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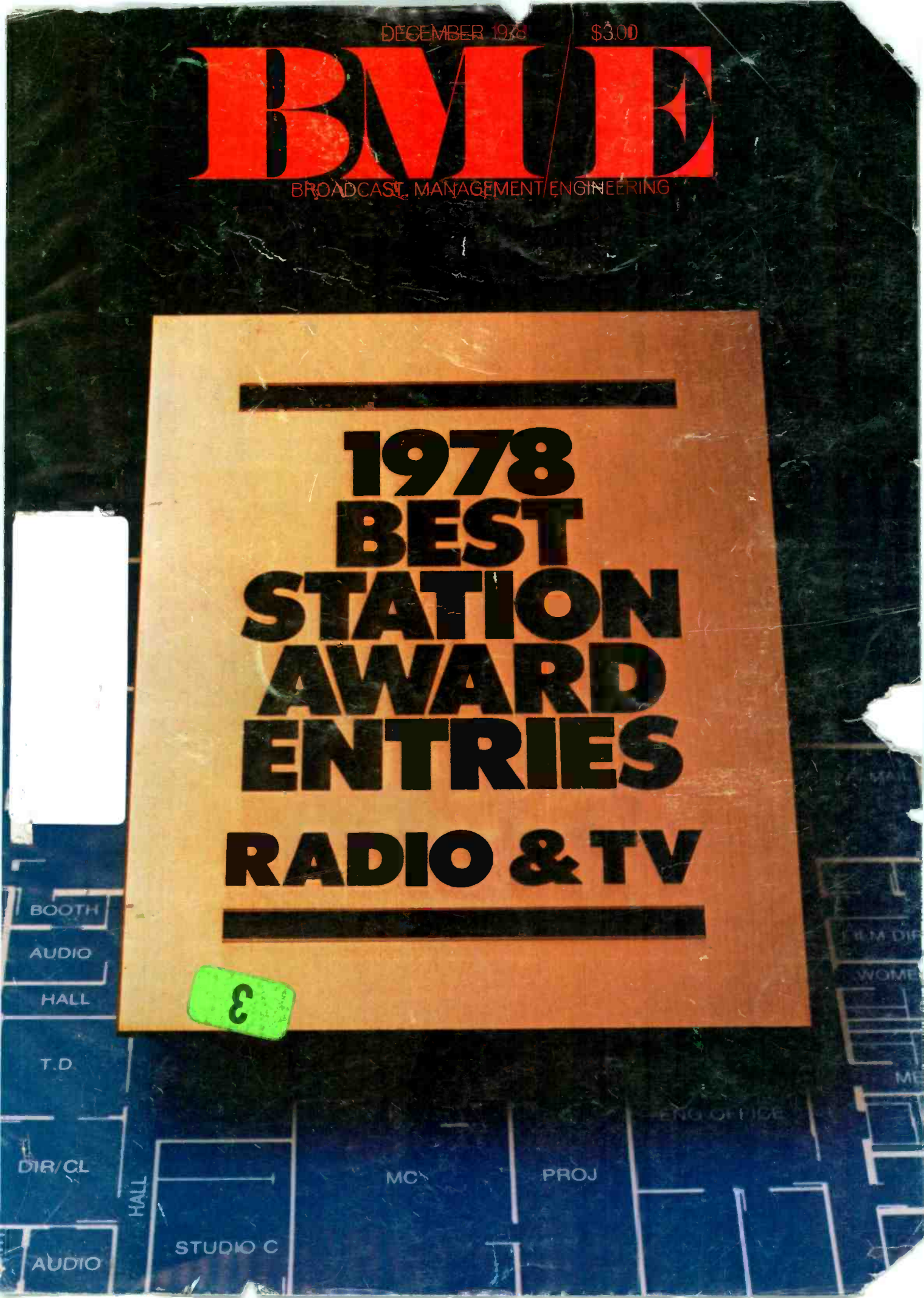

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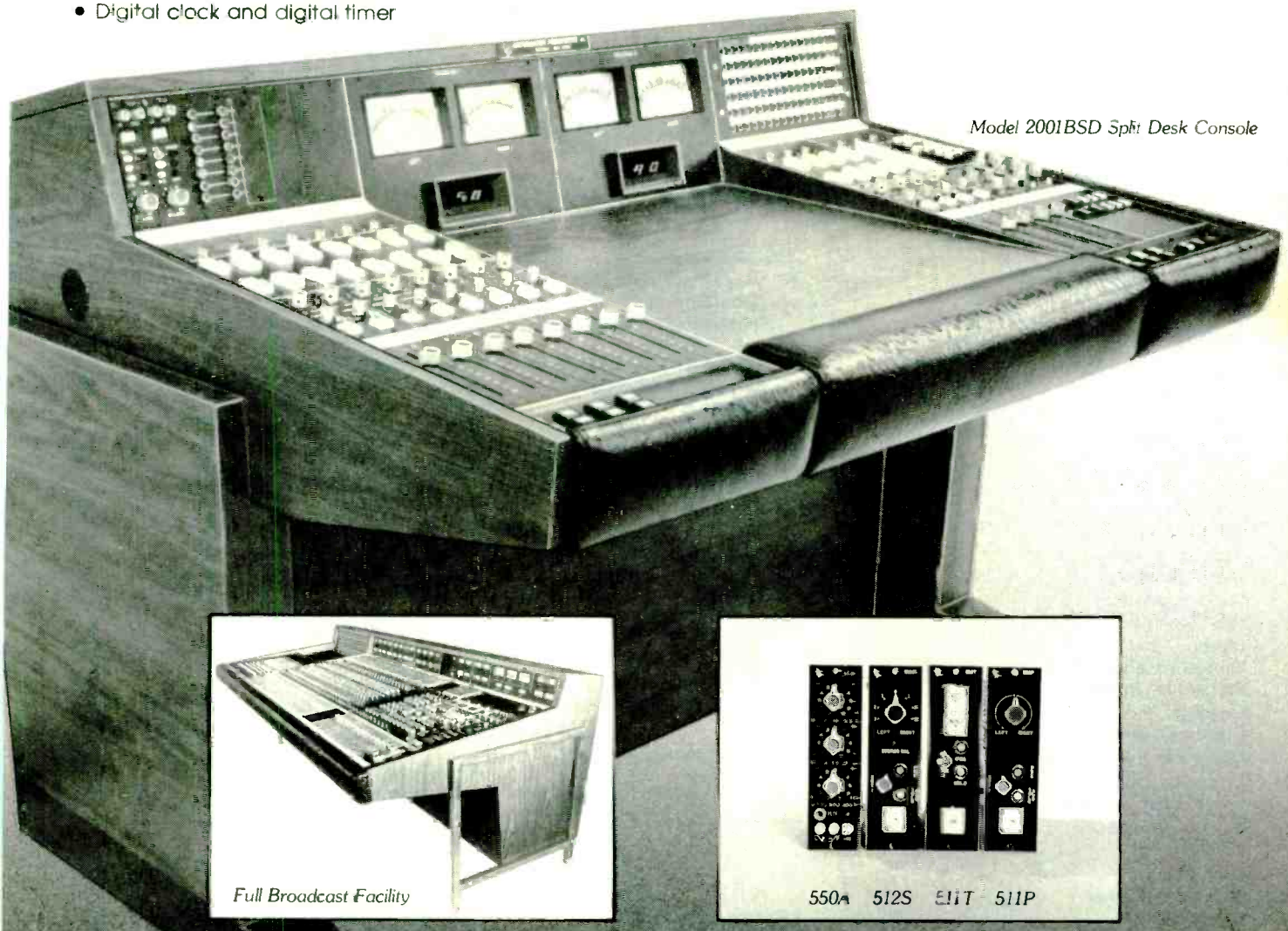

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BROADCAST INDUSTRY NEWS

TRAC-7 Moves Into Four Major Radio Markets

TRAC-7, which was announced at NAB, Las Vegas, and described in *BM/E*'s "Radio Programming" column in July, began measuring radio audiences, demographics, and other media consumption and marketing behavior in New York, San Francisco, Washington, D.C., and Dallas/Fort Worth markets on October 19.

Last September, the Radio Advertising Bureau and the National Association of Broadcasters contracted Audits and Surveys of New York to develop a new rating methodology. The result is TRAC-7.

In summary, the system employs seven consecutive daily interviews with each respondent to record the last 24 hours of radio listening. Most importantly, the interviewer, not the respondent, keeps the records, and the data is fed directly into a computer. The system utilizes random selection of listed and unlisted telephone households via random digit dialing within previously identified residential exchanges. Only one person per household is selected, eliminating "yea saying" and the possibility that one person will respond for all others.

At the time this issue went to press, subscribers numbered 50 radio stations and 30 ad agencies. Miss Avery Gibson, vice president of marketing, Audits and Surveys, said that station subscribers can expect their first monthly report on December 1 and the first full quarterly report in January.

The company is scheduled to open four additional major markets in January, with Los Angeles, Chicago, and other markets scheduled for an April 1 startup. A cooperative buying program for interested markets allows for such markets to purchase TRAC-7 at about a 35 percent savings compared to the cost of the Arbitron service.

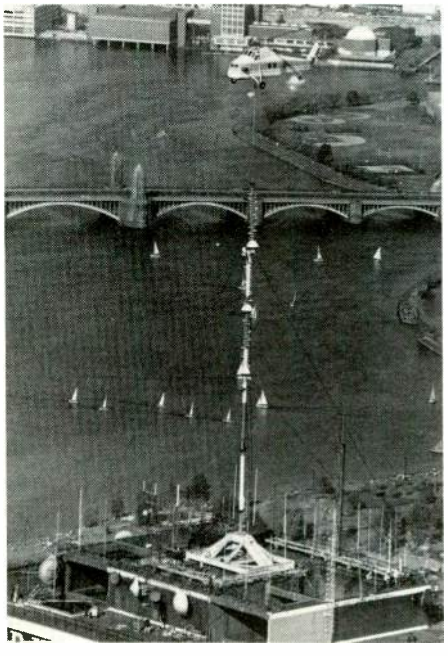
Radio Deregulation: This Is A Test

The FCC, planning an experimental deregulation of radio in major markets, has instructed its staff to develop a set of options for the Commission's consideration regarding the elimination of certain regulatory rules and processing guidelines applied to all radio stations. The rules and procedures to be considered for elimination are those concerned with the amounts of informational programming and commercials, and the ascertainment of community needs and interests on a pilot basis in one or more markets with a large number of radio signals available to the public.

The Broadcast Bureau and Office of Plans and Policy were instructed to develop the options and a research and monitoring plan to determine the results and policy implications of any experimental program that might be proposed to the Commission. The General Council was asked to provide advice regarding the possible limits on such an experiment under the Commission's existing statutory authority.

It is reported that Chairman Ferris and Commissioner Fogarty foresee no conflict between the deregulation experiment and the public interest standard. Both officials endorse the determination of satisfied public interest on a market-by-market rather than a station-by-station basis. Late December is the target date for the plans, which will be open to public comment then. The actual deregulation experiments are expected to be underway by next fall.

Country's First Circularly Polarized UHF Station Gets Antenna



On October 22, WQTV, channel 68, Boston, became the first UHF station in the country to own a circularly polarized transmitting antenna. In a day-long operation, a heavy-duty cargo-lift helicopter carefully lowered the three bays of a Cetec Jampro Spiral CP antenna into place on top of Boston's Prudential Tower — almost 1000 feet above sea level.

WQTV, owned by Boston Heritage Broadcasting, will be the country's fourth over-the-air pay TV station and will carry programming, including first-run movies, supplied by Universal Subscription Television. The station will supply subscribers with circularly polarized receiving antennas in addition to descramblers.

FCC And SBS Petition U.S. Court Of Appeals

Satellite Business Systems and the FCC have petitioned the full nine-member U.S. Court of Appeals in Washington to rehear the Court's earlier rejection of the FCC's approval for SBS operations.

A three-judge panel of the Court had ruled that the FCC's argument for license approval was in violation of the Clayton Antitrust Act. SBS has claimed that section seven of the Clayton Act is "expressly limited to acquisitions and mergers" and not to partnerships such as SBS.

In the SBS appeal for a rehearing, it was claimed that in placing such emphasis on the Clayton Act, the Court was inconsistent with other antitrust laws such as the Sherman Act. SBS also argued that the FCC's legal requirements were fulfilled when it imposed numerous conditions on the authorization and noted that it would continue to scrutinize the partnership for anticompetitive conduct and impact, and that

continued on page 8

With our new 3200 your audio can equal your video

Somewhere along the line, video technology got ahead of audio technology. Now, Audio Designs and Manufacturing has evened the score.

Our new modular audio consoles are the perfect match for today's video equipment. In fact, we believe our new 3200 and 1600 broadcast production consoles are the forerunners of the audio equipment of the 80's. You won't see anything else like them, at least not this side of late 1979.

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Learn more about how ADM can increase your audio capabilities. Contact Audio Designs and Manufacturing, Inc., 16005 Sturgeon, Roseville, Michigan 48066. Phone: (313) 778-8400. TLX-23-1114. Southeastern Office: Phone (904) 694-4032. AMPEX Distributed outside U.S.A. by Ampex International Operations, Inc.

ADM

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the FCC should not be required to hold full-scale evidentiary hearings. SBS noted here that the Court had upheld two previous FCC approvals involving domestic satellites, and that evidentiary hearings were not required then, even though there were antitrust objections involved.

SBS is also seeking authorization to continue its system implementation activities pending resolution of the antitrust issue.

3M Metal Tape In Japan

3M introduced its Metafine audio tape at the Audio Fair, Tokyo, and announced plans to go ahead and market it there sometime this month. Fuji is also expected to have a similar tape on the Japanese market before the year is out.

Toshiba, JVC, and Lux showed Metafine-compatible decks in Tokyo, and expect to market them in Japan by the end of the year. Tandberg showed a metal-tape deck in Japan and at the AES show in New York, but has delayed production until the spring due to a lack of software.

Some Japanese hardware manufacturers, however, claim that they can't produce decks until a tape standard has been adopted. Sony, Matsushita, and Pioneer do not want to market hardware until important coercivity and retentivity standards are universally established.

Even though JVC and Lux expect to show metal-tape decks in the U.S. early next year, some question remains of the significance of the introduction of this new technology, due to the lack of accepted standards.

NEC's Type C VTR Marketed By 3M

Frank D'Ascenzo, manager of video products at 3M/Mincom, and Dennis Fraser, vice president of NEC America, announced the negotiation of a marketing agreement that could lead to 3M marketing NEC's new TT-7000 SMPTE Type C VTR. The announcement was made at November's SMPTE conference in New York.

The TT-7000 is a studio model VTR offering the operational features of all competitive machines, and more. Unlike other one-inch machines on the market, the TT-7000 is 19-inch rack mountable.

According to Fraser, production models should be available in time for the NAB convention in March, and are expected to be priced with or below Type Cs currently on the market. Furthermore, Fraser said that come the Dallas NAB, NEC should be able to show models of the Type C machine with the equivalent of Ampex's Automatic Scan Tracking, and an editing system as well.

Fraser went on to say that NEC had the capacity to produce 1000 one-inch machines a year, and that they viewed the market as quite large because "it [the Type C one-inch VTR] is a replacement for quad."

3M's D'Ascenzo cited studies that identified a market for 13,000 one-inch machines over the next ten years. He also revealed that the marketing agreement would call for 3M personnel to be trained to provide proper service and support for NEC's TBCs and associated equipment as well as the TT-7000.

It is expected that negotiations for the marketing agreement will be completed by the first of the year.

Chrysler's Nationwide Communications Network Uses Sony Betamax

Chrysler Corporation has established a nationwide Video Marketing Communications (VMC) network involving several thousand of its dealers. The

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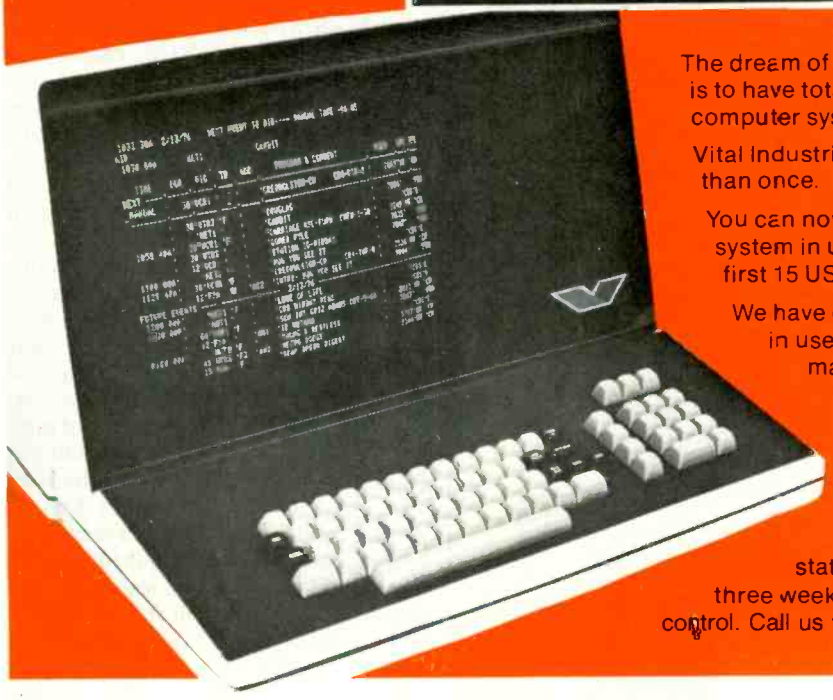
THE VITAL BUSINESS CONNECTION MAKES TV AUTOMATION TOTAL = VIMAX-200



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network is specifically designed to expand Chrysler's training, communications, marketing, and sales information programs, and represents one of the largest industrial applications of videotape technology in the U.S.

The basic system hardware consists of the Sony SLP-300 Business Betamax, RM-300 random access unit, and a 19-inch Trinitron monitor/receiver. To date, 4000 such systems have been purchased, and 3800 have been installed in participating dealerships. The network also includes SLO-320 player/recorders and SLO-340 battery-operated portable recorders.

The RM-300 Auto Search Control plays a significant role in the system's intended use. It allows a number of individual programs to be recorded and then located on a single tape. Working with telephone-like pushbuttons, the RM-300 permits a viewer to select any particular segment on a given tape. For example, if a prospective customer wishes to review the transmission system on a given model, the salesman can play only that section of the tape. Similarly, a serviceman can review the more difficult parts of any technical tape easily, and as often as necessary.

Chrysler had Sony's full cooperation in designing and implementing this communications network. One of the first tapes distributed to dealers was produced at Sony's training facility, in Compton, Calif. It explained the installation, setup, operations, and preventive maintenance for the systems. Sony also established a "hot line" to provide service to the Chrysler dealers. The systems will receive maintenance support at each of Sony's seven regional facilities.

Video Expo '78 — Home VCR Gear And Programs Make Inroads

At this year's Video Expo, Madison Square Garden, New York, an estimated 8000 registrants visited more than 100 exhibitors and attended sessions to discuss various aspects of non-broadcast television.

Most companies familiar to broadcasters took this opportunity to exhibit broadcast equipment to this principally non-broadcast audience. There seemed to be relatively little in the way of totally new technology that broadcasters hadn't seen before. Some of the companies that brought equipment previously shown at the NAB in Las Vegas were Sony, Consolidated Video Systems, Microtime, Hitachi, Convergence, and Utah Scientific. Other exhibitors included some companies exclusive to the non-broadcast market.

Software distributors for the home VCR market were on hand also, with cassettes ranging in subject matter from tennis and cooking instruction to children's cartoons and X-rated features.

Sony introduced the VP-2260, a new capstan servo U-matic playback unit that can be operated as the player side of the VO-2860/RM-430 editing system, and offers a reduction in the cost of high quality tape-to-tape editing. A dub out feature permits editing or duplicating video signals without serious loss of picture quality, and a capstan servo system assures a stable picture with minimum jitter. The unit also features a pause operation for still frame viewing (when using KCA or KCS videocassettes), BNC in/out connectors, internal dropout compensator, external sync, and SC connector for operation with a Sony BVT-1000 TBC. Sony also showed two new projection systems, the KP-7200G and KP-5000G, designed for industrial use. The one-piece compact units feature nine-inch monochromatic projection tubes and a

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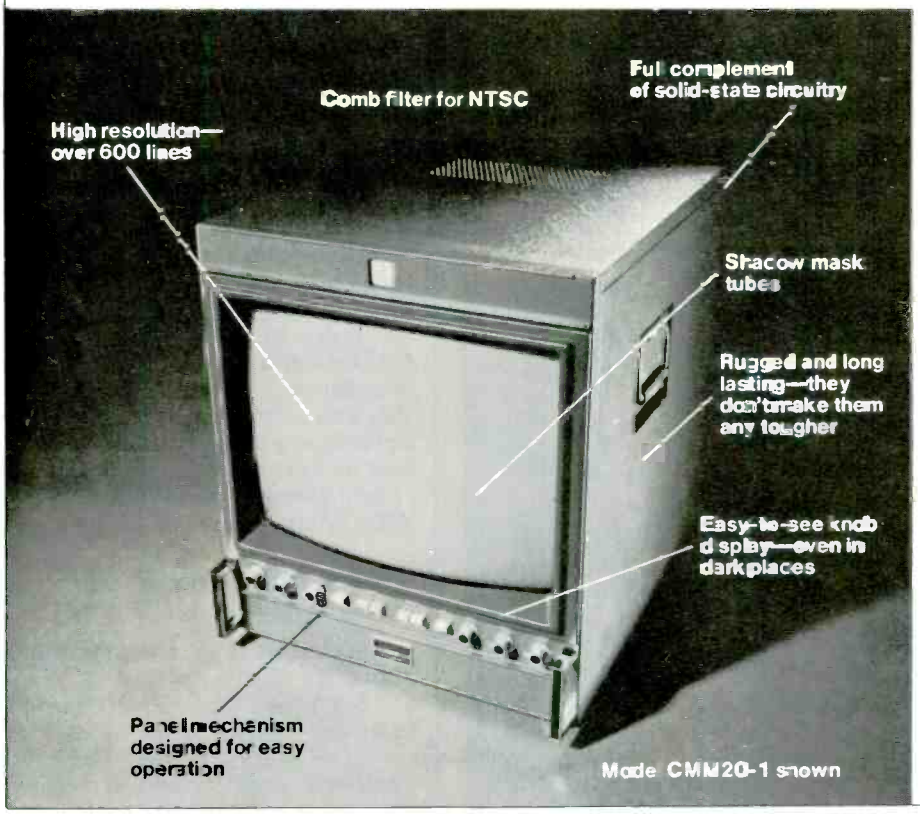
BUILT TO TAKE IT!



Asaca Color Monitors. Ruggedly reliable for remote or mobile installations as well as studio control rooms.

Built for a long life and the ability to meet the demanding needs of professional broadcasters and production houses.

21 models: 20-inch, 14-inch and 10-inch high resolution models with comb filter for NTSC. RGB also available as are 20-inch and 14-inch PAL.

Provide balance of color in control room. Solid state. Shadow mask tubes. High stability feed back clamping circuit. Pre-set and memory mechanism plus other features demanded by sophisticated systems.

Contact your Asaca Distributor for details or demonstration. Or write to:

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ASACA CORPORATION OF AMERICA
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(312) 298-4380

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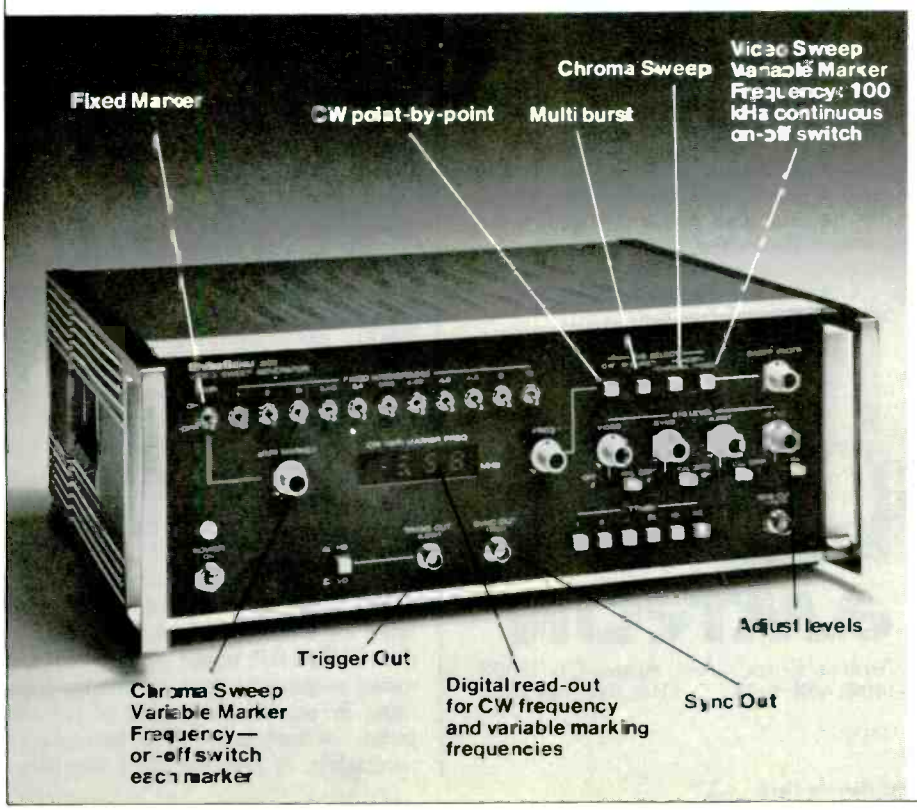

AND MAINTAIN IT!! Measures frequency response on TVs, VTRs and other video equipment.

The Asaca Video Sweep Generator 205 contains a built-in standard color sync signal generator. The color burst can be switched on and off so the 205 is ideal for oscillator comparisons to measure frequency response of color equipment.

There is a selection of output signals: video sweep (0.1 - 10 MHz), chroma sweep (sub carrier ±2MHz), CW and multi-burst.

Also, the 205 features facilities for composite sync signal outputs and trigger pulse outputs (H. D/V. D. Selectable) and so it can be used for oscilloscope triggering. Digital read out for CW frequency and variable marking.

Contact your Asaca distributor for details or demonstration. Or write to:

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special screen design to provide exceptional brightness and contrast ratios.

Cezar International, Ltd. showed the Black Box, a device that may be used in VTR editing systems, or at the output of a video switcher, to provide fade to black capability on any standard composite video signal. Reportedly, the device will not affect time base stability, sync pulse shape or width, burst shape or width, or the content of VITS and VIRS. The unit accomplishes its fade to black function by fading only the active portion of the video line. It fades to the sync portion of the incoming signal, and since no sync regeneration is involved, there is no effect on any other component of the signal. Cezar also showed the Infielder, a framing servo device designed to eliminate problems with non-framed edits on U-format VCRs.

Hitachi introduced the GP-7, a completely self-contained color camera with a single tri-electrode vidicon pickup tube. The GP-7 replaces the FP-3030. With built-in 1.5-hour battery, the camera weighs in at 11.4 pounds. Power consumption with electronic viewfinder is only 11 watts. The GP-7 has field as well as studio applications, and offers adjustable H/V blanking, more than 250 line resolution, and more than 40 dB signal-to-noise. Genlock capability is optional.

Utah Scientific introduced its new series of CAV-7 compact audio and video routing switchers, which utilize the same circuit cards and perform to the same broadcast specifications as the company's larger AVS-1 series switchers. The units are available in seven basic configurations for video only, audio-only, audio-video, and tally voltage switching. Maximum matrix sizes are 20 by 10 audio/video, 50 by 10 video or audio only, and 20 by 20 video or audio only. The matrices are available with either local or remote control and feature a refresh memory with 24-hour memory-save. Optional FSK tone control permits remote operation over STLs or land lines.

Broadcast equipment for the industrial market

Dynasciences announced the acquisition of the Spectravision line of editors and introduced the JBT-1034 video editor programmer, which has an accuracy of ±1 frame per VTR for each roll. The unit features Digital Insert Memory for precise out-cueing of insert edits, LED readouts in minutes, seconds, and franes, rolling preview and automatic edit review, and stepless bi-directional search (of U-matic cassettes) from frame-by-frame rate to 2x, 4x, or 12x normal play speed (depending on VTR). Options available include: Time-Trak digital counter which displays tape position in minutes-seconds-frames on the monitor screens; Digital Tracking Indicator, which displays relative tracking values on-screen for each VTR; and Random Access, an autosearch option in which numeric keypad entry of time allows automatic search to any portion of the tape. Dynasciences also showed the Model 9048 Video Graphics System (see *BM/E*, May NAB Show-In-Print issue).

Convergence Corporation was on hand with the ECS-100 Superstick Series Editing Control Systems, which interface with most low cost VCRs as well as the new one-inch type C VTRs. A featured option to the ECS-100 series systems is the CL-100 CUT/LAP Transition Programmer which enables the editor to create fades to black and simulated lap dissolves at the edit points. In the CUT/LAP mode, video only or video-audio edits can be made. Slow laps, ⅔ second each side of the edit point, or fast laps of ⅓ second, are selectable. A fade function provides a

one-second fade up at the in-edit point or fade down at the out edit point. Lap or fade may be selected for the in, out, or both edit points in an edit sequence. The 100 Series' other features include Liplock audio pitch control, auto return to edit, auto tag, and automatic dialogue replacement. The ECS-103 offers SMPTE time code, A/B rolls, special effects, split edits, multiple source machines, CRT display of all edit data, and hard copy edit list for auto assembly. Programmable animation, automatic audio monitoring, and adjustable edit cycles are also offered.

News Briefs

A Candidate's Guide to the Law of Political Broadcasting, published by the NAB, is a booklet designed to **familiarize political candidates with federal regulations** governing political broadcast advertising. Single copies are being sent to NAB members. Additional copies are available from the Association's Legal Department.

In a filing with the FCC, the **NAB has questioned the Commission's authority to include the handicapped** under its equal employment opportunity rules, and has asked that the proposal be dealt with in a separate proceeding rather than be included with modifications to its annual employment report form. NAB stated that there is doubt that the agency can formulate a workable definition of "handicapped," and that the Commission would violate the Privacy Act by gathering such information because it is not necessary to accomplish the Commission's statutory mandate.

CAMEO (Creative Audio and Music Electronics Organization) will prepare **a complete book on the fundamentals of creative audio.** The book will cover sound, microphones, mixing consoles, signal processing power amplifiers, speakers, recording systems, sound reinforcement, and MI interface. Ken Sacks, CAMEO president, said that the book would take about six months to produce . . . . **A new program** was inaugurated this past summer as an effort to fill the vacuum created by the shortage of well-trained audio technicians in the U.S. At the **Aspen Audio-Recording Institute,** students received intensive training in the **theory and practice of acoustics,** use of microphones, operation and maintenance of recorders, function and operation of mixers, use of audio tape, and experience in mixdown stereo. All recording was done with recorders and recorder/reproducers loaned by **Ampex Corporation.** Harold Boxer, director of the Institute and music director for Voice of America, said that the program was created in recognition of the "movement back to audio." He stated, "The biggest vacuum in our technology today is the way we foul up the audio of television. But that is going to change."

A new study on U.S. CATV markets by Frost and Sullivan, N.Y., **forecasts the increase of the CATV market** from $148 million in 1977 to $300 million in 1982. The study also projects that cable penetration into U.S. TV households, currently at 15 percent, will climb to 29 percent by 1986, and that over that period subscribers will generate almost $19 billion in gross revenues.

Greater Star Link Corp., Detroit, will build that area's first common carrier satellite earth station. To be completed soon, the facility will be leased by users which will include area broadcast stations and pay TV marketers. The station will receive signals from **RCA** and **Western Union** satellites.

The eleventh annual **International Television Association Conference,** dubbed "Video Encounter '79," will be held at the Hyatt Regency in Dallas, Texas, March 28 to 31. The conference

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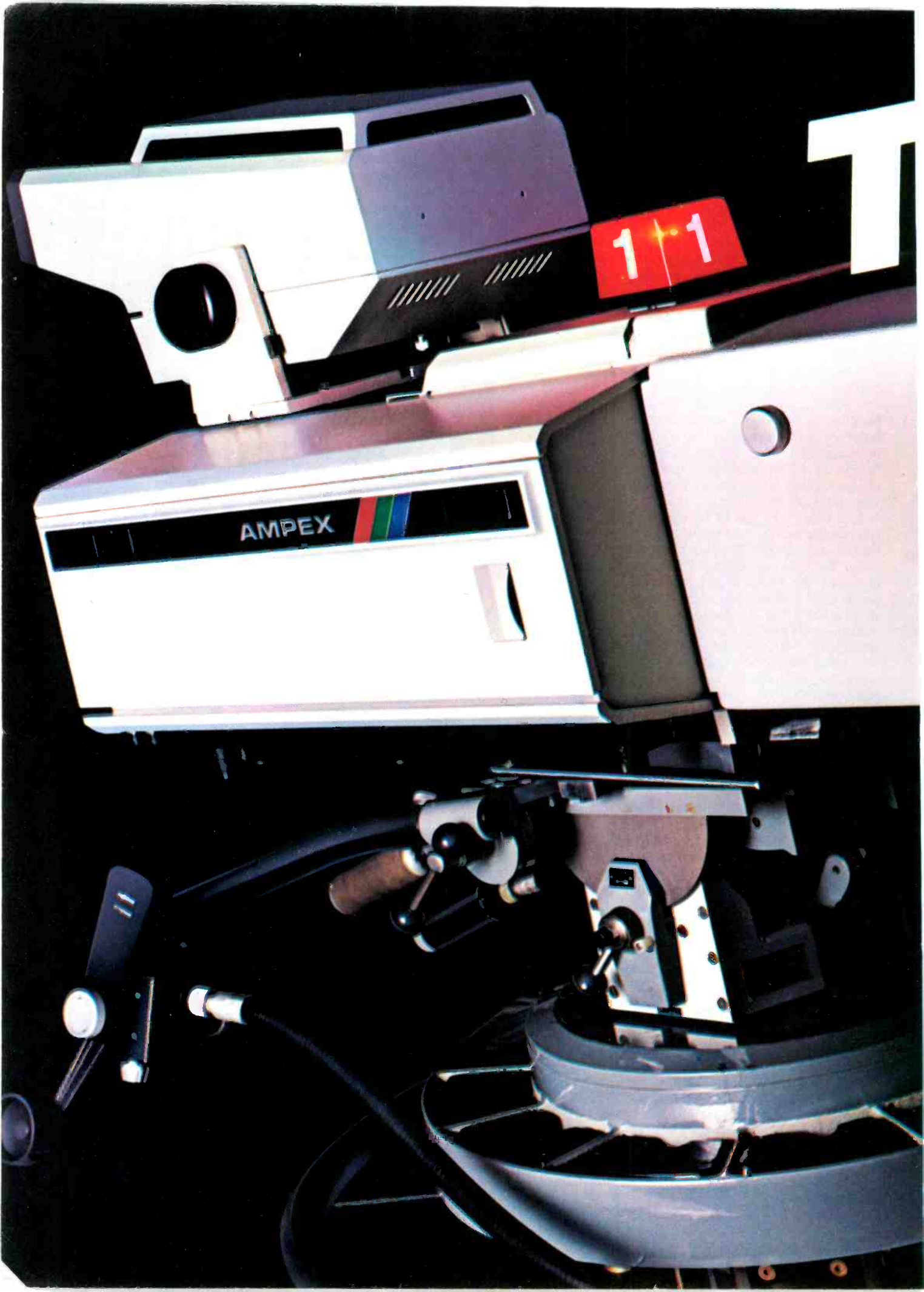
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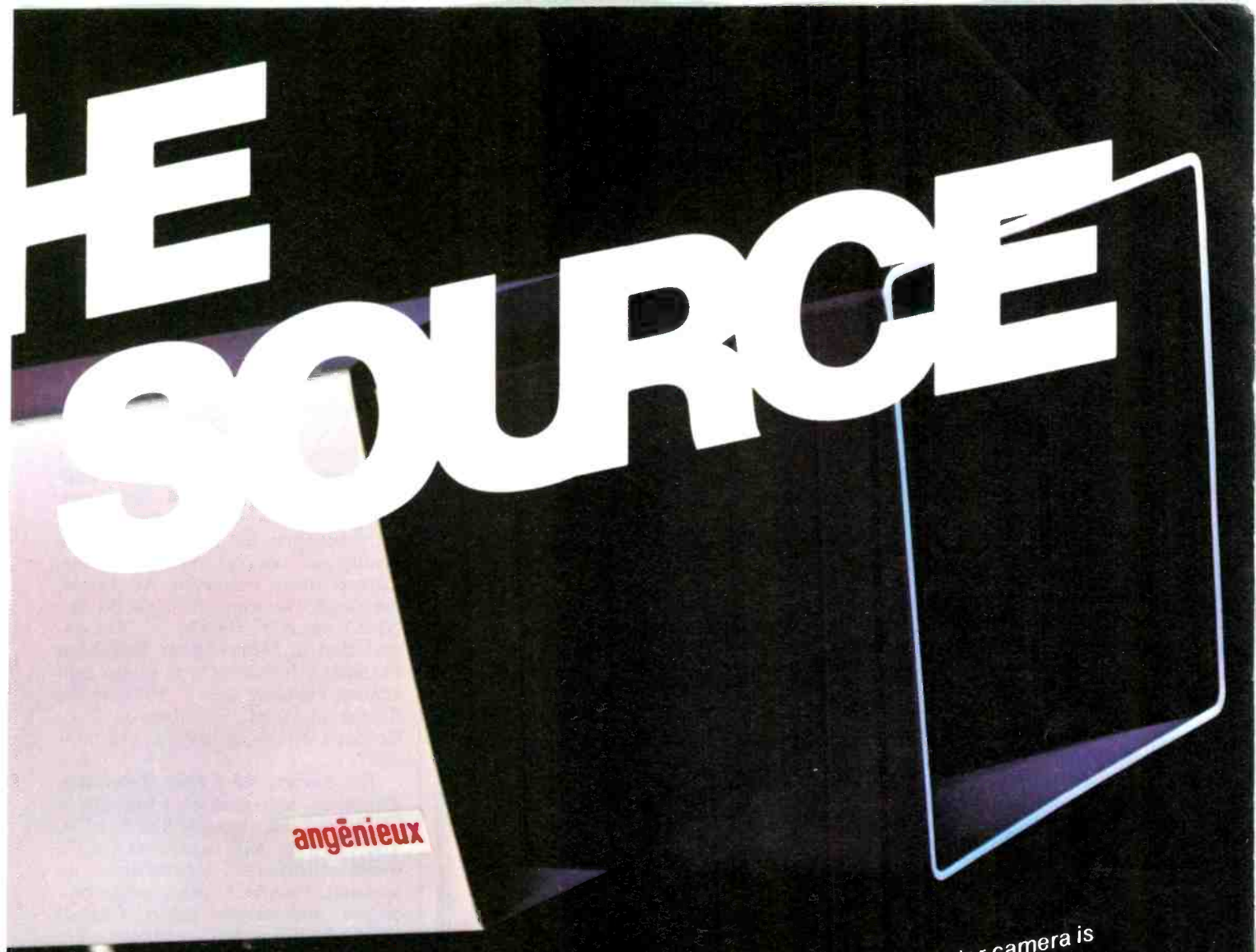

BCC-10

Television is a picture business, and the Ampex BCC-10 color camera is the source of the best video performance you can buy.

Measure video performance in terms of luminance signal-to-noise, and no other camera measures up to the BCC-10's 54 dB figure. Or measure performance in terms of modulation depth; BCC-10 wins again with 60% to 70% depth. The performance comes from a new generation of circuitry that employs the industry's most advanced video processing techniques.

Everything from color balance and centering to instant correction of critical picture adjustments is under automatic control. This is the camera (and CCU) that actually thinks ahead to minimize operator errors.

If you're using ACT tubes, the BCC-10 offers on-demand switching for longer tube life. And if you go to the newly developed diode gun tubes, the BCC-10 accepts them without modification. With either these or standard tubes, this is the camera that delivers the picture.

It all boils down to a single fact: BCC-10 is the only camera that'll let you capture the look you want. Ampex took the latest video recording technology and designed it into a studio camera that's a joy to operate.

Production begins right here. With the source. With the finest studio camera performance you can buy. The new BCC-10 from Ampex.

AMPEX MAKES IT EXCITING.

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News Briefs

will feature speakers, workshops, equipment demonstrations, and program viewing. By special arrangement, registrants of the ITVA conference will be able to use their passes for admittance to all exhibits at the **NAB convention**, which meets in Dallas, March 25 to 28. Contact: 1979 ITVA Conference, 26 South St., New Providence, N.J. 07974 . . . . **Imero Fiorentino Associates** will hold their 1979 regional **Television Lighting and Staging Seminar** January 22 to 24 at the WFAA Communications Center, Dallas, Texas. The seminar, designed for those engaged in broadcast and non-broadcast TV production operations, will provide comprehensive and practical instruction for improving picture quality and ease of studio operations. Contact Imero Fiorentino Associates, Education Division, 10 West 66 St., New York, N.Y. 10023 . . . . The **Association of Independent Television Stations** will hold its sixth annual convention February 4 to 7, 1979, at the Shoreham Hotel, Washington, D.C. Contact: Nicki Goldstein 212-575-0577.

The **Society of Cable Television Engineers** will sponsor a meeting in Melbourne, Fla. January 8 to 9, 1979. The program will center on CATV tower construction, maintenance, inspection, FAA/FCC rules, surge protection, and standby power. Contact SCTE, P.O. Box 2665, Arlington, Va. 22202.

Harris Corporation has recently reported the receipt of six TV and five radio equipment **orders totalling approximately $13 million.** The orders include: a 55 kW UHF transmitter, CP antenna, and four color cameras for **Marlite Broadcasting Co.** of Cleveland; two 30 kW UHF transmitters and an Andrew slot antenna for **Kentucky ETV,** Paducah; a 60 kW TV transmitter for **WJPT,** Jacksonville, Ill.; a 50 kW AM radio transmitter for **WGAR,** Cleveland; and a 110 kW UHF transmitter for **WAND-TV,** Decatur, Ill.

Scientific-Atlanta will supply Warner Cable Corp. with 50 five-meter diameter antenna receiving terminals and related communications electronic products. This "new satellite network" will make Warner's pay-TV star channel service available to most of the company's 600,000 cable TV subscribers throughout the U.S. . . . . **Coastcom** has sold 1100 Model 935 voice frequency compandors to **American Satellite Corp.**

Teleprompter Corp. has awarded Magnavox CATV Systems, Inc., a $980,000 contract for the supply of mainstation amplifiers, line extenders, attenuators, and equalizers.

IN THIS BUSINESS IT PAYS TO BE SENSITIVE.

The new Canon J13x9B is the ideal lens system for every situation.

For example, when you're covering an impromptu interview in a poorly lit hallway. Or a nighttime fire. Or a crime scene. Or when the weather itself is so bad that it's news. These and hundreds of low-light situations call for a sensitive lens. That's why the zoom on the business end of your ENG camera should be a Canon J13x9B. At f/1.6, it's the most sensitive in its class. And the rest of its specs are impressive, too. Like its 13-time zoom ratio from a wide 9mm to 118mm. Its built-in fluorite element for more accurate color correction. And its minimum object distance as short as 0.8m (31.5"). The lightweight J13x9B is available with a money-saving modular accessory package, giving you all the flexibility you need in the studio or field—now and in the future.

Specify the Canon J13x9B when you order your new ENG camera.

It's the perfect lens system for all types of field production, including news, documentaries, sports or any portable application. Because we're always sensitive to your needs.

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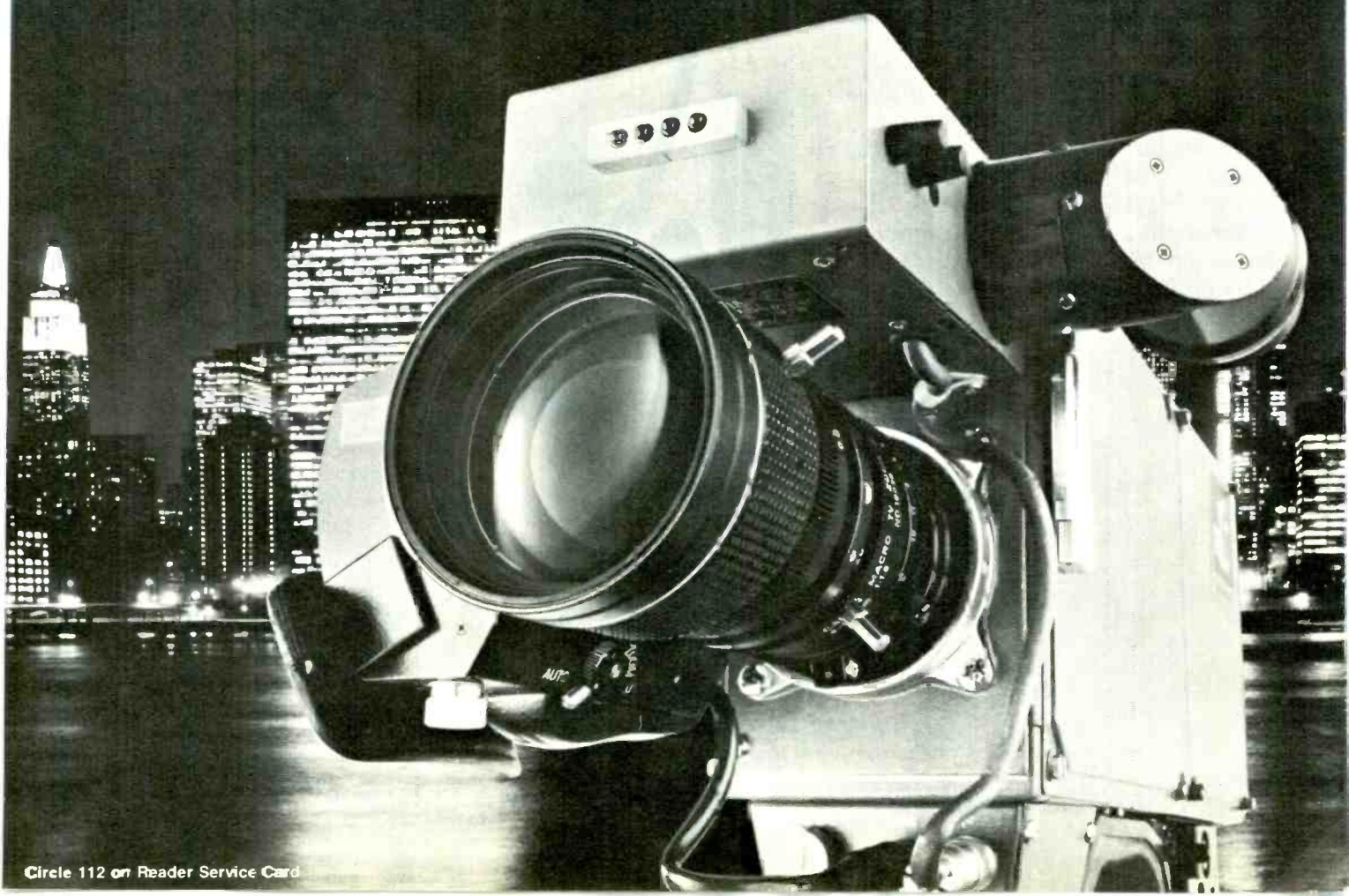

Circle 112 on Reader Service Card

OUR ORIGINAL BUSINESS WAS MAKING SOUND CONNECTIONS

We're still at it. We started in 1935 as the Audio Development Company producing jacks and jack panels for the broadcast and telephone industries. Since then, ADC has produced such innovations as Bantam Jacks, printed circuit board jacks and Wrapid terminal blocks. What are we doing for you today?

We are introducing our new line of low impedance audio connectors. We have six models now in production. They're reliable, compatible and competitively priced. Most important, they're available sooner. Ask about making a sound connection with ADC. Call or write today.

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A DIVISION OF MAGNETIC CONTROLS

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Sales offices in: Atlanta, GA (404) 766-9595 • Dallas, TX (214) 241-6783 • Denver, CO (303) 761-4061 • Fairfield, CT (203) 255-0644 • Lafayette, IN (317) 474-0814 • Melbourne, FL (305) 724-8874 • Menlo Park, CA (415) 323-1386 • Minneapolis, MN (612) 835-6800 • Washington, DC (202) 452-1043 • Montreal, Quebec (514) 677-2869

Circle 113 on Reader Service Card

Radio Managements In Small Markets Are Out Of The Fight For Points, And Do Well Without Them

IN THE RADIO MARKETS regularly swept by Arbitron, most station managements are necessarily in the fight for those life-or-death points in the semi-annual ratings. Winning at least a respectable position on Arbitron's tables is essential to staying alive.

But the many stations in non-rated markets are not thereby blocked out of the road to success. In some ways, they are better off than their rated brothers. Since so many non-rated stations are highly successful, it is clear that they have developed valid methods for convincing ad buyers of the worth of their audiences. The following is a brief general account of such methods, as uncovered in *BM/E* interviews with more than a dozen representatives across the country who sell for many non-rated stations. These findings supplement the information on audience measurement methods in the July, 1978 column, "Counting The House: How Radio Management Peeks Through The Curtain."

Where Arbitron is irrelevant

The methodology described here deals mainly with selling time to regional advertisers. National advertisers seek almost exclusively the rated markets. Local merchants tend to buy time on the basis of their own personal knowledge of the station's performance, especially the sales results of earlier campaigns by themselves or other merchants in the community. Regional advertisers need certain kinds of information, often developed by the station and the sales rep, working together.

That information does not include estimates of the actual number of people who listen to the station at various times during the day. In the single-station market, the management needs only some evidence that a substantial portion of the community does hear the station, and that evidence can come from many sources, as discussed in the July column: contests, joint promotions with local merchants, sales results for local merchants, etc. Since the management has no need to show that they get *more* listeners than somebody else, Arbitron-type ratings are irrelevant.

Naturally, it would be nice to know how many people are actually tuned in at any time, but by itself this would not be persuasive. The advertiser is more interested in the kinds of information outlined in the following paragraphs.

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What The Reps Say

Following are excerpts from additional interviews on this topic, which expand and extend the information in the accompanying article.

Mrs. Pat Wilcox, president of Broadcast Representatives, Little Rock, Ark., pointed out that in addition to the size and nature of the market and the station's programming, many time buyers want a run-down of the station's facilities. This includes ERP, type of antenna, resultant coverage, and the general technology used for putting programs on the air.

Gene Pyle, president of Creative Communicators, Ft. Wayne, Ind., carries the idea of knowing each market intimately to the extent of becoming almost an addition to the station's own sales staff. This entails spending a great deal of time in each city, talking to local merchants and other businessmen.

Paul J. Ewing of the Paul J. Ewing Company in Minneapolis emphasized the need for good statistical information about the station's market, with demographic breakouts whenever possible. He said that the recent Arbitron county-by-county summary of such information had been somewhat disappointing because it did not furnish breakdowns to the extent many buyers would like.

Mel Stone of Lobster Radio Sales, Portland, Maine, emphasized that the *sound* of a station determines the audience and that this is basic selling data today.

Radio Programming

Besides, getting that really non-essential number involves the huge expense, the uncertainties that attach to all the rating methods.

It's the programming that counts

Even in markets with two or three stations, comparative ratings have become less important to regional advertisers than the *kind of programming* the station does. More and more advertisers are seeking a specific target among listeners, the part of the demographic spectrum that is expected to respond to a specific product. Thus, the exact number of people who listen to a station is often less important than the kind of people they are. This tendency encourages the swing to specialization in programming, so marked on the radio scene of the last few years.

Barry Noll of Carolina Spot Sales in Cary, N.C., gives a good example that makes this point vividly. He has a market in which his station is a 1 kW daytimer, and there is a competitor in the form of a 50 kW FM station. The FM station is a rocker. The daytimer puts out large amounts of information for the surrounding agricultural community: weather, market reports, discussion of farm techniques, etc. An advertiser with a product for farmers picks the daytimer, even though the FM station probably reaches more people.

Good sound sells

So the regional advertiser wants to know how the station sounds, and that includes not only the kind of format but also how good a job the station is doing at it. Noll takes with him samples of the station's sound in the form of air checks. He has found a good sound to be a powerful persuader.

The rep also needs several other kinds of information. This general rundown was described as essential by all the reps interviewed. It includes the facilities of the station (power, etc.); facilities and programming of competitors, if any; the geographic coverage; the number of potential listeners; the size of the market, for instance, total retail sales in the area, if possible broken down to show sales of products of the advertiser's type; economic level of inhabitants; and any other information that will help characterize the market.

Know all about the market

The more the rep knows about the market, the more effective he/she can be. Ruth Schmid of the Soderland Company in Omaha said that members of that firm spend a lot of time in each market, talking to businessmen, consumers, and town officials, finding out

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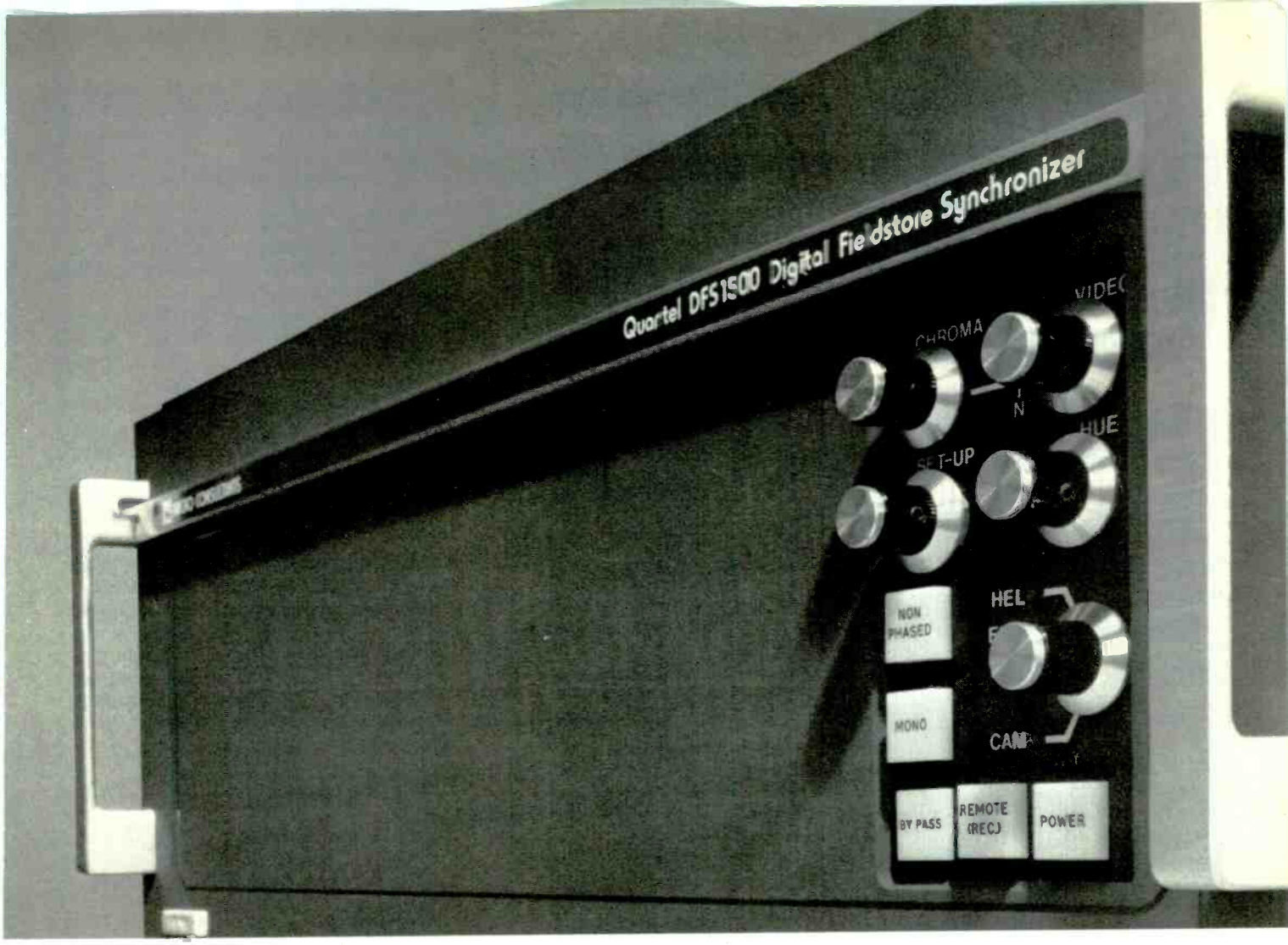

QUANTEL PRESENTS THE DFS 1500. SYNCHRONIZER. TBC. PRODUCTION TOOL.

The same folks who brought you the world's first portable synchronizer now bring you the Quantel DFS 1500 synchronizer/TBC.

At a price within the range of every broadcaster.

Of course it has full digital synchronizing capabilities. Plus time base correction. And SPG.

And its infinite window always maintains correct vertical blanking to FCC specs.

That's not all. Unlike stripped down units, the DFS 1500 has options that increase its capabilities as your needs change.

Such as heterodyne time base correction with **automatic** detection of direct or non-phased color sources. Drop out compensator. And complete remote control so you can put it anywhere you want in your facility.

Like all Quantel synchronizers, it's portable, dissipates only 250 VA, and operates with any switcher. It uses proven 16K RAM technology, with sufficient storage to prevent transposition of VITS and VIRS and to handle wrong field edits.

The DFS 1500. A production tool that can help you put a better picture on the air.

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Your MCI/Quantel representative is waiting to give you full details. Call him now. Or get in touch with us directly:

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P.O. Box 10057,
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415/321-0832.

Circle 134 on Reader Service Card

The digital video people

Radio Programming

what the main local concerns are. And G.A. Myers, of Mountain Media in Denver, added that an important part of this local surveying is finding out how the station is regarded in the community.

Again, it is the quality of the response to the station, rather than the precise number of listeners at any time, that the advertiser in small markets accepts as important. So the station or the rep (or both) asks businessmen who already advertise on the station — and those who don't — what they think of it. A special part of such a survey is asking local retailers of products like that to be advertised how they feel about the station.

Getting feedback by phone

If the small-market manager wants to find out what a sizeable sample of the community thinks about his station, he can do as recommended by J.O. Ramsland of Hyett-Ramsland in Minneapolis: hire statistics students from the local college (or any available well-educated group) to call several hundred or several thousand people for their opinions, with a carefully drawn set of questions. But this is *not* to count the house; without highly sophisticated sampling techniques, it will not estimate the audience even as well as Arbitron and its rivals do. The small-market telephone survey simply gets a reasonable volume of listener feedback, valuable in selling ads and also for marking any parts of the station's operation that are not doing well with listeners.

BM/E's survey in this area led to the conclusion that the small-market manager can base his selling on more durable, more solid data than the rated station, for which so much depends on a few points in the Arbitron tables. Those points can "wobble" unexplainably, and disastrously, from one book to the next. And the spread from one station to another, accepted as holy writ by the time buyers, may be within the unavoidable margin of error in the sampling methods that all the rating services use. The small-market management really has it better.

BM/E's Program Marketplace

Syndicators For Radio

Churchill Productions

1130 E. Missouri, Suite 800
Phoenix, Ariz. 85014
Tel.: 602 264-3331

"PLANNED FLOW" is the quality that Tom Churchill, president, and his brother Mike, vice president, assign to their beautiful music format, which they began to syndicate late last year as Churchill Productions. That, as they will be the first to admit, is a kind of shorthand, a symbol only; as with all syndicated material, the proof is in the listening and in the reactions of audiences over extended periods of time.

As far as the long-term reactions of audiences are concerned, the Churchills have an impressive history. They operated station KRFM in Phoenix from 1963 until after its sale to Southern Broadcasting in 1973. The station was Number One or near it throughout the late '60s and early '70s. Through that period, it consistently had the highest share of any FM station regularly measured by ARB. There was a dip when the station went to a syndicator, but then in 1975, Tom Churchill reached an agreement with the owners to program the station himself.

In the following six Arbitron books, KRFM was first in its market five times. With this kind of success as a springboard, the Churchills decided to go on their own in mid-1977, with KQYT (the new call for KRFM) as their first customer. At the time of this writing Churchill had added WCZY in Detroit, KFLG in Flagstaff, Ariz., and WDOK in Cleveland, a good footing for their climb into national syndication.

The agreement with KQYT included Churchill's use of the equipment that had produced the programming in the station, and use of the station's valuable library, accumulated from operations going back to 1963. The Churchill studios were set up in a brand-new building just then going up in Phoenix, and were designed to Churchill's specifications. They were put into service in June, 1977.

Churchill not only uses the library from KQYT, but is adding new beautiful music from every available source. Like other syndicators with this format, Tom Churchill says that finding good material is hard and very expensive. He reports getting material from several of the custom recording sources noted in earlier columns here that fills at least

part of the hole left by the record companies' abandonment of the field.

The initial delivery to subscribers consists of about 160 hours of music on one-hour reels. The material is recorded in quarter-hour segments, allowing the station to use the material readily, putting in commercials, PSAs, or other non-musical material wherever wanted. Each program day is laid out by Churchill for the whole 24 hours, with material in the proper sequence for the different parts of the day. Space is left, of course, for all non-musical material ordinarily inserted, the commercials, news, PSAs, etc. All the stations so far using the service are non-automated, with the local "talk" put in by the operator at the gaps in the music established by the management. Most of the stations carry news summaries and about seven commercial units per hour.

Unlike most of the syndicators described in earlier columns here, Churchill duplicates programs at high speed. They have extensively modified a high-speed duplicator for this purpose. Tom Churchill's point of view on this is that at high speed, if you know what you are doing, you have more control over the process. "You have a lot more to work with at 15 ips than at 7½ ips," he points out, "and the same applies even more at higher speeds. If you go eight times up, and use equipment that costs quadruple what a tape machine costs, you have a better way of doing it."

Since Churchill took over KQYT's programming, there has been a 97 percent increase in average quarter-hour audience (over a period of six books) and a 64 percent cume audience growth in the same period. The direct competition — the other local station with similar programming — has had only nominal growth in the same period.

What are the main characteristics of the programming that have helped it score this success? Tom Churchill refuses to put it on the spectrum from "foreground" to "background," saying that those are slippery terms. It is "easy listening," not bright and bouncy. "We want the listener to be comfortable with us, but we don't want to be shoved completely into the background. We don't play three standards in a row. It is a more contemporary sound."

He points out that the really critical quality of any format is staying power. Almost any change to a fresh sound will initially pull in new listeners. But if the programs are not carefully made, after a while fatigue will set in, and the listeners will tire of it. "We do everything in our power to keep our material interesting month after month," he says. So far, Churchill Productions seems to be winning handily in this battle. **BM/E**


SONY
DIGITAL TIME BASE CORRECTOR
INPUT LEVEL
NORMAL
BYPASS
DIRECT
PROCESS
ADV SYNC PHASE
VIDEO
CHROMA
SET UP
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SYSTEM PHASE
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The Sony BVT-1000. Consider the logic.

A time base corrector is part of a system. A system that includes a video tape recorder.

Isn't it logical that a company which manufactures video tape recorders would have an inside track on what it takes to correct time base error in a VTR signal?

We're talking, of course, about Sony Broadcast.

The company that pioneered professional U-matic video recorders. And introduced the BVH-1000 1" High Band Video Recorder, that has the whole broadcast industry moving in a new direction.

Sony Broadcast has matched these impressive video recorders with an equally impressive digital time base corrector. The BVT-1000.

And before you face up to the difficult decision of which TBC is best for you, consider the logic of the BVT-1000.

1. The economy of a complete package. Sony Broadcast knows that line-by-line velocity compensation, complete video processing with advance sync, drop-out compensation, and the ability to handle both direct and heterodyne color are not just "options."

They're requirements. Requirements that broadcasters need and use in day-to-day operations.

So we make all these so-called options standard built-in features of the BVT-1000. And you save dollars in our greater production efficiency.

2. The advantage of superior technology. The economy of the BVT-1000 doesn't mean you sacrifice quality.

Far from it.

The BVT-1000 incorporates unparalleled technological excellence. Excellence demonstrated by a unique A/D converter that expands the effective number of bits per word, resulting in a higher signal-to-noise ratio than theoretically expected in an 8-bit system. Which leads to transparent picture quality.

With the Sony Broadcast BVH-1000 1" recorder, the BVT-1000 provides locked recognizable color pictures from still-frame to seven times normal speed. And to greater than thirty times normal speed in monochrome. So your editing techniques are faster and more critically accurate than ever before possible.

And for use with U-matic format recorders, the BVT-1000 offers special advantages. A wide 4H window and special anti-gyro circuitry compensate for wide errors and maintain both color and luminance stability.

Advance sync control allows phase correction using LED indicators at the TBC, for system integration. And the video level can be monitored by LEDs that show at a glance high or low level relative to one volt peak-to-peak.

3. The logic of a systems approach. If you are into electronic news gathering, or if you're part of the new revolution in 1" high band machines, the chances are very good that you're already using Sony recorders.

The BVT-1000 gives you an opportunity to add new logic to your broadcast equipment. The logic of an all-Sony system.

For full information about the BVT-1000 or any of the other professional video products in the Sony Broadcast family, call your nearest Sony Broadcast office.

Sony Broadcast

Sony Corporation of America, 9 West 57 Street, New York, New York 10019
New York: (212) 371-5800 Chicago: (312) 792-3600 Los Angeles: (213) 537-4300 Canada: (416) 252-3581

Broadcast Quality Time Base Correction That's Easy to Handle

The 1600 CCD Time Base Corrector is specifically designed for broadcast quality electronic field production where lightweight and durability are essential. The 1600 combines high performance specifications and "easy to handle" portability with a surprisingly "easy to handle" low cost, to bring professional video standards to non-segmented V-locked VTR applications.

The 4 H line correction range with 55 dB p-p signal-to-rms noise performance, along with the available Image Processing feature, make the 1600 CCD Time Base Corrector the most unique approach to correcting time base errors for EFP or studio post production available today.

Write or call for more information on the "easy to handle" 1600 CCD Time Base Corrector from MICROTIME.

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Bloomfield, Ct. 06002
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MICROTIME

Circle 119 on Reader Service Card

TELEVISION

PROGRAMMING & PRODUCTION FOR PROFIT

Formula For A Successful Disco Show: Local Talent, Name Stars, And A Hard Working Production Crew

"WE TOOK A long, hard look at ourselves a couple of years ago," muses George Lilly, general manager of CBS affiliate WIVB in Buffalo, N.Y., "and we realized that we had grown old — not only in our look, but in our viewing audience. From sign-on to sign-off, we were simply not attracting the younger viewers so vital to a station's marketing. And when I say 'younger,' I mean under 50!"

Almost coincident with a change of management which saw the Buffalo *Evening News's* radio and TV stations being sold off separately with WIVB going to Howard Publications, the station decided to revamp its image and go after that elusive but lucrative market — 18 to 34 year olds. They added *The Newlyweds Game, Sha Na Na,* and other youth-oriented programming to their lineup with some success. But few at the station would disagree that the wisest decision was to originate a locally-produced disco show on Saturday afternoons from 3:00 to 4:00. Not only was *Getting Your Feet Wet* an immediate smash with local youth who raised the ratings almost two points in an otherwise often dead time period, but after only one year of production the show has been nationally syndicated and is forecast to appear this February in 60 percent of U.S. markets.

Mobile and studio production combined

Getting Your Feet Wet first appealed to Arnold Neis, president of Tele-Tran Productions, Inc., the syndicator and producer, because of its extremely attractive format. Taped on location in Buffalo's 747 Club — a disco constructed from abandoned parts of a Boeing 747 aircraft — it had all the right elements. The club was exotic enough to rival even New York's famed 2001 Club (scene of the film *Saturday Night Fever*). Buffalo is only 90 miles from Toronto, Canada, which has a night life and beautiful people to rival even Los Angeles. And WIVB's production staff and facilities were turning out a truly good-looking product.

Neis had already completed a pilot

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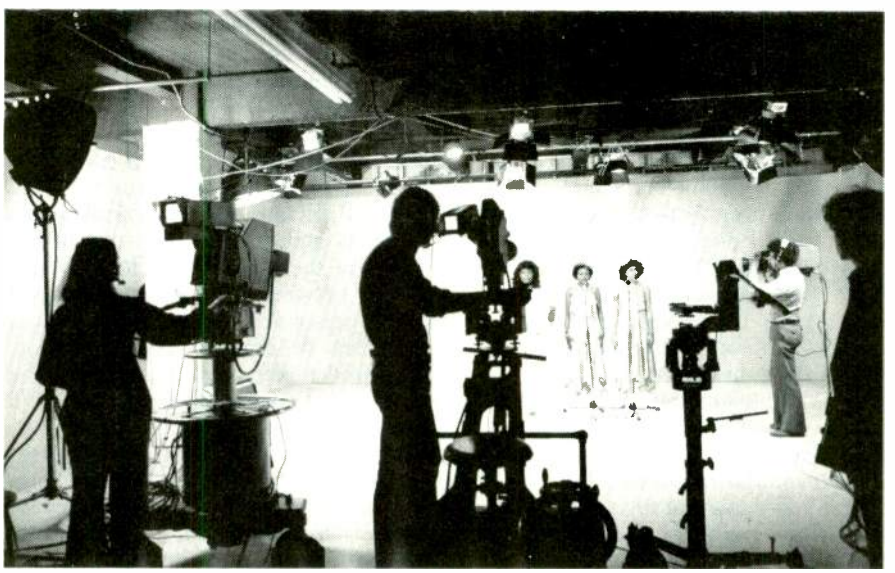


Disco star Loleatta Holloway and backup vocalists tape segment of Invitation to Dance at Rutt Video in New York City. Producer Jack Turney of Tele-Tran, the syndicator, watches at right

TV Programming

Local people from Buffalo and Toronto strut their stuff at Buffalo's 747 Club disco, viewing and listening to tapes of performances recorded earlier in New York. The club is constructed of salvaged parts of 747 aircraft

for a disco show, but was unhappy with the product. Done on a stage in New York, it lacked the live, intimate feel of a real disco. The 747 Club was a perfect location, with enough local "performers" so they would never have to show the same group of dancers. All that was missing to make the show 100 percent attractive to a national audience was big-name talent. Although it is close to Toronto, Buffalo is not exactly at the center of the universe. In wintertime, there is seldom less than 15 feet of snow on the ground. Few name stars were willing to travel so far north for a show that was to be seen only by a local audience. For such stars and their managements, the extent of the exposure far outweighs whatever immediate financial rewards they may get from the taping sessions.

Neis and Tele-Tran producer Jack Turney therefore decided to combine the best of both worlds. Because of star availability and ease of production, talent would be taped in New York City in a studio, where a replica of a portion of the 747 Club would be constructed to give the appearance that the music was performed live at the club and to facilitate intercutting between performers and dancers. Edited performance tapes, complete with DJ Kurt May's interviews and segues, would then be brought up to Buffalo and played through monitors to the dancers, with May hosting this part of the show, too. In this way, talent and dance segments could be combined into completely consistent shows. They re-named the show *Invitation to Dance*.

Lest you think that this split production involves a major production budget, consider that Lilly and Neis are both firmly committed to presenting the show as Saturday afternoon or access time programming. Neis points to the failure of other disco shows which have spent so much on production that they must be sold in prime time — where they have difficulty in attracting good audiences. The *Invitation to Dance* budget is extremely tight. Typically, as many as six acts (two numbers apiece) will be taped during a single 10-hour studio shoot. This supplies enough talent material for two one-hour shows.

Since Turney and Neis want to keep the amount of post production to an absolute minimum, and since to turn out this much material in a single day there is little room for error, they decided to go with the three-camera setup at Rutt Video, a new video production facility on New York's East 25 Street. Three different kinds of cameras are used: a Philips LDH-1, a custom-modified Norelco PCP-90, and an Ikegami HL-77. The cameras are fed into a Comtech 3300 switcher. To avoid phase problems, the entire system is gen-locked to the Ikegami. Material is recorded onto ¾-inch video cassettes on a BVU-100.

Most of the performers are comfortable singing to their own album or single tracks which have been recorded onto ¼-inch tape and fed through studio speakers and directly onto one of the tracks of the BVU-100. Close coordination between the audio mixer and other personnel in the control room therefore becomes extremely important. The mixer must also control the canned audience applause and be able to use a live mic during the interviews. Some singers prefer to use a pre-recorded music-only track while singing the lyrics live, and in these cases the mixer must come up with a careful blend between the musical foldback through the studio speakers, the volume of music being re-recorded on the

continued on page 31

When it comes to high performance TV monitors, you've got two choices. Until you take a closer look. Then there's only one. Sharp.

Sharp monitor/receivers offer a selection of models to satisfy the most demanding specifications. With such outstanding performance, there's only one other brand that comes even close.

All our monitor/receivers are built for commercial use (UL listed) to be long lasting, with built-in reliability. With exclusive features that include push-button degaussing and an auxiliary audio amplifier to accommodate large groups.

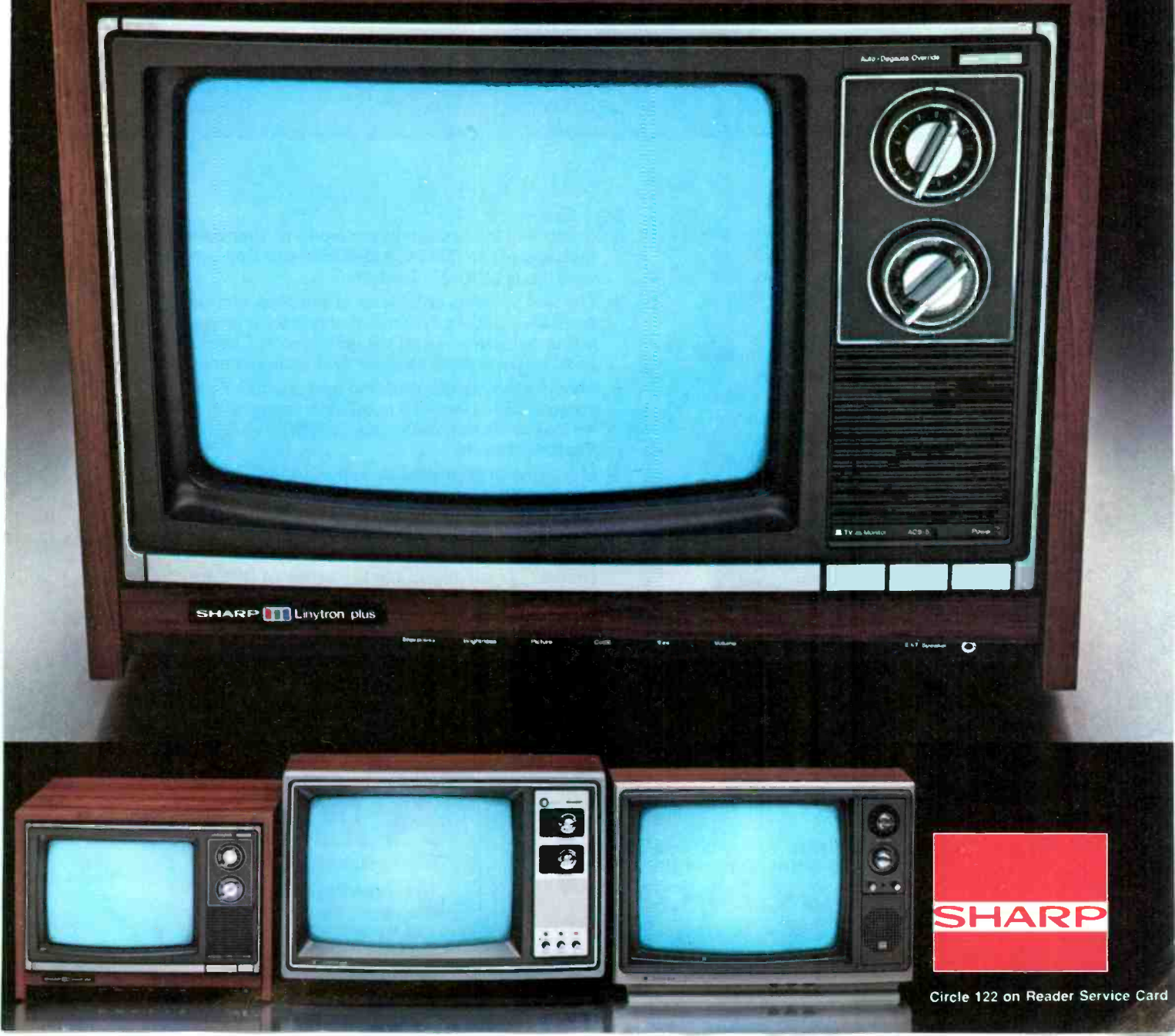
Sharp monitor/receivers are all designed with our famous Linytron Plus™ one gun tube. Giving you an amazingly reliable picture, no matter how hard you work it.

And to make sure that Sharp TV monitors live up to all your requirements, we've designed these models with ACS-5. Sharp's one-touch, push-button Automatic Color System to maintain color, tint, contrast, brightness and fine tuning for you.

Take a closer look at Sharp. For everything you always wanted in TV monitors.

For more information, contact your Sharp dealer or call our Professional Products Department at (201) 265-5548 or write Sharp Electronics Corp., 10 Keystone Place, Paramus, New Jersey 07652.

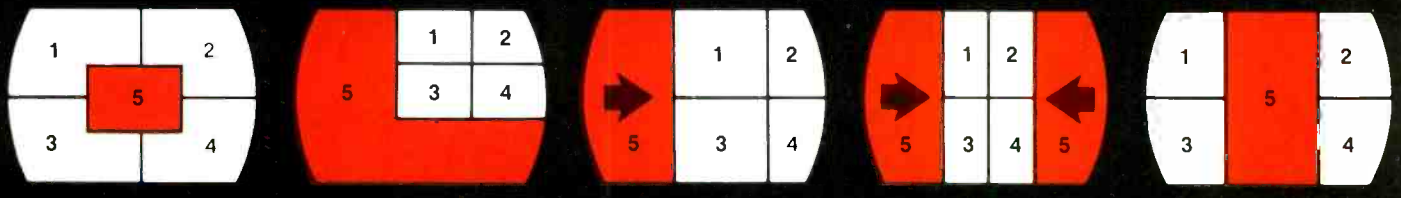
IN TV MONITORS, THERE'S SHARP, THERE'S SONY, AND EVERYBODY ELSE.



SHARP

Circle 122 on Reader Service Card

Squeeze Play



Joystick 5 compressed asynchronous images with NEC's Dynamic Quad Split®

DQS® permits you to actually use five asynchronous sources with dynamic manipulation of the fifth source from an existing signal in the quad split, or as a discrete fifth signal. This configuration permits a far more dynamic visual presentation than four sources, while costing less and permitting duality of use. NEC's market research showed that the majority of stations and production houses considering the use of a compressed quad split function desired the expansion or manipulation of only one frame of the four, one at a time, not four frames simultaneously.

DQS is comprised of two separate NEC FS-15 Frame Synchronizers, a DVP-15 Digital Video Processor, and a DVS-154 Digital Video Compressor. The use of two Frame Synchronizers allows for either combined or separate operation of the system, permitting full-time facility utilization of the equipment, rather than only specialized production use.

DQS Extras:

- ★ Combines the unique asynchronous quartering features of the DVC-154 Digital Video Compressor with the NEC DVE® System.
- ★ The two systems combined in switcher mix/effect amplifiers permit dynamic manipulation (zoom in/out, separate H and V aspect control, etc.) to completely animate a quad split compression.
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BVU-100, and the singer's voice.

Because of the tight production schedule, most performers have time for only a short rehearsal, during which camera positions are established and the director has an opportunity to spot solos and dramatic moments. The first take follows immediately, and is often completely satisfactory; seldom does any number require more than two takes. It is important to note that Turney's goal is to come away with finished segments; the director must therefore be extremely precise with his stopwatch, since each segment has a carefully mapped-out time slot within the show — predetermined by the record company's announced timing of the selection. Interviews and segues help make up the differences between allocated time and actual running time of the performances.

The day following the studio shoot is generally allocated for taping "Stopovers" at remote locations around the New York City area, using a local production company headed by Ira Meistrich and Ed Eberle. Recorded with a single Ikegami HL-77 and BVU-100, these insert segments consist of short interviews and magazine-style pieces. A typical day might include interviews with Steve Bermingham in Central Park and Radcliff Jo in his apartment, and magazine pieces on a lighting store, a fashion boutique, and a hot disco club — with as many different setups. Again, a single shooting day generally supplies enough material for two shows.

A minimal amount of off-line post production is done in New York. Since the segments have been shot as complete pieces, to length, this generally requires only selecting the best takes and stringing them together in program order. Turney then takes the tapes up to WIVB for a quad dub in preparation for the second phase of the production.

WIVB's remote experience makes the difference

The key to the successful production of this high-quality, low-budget show goes in equal measure to the extremely hard-working Turney, who spends much of his time these days surveying the terrain of New York State as a sky commuter between New York and Buffalo, and the dedicated, hard-working staff of WIVB and its mobile van which has been in operation for more than seven years.

The station has had its main, single-frame, 35-foot long by eight-foot wide by 12-foot high van and smaller slow motion/utility truck combination since 1971, and uses them regularly to cover

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basketball, baseball, football, bowling, hockey, and a variety of other sporting events. In wintertime, when many of these sports are in full swing, the vans may be out as often as four days a week.

Though the vans are seven years old, careful planning and choice of equipment has led director of engineering Frank Maser to the conclusion that he still has one of the finest mobile facilities in the country.

The audio position, located directly behind the driver and facing the rear of the truck, has an RCA BC-100 10-mic input mixer board. The audio position is separated from the rest of the truck by a glass window and a door, so the position can be isolated (though not soundproofed) when critical soundwork is involved. The technical director, director, producer, and other production people sit with their backs to this partition, also facing the rear of the truck. Their customized console unit contains an RCA TS-51 switcher with six-camera capability, along with the director's intercom unit.

Interestingly enough, the original intercom system — a solid state crossbar-type with built-in amplifiers — was replaced with an old-fashioned coil system. Problems had developed with the original system when Maser tried to run the intercom line in the camera cable. With cable runs as long as 3600 feet required to get inside some sports complexes, the intercom amplifier's gain had to be turned up so high that it began inducing oscillations and crosstalk in the video line. It also required the audio man to establish separate intercom levels with each new setup, since the gain of each unit was determined by the length of the cable run. With the coil-type system, however, each headphone unit has its own amplifier at the camera end, enabling the cameraman to set his own level and preventing the crosstalk.

Separated by a rack from the operational position is the video position. The video man has at his fingertips, in addition to the camera control units, a full set of test equipment including a vectorscope and line scope. A switcher enables him to feed any signal in the truck (individual cameras, video in and out from the production switcher, etc.) through the test scopes.

The tape area, complete with its own monitoring equipment, is at the back of the truck. Two RCA TR-60 quad decks face each other so that a single operator can access them both easily — particularly important when one of the decks is being used for playback as during *Invitation to Dance*.

The entire truck is air-conditioned and has an air-conditioned suspension to protect the equipment being transported. There is no on-board generator, so power must be tapped from available local sources.

The van was designed to be capable of handling up to six cameras at once for large remotes. On sports shows, it normally travels with four RCA TK-44A cameras; on the disco show, because of the limited amount of floor space inside the 747 Club, only two TK-44As are used, mounted on tripods, while a third camera, an Ikegami HL-77, is used hand-held. All cameras are fitted with 10-to-one zoom lenses. Again, the entire system is gen-locked to the HL-77's sync. Maser reports that all the cameras function well in the exotic, low-light situations found inside the club. Maser sings the praises of the EEV tubes which he started using inside the RCA cameras two years ago; with harsh bursts of strobe lighting suddenly penetrating an otherwise dimly-lit area, the tubes react cleanly and crisply. Nonetheless, the production does use some additional lighting supplied from the second, utility truck (which also houses the 20-second DMI slo-mo disc, not used in the disco show). The auxiliary lights — 750 and 1000 W units — are used primarily for the talent area, so that the general

The real secret to the show's low budget is WIVB's mobile van in which pre-recorded segments and live dancers are mixed together. The director and producer can view a full range of test equipment in addition to their monitors

"feel" of the club's dance floor is not disturbed.

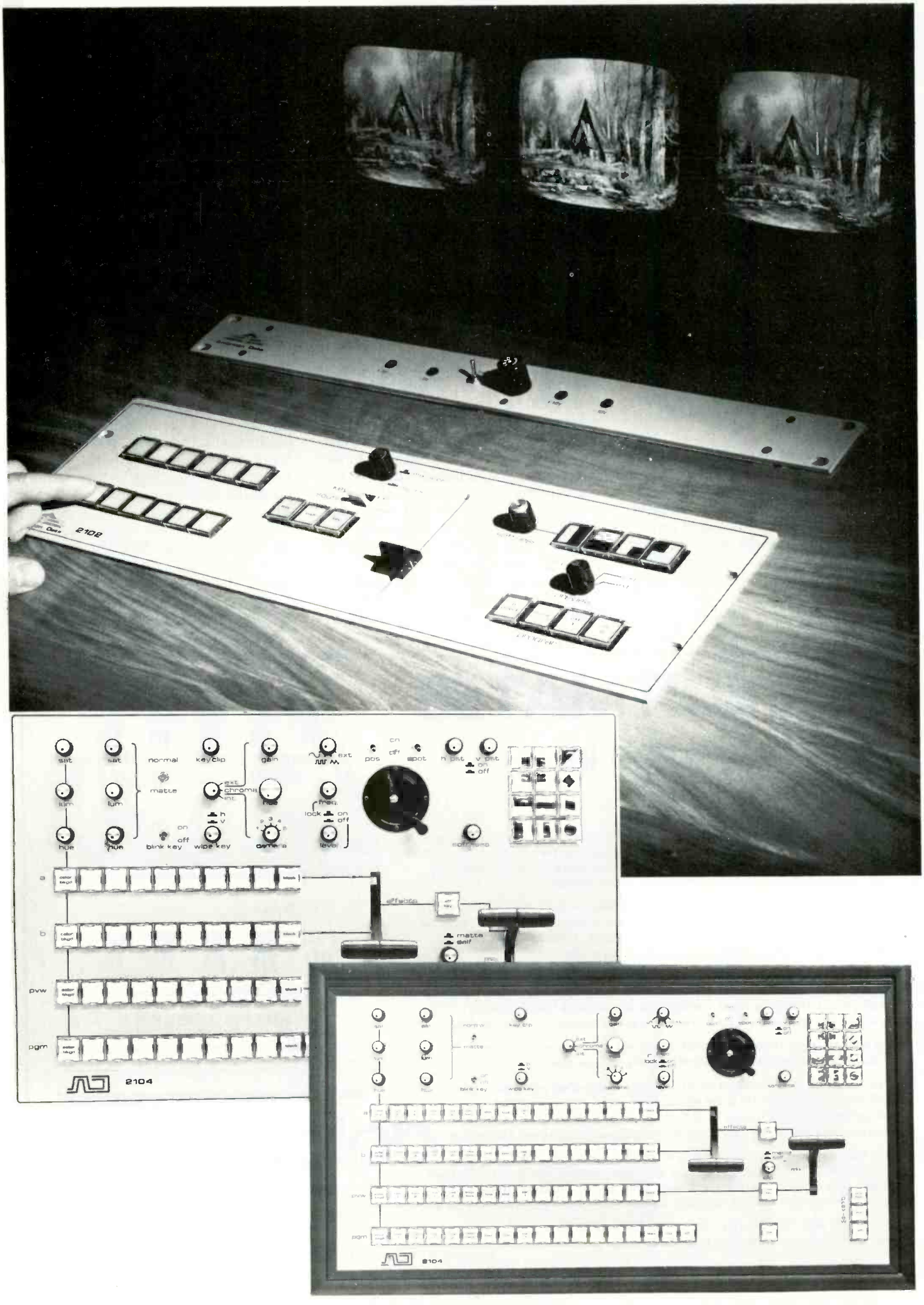
Completed show assembled in mobile van

On the morning of the Buffalo shoot, the trucks leave the WIVB studio at 8:30, and the production is ready for the first group of dancers to arrive by 11:00 a.m. A second group of dancers arrives at 2:00 p.m. And the two one-hour shows (lacking only black space for commercials) arrive back at the station by 6:00.

The secret of this rapid production technique was Turney's decision to abandon the caution of having the second VTR on the van as a backup recorder, and use it rather as a playback deck for the material recorded in New York. The video is fed not only to the dance floor so the dancers can see the talent perform, but also into the video switcher. Inverviews and magazine segments are simply re-mastered on the second VTR. Dance numbers with no performer are live-mixed and also fed to the master tape. During performances, the director has the option of either using the pre-recorded tape or cutting away to the dance floor which is being fed the soundtrack of the playback tape. This is particularly useful for covering up occasional problems such as bad camera moves laid down during the performance recording session.

Turney claims that for the first show of *Invitation to Dance* he spent 12 hours in two-inch post production. This was before he made the decision to do the post production simultaneously with the live shoot in the mobile van. Now the show can be put together in four hours or less.

There is, of course, nothing new about the idea of a disco show — beautiful people dancing to popular music. *American Bandstand* has been doing it for over twenty years, albeit with a slightly younger audience. What makes *Invitation to Dance* unique is the blending of local, location production with big-city stars, and some innovative production techniques. With the disco craze still very hot among younger viewers, stations may find a locally-produced disco show an ideal way to attract a broad cross-section of the 18 to 34-year-old market. Though you may not have access to the talent pool of a New York City, the production techniques employed by Tele-Tran bear a close study of how to do it professionally, yet inexpensively. **BM/E**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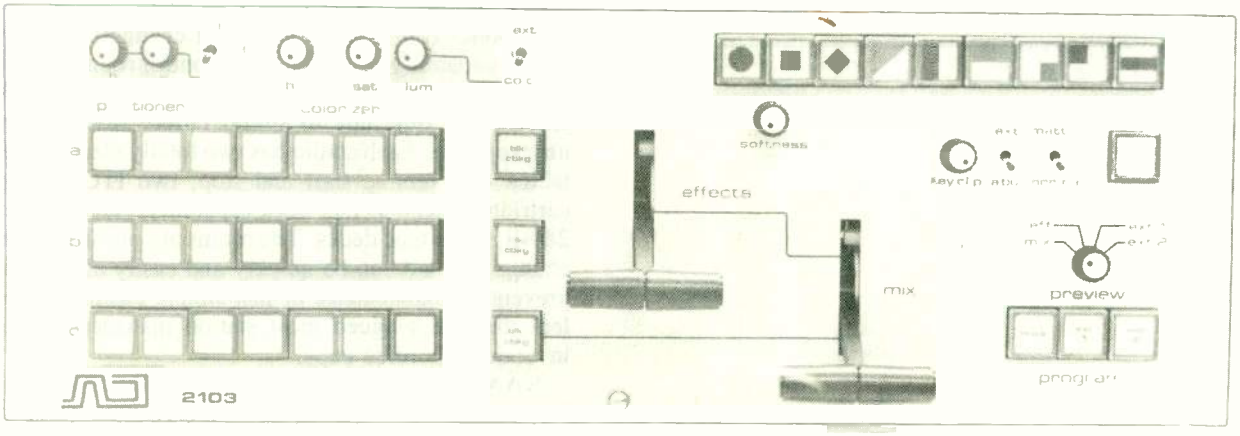

In the stories that follow, you will find a variety of approaches to the business of radio and television broadcasting. Read each of these stories and determine which station in each category (AM/FM, AM, FM, and TV) has, in your opinion, done the best job of using its resources to deliver the best in broadcast service to its audience. Then use the ballot provided on the Reader Service Card at the back of the magazine to record your choices. Winners will be announced in March.

KAAM/KAFM: Redundant Studio Design Guarantees No Down Time

BEST STATION AWARD CONTEST AM/FM RADIO ENTRY 1

Submitted by Joe Meier, Station Manager, KAAM/KAFM, Dallas, Texas

WHEN BONNEVILLE International Corporation purchased KAFM and WRR-AM (now KAAM), it became immediately apparent that neither station's operational goals could be accomplished in the existing facilities. This meant that formats of the previous owners would have to be maintained until new facilities could be built. In both cases, management was relying on new technical innovations and state of the art equipment to give the stations a "leg up" in the highly competitive Dallas/Fort Worth metroplex. Suitable space was acquired in Park Central III in northeast Dallas, and the construction of two all-new radio facilities began, literally from the ground up.

Being in a high-rise building offered some special challenges right from the start. The building's construction characteristics were such that virtually any external noise would be telegraphed two or three floors above and below the actual location of the event. Bonneville engineers overcame this problem by putting all studio areas away from outside walls and using double-wall, double-ceiling, floating-floor designs. A room within a room left the floors completely accessible for cable runs. Special baffles were then constructed on specific interior studio surfaces, filled with fiberglass, and covered with a decorative covering to provide not only sound control but aesthetic values as well.

Selection of equipment for the two stations was made with exceptional care. Each station had a specific operational goal to meet that had to take into account both long and short-term needs.

The AM station, for example, wanted to operate at the apex of existing technology, but with AM stereo on the horizon, we also wanted to be able to adapt in the shortest possible time. Accordingly, all studio equipment had to have stereo capability, modified for standard AM monaural transmission. Pacific Recorders was selected to supply the basic studio equipment and furniture. Each control room was supplied with a BMX-12 modular broadcast mixer — a low-profile console with discrete component audio circuitry that provides low noise and distortion and excellent frequency response and headroom/overload capability. All channels have stereo output capability. The two main control rooms are configured in essentially the same way for total redundancy since down time due to studio failure was considered unacceptable. Each studio has two totally electronic turntables with remote start and stop, two ITC triple-play cartridge machines (six-deck capability), and two Scully 280-B stereo tape decks. The rooms are pushbutton interchangeable and can be quickly and easily alternated for preventive maintenance or just simple cleaning, a problem that has plagued most station managers since the invention of coffee cups.

KAAM/KAFM's supervising engineer, Neal Peden, had some exciting times installing three Pacific Recorders

KAFM's production studio. A replica of AM production, it also features an ITC RP unit devoted solely to reproducing the stereo music library on cart, with special signal processing equipment developed by Bonneville engineers

BMX-12 consoles for the AM and FM air studios, two Auditronics Model 110A "grandson" consoles for the production facilities, and some 18 Scully Model 280B reel-to-reel recorders, along with a new Collins 828 E-1 5,000 W AM transmitter, plus a Collins 310 Z2 FM exciter to update the present Gates FM 40H3 transmitter.

In addition to the control rooms, there is a fully equipped production facility, also supplied by Pacific Recorders. A production studio twin of the AM production studio, it has some rather unique processing equipment which was invented by the Bonneville engineers in our WCLR facility in Chicago. In addition to the "grandson" console, Technics SP10 Mark 2, Scully two-track, and, in this room, an MCI JH 110A four-track recorder, there is one ITC RP unit devoted solely to reproducing the com-

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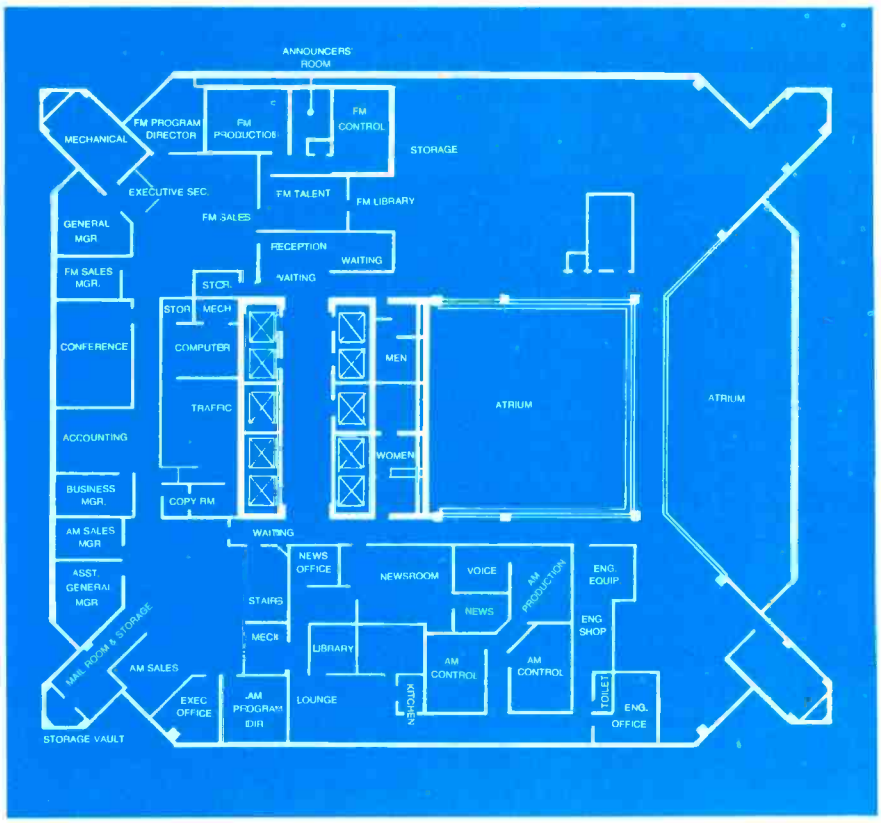
KAAM's master control room. ITC cart units, Scully stereo decks and electronic turntables are mixed through a BMX-12. Two carbon-copy control rooms guarantee against down time

KAAM's production studio. The facility features an Auditronics Model 110A mixer, an Orban Parasound parametric equalizer, and an Eventide Clockworks harmonizer



KAAM's news control room. Each module serves two working newspeople with full cart and reel-to-reel recording of mic and telephone inputs

Studios are grouped away from outside walls to provide isolation from contact noise inherent in the building's concrete structure

plete FM stereo library on cartridge for on-air play. The special sound processing in this chain permits KAFM director of operations Bob Minter to exercise individual control over each selection on the playlist. The phasing problems inherent in cartridge stereo playback have been eliminated, and at the same time greater frequency response is delivered, not only to the stereo listener, but also to the listener who has to settle for a monaural receiver. This special processing is carried through to the main on-air studio, which is again equipped with the BMX-12 console, turntables, two 80-B tape decks and four ITC triple-play machines for 12-deck playback capability.

Keeping track of all this special playback quality requires some special monitoring to make sure everything is kept at maximum technical standards. In this regard, Minter's office features a Sequerra tuner latched to Rogers speakers and a TFT modulation monitor. This equipment provides an "intensive care" environment, where KAFM vital functions are carefully monitored.

The final aspect of the all-new KAAM/KAFM design that deserves special mention is the installation of a Bonneville Data Systems BTA 101 computer traffic and accounting system. Each station has its own dedicated system; however, since the BTA 101 is a single software and procedures system, each system functions as back-up to the other. In the event of hardware failure in either of the systems, that station's work can be done on the unimpaired machinery. And, since the software and procedures are the same, the AM and FM operators also serve as backup operators for each other. Even the sales department has its own terminal for direct access of avails and schedules.

KCEY/K-MIX: First New Building In 29 Years, Worth Waiting For

BEST STATION AWARD CONTEST AM/FM RADIO ENTRY 2

Submitted by Richard Sweetland, Technical Director, KCEY/K-MIX, Modesto, Calif.

KCEY (THEN KNOWN AS KTUR) began broadcasting in 1949, and during our first 29 years we remained in the same building. But in 1977, when we were about to receive an FM construction permit, it became obvious that the old building had finally outgrown its usefulness. Rather than try to adapt the old building to accomodate both the AM and FM operations, it was decided that the best plan would be to construct a completely new building.

It was also decided that we would "do it right the first time" and use all new equipment in the new studios, rather than try to cut costs and put together a piecemeal operation with some old equipment and some new equipment. This approach had the added benefit of allowing us to maintain the old studios at full operating capacity while building the new studios, rather than try to move the equipment while we were still using it. This greatly reduced the technical problems in our transition period.

Local news has always been extremely important to KCEY. So, when we designed the new facilities, all the studios were clustered around the news studio. This allowed us to position the windows in the studios in such a way that it is possible for a person in any one of the studios to look in to any other studio. This eye-to-eye contact is very important when you are switching between one studio and another. The windows also allow visitors to see into the heart of the station without going on a formal tour.

All studios (with the exception of the news studio) use the same control console, the Harris Stereo Executive,

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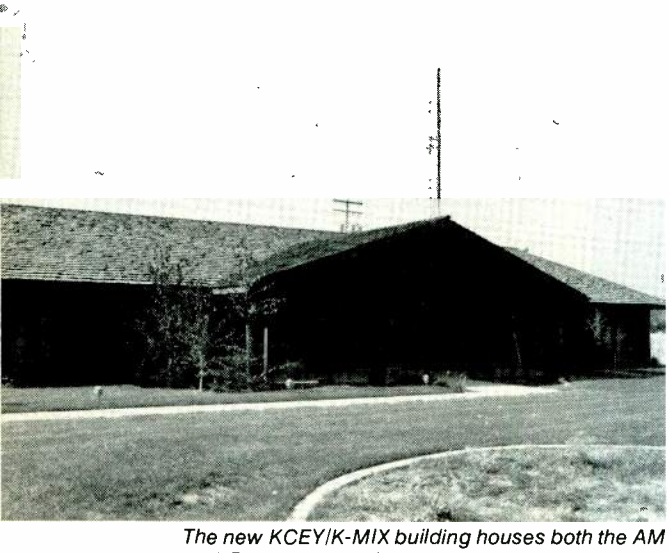
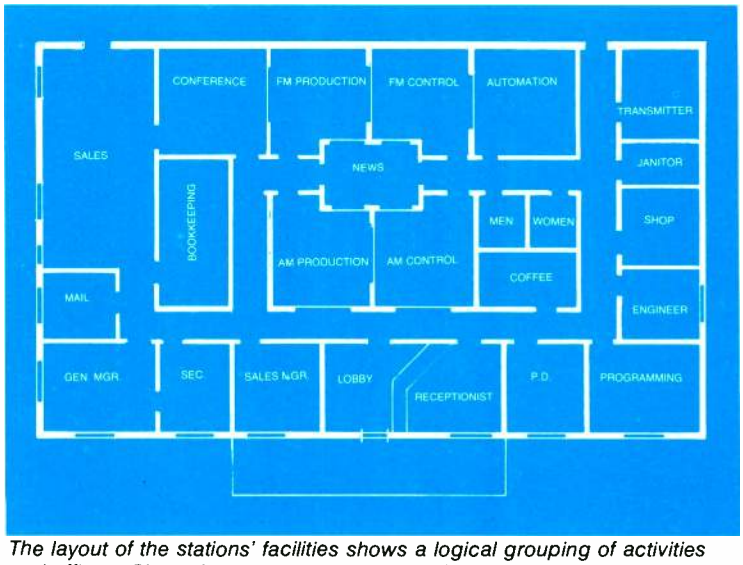


The new KCEY/K-MIX building houses both the AM and FM operations in a ranch-style structure that complements the C&W and contemporary formats



The layout of the stations' facilities shows a logical grouping of activities and offices. Clear glass panels between studios help in communications

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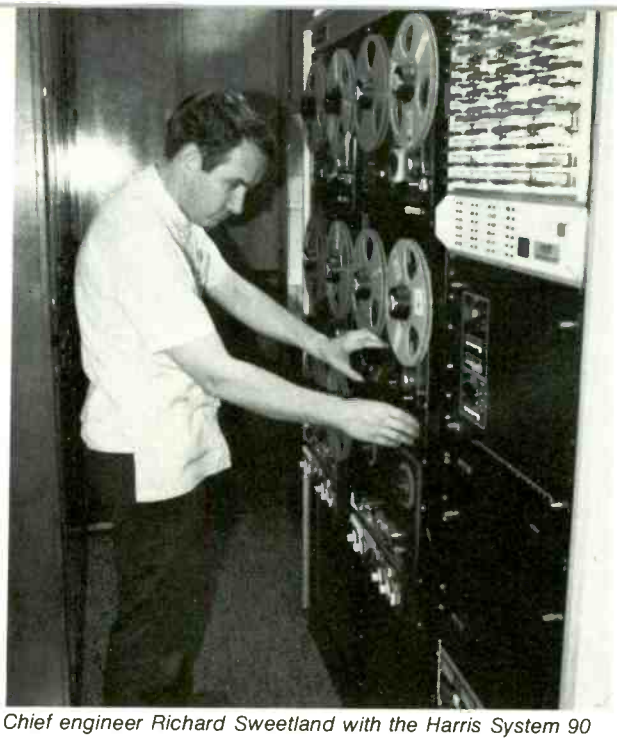
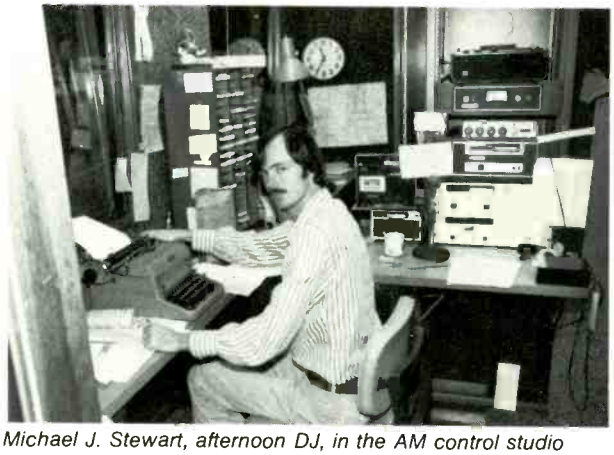
Dave Kranz, morning newsman, and Phyliss Okeneske, news director, work on newscast in AM control room



Chief engineer Richard Sweetland with the Harris System 90



Michael J. Stewart, afternoon DJ, in the AM control studio

Dave Kranz prepares copy for his newscast

and were made as much alike as possible. This was done for three fundamental reasons. First, it is easier for a DJ or engineer to learn how to use just one new board rather than several new boards. Second, the engineering department needs only one set of spare parts for all the consoles, and it is possible to switch parts from one console to another as an aid in troubleshooting. Third, because all the studios are essentially the same, and because we have a very sophisticated system of patch panels, it is possible to use any one of the four studios for AM control, FM control, or production. It is also possible to feed any two studios into a third studio.

K-MIX 98-FM Stereo is an automated station with a fast-moving contemporary format. Therefore, we needed an automation system with a large memory capacity, sophisticated programming capabilities, and a good maintenance record, that would not be too complex to teach the average DJ how to use. The only system that met all of these requirements at the time was the Harris System 90.

The assignment of offices is extremely important to the overall efficiency of the building. The engineer's office and shop are close to the transmitter room, the automation room, and the control studios, so that in case of trouble the engineer will not have to waste valuable time running all over the building to get to the trouble or to get parts and test equipment. The program director must work closely with the sales manager; therefore, their offices are relatively close together. The sales manager and salesmen must often review the production of commercials, so their offices are close to the production studios. The general manager spends most of this time working with the sales manager and the bookkeeping department, so his office is close to theirs. It also is away from the studios so he can have a quiet place to work.

The sales and bookkeeping offices are purposely kept separate from the rest of the building to give the salespeople a quiet place to work away from the rest of the station. It also helps reduce the traffic and noise in the halls. The conference room can also be used as an air studio for group discussions or an informal sales office.

In spite of all our efforts in designing our new studios, any project of this magnitude is bound to have a few mistakes. Originally, we put the AP News teletype machine in the news studio so that it would be close to the news person, giving him easy access to it. In spite of the "soundproof" enclosure that we built around it, the ma-

continued on page 43

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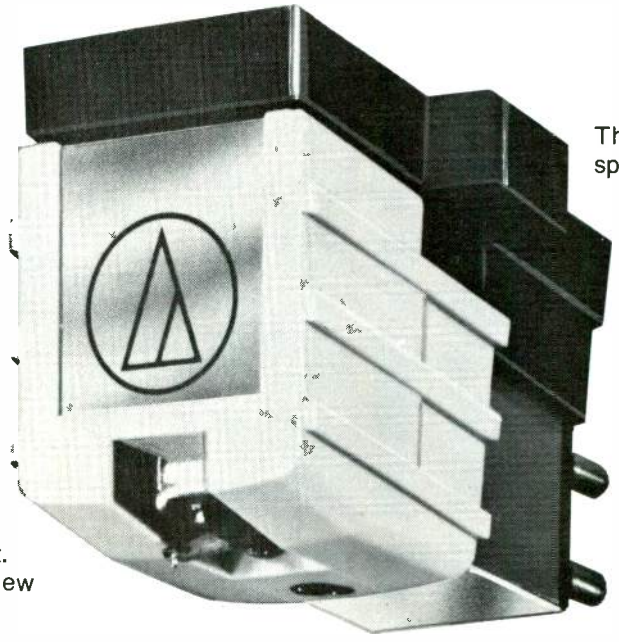

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chine was still unacceptably noisy. Therefore, we had to move it to the transmitter room. This not only eliminated the noise, but also gave the news people more room and a neater working area.

When we first started to plan for K-MIX we decided to use the AM DJs as operators for the automatic system. We reasoned that since it would take only a few minutes each hour, they could easily handle both jobs. Unfortunately, because of our complex format we had numerous minor problems that would upset our programming. Often the first indication the DJ had that something was wrong was when a listener would call in and complain. This problem was solved by building an alarm system to warn the DJ of any problem with the automation system. The system is designed so that the DJ must go into the automation room to turn off the alarm in the studio, because we were afraid that if the DJ could turn off the alarm from the studio, he might forget the problem in the automation room.

The new facilities have had a remarkable impact on our ability to meet our programming objective. AM is a 24-hour-a-day 5000-watt station that programs a modern country format. The FM side is fully automated and programs an adult contemporary format 24 hours a day. The five K-MIX disc jockeys record their programs for each day of the week, thus providing a live sound for the station.

Both stations place a heavy emphasis on news and sports. Though we use the AP wire and ABC Radio Network news every half hour, the majority of our news is gathered locally by our two-person news staff. Plans for extending our news operation include the addition of the *Wall Street Journal* wire service for economic news and a KCEY/K-MIX mobile news car for covering on-the-spot news events.

Combo AM Operation And Automated FM Serve Buffalo With 24-Hour-A-Day Top-Quality Sound

BEST STATION AWARD CONTEST AM/FM RADIO ENTRY 3

Submitted by Dave May, Director of Engineering, WBEN-AM/FM, Buffalo, N.Y.

ANY SUCCESSFUL broadcasting operation requires a definition of its mission in specific terms. It further requires facilities which will not just allow the mission to be successfully realized, but which will aid in this effort.

WBEN-AM has a contemporary music, personality format, which uses the on-air personnel on a combo basis. Therefore, the AM control room houses all the remote control equipment for both the AM and the FM transmitters. There is an extensive system of automatic monitoring equipment which immediately alerts the DJ/operator to any malfunction and includes an annuciator panel which pinpoints the particular area of difficulty; for while there is great value in employing a combo type of operation, the DJ's most important function is in his on-the-air work. For any difficulty which develops outside his realm of training, the combo man immediately calls on the engineering staff, which then takes over the operation and corrects the problem.

This interplay is very important. It can be seen that while the DJ is used as the operator, he does not become involved to the extent that it adversely affects his ability to perform his primary function. On the other hand, we are able to use a smaller staff of highly qualified engineers, and direct their attention to the more complex areas of maintenance of equipment, installation, and even design of new equipment. In practice this management philosophy has worked up to every expectation. Since automatic transmitter logging is also employed, the normal duties of the combo man in his role as operator are minimal. For his on-the-air work, he has three sets of ITC three-stack cart decks, one of which can be used to record, one Ampex and two Scully reel-to-reel decks, and two turntables. (Music is almost entirely played from cartridge.) He also has an elaborate telephone system which allows easy use in putting a caller on the air, recording a call, and even setting up his own conference calls. When using the system, his operation is hands-off after establishing the contact. The announcer's mic and any other desired audio is fed to the caller, while the incoming audio is mixed to this feed and put on the air or recording lines. He also has a video display connected directly to our traffic information service, providing him information of any snarls, accidents, fires, etc., and a printer connected to a microcomputer which provides information during the snow emergencies to which Buffalo is prone. The mixing console, designed to our specifications by Ward-Beck Systems (who supplied all our other mixing consoles as well) includes an automation system which allows the announcer to preprogram a sequence of events which begin at his signal and then run automatically, including readouts of time and temperature.

WBEN's news control room, with master control visible through the window. News control is used to originate all newscasts and has its own cart and reel-to-reel decks, along with remote control to the AM automation sequencer

continued on page 44

Best Station Award Entries

WBEN's main production facility, a carbon copy of the AM master control. The Ward-Beck mixer is supplemented by a spectrum analyzer, harmonizer, and flanger. In addition to the cart decks and turntables there are extensive reel-to-reel machines

The news is presented by the news staff from an adjacent control room completely equipped with five cart decks and reel-to-reel equipment. The on-the-air programming is handled completely from this facility for all regular newscasts, freeing the DJ to do any housekeeping and to prepare for the next segment of his show. The news control room has remote access to the AM control automation sequencer, so that arrangements can be made to use the cart decks in the AM control room during a newscast. Most frequently, the newsman uses this feature to handle the spot load inside the news, freeing all his other cart decks for news stories recorded on cart.

On the FM side of the hall, complete program automation is employed to present the station's TM stereo rock format. The SMC DP-2 automation system is equipped with an 8000-event memory which is programmed a week at a time, with any daily updates entered from the traffic office via a remote control head. The traffic manager does not have to leave the desk to access the automation computer. There is a completely equipped FM control room, including a discrete quad mixing console.

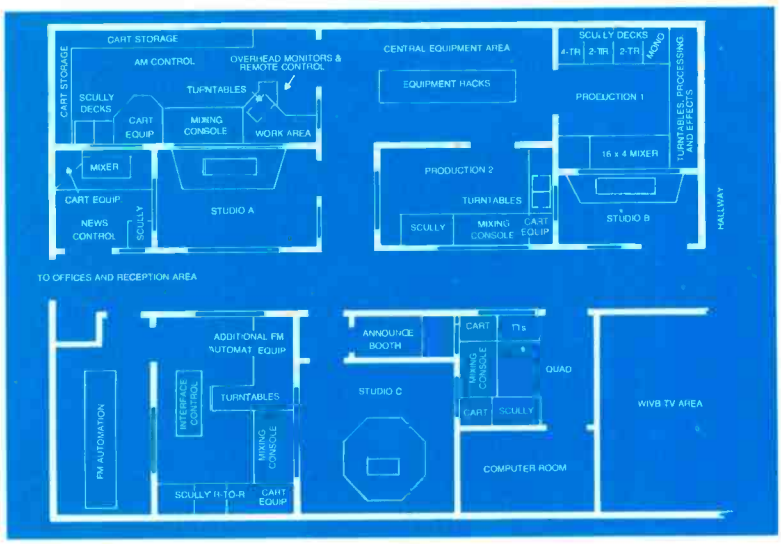
This is not an idle facility, however, since it is also equipped to handle day-to-day production, and serves on a regular basis as one of four full-time production facilities. We refer to it as "Quad," though it is used mostly as a stereo facility for reel-to-reel or cartridge production primarily for FM. Equipment includes cartridge encoding gear needed to produce carts ready for the automation system's automatic program log.

Another production facility, dubbed "Interface," allows convenient production of either stereo or mono material, and is used regularly for both AM and FM production. It, too, has cartridge encoding equipment, along with reel-to-reel decks and both mono and stereo cart record/playback machines.

The main production facility, called "Production 1," is equipped more in the fashion of a recording studio than a broadcast facility. The Ward-Beck Systems mixing console is a 16 by four channel mixer with EQ, fold back,

WBEN's SMC DP-2 automation system for its "Rock 102" FM format

WBEN's FM control room, or "Quad." Since FM is fully automated, this room serves mostly as a stereo production room, but stands ready for live operation if desired



Though WBEN-AM and WBEN-FM are separated by a corridor, all studios are electronically interchangeable and can be put into service for on-air or production work for either AM or FM

solo, reverb send and return, test oscillator, slate mic, event timer, and probably a few things we haven't as yet discovered! At present, our multi-track capability is confined to just four tracks, but the benefits of this recording facility have prompted us to make plans to expand to at least eight tracks. Dolby noise reduction and equipment such as a harmonizer and flanger from Eventide Clockworks greatly expand the versatility of the facility and assure production of the highest quality finished products.

"Production 2" is a mono-equipped studio with a carbon copy of the AM control room Ward-Beck mixer. This was done to provide not only a very flexible production room for AM material, but a familiar environment for the AM disc jockey when technical problems might force him to vacate the control room. Since both stations operate on a 24-hour basis, there must be a place to operate while performing maintenance on the front line equipment. At WBEN, the DJ can sit down in another room which is practically identical with the one he is most used to. Naturally, we have equipped this room with fewer cart decks, since nine playbacks in a production facility seemed extravagant, but outside of this one shortage, the DJ can feel quite at home here doing production or his show.

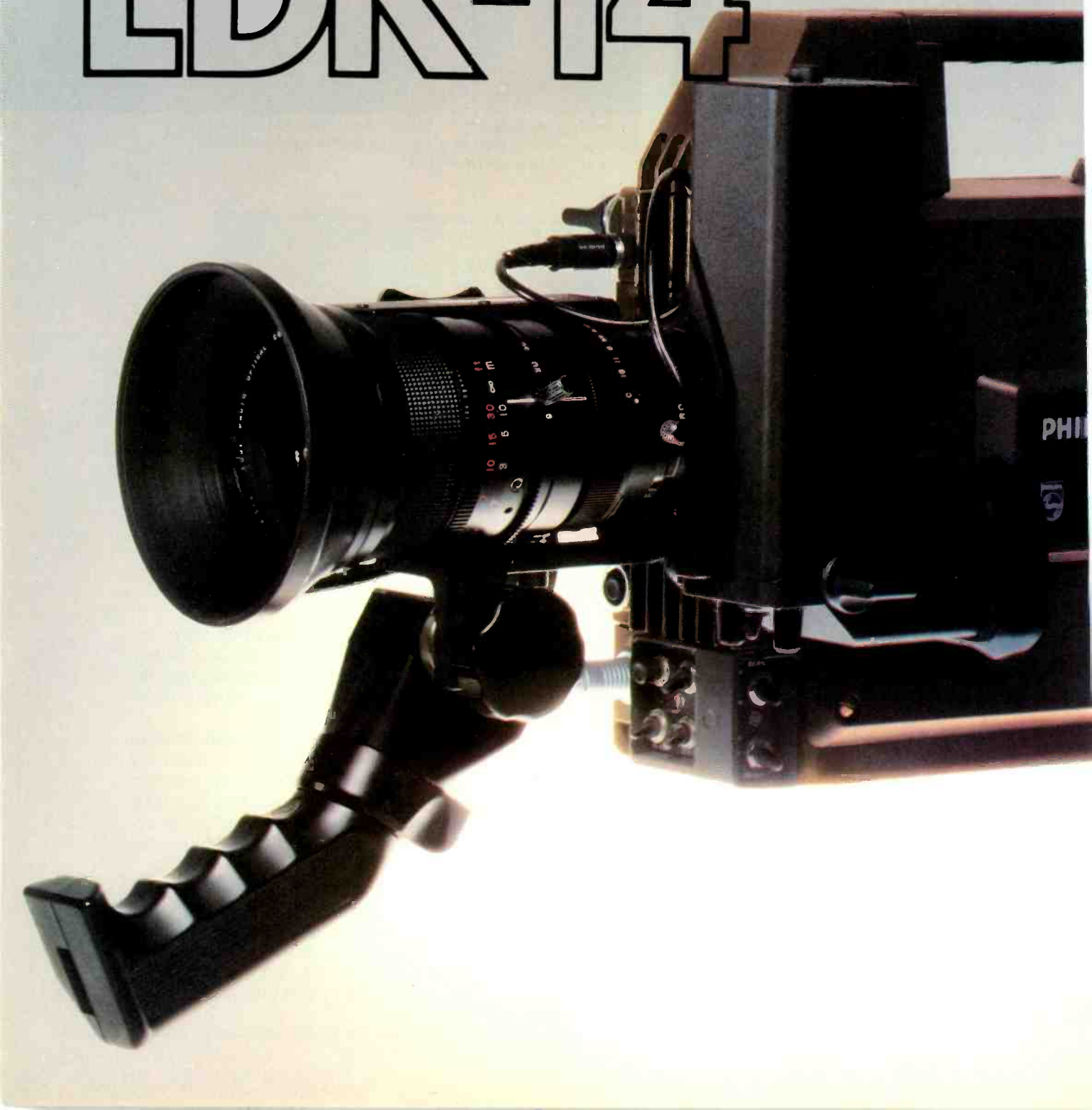
Since our facilities are also used for outside production, it is not at all unusual to find them all busy during many periods of the day. Three production people are kept very active providing a quality product for two very busy radio stations. Simple production is often handled by an announcer himself, but the quality is checked by the production department prior to release for airing.

Each of these areas used normally for production can be quickly put on the air as a control room for either AM or FM by use of a digital audio switcher which delegates any room to any transmitter. Controls for this switcher are located in the mixing consoles of each room. Also, an intercom system connects all facilities together for communications purposes.

Best AM Stations continued on page 49

New Standard for Portables...

LDK-14



In the great tradition of Philips portables:

1968...PCP-70 The industry's first portable. The one that started it all.

1969...PCP-90 Step two. World famous Minicam.

1975...LDK-15 First generation of triax field production cameras.

1976...LDK-11 A smaller, lighter, lower cost field and studio camera.

1977...Video 80 An innovation in lightweight camera and production system...**LDK-15L** Latest version of the LDK-15.

Evolving from this long history of portable equipment leadership, Philips' engineers have created a new concept in portable and field equipment. *The LDK-14 broadcast systems camera.*

A futurized camera offering three *advanced* configurations for field and studio use...all achieved *without equipment repackaging:*

1. *ENG*—studio quality portable; self-contained, one piece; film camera handling; weighing less than 15.5 lbs. (7 Kg) lens included; less than 12 lbs. (5.5 Kg) without lens.
2. *EFP*—studio quality portable, with remote control; timing and phase adjustable gen lock; instant convertibility to studio camera use by simple change of viewfinders.
3. *Studio*—compact, maneuverable; full broadcast quality 5" viewfinder.

The LDK-14 combines innovative design and unique capabilities in a state-of-the-art 2/3 inch camera that is *much lighter* and *uses significantly less power* than the competitive ENG-only camera. Plus the LDK-14 gives you additional advantages in size, picture quality, stability, maintainability and cost.

Among its many other unique features for portable and studio use are:

- Only 27 watts power consumption (almost 1/3 less than the ENG-only competitive portable) gives longer continuous operation with choice of battery belt or small battery pack affixed to camera. A standby switch further conserves battery power between takes.

- Viewfinder displays include: contour enhanced camera picture or external video signal; status monitors for video level, color balance, bars on, battery discharge, VTR functioning, intercom call and camera tally.
- Automatics include: color balance; white and black level; centering; noise reduction when operating with extra gain; auto iris with set and hold facility.
- Externally switchable black stretch and contrast expansion.
- Dynamic Beam Control (DBC), regulates beam current to suppress comet tailing and blooming.
- Circuitry designed to maximize advanced capabilities of the latest rear-loading Plumbicons.
- Optional remote control facilities.
- Easy access for set-up and maintenance. Rear casing flips up for access to five main plug-in circuit boards.
- The rugged magnesium housing and titanium quick-release lens mounting holds all optical and electrical components in absolute registration. (Lens mount is strong enough for the heaviest extended range zoom lenses.)
- Rain, splash and RFI proofed.
- Other features include electronic raster rotation for better registration; linear matrix for optimal and Philips compatible colorimetry; and 360-degree hue-selectable chroma key.
- Other competitive cameras may have some of these LDK-14 features—no one has them all.

Camera-Recorder Systems

With this unmatched combination of performance and portability, the LDK-14 is *also the ideal camera for field recording of ENG and EFP.*

And just as Philips has always offered the widest selection of portable and studio cameras to meet your specific needs, the same policy now applies to your choice of 1" VTR's and TBC's. Offering 'C' format and 'B' format VTR's in both portable and studio configuration, Philips can provide the greatest objectivity and cost-effectiveness in packaging systems to match your requirements.

Philips, the company that started it all, now introduces the latest portable breakthrough, the LDK-14 broadcast systems camera. It will be the industry standard for years to come. And for a camera-recorder package to match your requirements, your choice of 1" VTR formats. Only from Philips.

For all the facts on this innovative new camera or camera-recorder system (please specify) write: Philips Broadcast Equipment Corp., 91 McKee Drive, Mahwah, N.J. 07430 (Canada: Philips Broadcast Equipment, 601 Milner Ave., Scarborough, Ontario M1B 1M8)

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Circle 130 on Reader Service Card

"Magnasync/Moviola's Series 3000 Insert Recorder is a Sound Investment

Ted Gomillion
Gomillion Sound Inc.
Hollywood, California

"We thought that the amplifiers we designed and built in our own shop were the best. But that was before we bought our first Series 3000 over two years ago. Since then we've found that the electronics in the 3000 are a step beyond anything else available, including our own.

"The system's signal-to-noise ratio is extremely good, which lends itself to one of the most difficult areas of sound — sound effects recording. Even the most subtle effects can be accomplished because of the 3000's exceptionally quiet, low-distortion electronics.

"When we tested the system, the sound was so transparent that we couldn't even tell when the bias was turned on. We had to go back and punch up the recorder to find out which was live from the console and which was the tape playback. Now that's pretty damned good!

"And as far as ruggedness and reliability goes, you can't beat the 3000. We average around 50 hours a week of constant usage on our 3000, and we've never had a minute's downtime or a service call since it was installed."

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A Long-Time Leader Of Midwest Radio Rebuilds

BEST STATION AWARD CONTEST AM RADIO ENTRY 4

Submitted by Robert Engelhardt, Technical Director, WHO, Des Moines, Iowa

WHO/AM IS A Class 1A 50-kW station licensed to broadcast full time, non-directional, in Des Moines, Iowa. Since we are in the center of the state of Iowa, we are in the center of a good deal of the richest agricultural land in the U.S., as well as in a varied commercial and industrial area. That imposes a many-sided responsibility on the station. To update our technical means for handling this responsibility we have been rebuilding the physical facilities over the last couple of years.

One part of the rebuilding has been the installation of a new Harris MW50A transmitter. Our transmitting facilities are in fact duplicated: two transmitters and two separate transmission lines to separate antennas, all arranged so we can coaxially switch instantly from one to the other. The transmitting facilities are about 17 miles east of the central city. Our studios are downtown.

Those studios have been extensively rebuilt as the central part of our technical updating plan. The old large "live" studios, which were built some 25 years ago to accommodate whole country and western bands, "live" audiences, etc., were broken up into smaller, more modern facilities. This was done, first, because we needed the space; and secondly, because we no longer have a need for the older kind of live radio programming that put large groups of performers and audiences in the studios. Our programming is still nearly all "live," but in an entirely different form.

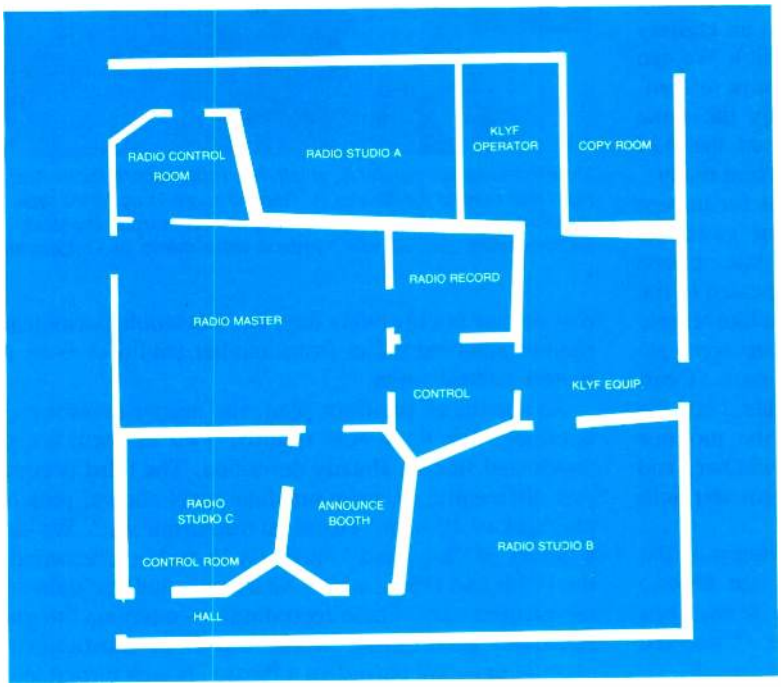
Our program mix now includes the following main elements. Several blocks of farm news and market information are produced each day by a permanent staff of four farm specialists. General news goes on several times from the wire services and other sources. In the early evening we put on MOR music or live broadcasts of major league baseball, during the season. We have more than 100 live sports remotes during the year. From midnight to 5:00 a.m. every day, we have a talk and country music show. And we have up to six hours a day of a telephone call-in show with a huge following, with people all over the area presenting their problems, questions, and opinions.

For the telephone call-in show, we built a system that allows us to answer incoming calls and put them on hold automatically, with an indication of chronological order for the announcer so he will not cause a caller to wait unnecessarily. He answers calls in the order in which they come in, as indicated by lights on the console.

The whole operation is hands-free. The announcer talks into a conventional studio microphone and listens on studio monitoring devices, rather than sitting and holding a telephone hand set. He can make notes, move around the studio while talking, sit, or stand as he chooses.

Each of our two main studios has the complete call-in equipment. Each studio also holds new Technics SP-10 turntables, ITC cart machines, and Scully 280 reel-to-reel machines, all for stereo. The two studios are identical.

The heart of these new studios is the Ward-Beck consoles, custom-built to our requirements (and now part of



Simplified floor plan for new studios at WHO shows compact arrangement with ample space for current operations. Studio A has elaborate system for telephone call-in shows (see photo next page). Studio B is production and talk show area

Operator Max Bennington at console in control room for new Studio A. Console was designed to WHO specifications for utmost operator convenience. Control for Studio C has an identical console

In Studio A, performers Susan Bray and Cal Stout answer telephone calls from listeners. Control allows calls on hold to be answered in order received. Room is comfortably furnished for ease of performers during three-hour show

Engineer Don Thornton and announcer Bonnie Agan voice a commercial in production Studio B. Space is also set up for talk shows and old-time music on 16-inch transcriptions (see story). Acoustic tile on wall adapts acoustics to live voice production

View from master control is, at left, into radio record room, and at right into control for Studio B. Record room is used for tape duplication, transfers, improvement of commercial tapes in reprocessing, etc. All WHO photos were made by C. Lamberti

Ward-Beck's regular product line). The input equipment and the consoles are all mono/stereo at the push of a button: the consoles produce a stereo and a mono output simultaneously. That allows us to program our AM and stereo FM stations simultaneously if we ever choose to do that in the future (KLYF, our FM station, uses an entirely different set of studios, a separate staff, and an entirely different format — automated beautiful music). We can also use the studio equipment to record programs or commercials in stereo if we wish, using exactly the same equipment. And, obviously, if we ever want the AM station to go to stereo, the studios are 100 percent ready.

The consoles were very carefully laid out for utmost operator convenience. Equalizers and input switchers were located on the far left along with the microphone group. The center group of channels was allocated to the higher level and less frequently used channels like remote inputs, network, etc. And the far right group were assigned to the most frequently used things, such as cart machines, reel-to-reel machines, and turntables. Then the far end of the console was assigned to the monitor amplifiers, auxiliary amplifiers, monitor switcher, and headphone amplifiers. There is an up/down counter built into the console.

There is also a circuit on the console which puts the turntables into auto cue; or the operator can choose whether the turntables go into auto cue when he keys in a channel or when he brings down the fader. Thus, the turntable is in cue without throwing another switch.

I think one of the best things we did on the customized console was the input switchers. These were added to two of the channels to replace patch panels, in effect. The operator can simply punch up certain incoming channels that he may not use every day, but that would periodically require patching either from another studio or from the master control room.

As shown on the floor plan, the master control room overlooks the three AM studios. Two of them are the duplicated studios already described. The third is equipped differently, to accommodate panel shows, plus our playback of 16-inch "electrical transcriptions." We have a library of "big band" music on 16-inchers, recorded in the 1940s and 1950s, which we treasure and maintain with the greatest care. These recordings — many on the glass substrates used during World War II as substitutes for aluminum — are played on a Presto 16-inch turntable, an old-timer itself but still performing reliably.

One effect of our rebuilding program is the pride that all of these staffers feel in the new equipment. We are highly pleased with the results so far and are certain that continu-

ing along the same lines — duplicating the main studio, for example — is what we want to do. The gain in staff morale from going to such modern, highly convenient facilities is very real and substantial, a gain that some managements might overlook when considering the updating of a broadcast plant. That gain has been added to the others from the almost totally new plant that is taking WHO into its second half-century.

KWK: The Best Of AM, Present And Future

BEST STATION AWARD CONTEST AM RADIO ENTRY 5

Prepared by BM/E from data furnished by Edward Jurich, Chief Engineer, KWK, St. Louis, Mo.

PUT YOUR TRANSMITTER on an island in the Mississippi River, and you had better have your defenses in order for a massive attack of the kind that Ole Miss periodically lets loose. The former owners of KWK in St. Louis saw the river carry off their transmitter installation in the big flood of 1973. The firm went bankrupt, and the station was dark for the next five years.

Doubleday Broadcasting, subsidiary of Doubleday and Co., one of the oldest and largest publishing firms in the country, bought the station in 1977. Doubleday built a completely new plant from stem to stern. The new transmitter is on a steel platform 20 feet above the ground, braced for the worst punch the river is likely to throw. There is a second transmitter in a different location to maintain coverage at night when KWK must provide a tighter protection pattern. The totally new studio facilities, in a new location, use top-grade stereo gear for current programming, right through the consoles, so that KWK can go AM stereo with utmost simplicity.

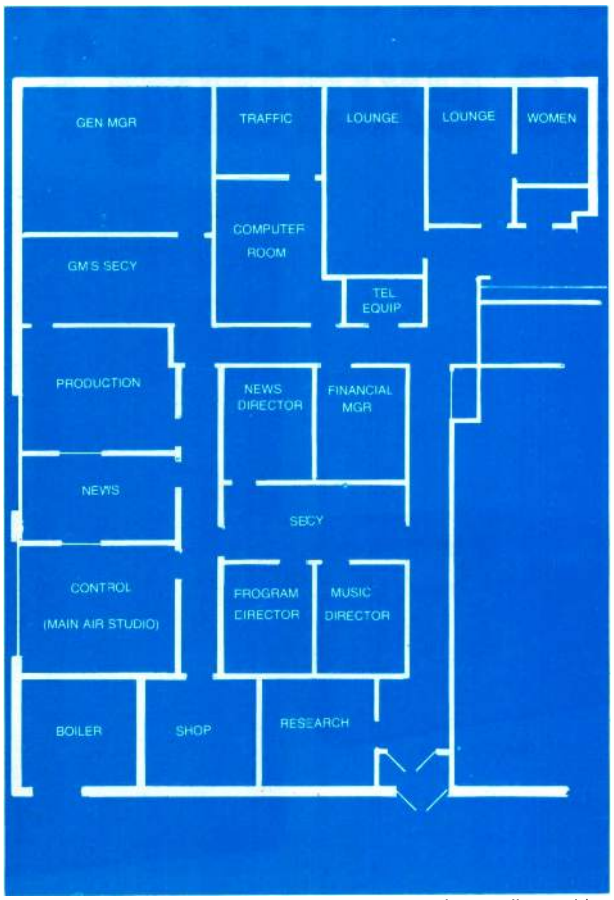
The programming of the new KWK will be "contemporary music," with a generous admixture of news, national and local, and considerable air time for local issues of importance in the community. The operation is 100 percent "live," with all the music on cart — the operator puts each cart on the air. KWK is doing all the "carting" in their own production room.

All three main studios in the new plant were completely designed and built by McCurdy Radio, using McCurdy consoles, Panasonic Technics turntables, Stanton pickups, and ITC cart machines. All this equipment is in stereo, and the *carts themselves are recorded in stereo.* This means that if and when KWK goes to AM stereo, its store of program material is all ready — no scramble to re-record material will be necessary.

Some other data of the studio equipment follow. There are two MCI stereo record/playback tape machines, for any material that may be received on tape and to aid in the production process as required. Monitoring amplifiers are the Crown D150s, feeding JBL studio monitor loudspeakers — about as high in "fidelity" as you can get for this function. The consoles have 16 channels each, enough to take care of all the various inputs the operation requires. There are two equalization modules — again anticipating AM stereo — which can be punched into the line at any point, from right behind the turntables to the console output.

A newsroom, for producing and airing news broadcasts, will be available as a second production area for any kind of program, as well as being the headquarters for the news staff, the site of the Teletype machine, etc.

To get programs to the two transmitters, KWK uses a



New studios for KWK group operating areas in one line, with windows allowing view from one end to the other. Each area, built by McCurdy, has McCurdy consoles, Technics turntables, ITC cart machines, MCI reel-to-reel recorders, and Stanton pickups

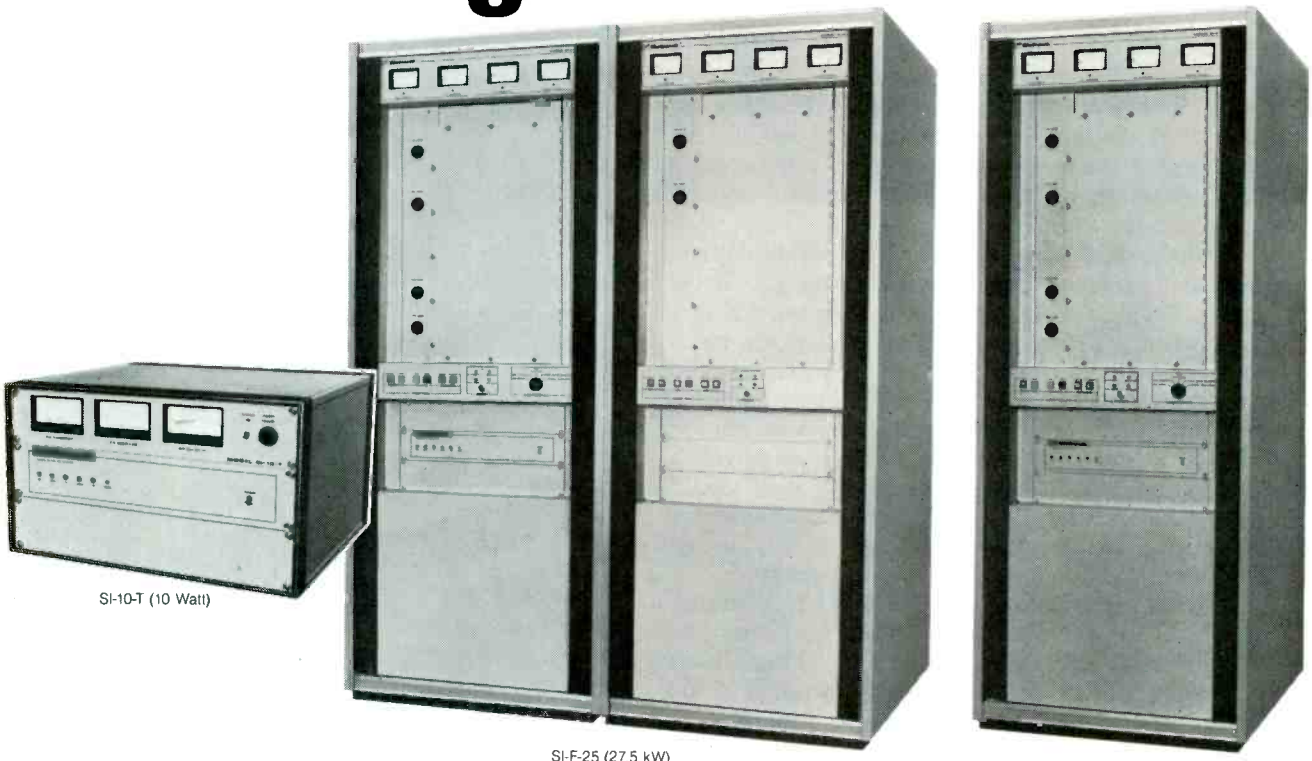
fairly complex STL arrangement. The system is a Moseley, and the signal goes first to a relay point in a high apartment building in the city. There are two transmitting antennas there, one pointed toward the north transmitter (the island installation) and the other to the south transmitter. Ordinarily, the program signal comes into the relay on one frequency and goes out on another. However, the frequencies can be reversed or duplicated as a backup for any malfunction: the STL, in effect, is a dual-redundant system.

Remote control is also Moseley, a digital system using the same air paths. An interesting special function: there is an interlock on the remote control which prevents more than one of the transmitters from being on the air at the same time. This allows the station to use third-class operators at certain periods; the FCC rule is that third-class operators cannot be in charge of two transmitters at once.

The north (island) transmitter is a 5 kW Harris MW5, used during the day in accord with KWK's authorization. There is a backup Harris 1 kW, MW1, at the island site.

continued on page 53

What makes these new Sintronic FM transmitters so exciting?

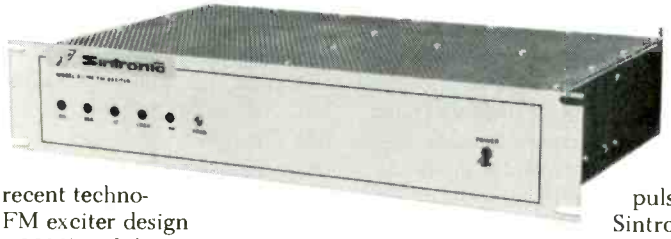


SI-10-T (10 Watt)

SI-F-25 (27.5 kW)

SI-F-5 (5 kW)

Well for one thing...



. . . the new Sintronic on-frequency, direct FM exciter. It's the heart of all our latest FM transmitters.

And it's exciting because it combines good engineering and recent technological advances in a solid-state FM exciter design which embodies such features as .001% stability without expensive crystals or ovens. . . 5 LEDs which continually monitor the key circuits. . . noise and distortion figures so low we could barely measure them in the lab (but we spec'd them conservatively, just like everything we do at Sintronic).

But there's a lot more that's exciting about our FM transmitters.

We start with our new exciter to a pair of 4CX250Bs driving a stable, grounded grid power amplifier for our 1.5, 3.5, and 5 kilowatt transmitters. We add another cabinet containing our high power amplifier and we're at 12.5 kW or 27.5 kW; and with two 27.5 kW we go on up to 55 kW. Each has its own "12-pulse" power supply.

Sintronic has been making FM and AM transmitters for more than 15 years. They are now operating in more than 34 countries, some in remote locations under severe environmental conditions.

That's the Sintronic story: solid design, terrific performance, and all at prices that make our cost/performance ratio pretty exciting, too.

Call or write to learn all the other exciting details of our FM transmitters—and our AM transmitters are exciting, too! Sintronic Corp., 212 Welsh Pool Road, Lionville, PA 19353. (215) 363-0444. Ask for Tom Humphrey.

Sintronic CORPORATION

Sintronic is a subsidiary of Singer Products Co., Inc.

Circle 132 on Reader Service Card

Best Station Award Contest

To show the thoroughness of the protection against the river: the steel platform carries a small voltage which counteracts the electrolysis that would take place in the water between the steel and the copper radials. This electrolysis, in effect forming a "battery," would erode the steel and bring the platform down in a comparatively short time without any help from the river.

At night, KWK must drop to 1 kW and provide additional protection toward the south. Under the former management, this was all done at the river installation, but the necessary antenna directionality resulted in poor coverage of the south side of the city.

The new management's engineering consultants came up with a good solution to this problem. They put the second transmitter at the southern edge of the city. Then the open pattern on the north side of the antenna could cover the city well, especially the south side of the city near the transmitter. The protected area, being farther south, could be taken care of by heavy nulling of the south side of the antenna system. The south transmitter takes over the whole job after sundown. In preliminary checks, made just before this account was written, chief engineer Jurich and his helpers found that the coverage plan was working extremely well, with far better signal than the old station put out on both the north side and the south side of the city, both by day and night. The south transmitter is a Harris 1 kW, MW1, with an identical MW1 as a back-up: KWK has four transmitters ready to go at all times.

Technically, this is a completely up-to-the minute AM plant, with the future of AM assured in the stereo studios. It is all-out for the best in every respect.

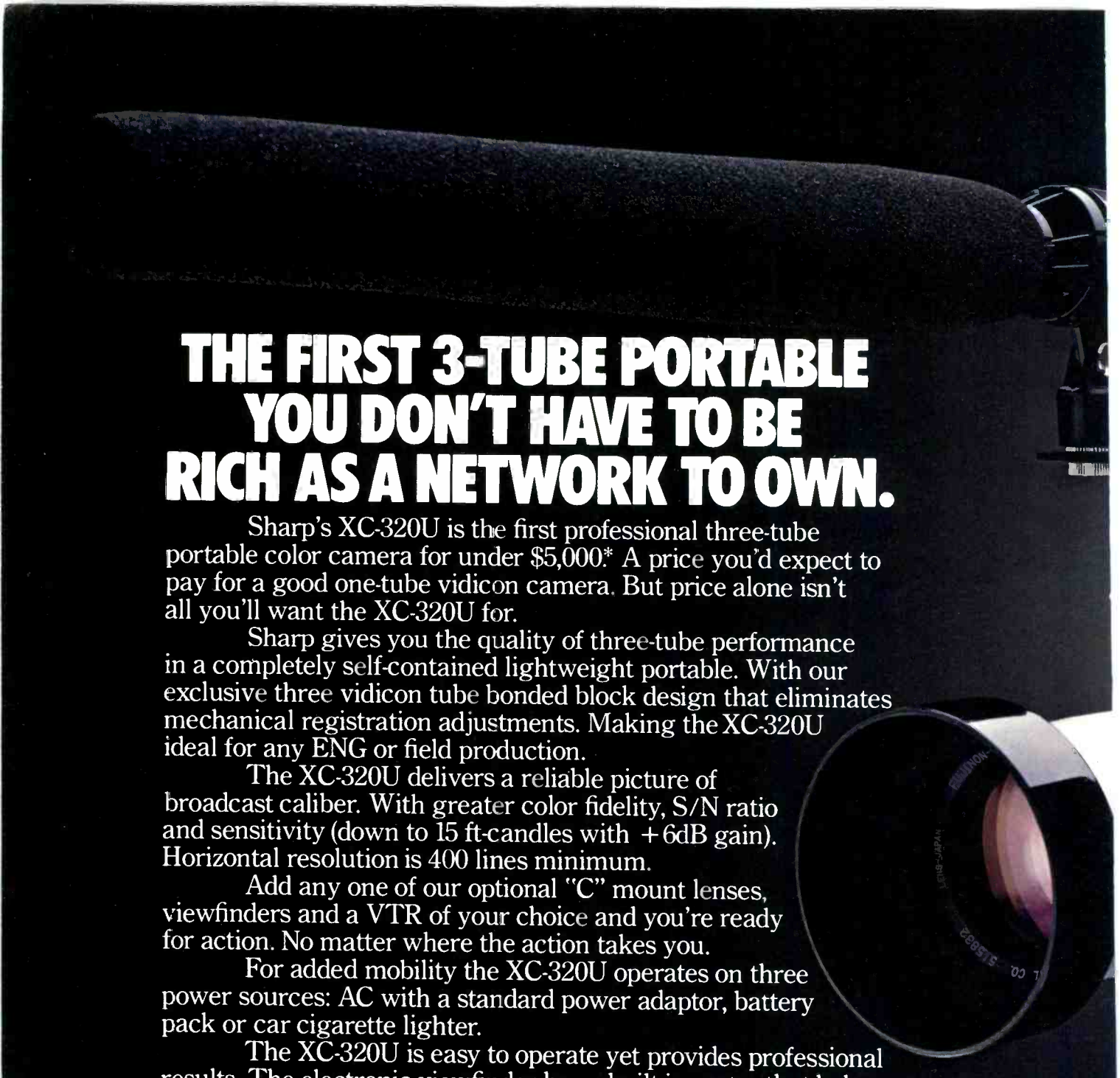
Main on-air studio has Technics turntables at right of McCurdy console, MCI tape machines at left. ITC cart players are uprights at ends of console. All equipment is stereo

Production room has another identical McCurdy console, and same general complement of equipment as news room and main studio. Any of the three studios can go on the air

News room has identical McCurdy console, for operator familiarity. Turntables are to left, ITC and MCI machines are at right. Window to main studio is in front of operator

Staff's enthusiasm for new equipment was caught in main air studio. Cart storage can be seen at rear. All carts with program are recorded in stereo as insurance for future

Best FM Stations continued on page 58



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Sharp gives you the quality of three-tube performance in a completely self-contained lightweight portable. With our exclusive three vidicon tube bonded block design that eliminates mechanical registration adjustments. Making the XC-320U ideal for any ENG or field production.

The XC-320U delivers a reliable picture of broadcast caliber. With greater color fidelity, S/N ratio and sensitivity (down to 15 ft-candles with +6dB gain). Horizontal resolution is 400 lines minimum.

Add any one of our optional "C" mount lenses, viewfinders and a VTR of your choice and you're ready for action. No matter where the action takes you.

For added mobility the XC-320U operates on three power sources: AC with a standard power adaptor, battery pack or car cigarette lighter.

The XC-320U is easy to operate yet provides professional results. The electronic viewfinder has a built-in meter that helps you adjust the iris setting for optimum results.

Sharp's XC-320U. When you want three-tube professional quality like the networks. But don't want to pay for it.

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SHARP

*Manufacturer's suggested list price for camera shown (without lens).

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SHARP
XC-320U
SHARP COLOR CAMERA

When one camera does the work of three- and costs surprisingly little- that's video freedom.

The TK-760 with advanced solid state technology is one TV camera that does the work of three. It goes from studio to field to ENG. And it performs with outstanding stability and consistent picture quality, at a price that's welcome news indeed.

In the studio, it's hefty enough for firm, smooth movement on a tripod or pedestal.

What's more, it has the quality that's a necessity in the studio. Yet it's compact and mobile.

You can control it at the camera head, or through an ultra-small CCU. The TK-760 is filled with state-of-the-art automatics, even automatic cable equalization. But it also has the manual controls you need to be creative.

In the field, it's light enough for easy setup.

At 42 pounds, the TK-760 is easy to move. And it's ready to shoot in seconds, without a lot of tweaking. Stays stable, too, even with rough treatment. Its remote control panel makes multiple camera systems an easy matter, even in a mobile van.

For ENG, it uncovers to become the TK-76B.

In 15 minutes, you can remove the TK-760 studio-field configuration. Underneath, there's a self-contained, backpack-free, one-person ENG camera. Today, over 1000 TK-76 portable cameras are gathering news, shooting documentaries, and performing other assignments that call for utmost mobility, reliability and uncompromising picture quality.

In the studio, on location, or for ENG, video freedom is the TK-760.

Video freedom is, in fact, a complete array of broadcast equipment including cameras, VTRs, telecine systems, antennas, transmitters, even mobile vans. For all the video freedom facts, see your RCA Representative, or write us. RCA Broadcast Systems, Building 2-2, Front & Cooper Sts., Camden, NJ 08102.

RCA

TK-760. Part of the new video freedom.

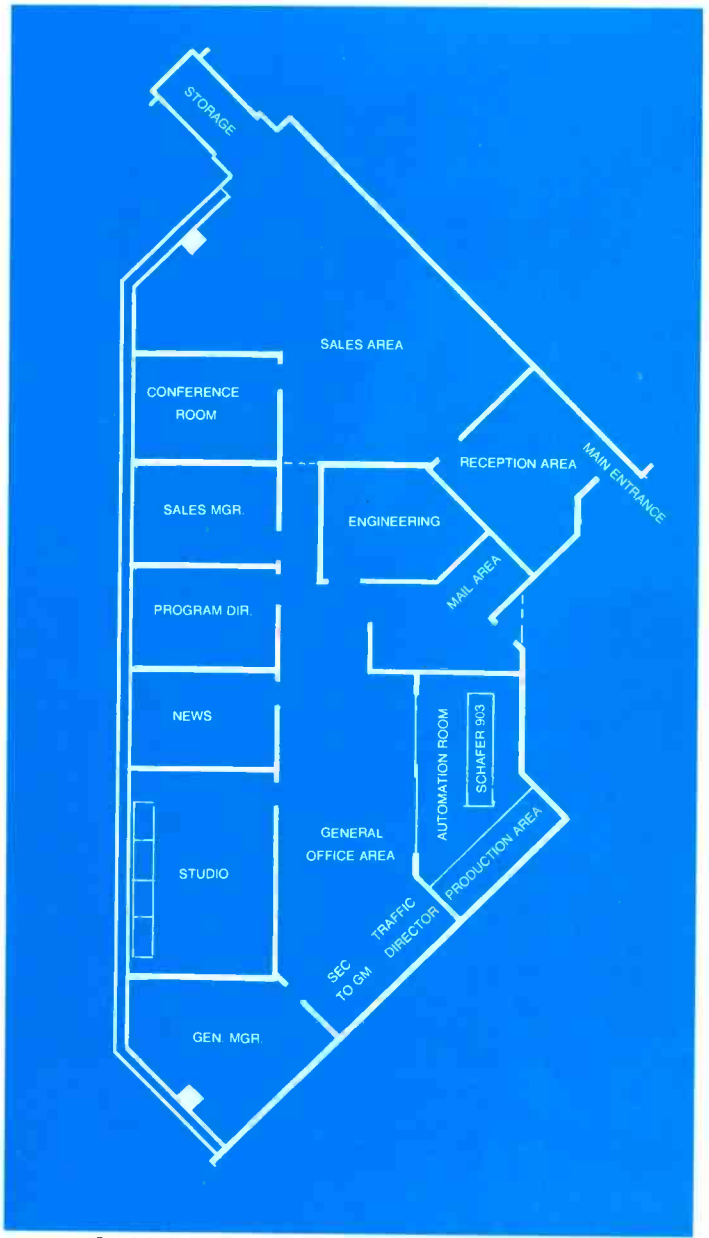
Best Station Award Contest

Reborn WTWR Aids Rebirth Of Detroit From Top Of Renaissance Center

BEST STATION AWARD CONTEST FM RADIO ENTRY 6

Submitted by Paul J. Grzebik, Engineering Manager, WTWR, Detroit, Mich.

GOLDEN WEST BROADCASTERS' newest station is WTWR-FM/92, in Detroit, Mich. The station studios and transmitter are situated in the Renaissance Center, because the $300-million complex is the symbol of the revitalization of Detroit, and also because of the great opportunity of height provided by the building.



Studios of WTWR occupy quarter-pie area on fifteenth floor of Renaissance Center. Studio has control console, tape and disc input equipment, read-out of automation system, and video monitors for Michigan Emergency Control. Automation system is directly across the hall

View through studio window is a broad panorama of downtown Detroit. Putting studio at external wall gave operation a feeling of space and connection with city. Double panes, of ¼-inch and ⅜-inch glass, control noise from outside; interior is lined with decorative acoustic tile

Reception area shows sharp, clean decorative themes used throughout studios. Architects realized a look of attractive modernity which makes area pleasant to work in and also fits with efficient layout of operational areas

The Renaissance Center complex is composed of four round glass office towers, each 37 stories high, surrounding the 1400-room Detroit Plaza Hotel, the world's tallest hotel and Michigan's tallest building. The concept of upgrading the former WCAR-FM, a low-powered automated country music station, was developed in April, 1978. Several months later, on July 17, the new station signed on the air from its proud new location.

The new antenna system is on the hotel roof, 740 feet above the ground, and consists of a directional two-bay circularly polarized RCA BFM-2, leg-mounted on a high-strength 30-foot self-supporting tower. WTWR's slightly directional pattern is centered on 300 degrees true azimuth which bisects the coverage area. The transmitter is an RCA BTF-20ES-1, with an RCA BT-115A exciter, and an Orban Optimod. Digital remote control is accom-

plished with a Moseley DRS-1. Backup is accomplished with a similarly equipped RCA BTF-5E converted to a BTF-20E. Transmitter output is fed to an RCA coaxial transfer switch for feeding to the antenna or to the Dielectric Products 25 kW air-cooled RF load.

The transmitters are located four feet from a 15 kV electrical substation in the hotel's seventy-fourth floor machinery penthouse. John Portman and Associates, architects for the Renaissance Center project, provided mechanical and electrical specifications. Portman also designed and specified the special supporting beams for the Stainless, Inc. tower.

The new transmitter arrived at 6:00 a.m. on July 12, and the real work to meet the July 17 air date began. Moving the transmitter to the seventy-second floor by elevator was quickly accomplished, but the final two floors were accessible by stairway only. A 180-degree turn between flights and interference from a five-inch sprinkler line at the ceiling made the first stairs formidable. The second flight had its height reduced at one point by a low-hanging 100 A bus duct. A crew of four electrical equipment riggers was called in, and they had the transmitter on the seventy-fourth floor with few nicks and scratches on it almost nine hours later. This hectic day ended at 1:30 a.m.

Transmitter assembly, audio wiring, and transmission line installation were all done by WTWR personnel and progressed without any problems. Sunday, July 16 was the day of truth, since air date was Monday, July 17 at 6:00 a.m. Delivery of the RCA BFM antenna system occured on July 15 and 16. On Sunday the all-important antenna elements arrived at the Detroit airport at 10:00 a.m. and the entire antenna was ready for erection by Midwest Iron and Great Lakes Antenna Company.

At 2:58 a.m. power was applied to the antenna and the hotel MATV system was checked for interference, and there was none. The remaining time until the 6:00 a.m. birth of WTWR was spent with equipment tests.

WTWR's first day of programming originated from a temporary control room located at the WCAR studios in northwest Detroit. Construction of the new studios and offices on the fifteenth floor of the Renaissance Center, Tower 100, had begun in June. Three of the office spaces and the large sales area were completed by mid-July, but several offices and the studio complex were untouched.

The first program with WTWR's new format was done as a remote from the rooftop of the hotel, complete with helicopter traffic reports and a thrilling fly-by or two. The temporary studio consisted of some very permanent equipment. A Ward-Beck console was in a 110-inch black-on-white console table, also supplied by Ward-Beck. One of the matching side cabinets holds Technics SP10 turntables, with Audio-Technica 1009 arms and Stanton 681 SE pickups. The other cabinet supports the ITC playback and triple deck cart machines and remote controls for two MCI two-track tape machines. Video monitors for the Michigan Emergency Patrol, traffic reports, and readout of the automation system are beside the console. The console power supply, Crown D150A monitor amplifiers, and other small equipment are mounted in rack rails set into the side cabinet. Electro-Voice Sentry 5 monitor speakers and Sennheiser MD421 microphones complete the studio equipment. Also in the permanent lineup is the Schafer 903 automation system.

A high-attenuation window system was designed for

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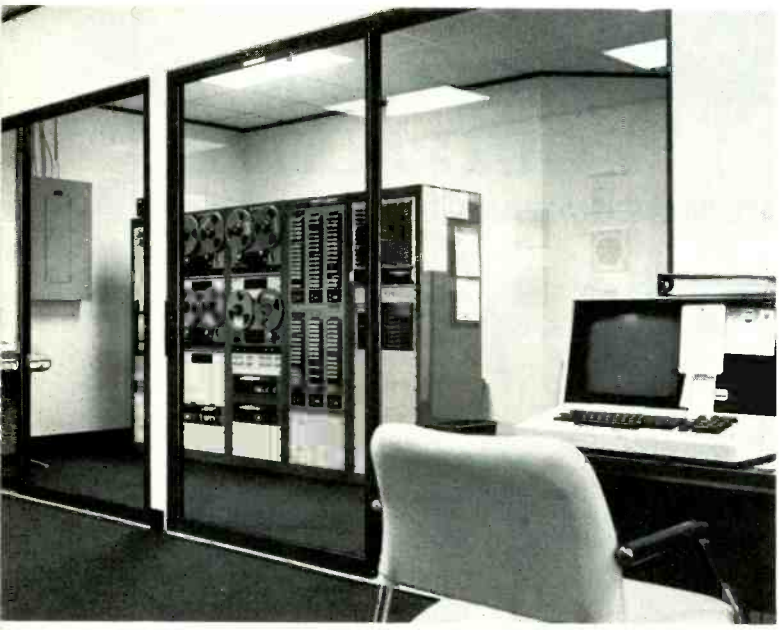
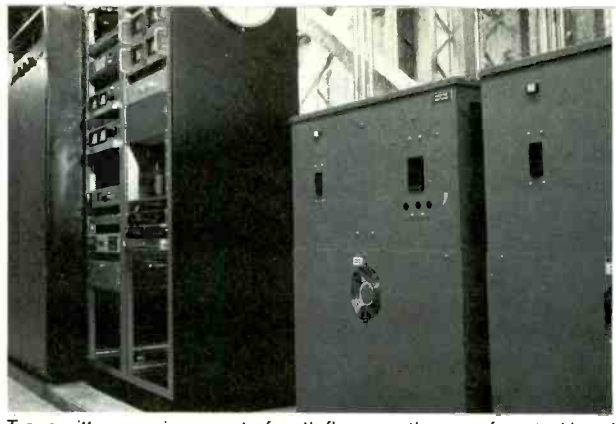


Schafer 903 automation system is in room across hall from the studio. Sliding glass doors give full view from main hallway. Automation control units are installed both in the automation room and in studio



Transmitters are in seventy-fourth floor penthouse of central hotel tower, just under the roof. The antenna is directly above, so transmission line can come straight down

Reunion Tower In Dallas: Showcase For KOAX-FM

BEST STATION AWARD CONTEST FM RADIO ENTRY 7

Submitted by John Gudgel, Chief Engineer, and Cynthia Allgood, Executive Secretary, KOAX-FM, Dallas, Texas

THE CHANCE TO RELOCATE in the new landmark for the Dallas-Fort Worth area, the 50-story Reunion Tower in Dallas, would be a challenge for any radio station. KOAX-FM, 105.3 MHz, was presented with this challenge in the spring of 1977.

Norman Wain and Bob Weiss, owners of Metroplex Communications of Cleveland, and Jim Stansell, KOAX vice president and general manager, met with representatives of Woodbine Development Corporation at that time, then engaged the services of the nationally known architectural firm of Thomas T. K. Zung and Associates of Cleveland.

Zung designed an ultra-modern showcase studio on "The Lookout" observation level in the geodesic dome which tops the tower. Broadcasting operations began from the new location in mid-April of this year.

An aim of Woodbine was to provide a setting for a quality station. With one of the most unique sites in the country, there was the bonus of almost unlimited promotional possibilities. There was also proximity to the new Hyatt Regency Dallas Hotel in the Reunion development.

Zung designed the studios and production area in approximately 640 square feet to provide maximum exposure for the thousands of visitors to the tower. The station's audio is piped into the observation area.

In the studio itself, a round control desk finished in white formica houses all control and tape control equipment. Reel-to-reel decks and oscilloscope screens are housed in cabinets located behind the elevated control desk. The instrument panels are controlled by one

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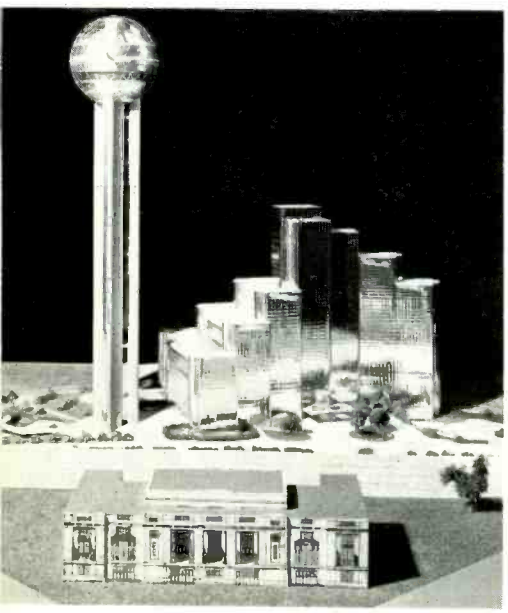
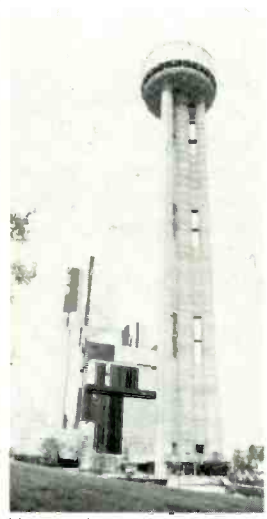




Houston's stunning Reunion Tower as conceived in the architect's model and as it appears today. KOAX studios are located in the sphere at top of tower

We didn't have to make a better 2 track than our RS-1500. So we made a 4 track. Introducing the RS-1506.

Ingenuity is truly rare. Repeated ingenuity is true genius. Like the Technics 4-track RS-1506. It offers twice the program time of our 2-track RS-1500.

It also offers the award-winning RS-1500's "Isolated Loop" tape transport with a quartz-locked, phase-controlled, direct-drive capstan.

By isolating the tape from external influences we minimized tape tension to a constant 18C mgs. Providing extremely stable tape transport and low head wear. While reducing modulation noise and wow and flutter to a point where they are barely measurable on conventional laboratory equipment.

Electronically, too, Technics RS-1506 provides the same level of professional control as its predecessor. A separate microphone amplifier. Mixing amplifier. And separate three-position bias/equalization switches. While IC full-logic function permits absolute freedom in switching modes. Also available is an optional full-feature infrared wireless remote control (RP-070). It lets you operate all transport functions and record from up to 20 feet.

For the same performance as the RS-1506 with the convenience of auto reverse, there's the RS-1700.

Compare specifications. Even with the best 2-track decks. TRACK SYSTEM: 4-track, 2-channel recording, playback and erase. 2-track, 2-channel playback 4-head system. FREQ. RESP.: 30-30,000Hz, ±3dB (—10dB rec. level) at 15ips. WOW & FLUTTER: 0.018% WRMS at 15ips. S/N RATIO: 57dB (NAB weighted) at 15ips. SEPARATION: Greater than 50dB. RISE TIME: 0.7 secs. SPEED DEVIATION: ± 0.1% with 1.0 or 1.5mil tape at 15ips. SPEED FLUCT.: 0.05% with 1.0 or 1.5mil tape at 15ips. PITCH CONTROL: ±6%.

Technics 4-track RS-1506 and auto-reverse RS-1700. A new combination of audio technology. A new standard of audio excellence.

Technics
Professional Series

"this Auditronics 110 in the Louisiana Superdome...

...handles over 80 events a year ranging in complexity from Saints football and NBA basketball, to the Spinx-Ali fight to rock festivals and religious revivals", says WWL's Hugh Burney, Director of Technical Operations. "Its 22-in by 6-out flexibility lets us use it for on-the-air TV and radio as well as network feeds, and some commercial production."

"We needed a board to handle a great variety of tasks at the Superdome, and we checked out half a dozen different brands. The stretched version of the Auditronics 110 gave us the greatest flexibility for the lowest cost, and they customized it for exactly what we needed. With Auditronics modular design, we essentially got a custom board with the quality we required for the Superdome at the price of a standard item."

"How does it work? Well, in two years on the air, it's done everything we've asked of it, and it's never failed in use. We like it well enough that we've since bought a second Auditronics 110 that's working eight hours every day in our commercial production studio."

If you'd like to know what WWL and over 300 other broadcasters and studios have learned about Auditronics quality and reliability, circle reader service number or call us.

Louisiana Superdome, largest indoor arena in the US. site of WWL's sports broadcast studio shown above.

auditronics, inc.

3750 Old Getwell Road, Memphis, Tennessee 38118 (901) 362-1350

Circle 137 on Reader Service Card

operator from this location, including room temperature, lighting levels on the mirrored ceiling, and broadcast-related equipment.

A backlighted Geochron world time may and weather system showing wind direction and speed, relative humidity, barometric pressure, and temperature is clustered on one wall for public viewing.

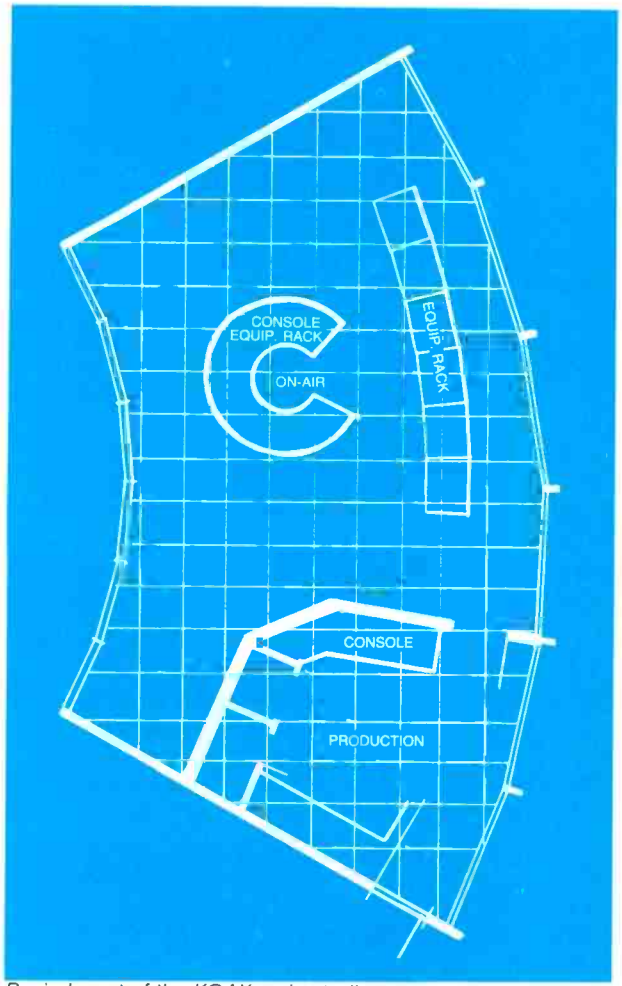
In addition, the operator has control of a computer made by Hunt Electronics of Plano which can be programmed to synchronize KOAX's audio with the spectacular night lighting displays on the dome, using 260 krypton-filled bulbs.

Offices are located on ground level, approximately 50 feet west of the south tower entrance. The all-glass front provides clear display of large chrome call letters on a gray fabric reception area wall. The reception area is designed for comfortable waiting periods.

In our conference room, sales meetings and presentations are held, and the room doubles as a talk show origination facility and minor production area. The general manager's office is designed with comfortable elegance in mind to provide a calm atmosphere.

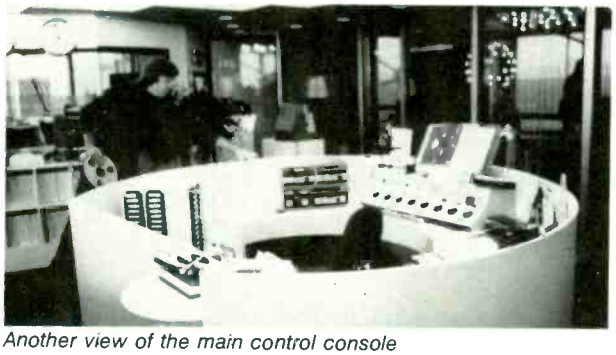
The main sales office is divided into four sections with one for each salesperson, with the sales manager's office adjoining. This has a second advantage of affording close personal contact with sales staff.

Engineering is designed for engineering, which means that's the most cluttered spot in the offices.

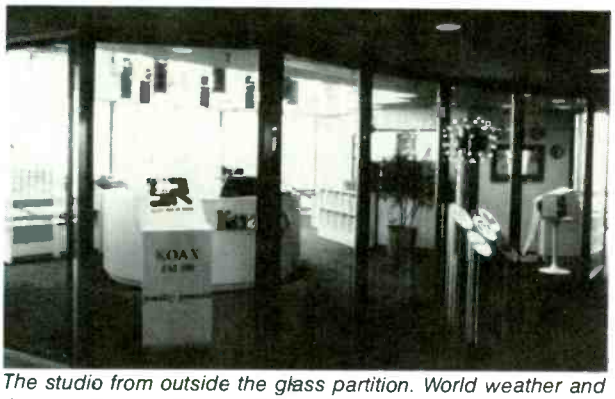


Basic layout of the KOAX main studio area

At main control console, operator uses a TRS-80 computer to update information on a monitor in a public display area



Another view of the main control console



The studio from outside the glass partition. World weather and time map and public information system is at left. The dimensional station logo is outside the studio (left center) and main console is visible in the rear

In the process of debugging the studios after construction, various equipment has been replaced and will be replaced. The basic components initially selected were made by various manufacturers such as MCI, ITC, Orban, International Rockwell, TFT, etc. Replacement is due to poor reliability of some equipment.

Basically, I maintain all standards throughout the system within a ±1 dB variation between channels. Noise is kept at a minimum, which is a constant problem with some of today's equipment. Refinement to a "quality broadcast sound" system has taken a lot of close examination of each component in the overall system, from tape machines through to the microwave system, on through to the transmitter and finally to the listener.

Our transmitter is an 831H Collins unit diplexed to produce 36 kW transmitter power output. The antenna system consists of a Jampro six-bay unit positioned at

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Front page news

Blue Bell, Pa.

Dynasciences has acquired the Spectra-Vision line of professional editors effective October 1978 with the combined operations headquartered at the facility in Blue Bell, Pa. The editors were first displayed under the Dynasciences name at the New York Video Expo in Madison Square Garden.

Simultaneously, Dynasciences premiered the new model JBT-1034 low cost editing system which does not require an interface or any internal modifications to the video tape recorder.

A spokesman for Dynasciences said, "The acquisition of the Spectra-Vision editing line is another step in our planned growth and new product development program." Dynasciences is a manufacturer of products for the video and cinema markets for over ten years and previously received an academy award for their Dynalens, an image stabilization device.

Dynasciences marketing management stated, "that with the addition of the professional editing products and our Video Graphic System, we now offer the most complete line of video products available." Dynasciences' current line of video products includes distribution equipment, image enhancement and processing units and special effect generators.

Dynasciences has an authorized network of domestic and international dealers. For further information, see your Dynasciences video products dealer or contact Dynasciences directly.

DYNASCIENCES

A Unit of Whittaker Corporation
Township Line Road,
Blue Bell, Pennsylvania 19422
215/643-0250 Telex 846358

Whittaker

Circle 141 on Reader Service Card

1560 feet HAAT with a gain of 3.3 dB, giving us an effective radiated power of 100 kW horizontal and vertical.

Our production facilities are set up for mono carts and stereo reel-to-reel production capabilities. I aim for the best possible sound in the production room, which means very limited AGC for cartridge level control. This was necessary because we reproduce our material "faithfully," and need to maintain a consistent level on the air without the use of compression or heavy limiting.

As a Schulke station, we are in the business of providing a high-grade sound and high-grade music. This level of sound is not easy to maintain, and anyone interested in adhering to the top standards of this industry should plan on a lot of work.

Peak separation to the stereo listener is 16 dB versus the other stations which average 3 dB due to compression and various other audio processing techniques. I am hoping that we may finally come out of this loudness war between broadcasters and get back to quality and intelligible broadcasting.

WXRT-FM: A Solid Allegiance To Rock

BEST STATION AWARD CONTEST FM RADIO ENTRY 8

Submitted by Barry A. DeWolfe, Public Relations Director, and the staff of WXRT, Chicago, Ill.

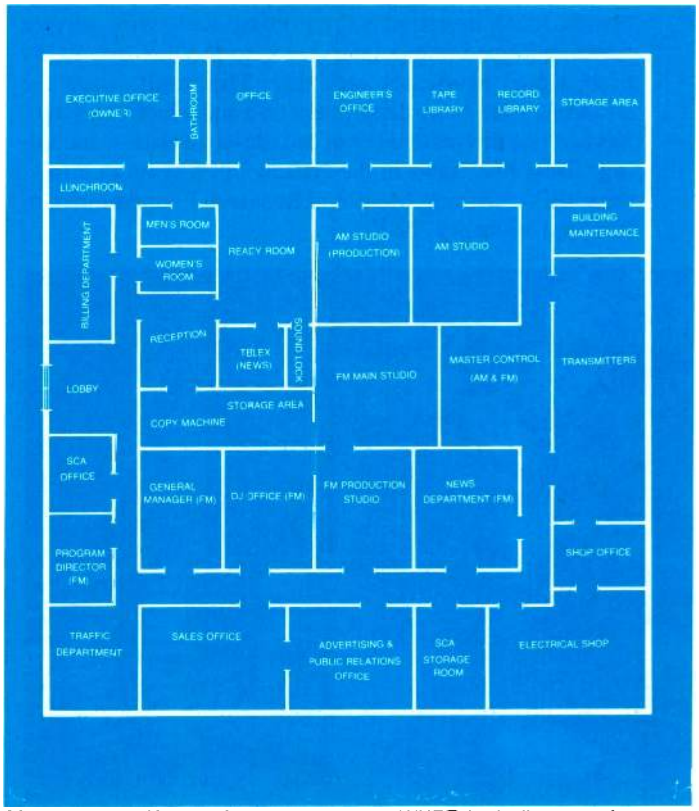
WXRT HAS EARNED a reputation in Chicago as an innovative alternative to mass-appeal oriented contemporary music stations. Competing against the network giants in the nation's third largest market is no easy task for an independent station. Yet WXRT has been competing successfully for over six years, and is currently looking stronger than ever. The key . . . management's commitment to excellence in broadcasting, both in terms of programming and signal quality.

Careful planning went into the construction of the new studios, with special consideration given to RF problems and equipment maintenance. Within the facility all conduit was placed below the concrete floors. The grounds for ac and RF are run separately, as are the conduits for high and low level audio. All audio lines are twisted pairs, foil-shielded, with a drain wire for lowest possible noise pickup. The transmitting tower is a grounded, shunt-fed, self-supporting structure. Five hundred thirty feet high, the tower has a Collins five-bay antenna mounted on top, with circular polarization.

The antenna ground system is linked from the roof of the building through the walls into the earth. All steel reinforcement of the building is also bonded into the ground system. An interesting and innovative feature about the layout of the building (deriving from Louis Lee's thorough background in electrical engineering and heating/air conditioning) is that the heat radiated from the transmitters is fed through ducts to heat the entire building. During the winter months, this system alone can comfortably heat the facilities in temperatures as low as zero degrees fahrenheit.

The metamorphosis

WXRT, a 50,000-watt stereo FM outlet, broadcasts at 93.1 MHz. It was operated on a brokered-time arrangement, as an ethnic format, until 1972, when it began the switch to the current full-time progressive rock format. Since changing formats, WXRT has assumed the primary position with the company, demonstrating excellent growth and potential throughout a five-year metamorphosis period. Started as a programming "experiment," the rock format gradually took over a larger share of the brokered air time. Approaching rock audiences in a manner similar to a fine arts format, the station gradually developed a strong following, which in turn justified further expansion of programming hours. WXRT finally went to 24-hour progressive rock in 1976, adding a news department and another studio in the process.



Many structural innovations are present at WXRT, including use of conduits buried beneath the concrete floor and use of the transmitter's heat to warm the building

Studios

Most programming is live, with the announcers engineering their own shows. There are three FM studios, including one which also serves as the production studio. Each is equipped with the following equipment: one Gates Executive Console; two ITC cart units; two ITC 850 reel-to-reel machines; three Technics SP10 Mark 1 turntables; and three Nova 1 preamps. The entire system was custom-designed by chief engineer Howard Williams. In addition, we currently use Shure M24H quad phono cartridges and AKG D224E microphones. The studios were designed so that master control can switch to any of the three broadcast studios, and auxiliary control can switch

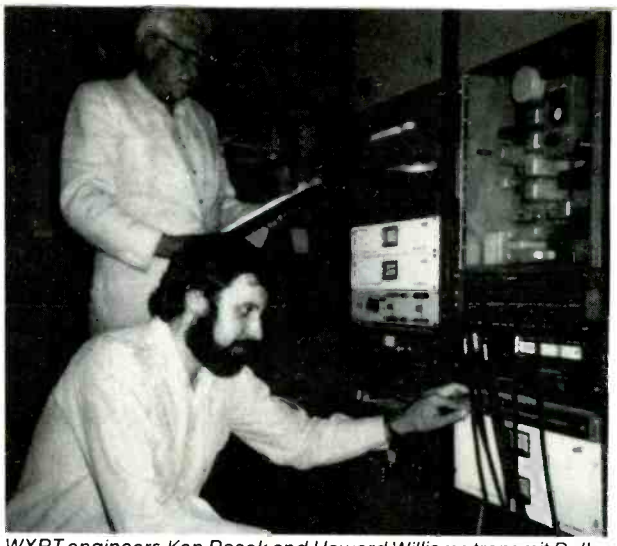
to any other studio instantly — an important factor in case of equipment failure.

The production/back-up studio is designed for stand-up operation. It's used in the production and editing of commercials, public affairs programs, and other broadcast-related material. Equipment consists of the following: one SAE Graphic Equalizer; two ITC 850 reel-to-reels; two ITC cart units; two ESS Fortura air-motion monitor speakers; one DBX II Noise Reduction System; and one Pioneer CT-2121 cassette deck.

While other contemporary music stations have been de-emphasizing news, WXRT has been making a concerted effort to provide our listeners with a well-balanced, informative news service. Our full-time news department blends local investigative reporting with wire service feeds and taped phone interviews, to produce six highly professional newscasts each day. The result, since the addition of the news department two and a half years ago, has been an impressive list of broadcast awards — including "Best FM News in the Nation" two years in a row, from the Armstrong Memorial Research Foundation (Columbia University, N.Y.).

Program director John Platt doing airshift in main studio

Production manager John Bell at work editing in production studio



WXRT engineers Ken Rasek and Howard Williams transmit Dolby FM test tone

The UnConcert

For five years WXRT has been producing a live-on-tape concert series called the "UnConcert." Aired every Sunday, the program features an excellent variety of major artists and groups, taped during local performances. WXRT engineer Ken Rasek does the production work live, mixing up to 24 channels by ear, independently of the band's own sound mixing. The quality of the tapes produced has earned the UnConcert a reputation and strong following. It has also brought high acclaim from music publications, including *Billboard* magazine.

Using everything radio has to offer

We frequently do remote broadcasts of live concerts from various clubs and auditoriums around the city. Utilizing phone lines to the station, we use a gain amplifier limiter (DBX 162), a parametric equalizer (SAE 2800), and an SQ encoder. Our live concert programming also includes occasional syndicated concert broadcasts from other cities around the country, via phone lines or satellite connections.

A clean signal rather than loud

WXRT has developed a reputation for having one of the cleanest signals in Chicago. It's been the goal of management to maintain the highest fidelity possible; to transmit a signal and sound superior to what the listener would derive from his home stereo hi-fi system. We use very little compression, 1 or 2 dB at the most, and no expansion at all. We are attempting to transmit the full dynamic range of our music without distortion due to clipping or compression.

WXRT transmits with the following equipment: one AEL Stereo Generator (FM15 QE-SG); one AEL Exciter (FM 15 QE); one AEL 25 kW Transmitter (FM 25kd); one Broadcast Electronics Limiter (CLE-FM); and one Dolby B Encoding (334). In addition, we have an RCA standby transmitter (BTF 10D) with an RCA stereo generator and an exciter.

It is now six years since the "experiment" with progressive rock began. The growth has been controlled and continuous. WXRT has made significant contributions to the overall character of the Chicago market, both in programming and in technical expertise. The metamorphosis is complete: a viable format has emerged, capable of competing against the network giants. Lo and behold, the butterfly has wings!

Best TV Stations continued on page 71

For you, the new breed of video professional, the new breed of professional video from JVC.

If you're a video professional today, you're a tougher customer than ever.

So JVC's rugged professional line delivers the quality and features you demand at prices you want to pay.

We know you've got a lean new attitude about the video equipment you buy, no matter how long you've been in the business. Or whether you're in broadcasting...a sophisticated corporate A/V operation...a top production house...or building your first video capability.

And that attitude is, with all the people vying for your video dollar, you want more state-of-the-art technology in equipment that costs you less to own and maintain.

JVC's attitude is basic too. We build in engineering innovations—we don't add them on later. And we do it first. Which means you enjoy better picture and sound quality, easier operation, and sophisticated features you may not even find in equipment selling for twice the price.

For instance:

You wanted faster performance and greater accuracy in 3/4-Inch video editing.

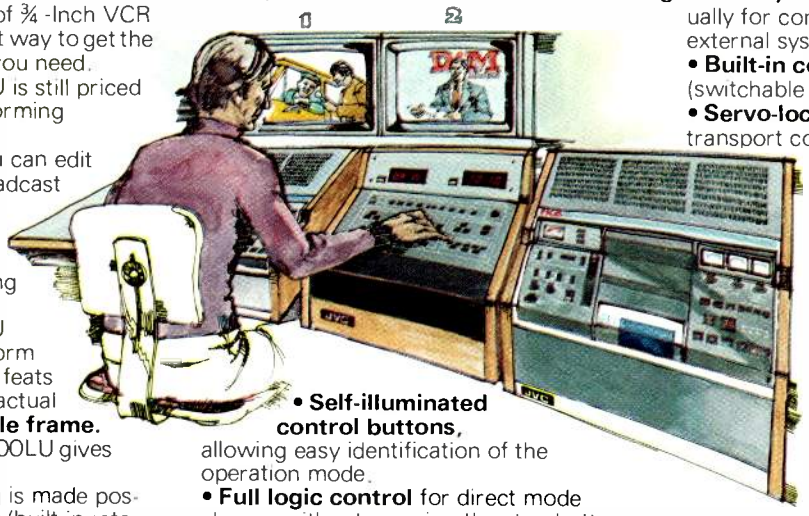
And JVC's new CR-8500LU Recorder/Editor System offers bi-directional fast/slow search from approximately 10 times to 1/20 time, with editing accuracy to ±2 frames.

It's a new generation of ¾-Inch VCR editing— the fastest, surest way to get the frame-by-frame accuracy you need.

But JVC's CR-8500LU is still priced well below its closest performing competition.

With a single unit, you can edit with full functions and broadcast quality. Even if you don't happen to have special technical knowledge.

With a complete editing system of two CR-8500LU units and the new RM-85U Control Unit, you can perform the most advanced editing feats at approximately 10 times actual speed, then stop **on a single frame.**



Here's how the CR-8500LU gives you that kind of precision:

- **Frame to frame editing** is made possible with the capstan servo/built-in rotary erase head/blanking switcher frame servo design. A design that also ensures true assemble and insert editing with no distortion at the edit points. Plus horizontal sync phase compensation to minimize timing error at the editing points.
- **Variable speed auto-search** lets you perform both high speed and low speed search. You can search at approximately 10 times in fast forward or reverse to find edit points faster. Or slow speed search at 2 times, 1 time, 1/5 time and 1/20 time. Or use the special auto-speed shift feature to automatically slow you down from 2 times, real time, 1/5 time, 1/20 time.
- **Automatic pre-roll** enables you to pre-roll tape between edits, with an automatic on/off switch. Which can come in especially handy during successive assemble edits using camera signals.
- **Self-illuminated control buttons,** allowing easy identification of the operation mode.
- **Full logic control** for direct mode change without pressing the stop button.
- **Remote control** of all operations, with the optional remote control unit RM-85U.
- **Audio level control with meters,** preventing over-level recording without audible distortion, with attenuator. Also, manual audio level controls let you adjust the audio recording level by checking the level meters.
- **Auto/Manual selection for video recording level control,** adjustable by the automatic gain control circuit or manually by referring to an independent video level meter.
- **RF output** to connect an external drop-out compensator.
- **Patented color dubbing switch** for stable color multi-generation dupes.
- **S.C./sync input connector** allows connection of time base corrector and allows for two second pre-roll.
- **Chroma level** can be controlled manually for convenient connection to an external system.
- **Built-in comb-filter** for playback (switchable on-off).
- **Servo-lock indicator** to check the tape transport condition.
- **Counter search mechanism,** permitting Auto-Search of a particular section of the tape.
- **Solid construction for easy maintenance:** both side panels, top and bottom panels are detachable for easy access to the inside.
- **Tracking control meter** for maximum tracking adjustment.
- **Heavy fan motor** for better circulation.

All that with one editing unit. But when you combine two editing units with our new RM-85U automatic editing control unit, you'll enjoy all the benefits of a total-performance system.

Starting with the kind of control only JVC's RM-85U can give you:

- **Independent LED time counters** for player and recorder, read out edit points in minutes, seconds and frames.
- **Edit-in and edit-out automatic control.** Four built-in memories let you control edit-in and edit-out points of both the player and recorder. And once starting and ending points are determined, accurate editing is memory-controlled automatically.
- **Edit shift control** allows frame-to-frame edit point correction.

ap time indicated for each insert edit
gth by LED display.
dit preview mode available, for
hearsals" of actual edits.
dit-in point search mechanism. After
h edit, a Return button rewinds the
e automatically to the edit-in point, so
easier to check edit conditions.
uto-shift search mechanism to step
vn the tape speed automatically, and
ure quick and accurate location of the
ting point.
ape safety guard circuit. Because
ving the unit in the still-frame mode can
ntually cause damage to tape or video
ds, a tape safety guard circuit places
unit into the stop mode automatically
if it is left in the still-frame mode for more than 10 minutes.

• **Selective editing modes**—assemble editing, insert editing for audio channel-1, audio channel-2 or video.

• **Versatile editing capability** offering techniques like "edit-in/out," pre-roll, and automatic pre-roll.

You'll find that nothing in its price class performs anywhere near the CR-8500LU/RM-85U videocassette editing system. And that you'd have to spend a *lot* more on the competitive unit that offers many of the same features.

That's what we mean by giving video people more of what they want, for less than they expect to pay.

u demanded more versatility in a moderate-priced, broadcast-quality camera.
And JVC's value-packed CY-8800U goes with you from studio to location.

Our CY-8800U offers a lot more
in picture quality and stability that
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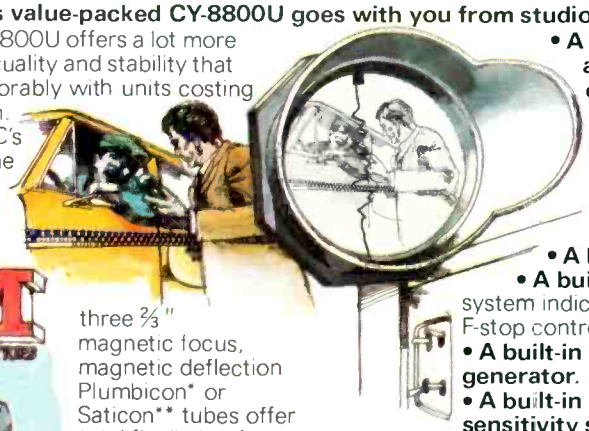

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chassis in front and
back to hold up under
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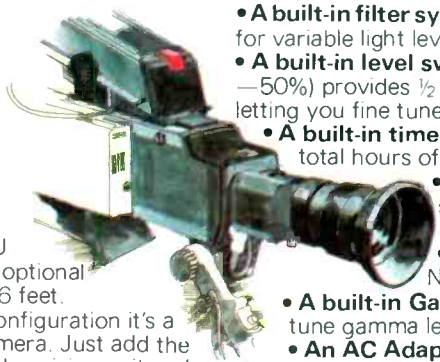
nfiguration, it's a
mpact ENG/EFP
mera that's com-
etely self-contained
no CCU required.
s easy to operate,
ady to plug into our
R-4400LU/CR-4400U
rtable recorder, with optional
bles available up to 66 feet.

With the **Studio** configuration it's a
rd-working studio camera. Just add the
-8800U remote Synchronizing unit and
e large screen, top mounted viewfinder.

And as for big-ticket features, we've
ilt in what the others would let you add
later:



• **A built-in 1.5 inch adjustable electronic viewfinder** for the convenience of the operator.

• **A built-in battery warning system.**

• **A built-in tally light.**

• **A built-in VSI**—video system indicator for precision F-stop control.

• **A built-in color bar generator.**

• **A built-in +6dB, +12dB sensitivity switch** for low light level applications.

• **A built-in auto white balance.**

• **A built-in fast warm-up capability.**

• **A built-in electrical color temperature adjustment** for different applications (variable from 3000°K to 10,000°K).

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• **A built-in time lapse meter** to show total hours of camera use.

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• **An RGB output,** and NTSC encoding (Y, I, Q).

• **A built-in Gamma control** to fine tune gamma level.

• **An AC Adaptor**—standard.

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• **Optional 12-to-1 zoom lens** with automatic iris and power zoom.

• **Built-in horizontal and vertical contour correction circuits.**

• **Signal-to-noise ratio of 49dB,** F 4/3000 lux.

• **Resolution of 500 lines at center.**

• **Return video** in the viewfinder.

• **A built-in -G circuit** for registration.

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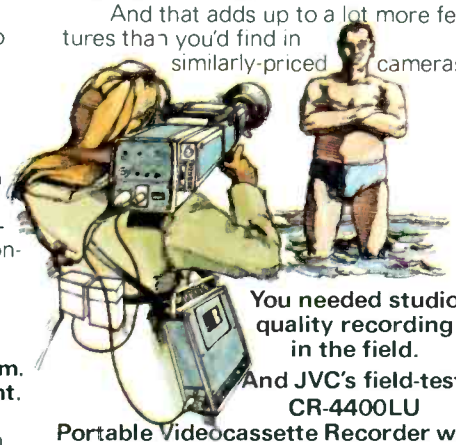
• **A comfortable hand grip** to stop and start the recorder. With a switch to operate iris control and a switch for return video.

• **A built-in CCU.**

And that adds up to a lot more features than you'd find in similarly-priced cameras.



You needed studio quality recording in the field.
And JVC's field-tested CR-4400LU Portable Videocassette Recorder with automatic editing lets you bring your recording/editing capability wherever you need to shoot.

If you spend time on location in either ENG or EFP applications, you need a portable video system that can shoot, edit, and give you something to show in no time flat. Without awkward equipment hassles.

JVC's CR-4400LU is the one to take along when you can't bring a studio.

Because it's the lightweight machine with heavyweight features:

• **Weighs in under 27 lbs.** So you can take it anywhere, and assemble edit on the spot. You enjoy total flexibility. Complete freedom. Fast results.

• **AEF (Automatic Editing Function)** gives you clean assemble edits.

• **Built-in, full color recording and playback circuitry.** No need to buy an adaptor.

• **Low-power consumption** that lets you operate on a miserly 13.5 watts, for longer battery life. A multi-purpose meter checks battery, audio, video and servo levels for precise control of all functions.

• **Flexibility to record with the CY-8800U** or other high quality color cameras.

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KLAS-TV, Las Vegas: Building To The Market Potential

BEST STATION AWARD CONTEST TELEVISION ENTRY 9

Submitted by Sven Swanson, RCA

LAS VEGAS ITSELF rose up out of the desert to become an oasis of entertainment for the nation, so it was only natural that the market should also give birth to a first-class broadcast operation. KLAS-TV shares the youthful dynamism that typifies the burgeoning sunbelt, and its new Television Broadcast Center stands ready to answer the needs of today and tomorrow. With the major talent available in Las Vegas and the expectations of growth, general manager of KLAS-TV, Mark Smith, believed the time was right for the southwest to have a major television production center.

After years of planning, KLAS-TV opened the doors to its new broadcast and production center in July of 1976. From its award-winning architectural design to its 30,000 square feet of space, the Television Broadcast Center speaks of vital activity. From the reception area to the news set, the feeling is of innovative design that is at once aesthetically appealing and functional.

Inside the striking white exterior of the Broadcast Center, space has been used carefully to provide a pleasant environment for both employees and visitors. The various areas of the station — administration, operations, production, and technical — have been laid out so that offices are close to the work areas as well as near related activities. The administrative area includes sales, general manager's, business, and controller's offices. Access to the administrative offices is just to the left of the main reception areas through glass doors. To the right of the reception area are the main production and technical areas of the station. The production and technical areas include two studios, master control, production control, telecine and tape area, and related offices.

Production at KLAS, TV-8, has become a 16-hour-per-day operation, involving mobile operations, studio production, editing, and dubbing. The facilities to accomplish these tasks were carefully planned and equipped.

TV-8's Broadcast Center houses two production studios. The main studio is 65 by 68 feet, while Studio B is 40 by 50 feet. Combined, the studios have more square footage than did the whole of TV-8's previous home.

Studio B, the smaller of the two, houses TV-8's *News Center 8* set. The news set is visually striking, well lighted, and furnished in a combination of yellow and brown. Three chroma key areas on the set are painted yellow rather than the traditional blue. Tom Franklin, operations manager of KLAS, says that the yellow chroma key areas are an improvement over blue, which used to give a bluish cast to the walnut-topped news desks.

The *News Center 8* program is handled as a three-camera production, using two RCA TK-46 cameras and a TKP-45 field production camera. The production switcher is a Grass Valley 1600-7J which does its job well. Each of the cameras is equipped with a chroma keyer, which helps in the integration of live and recorded news and commercials.

Master control is set up so that one man can handle the on-air operation. On weekends, master control is operated in this mode, with just one man taking care of loading film and tape as well as the on-air switching.

The master control switcher is Grass Valley, recently

The new KLAS facility recently won the acclaim of Nevada architects for its modern style

modified to operate in a pre-set mode using an automatic pre-roll feature. Also located in master control are joy-stick controls for the two TK-46s, the TKP-45, and for two TK-28 film telecine cameras.

The machine control panel directly at the left of the switcher includes remote panels for three TR-600 VTRs, two multiplexer outputs, a U-type VCR, and the TCR-100 video cart player. The U-type VCR is used for network delay broadcasts, so that the TR-600s are available for production.

TV-8's Production Center is set up to serve the needs of the local community first, then national clients. The station is maintaining a strong effort on local and regional commercials while attracting national assignments via its record of performance and testimonials.

Production is centrally located and set up to be able to accomplish production and maintain on-air operations simultaneously. There are two fully equipped telecine islands with TK-28 cameras; three TR-600A quad tape machines equipped with built-in AE-600 Time Code Editing Systems, and a TCR-100 in addition to the camera and switching equipment.

Also available to production is a compact mobile van unit which is equipped with a TK-76 and U-type VCR for production of local commericals. The material recorded on the VCR is time coded and dubbed up to quad for editing on the AE-600 system.

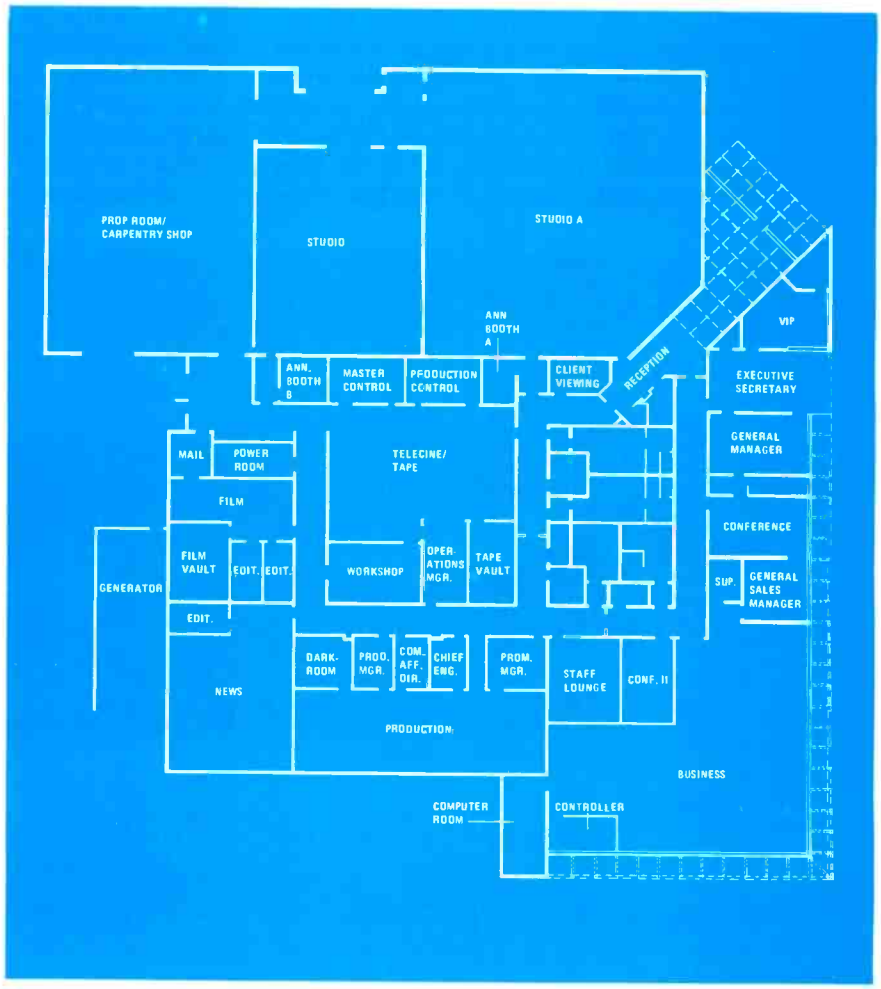
Though the AE-600-equipped TR-600s are primarily assigned to production, their speed and accuracy have

Production control is currently busy some 16 hours per day

Master Control. On weekends the master control operation can be handled by one person

The KLAS News Center uses a yellow and brown decor. The chroma key areas are also yellow rather than blue

The KLAS 8080, built and programmed by Ken Brookhart and Tom Franklin, may soon give enormous flexibility to the AE-600 editors



General layout of KLAS shows spaciousness for technical operations area

simplified the assembly of the news as well. The TCR-100 is used basically for on-air playback, though it is occassionally pressed into service as a production tool for doing "tags," "opens," and "closes." All tape commercials are dubbed to cart. Filmed commercials are dubbed to cart only if they are scheduled for multiple plays. Since the broadcast day in Las Vegas is often around the clock, the cart machine sees a lot of action. It has already logged well over a quarter of a million plays.

KLAS chief engineer Ken Brookhart has played an important role in TV-8's approach to automation. Brookhart's abiding interest in digital technology reaches back to his days at the University of Missouri, and has become an important assist to the station. The station is so convinced of the promise held out by computers that TV-8's parent corporation, Landmark Communications, has decided to make Brookhart the station's first systems analyst.

Brookhart and Franklin, who served as chief engineer to KLAS during much of the planning for the Broadcast Center, have been working for some time with the station's own Intel 8080 microprocessor, looking for ways to bring the flexibility and power of computers to bear on the KLAS operation.

The early applications of Brookhart and Franklin's work with the computer will lead to an ATS-type of operation for the station's transmitter, pending FCC approval for full ATS operation. Plans are also underway to interface the 8080 with TV-8's Jefferson Data business automation system for automated on-air operation, and to use the 8080 to extend the capability of the AE-600 editing system.

TV-8's 8080 system includes two floppy disc memories, each of which can handle up to 500 edit points. It can store a number of edit points and can modify the edits without changing the AE-600 program. The Brookhart system "reads" the status of the AE-600 and the tape machines to verify that the system is ready to perform the requested function. The computer interrogates the machines to insure that they are ready and cued, and after determining whether the edit is to be an add-on or insert, makes the necessary adjustments to meet the desired in and out points. With further development and the addition of a CRT display and keyboard, Brookhart hopes to have a computer-assisted editing system capable of performing all those tasks associated with the more sophisticated "super editors."

KLAS has built not just a new broadcasting plant but a facility capable of accomplishing the most demanding production assignments. The new Television Broadcast Center meets today's needs and anticipates tomorrow's growth.

KCMO-TV5: Built To Offer The Best Television Can Provide

BEST STATION AWARD CONTEST TELEVISION ENTRY 10

Prepared by BM/E from information submitted by Steve Smith, Director of Engineering, KCMO-TV, Fairway, Kans., and Director of Television Engineering, Meredith Corp.

BROADCASTERS HAVE ALWAYS faced a single immutable fact: the 24-hour day. Within that day there are only so many commercial availabilities and when they are sold out, there is again a practical limit to the number and size of rate card increases. If a television broadcast station desires to grow, it therefore must turn to technology and ideas so that it can do more in every 24-hour period to serve its community.

KCMO-TV5, the Meredith Corporation's premier television outlet in Kansas City, Mo., has learned how to do more in the service of its ADI. What has evolved over the past several years is a full-service broadcast operation offering its viewers the best in CBS Network programming, the best in local programming, one of the largest and most ambitious news operations, and now, one of the most sophisticated television production facilities in the country.

On January 1, 1978, KCMO moved into a brand-new facility that its management thinks solves most of the problems of allocating space, time, money, and energy to several enterprises simultaneously while improving each in its own right. To this end, much of the responsibility fell on the shoulders of KCMO's engineering staff, who needed to find equipment that could serve several masters, invent equipment if it didn't exist, and develop procedures that would provide all the resources to meet the diverse

This light and airy atrium provides garden-like atmosphere for interviews, stand-ups, and client presentations

commitments of the station.

News operations were converted to all-ENG using U-type cassette VCRs as the primary record and playback machines. One effect of this was to free up KCMO's Ampex and RCA quad machines for commercial production. Another preliminary step was the purchase of RCA TKP-45s equipped with the Rank Precision Multi-role MRL lens systems. Additionally, TK-76s were purchased for both news and commercial production. This selection of camera systems makes it possible to allocate cameras wherever they are needed since the TKP-45 can be switched from a studio configuration to a field configuration in a few minutes. Later, three TKP-46s were added for these same reasons. Another innovative camera configuration employed at KCMO involves the use of the Power Optics Digital Remote Camera Control system on camera three in each of the two studios. The Power Optics system gives control of camera three to the TD, who can program precise camera moves for absolute repeatability during production. This is particularly helpful when shooting graphic card and such on easels since the Power Optics system can pan, zoom, and focus with much greater speed and accuracy than a human operator.

The new KCMO facilities are housed in a beautiful new two-story red brick complex which is also the home of the KCEZ-FM and KCMO-AM radio operations. The complex consists of two buildings joined by a glass-encased atrium. The atrium often serves as a weather-proof "outdoor" environment for commercials, interviews, and presentations to clients. The south building houses administrative offices on the second floor and the radio operations on the lower floor. The north building houses TV-5's news, programming, and production offices on the second floor, while the first floor is devoted to the technical operations of the KCMO facilities. Adjoining the rear of the north building are the studios.

The design of the KCMO building is efficient from both a technical and human standpoint. For instance, nearly 90 percent of the interior walls of KCMO are movable, making rearrangement of facilities quick and easy. The technical efficiency of the design is apparent in the suspended isolation ceilings used in the studios. These ceilings give the studios isolation from external noise that exceeds NC-25 standards. Neither thunder nor the driving midwestern rains are ever heard in the KCMO studios.

The new teleproduction complex has made it possible for KCMO to offer truly complete commercial production services through its Meredith Video Productions organization. These complete services include two well-designed large studios, a small insert studio, complete computerized post production services, a sophisitcated audio production plant, Chyron III graphics systems, and a staff of artists, art directors, producers, directors, and technicians. In addition to the services available at the KCMO complex, there is also its Mini-mote®, a single-camera mobile production unit, and a Kary van equipped for more elaborate field production. The Kary van includes a cherry-picker camera position for high angle shots.

Studio A offers 4000 square feet of stage area and three cycs, blue, green, and white. Studio B offers 2400 square feet and two cycs, one blue and the other white. The Studio A complex uses three TKP-46s, one of which is mounted on a Vinten pedestal in its hand-held configuration, so that if a director wants a shot better achieved hand-held, it can be quickly accomplished. Cameras in Studio B are three TKP-45s in basically the same setup.

Studio C is a relatively small insert stage equipped with a single TK-76 for recording tags, opens, closes, simple standups, and other such material. The camera in Studio C is also used for KCMO's *News In The Newsroom*.

In addition to an ambitious and innovative ENG news system (see *BM/E* story, January 1976), KCMO also operates a somewhat unusual system for the production of its newscasts. At about 5:00 p.m. the TK-76 from Studio C is

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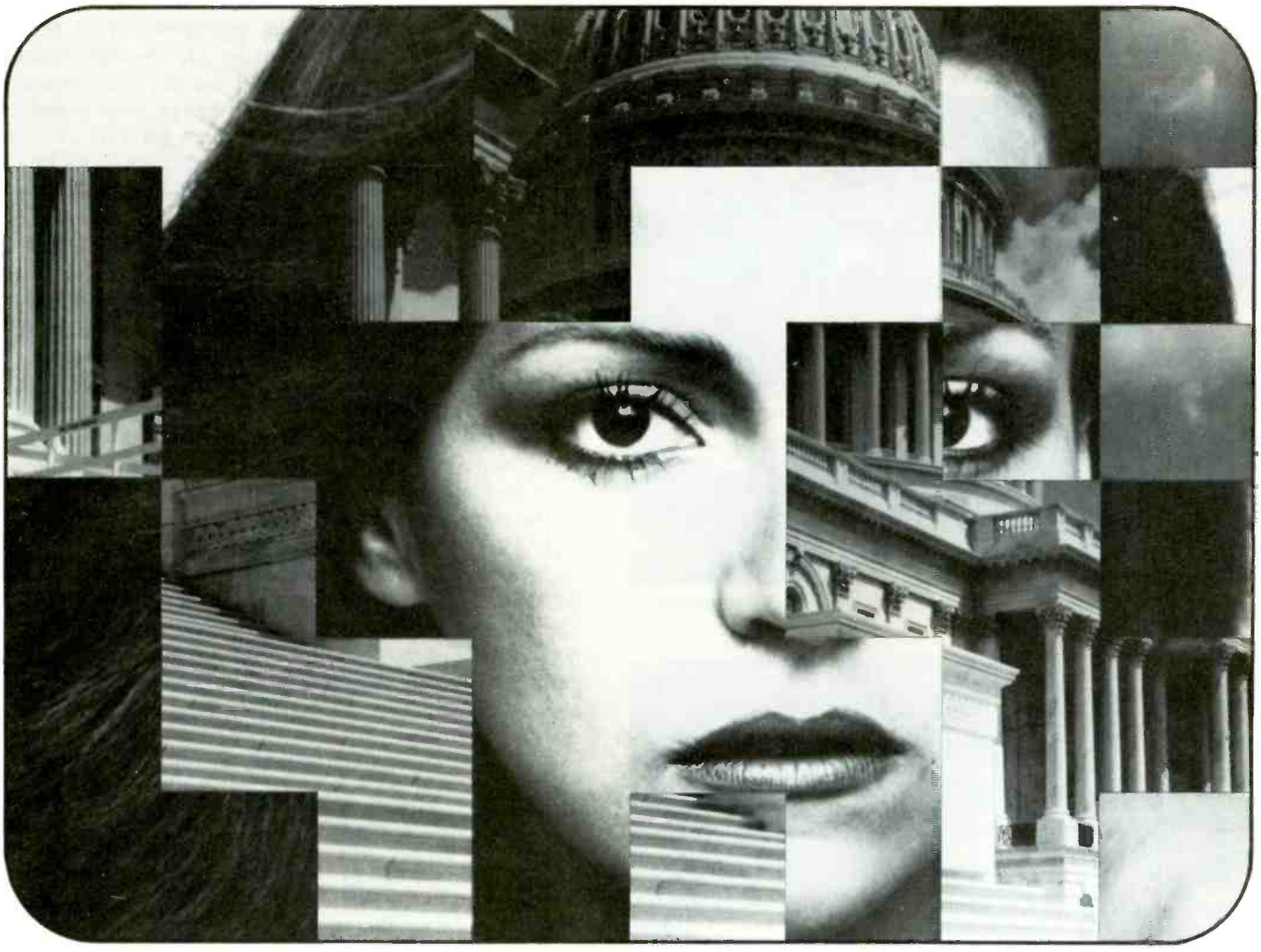
The new KCMO houses KCEZ-FM and KCMO-AM as well

Floor plan shows the first floor of the south building, where all KCMO technical and production operations are conducted



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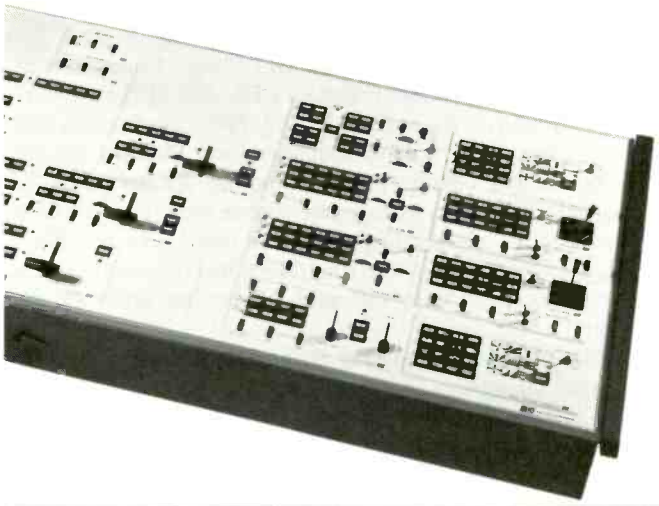

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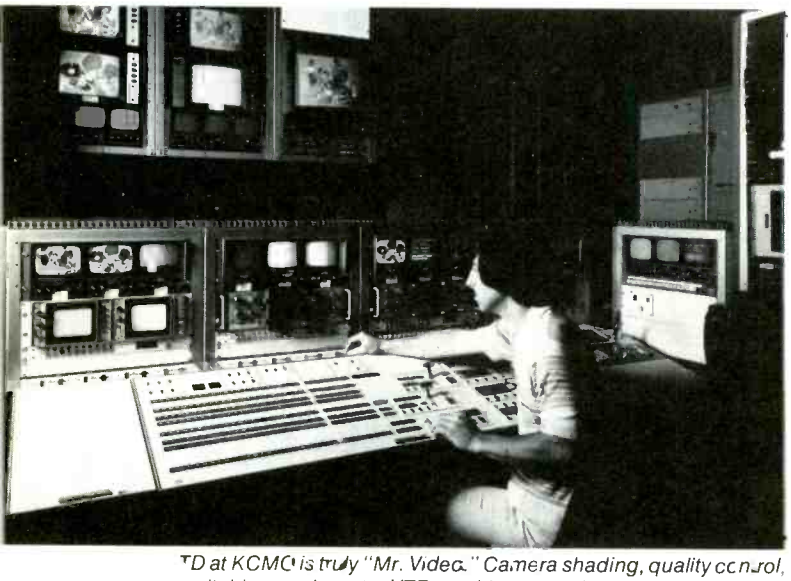
Client director/producer works in a comfortable environment in the post production room



TD at KCMO is truly "Mr. Video." Camera shading, quality control, switching, and master VTR machine control are all available at his console

WBS audio console is unusual in several respects, including use of a triple monitor rack to watch the video action

rolled into the newsroom and equipped with a teleprompter system. Shortly, two more TK-76s arrive from KCMO's mobile news units and are also set up and teleprompter-equipped. The entire news program is aired from the newsroom using just the three TK-76s.

Typical of the ingenious engineering at the new KCMO is the Flying Monitor Bridge in production control. The first thing that seems unusual about this setup is the use of 15 color monitors. Normally, only two or possibly three color monitors might be present in the average production control room, but KCMO believed that commercial clients wanted to see everything in color. Only one of the color monitors, however, is a high-quality Conrac color monitor used for making decisions based on color. The output of any source can be switched to the Conrac monitor if there is some doubt about color quality. There is only one black and white monitor in production control, used for gauging grey scale.

The monitors are mounted in six racks arranged in an eight-foot arc to give the director optimum viewing of each of the monitors. Above each of the six racks are KCMO-designed D-6500 Color White Reference Panels. The Color White panels help the viewer judge the color performance of the monitors in the racks below by comparing white in the monitors to the reference white. They also help to correlate scene white to the color white in the real world.

The most innovative aspect of this monitoring setup, however, is that the racks are actually suspended on a powered platform that raises and lowers the monitor racks to the most comfortable viewing height. Moreover, the racks can be raised high enough to reveal a glass viewing panel that peers onto the studio floor so that a director can watch both the monitors and floor activity. One additional spinoff of the Flying Monitor Bridge is its convenience to maintainance personnel, who can raise or lower monitors to a confortable height when making adjustments or repairs.

All monitors are fed signals by a Comtech microprocessor-controlled assignment switcher. The switcher can preset some 32 different display arrangements of 40 different video sources on the monitor panel.

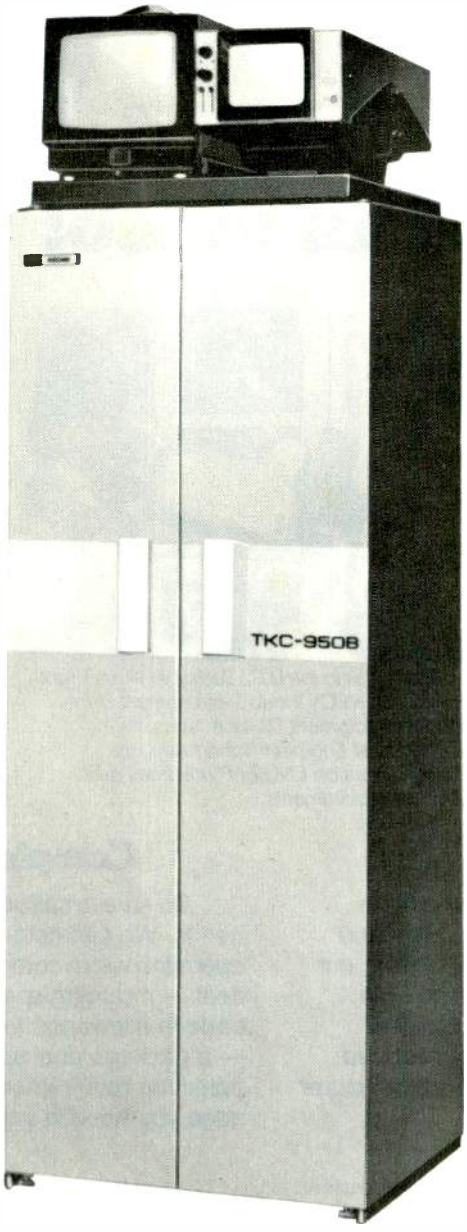
The TD at KCMO is truly Mr. Video. In addition to operating the Central Dynamics CDL-480 SFX switcher, he also controls the master record VTR located nearby and monitors quality via a special waveform and vectorscope setup in the operator panel. Another special switcher permits the TD to switch any source to this monitoring installation. The production control panel also includes a KCMO custom-built Chyron III terminal (one of five such terminals located in different production areas of the plant).

Director of engineering Steve Smith took audio seriously enough to sit down with the engineers of Ward-Beck Systems and cooperate in the design of a custom 28-input, four-submaster, two-master audio console. Two such units are now used at KCMO. The consoles include compressor/limiters, high-pass and low-pass filters, mic and patchable line equalizers, audio source machine controls, and tone oscillators. Another unusual aspect of the WBS boards is the built-in triple B&W video monitors that allow the audio operator to remain informed about the video portion of the program.

Other audio source equipment includes two Ampex reel-to-reel 440C recorder/players, an ITC 850 playback

continued on page 79

No more dirty movies.



The reason: the Ikegami TKC-950B film chain camera's unique optical system removes the correcting field lens from the focal plane where the aerial image is located. Thus, any dust that collects on the field lens is out-of-focus. When you run movies on the large-image field lens of the TKC-950B, the viewer receives a clean, sharp, dust-free picture on his home TV screen.

The TKC-950B system is dedicated to produce the highest color quality and picture stability. For example, a prism beam-splitter separates the images to its three one-inch vidicons.

The TKC-950B takes into consideration the tight quarters in which most film chains must be installed and operated. Remarkably small, it can accept an external multiplexer on either the left or right side of the unit for additional installation flexibility. Compatible with your existing equipment, it is easy to replace obsolete cameras.

Because film chain cameras must run with minimum supervision, we've built a lot of self-control into the Ikegami TKC-950B. A servo-controlled neutral-density filter disc, built into the optical system — along with fast-acting video gain control — respond so quickly, there is no need for individual light compensators with your projectors. A very stable color encoder provides precise color reproduction. Three types of test pulses with six functions, built into the unit, are provided to facilitate set-ups, daily checks and calibration of the gamma-correction circuit.

The TKC-950B is highly stable and any variations in the source material can be compensated for manually or with an optional new automatic color balance accessory which balances white, black and gamma automatically. And each function is available for local or remote control.

For a complete picture of the Ikegami TKC-950B or a demonstration, contact: Ikegami Electronics (USA) Inc., 37 Brook Avenue, Maywood, N.J. 07607; phone: (201) 368-9171.

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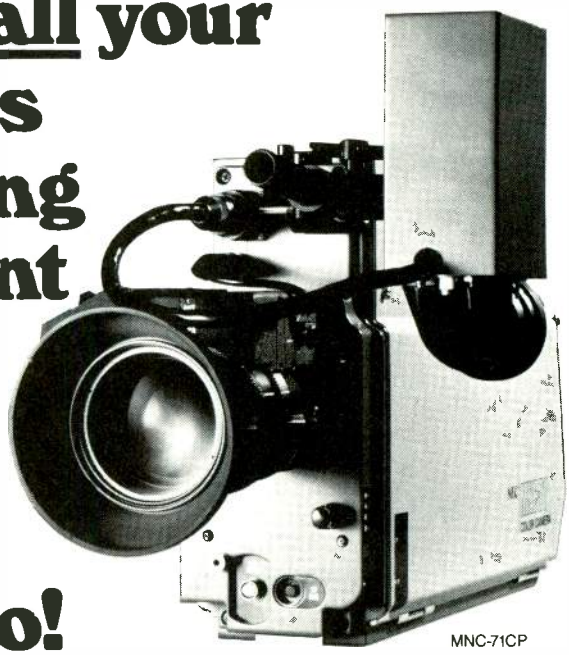

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Nobody knows TV-news gathering equipment requirements like we do.

Our extraordinary responsiveness to the needs of the working TV-newscameraman in the field has made "CP-16" practically a generic term for newsfilm/documentary cameras... and the standard of the industry!

And we have a track record for reliability and service that is unmatched by any other camera manufacturer/distributor in the TV-news gathering industry.

On a recent visit to the U.S., Sadayuki Ikeda (right), Supervisor of NEC's Video Development Dept., Broadcast Equipment Division, and Cinema Products' Chief Engineer Robert Auguste exchange views on ENG/EFP practices and equipment requirements.

Ideally suited for American television industry needs, the MNC-71CP incorporates many design features based on CP inputs gathered from our extensive experience in the TV-news/documentary field. The MNC-71CP is so rugged and reliable, it is covered by the standard Cinema Products full one-year warranty (unprecedented in the broadcast industry!).

We also offer accessory equipment such as lenses, VTR's, portable video set-up units, including a unique portable 16mm film-to-tape transfer system (the new KM-16).

Film and video "under one roof"

What's more, we are the only ones who have available for you, *under one roof*, the finest film *and* video newsgathering equipment and accessories: our own CP-16 line of newsfilm/documentary cameras... as well as the most advanced ENG/EFP camera of its class — the all-new MNC-71CP, manufactured exclusively for us by NEC (Japan's largest manufacturer of broadcast equipment).

Complete package deals

Be sure to call on us as you analyze your equipment needs. We can help you upgrade your news gathering operation with a complete video and/or newsfilm package deal — including special lease/purchase plans and a trade-in allowance for your obsolescent 16mm cameras — a package deal specifically tailored to meet your particular requirements and give you the competitive edge you need in your market.

At the recent NAB Conference, Ed DiGiulio (right), President of Cinema Products Corp., and R. Dennis Fraser, Vice President and General Manager, Broadcast Equipment Division, NEC America, Inc., display the Oscar and Emmy awards won by their companies for their respective "state of the art" contributions to the motion picture and television industries.

For further information, please contact:

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deck, two ITC audio cart machines, and a turntable. Audio monitoring is provided in the control room and audio production room via high-quality Ailtech Acousta-Voice monitors.

The KCMO post production system is also designed to offer a technically efficient and creative environment. The client viewing room is posh and comfortable, utilizing subdued track lighting to help keep the client focused on the video monitors, which produce the primary illumination in the room. The walls are darkened and carpets are a deep red, which also helps to make the room's purpose, editing video, dominate the atmosphere.

The post production system is based around the RCA AE600 Time Code computerized editing equipment. The TD has access to a number of RCA TR-600s and Ampex VR-2000s for playback decks. All quad VTRs are interfaced to AE600 Time Code equipment. Also available to the TD is an Ampex HS100 and HS200 slow motion unit and telecine equipment. The post production switching is handled via a CDL VS 14 switcher. The director, in the client room, also has control of a Chyron III custom terminal. Dubbing takes place at night and on weekends using the same seven VTRs plus an Ampex ACR-25.

In addition to these production areas, KCMO's on-air operation has also received considerable attention. The master control switcher is also a CDL-480 with auto transition, and the on-air operation has its own complement of VTRs and telecine equipment. Commercials are played via an ACR-25 with IDA, and all audio tags and announcements are accessed through a Cetec Audio File.

In all, there are some four major operational areas at KCMO which can operate simultaneously and independently of one another. Unlike many installations where centralization has been the trend, KCMO believes in decentralizing the technical operation so that each area can function appropriately to its mission. One result of this decentralization approach is the use of many individual routing systems. There is one 40 by 20 routing switcher for VTRs, slo-mo, and other video source equipment, a 20 by 20 system for house monitoring, another 20 by 20 for Technical Center monitoring, 15 by 20 for studio monitoring, and two 40 by 15 routing systems for direct monitor switching. Added to this impressive array of routing systems are another 30 special-purpose switchers for the Chyron system and quality control monitors.

The new facility is working as anticipated. KCMO now does in one month two and a half times the number of commercials that it did in an entire year at its previous facility. The new production setup is now responsible for hundreds of local, regional, and increasingly, national spot productions. The design and execution of the building was aimed at developing independent and specialized areas within a single facility. This has been accomplished and the result is diversity but also harmony. There is a sense of smooth transition from one area to the next.

Fifty-Three Years Of Broadcasting: Change Is Still The Rule

BEST STATION AWARD CONTEST TELEVISION ENTRY 11

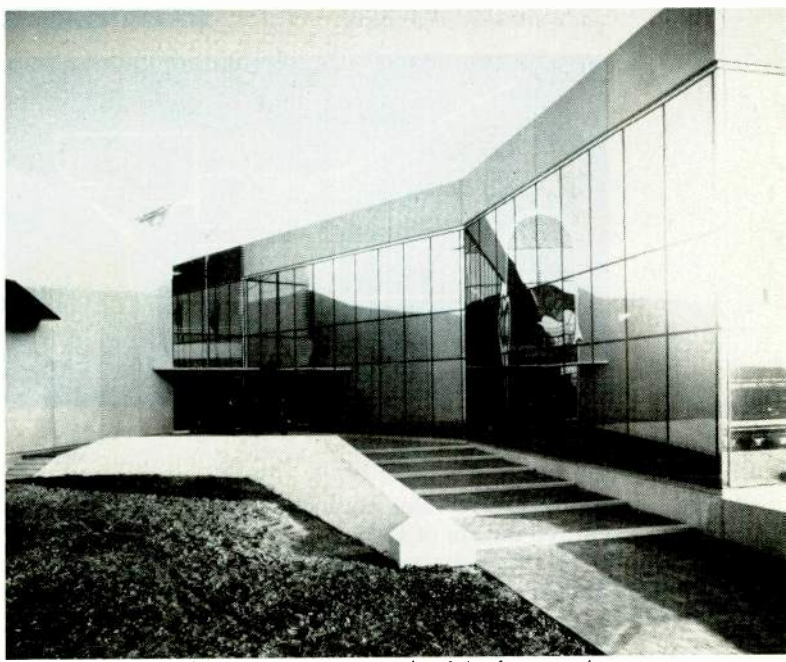
Submitted by Dave Stickley, Assistant Chief Engineer, KPRC, Houston, Texas

SINCE MAY 25, 1925, KPRC has participated in the evolving communications revolution. Our AM radio station was the first station to offer regularly scheduled programming in the Gulf Coast area. We were, in a sense, the main link between the rapidly growing region and the outside world. Since then the business of broadcasting has continued to grow and change, as has KPRC.

In 1950 we acquired Houston's first television station, and by 1954 we were providing the market with its first color programming. In 1965, we were the first Houston station to offer its viewers complete color broadcasting. Each year since then, we have added new facilities and equipment, and have assumed new responsibilities. We still "show and tell" the events and diversions of a rapidly changing world to the people of our own community.

Our obligation to the people of Houston is a job that is never finished. Even when we moved into our brand new broadcast center in 1972 — complete with the latest in television technology and designed to be a symbol of our commitment — we knew that the coming years would bring new challenges.

When we moved into our new broadcast center the news gathering state-of-the-art was still primarily film. Microwave was used for STL and for our network link,



KPRC's facade reflects contemporary style of the fast-growing metropolis

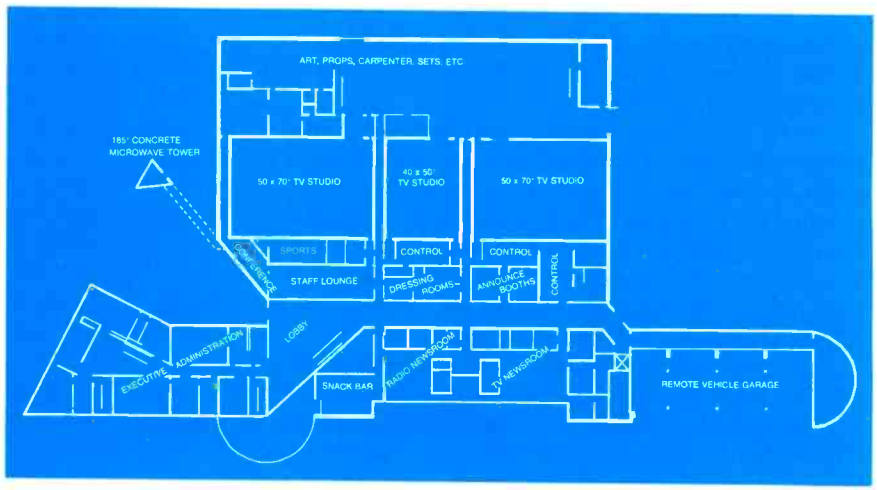
but the age of ENG had not yet arrived.

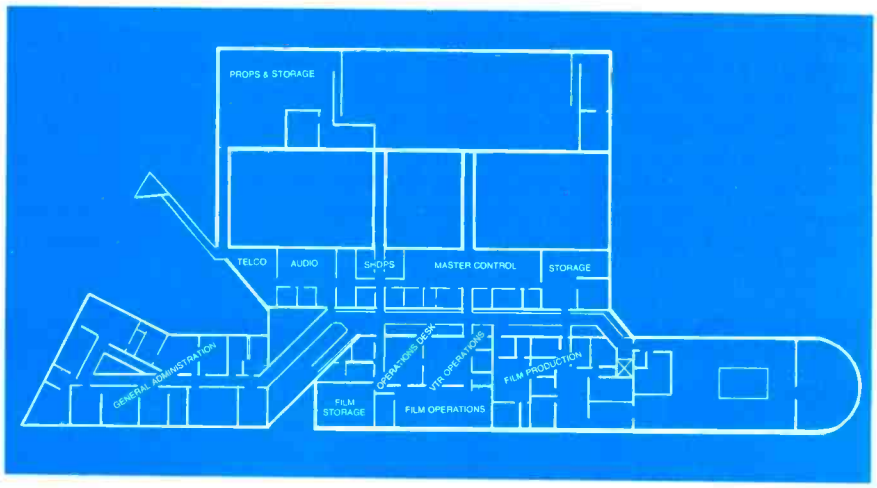
In November of 1974 we outfitted a small Ford van with a homemade cut switcher, an audio mixer, an Ikegami HL-33, a JVC U-type VCR and a Microwave Associates MA-2B transmitter. We mounted a remote-controlled

Best Station Award Contest

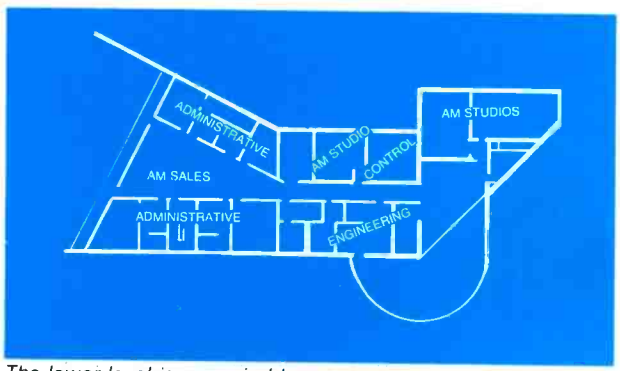
Level I is occupied by KPRC radio news, teleproduction areas, administrative and executive offices, and KPRC-TV's news department

Flexible lighting setup and ample camera equipment assure adequate resources for KPRC's heavy production schedule





Level II includes more area for television production, the television engineering section, film and videotape facilities, and additional executive offices



The lower level is occupied by KPRC radio

Master control at KPRC

microwave repeater on a downtown building, and we entered the era of ENG.

This first encounter with ENG encouraged us to go further. Since then we have phased out our news film cameras and shut down our film processing equipment. Twelve Ikegami HL-77 cameras have replaced the 16 mm film cameras and the single Ford van has been replaced with six new Chevy Blazer four-wheel drive news cruisers. Each cruiser carries one HL-77 and a Sony BVU-50. Two of the cruisers are equipped with Sony BVU-100s and Microwave Associates MA-2EP eight-watt transmitters whose signals can be received at the repeater on top of the 50-story 1100 Milam Building, located downtown, or at the STL tower at our studios. The repeater station had been moved to the downtown location in May of 1976.

We are now in the process of installing another microwave repeater on the candelabra platform of our transmitter tower for news pickup. This repeater, at our Dewalt, Texas site, will be at a height of 1425 feet above sea level. The tower is located 10 miles southwest of Houston and when it is completed, we should be able to receive news pictures from the Galveston area should the need arise. We will soon have the third of our six news cruisers equipped to microwave stories to the repeater and studio pickup points. It is just a matter of finding the time to install the equipment.

This past summer we put into service a downtown news bureau. The bureau is microwave-equipped and can

transmit via the Milam Building to our studios. This allows those of our mobile cruisers which do not yet have microwave to get their taped stories to our studios. Often, when one of our non-microwave-equipped news cruisers is closer to downtown than to the studio, they will use this facility to feed their stories rather than driving back to the station.

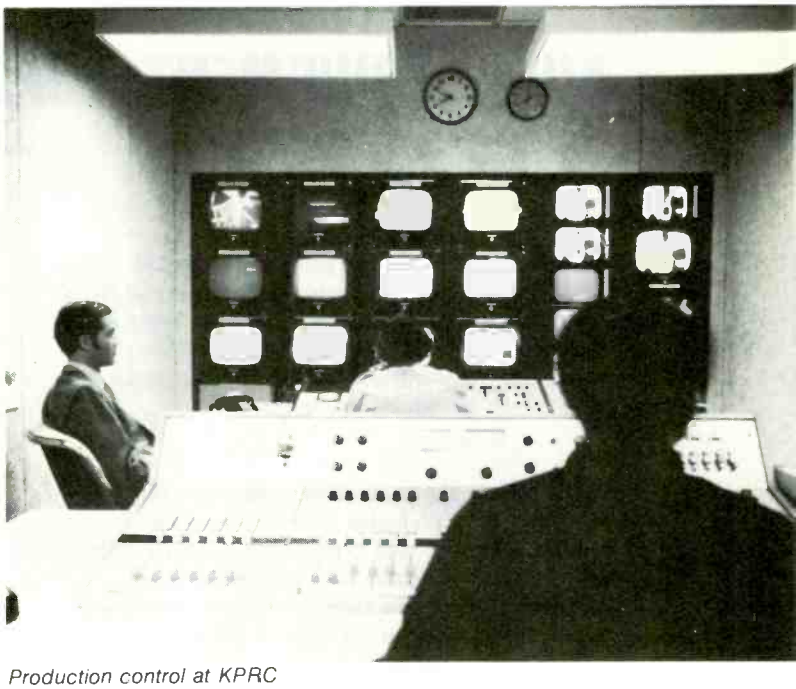
Since July of 1978, our news editing equipment has been upgraded to include five Sony BVE-500A editors and two Convergence ECS-1 editors.

Weather has always been an important area of news in the south Texas region. In October of 1977 we put into service our new weather radar, an Enterprise Electronic Corporation WR-100-2/77. This unit, installed atop our studios on our STL tower, replaced an earlier weather radar unit which had been located at the transmitter site.

In addition to our efforts to improve the technical capability of our news operation, we have also initiated other improvements. Recently we added two RCA TCR 100 cart recorder/players. One of the units is in the tape room and the other is in the film room where it is operated by the film projectionist.

Last January we replaced our main visual and aural transmitters, a GE TT-42 and a GE TT-40A, with a Harris BT-25L2 and a Type 6500 precise frequency control unit. In July, the alternate transmitter was also replaced with a Harris BT-25L2. At present we are completing installation of remote control equipment to our transmitters. We expect that it will be in operation sometime this month. This new equipment will be the first to use the Harris ATS unit.

Change has been the rule at KPRC — always better and never enough. Our viewers and our clients can be certain that KPRC will continue to adopt new technology whenever it can deliver more and better service. **BM/E**



Production control at KPRC

• Ballot On Reader Service Card •

AUDIO EQUIPMENT THAT DEFIES COMPARISON —PRICE OR PERFORMANCE

The headline above is not just another hollow advertising claim. It is simply a statement of facts. A fact that started out as a goal over eight years ago and is the result of both an intensive developmental program and an ongoing awareness of your, the broadcasters, needs.

The products shown on these pages are but representative examples of over 150 items manufactured or sold thru RAMKO RESEARCH. From turntables, audio consoles, distribution amplifiers, and audio switchers to cart machines, tape winders and mic and line amplifiers.

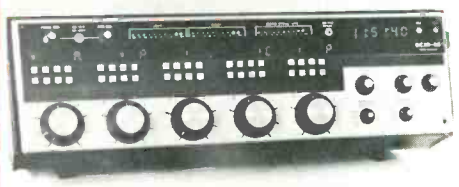
We openly encourage your comparison with anything else on the market. Write, wire or call COLLECT for further information. Better yet, take advantage of our 2 week trial offer and prove us to yourself. We will both come out ahead.

Sincerely,

RAY KOHFELD
President/Director of Engineering

TURNTABLE PREAMPS. Leaders in their field. MP-8 & SP-8 — Bal. out; 0.05% dist.; 68dB gain; +8dBm out (+21dBm max); S/N —77dB down ref. to 12mv in @ 1kHz & +8dBm out. ±1dB RIAA, remote scratch & brilliance activation. Mono, stereo, table top, and rack mount versions. $98 to $166.
ESP-38 — Bal. out; 0.03% distortion; S/N, —85dB down referred to 12mv in @ 1kHz and +8dBm out; ±0.5dB RIAA; remote & local scratch, brilliance, rumble filter and mono activation; +8dBm out (+21dBm max.), +60dB gain. Left & right Hi/Lo equalization trimmers and recessed level controls. Built-in turntable remote start/stop relay. Stereo only. Price — $325.

AUDIO DISTRIBUTION AMPLIFIERS. Available in 12 different rack and table top versions. All inputs and outputs may be used balanced or unbalanced and in any combination on the same amplifier. All outputs are individually amplifier isolated and will work into any load over 125 ohms without change in distortion or response. Response 10Hz to 30kHz, ±0.5 dB. Distortion 0.1% or less. Hum and Noise 98dB down referenced to +20dBm out. Channel separation —75dB. DA's start as low as $145 for our 1x30 mass feed model, thru our 1x6 line and mic level units, to our modular 20x80 rack mount design. No need to pay more or settle for less. Price — $145 to $2,276.



DC38 SERIES AUDIO CONSOLES. Outstanding versatility and advanced technology. Unparalled features such as 4 inputs per mixer, high Z balanced bridging inputs accept mic level thru high level, patch-panel input gain select, DC control of all audio, back lit alpha numeric readouts above each mixer, solid state LED VU meters, dual channel (plus mono mixdown channel on stereo), solid state switching and muting for noiseless operation, selectable muting, plug in electronics, and optional built in Clock/Timer. Available mono or stereo and 5, 8, or 10 mixer versions. 4 year warranty with 2 week trial period. Price — $2,400 to $4,980.

DC-12 SERIES AUDIO CONSOLES. A remote control console with low profile control head and rack mount electronics that may be located up to 90 feet away. Features 2 inputs per mixer, silent illuminated touch switches, dual channel (plus mono mix down channel on stereo), solid state LED VU meters, DC control of all audio, patch panel input gain select, selectable solid state muting and switching, slide faders with dual cue entry and plug in electronics. Since the DC-12's are totally modular you may order any number of mixers and add on later. Twelve channels may be accomodated and an additional 8 may be added via the DC-12 extender. 4 year warranty. Price — $4,700 to $5,900.

SC-5, DC-5, & DC-8 SERIES AUDIO CONSOLES. This series of consoles, whether single or dual channel; table models or rack mount; 5 or 8 mixers, mono or stereo, feature illuminated touch-pad audio select switching, solid state LED VU meters, Simul-Q monitoring capability, full-range gain selects on each input, selectable solid state cue and monitor muting on all channels, and plug-in electronics. DC control of all audio with built-in relays for on-air lights and aux. muting. Options include 4 and 8 channel extenders, Simul-Q latching and remote control of AC equipment. These popular consoles have recently been up-dated to incorporate many new features. Price — $864 to $2,298.

PORTABLE CONSOLE. P5M — A full 5 mixer audio console in miniature. Bal. in & out, 8 inputs, 3 of which are mic/line selectable & individual compressors on mic channels #1 & #2. Tone gen., cue and monitor feed with gain controls & phones select with gain control. Last 3 channels equiped with Q switch & the first 2 channels provide muting. A folding stand is part of the unit and may be removed for rack mounting. +8dBm out nominally (+18dBm max); ±2dB, 20Hz to 20kHz; S/N —75dB high level and —62dB mic level. Max gain of 90dB and distortion of 0.3%. Compression/limiting range of 35dB and a slope of 50:1. 9¾" W x 9½" D x 3½" H. Price — $545.

AUDIO ROUTER/ AMPLIFIER. The most versatile, feature loaded switcher on the market. Plug in cards for up to 16 inputs & 12 outputs. Each input has an amplifier and level adjust for attenuation and up to 17dB of gain. Output cards feature dual bal. 600 Ohm outputs, momentary BCD coded controls (may be slaved from other locations), LED output status lights show thru the front panel, and on-board mono/stereo select switch. A smoked plexiglass front panel allows the operator to tell the status of any output. Also on the front panel are 2 rows of silent momentary contact switches. One row for output selection & one row for input select. Contact RAMKO for further information and specs. Price — $716 - $2,108

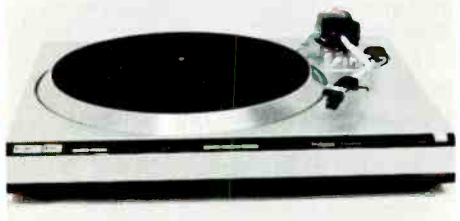
LINE AMPLIFIERS. The ideal solution for your line level problems can be found in one of the 4 different models offered. LA-2 (table top or rack) and LA-5S/10M: mono or stereo, balanced or unbalanced high impedance inputs, +21dBm maximum input level, +21dBm maximum output into 600 ohm balanced line, frequency response +0 —1dB 10 Hz to 50kHz, distortion 0.008% at +8dBm out. The LA-2 is a 2 channel amplifier. The LA-5S/10M is a modular rack mount unit with up to 5 stereo or 10 mono channels. The LE-3 is a 3 channel mono line amplifier with equalization for high and low frequencies and is also modular. Gain of all units, variable to +20dB. Price — $16 to $469.

DUAL MIC COMPRESSOR/AMPLIFIERS. Portable dual mono & stero mic limiters that amplify, mix, limit and control gain. The DML-dual mono is used where 2 separate mics must be independently amplified and compressed and mixed into a common 600 ohm output. Primary and backup batteries (or an optional AC supply). Includes tone generator & talkback ability. The DML-1S is an AC powered, stereo version. Input: —60dB nominal, —18dB max. Gain: 90dB max. Limiting Output Level: DML-2M, +10dBm. DML-1S, +18dBm or +8dBm. Balanced Inputs and Outputs. Dist.: 0.3%. Attack Time: 2 microseconds. Noise: 60dB below limiting output. Size 2½" H x 5¼" W x 8½" D. Price — $239 to $274.

MIC/LINE AMPLIFIERS. Dual function for microphone or line. The MLA series are ideal for remote broadcasts, churches, mixer expansion, and emergency situations. Front panel controls for mic or line selection and level. Mic input —60dB in for +4dBm out. Line input balanced bridging with gain variable +26dB. —18dBm in provides +8dBm out with an additional 13dBm of headroom. Distortion is 0.1% or less. Response: Mic channel ±2dB 20Hz to 20kHz. High level channel: ±1dB 5Hz to 30kHz. Inputs may be used bal. or unbal. XLR Mic connectors. Single or dual channel, table top or rack mount. Price — $128 to $195.

STUDIO MONITOR AMPLIFIERS. Exceptional reproduction with high performance and versatility. 7 different models to choose from. MA-7 (mono), MA-14 (stereo): 5W per channel into 8 ohms. Response: +0, —2dB 20 Hz to 19kHz at rated output. Distortion: 0.4% max. at 1kHz and rated output. Input: 5k unbalanced, 0.7V in for max. output. Table top or rack mount. SMA series: mono or stero, table top or rack mount. 25W RMS per channel into 8 ohms. Inputs: high Z balanced bridging. Response: ±1dB 15Hz to 90kHz at rated output. Distortion: 0.6% at rated output. Built in muting circuit with input and output level controls and bass contour adjust. Price — $96 to $269.

AUTOMATIC CARTRIDGE & CASSETTE LOADER. Precision wind your own carts and cassettes and save up to 40% on reloading costs. The ACL-25/E is simple to use, just dial in the time desired and push the run switch. The ACL stops automatically, precisely to —0, +1 second of playback time. The exclusive playback speed selector ends mental gymnastics figuring tape length versus playback speed. Simply set the selector to 1⅞, 3¾, or 7½ i.p.s. and the ACL does the rest. An optional cassette adaptor enables you to wind both carts and cassettes on the same machine. An optional pancake adaptor is also available. The ACL-25/E has a nominal winding speed of 30 i.p.s. Price $325.



TECHNICS PROFESSIONAL SERIES BY PANASONIC. Ramko Research is proud to be one of the largest distributors of this extraordinary equipment. The SP-10MKII and the SL-1500-MK2 Turntables have set new standards by which turntables will be judged for many years. These direct drive units with Quartz-phase locked speed control maintain speed within 0.002%. Wow and flutter is 0.025% WRMS and Rumble —73dB. Also available are reel to reel tape recorders, portable and fixed cassette R/P units, power amps, parametric equaliziers, tuners, and a series of studio monitor speakers that will astound you with their phase-linear reproduction.

OTHER PRODUCTS OFFERED BY RAMKO

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"YOUR KEY TO QUALITY"

Circle 144 on Reader Service Card

New! For heterodyne VTRs

a broadcast quality, digital TBC

It's the CVS 516, first digital TBC made and priced to give users of non-segmented, heterodyne VTRs all the proven advantages of modern digital video processing.

The CVS 516 is ideal for ENG, teleproduction, studio VTR backup and much more because it comes with features that, before, you'd find only in TBCs costing up to twice as much.

For example, correction of chroma/luminance delay problems, a 3 dB chroma noise reduction, velocity compensation and color dropout compensation are standard.

So is "Gyrocomp," an exclusive, use-proven CVS memory design that easily handles severe gyroscopic distortions—without breakup.

There's also a broadcast stable, gen-lock sync generator, automatic VTR advanced sync and a built-in completely adjustable processing amplifier.

If all that's not enough, add our optional, moderately priced Image Enhancer/Noise Reducer. This plug-in card substantially reduces luminance and chroma noise and significantly improves subjective resolution. And, to tame even the wildest instability, you can add our optional 16 line window.

Simple operation is another plus for the CVS 516. Front panel controls give you total mastery of your video signal. Each control also has a preset unity position to give you a consistent starting point for all your tapes.

All this, and more, is contained in a package that weighs only 25 pounds, is only 3½ inches high and uses only 175 watts—major advantages with today's increasing emphasis on ENG and field production.

So, to give your heterodyne productions the quality they deserve, get the one digital TBC made and priced to do the job—the CVS 516. For full details and/or a demonstration, contact your authorized CVS Distributor or CVS. And ask for our new booklet about the basics of digital time base correction. It's free.

CVS Consolidated Video Systems, inc.

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Very Little Brand New Hardware At IBC, But Practical Digital Recording Techniques Shown

Technical sessions glowed with new research; the exhibit floor mirrored Las Vegas.

WITH THE EXCEPTION of the technical sessions which were laced with the latest research findings in digital broadcasting and fiber optics, the International Broadcasting Convention in London in September was in many ways a replay of the NAB at Las Vegas five months earlier. The only difference was that the latest in cameras, VTRs, switchers, and editors were working in PAL and SECAM rather than NTSC. This was not mere mimicry, of course, since it is generally more difficult to build devices that will record, edit, and switch in PAL and SECAM. As at Las Vegas, delegates asked each other which one-inch recorder format they preferred. Though few would admit they had settled on either SMPTE Type B or C as a future *standard*, all manufacturers reported healthy sales.

Sony Broadcast made a premier appearance with a new European Division. Recorders, cameras, editors, TBCs, and wireless mics were shown

In some cases the cast of exhibitors in London changed. U.S. and Canadian visitors found EMI and Link as large multi-line exhibitors, with cameras as their feature attraction. RCA and Harris were absent. Marconi shared the spotlight with Ampex as the largest exhibitor. Pye-TVT was the name on the Philips stand. Rank was one of the largest exhibitors, showing telecines and lenses. Crow of Reading was prominent as a systems house.

In transmitters the leading names were Pye, Marconi, AEG-Telefunken, LGT, NEC, and Rhode & Schwarz. CCA and McMartin were present, but they were not as prominent as were the European companies. Other products displayed were much like those shown at Las Vegas, but different names were attached to them. In generators there was Acron; for tape (audio and video) Agfa-Gevaert was a well-known source. In audio consoles Audix was a popular British brand. Interconnection devices were shown by Allotrope; character generators by Aston. Brabury was a contractor for mobile vans. For chroma keyers, Michael Cox was a big name. Translators were shown by Continental Microwave, and in lighting control, Dynamic Technology, Ltd. was a name familiar to Europeans. A picture monitor source was Digivision. Intercoms were shown by Phillip Drake. Encoders, aperture correctors and the like were produced by Electrocraft Consultants. Electronic Visuals showed TV waveform, vector, and picture monitors. A broad-line audio supplier was Elektroimpex of Budapest. A well-known U.K. name, Ferranti, showed earth receiving satellite stations. Peak Programme Meters were shown by Key Electronics. In recorders, Leevers-Rich was an exhibitor boasting a 25-year reputation.

Other mobile van suppliers were Mercury and Skatron (the latter from Norway). Mullard was a tube exhibitor. Pro-Bel was a video switcher builder. Sub-titling equipment was shown by Screen Electronics. A test equipment supplier making British-built vectorscopes and other instruments was Systems Video. Thorn Lighting (the originator of Q-file as sold in the United States by Kliegl) was the big name in theater lighting. An editing manufacturer unknown in the U.S. was Video Electronics Ltd., which also made switchers and special effects devices. VG Electronics showed teletext generating equipment. A monochrome monitor supplier was Windsor.

Names (and products) that were the same on both sides of the Atlantic, in addition to those already mentioned, included American Data, AKG, Angenieux, Arvin-Echo, Asaca, Autocue, Barco, Beaucart, Bosch Fernseh, Boston Insulated Wire, Calrec, Canon, CMC, CMX, CVS, Convergence, Cuerac, Datatron, Delta, Dolby, Electro Optical, EDS, EEV, EIMAC, Fuji, Ferrograph, Hitachi, Ikegami, ITC, IVC, Ivie, JVC, L-W International, MCI, Merlin, Microtime, Microwave Associates, Neve, NEC, Neuman, Nurad, Power Optics, Quantel, Revox, Reslosound, Rhode & Schwarz, RTS Systems, Schaefer, Shure, Sony, Spin Physics, Tektronix (including Grass Valley), TeleMation, Telecommunication Industries, Telex, Thomson-CSF, Varian, and Vinten. Not on the exhibit floor but in a nearby demonstration room was Vital.

Sony Broadcast took the IBC by storm, making its premier showing in Europe. The BVH-1000 one-inch helical VTRs were the lead product, but Sony also came out with a 625-line

continued on page 86

EMI was a large exhibitor at IBC, showing cameras, monitors, switchers, etc.

British broadcasting groups exhibited results of their own research. The Independent Broadcasting Authority showed digital video, optical fibers, and satellite transmission, and passed out technical monographs. The BBC demonstrated its noise reducer, Ceefax, and Carfax

U-matic system for ENG use in Europe which surpasses the NTSC U-matic in resolution. As remarkable as the performance was, it will not likely find its way into the U.S.-Canadian market because of incompatibility with NTSC machines. Sony also showed editors and cameras.

Broadcasters exhibit know-how

There was one other factor on the exhibit floor that made IBC different from the NAB, and rather significantly so. That was the presence of British broadcasting companies — the IBA and BBC. Indeed, the IBA exhibit was one of the largest at IBC and most interesting. A broadcast history first was the showing of video tapes recorded entirely by digital means (more on this later). Other parts of the IBA stand showed broadcast via satellite using the new European Orbiting Test Satellite, transmission by fiber optics, and the latest in teletext. Teletext equipment capability showing either BBC (Ceefax) or IBA (Oracle) programs was on display at numerous places on the equipment floor.

The BBC exhibit was more modest (BBC, with no commercial time to sell, was hurting for lack of funds), but it did show the new BBC noise reduction system and Carfax. The later would have been no hit at Las Vegas, since it was a scheme involving the government broadcasting directly to motorists. Although only traffic information would be put on the air, it would be another non-commercial channel vying for listener attention, which private broadcasters oppose.

Although IBC did not become the showplace for breakthroughs by manufacturers, it did bear proof of the solidification of certain trends. One-inch recorders are most certainly destined to eventually replace quad. Whether the "standard" one-inch recorder will be the SMPTE Type B or SMPTE/EBU Type C remains to be seen. Versatile camera systems for use in the studio and out in the field was another obvious trend. This was reinforced by the exhibits of Marconi, EMI, Link, Pye and others. New versatile lightweight camera mountings were shown by Vinten, and next year's NAB will reflect some of these new designs.

IBC proved that we are definitely in the era of more solid state (and more reliable) automatically controlled transmitter/translators. Marconi, AEG-Telefunken, LGT, NEC, and others stressed simple-to-operate, reliable solid state TV and FM transmitters.

IBC clearly drove home the point that the microprocessor is the new tool that will enhance broadcasting operations forever more. At IBC we saw

continued on page 88

HI-BAND U-format VTR

"Quad" Quality in a ¾" Format

The model HBU-2860 (Hi-Band U-format video cassette recorder) is a modified SONY VO-2860 with Recortec electronics mounted on top of the unit. The modification provides direct hi-band video recording made possible by tripling the scanner speed and the linear tape speed.

Quality—At the 1200 ips head-to-tape speed the HBU video quality is as good as the "quad" or the new one-inch format. Professional audio quality is also obtained with this modification.

Convenience—Standard and widely available 3/4-inch video cassettes for the HBU allow for simple loading, handling and storage.

Dependability—The HBU does not alter the U-type recording format and thus takes advantage of the proven interchangeability of the U-type recorders.

Economy—Lowest cost in equipment, media and operations for any Hi-Band VTR.

Availability—Ready for delivery at the introductory price of $14,500 direct from Recortec.

RECORTEC, INC. 777 PALOMAR AVE. SUNNYVALE, CALIF. 94086 TEL: (408) 735-8821

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telecines interfaced to editors, for example, thanks to the microprocessor. And at the technical sessions it became clear that digital broadcasting will eventually take over.

Technical sessions are significant at IBC

There is one area where IBC is no replay of the NAB, and that is the conference portion. At NAB you can hardly escape the conclusion that the engineering sessions are little more than forums for exhibitors to talk about their latest accomplishments. Papers at IBC, on the other hand, are logically divided into different areas of current interest, and there is a lot of emphasis on research activity.

From those papers delivered on the subject of the microprocessor, it was obvious that the television plant can become more easily and more completely automated if one uses the principle of distributed intelligence. With the continuing research in the area of digital coding techniques for digital sound transmission and television distribution, it should soon be possible to set standards.

Papers on digital television established the fact the digital VTRs can be designed with tape consumption equal to that of the one-inch recorders, but the designer is faced with many choices which will hold back commercial applications for a few years at least. A choice must be made over the coding used, the method of scanning, and the means of error masking. The approach taken must be suitable for both studio and portable machines.

The sharing of information on the use of fiber optics at IBC was a signal that fiber optics may soon be incorporated within studio equipment (switchers, etc). The very substantial study of teletext and viewdata systems (alphanumeric information transmitted over the air and by telephone lines, respectively) indicate a continuing keen interest in this service. While it is difficult for U.S. visitors to understand where funds for supporting such a service will come from, it is possible that in Britain advertising support could be gained. Because of the limited commercial time available to advertisers there is a demand for exposure of any kind, and this may be the springboard for teletext. However, low cost decoders are not yet available. **BM/E**

Delegates examined equipment closely. Here, an Audix module gets scrutinized

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120th SMPTE Technical Conference: A Big Hit In New York

Satellite communications, audio for television, digital technology, and new film technology dominated the comprehensive SMPTE program.

MORE THAN 7000 PEOPLE intimately concerned with the television and motion picture industries flocked to the 120th SMPTE Technical Conference and Equipment Exhibit in New York last month. The SMPTE program brought together an impressive array of papers on topics of immediate concern to the industry, and displayed in the exhibit area of the Americana Hotel much of the latest film and television equipment.

Most sessions were very well attended. Papers covered topics that ranged from the current vertical and horizontal timing problem to new stocks introduced by Kodak. Satellites dominated the communications agenda, while digital technology continued to be of utmost concern in the area of broadcast production. Responding to the growing concern over television audio, one afternoon was devoted entirely to papers on this subject.

The sessions seemed well planned since each topic discussed in the papers moved from current technology to a glimpse into the near future. There was little, if any, star-gazing as panels and speakers kept their discussions limited to current topics or the very near-term future. Only on the opening day, during a panel discussion of "Imagery — Today and Tomorrow," did participants allow themselves to look very far down the road. What emerged from this discussion was a real concern over increasing costs of production. In an often-heard plea, variously expressed one way and then another, future technology was held out as the only hope for cost control. In the questioning that followed the panel discussion, a certain uneasy ambivalence emerged as the major reaction to the growing home VCR market.

The home VCR field was seen to be a major factor in the film and television markets, and promised to increase the demand for producers, technicians, and other people associated with the production of new material for this medium. But underneath the optimism was a concern that the home VCR might damage traditional network broadcasting and feature film production, thereby taking important capital sources out of the industry. As usual, concern for the dominant medium increases as any new medium emerges. Most members of the panel, moderated by Herb Oscar Anderson, and various members of the audience seemed to have their fingers crossed concerning the future — hoping that the home VCR would not change the rules of the game too radically.

Satellites discussed

Tuesday afternoon, satellites dominated. Several papers were presented on the new PBS satellite system (see *BM/E*, October, 1978). Continued optimism for further benefit from satellite technology was voiced in a paper by James Cuddihy of RCA Americom. Cuddihy detailed two new domestic satellites scheduled for launch in 1980 and speculated on improved satellites as the Space Shuttle goes into service, thereby enabling the number and size of satellites to be increased and reducing the overall launch costs.

A current improvement in satellite technology was covered in a paper by Liston Abbott of RCA Laboratories. This paper detailed a recent experiment that permitted the simultaneous transmission of four video signals via a single transponder. The system used a modification of the STRAP system (see *BM/E*, February, 1977) which involves interleaving odd and even fields from two video sources and transmitting them over a single channel. Digital frame synchronization and field store technology are used to retrieve and restore the mixed fields into their individual channels at the receive end. The received signal is enhanced by interpolation techniques at the receive end and a 50 dB signal-to-noise ratio is achieved.

Digital techniques and technology

Digital technology has been increasing its penetration of the film and television industries, and nowhere was this reflected more clearly than in the scattering of digital topics throughout papers presented at SMPTE. Digital technology not only dominated those sessions where it was the designated topic, but also became a central theme in papers dealing with topics such as telecine technology, film-to-tape transfer, high quality audio, sound effects libraries, computer-controlled cameras, video animation, and post production systems.

One of the more unusual applications of digital technology was discussed in a paper presented by A.A. Goldberg of CBS Technology Center. The paper concerned a digital optical laser link developed by CBS for use in ENG and sports production applications. The system employs an aluminum gallium arsenide injection laser emitting 15 mW at 820 nanometers. Composite video is PCM encoded at three times subcarrier using eight-bit parallel code words. It is then beamed to a receiver which consists of a silicon avalanche photodiode and a low noise preamplifier. The light beam is collected in an 11-inch diameter plastic fresnel lens and relay lens. The optical TV link produces excellent quality picture and sound with a video signal-to-noise ratio of 55 dB unweighted. The link was developed to help augment the increasingly crowded microwave channels available for this purpose.

Papers by Willard Bucklen of TRW and John Lowry of Digital Video Systems helped to outline ways in which technology and techniques familiar to the computer industry hold out promise for less expensive and more productive digital devices. Bucklen discussed TRW's monolithic Video A/D Converter and explained how the LSI manufacturers were beginning to see the television industry in a more attractive light. This means more solid state devices are likely to be developed for specialized television applications. Lowry discussed his DPS-1 digital video processor and explained how his "mainframe" approach offered opportunity for growth as technology develops without obsoleting any of the hardware in a basic system.

A paper on the Antiope Broadcast Teletext System was delivered by Yves Guinet of CCET (TV and Telecom-

continued on page 93

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munications Research Center), France. The paper outlined further developments in the area of carrying digitally encoded data in the vertical blanking interval of the television signal. This data, known as Teletext in England, offers viewers with specially equipped receivers access to a wide variety of textual and graphic information services via their home television receivers.

A panel discussion on the "Near Term Future of Digital Technology" did not unearth any surprises. Essentially, the feeling of the panel was that we will continue for the immediate future in the black box era. Progress on developing digital standards was reported by RCA's Bob Hopkins, who chairs the SMPTE working group concerned with this issue. The working group will probably recommend a sampling rate of four times subcarrier, an eight-bit word, and some other standards relevant to the interface of digital systems. While this is generally seen as important progress towards the establishment of digital standards some concern was voiced that these standards might retard the development of a digital VTR and impinge on some proposed uses for additional bits in digital systems. Hopkins responded to these questions, indicating that some consideration was being given to providing at least two additional wires in digital channels for perhaps two additional bits, and suggested that the development of a digital VTR would be the watershed for the true beginning of the all-digital plant. Other members of the panel, notably A.A. Goldberg, suggested that the digital VTR was still some years off, though Goldberg expected to see special-application digital VTRs offered to the marketplace in the relatively near term. There was also some speculation on the development of a digital camera but this did not seem to excite the imaginations of the panelists.

The sessions on audio in television also essentially turned into discussions of digital technology. Paul Wickliffe of Bell Labs brought the audience up to date on the Bell Diplex System (see *BM/E*, October, 1977) and Steven B. Salamoff of Digital Communications Corp. explained several schemes for multiplexing up to four digitally encoded 15 kHz audio channels and transmitting them via existing 4.2 MHz NTSC video transmission facilities. Salamoff also discussed the DATE system developed for PBS that carries four 15 kHz audio channels via satellite (See *BM/E*, October, 1977).

George Swetland of EECO delivered a paper outlining the capability and flexibility of the MQS-100 synchronizer that permits the synchronization of up to three tape players (audio and/or video) using SMPTE time code (See *BM/E*, August, 1978). A system of editing audio using the distinctive waveforms of audio pulses was discussed in a paper by Philip Falcone of WNET-13, New York. Essentially, a storage scope capable of storing the audio signature of two seconds' worth of audio is used as a visual aid in choosing precise audio edit points. By learning the distinctive shapes that certain sounds make on the scope, an editor can locate points accurately between syllables or at pauses, or trim unwanted speech mechanisms from the audio track.

Another unique combination of digital and computer technology was discussed in a paper by Bill Deitrick of Mini-Micro Systems, Anaheim, Calif. The system Deitrick discussed was ACCESS, a computer-controlled editing sound system that uses digital techniques to store and retrieve a vast sound effects library on computer disc packs. Under computer control this system can store and retrieve these effects with enormous speed and ease. The precise repeatability of the system permits the sound effects to be controlled and modified as they are synchronized with the appropriate video portions of the production.

Other advances discussed in papers during the conference covered the Ampex-CBS AVA digital video art system used in last year's Super Bowl XII (see *BM/E*, February, 1978), various uses of video discs including a Thomson-CSF approach to using discs in the transfer of video to film, and low cost approaches to video animation. Many papers were presented on film laboratory procedures. Kodak introduced two new color print films with improved cyan dye dark keeping stability. The new films should markedly improve the shelf life of color prints. Ed DiGiulio of Cinema Products delivered a paper on CP's new KM-16 low cost telecine. The telecine is a 16 mm shutterless projection system using the film transport of the popular CP-16 camera housed in a special cabinet. The film is projected through a special optical system and is picked up by a standard ENG-type video camera with normal lens. A demonstration of the KM-16 drew considerable interest from visitors to the Cinema Products booth.

If there was a down note played anywhere during the technical conference, it was in the matter of video discs. Robert Paulson of AVP Communications, who chairs the SMPTE study group on video discs, expressed some dismay at the apathy being shown on this subject. The only paper presented on the expressed topic of video discs was delivered by Ken Winslow of the Public Broadcasting Library. Winslow's paper was essentially an overview of video discs, and he too expressed some despair over the lack of interest being shown in the American marketplace for this technology. Winslow pointed out the apparent reluctance of American manufacturers to agree on a video disc format standard or even to announce the specifications of their developmental models. Once again, some suggestion was made that "next year" will see the test marketing of video disc units.

Sprinklers couldn't dampen show spirits

A fire in a linen closet which set off sprinklers and allowed water to seep through to the exhibit area on the last day of the show apparently didn't dampen the spirits of the dozens of manufacturers who had set up exhibit booths. Though some of the booths were without power, the general consensus was that this was the best SMPTE show ever, firmly establishing the annual bash as an exciting common ground for film people and broadcasters to share their viewpoints.

Show innovations

This year, for the first time, a group of British manufacturers took out booth space to show their products to the American market. Though some of the products, such as Lee filters, are available through American dealers, others had never been seen before. Naturally, because of our differing television standards, most of the equipment was film-related. Elf Audio Visual, Ltd., for instance, showed their system for digital interlock of various numbers of 35 mm, 16 mm, and slide projectors via a shaft encoder and reading and writing devices. The system also has applications to 625-line telecines. Neilson Hordell Co. showed its 16/35 mm animation and special effects camera. Samcine Sales, which claims to be Europe's largest motion picture sales organization, displayed the new Ronford/Baker F 15 S fluid-head tripod. In all, eight manufacturers participated in the "British Group" exhibit.

Another innovation at the show was SMPTE's attempt to group manufacturers of broadcast equipment together, separating them from film equipment. Thus, Ampex, Sony, RCA, Bosch Fernseh, JVC, Philips, and other television equipment companies shared an area on the second floor, while the remaining two-thirds of the exhibits were located two floors down.

Testing and measuring equipment in abundance

With the FCC cracking down and broadcasters becoming more conscious

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of signal quality, testing and measurement equipment was abundant. Marconi Instruments unveiled its Television Interval Timer, which automatically measures H and V blanking. ShibaSoku (Asaca) demonstrated its Color Video Noise Meter 925C, a $10,000 unit which supplements conventional power noise meters with a new function that measures the chroma noise by splitting it into amplitude modulation and phase modulation components and measuring them separately. This is particularly useful when measuring the chroma shading noise of helical scan VTRs.

Philips Test and Measuring had its automatic VITS analyzer in operation, hooked up to a small transmitter through their demodulator. The new color TV test pattern generator, model PM5519, was also on display. The generator provides more than 20 combinations of test patterns. Another interesting test pattern generator was displayed by NTI America — its Model 535 color Monoscope Signal Generator, which is a digital device. In addition to the registration, resolution, and color components of the signal, the device incorporates an insert picture of the Mona Lisa for an instant check of skin tones.

Another big show hit was Hitachi's mini oscilloscope, Model V-059B, a combination waveform monitor and seven MHz single-trace scope. Weighing only 6.4 pounds, powered by ac, dc, or battery, and capable of being carried over the shoulder, the scope is ideal for ENG and EFP applications — prime culprits in the battle for higher quality signals.

Another noteworthy development in the area of T&M is Lenco's growing line of high-quality measuring gear. Their Model 1205 vectorscope and 1204 waveform monitor were shown in conjunction with the VNM-428 video noise meter. The VNM-428 uses the tangential noise measurement method, in which a square wave is added to the incoming video. Accuracy in full field mode is ± 1 dB; in line select mode, ± .05 dB.

Signal processing equipment

A second major group of equipment at the show consisted of the various types of signal processing devices now available. Grass Valley Group chose the show to introduce its 3240 Series processing system — a modular design permitting the user to add features, including remote control, as required. Its correction parameters include reduction of sync time base error, correction of burst axis offset errors, maintenance and convergence of SCH phasing, selectable VIT pass-through or blanking, regeneration of sync and burst, continuous black output in the event of input interruption, and full control of video gain, setup, chroma gain, burst phase and level, sync level, soft and hard clip, and variable cable equalization. Grass Valley also distributed timely literature on its model FS-15/FE frame synchronizer, manufactured by NEC, which will be shown at the NAB show. A digital processing device which provides constant, standard blanking and fixed steps of picture expansion, it will allow pictures with as much as 14.7 μs of horizontal blanking and in excess of 32 lines of vertical blanking to be corrected.

CVS, too, is attacking the problem of excessive blanking widths. Its model 516 digital TBC now has a 16-line window. Equally important, the microchip manufactured by Fairchild, which has been blamed for many of the blanking problems created by TBCs, is being replaced with a newly-designed circuit which will have adjustable H and V blanking, and will be available as a retrofit on earlier CVS units. CVS also unveiled its AVA automatic vertical advance generator, which will become available in January, 1979. The standalone unit, with a price tag around $2,000, monitors off-tape vertical

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sync, compares it with TBC vertical sync, and generates a "steering" signal which reduces the possibility of excessive vertical blanking.

Lenco, too, is offering a plug-in type retrofit for its sync generator. The PSG 310/311 "Option 1" offers eight μs to 12 μs adjustment of horizontal blanking and 15 to 22 lines adjustment to vertical blanking, without affecting the normal operation of the generator.

MCI/Quantel exhibited its DFS 1500 frame synchronizer with optional heterodyne TBC, sync generator dropout compensator, and remote control unit. The synchronizer features 1.5 fields of store, a direct color time base corrector and look-ahead velocity compensator at the extremely reasonable price of $25,300. Until February 3, 1979, however, the entire system, complete with options except remote control, can be had for $22,950.

Cameras and lenses

Although there were no brand-new broadcast-grade studio cameras unveiled at the show, it appears that we are on the verge of another new generation of EFP/studio cameras. The RCA TK-47 was shown tied in to its full-blown microprocessor unit which automatically sets the camera up in a matter of seconds, no matter how badly it is aligned. The system consists of three units in addition to the camera head. The Camera Processing Unit is similar to a conventional CCU except that it operates as a digital black box, with no external controls; the Remote Control Unit takes the controls of the CPU into a small digital unit which is connected to the CPU with only two twisted pairs; and the Setup Control Unit, another digital device, takes over all functions of the CPU automatically with the push of a single button. Once the camera has been set up, the Setup Control Unit can be removed, and it is capable of balancing several cameras simultaneously.

Ikegami chose the show to introduce its brand-new HL-79A, which will begin delivery in March, 1979. Although Ikegami has included an internal battery, the HL-79A weighs less and is smaller than its HL-77A predecessor. The camera also has improved signal-to-noise ratio (54 dB) and lower power consumption (12 V, approximately 1.9 A).

Philips' relatively new LDK-14 ENG/EFP camera was also displayed. Besides automatic color balance, white and black level, centering, and noise reduction when operating with increased gain, the camera features only 27 W power consumption, 2/3-inch tubes, and viewfinder display of contour-enhanced camera picture or external video source, plus color balance, video level, battery discharge, VTR functioning and tally indicators.

Also worthy of mention in the camera field is the CEI-310, the first camera to incorporate a self-contained SMPTE time code generator. The time code, in addition to user bits for identifying the source, can be optionally displayed in any of the four quadrants of the camera viewfinder. The optional time code generator, mounted on a board within the electronics unit, costs $1195.

A brand new Angenieux 25x zoom lens designed for 2/3-inch cameras was also on display, although, with French importation problems, the lens will not actually become available until after the 1979 NAB show. The 10 to 250 mm continuous zoom range (two degrees to 46 degrees) remains extremely fast throughout: 10 to 60 mm, f/1.4; 250 mm, f/2.8. It has a servo-assisted zoom and iris, with manual focus, and a back focus adjustment. The weight, with servos, is 11 pounds.

Hitachi had on view its GP-7 tri-electrode single-tube portable color camera, a replacement for the FP-3030. The camera had been introduced a week earlier at Video Expo; see report in "Broadcast Industry News" for details.

Further details on some of the products mentioned above and others shown at SMPTE are contained in this month's "Broadcast Equipment" section. **BM/E**

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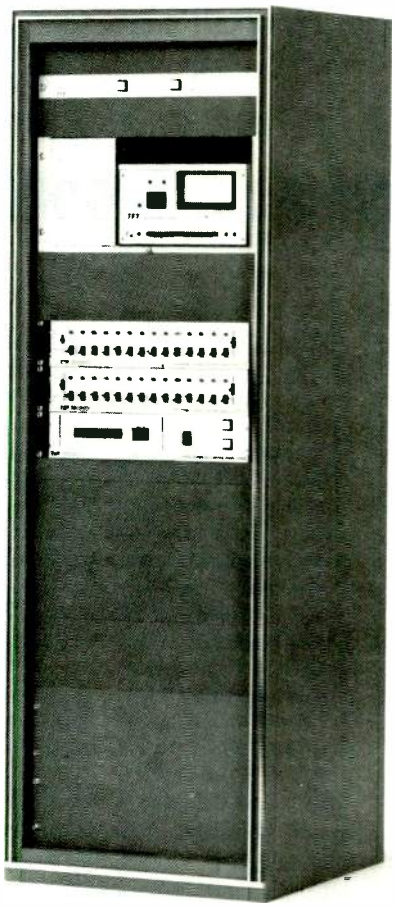

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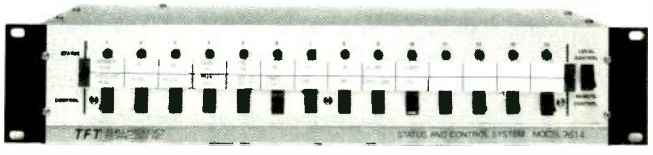

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INTERPRETING THE FCC RULES & REGULATIONS

Central Florida Case Touches All Broadcasters

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

IN A DECISION sending reverberations throughout the broadcast industry, the United States Court of Appeals for the District of Columbia Circuit vacated FCC orders renewing the license of Cowles Florida Broadcasting, Inc. for WESH-TV, Daytona Beach, Florida.[1] The court remanded the case and ordered the FCC to make a full and fair comparison between Cowles' renewal application and the competing application of Central Florida Enterprises.

This case is of concern to all broadcasters, especially those with other television, radio, and newspaper properties. Some broadcasters fear that the decision heralds a new era of renewal challenges in that incumbent licensees no longer have a reasonable assurance of license renewal. Other broadcasters feel that the import of the decision has been overstated. In any event, it is important for broadcasters to focus upon what the court *really* decided.

Circuit Judge Wilkey wrote the decision and framed the issue as follows:

> What is at issue here is the validity of the process by which competing applications of Central and Cowles were compared and the adequacy of the Commission's articulated rationale for choosing to renew Cowle's license. This may well be a typical comparative renewal case.

The court took the bull by the horns, asserting that the Commission failed to give the license renewal challenger full and fair comparison with the license renewal applicant. Judge Wilkey went on to say:

> Aside from the specific facts of this case, there is other evidence indicating the state of administrative practice in Commission comparative renewal proceedings is unsatisfactory. Its paradoxical history reveals an ordinarily tacit presumption that the incumbent licensee is to be preferred over competing applicants. Because the Federal Communications Act fairly precluded any preference based upon incumbency *per se*, the practical bias arises from the Commission's discretionary weighing of legally relevant factors. [Footnotes omitted.]

Indeed, it is undisputed that the Communications Act[2] and case precedent[3] require a full and fair comparative hearing between a license renewal applicant and a competing applicant for the same facility.

The court found that the Commission failed to apply its long-standing comparative criteria.[4] The court stated:

> The Commission's rationale in this case is thoroughly unsatisfying. The Commission purported to be conducting a full hearing whose content is governed by the 1965 *Policy Statement*. It found favorably to Central on each of diversification, integration, and minority participation, and adversely to Cowles on the studio move question. Then simply on the basis of wholly noncomparative assessment of Cowles' past performance as "substantial," the Commission confirms Cowles' "renewal expectancy." Even were we to agree (and we do not agree) with the Commission's trivialization of each of Central's advantages, we still would be unable to sustain its action here. The Commission nowhere even vaguely describes how it aggregated its findings into the decisive balance; rather, we are told that the conclusion is based upon "administrative 'feel.'" Such intuitional forms of decision-making, completely opaque to judicial review, fall somewhere on the distant side of arbitrary. [Footnotes omitted.]

The court felt the Commission's treatment of the standard comparative issue of diversification of media ownership was "worrisome." Cowles owns a number of other media interests, although these interests are located in other areas of the country. The Commission had denigrated Central's substantial advantage occuring because it has no attributable media ownership interests. The court rebuked the Commission for its belittling of Central's advantage on the diversification criterion. The court also noted that the Commission's own standards *require* it to consider ownership of distant as well as local media interests. The court found that the Commission incorrectly ignored Cowles' other media interests. The Commission's own 1965 *Policy Statement* considers diversification of mass media ownership to be one of the two most important comparative criteria.

Unlike Central, Cowles' WESH-TV property is absentee-owned. Local ownership and integration into management is an important comparative criterion. Under this criterion, Central argued to the Commission, and later to the court, that it deserved an important preference.

The Commission attempted to sidestep this comparative criterion by utilizing the theory of management autonomy which was first discussed in the *Fidelity*[5] case. In that case, the Court of Appeals held that the FCC had not acted unlawfully in finding that local management autonomy of an absentee-owned television station met the objectives of the diversification criterion and was tantamount (for comparative purposes with a locally-owned competing applicant) to integration into management of local ownership. Of course, in the *Fidelity* case, the court

[1] *Central Florida Enterprises, Inc.* v. *Federal Communications Commission*, Case No. 76-1742, decided: September 25, 1978.

[2] 47 U.S.C. Section 309 (e).

[3] *Ashbacker Radio Corp.* v. *Federal Communications Commission*, 326 US 327, 333 (1945).

[4] *Policy Statement on Comparative Broadcast Hearings*, 1 FCC 2d 393, 5 RR 2d 1901 (1965).

[5] *Fidelity Television, Inc.* v. *Federal Communications Commission*, 515 F.2d 684, *cert. denied*, 423 US 926 (1975).

continued on page 100

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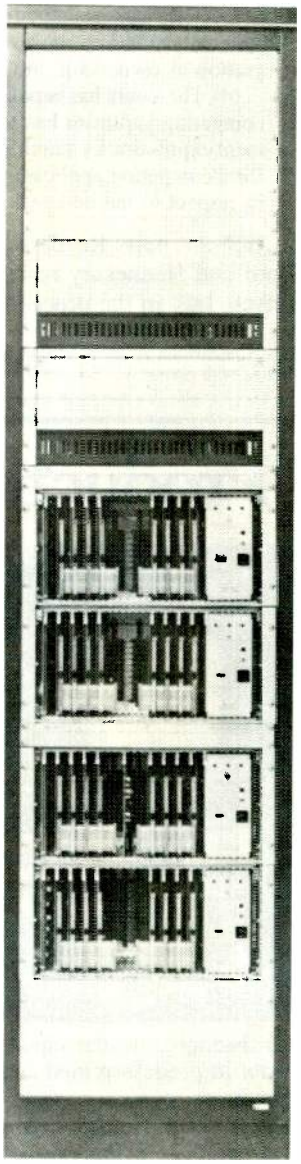

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For more information, please contact George Elsaesser at the address below. Thank You!

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FCC Rules and Regulations

acknowledged that the competitor was a "nothing" applicant, unlike Central *vis-a-vis* Cowles.

In an important development for absentee-owned television stations, the Court of Appeals essentially limited the local autonomy concept to the facts of the *Fidelity* case. Hence, the court indicated that the Commission, on remand, would have to consider the "evident hazards of relying on local management autonomy as a surrogate for diversification of control of mass media ownership."

The court acknowledged the difficulty of comparing an incumbent licensee's past license period broadcast record with a competing applicant's programming proposals.

The court admonished the Commission for its confusing analysis of the weight to be given to Central's proposal to integrate certain principals into management, as well as the integration of certain Central minority principals. The court also expressed a concern that the Commission went again to its management autonomy theory as an adequate surrogate for integration of principals into management. The court emphasized that the theory of functional integration must, of necessity, be limited to the facts of the *Fidelity* case. To do otherwise would deprive a meaningful competing applicant, such as Central, from the full hearing requirement of the Communications Act.

Finally, the court took issue with the Commission's changing characterization of Cowles' past license period programming record. The court noted that the Administrative Law judge found Cowles' broadcast record to be "thoroughly acceptable," while the Commission changed this finding to "superior." Later, the Commission "clarified" its finding with the word "substantial" to describe Cowles' record. The court emphasized that whatever credit is given for broadcast record must still be factored into an analysis of *all* of the comparative criteria including diversification of control of mass media, integration of ownership into management, local ownership, broadcast experience, and participation in civic affairs.

The Commission has requested that the Court of Appeals rehear the *Central Florida* case. Nonetheless, the *Central Florida* decision constitutes the law at present. If rehearing is denied, the Commission must reconsider the case. Broadcasters anxiously await the outcome.

Broadcasters should heed carefully the teachings of the *Central Florida* case:

(1) The Commission must grant a full hearing, including a detailed comparison between a license renewal applicant and a competing applicant in conjunction with the 1965 *Policy Statement* comparative criteria.[6]

(2) The Commission must give considerable emphasis to the comparative criterion of diversification of mass media control, even if the commonly-owned media are remote in location from the broadcast station at issue.

(3) The court has repudiated the notion that local management autonomy can be an adequate surrogate for integration of ownership into management.

(4) The court has repudiated the FCC standard that a competing applicant has to show harm to First Amendment expression by a multiple media outlet owner in order for a competing applicant to make a significant showing in respect to the diversification criterion.

Authors' note: Readers are advised that Pittman Lovett Ford and Hennessey represented Central Florida Enterprises, Inc. in the proceeding discussed here. **BM/E**

[6]The Commission is not precluded from developing new comparative criteria dealing with license renewal situations in the future.

Studio quality microphones that don't need a studio to survive.

The CS15P condenser cardioid microphone is equally at home in a recording environment or broadcast studio. When hand-held it puts sex appeal in a voice with its bass-boosting proximity effect. With shaped high-frequency response and its ability to handle high sound pressure levels (140dB with 1% THD at 1kHz), the CS15P is ideal for close-up vocal or solo instrument miking applications.

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SPEAK OUT:

Blankety-Blank Blanking: Gerald Evans, Chief Engineer Of WHEC-TV, Speaks Out

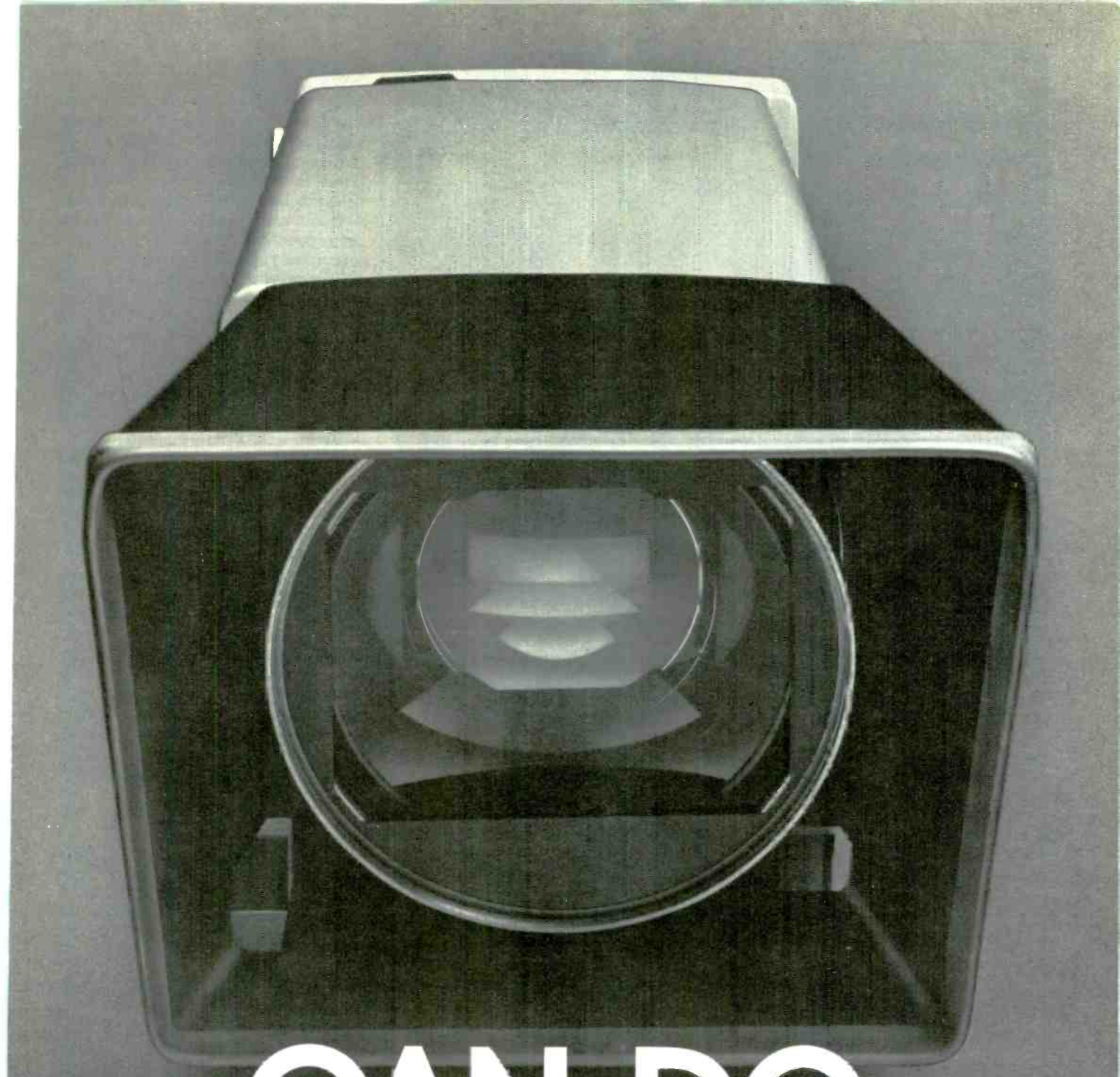
Editor's note: The H and V blanking problem continues to plague broadcasters, both because it is difficult to control and, some say, because it requires a million-dollar cure for a ten-cent problem. Mr. Evans poses some germane questions on this subject. We would like to carry on this discussion and hope that other broadcasters and manufacturers will continue to speak out on the subject until some practical solutions can be found. Please send BM/E your thoughts on the subject of H and V blanking so that the issue can be aired fully.

Gerald Evans has been a member of the broadcasting industry since his graduation from Alfred Technical Institute in 1950. He served as chief engineer for a Rochester, N.Y. AM/FM/TV station for nine years before assuming his present post as chief engineer of WHEC-TV, Rochester, two and a half years ago. He is a long-time member of both SMPTE and SBE.

ALL OF A SUDDEN everyone in the television industry is aware of horizontal and vertical blanking. It's as if no one had ever heard of it before. It seems that with the advent of ENG equipment which does not meet some of the broadcast technical specifications, the FCC has decided to make everyone conform to RS-170. I think that we should adhere to all standards to the best of our ability, as long as the standards don't prohibit us from using television for its intended purpose. The ENG system has some weaknesses which I believe will be corrected in due time, but the system allows the television station more versatility in providing news coverage for the viewing public. Except for the occasional vertical roll or jitter with the helical ¾-inch tape machines, I am sure the public is unaware of any technical insufficiencies. But they are aware of the improved news coverage that the system allows. Does it make sense for one of the networks to kill a story from Beirut because the horizontal blanking is 11.8 microseconds instead of 11.1 microseconds? The public cannot see this error, as 99 percent of all television sets are swept beyond the edges of the picture mask.

The television industry ran many years with kinescope recordings, which were technically very poor, with faults obvious to the viewing public. But at the time it was the best the industry could do—outside of running live production or movies. We ran, and still run, film with poor color hue and saturation—with scratches that make the picture hardly discernable. We run quad videotape with banding that is obvious to the viewing public. No one said or says we cannot run these tapes or

continued on page 104



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Speak Out

films because of their technical insufficiencies. Yet we are told we cannot run a tape that is out of tolerance with horizontal blanking. When the viewing public is not aware of any problem, and the agencies that are buying the production are not aware of it—and do not understand it even when it is explained and pointed out to them—can this problem be so great? Ever since we have had quad tape machines and have done multiple recordings for effects, we have had the problem of adding to the horizontal blanking width. So, since the early 1960s, we have run many tapes with horizontal blanking wider than the technical specifications set down by the FCC.

In radio, the FCC rules say that a proof of performance run from the microphone input of the console to the output of the transmitter must meet certain technical specifications. However, when performing this proof, any limiting amplifiers, compression amplifiers, reverbs, or other special effect units should be switched out of the line. These circuits add distortion and do not allow accurate readings of the test signals. We're all familiar with this. In other words, as long as the equipment is capable of meeting the technical specifications in a straight through manner, we can run any kind of distorted, compressed, and expanded sound the program department wants to put on the air. The television equipment also meets technical specifications in a straight through manner. It's only when special effects and extensive multiple editing is done, or we use other equipment to accomplish a job that cannot be done with equipment that meets the technical standards, that we violate the blanking rules.

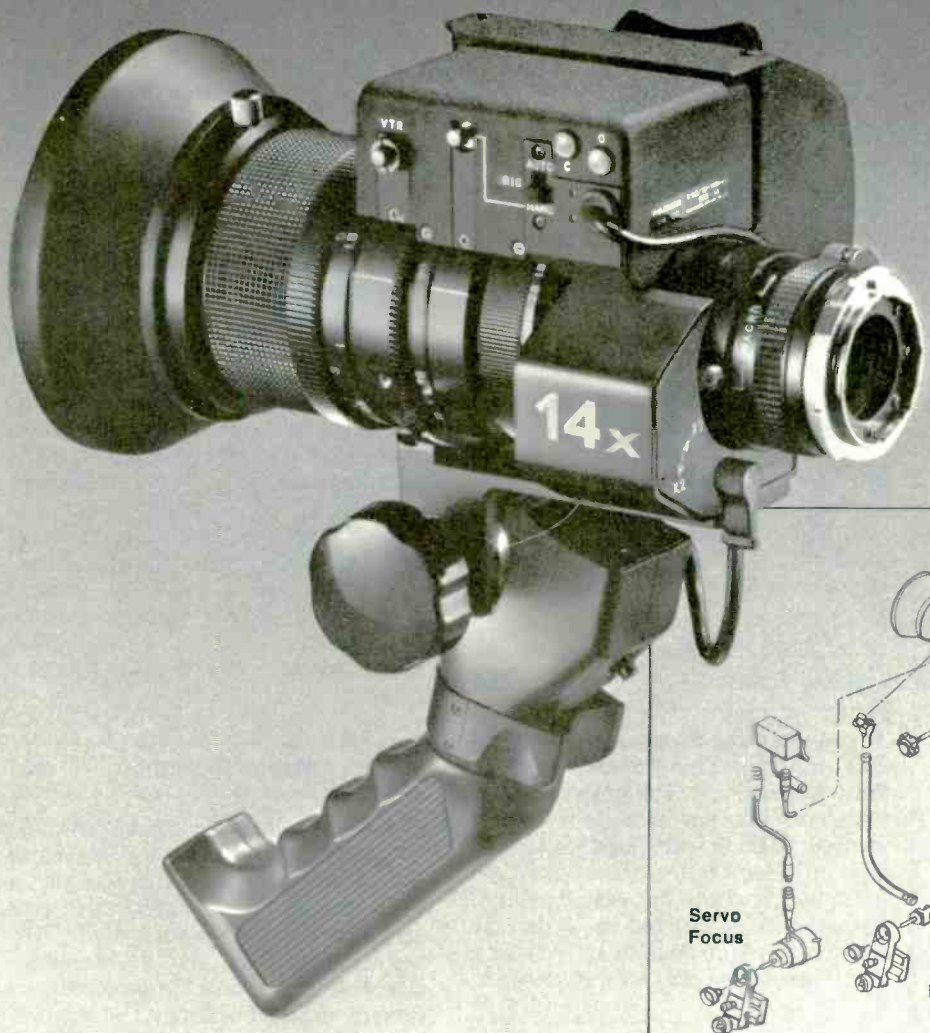
Local advertising agencies are also using the new portable electronic equipment. This gives the local merchant, in many cases, a better commercial for less money—allowing merchants who once could not afford television to make use of the television medium.

As much as I would like to see a technically perfect picture on the air at all times, I realize that the program content is what we are selling and what the public is watching.

The correction of this problem, I believe, should take place in the piece equipment that has been at fault. I believe in time this will happen along with other improvements. This method is preferred over routing everything through a black box and making it fit the proper specifications. I hope the FCC in 1979 will modify its enforcement of RS-170. I did not say modify RS-170—only modify its enforcement.

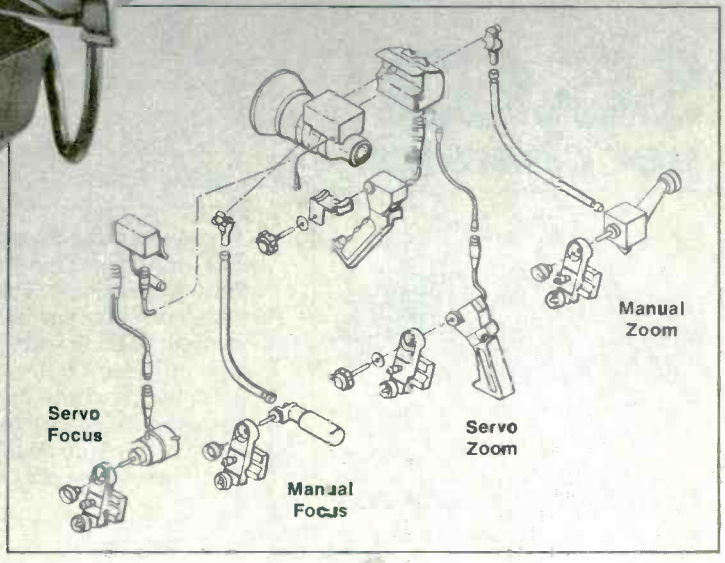
BM/E

Portable, flexible, convertible. Incredible!



1.8X te econverter

.78X wide angle attachment



How else would you describe Fujinon's exclusive 14X zoom lens? It has everything built-in, including a lever controlled 2X extender. Not to mention its dual controlled servo zoom and focus, manual zoom and focus, macro focusing, adjustable back focusing, dual VTR switches, momentary iris switch, auto/manual iris, and optional studio conversion kits.

On a portable camera, it's compact, lightweight and easy to operate. It gives you f/1.9 speed and the flexibility to tackle any field or production assignment. You can zoom from 10 to 280mm. Focus down to 13 inches. And then you can select from Fujinon's conversion accessories to use the same lens on your studio cameras. With any combination of servo and manual zoom and focus controls on the pan bar.

Want more range? Add the new front mounted 1.8X teleconverter. That'll give you an awesome 36 to 510mm zoom (equal to 922mm on a 1-1/4 inch format). Or to spread things out, there's a new .78X wide angle attachment giving you 7.8 to 220 mm.

Check the specs. Check the price. Ask for a free side-by-side demonstration. You'll see the difference for yourself. It's incredible.

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BROADCAST EQUIPMENT

This month's new products listing is devoted to those products introduced at the 120th SMPTE technical conference (see special report, p. 91).

High Band U-VCR 250

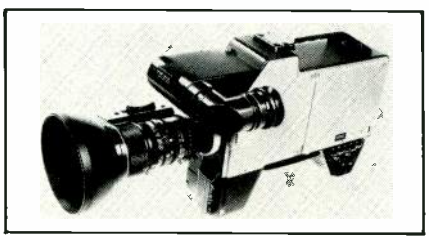
Model HBU-2860 is a high band, U-format recorder designed to achieve broadcast quality previously available only in higher-priced VTRs. The unit is a modified Sony VO-2860 featuring seven to 10 MHz high band color, quad quality without banding, two high quality audio tracks, cassette convenience, and full editing capability. The unit has tripled the normal scanning and linear tape speeds of the 2860. The original video heads are used, but an all-new signal electronics design processes the segmented video and provides enhanced audio. The electronics are mounted in a fully integrated package atop the 2860 and do not affect the portability of the original equipment. The unit's added color frame editing provides perfect timing continuity during editing, and the unit can be used with sophisticated edit controllers. A standard UC-60 cassette will provide 20 minutes of recording time. RECORTEC.

Lighting Fixture 251

A new focusing scoop incorporates a 2000-watt quartz lamp to allow for long throw applications. The fixture features continuously variable focus from medium beam to wide flood with a new high efficiency reflector. A rapid cool focus handle allows for easy handling. Voltage used is 120/240 ac/dc, and the scoop draws 16.6 amps at 120 V with a 2000-watt lamp. BERKEY COLORTRAN.

ENG Camera 252

The HL-79A is designed for maximum portability and features a built-in battery and a rain-protected housing. Automatics include auto iris close when the unit is turned off, auto beam control to prevent comet tails, and auto white balance. The camera offers a 1.5-inch viewfinder, and can use either Plumbicon™ or Saticon™ ⅔-inch pickup tubes. Resolution is over 500 lines at the center and over 400 lines at corners. Sensitivity is 2,000 lux at f/5. The camera requires minimum of 20 lux at f/1.4. Signal-to-noise ratio is 54 dB. IKEGAMI.



Video Processing 253

The 3240 video processing system employs a modular design which allows users to tailor the system to their particular requirements, adding features (including remote control) as desired.

For more information circle bold face numbers on reader service card.

The system's correction parameters include reduction of sync time base error, correction of burst axis offset errors, maintenance and convergence of SCH phasing, selectable VIT pass-through or blanking, regeneration of sync and burst, continuous black output in the event of input interruption, and full control of video gain, setup, chroma gain, burst phase and level, sync level, soft and hard clip, and variable cable equalization. THE GRASS VALLEY GROUP.

Vertical Advance Generator 254

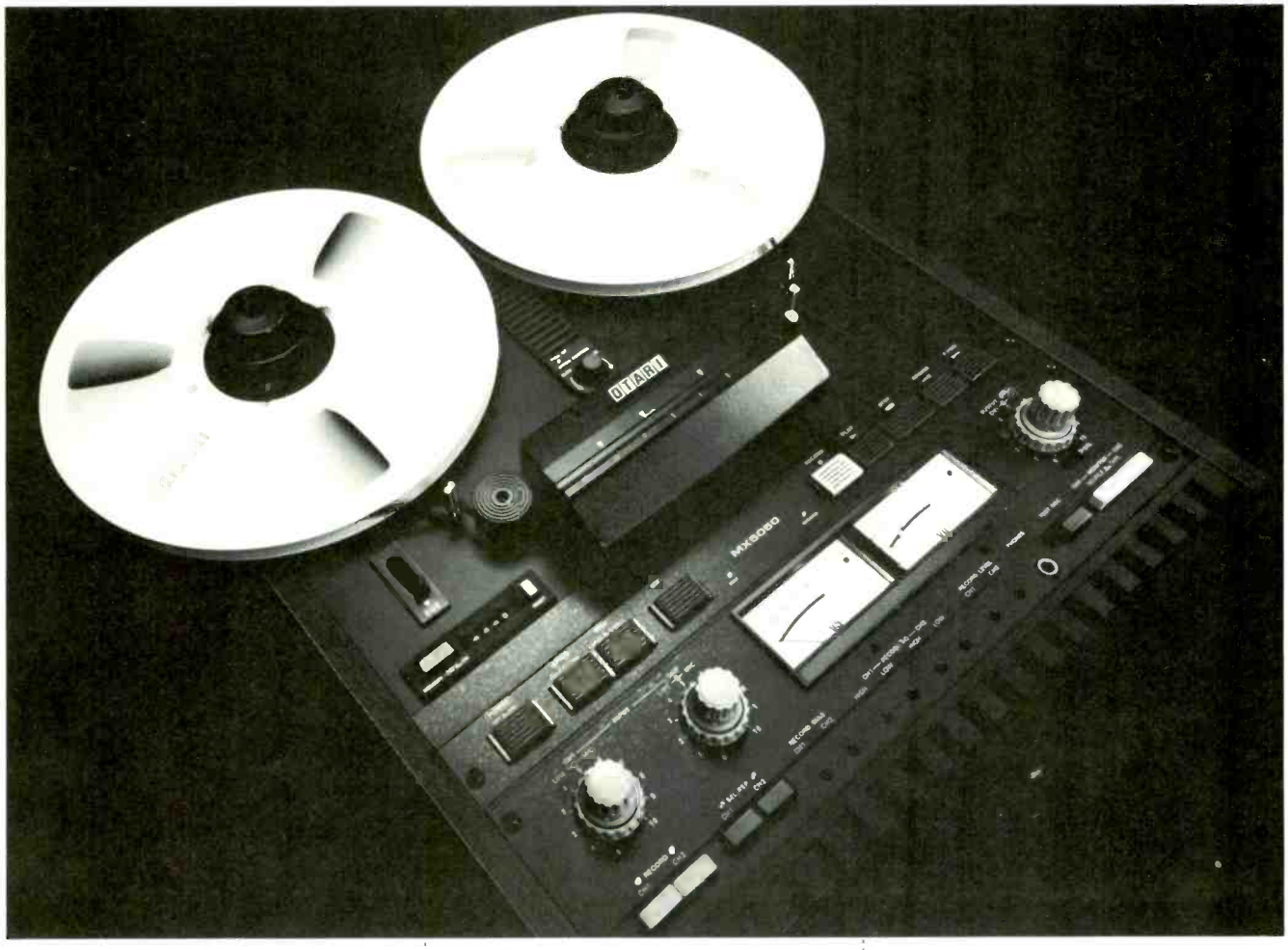
The AVA (automatic vertical advance) is a standalone accessory designed to improve the operation of any broadcast TBC. In use, AVA monitors off-tape vertical sync, compares it with TBC vertical, and generates a "steering" signal which reduces the possibility of excess vertical blanking. The unit occupies less than two inches of rack height. Specs include video input of 1 V p-p looping from VTR, sync inputs of H and V drive, 4 V p-p into 75 ohms. In automatic operation, VTR sync will lock with ±16 *ms* of proper V phase. CONSOLIDATED VIDEO SYSTEMS.

Time Code Camera 255

The CEI-310 ENG color camera is the first camera to generate SMPTE-standard time code. This plug-in optional time code generator supplies time of day, frame count, and user-specified

continued on page 108

Birth of the two-track masterpiece. Otari MX5050-B



The new Otari two-track machine is designed for discriminating recordists. Built with inside-out improvements over our long succession of compact professional recorders. With built-in operation ease and better serviceability. With fidelity, reliability and professional functions indispensable for every critical application you have in mind.

DC-servo direct-drive for minimum wow/flutter and speed deviation. With ±7% pitch control for variable speed record and playback. Foolproof motion-sensing control logic. Optional remote control for all transport operating functions. Minimum −15dBm input and three calibrated switchable record levels of 185/250/320 nWb/m. 600ohm +4dBm or −10dBm switch-over output with XLR connectors. Frontpanel edit and cue, test oscillator, stepless bias and NAB or IEC equalization. Full professional four heads with quarter-track playback. And it's designed for both vertical and horizontal operation.

Resultant performance: click-free punch-in/punch-out mastering at 63dB S/N, 55dB crosstalk and 70dB erase with 30Hz—20kHz (±2dB) response. It's the latest and wisest choice for your 15/7 1/2 or 7 1/2/3 3/4 ips masters. For the full story about the new generation recorder/reproducer, contact your nearest Otari dealer and see why we call it the masterpiece.

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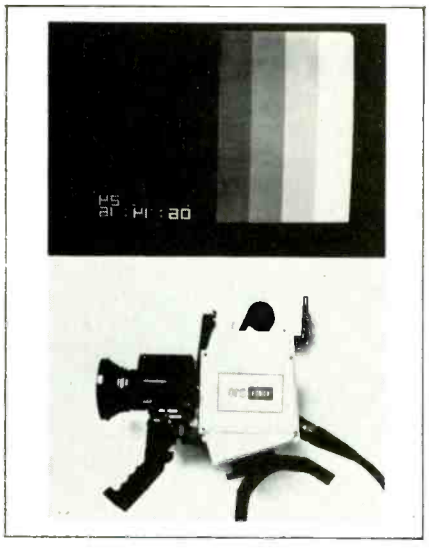
Phone (415) 593-1648

Japan: Otari Electric Co., Ltd.
4-29-18 Minami Ogikubo, Suginami-ku, Tokyo 167.
Phone (03) 333-9631

Circle 165 on Reader Service Card

digital information for recording on videotape. This information is also optionally displayed in the camera head viewfinder and remote monitor. The



unit features flexible operation with selectable user bits to provide source identification and selectable drop frame mode to allow clock compensation. The user can elect to display time code information in any of four quadrants or suppress the display of the frame count or the entire code. The generator has an adjustable code output of 0 to 5 V peak-to-peak, at 75 ohms (independent of display output), and is compatible with any VTR. The generator is carried on a modular plug-in board, and can be field-installed in the electronics unit of any CEI-310 TV camera system. COMMERCIAL ELECTRONICS INC.

Edit Code Reader 256

The Model 644 is an edit code reading device designed to read and display either SMPTE (NTSC) or EBU code without equipment modification. The unit also provides an instant paper-tape printout with "edit in" and "edit out" indications. The 644 reads edit code at tape speeds from 1/5 to 40 times forward and reverse. The TV raster displays code in either white or black, large or small characters that can be positioned anywhere on the screen. A "freeze" switch will hold the display while counting continues internally, and an indicator light will show when coincidence is reached between time code being read and time code set on the front panel thumbwheel switches. SHINTRON.

Camera Lens 257

The 25x system is a zoom lens designed for use with ⅔-inch cameras including the BCC-14, LDK-14, TK-760, and TK-76B. The 10 to 250 mm continuous zoom range (two degrees to 46 degrees) remains extremely fast throughout: 10 to 60 mm, f/1.4; 250 mm, f/2.8. The lens system features a servo-assisted zoom and iris with manual focus, and a back focus adjustment. The weight with servos is 11 pounds. ANGENIEUX.

16 mm Editing Console

The U/F-16 upright/flatbed editing console is designed with coaxial sprocket wheel assemblies and six terraced horizontal feed and take-up plates accepting one 16 mm picture track and two 16 mm magnetic sound tracks. The terraced arrangement makes each feed and take-up plate easily accessable to the operator while still providing ample table top work space. The extremely compact, portable system features a unique hollow polygon prism system for continuous flickerless projection on a bright eight by ten-inch screen, and crystal-controlled sync sound speeds of 24 and 25 fps with infinitely variable speed control from zero to 240 fps. An electronic time/footage counter has op-

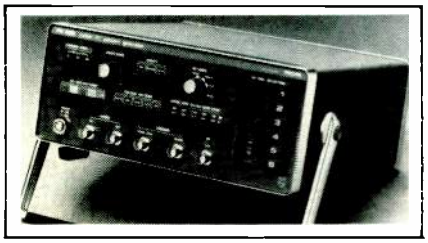
tional keyboard entry, and the unit has been designed to accept a time base coding option at a future date. CINEMA PRODUCTS CO. (% CHARLES J. LIPOW, 18040 SHERMAN WAY, RESEDA, CA 91335).

Video Noise Meter 258

The 925C color video noise meter is specifically designed to measure the several-kHz-order color shading noise that is generated in helical VTRs. The unit measures video noise voltage in TV transmission equipment, TV cameras, VTRs, disc units, and digital image processors. It supplements conventional power meter functions with a new function that measures the chroma noise of a color signal by splitting it into amplitude modulation and phase modulation components which can be measured separately. At the point of measurement, all blanking, sync, and color burst signals that were added to the test signal are canceled out within the unit. The miss pulse, created when head switchover takes place on a two-head VTR, is also eliminated. ASACA.

TV Pattern Generator 259

The PM5519 is designed to produce professional level signals for testing color and black-and-white monitors, VCRs, and video disc systems to RTMA and CCIR standards. The unit covers the full test spectrum, with more than 20 combinations of diagnostic test patterns. The range of patterns is based on five color and five black and white signals and includes special modulation patterns to check amplifier bandwidth, VCRs, and color demodulators. Maximum RF output of the pattern generator is 10 mV, and attenuation is a continuous 60 dB. The video and sound carriers can be modulated externally by any source, including cameras and tape recorders. A sound/vision ratio of approximately 12.5 dB with line and frame synchronization set to CCIR TV standards permits the PM5519 to be used for checking any equipment to conform with PAL, G, I, M, and N color standards. PHILIPS TEST & MEASURING.



Signal Generator 260

Model 535 color digital monoscope generator creates registration, resolution, and color test patterns. In addition, it incorporates an insert picture of the Mona Lisa for instant check of skin tones. The unit generates more than 20 test components including standard color bars, 300-line center resolution, 300-line corner resolution, and monochrome linearity measurement staircase waveform in 10 percent steps. NTI AMERICA.

Videotape 264

H621 is a new high-sensitivity one-inch videotape. According to the manufacturer, the tape offers a better S/N and fewer drop-outs than before. The tape is also reported to feature extended response, improved packing density, and a consistently smooth surface. FUJI.

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Total system weight is

- Camera head (with 6:1 lens) and viewfinder 8½ lbs.
- Shoulder pad 6.3 oz.
- Electronics pack 3 lb. 8 oz.
- Interconnect cable 1 lb. 2 oz.

Microcam will go anywhere. Capture anything. Live or on tape. And Microcam's ability to operate at extreme low-light levels makes it especially valuable for ENG.

Microcam's low power consumption of 24 watts provides a full hour of operation from a 2½ lb. built-in battery pack. And for extended operation, a 4 lb. silver-cell battery belt operates Microcam 5 hours on a single charge.

With a two line vertical image enhancer and comb filter as standard equipment, Microcam will effectively upgrade your present system. And Microcam is priced lower than most portable cameras.

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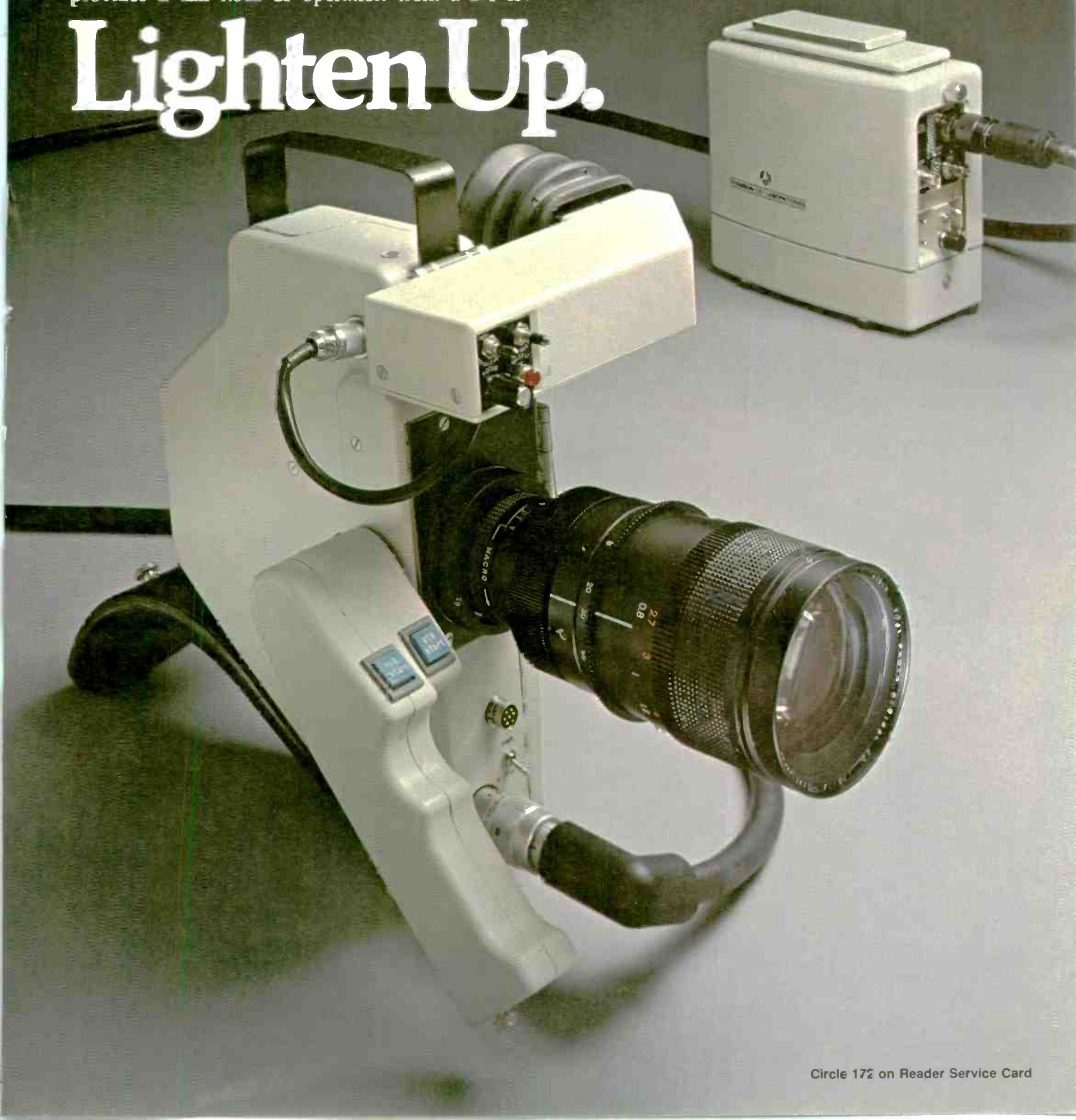
Lighten Up.



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Las Vegas welcomes two winners... from Ward-Beck!

To win in Las Vegas, you've got to have your act together. And not all the big winners are in the Casinos.

In two showrooms, the Las Vegas Hilton and Hilton Flamingo, Ward-Beck sound is hitting the jackpot every day.

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