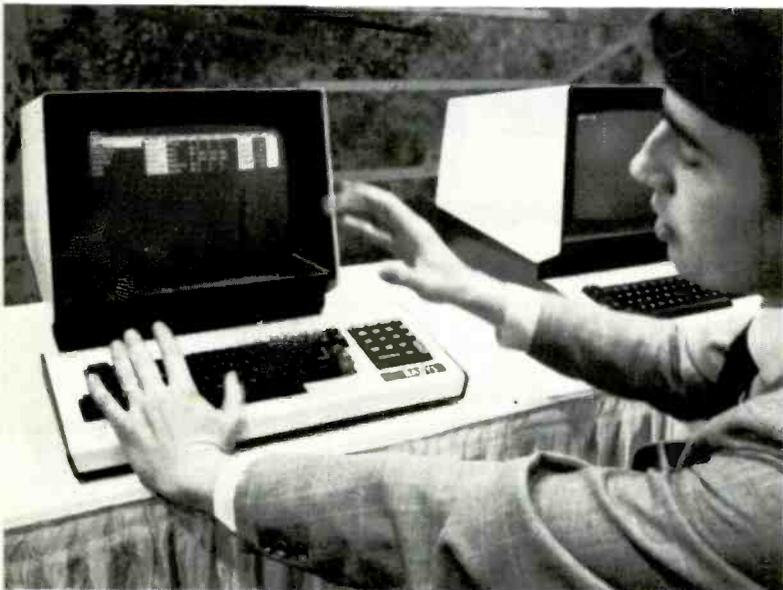
The production function allows for the building of producer rundowns, automatic backtiming, security for various users, air copy format with audio and video cues, and

NAB/Newsroom Computers

prompter. The prompting system can not be run at variable speeds, but the problem is solved by adding or subtracting space between the lines to give the effect of variable speed.

The archive handles only storage of scripts. At the end of the broadcast day everything in the system is recorded on tape. The large system with necessary peripherals will be priced in the \$100,000 range.

Electronic News Processing (ENP) is the Jefferson Data Systems entry into the news computer field. This system is designed to handle four wire service inputs and 20 terminals. ENP uses the IBM Series I system with IBM terminals.



Basys Inc.'s News Fury system has been selected to handle Ted Turner's CNN system

It has 64 megabyte disk store.

The system sorts and distributes copy to various "spikes" according to the ANPA codes and can handle some user-designated routing and special codes. It has the capability to handle remote dial services such as the *New York Times* Information Bank.

ENP has the most sophisticated word processor of the systems currently available. A split screen format allows up to four functions to be carried on simultaneously. For example, three wire stories can be viewed on three-quarters of the screen while a new story based on the information could be written on the fourth. The system has an assignment desk program that allows the listing of stories, reporter, crew, time, location contacts, and notes; it also boasts a future file capability. ENP prepares producer rundowns, completed scripts with audio and visual cues and backtiming. There are plans for prompting with Jefferson Data working out interfaces with existing character generators.

For archives, ENP stores and catalogues any information inputted into the system and also catalogues films, tapes, and slides for easy retrieval. Additional morgue capability is provided by the link with the *Times* Information Bank. A complete system will come into the \$100,000 to \$150,000 range.

McInnis-Skinner & Associates markets Newscan. The system is an extension of its Weatherscan computer graphics system. While Newscan can be purchased as a separate unit, the hardware/software configuration is such that the entire package adds little to the total cost. There is also an election reporting package with the system. Newscan has a 33-terminal capacity with four wire service inputs. It also has remote bureau capability.

The system uses Hewlett-Packard equipment: an HP 1000 computer and the 26201 terminal. For the remote pickup it uses the Texas Instruments remote unit.

Wire copy is sorted and distributed according to ANPA codes and a summary of all wire stories received is generated. The word processor is not function key-based, so its editing procedure is a bit more complex to operate. The Newscan assignment desk program, however, provides an extremely workable format for editors. The system provides not only basic assignment information but automatically cross-indexes with the archive and film and tape file.

Newscan provides producer rundowns, backtimes, and air copy with audio and video cues. No prompting is available yet, though an interface with existing character generators and prompters is being worked on.

The system has a sophisticated archive and library program. Information is retrievable with minimum search parameters. Newscan can search for stories based on such cues as key words, talent, cameraman, type of story, or date. It is priced in the \$100,000 range.

Station Business Systems calls its news computer Newscom. Though the company is owned by Control Data, it is using Datapoint equipment. SBS says that its system is designed to handle up to 250 terminals, though the basic system has about 10 terminals.

Two Datapoint 6600 computers with a total storage of 20 megabytes are employed. The terminals are Datapoint 3810s. Newscom sorts and distributes wire copy according to ANPA codes. Function key-based text editing is provided. The system operates with only five function keys and constant system instruction. Newscom has a good design for those who have never used VDTs because of its simplicity.

Newscom has a good assignment desk program. In keeping with the basic design, the operation is geared to newspeople who are not computer-trained. The assignment desk program lists story, data, reporter, crew, film, or tape, and so forth. A future file capability is also provided.

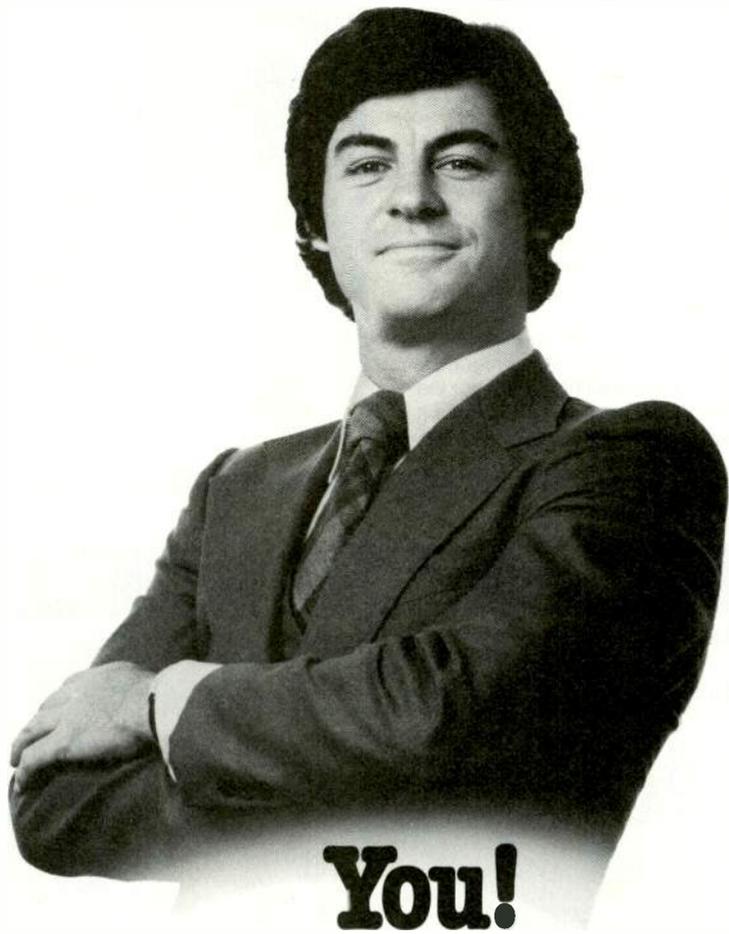
For production the system provides producer rundowns, tape and slide lists, air copy with audio and visual cues, and backtiming. Prompting is not available, but SBS is working on a character generator interface.

The system stores and indexes all stories entered into it.



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NAB/Newsroom Computers

A "global search" capability is being programmed, but wasn't fully functional at NAB. The full system should be in the \$100,000 to \$150,000 price range.

TvNS (for "television news support") is based on the concept that retrieval of information is the function that newsrooms need most. It is also the only system that offers both a buy or lease plan.

Either Honeywell or Microdata minicomputers are compatible with TvNS software. Size and configuration depends on user needs. TvNS sorts and distributes wire copy by ANPA codes. It catalogues and summarizes incoming material by user-designated codes if desired.

The TvNS text editing system is not function key-based, leaving the problem of editing by those not used to computers. Its assignment desk, however, allows for standard assignment listings, story, reporter, crew, time, location, notes, and the like, and a future file capability is provided. The system provides producer rundowns, air copy with audio and visual cues, backtiming, and other production functions.

TvNS has the most sophisticated library system, programmed for random word access. Keying in one word can get a list of every story in which that word appears. The price range for this system is not known.

While the objective of most of the systems mentioned above is to automate the newsroom, System Concepts took a different approach with QuantaNews[®]. The QuantaNews system essentially intends to bring computer management to newsroom housekeeping functions and is designed to drive an on-air character generator during news programs.

While not yet providing a true text editing system for the writing of news stories, it does provide an ANPA title search of wire service copy, a local news archive search by cate-



Jefferson Data's ENP system will get its workout at WBTV, Charlotte

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NEWSCOM, from SBS, is scheduled to go on-line at KSL, Salt Lake, and WQAD, Moline, Ill.

gory, a stock video library search by category, a news assignment search by date, "news source" search by name, and a daily weather summary.

Priced at about \$45,000 and based on the TRS-80 hardware and peripherals, both small and medium-market stations should find QuantaNews a valuable asset. The software was designed at WTLV, Jacksonville, where the system has been operating for some time.

Each program routine is designed on a "tree" principle that allows first for a master index of the programs to be displayed. Once a particular program is selected, an index to that program's functions is displayed. When the program function is selected, it is run and the operator may return to another program or go to some other function.

Newsroom computer systems are just beginning to penetrate the market and it will be some time before the exact role they will play is defined. Progress is being made, however. The Basys system is going on-line with Ted Turner's CNN, SBS is installing pilot systems at KSL-TV, Salt Lake, and WQAD, Moline, Ill. Jefferson Data is, of course, trying out ENP at its Jefferson Pilot Broadcasting station, WBTV, in Charlotte. QuantaNews' software has already had a good field trial via its origin at WTLV, Jacksonville. If these early field trials prove successful and as the other vendors place systems, a vast body of empirical data will develop that will help shape the newsroom computer systems of tomorrow.

For more information: Basys News Fury, 308; Jefferson Data Systems ENP, 309; McInnis-Skinner Newscan, 310; Station Business Systems Newscom, 311; TvNS, 312; System Concepts QuantaNews, 313.



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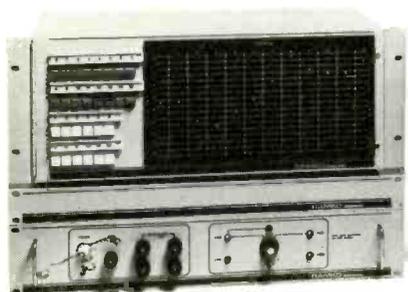


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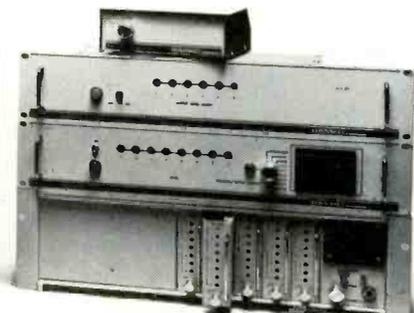
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PRODUCING COMMERCIALS ON LOCATION

By Mark Romanski

If the commercial requires location work, the preproduction phase is critical. The only thing you don't have to bring with you is the set.

Editor's note: This is the second in a series of articles designed to help stations develop a professional commercial production operation. The first article, "Producing Commercials in the Studio," appeared in the March, 1980 issue of BM/E.

SHOOTING IN A STUDIO. What a luxury! It's quiet, safe, and controlled. Phones, bathrooms, and coffee are easily provided. There's no rain, winos, or angry neighbors disturbing the production. It also can be too expensive or lack the size and realism of a location site. It takes an awfully large sound stage to shoot exteriors. The solution? — go on location. Easily said, easily screwed up.

A million things can go wrong on location. Use your imagination. Anything from leaving the wardrobe in the office to finding a noisy motocross rally buzzing an adjoining field — the possibilities are endless. Careful preproduction is your only hope. *Always* be prepared for the worst. Expect disaster. When it happens, don't panic. Stay calm, smile, and have a pocketful of twenties. Get receipts.

Before you can shoot at a location, you've got to find it — scout it out. Have a conference with whoever is *paying* for the production and the creative people. Make sure everyone agrees on what to look for. Make a list of adjectives describing the ideal location: "modern," "light," "up-scale," for example. Equate the list with a well-known movie or TV location if possible. "Rosie's diner" forms a rapid mental image to most Americans. Just make sure everybody knows what is being located. A week spent looking for the wrong location is a week wasted.

Give yourself as much time as possible to come up with a good location. Two weeks is usually adequate. One week is risky. If everyone has a specific location in mind, go there in person and make sure the place works for everybody. Give yourself time to find an alternate.

Informal location cost

A producer is often called upon to determine how much to offer as a location fee. A good strategy is to ask the owner what he or she would want to let you shoot. Usually it is lower than your first offer would have been. If not, tell them, "We don't have it in the budget." Typical daily location fees would be: house interior, \$600; any exterior, \$200; office interior, \$750; small store "buy-out,"

Mark Romanski is a commercial producer working in New York City, where he has produced numerous national and local commercials during the past seven years.



Locations can call for some unusual equipment capabilities. The key is a close analysis of the client's storyboard

\$1200. All fees are higher near New York and much higher near Los Angeles because of shooting saturation.

There are two basic ways to find a suitable location. The first is to use professional location services. These outfits exist in most cities and have photographs of locations on file. You normally pay a small fee to look at their pictures, followed by a referral fee if you use one of their locations. These location services are especially useful for private home or apartment locations since these are more difficult to scout out on your own.

The second choice in location research involves using a location scout. These hard-working freelancers normally get \$75 to \$150 daily. Although scouting is technically one of the functions of a first assistant director, very few Directors' Guild of America signatories are willing to pay \$250 to \$350 per day for scouting services. Location

Producing Commercials On Location

pictures often "appear" quietly in DGA houses. If you decide to convert one of your production staff, pick the smartest, hardest worker — location scouting is very hard work. The scout is also the first contact with a potential location and consequently should be articulate, diplomatic, and knowledgeable.

When sending scouts out, arm them with a working instant camera and make sure they know how to use it. Instant color film is great for exteriors, but it is a very slow film, requiring a lot of light. You'll need to add supplementary light for interiors. A flash unit usually doesn't have enough punch to light a whole room. Additional portable lighting should be carried; alternatively, use the very fast black and white Polaroid film available for the non-SX cameras. There is no excuse for having bad location photos. You must also provide the scout with transportation, expense money, business cards, a storyboard (if possible), an area map, and the following information: date of production; date of the weather day; how much you would like to spend; *tops* you will spend; sound recorded or M.O.S.?

Any special requirements for the location should also be provided to the scout. If, for instance, the position of the sun is going to be important, let the scout know this. If the location will need to be a particular size, provide the scout with the dimensions you are looking for and don't forget to include in the dimensions an allowance for work space. Also, provide the scout with some idea of the maximum travel time you will spend to get to the location. This will help narrow the area the scout will have to search and keep the time and expense you have budgeted for travel accurate.

Have the scout compile file folders of the various locations. The folders should include pictures of the locations,

a drawing of the layout, dimensions, and a description of any special conditions existing at the location. The more knowledgeable your scout, the more complete these folders will be. Some scouts will go into considerable detail describing lighting conditions, available power, sound conditions, special restrictions, and other important factors.

As soon as you have identified two or more locations that are appropriate to the commercial's requirements, get all parties concerned to approve the location. Keep the location folders on file. Even though a particular location is not suitable to a given commercial, some future client may find a use for the place.

As soon as you have approval on the location based on the folder, arrange for a second scouting. On this trip, take the director, client, and anyone else who may have a need to know. During this trip, have your scout note the following things: best route for commercial and private vehicles; parking at location; dressing room; bathroom; power source and supply; phone number and names at premises; phone number and name of owner, if different; house engineer or electrician necessary; who the check gets made out to?

If the commercial is a "food job," you should also check the existing kitchen facilities. If supplemental kitchen appliances such as refrigerators, stoves, or freezers will be needed, make certain that the location can handle the additional load and has space for this equipment.

Many locations correctly demand proof of insurance. Bring a copy of your certificate of insurance to show you're covered. Specific "hold-harmless" certificates can be obtained from your broker that name a location and hold its owner harmless. There is sometimes a small charge for these certificates. Hazardous or vastly expensive shoots should always be discussed with your insurance broker and additional coverage purchased when necessary. The production company is always liable, so cover your assets.

After location approval

Now that everyone has approved the location, preproduction continues. The gaffer and prop man should accompany the director and a competent production person to the location. It's great to bring along the cameraperson, but many like to be paid at least half a day's pay for scouting and it becomes very expensive. While the gaffer checks power, the director, creative team, and prop man should work out anything they want that they don't see, such as flowers, pictures, or curtains. Go through the place and check that the wanted props aren't somewhere else on the location. If there is a product shot, discuss the details at the time of the scouting trip. You may need to bring in background material or foreground objects.

Check your weather reports. Get accurate forecasts and postpone the shoot if things look too bad. Quote a weather day price to your clients and make sure they'll go for it before it costs you money. Your markup and director's fee are normally lower on a weather day. When booking freelance crew for a location job, mention a weather day possibility and notify all of them if weather changes your plans. Check your local unions. Most require any postponements to be done before 2:00 p.m. the day before shooting — otherwise you pay.

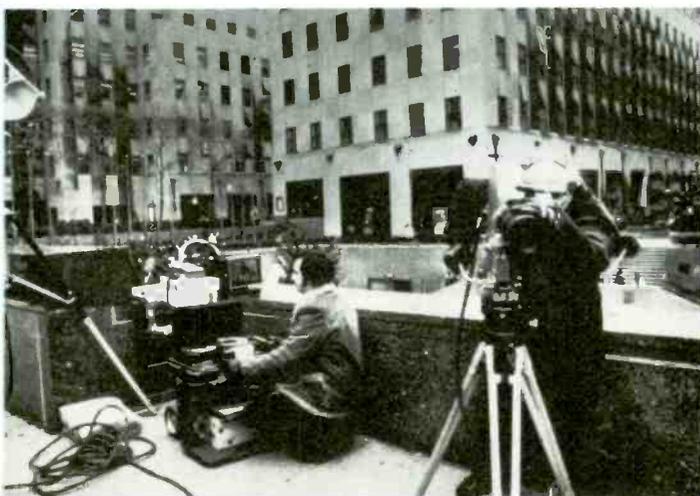
Make breakfast and lunch plans before the shoot day. Bring hot coffee, donuts, cheese, fruit, carrot sticks, and

Most Often Forgotten Location Items

- Location owner's 24-hour phone number
- Permits
- Weather reports
- Brand X
- Dummy license plates
- Insurance certificate
- Location releases
- Location checks
- Hair dryer
- Iron & board
- Dimes
- Talent contracts
- 85 filters, NDs, fogs, proxars, etc.
- Charged batteries
- Plywood
- Sound blankets, tarps
- Cue cards, magic markers
- Foul weather gear
- Megaphones, walkie-talkies
- Window and light gels — spun glass, 85, etc.
- Umbrella and base
- Garbage bags, broom, shovel
- Utility table, director's chairs
- Butterfly with frame
- Rubber mats
- Ladder(s)
- Polaroid with film
- First aid kit
- Prop kit
- Handtruck/dolly
- Vehicles gassed up



There are some requirements for commercials that simply cannot be accommodated in a studio setting



Crowd control when working on the street is a serious problem. Rent-A-Cops can often be the answer. Inquire with your city police department for availability of off-duty officers

other snacks for the morning. Scout out a suitable restaurant or hire a reliable caterer to provide a good, hot lunch. Order more food than you need to take care of the additional folks who always show up around lunchtime. Police, property owners, pals, relatives — they all love to eat free food. Be prepared. Plan on having enough snacks and liquids to keep everybody working properly. Provide beer or other drink at your own discretion. Normally, this type of refreshment is only provided at the end of a particularly difficult shoot.

Line up rental buses, mobile homes (with bathrooms), cranes, and special equipment early. Think about transportation in time to make the best arrangements. Make and distribute a job information sheet. This photocopied document goes to everybody and includes the location address, dates and times involved, personnel, phone numbers, map, and written directions for cars and trucks. Remember, trucks are often required to take alternate routes. Make sure the directions you give are 100 percent correct and very, very accurate. Have someone drive the route according to your printed directions prior to the shoot day. If the directions include a "commercial route" for trucks, make sure that is checked as well. Provide



Commercials frequently call for approaches rarely encountered in normal station operation. Leasing special equipment is often more economical than buying it

revisions as necessary. Directions, such as "after about a half-mile, look for a white house," often result in vehicles lost in action. Every driver has a different notion of what "about a half-mile" is, and there are often several white houses along the designated route.

File a location permit when necessary. Check with the police on local ordinances governing your activities and pay all required fees. If you will be blocking traffic or attracting lots of attention, hire off-duty police officers from the local authorities. The price per officer runs around \$10 per hour and is well worth it. They come in uniform, with guns, radios, and usually a squad car. Nothing like a rent-a-cop to get results from the locals. At the end of their shift, give the cops a tip on top of the agreed amount. It's cheap insurance. If the police agree to put up "no parking" signs or rope off areas for you, check with them the day before the shoot to make sure they remember.

Make sure all trucking arrangements are well planned. Consider a second truck if there are lots of props. If you're in a teamster-saturated area, budget using teamsters. Locations are often crashed by unwelcome teamster reps. Once they get you, they got you — you pay. Have a wrap plan in mind for after the shoot. Make sure all rental returns are properly labeled. Everyone hates to pay re-trucking costs.

Carry adequate petty cash and be prepared to pay off nearby lawn mowers, construction workers, neighbors, etc. Be a good neighbor and clean up the location site before leaving. If you ever want to use the location again you will be welcomed and, even more important, you'll reduce the number of horror stories among location owners that drive up prices and dry up locations. Bring lots of dimes for pay phone calls and singles if you are handing out lunch money.

Never assume that anything — hotel reservations, location arrangements, police, crew calls — is good for more than one day. The day before your shoot, check *everything*. Lunch, equipment, talent calls. Everything. Assume nothing has been properly arranged. Trust nobody. Check everything. Don't panic. Good luck! **BM/E**

Don't let your station sound like a phone booth.



Every broadcaster knows the problems of on-air telephone links. The garbling when announce-feeds go out simultaneously through the board and the phone. Or the mysterious cutoffs in the middle of an important interview when line noise or sibilants generate 2600 Hz for a disconnect signal.

A lot of stations—network flagships and others—who've had to face the problems have also found the answer: the Studer Telephone Hybrid.

With sidetone attenuation of up to 40dB, producing maximum isolation between send and receive circuits through an active self adjusting bridge network, and a 12-Henry choke on the input to ensure positive exchange lock-in, the Studer Telephone Hybrid is simply designed to do the job right. 30dB/octave receive and 12dB/octave transmit filters eliminate unwanted signals that would muddy the on-air clarity you've built into your station. All phone line requirements are automatically matched, and a built-in limiter

and white-noise generator are included to give you adjustable overload protection and privacy. All in a 1 $\frac{1}{4}$ inch rack mount unit.

Studer can ensure a clean link for all your console feeds. The Telephone Hybrid maintains air quality on telephone talk shows, news feeds, and phone interviews. And our active-circuit Stereo Balancing Unit couples balanced ins and outs to single-ended recorders, equalizers, limiter/compressors or other unbalanced gear.

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Digital, Measurement Reports Pace AES Los Angeles Show

MORE THAN 8000 ATTENDEES, a record number, helped make the Audio Engineering Society's sixty-sixth convention at the Los Angeles Hilton May 6 through 9 a strong testimony to the continuing ferment in audio technology. The 185 exhibitors at the show were further evidence of the broad range and force of audio advances.

As at all recent AES conventions the papers and exhibits on digital recording drew heavy attention. Sony and 3M both showed their lines of digital machines on the exhibit floor. Matsushita's Technics had prototypes of both multi-track and two-track machines,

the latter converters for pseudo-video PCM to be recorded on videotape machines.

Sony and Studer chose the show as the spot for a joint press announcement to the effect that they would join in developing standards for digital audio. They did not specify any part of what those standards should be.

The questions of standards for digital audio got extended discussion, if no resolution, at a special talk session organized by the AES Digital Audio Committee for May 4, before the show opened. Present were about 30 representatives of important manufacturers

in the field, the AES, and other organizations. One question that got considerable discussion was the adequacy of 14-point coding as against 16-point in various applications. There were variant opinions on the need for synchronous or alternate strobing of the D/A converters, error correction methods, and other points. It was clear that the industry is far from standardizing digital audio. In fact, Dr. Tom Stockham of Soundstream, one of the discussants at the meeting, said that he believed it was too early for that since further large advances in the technique could be expected. A fairly general feeling, however, expressed by several persons, was that the technique should not be compromised by using less than the 16-bit linear coding which now appears as the top of the art.

A technical paper that bore on the problem of choosing digital standards came from Bart Locanthi and M. Komamura of Pioneer Electronics Corporation. These gentlemen have devised a computer program that allows



Urei displayed a full line of audio processing gear to the London delegates



Yamaha brought speakers, consoles, and other equipment from their line of audio products



Neumann reflected on the state-of-the-art in microphones at the London AES



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the psychoacoustical testing of various digital audio parameters; changes can be made in the software and the effects on the hearer evaluated without building any equipment. The authors found, among other results, that the signal most sensitive to inadequate error correction is a sine wave and the most sensitive musical sound a solo piano.

Papers showing intensive practical work and strong theoretical background in digital recording came from representatives of Mitsubishi Electric Company, Sony, Matsushita Electric, Waseda University in Tokyo, the Victor Company of Japan (JVC), and the Analogic Corporation, Wakefield, Mass.

The technical sessions were particularly strong in expositions of advanced measurement techniques. Richard C. Cabot of Tektronix reported a comprehensive analysis and experimental try-out of virtually all the popular methods of measuring audio distortion. His conclusion was that the THD measurement is the best all-around for systems that are not strongly bandwidth-limited. His paper has many valuable comments on the strong and weak points of the various testing methods.

Kawakami, Niimi, and Yamaguchi of Nippon Gakki described a simplified but powerful tool for measuring room acoustics, using built-in digital computation of integrated squared pressure. Another room acoustics measurement device was described by workers at Sony; it uses tone burst signals from a loudspeaker.

Don Davis of Synergetic Audio Concepts and Joe Martinson of Martinson Studios described the use of energy time curve measurements (ETC) for detailed analysis of the reflected sound in a room. There were several other good papers on audio measurement.

A session on motion picture sound included, among other interesting papers, a description and demonstration of a part of the sound track for the movie *Apocalypse Now*. The seven different sound tracks developed for a short passage were first run separately. In the scene, showing helicopters crossing a river, the separately recorded sounds were background noises, footsteps; helicopter motors, machine guns, mortars, dialogue, and background music. The passage was then run in finished form, with all sounds mixed in.

Two papers covered the new pressure-zone microphone technique. In this, the microphone has a flat plate covering its front and a very short distance away. Acoustic energy reaches

the diaphragm through the narrow slot around the edges. The microphone is truly omnidirectional, treating direct and reflected sound exactly alike. A paper on the subject by David M. Andrews of Andrews Audio Consultants, New York, covered the theory and also described many specific sound pickup problems which the pressure zone microphone solves especially well.

Innovations at the convention that proved to be popular and successful included a "Meet the Authors" session on Friday, at the end of the show, at

which all the paper writers were on hand to discuss their respective subjects informally, and an "AES Interface" evening, for similar informal talks with product exhibitors. The AES announced that these talk sessions would be repeated at the New York convention in October.

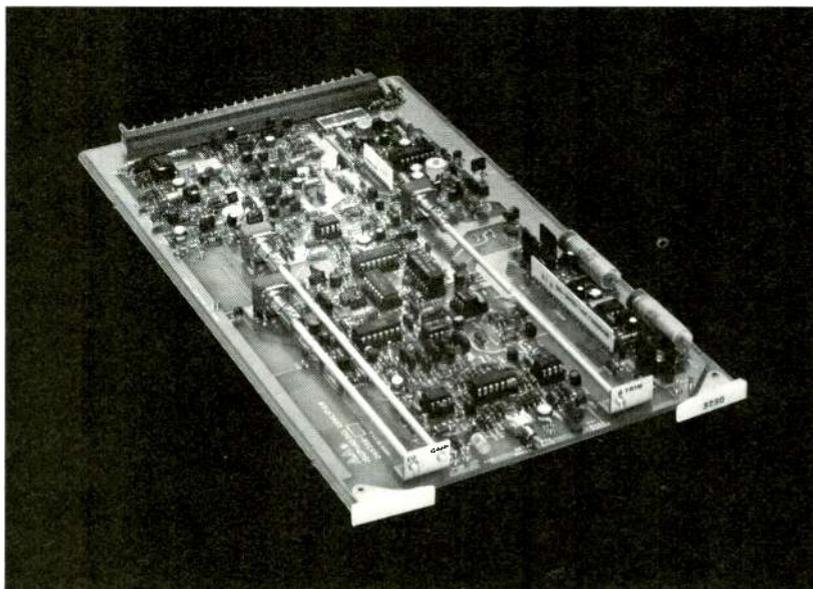
For a full account of the many papers of high interest not covered here, broadcast engineers are urged to write the AES (60 East 42 Street, New York, N.Y. 10017) for the technical program and list of preprints. **BM/E**

Automatically eliminate switcher input timing errors

The *fully automatic* GVG 3230* Isophasing Amplifier system ends color phase problems between studio sources and the switcher *completely*.

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*Model 3230 NTSC; Model 3231 PAL version.

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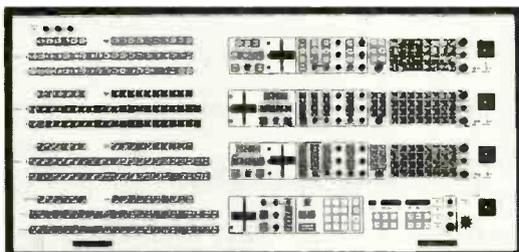
FACT:

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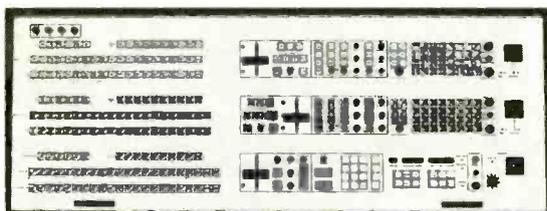
Standard features in every PKE include four input busses, auto transitions, internal quad split, title key over/under, video and chroma keying, black/white/color key edging, rotary and spin wipes - and more!

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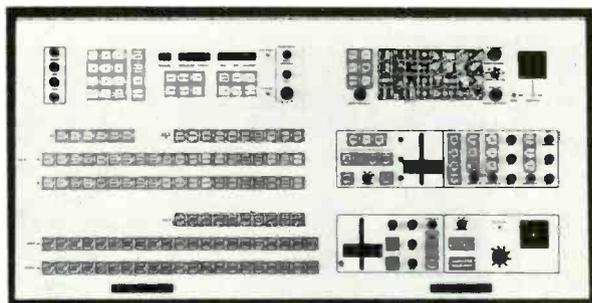
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INTERPRETING THE **FCC** RULES & REGULATIONS

FCC Changes Guidelines For Ascertainment Surveys

By Frederick W. Ford and Lee G. Lovett; Lovett Ford and Hennessey, P.C., Washington, D.C.

THE FCC HAS CHANGED its ascertainment primers for commercial broadcast renewal applicants¹ and noncommercial applicants,² effective July 7, 1980.³ The changes in ascertainment guidelines would retain the existing community leader checklist but would require all licensees to interview representatives of unlisted groups who are identified by the licensee as being significant elements in the community. However, it is the duty of the unlisted groups or organizations to make themselves known to the radio or television licensee.

These changes will apply to commercial and noncommercial educational TV renewal applicants. Applicants for new commercial stations must continue to follow their own procedures.⁴ Eventually, the current radio deregulation proposal might eliminate formal ascertainment procedures altogether for commercial radio renewals. For the time being, the changes apply to commercial radio as well.

In this article, we will outline these changes in ascertainment procedures, which are of importance to all broadcast licensees.

Background of ascertainment survey changes

In order to fulfill the ascertainment requirements set forth in the commercial and noncommercial primers, nearly all licensees must consult with community leaders who represent the institutions and groups contained in the community leader checklist.⁵ This checklist embodies 19 socioeconomic groups which can be added to, or subtracted from, to match the particular characteristics of an applicant's present or potential service area. Currently,

commercial broadcast renewal applicants do not have to interview representatives of all groups *if* they can adequately show that the excluded group or groups are not present in their communities. Alternatively, *at their own option*, applicants may utilize the category "other" to interview groups not included in the initial checklist but present in their communities. If an applicant has consulted with leaders in all 19 defined categories, its coverage of all significant elements will not be open to question. Once the ascertainment has been completed, broadcasters can plan responsive programming to meet community needs.

In response to petitions filed by gay rights organizations, which claimed they were inadequately covered under the present ascertainment procedures, the Commission issued several notices of inquiry. The gay rights organizations claimed that they constituted a significant percentage of the nation's population and, therefore, should be included in the checklist. They argued that, at present, most licensees would not identify community groups other than those listed categories. After review of the arguments, the Commission instituted the rulemaking proceedings.

The gay rights organizations were supported by groups representing the handicapped, who also sought a separate category in the checklist.

Commission changes

Initially, the Commission proposed changes in the primers to indicate that commercial renewal applicants and noncommercial educational television applicants have a responsibility to ensure that *all* significant elements or institutions are ascertained. According to the original proposal the licensee would have to survey even those groups not on the checklist. As to other institutions which may be significant in a particular community, but not readily accessible, it was proposed that they should be ascertained if their existence was brought to the attention of the applicant.

In the end, the Commission modified its original proposal. However, the FCC did not adopt separate categories for gay and handicapped organizations. The Commission also rejected comments which advocated the outright elimination of the initial checklist. In support of continuing to have a predictable ascertainment procedure, the Commission stated:

¹ *Primer on Ascertainment of Community Problems by Commercial Broadcast Renewal Applicants*, 57 FCC 2d 418 (1976).

² *Primer on Ascertainment of Community Problems by Noncommercial Educational Broadcast Applicants*, 58 FCC 2d 526 (1976).

³ *Amendment of Ascertainment Primers, Report and Order*, FCC 80-134, 47 RR 2d 189 (1980).

⁴ *Primer on Ascertainment of Community Problems by Broadcast Applicants*, 27 FCC 2d 650 (1971).

⁵ At present, the checklist contains 19 institutions and elements, as follows: (1) agriculture; (2) business; (3) charities; (4) civic, neighborhood and fraternal organizations; (5) consumer services; (6) culture; (7) education; (8) environment; (9) government (local, county, state and federal); (10) labor; (11) military; (12) minority and ethnic groups; (13) organizations of and for the elderly; (14) organizations of and for women; (15) organizations of and for youth (including children) and students; (16) professions; (17) public safety, health and welfare; (18) recreation; and (19) religion. "Other" is an optional category. Some small market licensees in communities under 10,000 are currently exempt from disclosing ascertainment methods, pending the outcome of a current rulemaking.

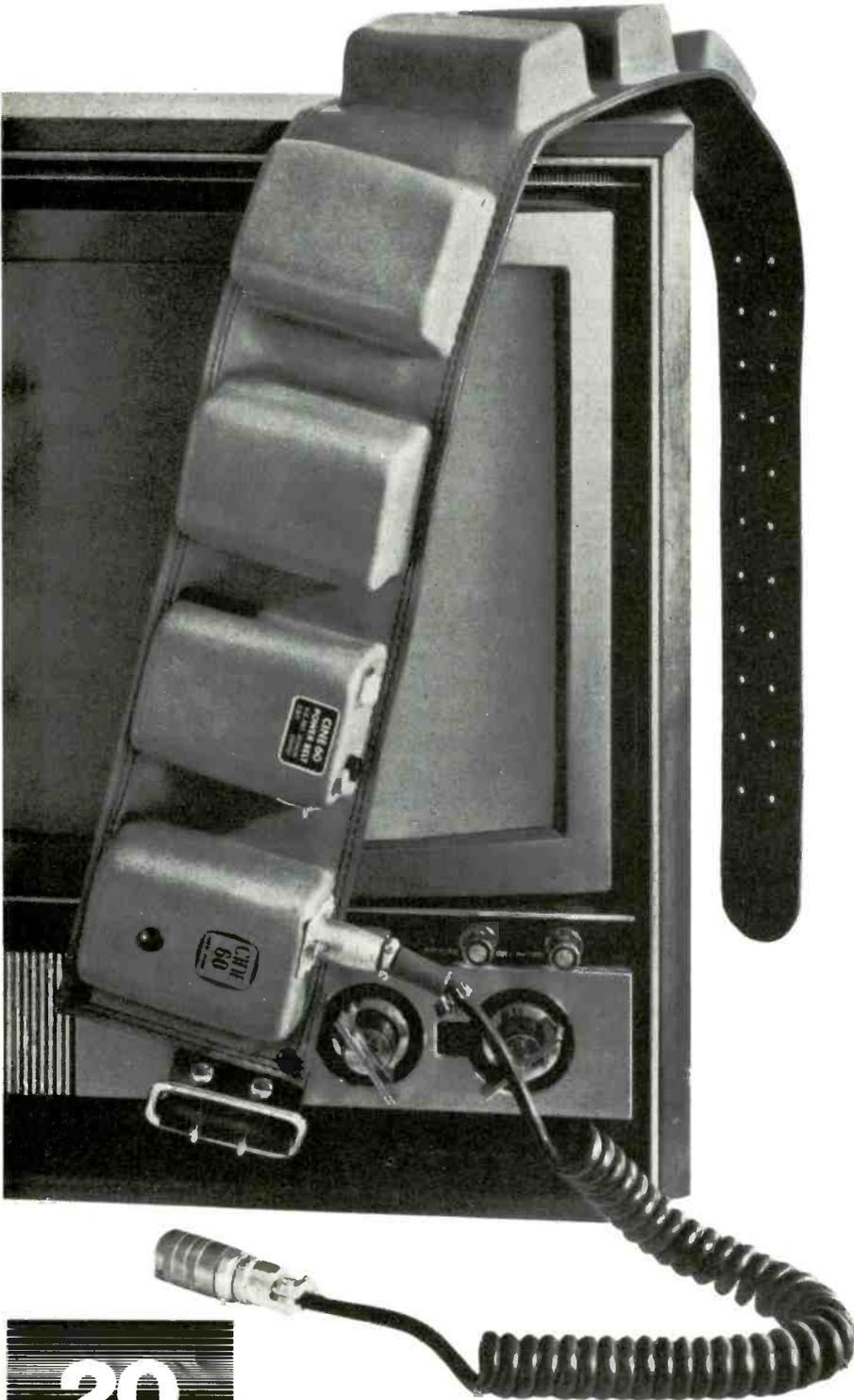
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“ . . . [We] note that nothing has changed our minds as to the value of the initial checklist in providing certainty for the ascertainment procedure. In order to provide programming addressing the problems of their communities, however, broadcasters need to know their service areas. We believe this is best accomplished by ascertaining all significant elements, whether or not they are one of the 19 enumerated categories.”

Before 1976, when the primer was issued, commercial broadcast renewal applicants individually had to determine the composition of their respective communities and interview appropriate leaders. This procedure led to questions about certainty of the ascertainment study.

However, the creation of the two new categories for gay and handicapped people could eliminate much of the flexibility provided by the existing system. Evidence in the proceeding convinced the Commission that, although gay and handicapped persons were significant elements in all or most communities, it would be more appropriate to modify the language concerning the “other” category rather than add two new elements to the list. In this way, the ascertainment procedure would retain both the necessary certainty to avoid ambiguity and confusion and also allow a certain flexibility in dealing with peculiarities of individual communities.

The new procedure calls upon non-listed elements to come to the licensee so that it can decide if the element is in fact significant in the community. Next, the broadcaster

must decide that, indeed, the element is significant. If this occurs, it would be the licensee’s responsibility during future community ascertainment surveys to contact representatives of that element, provided that it has remained significant. It is important to note, however, that any element or institution which claims significance does not have to be included in the ascertainment study *unless* the broadcaster confirms the fact that, indeed, the element is significant. Responsibility only shifts to the licensee when he has been made aware of the element’s existence.

The Commission’s decision also will allow for the ascertainment of the needs of emerging elements which, at least at their outset, would likely not have enough significance to be included in a national checklist — for example, recent Indochinese immigrants.

Conclusions

As noted above, these changes take effect July 7, 1980. The “other” category has been modified for all commercial radio and TV renewal applicants and noncommercial TV applicants in their ascertainment studies of community needs. At present, however, the Commission is considering the further deregulation of commercial radio. If the Commission decides to eliminate all formal ascertainment procedures for commercial radio licensees, this recent decision will no longer affect them. Radio broadcasters should keep abreast of changes in the deregulation proceeding. In the meantime, however, commercial radio renewal applicants will be governed by these changes involving the “other” category in the ascertainment checklist. **BM/E**

Combined 2" & 1" Video Tape Cleaner Video Tape Evaluator

Recortec now offers a practical solution to broadcasters faced with a transition in tape standards: a cleaner or evaluator usable for both 2-inch and 1-inch tape.

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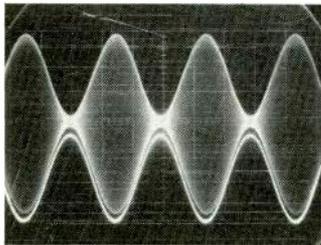
If you’ve never owned a Recortec cleaner or evaluator, there’s no better time to buy one. For immediate reply, please call Sid McCollum, National Sales Manager for additional details.

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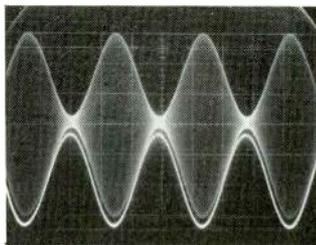
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AM TRANSPARENCY

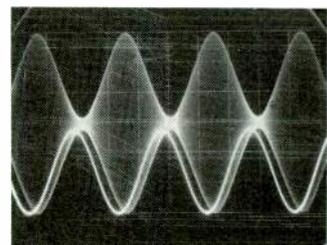
Typical phase and square wave performance: Continental's 317C-2



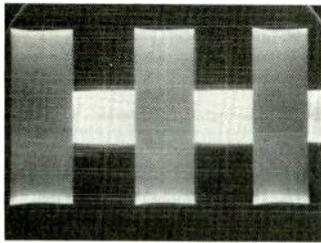
20 Hertz



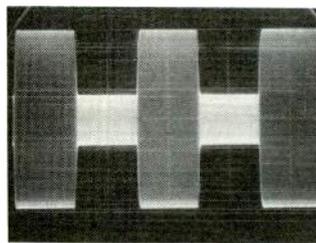
1000 Hertz



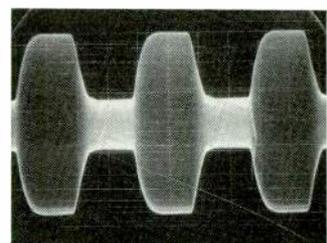
7500 Hertz



50 Hertz



1000 Hertz



7500 Hertz

Continental's new 317C-2 50 kW AM transmitter was a convention highlight at this year's NAB Show. Here's why.

The 317C-2 offers broadcasters transparency and high efficiency.

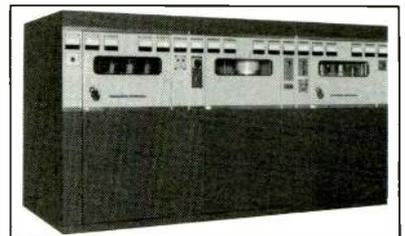
Continental's 317C-2 is a 50 kW broadcast transmitter built for today's programming demands.

It delivers superb audio quality and faithfully reproduces the most complex audio processing. It is ready for AM stereo.

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Continental transmitters meet today's sophisticated programming requirements. And

they'll be ready for the coming evolutions in AM broadcast programming.



For information and a brochure on the 317C-2, phone (214) 381-7161 or write to: Broadcast Marketing Dept. Continental Electronics Mfg. Co.; Box 270879 Dallas, Texas 75227; Telex: 73-398

Continental Electronics



GREAT IDEA CONTEST

VOTE FOR BEST IDEAS Ballot On Reader Service Card

Editor's Note: Before attempting to implement any Great Idea involving the modification of equipment, station personnel should check with the equipment manufacturer to insure that no violation of warranty will occur.

If the Great Idea involves any technical standards governed by the FCC, stations should make sure that the idea will in no way cause a violation of FCC rules.

Several readers have written in about Great Idea 10, J.P. Robillard's Tower Beacon Flasher, noting that the flasher's rate of 42 times a minute falls just outside of FCC specifications, which require that such a device produce between 12 and 40 flashes per minute.

14. Tape Lifter Saver

*G. Wayne Phillips, Maintenance Supervisor,
WHAS-TV/AM/FM, Louisville, Ky.*

Problem: Overenthusiastic news and production people were breaking two to three sets of tape lifters per month on our Ampex AG350s and AG355s. In certain high-traffic areas, the same machine could be down twice a month for broken lifters.

Solution: To solve this problem, I purchased several rubber feet. I attached one rubber foot to the head cover by using a longer screw than was required to mount the cover alone. The rubber foot, 1/2 inch in length and 3/8 inches in diameter, stopped the head cover when it opened just before the lifters hit the stops.

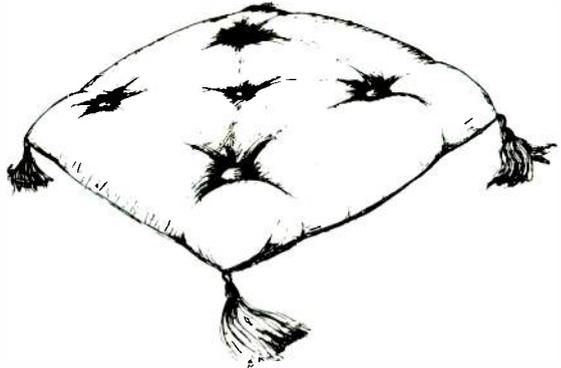
Since installation of the rubber feet one year ago, I have not replaced that first broken tape lifter. I estimate our savings in engineering maintenance and parts to be approximately \$1000 per year — not counting savings in down time!

15. Automation EOT Alarm

*Paul B. Christensen, Chief Engineer,
WLMT, Wilmington, Ill./WAJP, Joliet, Ill.*

Problem: To warn the operator on duty that an end-of-tape condition exists.

PAMPER YOUR VIDEO



Make a smoother journey from your distribution amplifier to your monitors with an electro optical cushion from Video Aids. Why put up with multiple ground loops caused by local grounding of your coax at each monitor? The Model 800 optical isolator floats your video and audio with 80 dB common mode rejection from your coax to the audio and video amplifiers of a SONY receiver. The 8-ounce isolator inexpensively converts your SONY receiver to a high quality, color receiver/monitor combination in less than 30 minutes. The Model 800 has been designed to provide even quicker installation than previous isolator models, and also works on newer remote control SONY sets.

List: \$175.00

Technical assistance and sales information both are now available at our new address in Boulder, Colorado.

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Starting our second decade of service to you.



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ANOTHER NEW ROUTING SWITCHER CONTROLLER FROM UTAH SCIENTIFIC



CSP-100-E

Switching by source name, true matrix statusing, coax party line control, audio/video breakaway — all this from Utah Scientific in a 1 $\frac{3}{4}$ " routing switcher control panel.

Utah Scientific's new CSP-100 panel in its **encoded** form permits your operator to address and status sources by their familiar name — VTR 7, CAM 3, etc. The panel connects to the matrix via a single coax party line while LEDs in the **Group** and **Units** button rows provide true audio and video statusing from refresh memory data. Separate audio and video buttons are provided for breakaway switching.

The CSP-100 joins a long line of routing switcher controls from Utah Scientific that all feature single coax control connection, true statusing, and breakaway switching, and that are human-engineered to minimize operator error.

SINGLE COAX CONNECTION — SELECTS AND STATUSES BY NAME — 1 $\frac{3}{4}$ "

TRY THAT ON YOUR GRASCOMFERNSAMDYNA TEK SWITCHER!

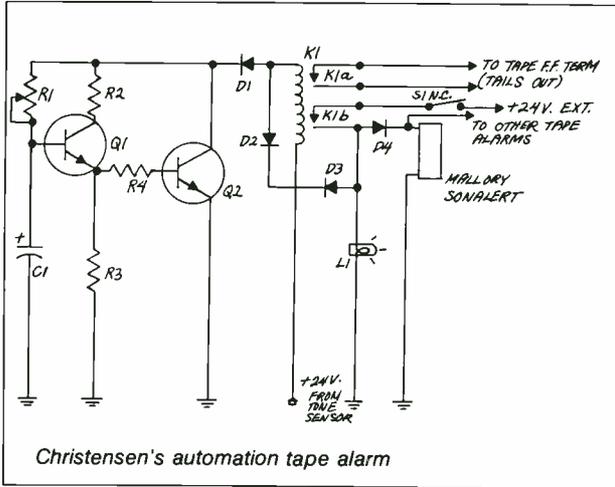
US **UTAH SCIENTIFIC**
THE ROUTING SWITCHER PEOPLE.

2276 So. 2700 W. • Salt Lake City, UT 84119 • Phone 801-973-6840
TWX #910-925-4037

Great Ideas

Solution: It became apparent to me that metal sensing tape was not a very reliable and state-of-the-art approach for an EOT alarm, particularly for automated stations that periodically add new material to their tapes. Over a period of time, removal of the tape becomes more difficult, making the tape virtually useless unless great care is taken to remove it.

My alarm uses a tone sensing approach that can be adjusted externally to operate with a longer than normal tone (10 to 15 seconds) at the end of the last song of each tape. One alarm is constructed for each tape deck, with the sonalert circuitry being wired common to all of the alarms.



When 24 V is present from the tone sensor, C1 starts charging at a rate determined by R1. Q1 then conducts, creating a voltage drop across R3, which turns on Q2. This causes K1 to energize. When 24 V is not present, C1 is discharged through the base-emitter junction of Q1. D3 and D4 are steering diodes that isolate the voltage between the sensors and the external 24 V supply. D1 is used for polarity protection. Resetting the alarms is easily accomplished by removing the external 24 V supply through S1 (N.C.).

If you wish, K1a can be connected to the FF terminals of your tape decks (rewind for tails in) to automatically start the empty tape deck rolling once K1 is energized.

Finally, if a new song is to be added to a tape, simply find the EOT tone and record over it, leaving a small portion with its length determined by your sensor's dead roll time.

Parts used were: C1, 15 uf @ 50 V; D1, D2, D3, D4, 1 amp silicon; K1, 24 V DPDT; L1, any 24 V bulb; Q1, Q2, 2N3053; R1, 2 meg.; R2, 1 kohm; R3, 47 ohm; R4, 1 kohm; S1, SPST N.C.

16. Scanning TV Monitor

Gaétan Boivin, Technical Director,
CKRS-TV, Jonquièrre, Québec, Canada

Problem: To monitor general performance of remote TV repeaters from the studio.

Solution: The more cumbersome way is to use one receiver per site — but a simplified method is to convert an ordinary domestic TV receiver into a "scanning TV

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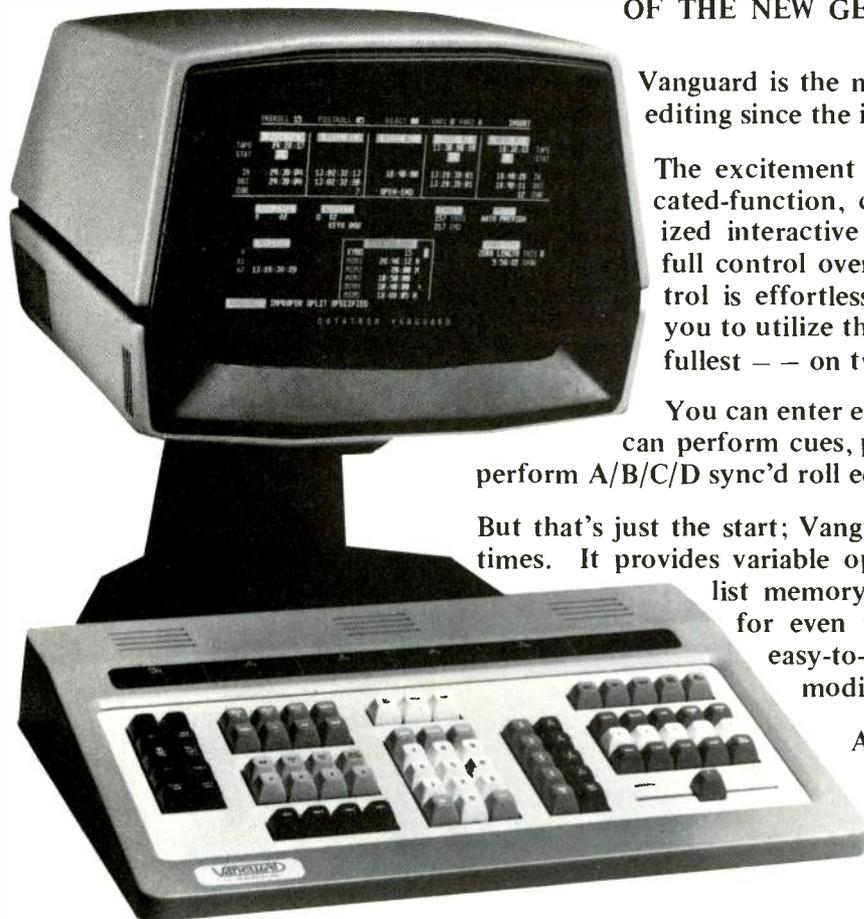
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VANGUARD

THE ONE FOR 1-INCH TYPE-C EDITING



DATATRON INTRODUCES VANGUARD, A TOTALLY NEW GENERATION OF VIDEOTAPE EDITOR DESIGNED TO GET THE MOST OUT OF THE NEW GENERATION OF VERSATILE TYPE-C VTRs.



Vanguard is the most exciting development in SMPTE videotape editing since the introduction of the Type-C format.

The excitement begins the moment you sit down at the dedicated-function, color coded keyboard with its superbly organized interactive CRT display. From this position, you've got full control over five VTRs and a switcher. VTR motion control is effortless and precise; dual Varascan™ controls allow you to utilize the shuttle capabilities of Type-C VTRs to their fullest — on two VTRs at once.

You can enter edit and split times on-the-fly or manually. You can perform cues, previews, edits, all automatically. You can even perform A/B/C/D sync'd roll edits involving up to four sources.

But that's just the start; Vanguard lets you set your own preroll and postroll times. It provides variable operator reaction time compensation. The edit list memory can store up to 999 edit events — enough for even your longest editing sessions. And powerful, easy-to-understand edit list management lets you modify the edit list any way you choose.

Auto assembly from up to four sources is standard, as are paper tape edit list input/output, teletype edit list printout, and scrolled CRT edit list output. And if you wish, floppy disk is available.

It's all here, and at a price that's about half of what you'd pay for just one Type-C VTR with TBC.

And, just in case you're not ready to convert to Type-C, it will probably come as no surprise that Vanguard also interfaces to more than 35 other makes and models of decks, including quads, 3/4 inch cassettes, 1" Type-A/B, multi-track audio recorders, and the Rank Cintel scanner.

“SIMPLY BETTER!”

If you visited our booth at NAB, you already know that Vanguard has set a new standard for mid-priced editors. If you didn't, you owe it to yourself to find out. Send for the free Vanguard brochure.

datatron, inc.

VIDEO SYSTEMS DIVISION

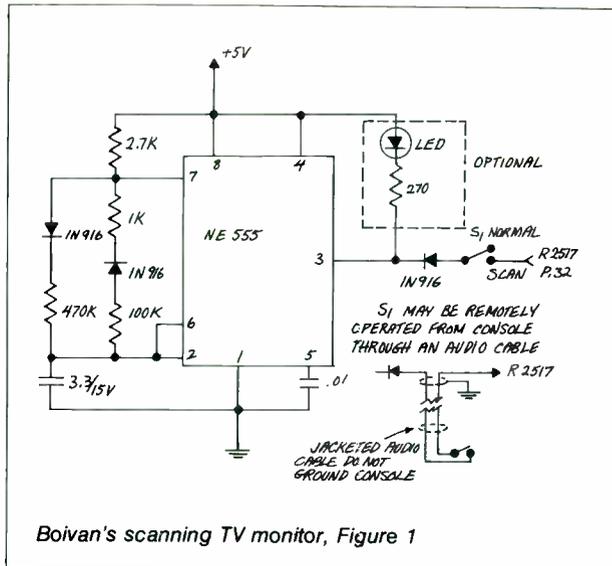
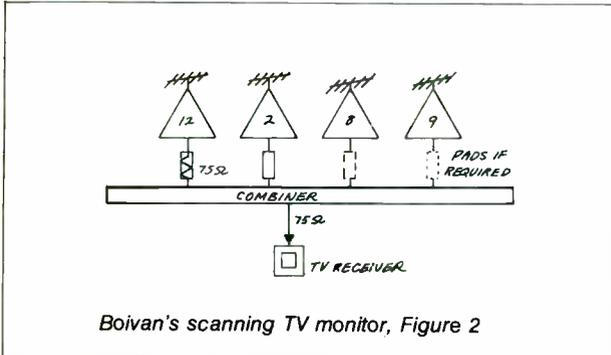
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Telephone (714) 540-9330 TWX 910-595-1589

Great Ideas

monitor." The advantages, besides lower cost, are better picture uniformity and reliability than are possible when trying to match three or four different receivers. Furthermore, less space is required.

We use an RCA TV receiver chassis, CTC 93 series. This one has a programmable memory that allows only desired channels to be recalled up or down on an alternate basis. As a bonus, the picture will show digital display of channel number. At our station, the receiver scans the main channel 12 and three remote satellites, but there is no reason why the system cannot be expanded to as many channels as you want. Better results are obtained when the



signals are not too different in level from each other to minimize AGC action.

A 555 is used as a low frequency self-running oscillator (approximately 1/3 Hz). Its output drives the "up" input of IC U2501 (junction of R2517/R2518). The receiver will then show each programmed channel for approximately three seconds, from the lowest to the highest one and back again. Switch S1 resumes normal operation. **BM/E**

Rules for BM/E's Great Idea Contest

Mail to:
Editors, BM/E
295 Madison Avenue
New York, New York 10017

1980
Entry Form

Name _____ Title _____
Station Call Letters _____ City _____
State _____ Zip _____
Telephone No. _____
Licensee _____

Class of Station at which idea is used (check one)

TV _____ FM _____ AM _____

Category: Audio _____ RF _____ Video _____ Control _____

Objective or Problem: (In few words; use separate sheet for details)

Solution: (Use separate sheet—500 words max)

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

Signed _____ Date _____

1. Eligibility: All station personnel are eligible. Consultants to the industry may enter if the entry indicates the specific station or stations using the idea or concept. Manufacturers of equipment or their representatives are not eligible.

2. How to Enter: Use the Official Entry Form on this page or simply send BM/E a description of your work. State the objective or problem and your solution. Include diagrams, drawings, or glossy photos, as appropriate. Artwork must be legible but need not be directly reproducible and not exceeding three in number. Camera reproducible material is preferred. Length can vary, but should not exceed 500 words. BM/E reserves the right to edit material. Entry should include: Name, title, station affiliation, and the class of station — TV, FM, AM. Indicate if idea is completely original with you.

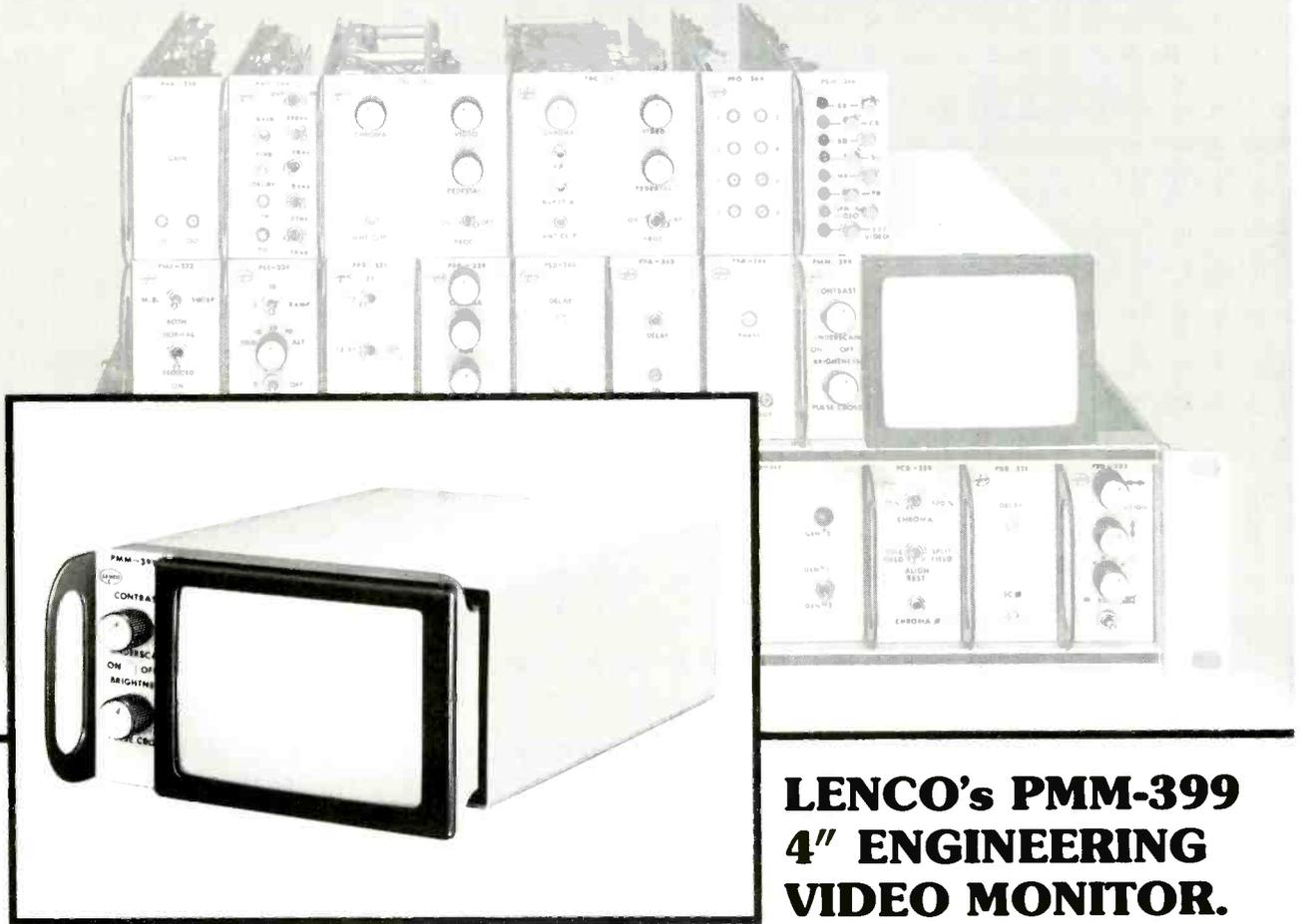
3. Material Accepted for Publication: BM/E editors will make all decisions regarding acceptability for publication. If duplicative or similar ideas are received, BM/E editors will judge which entry or entries to accept. A \$10 honorarium will be paid for each item published.

4. Voting: Every reader of BM/E is entitled to rank the ideas published. This can be done on the Reader Service Card in the magazine or by letters or cards sent to the BM/E office. To vote, readers should select the three ideas they like best and rank them 1, 2, or 3.

5. Winners: Top rated entries in the year-long tally will become winners in each of the three major categories (AM, FM, TV). Final winners will be picked in February, 1981, and announced in the March, 1981, issue of BM/E.

6. Prizes and Awards: Three top prizes will be awarded: a programmable electronic calculator will be awarded for the highest rated entry in the respective categories of AM, FM, and TV. Ten engineering slide rule calculators will be awarded as secondary prizes for the highest rated entries in the following additional categories (top three winners are not eligible for these prizes): audio (three prizes, one each in the AM, FM and TV categories); RF (three prizes, one each in the categories of AM, FM, TV); Control (three prizes, one each in the AM, FM and TV categories); Video (one prize in TV).

IT'S IN THE 300 SYSTEM!



LENCO's PMM-399 4" ENGINEERING VIDEO MONITOR.

Introducing a new and unique concept in video monitoring: the Lenco PMM-399 Engineering Video Monitor.

Utilizing a 4-inch screen for engineering evaluation of the video signal, this high-resolution, professional monitor is ideal for camera and tape monitoring in either mobile vans or permanent studio installations.

The Lenco PMM-399 occupies only three module spaces of the PFM-300 frame, making it an ideal, economic space saver. And a total of three monitors will operate in one 300 System frame.

Loop-through video, pulse cross and underscan are standard with the PMM-399. The 30 MHz bandwidth results in extremely high resolution,

while the sharp, bright picture provides excellent viewing under high ambient lighting conditions. In addition, a sweep protection circuit prevents CRT raster burns in the event of the loss of either horizontal or vertical sweep.

Among the PMM-399's other outstanding features are:

- Back-porch Clamped Video Signal
- Differential Video Input
- DC Operation
- NTSC or Pal Scan Rates
- Modular Construction

See for yourself why the PMM-399 is your answer to video signal evaluation. Call or write today for a PMM-399 demonstration.



LENCO, INC., ELECTRONICS DIVISION

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The Professional's Choice

BROADCAST EQUIPMENT

AM Transmitter 250

Model SI-A-1T is a high-level 125 percent plate-modulated 1 kW AM broadcast transmitter with 1200 W output capability. It is completely solid state up to the high-level RF amplifier and modulator stages, which employ a single tube type, the 4-500A. The tubes are accessible through a hinged front panel that includes an observation window for in-service visual inspection. All low-level drive circuitry is located on individual plug-in PC boards accessible through the front panel. The card cage includes an audio preamp/driver with selectable balanced low impedance/unbalanced high impedance inputs, switch selectable 7.5 kHz cutoff filter or flat response to 10 kHz, and a selectable negative modulation peak limiter. The frequency-synthesized exciter employs duplicate crystal oscillator/divider circuitry, with the crystal operating at four times the transmitter output frequency. SINTRONIC CORP.

Updated Optimod 251

Model 8100A Optimod-FM is the second-generation descendent of the original Optimod-FM, combining audio processing and an FM stereo generator in a single system. It is designed to provide a "highly processed" sound without the compromises usually associated with such processing, according to the maker. New features include a unique compressor that can be



operated either wideband or multiband to suit format requirements and an "FM Smart Clipper" incorporating an exclusive clipping distortion-cancellation circuit with a newly designed overshoot corrector to achieve significant improvements in brightness. The new stereo generator features 60 dB typical separation, an extremely clean spectrum, and many convenience features to aid setup and proofs. \$3995. ORBAN ASSOCIATES.

Editing System 252

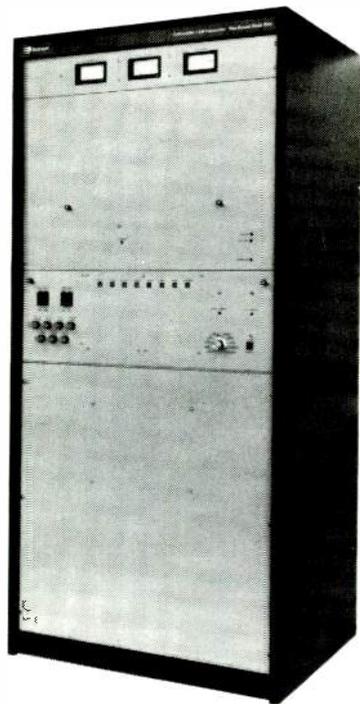
Vanguard is a microprocessor-based editor capable of simultaneously controlling five VTRs and a production switcher. Over 40 available deck interfaces allow the system to operate with a wide variety of recorders. A color-coded keyboard and CRT display pro-



vide an interactive operator interface from which edit and split times can be entered on the fly or manually, and from which automatic cue, preview, edit, and replay sequences can be initiated. The system offers synced roll editing and auto-assembly involving up to four source VTRs. Preroll, postroll, and operator reaction times are independently selectable, as are hard copy, paper tape, and floppy disc edit list output. Standard edit list memory capacity is 320 events, with 999 events optional. A single Varascan shuttle control can be delegated to any deck under the system's control and provides continuously variable shuttle control down to freeze frame, either forward or reverse. An auxiliary Varascan is optional. DATATRON.

Saticon Camera Tubes 253

Three new Saticon tubes, introduced at NAB, feature an innovative design that brings the target contact out through a pin in the faceplate, resulting in low output capacitance and low noise. They also feature a new low lag photoconductor that operates at 65 V. Model BC4391 measures 18 mm in diameter; BC4396 is 25 mm and BC4397 is 30 mm. The tubes are designed for new studio cameras or cameras modified to provide increased target voltage with target contacts and preamplifier inputs designed to take advantage of the low capacitance structure. BC4390, \$1860; BC4396 and BC4397, \$2360 each. RCA ELECTRO-OPTICS AND DEVICES.



Announcing the Collins 828C-1 Power Rock One™ The transmitter that brings advanced PWM performance—plus tube reliability to 1-kWAM users.

The new Collins 828C-1 Power Rock One is the first and only 1-kW transmitter to give AM broadcasters the benefits of both pulse modulation and time-tested tube reliability.

Get the complete story on these important benefits: low-cost reliability; outstanding audio performance; and efficient operation. And check into the details on the Collins SwitchMod System™; the transformerless audio input; AM stereo compatibility; the exclusive Q-Taper output network; the patented automatic modulation control and grounded anode with fiber optics coupling; and more.

Call your Collins District Sales Manager and ask him about the 828C-1 and our full line of AM transmitters and custom-built phasers. Or contact Collins Broadcast Marketing, Rockwell International, Dallas, Texas 75207. Call: (214) 996-5424.

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We stand out from the crowd.

Thanks to the unique design of the patented Beau pancake motor, our Type 10 Recorder/Reproducer gives you *space economy* (it's only 3 5/8" high and stackable) and *power economy*, too. Also cool-running and compact, there's the inexpensive Beaucart II Reproducer.

Simple design means greater efficiency. Our versatile Model SFE-1 Automatic Splice Finder and Bulk Eraser combines *two machines in one*.

A common-sense approach makes Beau-Master Stereo Console and its companion Beau-Pro easy to operate--with the performance you demand.

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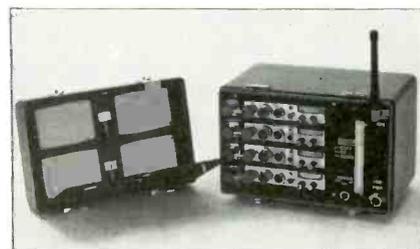
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Broadcast Equipment

Wireless Mic System

254

Model 151 Quad Case is a portable case/antenna system for multi-channel wireless mic applications. The case houses four complete Model 66 portable receivers and has a built-in antenna splitter (multi-coupler) that feeds all four receivers from one detachable an-



tenna. The removable front cover has storage compartments for four Model 77 pocket-size transmitters and four spare 9 V batteries. Power for the receivers and the splitter is provided by standard alkaline D cells or an external dc source. The case is rugged and moisture-proof and has an interlock to assure that the system power is off when the case is closed. Packed up, the system measures seven by 9 3/4 by 11 inches and weighs under 20 pounds including batteries. CETEC VEGA.

TBC/Frame Synchronizer

255

Model VW-2 TBC and frame synchronizer, designed to operate with Type C and 3/4-inch VTRs, incorporates digital dropout compensation. Features include: full 525 lines of time base correction to prevent vertical blanking problems; detection to prevent illegal blanking, color phase inversion, vertical stepping, video breakup, and wrong field edits; heterodyne or direct color



processing; vertical blanking control adjustable between 15 and 21 lines; horizontal blanking fixed at 10.8 μ sec; and velocity compensation in the synchronize and heterodyne TBC mode. The unit is capable of delaying non-synchronous video feeds by as much as a full frame to make them synchronous with the station reference. In TBC mode it can perform simultaneous time base correction and synchronization.

THE NEW STANDARD COVERS AM BAND PLUS HARMONICS TO 5 MHz



The Model FIM-41 Field Strength Meter has many more features —

- Measures Harmonics to -80 dB
- High Adjacent Channel Rejection
- Ganged Oscillator/Receiver Tuning
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- Front Panel Speaker
- Large illuminated Meter and Tuning Dial
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Frame synchronizing features include freeze frame/field for production applications, video level lights to indicate increase or decrease from normal setting, and remote control panel for full studio control of operational and setup functions. \$24,000. ADDA CORP.

VCR Editing System

256

The ECS-90 microprocessor-based, plug-in videotape editing system is designed for 1/2-inch or 3/4-inch VCRs. It works with either control track or industry standard SMPTE/EBU time code with optional TCR-90 low-cost dual-channel time code reader. The editor can program fades to and from black, generate "crystal" black with optional Blade™ fader module, and accept a new low-cost version of the Liplock™ audio pitch control option. The Pulse



Scan™ feature allows the VCR to be controlled with continuously variable speed from still frame to maximum, forward or reverse, even if the recorder has stepped-speed pushbutton controls. The edit controller plugs directly into the remote connector of standard recorders; no modifications are necessary. \$3990. CONVERGENCE CORP.

Production Switcher

257

Model 6118 Pixie™ is a six-input (including colorizer), three-bus video production switcher designed for automatic camera phasing. The unit has direct plug compatibility with and automatically times the Sony 1610 and 1640 color cameras; it also operates with the JVC G71US with a special cable available from the switcher manufacturer (no internal camera modification necessary). The switcher, which does not require an external sync generator, genlocks to either input 1 or 5 (internally selectable) and then distributes the sync pulse drives to the remaining inputs. It will operate with any other camera, but without auto camera phasing; normal systems timing is required. Features include 12 patterns, colorizer, positioner, key, super, blanking processor, mix to effects, and audio output jacks for camera microphones. \$2500. CROSSPOINT LATCH.

QUALITY COLOR SWITCHERS

MODEL 1107

\$995

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VARIABLE SPEEDS, UNVARIED QUALITY!



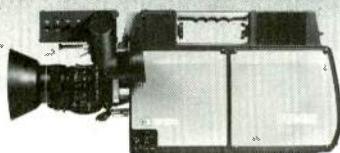
RUSSCO has your next turntable ready to deliver. The Mark V gives you rim-drive so quick and quiet you'll think you're using a cart machine! With speeds adjustable plus or minus 10% and a bright LED readout. One look at the specs and you'll agree, this is the best turntable investment in the industry! All 3 models are Russco Reliable and start at a low \$560. (model shown)

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ANY BROADCAST CAMERA
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Look at all 3 before you buy any video camera. Compare the Toshiba PK-39 with the Ikegami HL79 or RCA TK76 for picture quality, ease of handling, flexibility — enjoy its unequalled light sensitivity and picture contrast. Rent a PK-39 for your next shooting from Miller — the video specialists. Call or write for moderate day and weekly rates.



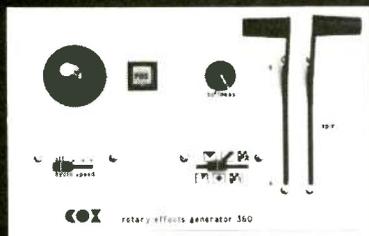
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UPDATE**



360 ROTARY EFFECTS GENERATOR

- Add rotary and matrix wipes to your existing video switcher.
- No modification of switcher — simply connect the output of the 360 to your switcher's key input.
- Rotary wipes include clock, fan, square and bar.
- Split fader allows independent control of rotation speed and wipe size.
- Two matrix wipes: one random, the second programmed to your requirement.
- Non-repeating positioner.
- Adjustable soft edge.

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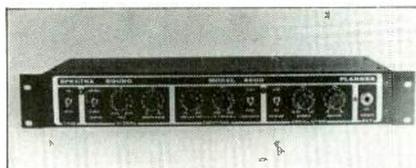
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(416) 497-1020
1438 North Gower St.
Hollywood, CA 90028
(213) 460-2949

Circle 160 on Reader Service Card

Broadcast Equipment

Audio Flanger 258

Model 4000 professional audio flanger is designed to create effects such as positive and negative flanging, double tracking, speaker rotation simulation, chorus, vibrato, and tube echo. The unit produces over five octaves of flanging without input aliasing, output quantization noise, or the introduction of any high-frequency clock components, according to the manufacturer.



An internal variable sweep oscillator can modulate the delay time; this can also be accomplished via an external control voltage from conventional foot pedal, joystick, synthesizer, or computer device. Standard features include

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circle bold face numbers
on reader service card.**

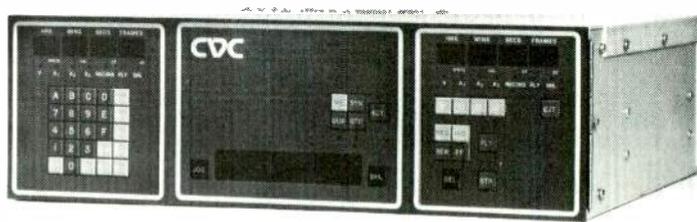
balanced and unbalanced inputs and outputs, LED overload indicators, and inputs and outputs for slaving several units. \$695. SPECTRA SOUND.

ENG Battery Packs 259

This new series of high-performance Ni-cad battery packs is designed to snap-mount onto the rear of portable ENG and EFP cameras. They can also be used separately with a power cable or be used for portable VTRs and battery-operated lighting equipment. Models range from ± 7.2 V to 14.4 V at 4 amp-hour capacities. They may be connected in series for higher output voltages or in parallel for greater capacities. Typical operating times are



one to four hours, depending on type of equipment used. Batteries can be fast-charged to full capacity in one hour or slow-charged overnight with separate external chargers. On-board packs weigh 4½ pounds and measure 5¾ by 4¾ by three inches. \$360 to \$380. CINE 60.



**SMPTE READER
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Low cost reader — low cost writer — powerful control unit. Simply amazing concept!

**Control Video Corporation
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Circle 161 on Reader Service Card

The AA 501 automatic distortion analyzer/SG 505 oscillator system permits rapid, automatic THD measurement without operator assistance, according to the manufacturer. Level setting, tuning, and nulling are per-

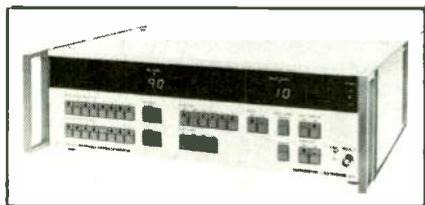


formed automatically by the AA 501's internal circuitry. An option allows measurement of IM distortion on signals conforming to SMPTE, DIN, or CCIF standards. The analyzer has selectable detector response (true rms or average) and four selectable filters, with provision for user-supplied filters; all filters are functional in all modes. Frequency range is 10 Hz to 100 kHz; residual distortion and noise is less than 0.0025 percent (-92 dB). The oscillator features THD of 0.0008 percent (20 Hz to 20 kHz), continuous dial tuning, vernier frequency control, flat frequency response of 0.1 dB from 10 Hz to 20 kHz, and a precise step attenuator that provides calibrated output from +10 dBm to -60 dBm in 10 dB steps with variable attenuation between steps. Optional is an IM test signal conforming to SMPTE or DIN standards. AA 501, \$1750; option, \$600. SG 505, \$600; option, \$125. TEKTRONIX, INC.

Stereo Signal Generator

261

Model RE501 stereo signal generator is a completely programmable source of high-quality stereo testing signals. All signal elements, frequencies, combinations, sequences, durations, and levels can be commanded automatically via



IEEE 488 bus or a BCD system. The unit is designed for automatic operation, with its own internal control system providing 64 full function setups programmed as desired on its own keyboard. Complete manual and override capabilities are retained via front-

panel controls. The time-multiplexed composite signal conforms to FCC standards and provides all basic modes, including stereo (L + R), mono (L = R), subchannel (L = -R), left only, and right only at programmable levels from 0 to 2 V peak. L-R separation is greater than 65 dB between 80 Hz and 5 kHz; distortion is less than 0.02 percent at 100 percent composite levels. RADIOMETER ELECTRONICS U.S., INC.

Metal Particle Tape

262

MPT metal particle audio cassettes are compatible with new metal tape cas-

sette decks. According to the manufacturer, the tape provides a more than 100 percent increase in high frequency dynamic range over typical high-bias audio cassettes, and has low distortion at elevated record levels. Tests at the maker's research facility showed less quency spectrum from 20 Hz to 20 kHz with bias current at factory settings. Saturated output at short wavelengths is approximately 5 to 6 dB above the best available high-bias cassettes and 11 dB above standard gamma ferric oxide products. Available in 60-minute lengths, the cassettes feature a special tape leader that cleans the recorder's heads and tape guides. AMPEX CORP.

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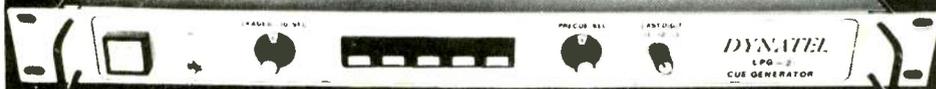
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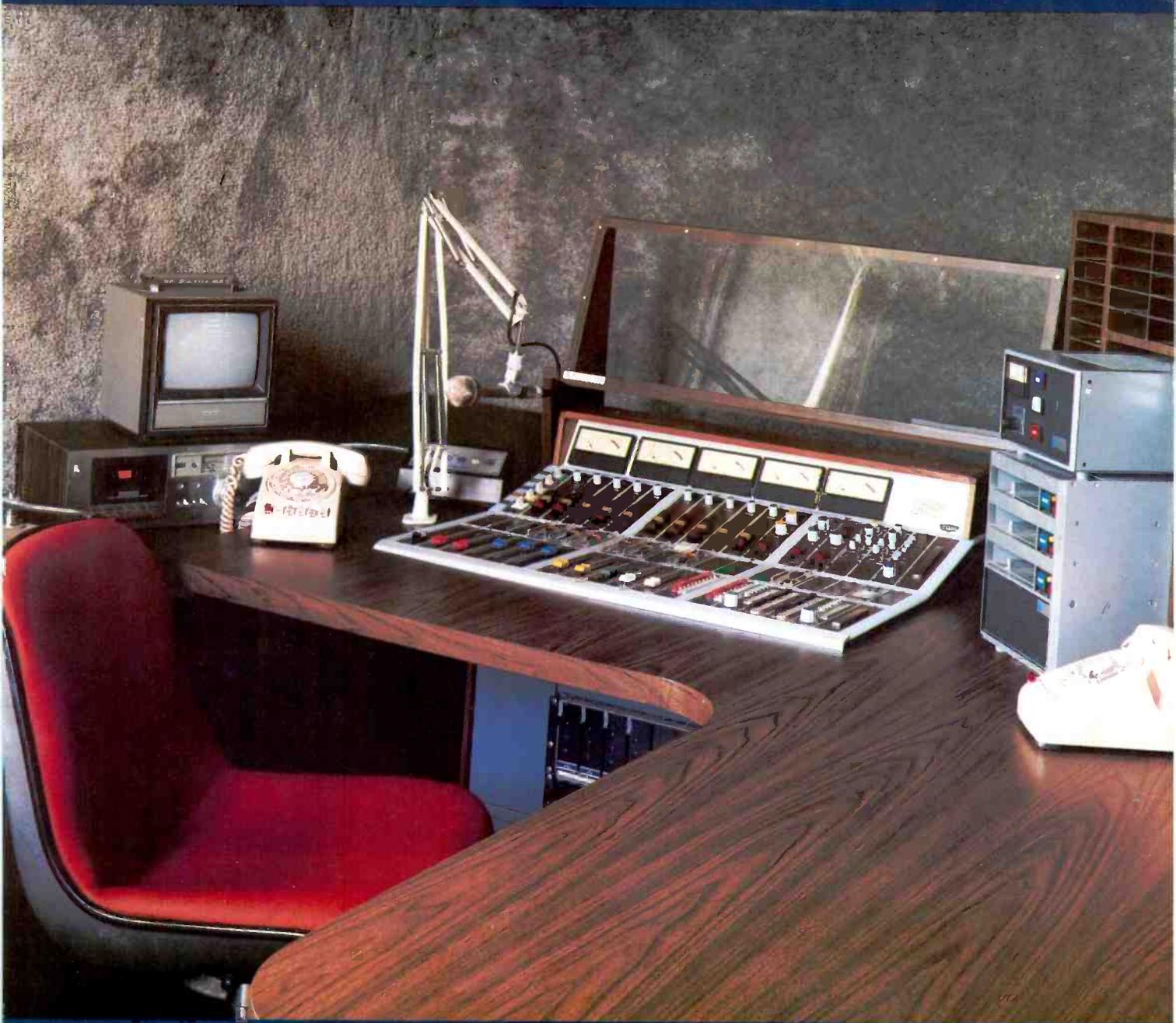
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